Instituto del Progreso Latino's Carreras en Salud Program: Implementation and Early Impact Report

Pathways for Advancing Careers and Education

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Instituto del Progreso Latino's Carreras en Salud (Careers in Health) Program: Implementation and Early Impact Report Pathways for Advancing Careers and Education (PACE)

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Overview

This report documents the implementation and early impacts of the Carreras en Salud (Careers in Health) program, operated by Instituto del Progreso Latino, in Chicago, Illinois. The Carreras en Salud program is one promising effort aimed at helping low-income, low-skilled adults access and complete occupational training that can lead to increased employment and higher earnings. A distinctive feature of this program is its focus on training for low-income Latinos for employment in healthcare occupations, primarily Certified Nursing Assistant (CNA) and Licensed Practical Nurse (LPN). It is among nine career pathways programs being evaluated in the Pathways for Advancing Careers and Education (PACE) study sponsored by the Administration for Children and Families.

The Carreras en Salud program consists of five elements: (1) a structured healthcare training pathway, starting at low skill levels; (2) contextualized and accelerated basic skills and ESL instruction; (3) academic advising and non-academic supports; (4) financial assistance; and (5) employment services.

Using a rigorous research design, the study found that the Carreras en Salud program increased hours of occupational training and basic skills instruction received and the attainment of education credentials within an 18-month follow-up period. The program also increased employment in the healthcare field and resulted in a reduction of participants reporting financial hardship. Future reports will examine whether these effects translate into gains in employment and earnings.

Primary Research Questions

- What intervention was actually implemented? Did it deviate from plans or expectations?
- What were students' participation patterns and experiences with program services?
- What were the effects of Carreras en Salud on educational attainment, including hours of occupational training and basic skills instruction received and receipt of credentials, and other educational outcomes?

Purpose

The federal government projects that over the next decade, the fastest-growing occupations will be in healthcare. This demand also creates opportunities for low-income, low-skilled adults to gain entry-level employment, as well as advance to higher-skilled, higher-paying jobs. Almost all jobs in healthcare require some level of postsecondary education or training. But, many low-income, low-skilled adults face considerable barriers to completing even short-term training for entry-level jobs. Many are "nontraditional" students—that is, older, often parents, lacking adequate basic academic skills, and with few economic resources. Being from a minority

population, not speaking English as their primary language, and/or being the first in their family to attend college can exacerbate these difficulties in completing the training.

Career pathways programs are designed to address these issues by providing well-articulated training and employment steps targeted to locally in-demand jobs, combined with a range of supports. Policymakers and practitioners have shown great interest in the career pathways approach. But, to date, limited rigorous research is available on its effects on participants' educational and economic outcomes. To assess the effectiveness of a career pathways program such as Carreras en Salud, the PACE evaluation uses an experimental design—that is, randomly assigning study participants to a "treatment" group who can access the program and a "control" group who cannot, then comparing their outcomes.

Key Findings & Highlights

- The Carreras en Salud program operated largely as designed. Students were placed in courses depending on their basic skills level along a seven-step career pathway, beginning with an English as a Second Language course for those as low as fourth-grade skill levels and continuing through the college-level LPN course. Carreras also provided a range of supports including academic advising, assistance with support services, employment assistance, and tuition support.
- The vast majority of treatment group members participated in at least one Carreras course, and completion rates for many of programs were high. A significant portion of students progressed to the next course. The most common courses attended were in the "middle" of the Carreras pathway, and few reached the upper level LPN course within the study's 18-month follow-up period.
- The Carreras program increased the hours of occupational training (the confirmatory outcome measured in this report) and basic skills instruction received over the follow-up period. The treatment group was also more likely than the control group to receive career counseling, help arranging supports, and job search assistance.
- The treatment group earned more credentials than the control group, primarily from a licensing or certification organization.
- The Carreras program increased employment in the healthcare field and reduced the proportion experiencing financial hardships.

Methods

The Carreras en Salud evaluation includes an implementation study that examines the design and operation of the program and enrolled students' participation patterns, and an impact study that uses an experimental design to measure differences in educational and employment outcomes.

Between November 2011 and September 2014, the evaluation randomly assigned 800 program applicants to either the treatment or the control group. Data were collected from a follow-up survey conducted approximately 18 months after random assignment and from administrative records from Instituto del Progreso Latino. The evaluation also included site visits to document program implementation and operations. Prior to estimating Carreras en Salud impacts, the research team published an analysis plan specifying key hypotheses and outcome measures.[1]

[1] https://www.acf.hhs.gov/opre/resource/pathways-for-advancing-careers-and-education-supplement-evaluation-design-impact-analysis-plan

Executive Summary

Over the next 10 years, the demand for workers in healthcare jobs is expected to grow quickly as the population grows and ages.[2] Successfully meeting the need for more healthcare workers is important both to the national economy and to providing quality healthcare to people. This demand also creates opportunities for low-income adults to find entry-level employment and advance to higher-skilled jobs. Almost all jobs in healthcare require some training after high school. Policymakers, workforce development organizations, educators, and other key stakeholders are very interested in how to enable the match between the nation's need for a skilled workforce and low-income adults' need for employment.

Carreras en Salud Program

This report offers early evidence on the implementation and impacts of one promising effort to meet both needs, **Carreras en Salud**, or Careers in Health (called Carreras throughout this report). A distinctive feature of this program is its focus on training for low-income Latinos for employment in nursing occupations. Established in 2005, the program was designed and is operated by **Instituto del Progreso Latino** (Instituto), a nonprofit organization located in Chicago, Illinois. Over its first 18 months, Carreras participants were more likely than a randomly assigned control group who could not access the program to:

- attend more hours of college-level occupational training (the confirmatory outcome measured in this report) and basic skills instruction; and
- earn occupational credentials (college-level certificates, professional licenses).

The goal of the Carreras program is to help low-income Latinos improve their basic skills and enroll in occupational training to gain the necessary skills and credentials for jobs as a Certified Nursing Assistant (CNA) and Licensed Practical Nurse (LPN). The Carreras program features a series of courses—from basic skills instruction (for participants who need it, designed specifically for those interested in nursing occupations) through college-level instruction. It also provides an array of services to support students while they attend classes. The key features of the program are:

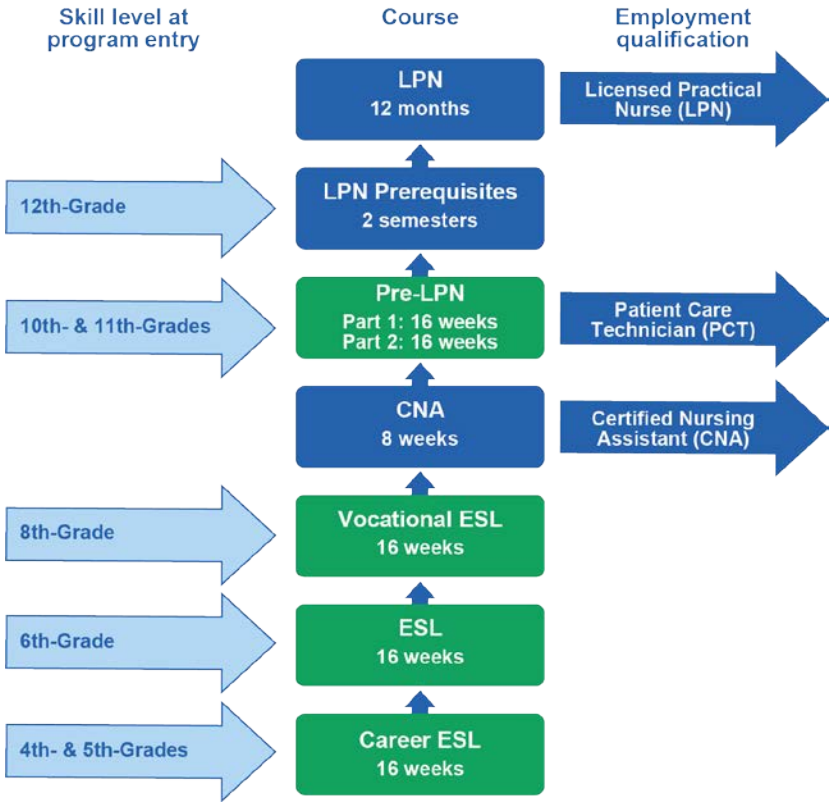
- **Structured healthcare training pathway, starting at low skill levels.** As shown on Exhibit ES-1, each step in the program's clearly-articulated pathway builds a progressively higher level of skills, designed to lead to higher-paying jobs in the nursing field. There are seven courses ("bridges"), starting at the fourth-grade skill level and continuing through college level. Four ("lower bridges") are basic skills courses taught in-house by Instituto instructors. The four are Career ESL, English as a Second Language (ESL), Vocational ESL (VESL), and Pre-LPN.

[2] http://www.bls.gov/news.release/ecopro.nr0.htm.

They prepare participants to enroll in the three "upper bridges" taught at City Colleges of Chicago campuses. The three are the CNA course, college-level prerequisites for the LPN, and the LPN course.

- **Contextualized and accelerated basic skills instruction.** The lower bridge courses provide basic skills instruction within the context of healthcare occupations and vocabulary. They are designed such that participants gain one or two grade levels in each 16-week course.
- **Academic advising and non-academic supports.** For the lower bridges, Carreras provides one-on-one assistance to address barriers to enrollment and persistence, including assistance with childcare and transportation and accessing public benefit programs, as well as academic advising and tutoring. For the upper bridges, Carreras provides academic advising.
- **Financial assistance.** The lower bridges are free to participants. Staff help participants in upper bridges apply for and secure financial assistance, such as Pell Grants, to cover the tuition.
- **Employment services.** Carreras offers participants one-on-one job search assistance and a one-week job readiness workshop. Additionally, Carreras staff identifies healthcare-related job openings, promote the program to employers, and help connect them with students who complete training.

Exhibit ES-1. Carreras en Salud Nursing Pathway



Pathways for Advancing Careers and Education (PACE) Evaluation

Abt Associates and its partners are evaluating Carreras en Salud as part of the **Pathways for Advancing Careers and Education (PACE)** evaluation. Funded by the Administration for Children and Families, within the U.S. Department of Health and Human Services, PACE is an evaluation of nine programs that include key features of a "career pathways framework."

The **career pathways framework** guides the development and operation of programs aiming to improve the occupational skills of low-income adults by increasing their entry into, persistence in, and completion of postsecondary training. These students are primarily older and nontraditional students. The framework describes strategies for overcoming barriers to education and training that these students can face. Key features of programs within the career pathways framework include:

- a series of well-defined training steps;
- promising instructional approaches targeted to adult learners;
- services to address academic and non-academic barriers to program enrollment and completion; and
- connections to employment.

The Carreras en Salud evaluation includes an **implementation study** that examines the design and operation of the program and enrolled students' participation patterns, and an **impact study** that used an experimental design to measure differences in educational and employment outcomes between individuals randomly assigned to a group that could enroll in Carreras (treatment group) and a group that could not (control group).[3]

Using data from two baseline surveys, a follow-up survey, program administrative records, and site visits, this report provides the results from the implementation study and it describes the early impacts of the program (18 months after random assignment) on education, training, and employment—including hours of occupational training received since random assignment, the confirmatory outcome to assess the early effects of Carreras en Salud.[4]

Summary of Key Findings

This summary documents findings from the implementation study and early findings (18 months after random assignment) from the impact study.

[3] Random assignment ensures that the treatment and control groups will be alike in their observed and unobserved characteristics, and that any systematic differences in their outcomes can be attributed to the treatment group having access to program services.

[4] See the PACE analysis plan (Abt Associates 2014). The Carreras en Salud analysis plan was also registered on the Open Science Framework site.

Findings from the Implementation Study

- ***Carreras en Salud operated largely as designed.***

Instituto staff implemented the multi-step program and associated supports largely as planned. The lower bridge courses were offered at Instituto using Carreras instructors and specially-designed curricula that sought to infuse basic skills education with healthcare content. Case managers, academic advisors, and employment specialists worked with students to arrange support services, address personal issues that could interfere with program completion, and provide academic guidance and tutoring. The upper bridge courses were provided at City College of Chicago campuses using their standard curricula, but Carreras participants enrolled in these courses could still access its academic advising and employment assistance.

The basic skills courses at Instituto were provided at no cost to participants, whereas Carreras staff assisted its participants in the college-level courses in accessing tuition support. The program also emphasized employment assistance, with staff dedicated to both improving participants' job search skills and finding appropriate employment opportunities for participants completing Carreras courses.

The dual academic and employment advising roles reflect the key feature of the Carreras program, namely that it is designed to facilitate entry to training and exit to employment at multiple steps along its career pathway. Participants can opt to progress directly to the next bridge on the pathway or to seek employment, potentially returning to complete additional training at a later time. Once in Carreras, participants can re-enroll in the program even after a significant period of time.

- ***Recruitment and enrollment of eligible participants was challenging. Although Carreras adopted strong outreach efforts, program staff found it difficult to recruit for both the expanded scale of Carreras and the control group.***

For the PACE evaluation, Carreras needed to scale up its operations and serve approximately one-third more participants, as well as over-recruit participants for a control group. As a result, staff aimed to increase the number of applicants typically recruited by two-thirds. In the end, however, Carreras was not able to operate at the scale desired for the evaluation (although the program did meet a reduced goal over an extended enrollment period) primarily because staff had difficulty identifying a sufficient number of potential applicants.

Though there was considerable interest in the program, as demonstrated by strong attendance at regularly scheduled invitational orientations, only a fraction of attendees continued to the next step of the enrollment process. Staff attributed this drop-off to several factors, including attendees' concerns about the time commitment for the courses; their ability to combine work, school, and family responsibilities; and the program's eligibility criteria (e.g., some interested applicants may not have met the definition of low income or may not have been U.S. citizens or legal residents).

To address recruitment challenges, staff expanded and diversified outreach methods using resources provided for the evaluation and hired a dedicated recruiter to "get the word out" about the program and generate interest in it. Overall, Carreras staff made significant progress in identifying interested and eligible applicants, and would likely have been able to operate at larger scale if it had not needed to establish a control group.

- ***Carreras served a low-income Latino population, but not a particularly low-skilled one.***

As intended, the Carreras participants were Latino (99 percent identified as being Latino) and low income (with a median household income of approximately $21,000), as measured on the baseline survey. And though the program was designed to accommodate those with basic skills levels as low as fourth grade, most participants were not low skilled. Only 10 percent of study participants at baseline had less than a high school diploma, and 41 percent had attended some college. It should be noted that having a high school diploma or college experience does not always indicate a specific skill level. Staff reported that some participants with a high school diploma or some college tested low on its placement tests, perhaps because many years had elapsed between school and their enrollment in Carreras.

Nonetheless, though Carreras made a concerted effort to serve very low skilled Latinos, in particular adding the low-level Career ESL course, the program served few participants at the lowest skills levels. The staff's experience indicates it can be challenging to engage a very low-skilled population in training programs, particularly if English is not their primary language, even when the course is specifically designed to meet their needs.

- ***Staff continually sought to improve contextualization in the basic skills courses.***

Contextualization, where healthcare-related content is integrated into basic skills instruction, was intended to be a key component of the Carreras program. However, staff reported that the level of contextualization specified in the design of the program was difficult to achieve and required ongoing attention for several reasons. First, staff reported that some basic skills topics are not conducive to contextualization. Also, most instructors did not have experience delivering contextualized instruction and were thus uncomfortable introducing healthcare-related material into their classes.

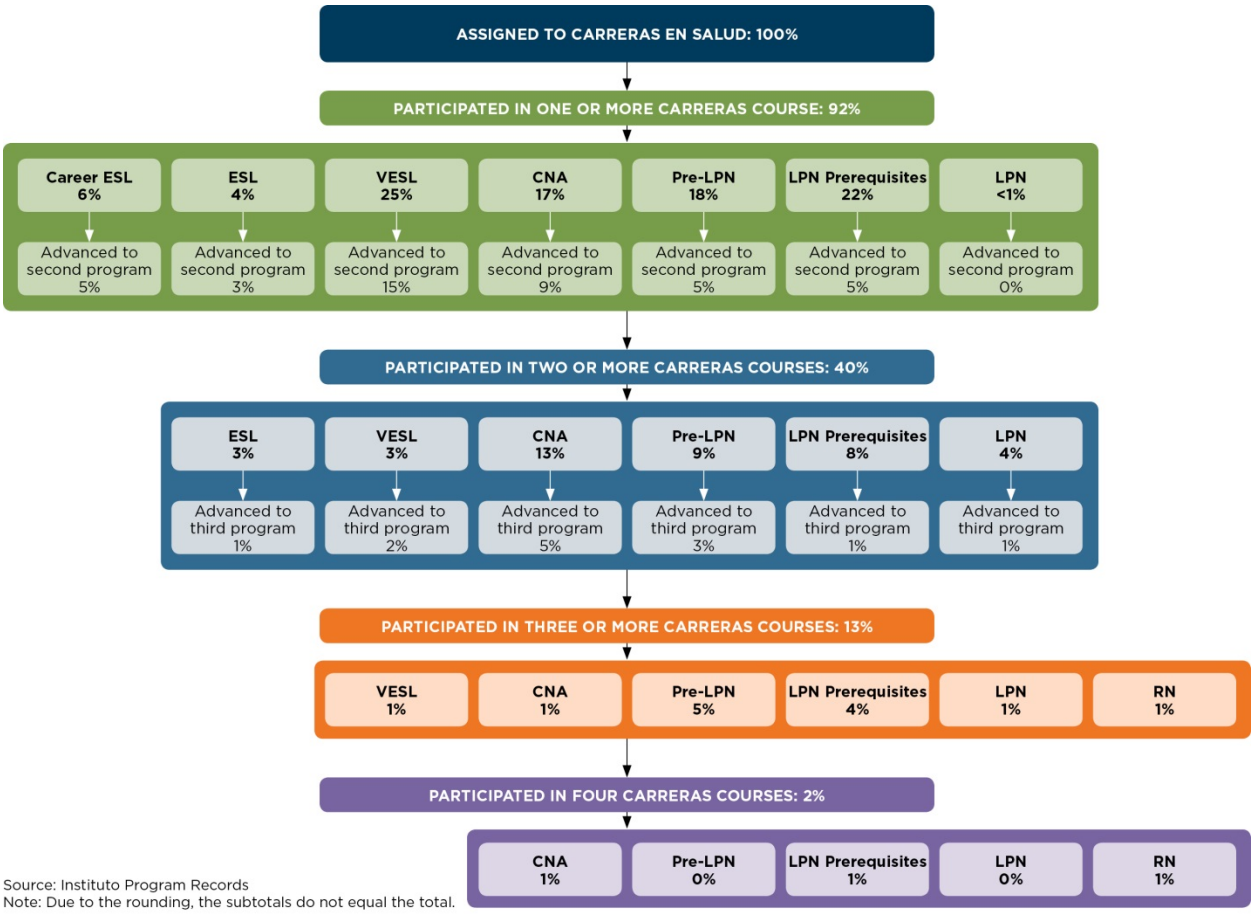
In response to these challenges, Carreras hired a curriculum specialist to identify healthcare-related material to integrate into specified segments of the basic skills courses, met with instructors to help them integrate healthcare-related content, and standardized curricula and instruction across the basic skills courses provided at Instituto.

- ***There was a high level of initial engagement in the Carreras program, and completion rates for commonly attended programs were strong.***

As shown on Exhibit ES-2, the vast majority (92 percent) of treatment group members participated in at least one Carreras course. This may be in part due to the assessment process at the time of program enrollment, which not only determined applicants' basic skills levels but

also ensured they understood the nature of healthcare jobs and had an interest in and commitment to employment in the field. As shown, the most common courses attended were in the "middle" of the Carreras pathway: VESL, CNA, Pre-LPN, and LPN Prerequisites. Fewer (less than 10 percent) attended the lower-level ESL courses (Career ESL and ESL) or the upper-level LPN course.

Exhibit ES-2. Progression of Carreras en Salud Treatment Group Members over an 18-Month Follow-up Period



Source: Instituto Program Records
Note: Due to the rounding, the subtotals do not equal the total.

Overall, 72 percent of those who participated in the Carreras program completed a course within the 18-month follow-up period (not on exhibit). Eighty-two percent of CNA students completed their course, and completion rates were more than 70 percent for the VESL and Pre-LPN courses. The completion rate for the longer-term credential-bearing LPN course was 14 percent, although some 80 percent of these students were still enrolled at the end of the follow-up period. Carreras included significant staff support in the basic skills programs provided at Instituto to address both academic and personal issues that could derail education plans, and students in the CNA and LPN courses could access academic advising. These supports may have also contributed to the relatively high rate of progression to subsequent courses (see below).

- ***Four in 10 treatment group members progressed to a higher-level course within the follow-up period, although few reached the upper-level LPN course.***

As also shown on Exhibit ES-2, among all treatment group members, more than 40 percent progressed from their initial training to a second one, most commonly from ESL or VESL to CNA or Pre-LPN (not shown). Thirteen percent of treatment group members attended three trainings, and two percent attended four. Though most students who attended a second training enrolled in the next course in the Carreras pathway's sequence, about one-quarter skipped a level. Thus, participants attended a wide range of course combinations. Over the entire follow-up period, about one-third of treatment group members attended courses to prepare for the LPN course (Pre-LPN and/or LPN Prerequisites), but only five percent progressed to the LPN level.

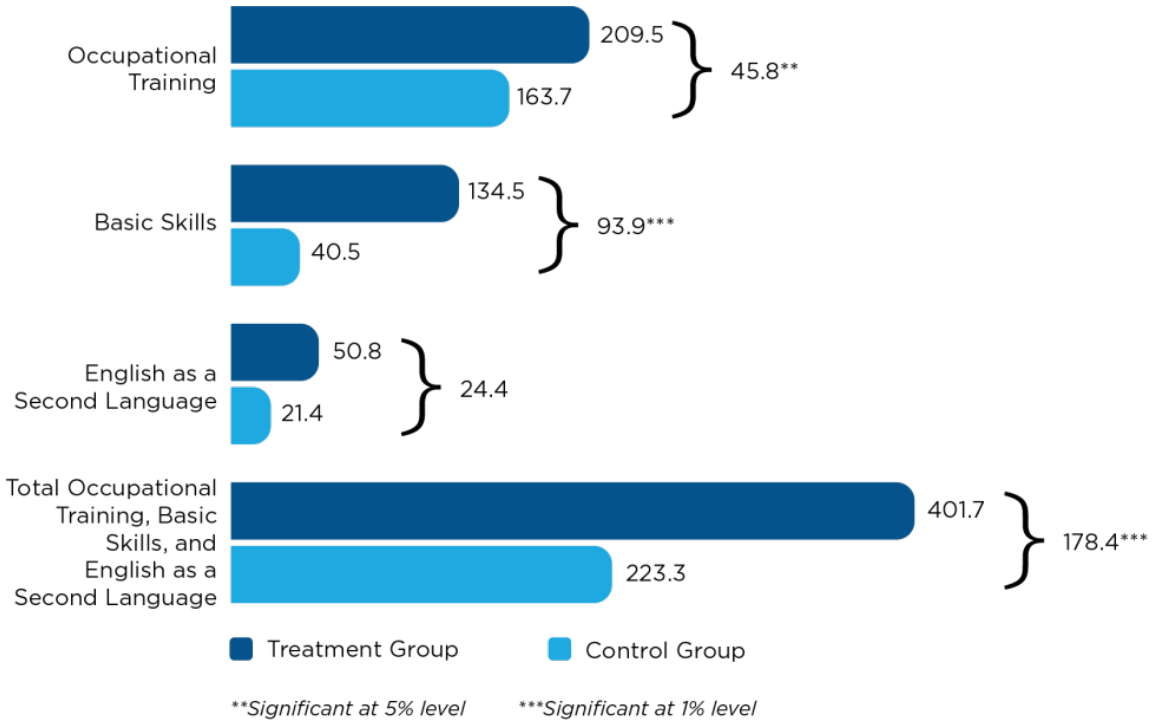
Findings from the Impact Study

- ***Carreras had a statistically significant effect on the average total hours of occupational training received (confirmatory hypothesis), as well as on the hours of basic skills and ESL instruction received.***

As shown on Exhibit ES-3, over an 18-month follow-up period, treatment group members attended 210 hours of occupational training compared with 164 hours for the control group, resulting in a 46-hour impact, statistically significant at the five percent level. In addition, Carreras also produced a 94-hour impact on basic skills instruction received (135 hours for treatment group members versus 40 for control group members), significant at the one percent level, and a smaller but equally significant impact of 29 hours on ESL instruction.

Overall, the Carreras program produced a large increase in the total hours of education and training received: treatment group members participated in occupational training, basic skills, and ESL courses for a total of 402 hours whereas control group members did so for 223 hours, an impact of 178 hours, (an 80 percent increase). This impact on total hours of participation was driven both by more treatment group members enrolling in training and by their attending more hours than control group members, particularly for basic skills. For reference, typical courses at most U.S. colleges meet three hours per week for 15 weeks, for a total of 45 hours per course. While the information on the number of courses attended is not available for this study, the impact of Carreras on hours of education and training attended translates into approximately four courses (180 hours) using this standard.

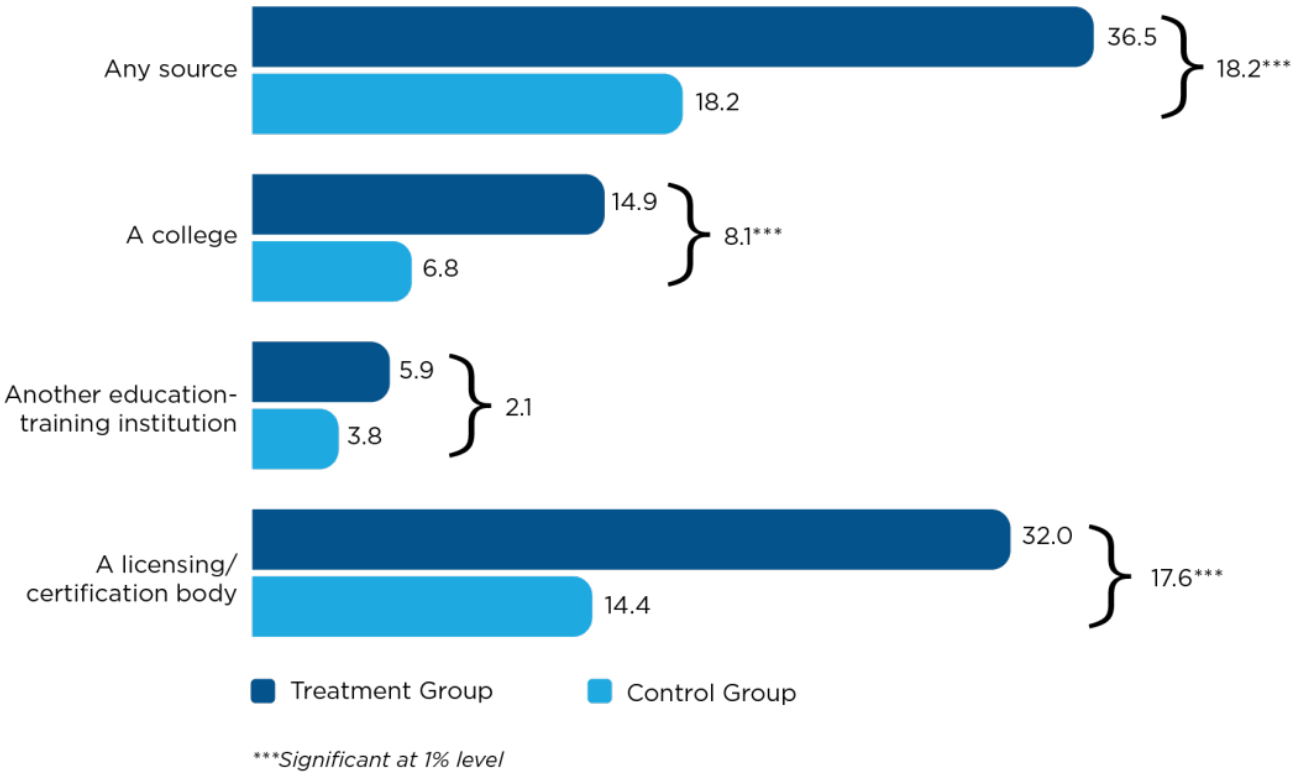
Exhibit ES-3. Hours of Occupational Training, Basic Skills Instruction, and ESL Received



- ***Carreras had an impact on receipt of a credential, primarily those earned from a licensing or certification organization.***

As shown on Exhibit ES-4 (below), Carreras had an 18-percentage point impact on receipt of a credential (37 percent of treatment group members versus 18 percent of control group members), significant at the one percent level. Likely reflecting the licensing requirements for CNAs and LPNs, the impact on credentials was largely due to significant differences in the proportion of treatment group members who received a credential from a licensing/certification body. Given that more participants enrolled in and completed CNA courses within the follow-up period than in the longer-term LPN course, many of these credentials are likely to be for a CNA.

Exhibit ES-4. Receipt of Credentials, by Source



The study also found that more than one-third of treatment group members (36 percent) were still enrolled in training at the end of the 18-month follow-up period compared with 29 percent of control group members, a statistically significant difference. This is likely due to the multiple steps and length of some of the training courses in the Carreras program, and indicates the need for longer-term follow-up to determine the overall effects of the program.

- ***Carreras produced impacts on receipt of supportive and employment services.***

Carreras had a 19-percentage point impact on receipt of career counseling (38 percent of treatment group members versus 19 percent of control group members); an 11-percentage point impact on receipt of help arranging supports (17 percent versus six percent); and a 19-percentage point impact on job search assistance receipt (30 percent versus 11 percent), each significant at the one percent level. These impacts are a result of the range of supports provided by the Carreras program, including a case manager to identify and arrange for necessary supports, an academic advisor, and an employment specialist who provides job search assistance.

- ***Carreras had a positive impact on employment in healthcare occupations.***

The Carreras program increased employment in healthcare occupations by nine-percentage points: 25 percent of treatment group members reported working in a healthcare occupation at follow-up compared with 16 percent of control group members. This may be the result of the impact on credentials received, as discussed above, as well as the employment assistance

provided by Carreras that focused on helping participants obtain employment in the healthcare field. However, no impacts were detected on other employment measures, including working at a job paying at least $12 per hour or working at a job requiring at least mid-level skills. Because, as noted above, most Carreras participants who obtained a credential likely did so after completing its CNA course, it may take time for participants to progress to higher-skill and/or higher-wage jobs.

- ***The Carreras program produced a decrease in reports of financial hardship.***

Carreras fully funds the basic skills instruction provided at Instituto and assists students in applying for financial aid for occupational training at colleges. Carreras staff also assists lower bridge participants in accessing other public supports as needed. Carreras produced a statistically significant decrease in reports of experiencing financial hardship. The program also resulted in a 12-percentage point reduction in the proportion who cited financial support as a challenge to attending training (66 percent for treatment group members versus 78 percent for control group members).

Implications and Next Steps

There is a great deal of interest at the federal, state, and local levels in the career pathways approach as a strategy to improve education and employment outcomes for low-income, low-skilled adults. The early Carreras en Salud results have a number of implications for further development of career pathways initiatives.

The Carreras en Salud evaluation provides evidence on one of the most fully developed examples of a "career pathways" approach to date. Early results provide strong support for the approach. Carreras en Salud incorporated all key elements of the career pathways framework: (1) manageable and articulated steps on a career pathway—starting at a low-skills level and continuing through college-level courses; (2) innovative instructional approaches in the lower bridges, specifically contextualized and accelerated curricula; (3) academic and non-academic supports for lower-bridge participants (and academic supports for upper-bridge ones); and (4) connections to employment. More than 90 percent of treatment group members participated in one or more courses, and many participants completed initial steps and continued to the next step on the pathway. The program increased hours of education and training—boosting average hours of occupational training by 46 hours (a 28 percent increase), and average total hours of education and training (including basic skills instruction) by 178 hours (an 80 percent increase). It increased the fraction receiving occupational credentials of any kind (e.g., certifications, licenses, college credentials) by 18 percentage points, and it increased the fraction receiving college credentials by eight percentage points.

Carreras en Salud's impacts on education and training compare favorably with other approaches to improve the education and economic outcomes of nontraditional students. Carreras en Salud differs from many other career pathways programs in that it was developed

for and exclusively serves low-income and bilingual Latinos, many of whom have skills levels too low to enroll in and complete college courses. The program nonetheless achieved comparable results to others that focus on broader and in some instances more college-ready (although still disadvantaged) populations, including other programs in PACE.

Although Instituto operated Carreras en Salud largely as designed, their experience indicates areas for further attention and development. First, although the program sought to target low-skilled participants, it had some difficulty recruiting students into its lowest level bridges (those below an eighth-grade skill level), indicating the challenge of reaching this group. Second, while Carreras experienced some success in expanding its recruitment efforts, their difficulty in meeting PACE enrollment targets suggests that a dramatic scaling of the program would require using different outreach strategies and potentially serving a larger geographic service area. Third, although contextualization of the curricula was a key design element for the lower bridges, instructors had difficulty implementing it to the degree envisioned by program leadership and it required ongoing attention. Finally, although the pathway extends to the upper level LPN course, few participants reached this level within the follow-up period. This may be appropriate given that it takes time to progress through the course sequence. This will be an important issue to document in the next phase of the study with a longer follow-up period.

The evaluation findings attest to the role that experienced nonprofit organizations can play as providers of training and supports to facilitate enrollment and persistence in public college systems. Positive impact findings for the Carreras program suggest that nonprofit organizations based in a community can play a constructive role as part of wider career pathways education and training systems. In particular, Instituto's knowledge of their community, flexibility to program development, and commitment to their mission – common features of nonprofit organizations – are important elements of the Carreras program. At the same time, these factors may limit the program's replicability. The organizational strengths and programmatic experience Instituto developed over its history of work with Latinos in one community may be difficult to apply on a larger scale in Chicago or to reproduce in other settings or by other organizations.

What Lies ahead for the Evaluation of Carreras en Salud

Though the results at this juncture are promising, longer-term follow-up of a broader range of outcomes, particularly employment and earnings, is needed to more definitively assess the Carreras en Salud model. The many important questions that remain will be addressed in subsequent reports on effects on intermediate outcomes (with 36 months of follow-up) and long-term outcomes (with 72 months of follow-up). These include:

- **Will Carreras en Salud's impacts on educational attainment remain stable, increase, or decrease?** In particular, it will be important to assess whether participants enroll in and complete higher levels of the pathway (LPN) and beyond (even Registered Nurse or RN) and

achieve the associated credentials. The positive impacts seen thus far might indicate permanent improvements of the treatment group relative to the control group. Conversely, control group members could catch up over time, so that their education outcomes are no longer significantly different from those of the treatment group.

- **Will Carreras en Salud's impacts on educational attainment translate into impacts on employment and earnings?** The 18-month analyses examined only a few employment-related outcomes. Future analyses will assess the impact of Carreras en Salud on a broader array of employment outcomes, including earnings, hourly wages, receipt of fringe benefits, and stability of employment.
- **Does Carreras en Salud have other impacts on participants and their families?** Key outcomes to address in the future include the effect of the program on individual and household income, material well-being, and perceived stress.
- **Is Carreras en Salud cost beneficial?** Future analyses will explore the costs of the program relative to the benefits it produces for participants and society.

Given the strong early results presented in this report, these later reports will be important additions to the career pathways literature.

1. Introduction

The federal government projects that over the next decade, the fastest-growing occupations will be in healthcare (Bureau of Labor Statistics 2015). Successfully meeting the need for more healthcare workers is important both to the national economy and to providing quality healthcare to the population. This demand also creates opportunities for low-income adults to gain entry-level employment and advance to higher-skilled jobs. How to facilitate the match between the nation's need for a skilled workforce and low-income adults' need for employment is a topic of great interest to policymakers, workforce development organizations, educators, and other key stakeholders.

This report provides early evidence on the implementation and impacts of one promising effort to meet both needs, **Carreras en Salud**, or Careers in Health (called Carreras throughout this report). A distinctive feature of this program is its focus on training low-income Latinos for employment in healthcare occupations. Established in 2005, the program was designed and is operated by **Instituto del Progreso Latino** (Instituto), a nonprofit organization located in Chicago, Illinois. The evaluation of the Carreras program is testing a highly articulated training pathway—facilitating entry to training at, and exit to employment from, any of a series of steps progressing from low-level basic academic skills instruction (primarily in reading and math) to a range of nursing degrees. The program seeks to integrate basic skills and healthcare training, while also providing academic, financial, and employment supports.

Almost all jobs in healthcare require some level of postsecondary education or training. This requirement can range from modest (weeks) to substantial (multi-year). Research indicates many low-income, low-skilled adults face considerable barriers to completing even short-term training for entry-level jobs. Many are "nontraditional" students—that is, older, often parents, lacking adequate basic academic skills, and with few economic resources (NCES 2016). Often they enroll in college to obtain occupational certifications rather than academic degrees.

Research further shows that on average, nontraditional students fare poorly in postsecondary settings (Visher et al. 2008; Cooper 2010; Goldrick-Rab and Sorenson 2010). Institutions often assign students who need to improve their basic academic skills to developmental (remedial) education; many of these students never progress beyond it. Others drop out due to financial setbacks or difficulties juggling school, work, and family responsibilities. Some have difficulties navigating the college environment, including course sequences and financial aid. Many have difficulty meeting academic standards (Bridges to Opportunity Initiative 2008). Being from a minority population, not speaking English as their primary language, and/or being the first in their family to attend college intensify these difficulties in completing training and degrees necessary for careers in healthcare or other fields (Perna and Jones 2013). Although research has documented these barriers to success, it provides less evidence about how to overcome them.

The goal of the Carreras program is to help low-income Latinos improve their basic skills and enroll in occupational training to gain the necessary skills and credentials for jobs as a Certified Nursing Assistant (CNA) and Licensed Practical Nurse (LPN). It is designed to accommodate working participants as well as those who are unemployed. The Carreras program features a series of courses—from basic skills instruction through college-level instruction. It also provides an array of services to support students while they attend classes. The key features of the program are:

- **Structured healthcare training pathway, starting at low skill levels.** Each step in the program's clearly articulated pathway builds a progressively higher level of skills, designed to lead to higher-paying jobs in the nursing field. There are seven courses starting at the fourth-grade skill level and continuing through college level. Four courses (called "lower bridges") are basic skills courses taught in-house by Instituto instructors. They prepare participants to potentially advance to courses taught at City Colleges of Chicago campuses (called "upper bridges.") The three are a CNA course, college-level prerequisites for the LPN course, and the LPN course.
- **Contextualized and accelerated basic skills instruction.** The lower bridge courses provide basic skills instruction within the context of healthcare occupations and vocabulary. This helps participants to raise their skills to the level required to enroll in the next training step while learning some occupational content. They are designed such that participants gain one or two grade levels of proficiency in reading and math in each 16-week course. The program aims to avoid making students spend long periods of time in remedial classes learning basic skills unconnected to any occupation.
- **Academic advising and non-academic supports.** For the lower bridges, Carreras provides one-on-one assistance to address barriers to enrollment and persistence, including assistance with childcare and transportation and accessing public benefit programs, as well as academic advising and tutoring. For the upper bridges, Carreras provides academic advising.
- **Financial assistance.** The lower bridges are free to participants. Staff help participants in upper bridges apply for and secure financial assistance, such as Pell Grants, to cover the tuition.
- **Employment services.** Carreras offers participants one-on-one job search assistance and a one-week job readiness workshop. Additionally, Carreras staff identify healthcare-related job openings, promote the program to employers, and help connect employers with those who complete training.

The Carreras program is designed to be flexible. Participants who complete training can enroll in the next course on the pathway, or they can enter employment and return at a later date for additional training. Staff note that once participants are in Carreras they are always part of the program, able to return to training even after a significant period of time.

Abt Associates and its partners are evaluating Carreras en Salud as part of the **Pathways for Advancing Careers and Education (PACE) evaluation**.[5] The evaluation of the Carreras program includes both an implementation study to examine its design and operation and an impact study that relies on a random assignment research design to estimate the impacts of access to the program on its students' education and training, employment, and other outcomes.

This report describes the Carreras program's implementation and early impact findings on participant outcomes within an approximately 18-month follow-up period.[6] This chapter describes the PACE evaluation, summarizes findings from previous research regarding the program elements in Carreras, and provides a roadmap to the rest of the report.

1.1. Pathways for Advancing Careers and Education (PACE) Evaluation

Funded by the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services, the PACE evaluation is a 10-year study of nine programs that include key features of a "career pathways framework" (see "Programs in PACE" box to the right). Initiated in 2007, PACE represents the first large-scale, multi-site experimental evaluation of career pathways programs.

Programs in PACE

- Bridge to Employment in the Health Care Industry at San Diego Workforce Partnership, San Diego, CA
- Carreras en Salud at Instituto del Progreso Latino, Chicago, IL
- Health Careers for All at Workforce Development Council of Seattle-King County, Seattle, WA
- Pathways to Healthcare at Pima Community College, Tucson, AZ
- Patient Care Pathways Program at Madison College, Madison, WI
- Valley Initiative for Development and Advancement (VIDA), Lower Rio Grande Valley, TX
- Washington Integrated Basic Education and Skills Training (I-BEST) program at three colleges (Bellingham Technical College, Whatcom Community College and Everett Community College), Washington State
- Workforce Training Academy Connect at Des Moines Area Community College, Des Moines, IA
- Year Up (Atlanta, Bay Area, Boston, Chicago, National Capital Region, New York City, Providence, Seattle)

The career pathways framework guides the development and operation of programs that aim to improve the occupational skills of low-income individuals, primarily older nontraditional students, by increasing their entry into, persistence in, and completion of postsecondary training. Central to accomplishing these improved outcomes, the framework articulates signature strategies for overcoming the barriers that nontraditional, occupational students often face. For example, key features of programs within this career pathways framework include having a series of well-defined training steps, promising instructional approaches, supportive services, and connections to employment (Fein 2012).

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[5] For more information on the PACE study, go to: www.acf.hhs.gov/opre/research/project/pathways-for-advancing-careers-and-education.

[6] The time frame was selected because the average completion of the 15-month follow-up survey occurred 18-19 months post random assignment.

Programs consistent with the career pathways framework typically have multiple components, as illustrated by the Carreras en Salud program. The multi-component nature of such programs reflects the observation that nontraditional students often face multiple barriers to success and that addressing only a single one is unlikely to substantially improve their employment or other prospects. The career pathways framework is flexible, however, and not a specific program model. Thus, which components a local program adopts and how it implements them can vary greatly.

Reflecting this diversity, each of the nine programs in the PACE evaluation represents a different program model. All share some program components that are part of the career pathways framework, but each also has distinct and unique elements, reflecting the target populations, occupational trainings offered, and industries of focus. Because of this variation, PACE evaluates and reports findings for each evaluated program individually.[7]

The central goal of the PACE evaluation is to determine the effectiveness of each of the nine programs using a common evaluation design and conceptual framework (**impact study**). The most critical element of the evaluation design is **random assignment** of eligible applicants either to a **treatment group** that can access the career pathways program or to a **control group** that cannot. Random assignment ensures that the study's treatment and control groups will be equivalent in their observed and unobserved characteristics, and that any systematic differences in their subsequent outcomes (i.e., the program's impacts) can be attributed to the treatment group having access to program services. Systematic differences in outcomes due to the characteristics of individual members in each group can be ruled out.

Consistent with this career pathways framework and the career pathways theory of change (described in Chapter 2) guiding the PACE evaluation, the key outcomes for which the PACE study estimates effects are in **education and training** and **employment**, although the study also estimates effects in other areas, such as family well-being.

The PACE implementation and early impact program reports analyze outcomes over approximately **18 months following random assignment**. The impact analyses rely primarily on **surveys** for individuals in the treatment group and control group. Future reports developed for different studies will analyze outcomes three years and six years after random assignment.[8] These latter two sets of reports will also include benefit-cost studies for some of the nine PACE programs.

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[7] All PACE-related reports can be found on www.career-pathways.org and www.acf.hhs.gov/opre/research/project/pathways-for-advancing-careers-and-education.

[8] These reports will be part of the Career Pathways Intermediate Outcomes and Career Pathways Long-term Outcomes projects, respectively.

1.2. Research Context for Key Features of the Carreras en Salud Program

The Carreras program builds on the career pathways framework by identifying and seeking to address a number of perceived shortcomings of previous education and training efforts that targeted low-income adults, including non-native English speakers, through training, supports, and employment services (Estrada 2010; Fein 2012).

Because of the limited available research on the impacts of career pathways programs, much of the research cited is on younger, low-income students in general education, as opposed to adults in occupational training programs. Still, because nontraditional career pathways students face many of the same barriers, much of the general education research is relevant to assessing the promise of Carreras for improving its students' postsecondary education and training outcomes.

Structured Healthcare Training Pathway. By breaking training into seven sequenced steps with a clear progression through them, Instituto staff designed the Carreras program to enhance participants' understanding of how they could advance from one training level to the next. There is evidence that nontraditional students, particularly at community colleges, can have difficulty navigating courses to efficiently obtain high-valued credentials. Much of the literature focuses on packaging courses in sequences within the community college context. For example, studies have found low college completion rates, which researchers attribute in part to nontraditional students being overwhelmed by the array of course choices and receiving little guidance how to navigate them (Jenkins and Cho 2012; Scott-Clayton 2011). Recent experimental research suggests that imposing a more structured community college pathway with constrained choices can contribute to dramatically increased graduation rates (Scrivener et al. 2015). A number of Carreras courses, particularly those focusing on basic skills instruction are offered in-house rather than in college settings. These lower bridge courses aim to help participants move along the pathway by preparing them for occupational training. Research indicates that these basic skills courses can prepare low-skilled adults for credit-bearing college courses (Helmer and Blair 2011; Estrada 2010).

Contextualized and Accelerated Basic Skills Instruction. Participants with basic skills as low as the fourth-grade level can enroll in a Carreras training program and learn health content along with basic skills. The limited research available on basic skills courses (both adult basic education and college remediation) has found high attrition and low transitions into job training or other postsecondary education from such courses. Mandatory, basic skills-focused employment programs increased employment and earnings somewhat, but these impacts were small and not sustained (Bos et al. 2002; Hamilton and Scrivener 2012). Though rigorous research is limited, some recent non-experimental studies on programs that accelerate and/or contextualize basic skills instruction to occupational training or other postsecondary content suggest these strategies may produce larger basic skills gains, higher high school equivalency completion rates, higher postsecondary transition rates, greater accumulation of college credits, and increased attainment of occupational certificates when compared with traditional basic skills approaches (Martin and Broadus 2013; Zeidenberg, Cho, and Jenkins 2010; Rutschow and Schneider 2011).

Academic Advising and Non-Academic Supports. Carreras includes an array of academic and personal supports. These include case managers who work individually with participants in the lower bridges to identify and arrange for necessary support services; academic advisors; and tutors. The advising feature was designed to address the common experience that college advisors often have very high student-to-advisor ratios, leaving little time for individual counseling (Grubb 2001). Several rigorous studies have demonstrated that augmenting existing advising with more-intensive advising, sometimes combined with other services, can lead to greater persistence in education, although sometimes only for the short term (Bettinger and Baker 2011; Scrivener and Weiss 2009; Scrivener et al. 2015; Karp and Stacey 2013).

Financial Assistance. Tuition is free for the lower bridges, and staff help students in the higher bridges get financial aid. A large body of evidence indicates that insufficient resources are a barrier to entry and completion of education and training for low-income students and that financial assistance can increase postsecondary attendance as well as completion of training and credit receipt (Deming and Dynarski 2010; Dynarski and Scott-Clayton 2013; Miller et al. 2011; Patel and Rudd 2012; Richburg-Hayes et al. 2015).

Employment Assistance. Carreras provides a range of employment services and supports. Research on the effectiveness of such assistance is mixed, with some studies showing positive employment effects but others not (Klerman et al. 2012).

1.3. Structure of This Report

The organization of the remainder of this report is:

- Chapter 2 presents the Carreras en Salud evaluation's conceptual framework and research questions; details the PACE evaluation design; describes the study sample; and summarizes the evaluation's data sources.
- Chapter 3 describes the Carreras program's local context, administrative structure, and program services.
- Chapter 4 describes the implementation study findings, including participation patterns for treatment group members and comparisons of service receipt between the treatment and control groups.
- Chapter 5 presents the impact study findings, focusing on the main impact—hours of training over an 18-month follow-up period—as well as other training, career, and life outcomes.
- Chapter 6 summarizes the implementation and impact findings and discusses their implications for the longer-term study.

The appendices provide additional details about baseline data (Appendix A); survey-based outcomes (Appendix B); and the approach to outliers (Appendix C).

2. PACE Evaluation Design and Data Sources

This chapter describes the larger PACE evaluation design and its application to the Carreras en Salud program. It begins with a discussion of the PACE career pathways theory of change and the research questions that the theory of change implies. It then briefly describes the evaluation design and analysis procedures for the impact study, including the random assignment process and the outcome of that process. A brief description of the implementation study analysis follows.[9] Finally, the chapter summarizes the main data sources for the implementation and impact studies.

2.1. Career Pathways Theory of Change

The career pathways theory of change guides both the implementation study (that is, it identifies which aspects of program services are expected to affect outcomes) and the impact study (that is, it identifies which outcomes the program is expected to affect). The theory of change also generates key hypotheses about the direction of expected effects that the impact evaluation will test for statistically significant change.[10] In addition, the theory of change implicitly assumes time horizons by which the program is expected to have effects, and thus the theory determines the key outcomes at any particular time of follow-up.

Exhibit 2-1 depicts the PACE career pathways theory of change, as applied to Carreras en Salud.[11] It shows how a program (inputs) is hypothesized to produce effects on intermediate outcomes, which in turn will lead to effects on main outcomes. Effects on intermediate outcomes are expected earlier than effects on main outcomes, but the exact timing depends on particular features of the program, such as the length of occupational training and what, if any, steps precede it. In addition, because effects on intermediate outcomes may persist over time, the study will also measure them at later points in time.

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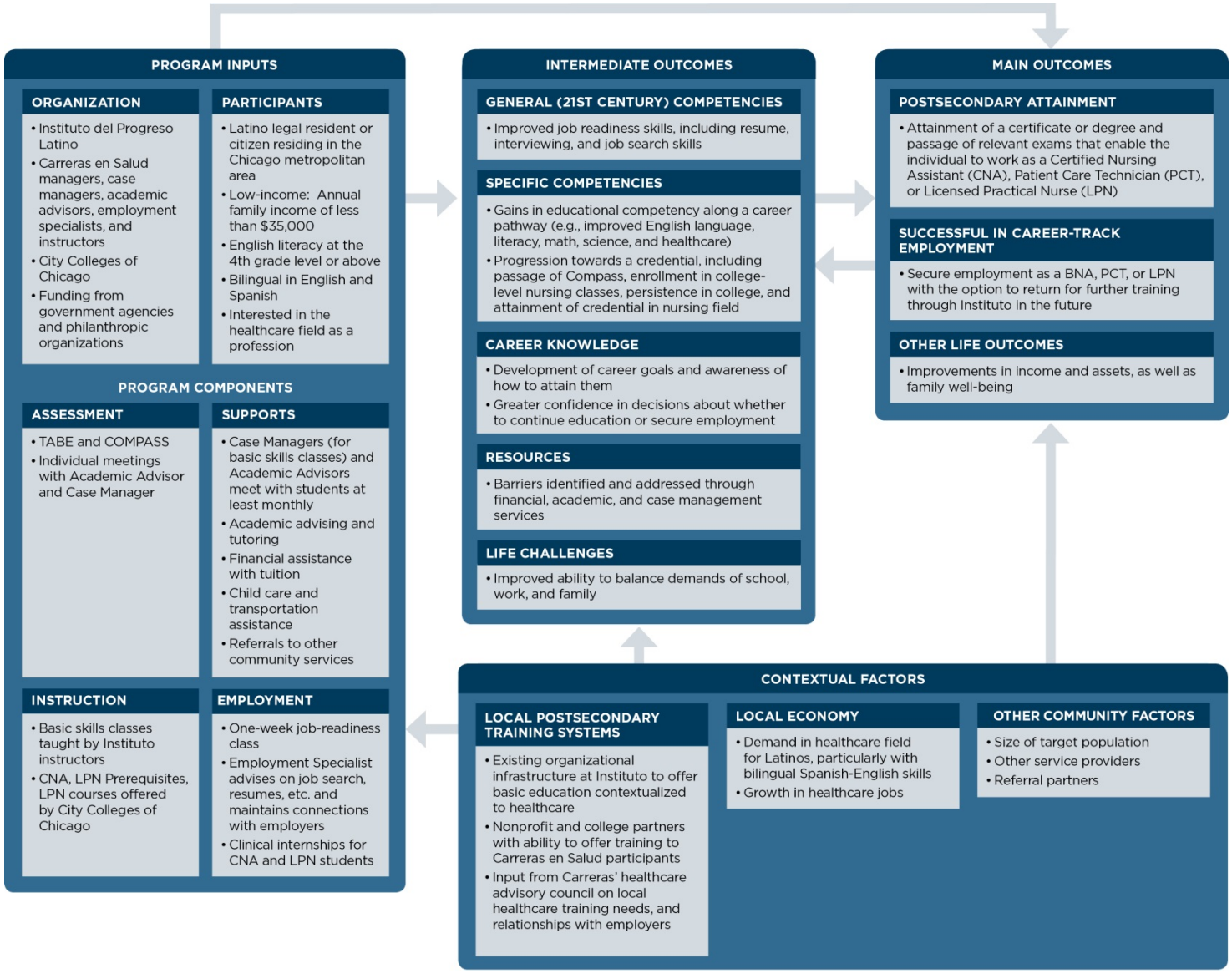
9 The research team developed a detailed evaluation design report for the PACE evaluation, including the evaluation of Carreras en Salud (Abt Associates 2014).

10 The implementation study describes the set of services that students in the treatment group experienced. In addition to descriptive statistics, it includes a small number of impact estimates that show the difference in services received between treatment and control group members. The impact study focuses solely on estimates of the effects of the program on intermediate and main outcomes.

11 See Fein (2012) for an extended description of the framework.

Exhibit 2-1. Career Pathways Theory of Change for Carreras en Salud



As shown in Exhibit 2-1, starting in the box at the left, the career pathways theory of change begins with two types of program inputs:[12]

- **Organization.** Organizational inputs include the lead agency (Instituto del Progreso Latino) and its staff, partner colleges that provide training, and funding from government agencies and philanthropic organizations.
- **Participants.** This input includes the characteristics of the program's target population. For Carreras, the target population consists of Latinos residing in the Chicago metropolitan area who are U.S. citizens or legal residents. To be eligible, applicants must also have family incomes below $35,000, English literacy skills that are at the fourth-grade level or above, be bilingual English/Spanish speakers, and be interested in healthcare careers.

This same box includes four kinds of program components that are expected to improve participant outcomes by addressing barriers that are hypothesized to impede successful entry into and completion of occupational training:

- **Assessment.** Carreras administers placement tests to determine applicants' academic skill levels.[13] The assessments determine both where they will start on the career pathway and whether they are a good fit for the program.
- **Instruction.** Carreras provides occupational training through the City Colleges of Chicago, as well as in-house basic skills instruction to prepare participants for college-level classes.
- **Supports.** Carreras provides academic and personal support services, including one-on-one assistance to address barriers to enrollment and participation such as childcare and transportation and academic advising and tutoring.
- **Employment.** Carreras uses a range of strategies to connect participants to healthcare jobs, including one-on-one assistance and a job readiness workshop.

The middle box shows **intermediate outcomes**—targeted improvements expected to lead to better main outcomes. These include improved basic skills for students who needed remediation; improved psycho-social skills such as grit and academic self-confidence; enhanced job-readiness skills; expanded ability to balance the demands of school, work, and family; progression towards a credential; and gains in educational competency along a career pathway.

In the far right box, the **main outcomes** are the primary targets that programs such as Carreras seek to change:

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[12] Program inputs can include both components available only to treatment group members and components available to treatment and control group members, because the interaction of the former components with the latter can lead to impacts.

[13] Carreras administers the Test of Adult Basic Education (TABE®) and ACT's Compass™ college entrance exam.

- Educational attainment; namely, accumulated occupational training certificates and degrees in healthcare.
- Successful employment in entry-level to middle-wage jobs or higher, increasing earnings and job benefits, and career advancement.
- Improvements in individual and family finances and well-being.

Influencing expected effects are a number of **contextual factors**, including local demand for jobs in the healthcare field, strength of the local economy, and other community factors such as the size and characteristics of the target population, and the number and nature of other service providers in the community.

2.2. Research Questions for the Evaluation of Carreras en Salud

The implementation study documented Carreras as it operated during the PACE study period and captured participation patterns of treatment group members in training and other activities (see Chapter 4 for implementation study findings). The impact study (see Chapter 5) aimed to measure the effectiveness of Carreras in improving students' intermediate and main outcomes.

Implementation study research questions:

- What is the intended program model? What is its institutional and community context?
- What intervention was actually implemented? Did it deviate from plans or expectations?
- What were the treatment group's participation patterns and experiences with program services?
- What are the differences in services, including training, received by treatment and control group members?

Impact evaluation research questions:

- What were the main effects of Carreras on:
  - Educational attainment, including hours of occupational training and basic skills instruction received, receipt of credentials, and other educational outcomes?
  - Entry into career-track employment, higher-wage jobs, earnings, and perceptions of career progress?
  - Participant and family well-being, including income and material hardship?

- To what degree did the program affect intermediate outcomes in the theory of change, such as:
  - Confidence in career knowledge and access to career supports?
  - Psycho-social skills such as grit, academic self-confidence, core self-evaluation, and social belonging at school?
  - Life stressors, such as financial hardship, life challenges, and perceived stress?

As discussed, the program's theory of change not only describes hypothesized causal connections, it also identifies time horizons over which they are expected to occur. For example, with respect to Carreras, individuals whose first step is one of the lower-level basic skills classes will generally need to complete a number of steps before enrolling in occupational training (CNA course) and even later entering employment. Thus, it is likely that some students will still be in their first training course at the end of the 18-month follow-up period. As a result, this early impact report focuses primarily on training outcomes that do not require a participant to complete a program and earn a credential.

For this report, the primary data sources for addressing the impact research questions are two surveys administered at "baseline" (study intake) and a follow-up survey of treatment and control group members capturing an average of 18 months of data post random assignment. The implementation study questions are addressed by information gathered during two site visits and regular monitoring calls, as well as the program's administrative records. A more complete description of data sources is in the concluding section of this chapter.

Later PACE reports will focus on employment outcomes and on education and training outcomes resulting from activities that require a longer time to complete; for example, completing multiple Carreras courses. In addition, continued measurement of such outcomes will be important, given that the career pathways framework implies that workers may alternate training and employment as they move along a pathway.

2.3. PACE Evaluation Design and Analysis

As mentioned in Chapter 1, the PACE evaluation uses a random assignment research design to estimate the impact of access to the program on students' outcomes. The great benefit of such a design is that when properly implemented, it ensures that estimated effects reliably can be attributed to access to the program and not to unmeasured differences in characteristics or external circumstances between individual students with access (treatment group) and without access (control group) to the program.

However, maintaining the comparability of the treatment and control groups requires comparing all of those in the treatment group with all of those in the control group, regardless of whether or not treatment or control group participants actually enrolled in the program (what researchers refer to as an "intent to treat" analysis). A critical implication of this is that

the evaluation estimates the impact of access to the entire program—to the entire Carreras en Salud program, in this case—as opposed to the impact of the program's specific components. The evaluation does so by comparing the entire control group with the entire treatment group, regardless of the treatment group's actual take-up of any particular program component or any component at all.

A second feature of the impact study design is that both treatment and control group members can access education, training, and support services available in the community that are not exclusive to the program PACE is evaluating. In the case of Carreras, the evaluation estimates the effect of the program's components above and beyond what was otherwise available at other service providers and colleges in its service area and elsewhere in the community during the study period. For example, both the treatment and control group members could access the same healthcare occupational training courses at local colleges. Thus, the control group's experiences represent what would have happened absent Carreras program components.

In summary, the impact study assessed whether the existence of this multi-component career pathways program led to better outcomes for students who were offered the chance to participate, given what these students could have obtained without the program.

2.3.1. Intake and Random Assignment Procedures

The research team worked closely with each program in the PACE evaluation to design and implement program intake and random assignment procedures. Once Carreras staff decided an applicant was eligible and appropriate for the program, the individual became a candidate for the PACE study. The steps in study intake and random assignment are summarized below. (Information about Carreras recruitment, enrollment, assessment, and course placement follow in Chapter 3.)

- **Informed consent.** Carreras staff offered applicants the PACE informed consent form to read and sign. Those who consented proceeded to the next intake step.
- **Baseline data collection.** Next, staff administered to applicants two baseline surveys: the Basic Information Form (BIF) and the Self-Administered Questionnaire (SAQ). (Each is described below in Section 2.4.) Applicants who completed both surveys were randomly assigned. Applicants who did not agree to join the PACE study, who declined the PACE consent form, or who didn't complete the BIF and SAQ were excluded from the study sample, which also excluded them from the opportunity to access the Carreras program.
- **Random assignment.** Carreras staff used an online system to randomly assign study participants to the treatment group or the control group. The random assignment ratio was 1:1, so that the treatment and control groups would each include approximately half of the study sample.

- **Services according to random assignment status.** Study participants assigned to the treatment group could access Carreras services (but were not required to use them). Those assigned to the control group could not access Carreras services, but could use other similar services available through Instituto and elsewhere in the community.

Between November 2011 and September 2014, Carreras staff randomly assigned 800 study participants: 402 to the treatment group and 398 to the control group.

2.3.2. Characteristics of the Study Sample

Exhibit 2-2 shows the percentage distributions of the treatment and control group members across selected characteristics. The *p*-values in the last column test the hypotheses that there are no systematic differences between the groups for these characteristics.[14] As shown, random assignment produced treatment and control groups without significant differences in observed baseline characteristics with two exceptions, which are likely due to chance (see Appendix A).

As the exhibit shows, study participants are almost all Latino (more than 99 percent) and low income. About three-quarters reported annual household incomes of less than $30,000 and slightly more than one-third reported incomes of less than $15,000 when they entered the study. The mean annual income was $21,051. Many (42 percent) reported receiving Supplemental Nutrition Assistance Program (SNAP, formerly known as Food Stamps) benefits or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) benefits in the past year. More than one-third (37 percent) indicated that they endured financial hardship in the past year.

Though Carreras is designed to accommodate participants with skill levels as low as fourth grade, most participants had higher skill levels, based on their education levels at baseline. As shown, only about 10 percent of them had less than a high school diploma, and about 40 percent had some college. However, the majority were nontraditional students: More than 55 percent were age 25 or older when they entered the study, although 18 percent were age 20 or younger.

[14] The *p*-value summarizes results from chi-squared tests of the likelihood that the difference in the observed value or larger would occur if there were no differences between the two samples. For example, a *p*-value of .32 means that even if the characteristics of the members in the treatment and control groups were identical, the observed difference or larger would occur 32 percent of the time.

Exhibit 2-2. Selected Characteristics of the Carreras en Salud Study Sample

Characteristic	All Study Participants	Treatment Group	Control Group	*p*-Value
Age (%)				.529
20 or under	17.9	17.4	18.3	
21 to 24	26.6	28.9	24.4	
25 to 34	34.1	33.3	34.9	
35 or older	21.4	20.4	22.4	
Sex (%)				.227
Female	92.9	91.8	94.0	
Male	7.1	8.2	6.0	
Race/Ethnicity (%)				.664
Latino	99.4	99.2	99.5	
Black Non-Latino	0.0	0.0	0.0	
White Non-Latino	0.6	0.8	0.5	
Other Non-Latino	0.0	0.0	0.0	
Family Structure (%)				.209
Not Living with Spouse/Partner and Not Living with Children	43.0	45.0	41.0	
Not Living with Spouse/Partner But Living with Children	24.1	20.9	27.3	
Living with Spouse/Partner and Not Living with Children	11.7	12.3	11.1	
Living with Spouse/Partner and Children	21.3	21.9	20.6	
Living with Parents	36.1	32.8	34.0	
Current Education (%)				.242
Less Than a High School Degree	9.7	9.8	9.6	
High School or Equivalent	49.2	47.6	50.9	
Less Than 1 Year of College	13.7	16.3	11.1	
1 or More Years of College	17.4	17.5	17.2	
Associate's Degree or Higher	10.0	8.8	11.1	
Household Income (%)				.767
Less than $15,000	34.4	35.5	33.2	
$15,000 to $29,999	41.5	40.4	42.6	
$30,000 or More	42.1	24.1	24.2	
Mean	$21,051	$20,702	$21,397	.506
Public Assistance / Hardship in Past 12 Months (%)				
Received WIC or SNAP	42.4	41.8	42.9	.780
Received Public Assistance or Welfare	4.7	4.2	5.2	.505
Reported Financial Hardship	36.8	35.8	38.1	.469
Current Work Hours Per Week (%)				.953
0	48.9	49.0	48.9	
1 to 19	5.8	5.8	5.8	
20 to 34	20.7	21.3	20.0	
35 or more	24.6	23.9	25.3	
Expected Work Hours Per Week in Next Few Months (%)				.665
0	22.7	23.7	21.9	
1 to 19	6.3	5.9	6.8	
20 to 34	40.0	41.3	38.6	
35 or more	30.9	29.1	32.6	

SOURCE: PACE Basic Information Form.

SNAP is Supplemental Nutrition Assistance Program. WIC is Special Supplemental Nutrition Program for Women, Infants, and Children.

NOTE: There are no significant differences at the p=.10 level. Appendix A provides a fuller set of baseline characteristics, also confirming that random assignment generated well-balanced treatment and control groups. Some percentages for characteristics do not add up to 100.0 percent due to rounding: Public Assistance / Hardship in Past 12 Months does not because the categories are not mutually exclusive or exhaustive.

The Carreras program predominantly served women with children. More than 90 percent of study participants were female, most likely reflecting the program's focus on healthcare training. Almost half (45 percent) were parents living with children, but only 21 percent lived with their spouse or partner as well as their children. Interestingly, perhaps reflecting the young age of some enrollees, one-third lived with their parents.

Reflecting a focus by Carreras to accommodate working families, slightly more than half of the sample were working at least part time when they enrolled in the study, and more than three-quarters expected to be working some number of hours in the coming months. Almost one-third anticipated working full-time.

2.3.3. Analysis Plan for the Impact Study

Prior to estimating Carreras impacts, the research team published an analysis plan specifying key hypotheses and outcome measures.[15] The team subsequently assessed data quality, refined the plan, and publicly registered it on the Open Science Framework[16] website. The purpose of the analysis plan and registration was to guide the work of the research team and publicly commit to particular hypotheses and an estimation approach, in alignment with ACF's commitment to promote rigor, relevance, transparency, independence, and ethics in the conduct of evaluations.[17]

Hypothesis Testing

An essential principle in the PACE analysis plan is to organize and discipline the number of statistical tests conducted. Like most social policy evaluations, the nine PACE studies target an array of different outcomes. If the evaluation did not adjust in some way for multiple hypothesis tests, a potentially large number of the tests would reach conventional levels of statistical significance by chance, even if there were no effect on any outcome. This is known as the problem of "multiple comparisons." To address this issue, the team established three categories of hypotheses: confirmatory, secondary, and exploratory:

- **Confirmatory hypotheses** involve outcomes most critical to judging whether the program seems to be on track—that is, producing the results expected at a given follow-up duration. Given the relatively small sample sizes in the PACE studies, the research team generally limits such tests to one per program in the early impact report (at 18 months after randomization for Carreras) and two tests in each subsequent report (at three and six years after random assignment)—selecting outcome(s) under the "main" category in the program's theory of change (see Exhibit 2-1). The confirmatory outcome in the Carreras early analyses is total hours of occupational training received.

[15] See Abt Associates (2015).

[16] See https://osf.io/dv46z/

[17] See https://www.acf.hhs.gov/opre/resource/acf-evaluation-policy.

- **Secondary hypotheses** involve a set of additional indicators consistent with expected effects within the period covered by the study report. Each confirmatory and secondary hypothesis has an expected direction of change, an increase or decrease in the outcome. Therefore, the research team tests each confirmatory and secondary hypothesis for significance only in the specified direction, ignoring possible effects in the other direction, by applying one-tailed tests of statistical significance. Secondary analyses for Carreras included tests of hypotheses for additional education outcomes, as well as a number of indicators of early career progress.
- **Exploratory hypotheses** cover an additional set of possible effects whose direction and timing are less certain. Accordingly, the team applies two-tailed tests to these hypotheses. Exploratory hypotheses for Carreras looked at psycho-social skills (e.g., academic self-confidence, social belonging in school) and life stressors (e.g., financial hardship and perceived stress).

Chapter 5 identifies the specific hypotheses in each category tested for Carreras.

Impact Estimation

Random assignment ensures that on average, samples of treatment and control group members will have similar characteristics at the outset and that measured differences in subsequent outcomes provide unbiased estimates of program impacts. To address any effects on percentage point estimates of chance differences arising from random assignment, the research team typically estimates impacts using a procedure that compensates for chance differences in measured baseline characteristics. Such procedures also help to increase the precision of estimates.

The approach applied in PACE involves, first, estimating a statistical model relating each outcome to baseline variables for the control group sample. Next, the procedure applies this model to calculate predicted values for each treatment and control group member. In the last step, the approach calculates average differences between actual and predicted values in both groups and the differences between the two averages provide the impact estimate. Appendix B provides a detailed description of this method.[18]

The team estimated this approach both for continuous outcomes (e.g., total college credits earned) and for binary outcomes (e.g., yes/no questions). For survey-reported outcomes, nonresponse-adjusted weights were used to average outcomes. Additional details can be found in the technical appendices.

[18] As explained in the appendix, the approach is a variant on the traditional approach to regression-adjustment methods used in impact analyses. The latter typically involves linear regression of each outcome on an indicator of treatment status and a series of baseline variables. In this approach, the coefficient on the treatment indicator provides the regression-adjusted impact estimate.

Formally, estimation uses the following equation:

$$\hat{\delta} = \frac{1}{n_T}\sum_i T_i\left(Y_i - \hat{Y}_i\right) - \frac{1}{n_C}\sum_i (1-T_i)\left(Y_i - \hat{Y}_i\right),$$

where $\hat{\delta}$ is the estimated impact of being in the treatment group (whether or not the person attended the program or used any of the offered services); Y is the observed outcome of interest (e.g., credits); $\hat{Y}$ is a prediction of *Y* based on baseline variables measured at random assignment; T is an indicator of treatment status (which is set equal to 1 if the individual is assigned to the treatment group and 0 if the individual is assigned to the control group); n_T and n_C are the respective sample sizes in the treatment and control groups; and the subscript *i* indexes individuals.

2.3.4. Analysis Plan for the Implementation Study

The PACE evaluation's implementation study relies on both qualitative and quantitative analyses, as well as a broad variety of data sources. Key analyses include the following:

- **Qualitative description of implementation.** Describing the program's design and context and developing its theory of change relies primarily on review of program materials; in-person discussions with program staff and leadership during two rounds of site visits; and biweekly or monthly calls between study and program leadership during the study period when random assignment was ongoing.
- **Quantitative analyses.** A quantitative analysis of the proportion of program participants who reached major program milestones serves to systematically document their experience in the program. This relies on Carreras records and the follow-up survey of treatment and control group members.
- **Fidelity.** The study relies primarily on field observations and interviews with program staff and participants to assess the delivery of Carreras's services. To address the question of how program delivery changed over time, the research team asked program staff about internal or external obstacles and how staff altered the program in an attempt to overcome them. Quantitative analysis of how and the extent to which participants moved through the program also enables the comparison of the actual delivery of the program versus its design.
- **Service differences.** The random assignment design of the impact study implicitly assumes that any effects of the program on its main outcomes result from differences in the experiences of treatment and control group members with the program. Thus, where possible, the implementation study describes the difference in services the two groups received. This is important for the PACE evaluation because the control group is not barred

from receiving services available in the community, including those similar to what the treatment group can access through the program.

2.4. Data Sources

The PACE evaluation's implementation and impact studies use a variety of data sources.

- **Baseline surveys.** Prior to random assignment, study participants completed two baseline surveys: The Basic Information Form (BIF) collects demographic and economic information. The Self-Administered Questionnaire (SAQ) measures a variety of attitudes, beliefs, and psycho-social dispositions, as well as more sensitive and personal characteristics. For the study of the Carreras program, participants completed the surveys during study enrollment prior to random assignment.
- **Follow-up survey.** The research team sought to survey all PACE study sample members starting at 15 months after random assignment. On average, the survey occurred 18 months after random assignment. The survey asked about study participants' training and service receipt, postsecondary educational attainment, employment, income, debt, and participation in income support programs. It used a mixed-mode approach, conducted initially by telephone, and then in person for those not reached by telephone. For the Carreras study, Abt's survey unit completed surveys with 344 treatment and 316 control group members, yielding response rates of 86 percent and 79 percent, respectively.[19]
- **Administrative records.** The PACE team relied on the administrative records of each program evaluated, both to describe the experience of treatment group members in their program and to estimate program effects. Program administrative data maintained by Instituto for the Carreras program were used for the implementation study.
- **Site visits.** For the implementation study, the evaluation team conducted two site visits to each PACE program. For Carreras, the first visit occurred in June 2012, about seven months after random assignment began. The goal of this visit was to document the program's theory of change and key components and to assess implementation of evaluation procedures. The second visit to Carreras was in April 2014, near the conclusion of random assignment. The visit documented any modifications to operations or the provision of services, as well as implementation challenges. During the visits, the research team interviewed Carreras program managers; staff involved in evaluation activities (e.g., recruitment, intake, random assignment); case managers and academic advisors, employment services staff, and instructors at community colleges that provided the upper bridge trainings.

[19] See Appendix B for response bias analyses.

- **In-depth interviews with sample members.** For Carreras, the research team conducted in-depth interviews with a random sample of treatment and control group members. A researcher traveled to Chicago in May 2014 and conducted in-person interviews lasting an average of 45 minutes each. The team interviewed 12 study participants (eight treatment group members and four control group members). The interviews focused on their reasons for wanting to enroll in Carreras, desired outcomes, participation in the program (treatment group only), other services received (control group only), and perceived facilitators and barriers to education and training and career success.[20]
- **Program documents.** The PACE research team obtained and reviewed program documents, including annual reports and program materials such as applications, education and career assessments, and course syllabi.

[20] Briefs based on in-depth interview data can be accessed at https://www.acf.hhs.gov/opre/research/project/pathways-for-advancing-careers-and-education and www.career-pathways.org. See Seefeldt et al 2016.

3. Carreras en Salud: Context and Program Design

The context in which Carreras en Salud operates and its design are important for understanding its implementation and impact. This chapter begins with a description of the local context during the PACE study enrollment period (2011-2014). It then provides background on Instituto del Progreso Latino and its impetus for and objectives in developing the Carreras program. Finally, the chapter describes Carreras's program design and delivery of services to its participants.[21]

3.1. Local Context

Three aspects of the local environment are important to understanding program design, implementation, and impacts: the characteristics of the population in the area Instituto serves, the local labor market, and the services and opportunities available to control group members.

3.1.1. Population

The first important contextual factor is whether there is a sizable enough target group who might benefit from the Carreras program. As discussed in Chapter 2, the Carreras target population consists of Latinos residing in the Chicago metropolitan area who are U.S. citizens or legal residents. To be eligible, individuals must also have family incomes below $35,000, English literacy skills that are at the fourth-grade level or above, be bilingual English/Spanish speakers, and be interested in healthcare careers.

Instituto del Progreso Latino is located on the southwest side of Chicago and primarily serves residents of the surrounding neighborhoods, including Pilsen, University Village/Little Italy, and North and South Lawndale. According to the U.S. Census Bureau's 2014 American Community Survey (ACS), that represented about 79,000 people, more than half of whom were Hispanic/Latino.[22]

As shown in Exhibit 3-1, the median household income for the area Instituto serves was $35,112 in 2014, far below that of the Chicago Metropolitan Statistical Area ($47,831) and nationally ($53,482). In the same year, its neighborhood experienced similar unemployment to Chicago (nine percent) which was higher than nationally (five percent). Almost one-third of the population (29 percent) lived below the federal poverty level, which compares unfavorably with Chicago (23 percent) and nationally (16 percent).

Rates of educational attainment also varied. Residents in the Instituto neighborhood consistently had lower attainment at the college level, but rates at the other end of the

[21] For additional information about the program, see Copson, Martinson, and Gardiner (2014).

[22] U.S. Census Bureau, 2010-2014 American Community Survey. Accessed March 1, 2017, at https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

category were much more pronounced: More than one-third of residents had no high school diploma (34 percent), or almost twice the rate in Chicago (18 percent) and almost three times the rate nationally (14 percent).

Exhibit 3-1. Characteristics of the Program Environment for Instituto del Progreso Latino, 2014

	United States	Chicago	Instituto Neighborhood[a]
Total Population	314,107,084	2,712,608	78,952
Race and Ethnicity (%)[b]			
White, Non-Latino	73.8	48.4	48.0
Black or African American, Non-Latino	12.6	31.9	18.5
Other Race	13.6	19.7	35.6
Latino	16.9	28.9	56.7
Educational Attainment[c] (%)			
No High School Diploma	13.6	18.4	34.2
High School Graduate (Includes Equivalency)	28.0	23.2	27.1
Some College, No Degree	21.2	18.1	13.5
Associate's Degree	7.9	5.4	5.0
Bachelor's Degree	18.3	20.9	13.7
Graduate or Professional Degree	11.0	14.0	6.6
Median Household Income	$53,482	$47,831	$35,112
All Those Below Poverty Level (%)	15.6	22.7	29.1
Unemployed (%)	4.7	8.7	9.0

SOURCE: 2014 data as reported by the U.S. Census Bureau's American Community Survey 2010–2014

[a] Chicago figures are for the Chicago Metropolitan Statistical Area. Instituto's neighborhood is in zip code 60608.

[b] Race and Ethnicity sums to more than 100 percent because respondents could identify as two or more races in the survey.

[c] Among respondents age 25 and older.

3.1.2. Local Labor Market

A second contextual factor is whether the local labor market offers sufficient jobs in the occupations for which program participants trained. Based on ACS data, the local economy was mixed during the period between 2011 and 2014, the years when Carreras en Salud enrolled participants in the PACE study. The unemployment rate for the area in 2011 (the start of random assignment) was 9.0 percent; it climbed to 10.0 in 2013, but dropped back to 9.0 percent in 2014 (see Exhibit 3-1), dropping further to 7.5 percent in 2015 (not shown). The unemployment rate in the Instituto area was similar to that in surrounding Chicago during this period, but about double that nationally.

Over the same period, jobs in the healthcare industry grew. According the Bureau of Labor Statistics (BLS), Midwest Information Office, the education and health services industry in the Chicago-Naperville metropolitan area, which is most relevant to the Carreras en Salud program,

grew by 1.3 percent between May 2013 and May 2014. The industry contributed to consecutive year employment gains since March 2000.[23]

Over the 10-year period of 2014-2024, the BLS projects the United States will add 974,200 jobs in healthcare support occupations, representing a 23 percent increase.[24] BLS also reported that as of May 2012, wages in the Chicago-Naperville metropolitan area were above the national average for Registered Nurses (RNs) and LPNs. RNs earned an average of $70,120 per year, and LPNs earned an average of $45,750.[25]

3.1.3. Control Group Environment

The third contextual factor (and the one most pertinent to the evaluation's random assignment design) is the degree to which comparable educational opportunities and supports were available elsewhere locally during the study. A program has the greatest potential to produce impacts when it offers services distinguishable from those already available in the community. The nature of other educational opportunities and supports in the community also bears somewhat on program completers' ability to build on initial training successes after leaving the program.

Instituto itself offered services that the study's control group members could also access, including English as a Second Language (ESL) and GED classes, as well as training programs in manufacturing and retail. Numerous training programs were also available across the city of Chicago; none, however, targeted the same population as Carreras or provided its same services. In particular, these other programs did not include the contextualized, healthcare career-focused training with supports aimed at low-skilled Spanish-speaking populations.

Carreras aside, low-skilled students who cannot enroll directly into CNA or LPN training typically enroll in a stand-alone ESL course or in a basic skills course, neither of which is likely to include instruction oriented toward a healthcare career or the supports that Carreras provides. Applicants who can enroll directly can attend a number of City College of Chicago campuses (for CNAs) or other organizations that offer healthcare training; however, they will not receive the Carreras supports, nor can they access the program slots reserved for Carreras participants (at one college).

Exhibit 3-2 summarizes the difference in services available to the study's control group members ("Standard") versus its treatment group members. (The following section of this chapter describes administrative responsibility for each Carreras component in more detail.)

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[23] Bureau of Labor Statistics. Midwest Information Office, Chicago Area Employment for May 2014. Accessed 19 August 2014. http://www.bls.gov/ro5/ceschi.htm

[24] Bureau of Labor Statistics, Employment by major occupational group, 2014 and projected 20242010-2014. Accessed March 1, 2017 https://www.bls.gov/emp/ep_table_101.htm

[25] Bureau of Labor Statistics News Release, 18 July 2013. "Occupational Employment and Wages for Nurses in Illinois' Metropolitan Areas—May 2012". Accessed 19 August 2014. http://www.bls.gov/ro5/oesilnur.pdf

Exhibit 3-2. Comparison of Career Pathways Components Available to Control Group and Treatment Group Members

Career Pathway Component	Standard Community Offerings (Control and Treatment Group)	Carreras en Salud (Treatment Group)
Assessment	• Compass or TABE	• Compass or TABE
Curriculum	• Standard, stand-alone ESL and basic skills classes • Occupational training at community colleges or other institutions	• Basic skills instruction contextualized for nursing field • Well-articulated path linking basic skills instruction and a progression of nursing credentials • Occupational training at city colleges, with slots reserved for Carreras students at one college
Supports	• Standard financial aid assistance • Standard academic advising services provided by community colleges or other training providers	• Structured academic advising and tutoring • Assistance with nonacademic issues and supports, including transportation and on-site childcare • Tutoring • No out-of-pocket expenses for tuition for Carreras lower bridges • Assistance applying for financial aid for upper bridge college classes • Referrals to community resources as needed
Employment Assistance	• Job search assistance through American Job Centers • Clinical internships for CNA and LPN students	• One-week job readiness workshop • Individualized job search assistance • Clinical internships for CNA and LPN students

SOURCE: Program documents and site visits

3.2. Program History, Administration, and Funding

Carreras was an established program at the time that the PACE evaluation began, operated by Instituto, a nonprofit organization with a history rooted in serving the Latino population in Chicago. This section describes motivation for the development of Carreras, and then describes its organizational structure and staffing.

3.2.1. History and Goals

Established in 1977, Instituto provides education, training, employment, and support services to Latino individuals and their families. It serves about 14,000 individuals annually with a range of services offered at three locations. Many of Carreras's services are provided at a newly renovated and modern facility that houses several other Instituto programs.

Among Instituto's services are ESL classes, GED courses for adults, financial literacy services, a citizenship preparation program, and two vocational training programs in manufacturing and retail. Instituto also operates two charter high schools: one with a health sciences theme and the other with a theme of social justice and leadership. Instituto is supported by a diverse range of funders including federal, state, and local agencies and philanthropic and individual contributions. During the study period, the Carreras program received funds through the Health

Profession Opportunity Grants (HPOG) program through a subcontract with the Workforce Investment Board of Will County.[26]

In 2005, Instituto developed Carreras, basing it on the manufacturing training program. Its purpose was both to address the shortage of Latinos in the healthcare field and to help low-income Latinos improve their basic skills and enroll in training for nursing occupations. In the years leading up to the new program's launch, several organizations, including the Workforce Boards of Metropolitan Chicago, were seeking to develop sector-based training strategies as a way to meet employer demand for skilled labor while at the same addressing training gaps among workers (Estrada 2010).

During this period, the National Council of La Raza, a national Hispanic advocacy and civil rights organization affiliated with Instituto, conducted a study in the Chicago area to identify high-growth sectors and employment interests and what skills the Latino population needed to develop to fill these jobs (Estrada 2010). The study found that local Latinos had a strong interest in healthcare careers, but that low basic skills levels, in addition to personal obstacles such as family and work obligations, citizenship status, and limited financial resources, prevented many from entering occupational training programs. Instituto staff reported that Chicago hospitals had a great need for bilingual nurses to serve Spanish-speaking patients, yet a small fraction of the students in the college LPN programs in the city were bilingual Latinos.

In response, Instituto staff designed Carreras to prepare individuals to be accepted, attend, and complete CNA and LPN courses at two-year colleges in the Chicago area. Carreras also developed in-house basic skills instruction, calling them "lower bridge" courses, to prepare participants to enroll in those "upper bridge" CNA and LPN courses. Though not officially part of Carreras, an RN degree program is another option for students who complete its LPN course. Finally, program staff organized a range of supports to facilitate program completion and employment.

For the PACE study, Instituto received funds from ACF to expand recruitment efforts, as well as support from the Open Society Foundations, the Joyce Foundation, and the Kresge Foundation to scale up the Carreras program.[27] In particular, to meet PACE evaluation requirements, Instituto sought to increase the scale of the Carreras program from approximately 180

[26] For the HPOG grant, the Workforce Investment Board of Will County participated in a collaborative effort of the Workforce Boards of Metropolitan Chicago, a consortium of nine workforce investment boards. This consortium received the HPOG grant from ACF, which administers the grant program, to provide training and assistance to TANF recipients and other low-income individuals with barriers to the credentials needed for employment in high-demand healthcare occupations. In addition to Instituto, several community-based and community college partners received funding through this HPOG grant including Jewish Vocational Services, Central States SER, the College of Lake County, Joliet Junior College, and McHenry County College. The HPOG grant provided funding over a five-year period from October 2010-September 2015.

[27] ACF funding was provided via a subcontract between Abt Associates and Instituto.

participants per year to 250 per year, an increase of more than one-third.[28] In addition, Carreras needed to increase the number of individuals recruited in order to establish the control group. In all, the program needed to increase recruitment by approximately two-thirds.

3.2.2. Organizational Partners, Structure, and Staffing

Carreras was overseen by a Career Pathways Director, who also managed the manufacturing and retail career pathways programs offered by Instituto. The Vice President of Education and Programs at Instituto, who originally designed and managed the Carreras program, also provided oversight as needed. The number of staff fluctuated over the course of the study period. At the time of the first site visit in June 2012, the program employed more than 20 staff in the following positions:

- **Recruiter.** A full-time recruiter developed and coordinated a range of strategies to identify potential applicants.
- **Intake Specialist**. Two frontline staff conducted a weekly orientation session and managed the enrollment process, including ensuring each applicant's documentation was complete.
- **Case Manager.** Six case managers provided support for lower bridge students. The case managers identified and provided supports to help ensure that program participants could attend and complete training, such as assistance with childcare and transportation or referrals to resources that Instituto did not provide in-house (e.g., mental health or domestic violence services).
- **Academic Advisor.** Three academic advisors provided academic support as needed, including tutoring, to lower and upper bridge students.
- **Instructor.** Six part-time instructors taught lower bridge classes. They also provided tutoring as needed for these courses.
- **Employment Specialist.** Two employment specialists taught the one-week job readiness workshop that was available to all program participants, worked one-on-one with participants to develop resumes and apply for jobs, and developed relationships with employers to facilitate job placement.
- **Curriculum Specialist.** A full-time curriculum specialist developed and oversaw lesson plans and instructors for the lower bridge courses. As discussed further in Chapter 4, this position was created early in the PACE study period, to be responsible for establishing a standard content and subject sequence for each lower bridge course.

[28] The original sample size target for the evaluation was 500 treatment group members and 500 control group members. As discussed further below, Carreras ultimately was able to recruit about 400 treatment group and 400 control group members within the random assignment period.

Carreras staff reported that many staff grew up or currently lived in Pilsen or the surrounding neighborhoods and many had received services from Instituto themselves, or their family members had. Staff reported strong morale and a sense of mission in part due to the close-knit community of staff.

Program Partners

Carreras partners with the seven-college City Colleges of Chicago system to provide the upper bridges—the CNA, LPN Prerequisites, and LPN courses. The colleges do not offer additional services beyond what is available to all their students. A key college partner is Wilbur Wright College, which provides the CNA and LPN courses, primarily at its satellite location that is close in proximity to Instituto, the Humboldt Park Vocational Education Center (HPVEC).[29] Instituto first partnered with Wright College in 2005, when Carreras could not meet its students' enrollment demands for CNA and LPN classes. Wright College initially agreed to allocate only a few seats in its LPN course. However, as its students succeeded and Carreras scaled up, Wright College agreed to increase the number of slots set aside for the program. During the PACE study period, HPVEC reserved 10 to 15 percent of its seats for Carreras students.[30]

Still, the Wright College courses, particularly the CNA course, were sometimes at capacity, so Carreras students also attended training at other city colleges. In particular, Carreras referred students to the CNA and LPN courses at Richard J. Daly College and Kennedy-King College, as well as other colleges in the system if students preferred, although Carreras has no formal arrangement with either and they do not hold slots for Carreras students.[31]

Select healthcare employers have also been long-term partners in the Carreras program. When Instituto initially developed its curriculum, it held an "employer breakfast" with representatives from local hospitals and nursing homes to describe the program, provide a copy of its curriculum, and solicit feedback. Because the event resulted in valuable input, Instituto held similar events several times during the first year of the program.

In the program's second year, Instituto institutionalized this approach by creating an advisory council for Carreras consisting of some 10 local hospital, clinic, and staffing agency employers that meet twice yearly. Attendees typically include directors of nursing and Human Resource specialists from these organizations. At its meetings the advisory council discusses curriculum changes, changes in technology, employer needs, and setting up internships.

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[29] The Humboldt Park location of Wright College focuses on adult education and basic skills instruction. It also offers courses for the RN degree program, for those who complete the LPN course and want to go further.

[30] HPVEC serves about 300 nursing students a year and reserves 10-15 percent of its LPN and RN slots for Carreras. Each year, two 11-month LPN cohorts of about 64 students each start in January and June. Two nine-month RN cohorts start in March and August. Although RN is not part of the Carreras pathway, program staff encourage participants to continue beyond an LPN.

[31] After the PACE study period, Instituto became an accredited training institution and now provides its own CNA courses in-house.

3.3. Program Design

An early proponent of the career pathways approach to training, Instituto staff designed Carreras to provide a clearly articulated training and education pathway to a range of nursing positions. This section describes the program's recruitment strategies and application process; the seven courses that make up that pathway; and the support services, financial assistance, and employment services available to program participants.

3.3.1. Recruitment

As discussed above, to meet the PACE evaluation's analytical requirements, the Carreras program needed to increase in size by one-third, as well as significantly over-recruit to generate a control group of equal size to the treatment group. Prior to the study, the Carreras program relied primarily on its reputation in the community and word-of-mouth. To ensure enough study participants for PACE, Carreras scaled up their recruitment efforts, developing a range of new recruitment strategies, many of which were supported by PACE evaluation funds.

Instituto's multi-faceted recruitment approach expanded to include the following:

- **Dedicated recruitment staff.** Using evaluation resources, Carreras hired a full-time recruiter to develop and coordinate all the recruitment activities described below.
- **Word-of-mouth.** Personal referrals from current and former program participants and their families and friends were a major source for the program prior to its inclusion in PACE. They continued to be a key source after random assignment began.
- **Community outreach.** Staff made presentations at local churches, schools, and community groups; distributed fliers at local festivals; sent informational emails to participants in other Instituto programs; and distributed program information to students at community colleges who might benefit from Carreras's personal and financial support.
- **Newspaper ads.** Advertisements placed in Spanish- and English-language newspapers increased inquiries about the program. Instituto typically ran these ads in the weeks leading up to the start of a bridge class.
- **Television, radio, and billboard ads.** Staff developed paid television and radio advertisements. These, including billboards promoting Carreras, were a new technique for the organization.
- **Outreach to past referrals who did not enroll.** Instituto's recruiter periodically reviewed records of people who had inquired about Carreras but did not enroll. The recruiter attempted to contact them by phone and mail to encourage them to return.

Overall, as discussed further in the next chapter, though Carreras had difficulty reaching the scale desired for the evaluation, these multiple approaches to recruitment did help the program increase capacity as well as establish the control group.

3.3.2. Assessment and Enrollment

Carreras's application process involved several steps (i.e., orientation, assessment, and enrollment) typically completed over a few weeks. The purpose of the assessment portion was to place applicants in the appropriate starting course.

Orientation. In its ads and other recruitment efforts, Carreras invited interested individuals to attend one of its weekly orientation meetings. There, staff provided an overview of the program's services and supports, discussed the nursing pathway, described the nature of the work associated with each job and its associated salary, and reviewed program requirements (including taking the TABE to measure basic skills). At the end of the orientation, interested applicants scheduled a TABE testing session, which were held weekly.

Applicants were also asked to bring to the testing session documentation of program eligibility, including a government-issued ID, Social Security card, proof of income (if they had been employed in the past six months, pay stubs or other wage documentation), and any college transcripts. As discussed, to be eligible, applicants had to have family incomes below $35,000, English literacy skills at the fourth-grade level or above, be bilingual English/Spanish speakers, and be interested in healthcare careers.

Tests of Adult Basic Education (TABE) or Compass Testing. At the testing session, applicants first took the 45-minute TABE Locator, a pre-test to determine the assessment that should follow. Those who scored below a 10.0 on the reading portion continued with the full 1.5-hour TABE. Those who scored above a 10.0 on the TABE were required to take the Compass college entrance exam. The Compass could not be administered at Instituto, so staff provided applicants with information on where and when they could take it (typically at one of the City Colleges).

Staff made copies of each applicant's documentation and scheduled return assessment appointments, typically within a week. Prior to those appointments, an intake specialist would review the documentation to ensure each applicant met the basic eligibility requirements, contacting them if any additional information was needed.

Assessment Appointment. At the appointment, a Carreras academic advisor reviewed the applicant's educational background, TABE or Compass scores, and college transcripts (if any) to determine which course was appropriate given the applicant's level of basic skills. A Carreras case manager then met with the applicant to determine whether the program was a good fit. Though the decision was subjective, the discussion revealed the applicant's interest in nursing, understanding of the job requirements and salaries associated with each nursing credential, how Carreras would contribute to the applicant's employment objectives, and potential barriers to participation. Because the program seeks to train bilingual medical staff, the case manager asked several questions in Spanish. If the case manager determined the applicant was eligible and appropriate for the program, PACE study enrollment came next.

PACE Study Enrollment. As described in Section 2.3.1, applicants who agreed to be in the study signed the consent form and completed the BIF and SAQ and were randomly assigned by the case manager to the study's treatment or control group. Treatment group members received a copy of Carreras's policies and procedures and were told when their class began. Control group members received a list of alternate services at Instituto and in the community.

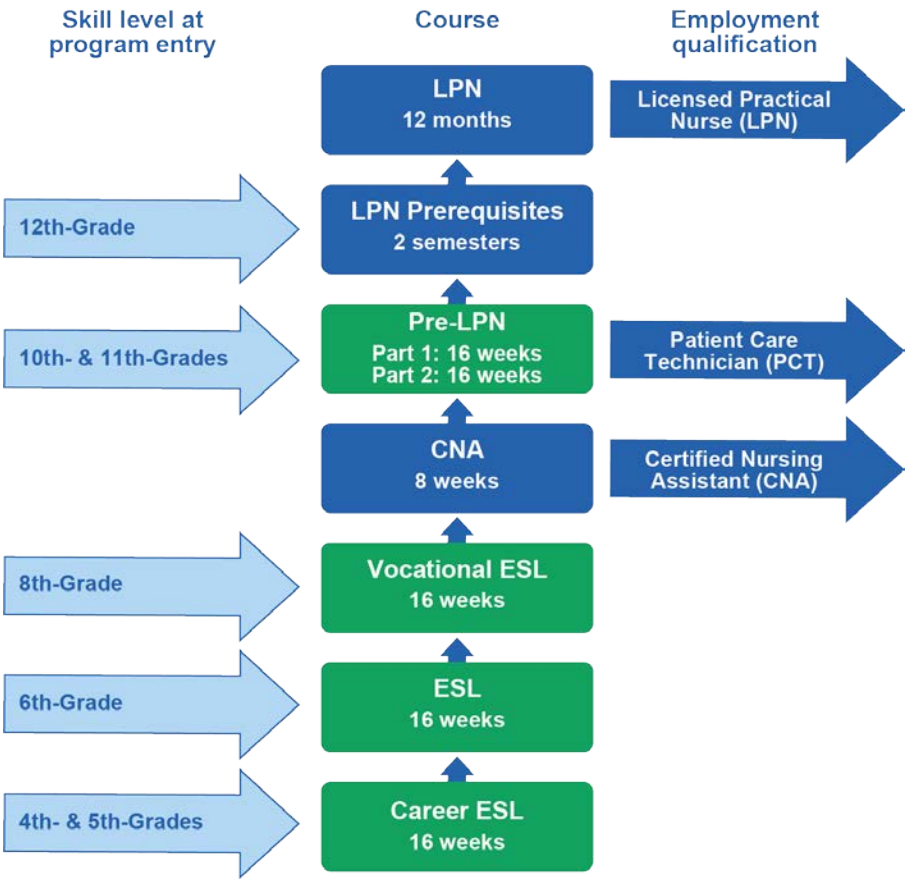
3.3.3. Education and Training

Each step in the program's nursing pathway requires progressively more skills and is associated with higher-paying jobs. As Exhibit 3-3 below shows, the pathway's seven courses start at the fourth-grade literacy level and continue through college. The four "lower" bridges are indicated in green. Career ESL, ESL, and Vocational ESL (VESL) are designed as a bridge to the CNA course. Pre-LPN provides a bridge to the LPN prerequisites and to the LPN course. The three "upper" bridges (CNA, LPN Prerequisites, and LPN) are in blue.

With the primary goal of employment in the healthcare field, the Carreras program was designed to connect participants directly with jobs. Exhibit 3-3 below also shows that participants can leave the pathway for employment at several points. A summary of each course in the Carreras en Salud pathway is below.

- **ESL with Career Exploration (Career ESL).** This course serves participants at the fourth- or fifth-grade skills level and aims to improve students' English language, literacy, and math skills to prepare them for the ESL course. The course is 16 weeks, Monday through Friday four hours per night, and taught in-house at Instituto. Career ESL aims to raise students' basic skills to the sixth-grade level, and those who test at this level transition to ESL.
- **English as a Second Language (ESL)**. This course serves participants at the sixth- or seventh-grade skills level, lasts 16 weeks, and is held Monday through Friday for four hours each evening. ESL is taught in-house at Instituto, and provides instruction in English through reading and writing lessons that include vocabulary tailored to the healthcare field. The instructor administers the TABE midcourse to determine whether students are progressing, and again at 16 weeks. Those who test at the eighth-grade skills level can transition to VESL.
- **Vocational ESL (VESL).** This course serves participants at the eighth- or ninth-grade skills level. Like ESL, the course lasts 16 weeks and is held Monday through Friday for four hours each evening and is taught in-house. The VESL course continues to build English proficiency and introduces students to the vocabulary and skills needed to become a CNA. The lessons feature material likely to be encountered on the state CNA certification exam. Again, the instructor administers the TABE midcourse and at 16 weeks. Those who test at the 10th-grade skills level can transition to the CNA course.

Exhibit 3-3. Carreras en Salud Nursing Pathway



At this point on the pathway, participants begin to focus on both skills progression and earning a credential.

- **CNA.** The CNA course lasts eight weeks. Classroom instruction at a Chicago City College is coupled with clinical hours to provide hands-on experience applicable to the role of a CNA. At the conclusion of the course, students take the state CNA certification exam. At this point, Carreras participants can seek employment as a CNA, continue with their training, or do both.

> The program … is for Hispanics, they helped me a lot. There were teachers and they were bilingual. If we didn't understand something in English, they would translate it for us. They will make the class bilingual, too. All my friends, they were Hispanics, which made things easier.
>
> —Carreras participant

- **Pre-LPN.** This course serves students who test at the 10th- or 11th-grade skills level on the Compass test. Pre-LPN includes two 16-week modules taught in-house at Instituto. The course is designed to improve students' reading and math skills to the level required for the LPN prerequisites and training. Part 1 prepares students to advance from a 10th- or 11th-grade skills level in reading and math. Part 2 prepares students at the 11th-grade skills level

to pass the Compass exam, which is required by the City Colleges of Chicago for entry into their programs.[32] The Pre-LPN bridge also provides electrocardiogram (EKG) and phlebotomy training, which enables students who complete the second module to qualify as a Patient Care Technician (PCT). Participants can seek employment as a PCT, continue with their training, or do both.

- **LPN Prerequisites.** This course serves students who test at the 11th or 12th grade level on the Compass and lasts two semesters. Before students can enter a college-level LPN course, they must first complete college prerequisites in math, English, biology, physiology, and psychology. The City Colleges of Chicago provide this instruction. Most students take two semesters to complete the prerequisite courses.
- **LPN.** On average, students take one year to complete the LPN course, which is provided at a City College. Completers may sit for the National Council Licensure Exam-Practical Nurse exam. Passing the exam certifies them for employment as an LPN.

All lower bridge classes (Career ESL, ESL, VESL, and Pre-LPN) use Carreras instructors and receive supports from Instituto staff. They are offered in the evening to accommodate students who work during the day. The upper bridges (CNA, LPN Prerequisites, and LPN) are provided at City Colleges campuses (typically HPVEC), which use their own instructors and curricula. Classes at Instituto are generally offered three times a year (fall, winter, and spring), whereas the college courses begin in the fall and spring. Exhibit 3-4 below summaries the details about the courses that make up Carreras's nursing pathway.

Carreras participants can enter the pathway at any step, as determined by their scores on the TABE or (if applicable) Compass. They do not necessarily have to complete all of the lower bridges. For example, students who enter at ESL, but make large improvements in their TABE scores and progress in their coursework could enroll directly in the CNA course.

Once its students are at the college level, Carreras aims to integrate them with the broader college population, though still providing academic advising and employment supports through Instituto. This includes enrollment in an RN degree program. Though not officially part of the Carreras program, the RN is another option for students who complete its LPN course. Participants who do enroll continue receiving support from Carreras, primarily academic advising and employment assistance.

[32] Students without a high school diploma or GED also participate in a customized GED program, because either a diploma or equivalent is needed to enroll in college-level courses.

Exhibit 3-4. Summary of Carreras Courses

Course	Basic Skills Entry Level	Provider	Duration	Completion Requirements
Career ESL	4th-grade level on TABE	Instituto	16 weeks, evening classes	6th-grade level on TABE
ESL	6th- or 7th-grade level on TABE	Instituto	16 weeks, evening classes	8th-grade level on TABE
Vocational ESL	8th- to 9th-grade level on TABE	Instituto	16 weeks, evening classes	10th-grade level on TABE or score of 65+ in Reading on Compass
CNA	N/A	Humboldt Park Vocational Education Center[a]; other City Colleges	8 weeks	CNA state license
Pre-LPN	Part 1: 10th-grade level on Compass Part 2: 10th- to 12th-grade level on Compass	Instituto	16 weeks each for Part 1 and Part 2, evening classes	Place into English 101 (score 80+ in Reading and 8+ in Writing on Compass) and Math 118
LPN Prerequisites	11th- to below 12th-grade level on Compass	Wilbur Wright City College; other City Colleges	2 semesters	Credits in appropriate math, English, biology, physiology, and psychology course
LPN	College entry level on Compass	Humboldt Park Vocational Education Center; other City Colleges	12 months	LPN state license

NOTE: CNA is Certified Nursing Assistant. ESL is English as a Second Language. LPN is Licensed Practical Nurse. TABE is Tests of Adult Basic Education.

[a] Humboldt Park Vocational Education Center (HPVEC) is part of Wilbur Wright City College.

3.3.4. Support Services

Carreras includes an array of academic and personal support services. These include case managers who work individually with participants to identify and arrange necessary support services, academic advisors who provide academic support, and tutoring. Each support is described below.

One-on-one assistance with non-academic support. Instituto designed the Carreras program to have case managers work with participants in the lower bridges (Career ESL, ESL, VESL, and Pre-LPN) while they are attending classes at Instituto. They are responsible for identifying nonacademic barriers to educational progress. Case managers typically meet with participants during the first two weeks of class to develop a support services plan that identifies and arranges needed supports. Supports can include the following:

- ***Childcare.*** Instituto provides in-house childcare during the workday for children ages 3 to 8 and operates an after-school program from 3 p.m. to 8 p.m. for children ages 7 to 15. Staff also arranged for the local YMCA to offer an evening childcare program from 4 p.m. to 10 p.m. each weeknight when participants are generally in class. Case managers also help participants apply for childcare assistance through Illinois Action for Children.
- ***Transportation.*** The program provides transportation assistance in the form of public transit vouchers.

- ***Other public benefits and community resources.*** Case managers refer students to other resources in the community as needed. For instance, Latinos en Acción provides support in cases of domestic violence, and the Resurrection Project provides financial coaching and legal assistance. Case managers also help participants apply for public benefits programs, such as food or cash assistance, for which they may be eligible.

Students are expected to meet with their case manager in person once a month, and staff reported that most typically do so because they are on site at Instituto attending classes and case managers are easily accessible. The case managers monitor class attendance daily, follow up with students who are not attending, and notify academic advisors about attendance or other academic issues they identify. Case managers carry a caseload of approximately 60 participants, and Carreras staff report this caseload size is small enough to stay in frequent contact.

> I think it's every month… [to meet with academic advisor]. That they make an appointment with us with—well, they make an appointment with me. They gave me an appointment, so I came. They talk to me. They give me how I feel [sic] how I'm progressing. If I saw that I'm progressing, if I feel that I'm not, and yeah. They give me appointments and they ask about how's your—about our classes. If I'm learning, what opinion I have about my teachers.
>
> —Carreras participant

In addition to monthly meetings, case managers usually meet briefly with students each week during open office hours. Case managers schedule the hours to coincide with the times students arrive to pick up travel vouchers. Staff reported that open office hours are an opportunity to check in informally with participants to see whether they need additional help. Though in-person meetings are the most common way that case managers communicate with students, they also communicate by phone and email.

Academic advising. The academic advisors help students in the lower and upper bridges set academic goals, monitor their progress, and arrange tutoring as needed. Academic advisors first meet with participants before their courses begin to review their schedules and address any questions or concerns. Advisors develop an academic plan that specifies the student's academic and career goals as well as the sequence of courses required to reach those goals. They also discuss the wages and duties associated with various nursing jobs so that students understand the types of work responsibilities associated with their career goals.

Academic advisors report that they often set expectations with students around how much they should study, and encourage them to inform their families in advance how important the program is for their future and that for a time they will be busy going to class and doing homework.

After this initial meeting, academic advisors meet with lower bridge students in person at Instituto at least once a month, generally for about 20 to 30 minutes. Telephone conversations and emails may occur more frequently. During the in-person meetings, academic advisors report that they typically discuss class performance, grades, tutoring needs, and preparation for future placement tests.

If a student is struggling, the advisor follows up with the instructor or the curriculum specialist to identify a strategy to assist the student. The advisors review TABE scores and may recommend a student move down a bridge level if needed.

Academic advisors report it is more difficult to maintain contact with upper bridge students, because students are not on-site at Instituto. An academic advisor is on-site at HPVEC once per week to check in with Carreras participants between classes, but it is still difficult to see all students monthly unless they seek out assistance. The HPVEC Director of Nursing reported that she updates the academic advisors when they are on-site if particular participants are not performing well and will ask an advisor to speak with them.

Tutoring. Carreras provides tutoring to students in lower and upper bridges. Students can request tutoring or instructors can recommend it. Carreras staff estimate that by the end of each academic semester, almost all participants, regardless of level, use tutoring services at least once. For the lower bridge classes, the Carreras instructors at Instituto themselves are the tutors and generally provide tutoring before class.

Though not part of the Carreras program, campus tutors are available to upper bridge students at HPVEC three days a week. HPVEC mandates tutoring for students who score below 80 percent on an exam or who fail one exam. Its instructors email these students and copy its Director of Nursing to refer students to tutoring. Faculty also typically stay after class to help students. Additionally, CNA and LPN students can attend weekly tutoring sessions at HPVEC to prepare for their state certification exams. Carreras also offered an optional (but recommended) prep class to prepare LPN Prerequisite students for the entry exam for LPN programs, covering science, reading comprehension, and math.

3.3.5. Financial Assistance

Instituto makes its lower bridges tuition free using a combination of funds such as Workforce Investment Act (WIA), federal grants such as the Health Profession Opportunity Grants, and private donations to operate the program. Participants in the upper bridges pay for courses through standard financial aid, such as Pell Grants or WIA individual training accounts (if eligible). Carreras staff assist upper bridge students in identifying resources and completing applications.

> I do like that they have this program 'cause they help you a lot, financially. They say, finding childcare, they will help you to. For me, I can't afford to pay everything by my own. I think they do help you a lot. That's what I—I like that. Like I say, it will be hard for me. It will be really hard. I think I can do it with the help they're giving me. I think I will make it.
>
> —Carreras participant

Because income is an eligibility criterion for Carreras, as part of its enrollment process, staff have documented each applicant's financial circumstances and eligibility for various types of tuition assistance, and they review the financial aid options with Carreras participants.

3.3.6. Employment Services

Employment specialists provide a range of employment supports,[33] including a job readiness workshop and one-on-one assistance after participants complete their training. Employment specialists also serve as job developers.

Job Readiness Workshop. The employment specialists hold a job readiness workshop that all lower bridge and upper bridge participants are strongly encouraged to attend upon completion of a training course. Carreras staff report that even if students plan to continue their education, they are urged to take the workshop because their circumstances could change and they could find themselves looking for a job instead.

The week-long workshop is offered monthly and meets for two hours each evening for five days. It has an interactive format that includes videos and activities, such as mock interviews. Each day addresses a different topic and skill (see box).

Curriculum for Job Readiness Workshop

- Day One: Filling out job applications, putting together a fact sheet of your history to fill out applications more quickly.
- Day Two: Different types of resumes and which types are best suited for you. How to deal with gaps in employment; including volunteer work as part of work history.
- Day Three: Mock interviews, including interview tips and methods, how to talk about your strengths and weaknesses, and student critiques.
- Day Four: Labor market information and important resources for job openings, time management, budgeting, and managing finances. Expected salaries for CNA, LPN, and RN.
- Day Five: Additional mock interviews, dressing for success. (Students are asked to dress in professional attire for the mock interviews.)

One-on-One Job Search Assistance. As participants near completion of the CNA or LPN training or after they have finished the job readiness workshop, employment specialists schedule individual appointments with them to review their resumes and provide assistance with additional mock interviewing if needed. The employment specialists assist program completers in locating and applying for positions, using the job openings they may have identified through their contacts with employers (see below), as well as more standard options such as the classifieds and on-line databases.

The employment specialists also maintain a list of Carreras participants who have completed CNA and LPN training, and when job openings are identified, the specialists email the announcement to the appropriate group. Those interested reply to the specialists, who may forward their application information to the employer. Participants are pre-screened before they are sent to an employer for an interview. If a participant secures a job (regardless of whether it is found with the assistance of the employment specialist), the employment

[33] The number of employment specialists varied between one and two over the study period.

specialists record the employer's name and the salary, and follow up with the employee monthly for a year.

Job Development Activities. The employment specialists build and maintain relationships with employers in the community. They keep a database of employers that includes the healthcare industry as well as others should a student need to find short-term work to make ends meet. In addition to forming relationships, the employment specialists also visit potential job sites to ensure that the environments are safe for participants to work in. They especially try to find employers in safe neighborhoods and accessible by public transportation.

To initiate new relationships, employment specialists make cold calls to employers, explaining the Carreras program and how it can help meet their business needs and fill job orders. The specialists also attend job fairs to learn about potential employment opportunities. Once they have the contact information of an employer, they make a courtesy follow-up call within a week to provide further information on the program and students.

4. Implementation Study Findings

Carreras en Salud operated for a number of years before it entered the PACE study. Although the program model was largely set, staff continued to adapt it as needed to better support participants. Whereas Chapter 3 documented the training and education, supports, and employment services provided, this chapter first describes participation patterns, then assesses overall implementation findings. It concludes by comparing education and training service receipt differences between the treatment group and control group.

4.1. Education and Training Participation Patterns

This section analyzes rates of the treatment group's participation in Carreras education and training courses. The analysis, based on Carreras program administrative records, reports the overall level of participation, completion rates, and progression through Carreras courses over an 18-month follow-up period.

- ***Some 92 percent of treatment group members participated in at least one Carreras course within the follow-up period. Courses in the middle of the Carreras pathway—VESL, CNA, Pre-LPN, and LPN Prerequisites—were the most commonly attended.***

Exhibit 4-1 shows the proportion of all treatment group members who participated in and completed any of the Carreras courses during the follow-up period (as their first, second, or subsequent training). As shown, Carreras was successful in engaging the vast majority of treatment group members in its education and training, with 92 percent of them participating in at least one course. The remaining eight percent did not participate in training through Carreras after they were randomly assigned.

Exhibit 4-1. Participation and Completion of Carreras en Salud Courses by Treatment Group Members within an 18-Month Follow-up Period

		Of Those Who Attended the Course	
Course	Participation Rate (%)	Completion Rate (%)	Still Participating at End of Follow-Up Period (%)
Career ESL	6.7	84.0	0.0
ESL	7.8	48.2	0.0
Vocational ESL	30.7	78.1	0.9
CNA	33.7	82.4	2.4
Pre-LPN	36.4	72.6	3.7
LPN Prerequisites	37.2	35.5	2.9
LPN	5.7	14.3	80.0
RN	2.4	0.0	66.7
Any Course	92.3	71.7	5.7

SOURCE: Carreras program administrative records.

NOTES: Sample size is 402 treatment group members. Students could attend more than one course. Completion and still participating are for those who attended the course.

Among all treatment group members, the CNA, Pre-LPN, and LPN Prerequisites were the most common courses attended: approximately one-third of the treatment group members attended each. By way of comparison, less than 10 percent of treatment group members attended each of the lower-level ESL courses (Career ESL and ESL). This in part reflects, as discussed in Chapter 2, that 90 percent of them had their high school diploma or some college at the time of enrollment. Even fewer (five percent) attended the LPN course. And, though not officially part of the Carreras career pathway, two percent of treatment group members attended an RN program during the 18-month follow-up period.

Most individuals who were still participating at the end of the follow-up period were in the higher level LPN and RN programs (80 percent and 67 percent, respectively). In part, this reflects the length of the programs relative to the follow-up period (LPN is two semesters and RN is four years). Unless participants started the Carreras program at the LPN course level, they would be unlikely to complete it within 18 months.

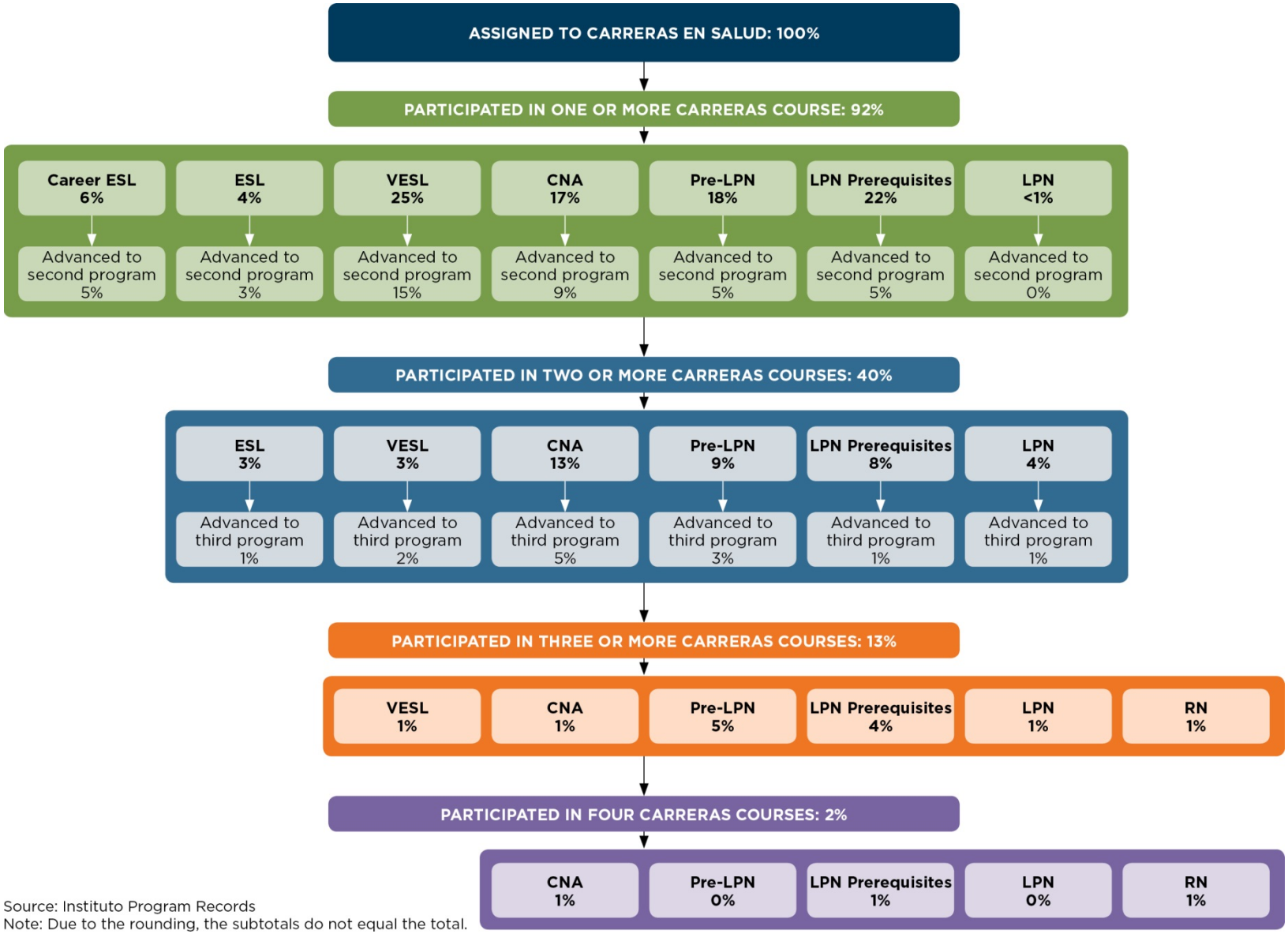
- ***Completion rates for commonly attended Carreras courses were high.***

Overall, as also shown in Exhibit 4-1, almost three-quarters (72 percent) of treatment group members completed a training course within the follow-up period. Eighty-two percent of CNA students completed this eight-week course; the Career ESL, VESL and Pre-LPN programs had relatively high completion rates (more than 70 percent). For the other credential-bearing training, the one-year LPN program, the completion rate was lower (14 percent). As noted above, 80 percent of these students were still attending at the end of the follow-up period. Overall, almost six percent of treatment group members were still participating in a Carreras course at the end of the 18-month period, based on the Carreras program administrative data.

- ***A significant portion of treatment group members—40 percent—progressed to a higher-level training within the follow-up period.***

For all treatment group members, Exhibit 4-2 shows participation patterns for the first training course attended, followed by the second training course and subsequent ones. As noted above, 92 percent of treatment group members enrolled in at least one course, and 40 percent of the treatment group progressed from their initial training course to a second one. Thirteen percent of the treatment group attended three courses, and two percent attended four.

Exhibit 4-2. Progression of Carreras en Salud Treatment Group Members over an 18-Month Follow-up Period



Source: Instituto Program Records
Note: Due to the rounding, the subtotals do not equal the total.

Students' initial training course, reflecting the overall patterns discussed above, clustered in the middle of the pathway. Exhibit 4-2 shows that the most common first course for treatment group members was the VESL bridge (25 percent), followed by LPN Prerequisites (22 percent), the Pre-LPN bridge (18 percent), and CNA (17 percent). As expected given the program's design, very few participants started at the LPN level.

Second trainings followed this general pattern of participation in the middle of the pathway. Of all the treatment group members, the largest share (13 percent) enrolled in the CNA as their second training course, followed by the Pre-LPN course (nine percent) and the LPN Prerequisites (eight percent). Fewer enrolled in the ESL and VESL courses (three percent each). Four percent of treatment group members progressed to the LPN course. Among the 13 percent of treatment group members who enrolled in a third training, the most common courses were Pre-LPN (five percent), followed by LPN Prerequisites (four percent). One percent each progressed to LPN and RN training.

As discussed further below, Exhibit 4-2 does not show the specific pathway followed by participants who enrolled in two or more courses because there are many different course combinations. That is, Carreras participants sometimes did not progress sequentially through the pathway steps. For example, some students attended ESL for their first course and then moved directly to the CNA for their second, bypassing VESL. Students who skipped one or more steps did so presumably because Carreras staff determined it was appropriate for them to move up more than one level. This exhibit shows overall progression, while progression to and from specific courses is discussed below.

- ***Though there is progression to the next level from all courses, treatment group members generally did not reach the highest-level LPN course within the follow-up period despite significant proportions attending the Pre-LPN and LPN Prerequisites courses.***

Exhibit 4-3 depicts attendance for the subset of treatment group members who attended any education or training course—that is, the 92 percent from Exhibit 4-2. It shows the completion rates and the proportions who progressed to a higher-level course, based on the number and type of courses attended. Recall that the Carreras program was designed for participants to leave training for work or other reasons as needed, and potentially return at a later date. This means that not progressing to the next level training may be an appropriate response for a given student.

The first panel of this exhibit also shows for each first course attended, the proportion that completed it and moved to a subsequent level. There are several points to note.

- Both completion and progression rates are high for ESL (73 percent each) and VESL (77 and 62 percent, respectively).

- The CNA course had a high completion rate (88 percent) but a lower progression rate (53 percent), potentially because some completers took a job after finishing the course rather than progressing to the next step.
- The completion rates for Pre-LPN and LPN Prerequisites (76 and 46 percent, respectively) were considerably higher than their progression rates (26 and 17 percent, respectively). Again, completers may have elected to take a job rather than the next course in the sequence. Students who completed the LPN Prerequisites, for example, were qualified for Patient Care Technician positions.

Exhibit 4-3. Participation and Progression through Carreras Courses among Treatment Group Members Who Participated in Any Course within an 18-Month Follow-Up Period

		Of Those Who Attended the Course		
Course(s) Attended	Participation Rate (%)	Completion Rate (%)	Progressed to a Subsequent Course (%)	Still Participating at Follow-Up (%)
First Course Attended				
Career ESL	6.7	84.0	80.0	
ESL	4.0	73.3	73.3	
Vocational ESL	26.7	76.8	61.6	
CNA	18.3	88.2	52.9	
Pre-LPN	19.9	75.7	25.7	
LPN Prerequisites	24.0	46.1	16.9	
LPN	0.3	100.0	0.0	
Attended At Least One Course	100.0	68.7	43.7	3.2
Second Course Attended				
ESL	3.8	21.4	21.4	
Vocational ESL	3.2	91.7	66.7	
CNA	13.7	86.3	41.2	
Pre-LPN	10.2	73.7	34.2	
LPN Prerequisites	8.4	25.8	12.9	
LPN	4.3	56.3	31.3	
Attended At Least Two Courses	43.7	63.6	33.3	1.9
Third Course Attended				
Vocational ESL	0.8	33.3	66.7	
CNA	1.1	75.0	0.0	
Pre-LPN	5.9	63.6	9.1	
LPN Prerequisites	4.3	18.8	6.3	
LPN	1.1	25.0	75.0	
RN	1.3	0.0	0.0	
Attended At Least Three Courses	14.5	40.7	14.8	0.3
Fourth Course Attended				
CNA	0.5	50.0		
LPN Prerequisites	0.5	50.0		
RN	1.1	0.0		
Attended Four Courses	2.2	25.0		0.8

SOURCE: Carreras program administrative records.

NOTE: Sample size = 371 and includes all treatment group members who attended at least one course.

The second panel of the exhibit shows the second course attended. Reflecting the relatively high progression rates from ESL and VESL as first courses (73 and 77 percent, respectively, shown on first panel), CNA and Pre-LPN are the most common second courses. The patterns of participation observed are similar to those who took one course. At least some students progressed from each second course to the next level, but the progression rate was highest for the VESL course (the pathway's preparation for the CNA). And though a large proportion completed the CNA as a second course (86 percent), only about half of those students (41 percent) progressed to a subsequent course. (As before, many students may have opted for employment over course progression.) Finally, progression rates are lower for those who complete the Pre-LPN and LPN Prerequisites bridges (34 and 13 percent, respectively).

Overall, though a large proportion of students attended and completed courses that prepared them for the LPN course (i.e., Pre-LPN and LPN Prerequisites), as discussed above few enrolled in LPN training during the study period (see Exhibit 4.1 above, about five percent). In part, this may reflect the relatively short 18-month follow-up period, whereas Pre-LPN and LPN Prerequisites take time (eight months and two semesters, respectively). It may also reflect time needed to enroll in a college-level LPN program, which typically can be started only at the beginning of a fall or spring semester.

- ***Those treatment group members who attended two or more Carreras courses did so in a range of combinations that did not always align with the program's pathway model.***

This report does not show the combination of classes attended by participants who enrolled in two or more bridges because there are many different combinations. That is, Carreras participants sometimes did not progress sequentially through the pathway steps. As noted above, for example, some students attended ESL for their first course and then moved directly to the CNA for their second, bypassing VESL. Students who skipped one or more steps did so presumably because Carreras staff determined it was appropriate for them to move up more than one level.

Overall, 80 percent (not shown) of students who attended two Carreras courses did so in the sequence specified by the pathway, most commonly VESL followed by CNA (attended by 24 percent of those who attended two courses) and Pre-LPN followed by LPN Prerequisites (attended by 16 percent). Similarly, 76 percent of students who attended three courses did so in the specified sequence, most commonly VESL, CNA, and Pre-LPN (attended by 33 percent of those who attended three programs) and CNA, Pre-LPN, and LPN Prerequisites (attended by 24 percent).

4.2. Implementation Findings

The research team examined the extent to which the Carreras program operated as planned, focusing on changes made to the program during the study period, as well as efforts to expand and diversify recruitment methods in order to scale up for the PACE evaluation. This section

describes the implementation study findings. It is based on site visits conducted at two points in time (2012 and 2014).

- ***Carreras en Salud operated largely as designed.***

Instituto staff implemented the multi-step program and associated supports largely as planned. As discussed, participants enrolled at all levels of the pathway, with significant proportions completing their initial course and progressing through one or more courses. The basic skills courses were offered at Instituto using Carreras instructors and specially designed curricula that sought to infuse basic skills education with healthcare content. Case managers, academic advisors and employment specialists worked with these students to arrange support services, address personal issues that could interfere with program completion, and provide academic guidance and tutoring. The CNA, LPN prerequisites, and LPN programs were provided at Chicago City Colleges using their standard curriculum, but students in these programs accessed academic advising and employment assistance provided by Carreras. Carreras funded tuition for students in the basic skills courses at Instituto, while Carreras staff assisted those in the college-level courses in accessing other sources of tuition support. The program also emphasized employment assistance, with staff dedicated to both improving participants' job search skills and finding appropriate employment opportunities for Carreras graduates. The dual academic and employment advising roles reflect the key feature of the Carreras career pathway program, namely that participants can opt to progress to the next bridge on the pathway or can seek employment, while potentially returning to complete additional training at a later time.

- ***Recruitment of eligible participants was challenging, and staff made outreach an ongoing priority.***

As noted in Chapter 3, staff needed to increase recruitment considerably both to fill more program slots and to create a control group. Throughout the study period, Instituto experienced difficulties identifying a sufficient number of potential participants to operate at the scale required for the evaluation. For the study, Instituto planned to recruit 1,000 potential participants over two years—500 for the treatment group and an equal share for the control group—which represented an enrollment increase of two-thirds. At the same time the program was increasing its capacity, staff reported that a growing number of younger Latinos coming to the Chicago area appeared to prefer working immediately rather than participating in training.

In addition, staff noted that though there was considerable interest in the program, as evidenced by the numbers who attended the weekly orientations, only a fraction continued to the next step of applying. Carreras staff reported that over the study period, approximately 800 people contacted the Carreras program, including attending an orientation, but did not follow through to the next step. Staff attributed this drop-off to several factors, including concerns about the program time commitment (e.g., five nights a week over 16 weeks for lower bridge courses), the ability of working mothers to take on school, and eligibility criteria (e.g., some

interested applicants may not have met the program's definition of low income or may not have been U.S. citizens or legal residents).

To address recruitment challenges, staff expanded and diversified recruitment methods using resources provided for the evaluation. In particular, staff reported that the dedicated recruiter was important to "getting the word out" about the program and increasing interest in it. (Instituto eventually adopted this staffing model for its other programs.) Of the recruitment methods tried, staff reported that word-of-mouth, presentations at community events, ads in local Spanish-language newspapers, and a newly designed website were most effective in reaching the target population, more so than more costly radio and television ads and billboards.

Staff determined that even with the expanded recruitment methods, reaching the original study goal of 1,000 would not be possible within the PACE evaluation's standard two-year time frame. Ultimately, Carreras met a reduced study enrollment goal of 800 over an extended three-year study enrollment period. Carreras would likely be able to operate at larger scale when establishing a control group is not needed.

- ***Carreras served a low-income Latino population, but not a particularly low-skilled one.***

As intended, the study sample was Latino (99 percent) and low income (mean family income of approximately $21,000), as described in Chapter 2. And though the program was designed to accommodate those with basic skills levels as low as fourth grade, most program participants had higher skills levels. Data from the BIF collected at study enrollment shows that only about 10 percent of study participants had less than a high school diploma, and 40 percent had attended some college. These education levels do not necessarily correspond to TABE scores; staff reported that some applicants had low test scores even though they had a high school diploma, likely because their academic skills had declined since high school graduation (55 percent were at least 25 years old).

Overall, program administrative data also show relatively few Carreras students attended the lower-level ESL classes. The majority started at the mid-level VESL program (requiring TABE scores at the eighth-grade level), Pre-LPN (10th-grade level), and college-level LPN Prerequisites. Thus, though Carreras made a concerted effort to serve very low skilled Latinos, in particular adding the Career ESL course for participants at the fourth-grade level in basic skills, the program's experience indicates it can be challenging to identify or engage a low-skilled population in training programs.

- ***The Carreras's assessment process determined the fit between applicants and the program, which may have contributed to a high level of participation in its courses.***

Enrollment in Carreras is a multi-step process, focused not only on assessing applicants' basic skills levels based on TABE and Compass scores, but also on ensuring applicants understood the nature of jobs in the healthcare field and were interested in and committed to employment in

it. Staff used a series of questions to assess applicants' interest in nursing, their understanding of the job requirements and salaries associated with each nursing credential, how Carreras would contribute to their employment objectives, and potential barriers to participation. Staff reported that an effort to ensure a strong fit allows the program to be more successful in supporting each participant's persistence in and completion of program requirements. As discussed above, these efforts resulted in a high level of initial engagement in the Carreras program.

- ***Carreras created a curriculum specialist position for lower bridge courses to ensure uniformity and consistency of courses and that contextualization was emphasized.***

Early in the PACE study period, Carreras management created a curriculum specialist position responsible for establishing a standard framework for each lower bridge course developed and implemented by Instituto. This staff person, who held the position for the entire study period, had a background in teaching and a Master's degree. Managers determined they needed this position after observing that content and instruction methods varied from course to course and instructor to instructor. Specifically, observations revealed that classes had different amounts of instruction in reading and math, were not consistently integrated across bridges to facilitate skill building as participants advanced, and made limited use of computers, which was considered an important skill for work in the nursing field.

> I start learning a lot with this teacher, because she teaches us, but she's giving us, too…. She's teaching us the English classes, but she's teaching other things, like keep going to school. Do not stop. Nothing is easy in this life. You can do it. You can do it. Do it. If the other people can do it, why you cannot do it? You never know. Keep growing, growing up.
>
> —Carreras participant

In addition, Carreras managers reported the classes generally did not contextualize material as envisioned by the program designers. In particular, managers observed that there was a strong focus, particularly in the VESL and Pre-LPN courses, on preparing for the Compass test needed for entry into the CNA or LPN courses (that is, "teaching to the test"). Although Compass scores were important for advancing to college-level classes, management expressed concern that content was not focused on topics that would be important for a healthcare-oriented career.

The curriculum specialist designed a structured approach and lesson plan for each lower bridge course. The approach included recommendations for the hours per week for specific topics: for a 20-hour class, instructors should focus on eight hours of "rhetoric" (reading and writing); eight hours of math; two hours of computers; and two hours of healthcare. The healthcare segment focused on nursing professions, medical terminology, and human anatomy/physiology.

The specialist also developed descriptions of each lower bridge course for instructors, specifying the curriculum content and sequence for each of the 16 weeks for each session of rhetoric, math, computers, and healthcare. This included the class objective, textbooks or

workbooks to be used, key vocabulary and medical terminology to cover, and an end-of-course assessment.

The new lesson plans for all of the lower bridges were enacted in June 2013, partway through the study period. To help ensure consistent implementation, the curriculum specialist supervised instructors, reviewed lesson plans, observed classroom instruction, held weekly curriculum meetings, and discussed students' academic needs with instructors and academic advisors. Students also completed surveys evaluating instructors during each 16-week program, and the curriculum specialist and instructors reviewed the surveys to determine whether any adjustments were needed.

- ***Even with the curriculum specialist, Carreras staff were continually seeking to improve contextualization.***

As noted in Chapter 3, contextualization was intended to be a key component of the lower bridge courses. Staff noted they were continually exploring how to operationalize this concept. Several issues affected implementation, though. First, staff reported that some basic skills topics are more conducive to contextualization than others, making it difficult to implement contextualization consistently. For example, one instructor reported that integrating healthcare content into instruction on English grammar often resulted in confusion because students got distracted by the vocabulary. She found that students learn grammar more quickly when it is not contextualized. Instead, this instructor gave students a writing assignment related to healthcare once they had learned grammar. The Pre-LPN math instructor explained that it is difficult to contextualize equations, geometry, or trigonometry, aside from a few word problems.

Another challenge to implementing the contextualized curricula was that most Carreras instructors, who worked there part-time, often did not have much experience delivering contextualization instruction. Staff reported that some basic skills instructors were uncomfortable introducing healthcare-related material into their classes, in part, because they did not understand it sufficiently to address student questions.

In response to these challenges, the curriculum specialist identified healthcare topics that could be integrated in a basic skills class, and held meetings with instructors to help them learn the content. Efforts to incorporate contextualization into the lower bridges continued throughout the study period.

- ***Carreras included significant staff support to address both academic and personal issues that students may face, which may have contributed to relatively high completion rates in several of the courses and progression to subsequent ones.***

As discussed, completion rates for the courses in the middle of the program's pathway were high, with a significant portion progressing to a second training. This in part may be due to the large team of staff who work with lower bridge students, including case managers and academic advisors to arrange support services, address personal issues, and provide academic

guidance and tutoring. Staff meet monthly with students in their caseload, and often more frequently if classes are held at the same location as staff offices. Academic advisors monitor students' progress closely through discussions and reviews of their grades and tests to identify those who need additional support or tutoring. If students are experiencing difficulties, the academic advisor may consult with the curriculum specialist or an instructor to identify strategies to assist the student. The goal is to ensure students are prepared to advance to the next level in the pathway's sequence and help them in making this transition when they do.

- ***Carreras developed and continues to maintain a strong emphasis on employment assistance, with staff dedicated to both improving participants' job search skills and finding appropriate employment opportunities for them.***

Reflecting its primary goal of employment in the nursing field, the Carreras program features a robust set of job readiness and employment services. This reflects the design of the Carreras program—facilitating participants' entry into training at, and exit to employment from, any of a series of steps along its careers pathway, as well as making it easy for them to return to complete additional training at a later time.

> [The job readiness workshop] was a lot of information regarding customer service, how to speak on the phone, how to dress professionally, the clothing, your way of speaking, how to not get nervous when you're around someone. It was really good.
>
> —Carreras participant

As discussed in Chapter 3, the employment services include a one-week job readiness workshop and one-on-one assistance designed to help participants gain the skills they need to find jobs, such as developing a resume and practice interviewing, as well how to locate job openings and how to apply for them. Employment specialists also provide extensive outreach to local employers to identify job openings that are appropriate for Carreras participants, particularly those near the neighborhood served by Instituto and those employers who may be seeking bilingual nursing staff.

4.3. Impact on Receipt of Services

This section focuses on the degree to which Carreras produced an impact on (increased) receipt of education and training, supportive services, and employment services among the treatment group members. An implication of the career pathways framework is that any improvements in the main outcomes (discussed in Chapter 5) will result primarily from impacts on the receipt of these services.

These analyses expand on those presented in Section 4.1 that described treatment group experiences based on Carreras program administrative records. The analyses in this section use data from the follow-up survey to compare the program experiences of treatment and control group members to gain insight into how any differences in those experiences might lead to impacts on more distant outcomes. (Exhibit 4-4 below briefly explains how to read impact

tables.) Chapter 5 presents the main findings on impacts on amounts of education and training received, educational attainment, and career progression.

Exhibit 4-4. How to Read Impact Tables

Exhibit 4-5 and Exhibit 4-6 in this chapter, as well as exhibits in Chapter 5, list the outcome measure in the analysis in the left-most column (Outcome), with the unit of that outcome in parentheses (e.g., "(%)").

The Treatment Group column presents the treatment group's regression-adjusted mean outcome, followed in the next column by the control group's regression-adjusted mean outcome (Control Group). The regression adjustments correct for random variation in baseline covariates between the two groups (and thus differ slightly from the raw means). The Impact column lists the difference between the treatment group and control group means. The next column is the Standard Error, a measure of uncertainty in the estimated impact that reflects both chance variation due to randomization and any measurement error.

The final column, *p*-Value, is the calculated probability that the observed difference is due to chance.

There are several common standards for judging statistical significance—that is, for judging the strength of the evidence that the observed difference between the treatment and control group values is the result of that program element and not the result of chance. The smaller the *p*-value, the stronger the evidence. In this report, tests are considered statistically significant and highlighted in tables if the *p*-value is less than or equal to .10. Tests with smaller *p*-values are separately flagged:

- * for .10
- ** for .05
- *** for .01

Outcomes in *italics* apply to a subset of survey respondents (e.g., those who attended education/training). These estimates are not impacts, but unadjusted, non-experimental comparisons.

- ***Carreras had a statistically significant impact on its participants' receipt of education and training, including training in a healthcare occupation.***

Exhibit 4-5 shows statistically significant impacts on receipt of education and training. The program produced a 22-percentage point difference in the proportion of treatment group members who received any type of training compared with the control group (80 percent versus 58 percent) and a 23-percentage point difference between the groups in receipt of healthcare-related training specifically (58 percent versus 35 percent).[34] It is notable that more than half of the control group members enrolled in some training on their own, in spite of not having access to the Carreras training or supports, indicating that relatively strong training alternatives were available to control group members.

[34] These proportions represent the percentage of treatment and control group members who reported on the follow-up survey that they participated in an education/training program. For the treatment group, this self-reported value differs from Carreras en Salud administrative data, likely due to variation in the data source (e.g., self-reported measures are subject to recall error).

- ***Reflecting the Carreras program design, treatment group members were more likely than their control group counterparts to receive occupational training and basic skills instruction, including English as a Second Language instruction.***

The Carreras program was designed to increase participation in occupational training in nursing occupations and provide instruction on basic skills so that low-skilled applicants can enroll in these programs. The upper bridges include CNA and LPN occupational training; the lower bridges (in particular, Career ESL, ESL, and VESL) include English language instruction and basic reading and math instruction. Reflecting these program elements, Carreras produced a 17-percentage point impact on both receiving occupational training (66 percent versus 49 percent) and receiving basic skills instruction (36 percent versus 19 percent). Reflecting the lower number of students who attended ESL courses, Carreras also produced a four-percentage point impact on receiving this type of instruction (13 percent versus nine percent).

Treatment group members were also more likely to report having received life skills instruction (15 percent versus eight percent). Though the training courses did not have a specific component focused on life skills instruction, the employment readiness workshop covered topics such as workplace etiquette and attire, finance management, communication skills, and time management.

- ***Treatment group members were more likely to attend training at community or nonprofit organizations, such as Instituto, and at two-year colleges.***

Carreras provides its lower bridges (Career ESL, ESL, VESL, and Pre-LPN) in-house, whereas upper bridges (CNA, LPN Prerequisites, and LPN) are provided at community colleges where some seats are reserved for program participants. As Exhibit 4-5 shows, Carreras increased attendance among treatment group members at both nonprofit organizations (e.g., Instituto) and two-year colleges (e.g., City Colleges) by 20 percentage points. Twenty-five percent of treatment group members attended courses at a nonprofit, compared with five percent for control group members. For two-year colleges, the proportion was 60 percent of treatment group members compared with 40 percent for control group members.

The large increases in training from nonprofit organizations and two-year colleges coincided with a small decrease in training from four-year colleges. As shown, though attendance at four-year colleges was low overall, Carreras produced a six-percentage point reduction: two percent of treatment group members attended a four-year college compared with eight percent of control group members. Because of the large increases in training overall, the small reduction in attendance at four-year colleges does not appear problematic.

Exhibit 4-5. Receipt of Education and Training since Random Assignment

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	p-Value
General Aspects of Education & Training Receipt					
Received education or training since random assignment (%)					
In any field	80.2	58.3	+21.9***	3.6	<.001
In a healthcare occupation	58.0	34.9	+23.1***	3.7	<.001
Received occupational training since random assignment (%)	66.0	48.6	+17.4***	3.7	<.001
Received basic skills instruction since random assignment (%)					
Academic skills	35.8	18.7	+17.1***	3.4	<.001
English as a Second Language	13.1	9.2	+3.9*	2.3	.089
Received life skills instruction since random assignment (%)	15.4	8.1	+7.3***	2.5	.004
Since random assignment, ever attended (%)					
Two-year college	59.6	39.8	+19.8***	3.7	<.001
Four-year college	2.1	7.6	-5.5***	1.8	.002
Proprietary school	2.0	3.8	-1.8	1.2	.139
Adult high school/education	5.0	6.6	-1.6	1.8	.385
Community/nonprofit organization	25.4	5.2	+20.1***	2.6	<.001
Other	1.1	2.2	-1.0	0.9	.259
Time spent at school and work at first place attended (%)					
Full-time school and full-time work	*9.8*	*6.6*	*+3.3*	*2.7*	*.224*
Full-time school with no or part-time work	*24.4*	*25.1*	*-0.8*	*4.2*	*.855*
Part-time school and full-time work	*28.1*	*27.4*	*+0.7*	*4.4*	*.877*
Part-time school with no or part-time work	*37.7*	*40.9*	*-3.2*	*4.7*	*.501*
Total	*100.0*	*100.0*			
Views of classes at first place attended (%)					
Strongly agrees relevant to life/career [a]	*68.0*	*68.4*	*-0.4*	*4.5*	*.935*
Used active learning methods most/all of the time [b]	*34.59*	*30.20*	*+4.3*	*4.8*	*.099*
Perceived strong emphasis on community (%)	*23.1*	*21.7*	*+1.4*	*3.9*	*.729*
Took college placement exam (%)					
English	52.4	32.4	+20.0***	3.8	<.001
Math	52.2	34.5	+17.7***	3.8	<.001
Passed college placement exam (%)					
English	38.2	20.6	+17.6***	3.6	<.001
Math	28.8	19.3	+9.5***	3.4	.006
Sample size (full survey sample)	344	316			

SOURCE: Abt Associates calculations based on data from the PACE short-term follow-up survey.

NOTES: Where not italicized, outcomes apply to the full survey sample, and impact estimates are fully experimental and regression-adjusted. Outcomes in *italics* apply to subset of survey respondents (e.g., those who attended education or training)—for these estimates, between-group differences are unadjusted, non-experimental comparisons with sample sizes of 272 in the treatment group and 188 in the control group.

Statistical significance levels, based on two-tailed *t*-tests tests of differences between research groups, are summarized as follows: *** statistically significant at the one percent level; ** at the five percent level; * at the ten percent level.

[a] Percentages who either strongly agreed that classes were relevant to career interests or who strongly disagreed that classes did not relate to anything else in life.

[b] Refers to first place of instruction if went to more than one place. Gives the average percentage who described classes as involving each of a series of active learning approaches at least often, or at least most of the time (items used different scales).

- ***The Carreras program produced impacts on taking and passing English and math college placement exams.***

The Carreras program, and particularly its Pre-LPN course, is geared toward assisting participants in preparing for and taking the college placement exams required for higher-level healthcare programs offered by the City Colleges of Chicago. Those participants with sufficient

basic skills take the Compass test at the time of enrollment to determine their appropriate placement in the pathway's course sequence. The Pre-LPN class includes a 16-week module focused on preparation for the Compass and achieving the scores needed for entry into the nursing programs at City Colleges. The lower bridges also gear instruction toward the Compass when possible.

Reflecting this approach, the program significantly increased the proportion of students who took a college placement exam (20 percentage points for English and 18 percentage points for math). Importantly, Carreras also increased the proportion who passed the exams, meaning they achieved the necessary score to enter the college program, although fewer passed the math portion. As shown on Exhibit 4-5, 38 percent of the treatment group passed an English college placement exam, compared with 21 percent of the control group, an increase of almost 18 percentage points. The program also produced a smaller (10-percentage point) but still statistically significant increase in the proportion who passed a math college placement exam (29 percent versus 19 percent).

- ***Carreras produced impacts on receipt of supportive and employment services.***

Exhibit 4-6 below shows impacts on receipt of supportive services and employment services for the treatment group and control group, regardless of whether their members received services or not (that is, for the total survey sample). Carreras produced a 19-percentage point impact on receipt of career counseling (38 percent for the treatment group versus 19 percent for the control group), an 11-percentage point impact on help arranging supports (17 percent versus seven percent), and a 20-percentage point impact on receipt of job search assistance (31 percent versus 11 percent).

These impacts result from the range of services the Carreras program provides beyond its basic skills and healthcare training. Students in the Career ESL, ESL, VESL, and Pre-LPN bridges have a case manager who works individually with them to identify and arrange for necessary supports. An academic advisor works with students on any academic issues they may have, as well as on how to connect the training they receive with career goals and employment. Finally, program services include an employment specialist who works with students after they complete their training to find employment, if that is their desired next step, and also holds a week-long job readiness workshop that completers are strongly encouraged to attend.

Exhibit 4-6. Receipt of Various Support Services since Random Assignment

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	p-Value
Received assistance from any organization since random assignment (%)					
Career counseling	38.3	19.4	+18.9***	3.5	<.001
Help arranging supports for school/work/family	17.2	6.6	+10.7***	2.5	<.001
Job search or placement	30.6	11.3	+19.2***	3.1	<.001
Received supports at first place of instruction (%)					
Career counseling	*29.1*	*19.8*	*+9.3***	*4.1*	*.025*
Academic advising	*57.7*	*50.2*	*+7.6*	*4.8*	*.117*
Financial aid advising	*36.7*	*27.1*	*+9.6***	*4.4*	*.031*
Tutoring	*41.3*	*31.5*	*+9.9***	*4.6*	*.031*
Help arranging supports for school/work	*12.3*	*7.1*	*+5.2**	*2.8*	*.064*
Job search/placement assistance	*19.7*	*14.9*	*+4.7*	*3.7*	*.197*
Received financial assistance at first place of instruction [a] (%)					
Grant/scholarship	*52.6*	*45.9*	*+6.7*	*4.8*	*.165*
Loan	*5.0*	*13.5*	*-8.5****	*2.8*	*.003*
Cited financial support as challenge in enrollment or persistence[b] (%)	*65.8*	*77.9*	*-12.1****	*3.5*	*<.001*
Offered opportunities for related work experience as part of training at first place of instruction (%)					
Clinical internship	*32.3*	*29.1*	*+3.1*	*4.4*	*.481*
Visits to local employer	*9.0*	*13.0*	*-3.9*	*3.1*	*.200*
Work-study job	*14.7*	*11.7*	*+3.0*	*3.2*	*.347*
Apprenticeship	*3.8*	*2.4*	*+1.4*	*1.6*	*.393*
Any related work experience (including other)	*44.0*	*41.7*	*+2.2*	*4.8*	*.638*
Sample size (full survey sample)	344	316			

SOURCE: Abt Associates calculations based on data from the PACE short-term follow-up survey.

NOTES: Where not italicized, outcomes apply to the full survey sample, and impact estimates are fully experimental and regression-adjusted. Outcomes in *italics* apply to subset of survey respondents (e.g., those who attended education or training)—for these estimates, between-group differences are unadjusted, non-experimental comparisons with sample sizes of 272 in the treatment group and 188 in the control group.

Statistical significance levels, based on two-tailed *t*-tests tests of differences between research groups, are summarized as follows: *** statistically significant at the one percent level; ** at the five percent level; * at the ten percent level.

[a] Reported receiving grant or loan to help cover either tuition/school expenses or living expenses.

[b] Cited financial support challenges as a reason for non-enrollment or leaving school or as a difficulty while attending school.

- ***There were differences between the support and employment services that treatment group and control group members received from institutions where they received training, reflecting the comprehensive package of services provided by Carreras.***

For those who received training, the survey asked about the types of supports received at the first place of instruction. As shown on Exhibit 4-6, though these are non-experimental results, treatment group members were more likely to receive academic advising, tutoring, help arranging supports for school or work, and assistance with their job search. As discussed above, this reflects the range of staff employed by Carreras to work with students, including academic advisors, instructors who provide tutoring, case managers to help with support services, and employment specialists to assist with job search activities. Treatment group members who received training were more likely to report being offered a clinical internship, work-study job,

or apprenticeship (and less likely to visit a local employer). It is notable that many of the differences are small, and that some control group members also received these services at training institutions they attended, again indicating that relatively robust training alternatives were available to control group members.

- ***The Carreras program decreased the proportion of students who cited financial support as a challenge in attending or persisting in training.***

As discussed in Chapter 3, Instituto fully funds the Career ESL, ESL, VESL, and Pre-LPN bridges and assists students in applying for financial aid for the upper bridges. While a large portion of treatment group members reported financial issues as a challenge to enrollment or persistence, Carreras produced a 12-percentage point reduction in the proportion of students who cited this challenge (66 percent for treatment group members versus 78 percent for control group members). Moreover, among those who participated in training (a non-experimental comparison), treatment group members were less likely to receive a loan (five percent) compared with control group members (14 percent). This suggests that the tuition assistance provided by the Carreras program may have reduced the indebtedness of its participants.

4.4. Summary of Implementation Findings

The Carreras program was implemented largely as designed, with all of the key components including articulated steps on a career pathway, contextualized and accelerated curriculum, academic and personal supports, and employment assistance in place during the study period. Carreras experienced some implementation challenges with recruitment, specifically reaching very low-skilled participants, and with full contextualization of the curriculum. Staff continually worked to strengthen these aspects of the program.

Carreras achieved high levels of engagement and course completion for many of the commonly attended programs. The vast majority (92 percent) of treatment group members participated in at least one Carreras course. The most common bridges attended were VESL, CNA, Pre-LPN, and LPN Prerequisites. About one-third of treatment group members attended one or more of each of these "middle" courses. Few students (less than 10 percent) attended the lower-level ESL courses or upper-level LPN course (5 percent). Almost three-quarters of treatment group members completed at least one course. The two credential-bearing programs were a primary goal of the Carreras program, and the overall completion rate for the short-term CNA course was high (82 percent). Completion was lower (14 percent) for the longer-term LPN program where many students were still attending at the end of the follow-up period.

Participants attended a wide range of course combinations. Forty percent of treatment group members progressed to a second course. The most common progression was to the CNA or Pre-LPN course, following completion of the ESL and VESL courses. A smaller proportion (13 percent) attended three courses. Reflecting the Carreras program design, some students may not have enrolled in a subsequent training because they sought employment, although reason

for program exit was not included in the data collected for the evaluation. Though most students who attended a second training enrolled in the next course in the Carreras pathway's sequence, about one-quarter skipped a level.

The Carreras program produced a statistically significant 22-percentage point impact on the portion of treatment group members who participated in education and training. As expected given the Carreras design, this was largely from increases in participation in occupational training, basic skills instruction, and ESL. Treatment group members were significantly more likely to take and pass college entrance exams in English and math, both of which are required for enrollment in occupational training.

Carreras also positively impacted receipt of advising and employment services. Carreras produced a 19-percentage point impact on receipt of career counseling, an 11-percentage point impact on help arranging supports, and a 20-percentage point impact on receipt of job search assistance. Finally, fewer treatment group members cited financial support as a challenge to enrollment or persistence than did control group members.

5. Early Impacts of the Carreras en Salud Program

This chapter reports estimates of Carreras en Salud's early impacts on educational attainment, career progress, and non-economic outcomes. The estimates cover impacts over an 18-month period after random assignment for the sample of 660 study participants who responded to the follow-up survey.[35] The chapter begins by describing hypothesized impacts and outcomes analyzed. Subsequent sections present findings on education, career progress, and non-economic outcomes, respectively.

5.1. Key Hypotheses and Outcomes

Carreras aims to increase participants' employment and earnings in jobs across a range of skill levels in the nursing field. To that end, the program promotes the attainment of credentials that lead to employment in healthcare. The program's design provides occupational training and basic skills instruction to prepare participants for college-level courses; academic and support services to encourage successful completion of the courses; tuition assistance; and employment services. In the theory of change, the program leads to positive impacts on economic outcomes through positive effects on other intermediate outcomes such as career knowledge, work-related skills, self-esteem and other psycho-social factors, and life stressors.

The research team classified outcomes as confirmatory, secondary, and exploratory, according to whether they addressed confirmatory, secondary, and exploratory hypotheses about Carreras en Salud impacts (see the "Hypothesis Testing" section of Chapter 2). Exhibit 5-1 below lists and describes each outcome.

Confirmatory outcome. The confirmatory outcome in the Carreras early analysis is *hours of occupational training received*, including occupational training in the nursing field or other fields. Participation in occupational training (upper bridges) is the primary mechanism for promoting career success in the Carreras model, with basic skills and ESL courses (lower bridges) designed to bring participants to the skills level necessary to enroll in the CNA, LPN Prerequisites, and LPN courses. Though credential attainment and employment in the healthcare field are key goals of the Carreras program, they are not the focus of the early impacts presented in this report for several reasons. First, it is unlikely that students who start in the lower bridges will have entered and completed college-level occupational training courses in an 18-month follow-up period, particularly the longer-term LPN course. As discussed above, some students will need multiple courses to raise their skills to college level. Second, students in upper bridges in the Carreras program might still be enrolled 18 months post random assignment. Again, this is particularly true for enrollees in the longer-term LPN course, especially if they needed to start with earlier courses. Thus, the research

[35] As noted in Chapter 2, the response rates for the survey were 86 percent and 79 percent, respectively, for the treatment and control groups. See Appendix B for non-response bias analyses.

team determined that occupational training received was the appropriate confirmatory outcome for this early analysis.

Secondary Outcomes. Secondary analyses included tests of hypotheses for educational attainment, as well as a number of indicators of early career progress. These hypotheses capture additional early effects suggested by the Carreras logic model. As for the confirmatory hypothesis, these secondary hypotheses have an expected direction. As Exhibit 5-1 shows, secondary outcomes include several sets of additional measures of educational and career progress.

Exploratory Outcomes. Exploratory outcomes provide additional evidence on impacts for exploratory hypotheses implicated in the theory of change but with less certain expectation for effects. Hours of basic skills and ESL instruction are included here. The research team also expected occupational training, academic advising, and other supports, including tuition assistance, to have positive effects on participants' insights, habits, and functioning in a number of domains. As the exhibit shows, these outcomes include measures of a variety of psycho-social skills and life stressors.

Exhibit 5-1. Outcomes in the Impact Analysis

Outcome	Description	Sample Size [a]	
		Treatment	Control
Confirmatory (Confirmatory Hypothesis)			
Hours of occupational training received	Hours for occupational training	321	304
Secondary (Secondary Hypotheses)			
Education			
Hours of occupational training received by location	Total hours of training at a college, another location (e.g., community-based organization), any location	321	304
Credential receipt by source	Receipt of credential by the type of granting authority: college, another education-training institution, licensing/certification body, any source	344	316
Career Progress			
Perceived career progress	3-item scale of self-assessed career progress; response categories range from 1=strongly disagree to 4=strongly agree	344	316
Confidence in career knowledge	7-item scale of self-assessed career knowledge; response categories range from 1=strongly disagree to 4=strongly agree	344	316
Access to career supports	6-item scale counting number of types of career-supportive relationships in workforce and education settings; response categories range from 1=no to 2=yes	344	316
Employment at or above a specified wage	Earning $12 or more per hour [b]	337	311
Employment in job requiring mid-level skills	Whether employed in a job requiring calibrated set of skills based on federal standards [c]	340	316
Working in a healthcare occupation	Whether employed in one of several healthcare occupational categories	340	316

Exhibit 5-1. Outcomes in the Impact Analysis (continued)

Outcome	Description	Sample Size [a]	
		Treatment	Control
Exploratory (Exploratory Hypotheses)			
Basic Skills and ESL			
Total hours of basic skills instruction	Number of hours of basic skills instruction at any place	344	316
Total hours of ESL instruction	Number of hours of ESL instruction at any place	344	316
Psycho-Social Skills			
Grit	8-item scale capturing persistence and determination; response categories range from 1=strongly disagree to 4=strongly agree	344	316
Academic self-confidence	12-item scale; response categories range from 1=strongly disagree to 6=strongly agree	344	316
Core self-evaluation	12-item scale; response categories range from 1=strongly disagree to 4=strongly agree	344	316
Social belonging in school	5-item scale capturing sense of belonging; response categories range from 1=strongly disagree to 4=strongly agree	344	316
Life Stressors			
Financial hardship	2-item scale capturing financial hardship, reported as either an inability to pay rent/mortgage or not enough money to make ends meet; response categories are either 0=no or 1=yes	342	313
Life challenges	7-item scale capturing life challenges that interfere with school, work, or family responsibilities; response categories range from 1=never to 5=very often	344	316
Perceived stress	4-item scale capturing perceived stress; response categories range from 1=never to 4=very often	344	316
Family Structure			
Living with spouse	Two-item scale; response categories are either 0=no or 1=yes [d]	344	316
Had child since random assignment/currently pregnant [e]	Two-item scale; response categories are either 0=no or 1=yes	317	297

[a] Data source is the PACE short-term follow-up survey. Sample size varies based on item nonresponse.

[b] Threshold selected because it was close to the 60th percentile of hourly wages among employed control group members.

[c] Skill levels based on the federal O*NET system with thresholds targeted to PACE program target occupations. Occupational categories were coded for PACE by Census Bureau staff from standard open-ended survey items.

[d] Living with an unmarried partner is not counted as living with their spouse.

[e] Asked of women only.

5.2. Impacts on Educational Attainment

This section presents impact estimates for key measures of educational progress among treatment group members. To highlight the confirmatory test's special role as an indicator of whether early impacts are on track, this section first assesses findings on the confirmatory outcome and then examines findings for secondary and exploratory outcomes.

- ***Carreras en Salud had a statistically significant effect on the average total hours of occupational training received (confirmatory hypothesis), as well as on the hours of basic skills instruction received (exploratory hypothesis).***

The increase in hours of occupational training and basic skills courses attended suggests that Carreras's impacts were on the right track at 18 months. As Exhibit 5-2 below shows, over the 18-month follow-up period, treatment group members attended 210 hours of occupational training compared with 164 hours for the control group. This 46-hour increase in total hours of occupational training is statistically significant at the five percent level.

This impact does not include hours spent in basic skills courses, which are also part of the Carreras program. As shown, though not a confirmatory outcome, the Carreras program produced an impact of 94 hours on basic skills instruction (135 hours for treatment group members versus almost 41 hours for control group members) and an impact of 29 hours on ESL instruction (almost 51 versus 21 hours, respectively). Both were significant at the one percent level. Overall, the Carreras program resulted in a significant increase in the total hours of education and training received: treatment group members attended occupational training, basic skills, and ESL courses for a total of 402 hours, whereas control group members attended 223 hours, an impact of 178 hours, an 80 percent increase, significant at the one percent level.[36] For reference, typical courses at most U.S. colleges meet three hours per week for 15 weeks, for a total of 45 hours of per course. While the information on the number of courses attended is not available for this study, the impact of Carreras on hours of education and training attended translates into approximately four courses (180 hours) using this standard.

A closer look reveals that the treatment/control group difference in total hours was driven both by treatment group members' increased enrollment relative to the control group and by increased hours of attendance among those enrolled. Overall, among those who attended any education or training activity, the average hours per enrollee were higher for treatment group members than for control group members (501 and 383 hours, respectively).[37] This is primarily due to an increase in hours among those who attended basic skills courses: among those receiving any basic skills instruction, treatment group members attended for 376 hours compared with 217 hours for control group members. Among those receiving occupational

[36] The analysis of the impact of Carreras en Salud on total training hours was conducted independently of the analysis of the impact of the program on the number of hours of each type of training. Different patterns of missing data and covariate influence for the types of training lead to small inconsistencies across these analyses, and thus the individual impacts of hours of participation in occupational training, basic skills, and ESL do not sum to exactly to the total estimate (178 hours).

[37] Calculated by dividing each group's average total hours by its fraction ever enrolling. For example, for the treatment group: 401.7 hours /80.2 percent enrolled (see Table 4.5) = 501 hours per treatment group member.

training, the number of hours attended was more comparable between treatment and control group members (317 and 337 hours, respectively).

Exhibit 5-2. Early Impacts on Key Education Outcomes (Confirmatory, Secondary, and Exploratory Hypotheses)

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	*p*-Value
Confirmatory Outcome					
Total hours of occupational training	209.5	163.7	+45.8**	23.2	.024
Secondary Outcomes					
Total hours of occupational training attended at (average):					
A college	163.8	112.9	+50.9***	18.3	.003
Another place	43.2	48.5	-5.3	14.7	.642
Received a credential from (%):					
A college	14.9	6.8	+8.1***	2.5	<.001
Another education-training institution	5.9	3.8	+2.1	1.7	.103
A licensing/certification body	32.0	14.4	+17.6***	3.3	<.001
Any source	36.5	18.2	+18.2***	3.5	<.001
Exploratory Outcomes					
Total hours of basic skills instruction	134.5	40.5	+93.9***	18.2	<.001
Total hours of ESL instruction	50.8	21.4	+29.4***	11.2	.009
Total hours of education and training (occupational training, basic skills, and ESL)	401.7	223.3	+178.4***	34.3	<.001
Enrolled in education or training at end of the follow-up period (%)	36.4	29.0	+7.4**	3.7	.035
Sample size[a]	344	316			

SOURCE: Abt Associates calculations based on data from the PACE short-term follow-up survey.

NOTES: Statistical significance levels, based on one-tailed *t*-tests tests of differences between research groups, are summarized as follows: *** statistically significant at the one percent level; ** at the five percent level; * at the ten percent level.

[a] Sample sizes in this row apply to sample members responding to the PACE follow-up survey.

The secondary outcome reported in Exhibit 5-2 shows where participants attended occupational training. As discussed above, the CNA and LPN courses that were part of the Carreras program were provided at the two-year City Colleges of Chicago. Thus, it is of interest to examine whether the Carreras program produced an increase in the proportion of students who attended occupational training at a college. As shown on Exhibit 5-2, there is 51-hour impact on occupational training hours attended at a college, statistically significant at the one percent level.

- ***Carreras increased the percentage of participants who received a credential (secondary hypothesis); credentials awarded by a licensing or certification organization were the most often received.***

In addition to increasing participation in occupational training and basic skills instruction, the Carreras program had a positive impact on the proportion of students who received a credential. As Exhibit 5-2 shows, Carreras produced an 18-percentage point impact on receipt of any credential, significant at the one percent level (37 percent of treatment group members versus 18 percent of control group members). Likely reflecting the licensing requirements for CNAs and LPNs, this impact was largely due to a larger proportion of treatment group members

receiving a licensing/certification body credential than did control group members (18-percentage point impact). As discussed in Chapter 4, given the large proportion of Carreras participants who attended CNA courses versus the longer-term LPN course over the follow-up period, many of these licensing/certification body credentials are likely to be for a CNA. The exhibit also shows evidence that Carreras produced a positive impact of eight percentage points on receipt of a college credential, potentially reflecting students who completed a CNA course at the college and received a credential from the institution, but had not taken or passed the state licensing exam.

Finally, the survey also found that a larger portion of treatment group members (36 percent) were still enrolled in training at the end of the 18-month follow-up period than control group members (29 percent), an impact significant at the five percent level. This is likely due to the multiple steps and length of some of the training courses in the Carreras program. This is considerably higher than the six percent still enrolled in training based on the Carreras administrative data and discussed in Chapter 4 (see Exhibit 4-1). Though the research team cannot determine the precise reason for this discrepancy, it is likely that some treatment group members attended training outside the Carreras program.

5.3. Impacts on Early Career Progress (Secondary Hypotheses)

This section examines the program's effects on six measures of early career progress. As discussed earlier, given the potential length of the Carreras program for some participants, an 18-month follow-up period makes it appropriate to examine *early* steps in achieving career goals, with longer follow-up needed to fully assess economic outcomes.

First, this section describes three indicators of early employment outcomes: working in a job that pays at least $12 per hour, working in a job requiring at least mid-level skills, and working in a healthcare occupation. It then turns to three indicators that capture participants' own assessments of their progress toward career goals: perceived career progress, confidence in career knowledge, and access to career supports.

Early Employment Outcomes. As shown on Exhibit 5-3 below, Carreras produced a nine-percentage point increase in employment in a healthcare occupation (25 percent for treatment group members versus 16 percent for control group members), an impact significant at the one percent level. This may be the result of the program's impact on credentials received, as discussed above, as well as the employment assistance provided by Carreras that focused on helping course completers obtain employment in the healthcare field.

No impacts, however, were detected on working at a job paying at least $12 per hour or on working at a job requiring mid-level skills. Most Carreras students appeared to obtain CNA credentials within the 18-month follow-up, which provide access to relatively low-paying healthcare positions. Thus, it may take time for them to progress to the higher-wage and/or higher-skill jobs available to those with higher levels of training. It also is important to note that

high levels of participation in education and training may initially reduce employment, and make early impacts on employment in the 18-month follow-up period less likely. This leaves open the possibility of positive impacts as treatment group members finish training in the longer term, however.

Exhibit 5-3. Early Impacts on Selected Career Outcomes (Secondary Hypotheses)

Outcome	Treatment Group	Control Group	Impact (Difference)	Standard Error	Effect Size	*p*-Value
Indicators of Career Pathways Employment (%)						
Working in a job paying $12/hour or more	30.4	31.0	-0.6	3.4	-0.01	.852
Working in a job requiring at least mid-level skills	19.6	21.9	-2.3	3.0	-0.06	.442
Working in a healthcare occupation	24.7	16.1	+8.7***	3.1	+0.22	.005
Indices of Self-Assessed Career Development (averages)						
Perceived career progress	3.58	3.50	+0.08	0.05	+0.12	.120
Confidence in career knowledge	3.39	3.36	+0.03	0.04	+0.05	.546
Access to career supports	1.77	1.69	+0.07***	0.02	+0.23	.004
Sample size [a]	344	316				

SOURCE: Abt Associates calculations based on data from the PACE short-term follow-up survey.

NOTES: Statistical significance levels, based on one-tailed *t*-tests tests of differences between research groups, are summarized as follows: *** statistically significant at the one percent level; ** at the five percent level; * at the ten percent level.

[a] Sample sizes in this row apply to sample members responding to the PACE follow-up survey.

Progress toward Career Goals. Exhibit 5-3 also shows positive impacts on one of the three indicators of self-assessed career progress: for access to career supports, the increase of 0.07 point on a two-point scale (1=no, 2=yes) is significant at the one percent level. This impact corresponds to an effect size of 0.23, meaning that about 59 percent of the treatment group had a higher score than the average member of the control group.[38] This measure, which captures the strength of career-supportive relationships in workforce and education settings, likely reflects the range of staff available to assist participants in the Carreras program, including academic advisors, case managers, employment specialists, and instructors. No impacts are detected for perceived career progress or confidence in career knowledge.

5.4. Impacts on Psycho-Social Skills and Life Stressors (Exploratory Hypotheses)

Positive impacts on educational attainment and working in a healthcare occupation create some possibility for positive effects on psycho-social skills associated with success in one's career aspirations. Although the measures of psycho-social skills used in the follow-up survey are the result of fairly substantial testing, psychometricians have raised concern about their use

[38] An effect size is a standardized measure of the size of an effect that is defined as the impact divided by the pooled standard deviation of the treatment and control groups. Its purpose in this report is to express in a standardized manner the size of impacts that have no natural unit of measurement and to allow for comparison of the sizes of effects across scales.

in program evaluations. Specifically, participants in a program that stresses these skills may come to have higher expectations of their performance than do control group members, leading treatment group members to rate the same level of performance more negatively than control group members rate it (Duckworth and Yeager 2015). This potential for measurement bias injects some uncertainty about the direction of expected effects, such that the study treats these analyses as exploratory (i.e., subject to two-sided tests).

Results show no evidence of impact (Exhibit 5-4, top panel) for any of four indices of psycho-social skills tested. The Carreras program design included academic and other supports that may have affected psycho-social impacts positively. Successes in training also might improve self-assessment of personal qualities and capacities. On the other hand, psycho-social skills were not an explicit focus of the program. Finally, there is the potential for measurement bias, as described above.

Carreras may help reduce financial and other life stresses by providing tuition support and improving earnings and an array of skills for coping with stress. As discussed, Instituto fully funded its lower bridges and assisted upper bridge students to access financial aid. Carreras staff also sought to link participants with other public benefits for which they were eligible. Control group members getting education and training from other sources may not have had these benefits. In the short term, earnings-related, positive impacts are unlikely given the absence of employment impacts. And although the range of Carreras supports might help alleviate some pressures, members of the treatment group may have experienced higher levels of stress from striving to balance school with work and family responsibilities. Because of these potentially opposing influences, the research team classified hypothesized effects on the stressors as exploratory in the early analysis.

Exhibit 5-4. Early Impacts on Other Outcomes (Exploratory Hypotheses)

Outcome	Program Group	Control Group	Impact (Difference)	Standard Error	Effect Size	*p*-Value
Indices of Psycho-Social Skills (averages)						
Grit	3.22	3.25	-0.03	0.03	-0.07	.395
Academic self-confidence	4.88	4.93	-0.04	0.05	-0.07	.386
Core self-evaluation	3.47	3.45	+0.02	0.03	+0.04	.593
Social belonging in school	3.42	3.47	-0.05	0.03	-0.12	.125
Indices of Life Stressors (averages)						
Financial hardship	0.43	0.51	-0.08**	0.04	-0.17	.034
Life challenges	1.47	1.44	+0.03	0.03	+0.08	.325
Perceived stress	1.94	2.02	-0.08	0.05	-0.12	.133
Family structure (%)						
Living with spouse	41.0	41.4	-0.4	3.2	-0.01	.902
Had child since random assignment/currently pregnant	20.0	19.5	+0.6	3.1	+0.01	.856
Sample size [a]	344	316				

SOURCE: Abt Associates calculations based on data from the PACE short-term follow-up survey.

NOTES: Statistical significance levels, based on two-tailed *t*-tests tests of differences between research groups, are summarized as follows: *** statistically significant at the one percent level; ** at the five percent level; * at the ten percent level.

[a] Sample sizes in this row apply to sample members responding to the PACE follow-up survey.

Results shown in Exhibit 5-4 (second panel) indicate just one significant effect in this domain, among three measures. Specifically, Carreras reduced the share of individuals who reported experiencing financial hardship in their lives, a decrease of 0.08 point on a two-item scale significant at the five percent level.[39] This is consistent with the finding discussed in Chapter 4 that participants in the Carreras program were less likely than control group members to cite financial support as a challenge in attending or persisting in training.

The fourth and final group of exploratory outcomes concerned family structure. These outcomes were included in the analyses because the literature suggests that education and career progress can in the short run raise the opportunity costs of marriage and childbearing (Buckles 2008). However, no significant effects were found.

5.5. Summary of Impact Findings

In the 18 months after random assignment, Carreras increased the hours of education and training received, including occupational training and basic skills and ESL instruction, an impact of 179 hours (an 80 percent increase). This impact on total hours of participation was driven both by more treatment group members enrolling in training and their attending more courses than control group members, particularly for basic skills courses. In addition, Carreras significantly increased credential receipt (impact of 18 percentage points), primarily those credentials issued from a licensing or certification organization. Finally, the program increased employment in the health care field and reduced the proportion who reported experiencing financial hardship in their lives.

[39] An effect size of 0.08 implies that 53 percent of the treatment group have a lower financial stress score than the average member of the control group.

6. Conclusions

The Carreras en Salud program was designed and operated by the nonprofit organization Instituto del Progreso Latino. It aims to help low-income, low-skilled Latinos improve their basic skills; enroll in occupational training programs to gain the skills and credentials for CNA and LPN positions; and ultimately find jobs in healthcare occupations. The implementation study found that Instituto largely operated the multi-step career pathways program as planned. The program produced large, positive impacts on hours of education and training received, receipt of supports, and attainment of a credential within the 18-month follow-up period. The program also increased employment in the healthcare field and reduced financial hardship. This concluding chapter examines the implications of these early results for policy and practice and looks ahead to questions the evaluation will address in the longer term.

6.1. Implications of Carreras en Salud Findings

There is a great deal of interest at the federal, state, and local levels in the career pathways approach as a strategy to improve education and employment outcomes for low-income, low-skilled adults. The early Carreras en Salud results have a number of implications for further development of career pathways initiatives.

The Carreras evaluation provides evidence on one of the most fully developed examples of a "career pathways" approach to date. Early results provide strong support for the approach. As documented in the implementation study, Carreras incorporated all key elements of the career pathways framework: (1) manageable and articulated steps on a career pathway—starting at a low-skills level and continuing through college-level courses; (2) innovative instructional approaches in the lower bridges, specifically contextualized and accelerated curricula; (3) academic and non-academic supports for lower-bridge participants (and academic supports for upper-bridge ones); and (4) employment assistance.

Analyses showed that more than 90 percent of treatment group members participated in one or more courses. Many participants completed initial steps and continued to the next step on the pathway. The program produced impacts on hours of education and training—boosting average hours of occupational training by 46 hours (a 28 percent increase), and average total hours of education and training (including basic skills instruction) by 178 hours (an 80 percent increase). For reference, typical courses at most U.S. colleges meet three hours per week for 15 weeks, for a total of 45 hours of per course. While the information on the number of courses attended is not available for this study, the impact of Carreras on hours of education and training attended translates into approximately four courses (180 hours) using this standard. Carreras also increased the fraction receiving occupational credentials of any kind (e.g., certifications, licenses, college credentials) by 18 percentage points, and it increased the fraction receiving college credentials by eight percentage points.

Carreras's impact on education and training compares favorably with other approaches to improve the education and economic outcomes of nontraditional students. Carreras differs from many other career pathways programs in that it was developed for—and exclusively serves—low-income and bilingual Latinos, many of whom have skills levels too low to enroll in and complete college courses. The program nonetheless achieved comparable results to other interventions focused on broader and, in some instances, more college-ready populations, including other programs in PACE.

For example, other programs in the PACE study, such as Pima Community College's Pathways to Healthcare (Gardiner et al, 2017) and Valley Initiative for Development and Advancement (Rolston, Copson, and Gardiner 2017), also estimated the program's impact on credential receipt within a similar follow-up period. Though there are important differences in the target populations, target industries (Pima was focused on healthcare while VIDA included healthcare and other occupational trainings) and designs of these other programs, both also included bridge courses designed to help participants remediate basic skills and served populations that were largely Latino. Carreras produced impacts on receipt of training (in the case of Pima) and credentials that are comparable to these programs, although the credentials received at Carreras were more commonly from a licensing and certification organization than a college.

Although Instituto operated Carreras largely as designed, their experience indicates areas for further attention and development. First, although the program sought to target low-skilled participants, it had some difficulty recruiting students into its lowest level bridges (those below an eighth-grade skill level), indicating the challenge of reaching this group for education and training opportunities. Second, though the establishment of the control group indicates Carreras could expand in scale with adequate resources to some degree, the difficulty in meeting PACE enrollment targets suggests that a dramatic scaling of the program would require different outreach strategies and potentially covering a larger geographic service area. Third, although contextualizing the curricula was a key design element for the lower bridges, instructors had difficulty implementing it to the degree envisioned by program leadership. Program leadership took steps to standardize contextualization across the lower bridge curricula, but this is an area for future attention.

Finally, although the pathway extends to the LPN course, few participants reached this level within the 18-month follow-up period. This may be expected given the initial skills levels of participants and a program designed to allow course completers to either enroll in the next course or exit to employment, returning to classes at a later time. A sizable number of participants, however, enrolled in the LPN precursors (Pre-LPN and LPN Prerequisites) during the PACE study period without progressing to the LPN course. Continued progression along the career pathway will be an important issue to document in the next phase of the study.

The evaluation findings attest to the role that experienced nonprofit organizations can play as providers of training and supports to facilitate enrollment and persistence in public college systems. A number of innovative career pathways approaches involve partnerships between community-based organizations and local community colleges. In the Carreras model, the community-based organization provided both instruction and supports at the lowest steps; at higher steps, it facilitated entry into the Chicago City College system and provided continued supports to promote college completion.

Positive findings for the Carreras program suggest that nonprofit organizations based in a community can play a constructive role as part of wider career pathways education and training systems. As a local nonprofit organization, Instituto brought substantial knowledge and skill in working with a particular community; flexibility in program development; and commitment to their mission and to the Carreras program. For example, in developing Carreras, Instituto assessed the employment interests of Latinos in the Chicago area and identified local high-growth employment sectors. The organization's knowledge of the needs of its community also led to Instituto's early interest in and adoption of an innovative approach— a career pathway. The organization continues to adapt the Carreras program based on community needs, such as adding a new, lower bridge for residents with very low basic skills.

At the same time, these elements may limit the potential for replication of the program. The organizational strengths Instituto developed over its history of work with Latinos in one community may be difficult to apply on a larger scale in Chicago or to reproduce in other settings. Mixed findings from past efforts to replicate successful programs both attest to the challenges involved and offer insights into how to address them (Fein 2016; Hendra et al. 2016).

6.2. What Lies ahead for the Evaluation of Carreras en Salud

This report's findings on Carreras's positive impact on receipt of hours of occupational training, basic skills instruction, and credential receipt over an 18-month period show strong results. While these are promising results, longer-term follow-up on a broader range of outcomes, particularly employment and earnings, is needed to more definitively assess the Carreras en Salud model. The many important questions that remain will be addressed in subsequent reports on effects on intermediate outcomes (with 36 months of follow-up) and long-term outcomes (with 72 months of follow-up). These include:

- ***Will Carreras's impact on educational attainment remain stable, increase, or decrease?*** In particular, it will be important to assess whether participants enroll in and complete higher levels of the pathway (LPN) and beyond (even RN) and achieve the associated credentials. The positive impacts seen thus far might indicate permanent improvements of the treatment group relative to the control group. Conversely, control group members could catch up over time, so that their education outcomes are no longer significantly different from those of the treatment group.

- ***Will Carreras's impact on educational attainment translate into impacts on employment and earnings?*** The 18-month analyses examined only a very few employment-related outcomes. Future analyses will assess the impact of Carreras on a broader array of employment outcomes, including earnings, hourly wages, receipt of fringe benefits, and stability of employment.
- ***Does Carreras have other impacts on participants and their families?*** Key outcomes to address in the future include the effect of the program on individual and household income, material well-being, and perceived stress.
- ***Is Carreras cost beneficial?*** Future analyses will explore the costs of the program relative to the benefits it produces for participants and society.

Given the strong early results presented in this report, these later reports will be important additions to the career pathways literature.

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