



FEDERAL RESERVE BANK OF PHILADELPHIA

Apprenticeship Guide

2017



Author: Keith Rolland
Editor: Angela Martello
Graphic Designer: Lindsay Crucius
Photographer: Peter Samulis
Web Designer: James Terry

PREFACE

This guide explores apprenticeship, a talent recruitment and development strategy that integrates on-the-job learning and related technical instruction. The guide primarily examines Registered Apprenticeship (RA) programs, which traditionally have been used in construction and the skilled trades but are now being applied in high-growth sectors such as information technology, health care, and advanced manufacturing. The guide, which explains how RAs work and examines long-term programs as well as new and noteworthy ones, is intended as an educational resource for private-sector employers and organizations involved in workforce development in Pennsylvania, New Jersey, and Delaware.

I would like to thank the three reviewers of the guide:

- Diane Jones, Senior Fellow, Urban Institute
- Carolyn G. Renick, Program Analyst, U.S. Department of Labor
- Chris Shannon, Deputy Director, Regional and Community Outreach, Federal Reserve Bank of Boston

Thanks also to Ron Leonard, Multi-State Director with the U.S. Department of Labor's Office of Apprenticeship, for his ongoing information and advocacy of apprenticeship.

The responsibility for any errors is mine. The views expressed in this report are those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

— Keith Rolland
Community Development Advisor
Community Development Studies & Education
Federal Reserve Bank of Philadelphia

TABLE OF CONTENTS

Introduction.....7

Case Studies.....20

 Communities In Schools of Philadelphia: Urban Technology Project.....21

 Northeast Carpenters Apprentice Training and Educational Fund26

 Oberg Industries33

 Philly Shipyard, Inc.....39

 Tri-M Group, LLC.....45

New and Noteworthy Programs.....51

Conclusion.....75

Key Contact Individuals and Resources.....77

INTRODUCTION

The Federal Reserve Bank of Philadelphia's Community Development Studies & Education (CDS&E) Department supports the Federal Reserve System's economic growth objectives by promoting community development in low- and moderate-income communities and fair and impartial access to credit in underserved markets. As part of its community development work, CDS&E has examined workforce development issues, with a particular focus on young people between the ages of 16 and 24. CDS&E hosted a conference on apprenticeships and other employer-led strategies in December 2015, organized a series of webinars, and reported on apprenticeship and other workforce initiatives in *Cascade*,¹ the Bank's community development publication. CDS&E has also conducted research on well-paying employment opportunities for workers with lower levels of formal education in the nation's largest metropolitan economies and in Pennsylvania, New Jersey, and Delaware. This research on "opportunity occupations" has been conducted with the Federal Reserve Banks of Cleveland and Atlanta.² Recently, CDS&E also published "Uneven Opportunity: Exploring Employers' Educational Preferences for Middle-Skills Jobs."³

One of the talent recruitment and development strategies that employers may examine is apprenticeship. Apprenticeship, which builds on a time-old tradition in which young people learn a craft or trade from older workers, has a precedent in craft guilds prominent in Europe more than 1,000 years ago.

Apprenticeship enables an employer to provide training and instruction according to an employer's particular needs and to prepare employees for positions that are difficult to fill or will be vacated by retiring workers. It's a way to transmit cultural and institutional knowledge from experienced workers and to develop employees who will be the mainstay of the future. Apprenticeship can provide employers with an additional source of talent and may increase employee retention and promote diversity.⁴ Some employers have reported difficulty in finding suitable candidates for middle-skills jobs that require some postsecondary education but not a four-year college degree; apprenticeship may be a response to this need as well.

At the same time, apprenticeship provides job seekers with a structured career pathway that enables them to simultaneously earn money and learn skills.⁵ Apprentices are usually full-time paid employees when they begin their apprenticeships and are paid incremental wages based on demonstrated competencies. As full-time employees, they also receive benefits.

In the U.S., the 80-year-old federal Registered Apprenticeship (RA) program administered by the U.S. Department of Labor (DOL) has been used traditionally in construction and the skilled trades, such as

¹ *Cascade*, which is published four times a year, provides news and analysis on community development issues for individuals working in the community development field in financial institutions, nonprofit organizations, government agencies, and other sectors. Visit www.philadelphiafed.org/community-development/publications/cascade.

² See Keith Wardrip, Kyle Fee, Lisa Nelson, and Stuart Andreason, "Identifying Opportunity Occupations in the Nation's Largest Metropolitan Economies," Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta, September 2015; available at www.philadelphiafed.org/-/media/community-development/publications/special-reports/identifying_opportunity_occupations/identifying_opportunity_occupations_report.pdf?la=en.

³ See Keith Wardrip, Stuart Andreason, and Mels de Zeeuw, "Uneven Opportunity: Exploring Employers' Educational Preferences for Middle-Skills Jobs," *Cascade Focus*, January 2017; available at www.philadelphiafed.org/-/media/community-development/publications/cascade-focus/uneven-opportunity-exploring-employers-educational-preferences-for-middle-skills-jobs/cascade-focus_6.pdf?la=en.

⁴ See www.luminafoundation.org/resources/talent-investments-pay-off.

⁵ Apprenticeships are often referred to as having an "earn-and-learn" strategy. Academic concepts are contextualized and taught in a workplace or work setting, an educational approach known as "work-based learning." See materials on work-based learning in the Key Contact Individuals and Resources section of this guide.

those involving electricians, plumbers, and carpenters. In the past two years, significant DOL funding has expanded the use of RAs in high-growth sectors such as information technology (IT), health care, and advanced manufacturing, and has supported some new apprenticeship intermediaries and job-related training and instruction providers. Many newer programs in these high-growth sectors are two years or less in duration. New apprenticeship activity in financial services and IT is described later in this section.

PURPOSE

This guide is designed to inform private-sector employers in an even-handed way about the background of U.S. apprenticeships, trends, and new developments, particularly in Pennsylvania, New Jersey, and Delaware. The guide is intended to help employers understand the current state of apprenticeship and decide if they want to further explore apprenticeship as a talent development strategy.

This report focuses primarily on the federal RA program that is administered by the DOL. Non-RAs also exist, although much less information is available about them.

The guide includes a Case Studies section featuring five active RA programs in Pennsylvania and New Jersey that are more than 10 years old and have had a substantial number of apprentices. Three of these case studies report on Oberg Industries, a contract manufacturer in the Pittsburgh region; Philly Shipyard, Inc., a commercial shipbuilder; and the Tri-M Group, LLC, an industrial electrical contractor. These three employers started RA programs because they could not find skilled workers to meet their production needs. Oberg Industries has had more than 700 apprentices since it started its program 35 years ago; Philly Shipyard, Inc., has trained more than 300 apprentices since starting its program 13 years ago; and Tri-M has had 240 apprentices since the beginning of its program 38 years ago.

The other two case studies include a joint labor–management program launched 48 years ago by the Northeast Carpenters Apprentice Training and Educational Fund and an IT apprenticeship program, one of the first in the U.S., developed through an unusual partnership between the School District of Philadelphia and a nonprofit affiliate. Together, these five case studies offer a wealth of experience in operating RA programs. Additional exemplary apprenticeship programs exist in Pennsylvania, New Jersey, and Delaware.

The five case studies are instructive for different reasons. The Northeast Carpenters Apprentice Training and Educational Fund has a pre-apprenticeship that helps participants decide if the carpentry field is the right career choice and has taken a series of steps to recruit women and minority candidates. Oberg Industries recruits high school students for a pre-apprenticeship that leads to an Oberg RA program. Philly Shipyard, Inc., has had good experience recruiting apprentices from its own workforce. Tri-M recently decided to manage its RA program in-house and provides on-site training during work hours in order to give its employees greater work–life balance. At Oberg Industries, Tri-M, and other employers, the RA programs are part of a broader commitment to training.

The guide also includes a section on some new and noteworthy apprenticeship programs that have been started in high-growth sectors by new types of sponsors, such as a chamber of commerce and a community college. Many of the programs are in health care, a sector in which apprenticeship was largely unknown until recently, and include programs for emerging positions such as community health workers. This section illustrates the unfolding activity taking place in nontraditional programs outside construction and the skilled trades.

This publication also includes key contacts and resources. The regional contacts in the DOL and the state apprenticeship agencies in Pennsylvania and Delaware are a good first step in finding other RA employers and sponsors and in exploring the feasibility of apprenticeship at your company.

THE U.S. APPRENTICESHIP SYSTEM

In 1911, the first state apprenticeship program was created in Wisconsin. In 1937, Congress enacted the National Apprenticeship Act, which authorized the federal government to administer RAs in cooperation with the states.⁶

The U.S. has a dual apprenticeship system. In 25 states, including Pennsylvania and Delaware, state apprenticeship agencies act on behalf of the DOL to oversee registration of RAs, assist employers, and monitor regulatory compliance. In the remainder of the states, including New Jersey, RAs are approved by DOL staff.

Key Facts About Registered Apprenticeship Programs

RAs have two key components: on-the-job learning (OJL) and related technical instruction (RTI)⁷:

- With OJL, which has been known until recently as on-the-job training, apprentices gradually learn the duties of a position under the supervision of an experienced worker usually at an employer's facility. Apprentices are also typically assigned a mentor who provides general guidance on OJL, RTI, and other matters. The mentoring role is sometimes fulfilled by the supervisor.
- RTI, which enables the apprentice to master technical skills for a particular position, can be designed and delivered on-site by the sponsor or can be outsourced to an external provider, such as a community college or other training provider. RTI may be a combination of in-person instruction and/or online courses. Apprentices usually receive industry-recognized credentials and may receive college credits for part of or the entire apprenticeship program. They also receive a DOL certificate of completion at the conclusion of their apprenticeship.

Union programs and jointly managed labor-management programs tend to pay for RTI, as do most private-sector employers. Some employers may be reimbursed for training wages for some apprentices through Workforce Innovation and Opportunity Act (WIOA) funds, which are administered by the states.

An RA program has a sponsor, which is responsible for completing all the paperwork related to the program. A sponsor may be a single employer or it may be a group of employers, an industry or trade association, a labor organization, an institute of higher education, a nonprofit, or an intermediary⁸ that connects the apprentice with one or more employers. Most RA programs are sponsored by individual employers but a considerable number are "group nonjoint," which involves a group of nonunion

⁶ The act pioneered national standards for apprentice training, enabling thousands of previously unemployed youths to be trained during World War II, according to the Eastern Seaboard Apprenticeship Conference. State apprenticeship agencies worked with the DOL to encourage the growth of apprenticeship training.

⁷ For each year of the RA, the apprentice normally participates in 2,000 hours of OJL and at least 144 hours of RTI.

⁸ In the event that the sponsor is not an employer, the apprentice must also have an employer and be paid a wage by that employer throughout the course of the program.

employers, or “group joint,” which involves union employers (management) and their union workforce (labor union locals).

An employer or sponsor of an RA program generally does the following:

- Develops apprenticeships for new employees or incumbent workers, or both
- Identifies minimum qualifications for an apprenticeship program, such as having certain academic skills, having the ability to physically perform essential functions, possessing a driver’s license and a clean driving record, and having the ability to pass initial and random drug testing
- Is responsible for determining the length of time for the program and/or the set of competencies associated with program completion, identifying in advance the competencies or time increments associated with wage increases, supervising the OJL, and measuring and recording an apprentice’s completion of necessary requirements
- Develops a curriculum that covers both OJL and RTI

RA employers or sponsors sometimes rely on an apprenticeship intermediary to help them design the curriculum, recruit and select apprentices, and manage their programs.

RA programs increasingly are one or two years in length, although traditional RA programs in construction and the skilled trades may be four years or longer. RA programs are competency-based (progress is marked by the apprentice’s ability to perform necessary job functions), time-based (progress is marked by the number of hours the apprentice has completed in OJL and RTI), or a hybrid (progress is measured through a combination of hours and demonstration of competencies).

A Snapshot of Activity in Registered Apprenticeship Programs

Table 1 provides a summary of RA activity nationally and in Pennsylvania, New Jersey, and Delaware. Table 2 provides a breakdown of the occupations with the largest number of RAs in Pennsylvania, New Jersey, and Delaware.

Table 1. Registered Apprenticeship Programs for the 2016 Fiscal Year

	Active Apprentices	New Apprentices	Total Completers	Active Programs	New Programs
National	505,371	206,020	49,354	21,339	1,701
Pennsylvania	14,110	4,654	1,190	745	37
New Jersey	6,235	2,344	865	577	73
Delaware	1,141	224	145	308	10

Notes: The number of active apprentices includes new apprentices. The number of active programs includes new programs. About 20 percent of the national total of 505,371 active apprentices were active duty members of the Navy, Marine Corps, and Coast Guard through the United Services Military Apprenticeship Program. For additional data on the number of RA programs and apprentices, see https://doleta.gov/oa/data_statistics.cfm/. Source: U.S. Department of Labor.

Table 2. Occupations with the Largest Number of Registered Apprenticeship Programs

Pennsylvania		New Jersey		Delaware	
Leading Occupations by Number of Apprentices	Number of Apprentices	Leading Occupations by Number of Apprentices	Number of Apprentices	Leading Occupations by Number of Apprentices	Number of Apprentices
Corrections Officer	2,363	Carpenter	1,846	Electrician	309
Carpenter	2,204	Electrician	898	HVAC Worker	108
Electrician	1,989	Plumber	504	Plumber	98
Plumber	892	Corrections Officer	304	Construction Laborer	61
Pipefitter (Construction)	751	Steelworker	296	Sheet Metal Worker	45

Source: U.S. Department of Labor. Data are current as of May 2017.

RECENT FUNDING AND ACTIVITY IN REGISTERED APPRENTICESHIP PROGRAMS

The Obama administration and Congress provided more than \$265 million in funding⁹ in an effort to double the number of apprentices from 2014 to 2019 and to launch apprenticeships in fast-growing industries. The \$265 million included \$175 million in American Apprenticeship Initiative¹⁰ grants to develop new apprenticeships and \$50.5 million to help states develop and implement strategies to support apprenticeship expansion. Some of the \$265 million has also been targeted to increase apprenticeship opportunities for women, people of color, disconnected youth, and other populations that have been underserved in traditional RA programs¹¹ and to integrate apprenticeship into state education and workforce systems.

Most of the funds have been allocated to apprenticeship intermediaries and workforce development organizations. A small amount of the funds can be made available to for-profit businesses to help get apprenticeship programs started.

Recent DOL funding is promoting the expansion of occupations in apprenticeship training and is cultivating new apprenticeship sponsors, intermediaries, and RTI providers.

⁹ A summary of DOL funding streams may be found at www.dol.gov/featured/apprenticeship/grants.

¹⁰ This included awards to Philadelphia Works, Inc., to develop apprenticeships in health care and IT and to the West Central Job Partnership in New Castle, PA, to develop apprenticeships in manufacturing.

¹¹ Jobs for the Future, located in Boston, one of four national equity partners, is working in several cities, including Philadelphia, where JEVS Human Services, a Philadelphia-based not-for-profit organization that originated as the Jewish Employment and Vocational Service, is providing technical assistance as an apprenticeship intermediary and facilitator.

Pennsylvania

In 2016–2017, new apprenticeship programs were started in Pennsylvania for certified nursing assistants, community health workers, early childhood education teachers, and emergency medical technicians and paramedics. Some of these programs are described in the New and Noteworthy Programs section of this guide. A Pennsylvania Apprenticeship and Training Office was recently established in the Pennsylvania Department of Labor and Industry to explore nontraditional apprenticeship opportunities in high-priority industries such as health care and education. According to Eric M. Ramsay, director of the office, the office plans to have representatives in southeast, central, and western regions of the state and is working with the Keystone Development Partnership¹² to expand apprenticeship programs.

The Pennsylvania Apprenticeship and Training Council approved new RA programs¹³ in the child-care, construction, health-care, manufacturing, and science/technology sectors at its May 2017 meeting. The programs include an apprenticeship program for biomedical research technicians that was developed by the Wistar Institute,¹⁴ other university biomedical research centers, and pharmaceutical companies.

Two notable long-established comprehensive skilled trades programs that serve large geographic regions are operated by the Finishing Trades Institute of the Mid-Atlantic Region¹⁵ and the Sheet Metal Workers Local Union 19.¹⁶

Philadelphia

Philadelphia Works, Inc. (PW), which received an American Apprenticeship Initiative grant to develop health-care and IT apprenticeships, has funded the development of pre-apprenticeship curricula for an IT program and for another program to train youth to work in the areas of behavioral health or intellectual disabilities. It has also helped develop and register several RA programs, including one program started by WES Health System for psychiatric rehabilitation assistants and another started by JEVS Human Services for direct support professionals. PW has also worked with university research centers and pharmaceutical companies to establish an RA for biomedical research technicians, and it is developing a pre-apprenticeship program linked to high school career and technical education programs and another connected to a manufacturing industry partnership. It is also working to integrate RAs in public workforce services and to inform PW customers about available RAs.

In addition, JEVS Human Services is providing technical assistance as an apprenticeship intermediary and facilitator.¹⁷ JEVS is a sponsor of behavioral health apprentices who will receive preparation to become direct support professionals at JEVS¹⁸ and is developing a pre-apprenticeship IT curriculum for youth. The organization is also working to include a pre-apprenticeship component and a multi-

¹² See www.kdpworks.org/.

¹³ The programs are approved by the Pennsylvania Apprenticeship and Training Council, registered by the Pennsylvania Apprenticeship and Training Office, and recognized by the DOL's Office of Apprenticeship.

¹⁴ See www.wistar.org/.

¹⁵ See www.fti.edu/.

¹⁶ See www.smartlu19.org/apprenticeships.html.

¹⁷ JEVS's work is related in part to a DOL contract with Jobs for the Future to increase RA participation by women, people of color, and disconnected youth.

¹⁸ For further information, see the description on the District 1199C Training & Upgrading Fund in the New and Noteworthy Programs section of this guide.

employer-sponsored model in a new Pennsylvania IT apprenticeship program. JEVS is providing technical assistance and increasing employer awareness in order to expand the use of apprenticeships.

New Jersey

Apprenticeship programs have been developed in the New Jersey Health Care Talent Network,¹⁹ and apprenticeship opportunities are being explored in the state's Advanced Manufacturing Talent Network. A state program, New Jersey Builders Utilization Initiative for Labor Diversity (NJBUILD), seeks increased participation in apprenticeships in the construction trades by women and members of racial and ethnic minorities. Another state program, Youth Transitions to Work,²⁰ connects high school students to apprenticeships. Each of the networks and programs mentioned here enables participants to obtain college credit. The state also funds county apprenticeship coordinators²¹ who help develop RA curricula and link high school co-op and career and technical education programs to pre-apprenticeships and RAs.

Delaware

Delaware's Department of Labor Division of Employment and Training, the state apprenticeship agency that oversees apprenticeship activity in Delaware, is assisting employers and sponsors to start a statewide automotive technician program as well as hotel associate and carpentry programs in Sussex County. Apprenticeship activity in Delaware traditionally has been in construction and the skilled trades.

In a unique feature, the Delaware Department of Education (DDOE) pays for an apprentice's RTI if the RTI is provided at one of the state's four adult vocational-technical high schools. In order to take the RTI without cost to the apprentice, the apprentice provides the adult vocational-technical high school with an Apprenticeship Agreement signed by the apprentice, a sponsor or employer, and the state apprenticeship agency. The DDOE allocates up to \$1.7 million a year for apprenticeship-related RTI under House Joint Resolution #9 enacted nearly four decades ago, according to Kyle Maguire, apprenticeship training manager in the Division of Employment and Training. The funds allocated for RTI, however, cannot presently be used in Delaware's community college system, Maguire said.

Delaware also had the distinction of being one of only 10 states selected in January 2017 for a \$2 million three-year grant in an initiative of the Council of Chief State School Officers and JPMorgan Chase & Co. The initiative is intended to expand and improve career pathways for all high school students.²²

Apprenticeships in Financial Services

The DOL is encouraging corporations in the financial services sector to consider starting RAs. Aon, Zurich North America,²³ the Hartford Financial Services Group, Inc.,²⁴ and JPMorgan Chase & Co.

¹⁹ See the description of the health-care network's apprenticeship activity in the New and Noteworthy Programs section of this guide.

²⁰ See http://careerconnections.nj.gov/careerconnections/plan/foryou/youth/youth_transitions_to_work.shtml.

²¹ See http://careerconnections.nj.gov/careerconnections/hire/training/apprentice/registered_apprenticeship.shtml.

²² For information, see www.ccsso.org/News_and_Events/Press_Releases/JPMorgan_Chase_and_CCSSO_Announce_20_Million_to_Improve_Career_Education_for_Young_People_in_10_US_States.html.

²³ For information, see <https://www.zurichna.com/en/careers/apprenticeships> or contact Olivier Meyenhofer at olivier.meyenhofer@zurichna.com. Zurich is working with Harper College, a community college located near Chicago in Palatine, IL, which has developed curricula for RTI in several programs. See employer resources at <http://goforward.harpercollege.edu/academics/apprenticeships/>.

²⁴ For information, see www.thehartford.com/careers/claims-apprentice or contact Cindy Angelini at 602-395-3448 or cindy.angelini@thehartford.com.

have started RA programs in one or more of the following apprenticeable occupations approved by the DOL: general insurance associate, information management, career development technician, computer support specialist/desktop support technician, computer support specialist, computer systems analyst, and network and computer systems administrator. (Companies often use different job titles than those on the DOL's list of apprenticeable occupations.) The parent companies of Aon and Zurich, located in the UK and Switzerland, respectively, have apprenticeship programs. In addition, one financial institution and one insurance company were developing RA programs as of May 2017, according to the DOL.

JPMorgan Chase & Co. is participating in a one-year Houston Community College (HCC) Technology RA Program²⁵ in Houston in cooperation with the DOL. (HCC²⁶ received a \$4.2 million American Apprenticeship Initiative grant to start IT and health-care programs as well as to upgrade an existing program in plumbing-related occupations.) The program is designed for HCC graduates who have earned an associate of applied science degree in computer science and who will be considered for IT positions. Current plans call for 43 apprentices over a five-year period. The first round of apprentices started in March 2017 and a second round of apprentices is expected to start later in 2017.

Tammy L. Newman, vice president of Global Technology Infrastructure Global Service Operations at JPMorgan Chase & Co. in Houston, said: "JPMorgan Chase has agreed to participate in the American Apprenticeship Initiative by providing alternate career pathways and real practice experience through a combination of workplace learning and formal training. Students will receive a Formal Technology Apprenticeship certification within Financial Services — Infrastructure Operations, which will be a nationally recognized credential issued by the DOL at the successful completion of the program."

This is the first apprenticeship program in North America for JPMorgan Chase, which is evaluating the IT program for possible replication in other locations. The company operates apprenticeship programs in Bournemouth and Glasgow in the UK as well as in Singapore.

Apprenticeships in Information Technology

IT apprenticeships are also being organized in a wide range of corporations that have IT departments. The DOL's approved occupations for apprenticeship programs include IT generalist, IT project manager, database administrator, network security administrator, web developer, and software developer.

A number of American Apprenticeship Initiative grants have been awarded for the development of IT apprenticeships. These include a grant to develop a competency-based RA program to recruit, train, and place women, minorities, veterans, and others who are underrepresented in the IT industry. The program, known as Apprenti, is operated by the Washington Technology Industry Association Workforce Institute.²⁷

One of the only financial institutions in the U.S. with an IT apprenticeship program is Barclaycard US, which is in the fifth year of operating a nonregistered IT apprenticeship program at its Wilmington, DE, facility. The two-year program is based on an apprenticeship program operated by its parent company

²⁵ See <https://careers.jpmorgan.com/careers/programs/HCCtechnology-apprenticeship>.

²⁶ See www.hccs.edu/continuing-education/departments/apprenticeship/american-apprenticeship/.

²⁷ See www.washingtontechnology.org/wtia-workforce-institute-officially-opens-registered-tech-apprenticeship-program-apprenti/.

in the UK. Barclay has taken a new cohort of five apprentices a year for four years but increased the number of apprentices in its 2017 cohort to eight.²⁸

DISCUSSION: THE POTENTIAL OF APPRENTICESHIP IN THE U.S.

Modernizing Apprenticeship

There is a lack of awareness and understanding of apprenticeship in the U.S., resulting in part from limited funds for marketing to employers and the public. Apprenticeship is well-understood and effective in construction and the skilled trades, but it needs to be explained and interpreted in high-growth sectors such as IT and health care.

The dual, or bifurcated, system, in which the DOL has RA oversight for half the states and state apprenticeship agencies have oversight for the balance of states, has contributed to some fragmentation in the apprenticeship field.

The more the RA program is streamlined and modernized, the more likely it is to be used by employers. The DOL is working to streamline the registration process and is taking a flexible approach in considering the design of new RA programs, according to DOL staff.

In a few cases, apprenticeship intermediaries have handled RA registration and program requirements for employers and have organized a significant level of activity.²⁹

Efforts are also underway to integrate apprenticeships with other federal programs. Workforce development corporations are gradually making their customers aware of RAs and are including RAs on their eligible training provider lists, making these programs eligible for some grants.

Learning from European Counterparts

The U.S. departments of Commerce, Education, and Labor signed declarations of intent in the summer of 2016 with their counterpart agencies in Germany and Switzerland to share information on apprenticeships and career and technical education. Apprenticeship is relatively embedded in the culture of Germany and Switzerland,³⁰ and educational and employment systems in those countries are more closely linked than those in the U.S. Unlike the U.S., government-paid educational expenses in Germany and Switzerland reduce both the cost of an apprenticeship program and the potential cost of training an apprentice who might later move to another company. RTI doesn't result directly in productivity, and this is a cost that requires longer-term employment in order for the employer to realize a full return. Unlike the

²⁸ For more information, contact Jocelyn Stewart, vice president of Human Resources at Barclaycard US, at JSutton@barclaycardus.com. Also, see Keith L. Rolland, "Barclaycard US Apprenticeship Program in Delaware Enters Fourth Year," *Cascade*, No. 92, Summer 2016; available at www.philadelphiafed.org/community-development/publications/cascade/92/04_barclays-us.

²⁹ Two leading intermediaries are Apprenticeship Carolina, an economic and workforce development initiative led by the state of South Carolina and embedded in the state's community college system, and Vermont HITEC, an educational nonprofit active in Vermont and New Hampshire.

³⁰ For information on Switzerland's vocational education and training system, see www.eda.admin.ch/content/dam/countries/countries-content/united-states-of-america/en/Apprenticeship%20Brochure%20160329%20Web.pdf and <https://swisseducation.educa.ch/en/vocational-education-and-training-0>.

U.S., Germany and Switzerland have an education minister who presides over curricular decisions and government entities and can better coordinate education and workforce development efforts.³¹

In the UK, apprenticeship has grown rapidly with government support in the past decade, and the total number of apprenticeships far exceeds a population-based comparison in the U.S. Although the UK initially encouraged participation by private-sector companies with government funding, the UK recently has changed its approach so that companies above a certain size pay a tariff if they fail to provide enough apprenticeship opportunities.

Middle-Skills Jobs

Apprenticeships often lead to “middle-skills” jobs and require some education, typically in a community college, but not a four-year college degree. There is ongoing debate in the U.S. among educational leaders as well as young people, their parents, teachers, and guidance counselors about whether a four-year college education should be the desirable goal for all young people. Diane Jones, senior fellow at the Urban Institute, observed: “It is important to provide information about actual wages associated with more technical careers to end the myth that a college degree is what guarantees higher lifetime earnings. Many vocational workers out-earn those who have a college degree and even those who have advanced degrees, depending upon the occupation.”

Pre-apprenticeships

Pre-apprenticeships are receiving substantial attention in the apprenticeship field, and, according to DOL staff, pre-apprenticeships are becoming increasingly common.

Pre-apprenticeships give participants an opportunity to prepare for and explore an occupation before committing to an apprenticeship. These programs also help participants meet various workplace expectations, including soft skills such as teamwork and communication, and may enable employers to better gauge participants’ interest and aptitude.

Questions raised in discussions of pre-apprenticeship programs are whether they are closely connected to actual apprenticeships and whether they should operate independently of apprenticeship programs.³² Pre-apprenticeships may lead to higher completion rates³³; the limited data that exist on this matter are at the state level, such as the state of Massachusetts, which has a state pre-apprenticeship program.³⁴

The Apprenticeship Improvement Act of 2017 (H.R. 2377), introduced in Congress in May 2017, would amend the WIOA to include individuals participating in pre-apprenticeship programs offered by employers and provide that such employers may be reimbursed under the act.³⁵

³¹ Source: Diane Jones, senior fellow at the Urban Institute.

³² A useful compilation of resources is available at <https://apprenticeshipusa.workforcegps.org/resources/2017/02/02/10/56/Apprenticeship-Youth>. Some guidance on pre-apprenticeships is provided in a DOL training and employment notice at https://wdr.doleta.gov/directives/corr_doc.cfm?DOCN=5842.

³³ The DOL estimates that the RA completion rate in the states in which the DOL has direct oversight of RAs was about 44 percent in the 2016 fiscal year. Earlier, a Mathematica Policy Research study found that about 45 percent of participants completed their apprenticeships. See Debbie Reed, Albert Yung-Hsu Liu, Rebecca Kleinman, et al., *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States*. Oakland, CA: Mathematica Policy Research, July 25, 2012; available at https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2012_10.pdf. (The 10 states reviewed include New Jersey and Pennsylvania.)

³⁴ See www.mass.gov/lwd/labor-standards/das/new-pre-apprentice-procedures.html.

³⁵ For information, see www.congress.gov/bill/115th-congress/house-bill/2377.

STARTING NEW REGISTERED APPRENTICESHIP PROGRAMS

Employer interest in apprenticeships may originate in any functional area, but a commitment to start an RA typically will need to involve multiple areas of a company, such as the executive area and the human resources, finance, legal, and production departments. It may also be worthwhile to involve front-line managers because they will play significant roles in mentoring and teaching apprentices.

Employers weigh the costs and benefits of initiatives such as apprenticeships. A report prepared by the U.S. Department of Commerce's Economics and Statistics Administration in partnership with Case Western Reserve University provides insight about the return on investment (ROI) for 13 employers and intermediaries that have operated RA programs. One of the 13, Oberg Industries, is profiled in a case study in this report.³⁶

An employer or sponsor that wants to start an RA program develops the Standards of Apprenticeship in conjunction with the DOL or the state apprenticeship agency. This includes a description of the planned program and occupational position, plans for a curriculum covering OJL and RTI, and a work process schedule. Also, the employer or sponsor is responsible for putting together an Apprenticeship Agreement with each apprentice that outlines incremental wages based on attainment of competencies. This agreement can be paper-based or electronic.

If an employer is starting an apprenticeship program for which the DOL has previously approved an apprenticeable occupation,³⁷ the employer can use previously determined Standards of Apprenticeship and receive expedited approval. If the occupation has not been previously approved, the employer submits to the DOL or the state apprenticeship agency documentation on the need for an apprenticeship program and a curriculum for the planned program. Approval can take one to six months, according to the DOL.³⁸

Intermediaries can fulfill an important role in handling the paperwork for employers and sponsors. If an intermediary is the sponsor of an RA, employers can sign a one-page employer participation agreement.

Employers that want to offer national apprenticeship programs, including in some states overseen by state apprenticeship agencies and others overseen by the DOL, can apply to the DOL for national program status, thereby eliminating the need to gain approval in each state.

Resources for employers are available from the DOL and the American Institute for Innovative Apprenticeship.³⁹ The institute's resources include information on national occupational frameworks (NOFs) for some positions.⁴⁰ The DOL has contracted with the Urban Institute to develop voluntary consensus-based NOFs to help employers and sponsors develop new programs and to assist state and other officials who evaluate apprenticeship applications.

³⁶ The report, released in November 2016, is available at www.esa.gov/sites/default/files/the-benefits-and-costs-of-apprenticeships-a-business-perspective.pdf.

³⁷ For a list of DOL-approved apprenticeable occupations, see www.doleta.gov/OA/occupations.cfm.

³⁸ For details on RA applications, see www.doleta.gov/OA/regulations.cfm.

³⁹ See <http://aiaa.staging.wpengine.com/employers/>.

⁴⁰ NOFs have been posted for community health workers, medical records and health information specialists, cybersecurity support technicians, information technology generalists, and medical assistants.

A new Urban Institute technical assistance guide, *Starting a Registered Apprenticeship Program*, explains how employers and sponsors can make an internal business case for apprenticeships and evaluate their readiness to start apprenticeship programs. The guide, released in June 2017, also contains detailed instructions on registering apprenticeship programs.⁴¹

Employers and sponsors that are interested in developing new programs in Pennsylvania and Delaware will want to contact respective state apprenticeship agencies and regional DOL apprenticeship specialists. In New Jersey, employers and sponsors should contact regional DOL apprenticeship specialists. See the Key Contact Individuals and Resources section at the end of the guide.

Veterans and Apprenticeships

Employers can hire skilled veterans as registered apprentices and can assist veterans to access their GI Bill benefits. How these benefits can be used in connection with RAs is not always clear, and the following information is provided as a starting point for employers.

When the DOL registers an RA program, it is “GI Bill qualified” but not “GI Bill approved.” When approved for the GI Bill, the RA program can assist current and future veteran apprentices to obtain the benefits they earn. Veterans who have existing benefits under the GI Bill may qualify for a monthly stipend paid by the U.S. Department of Veterans Affairs (VA) in addition to the wages they receive through the apprenticeship to help them meet their monthly expenses. The VA and the DOL are working to facilitate GI Bill approval for RA programs.⁴²

When seeking VA approval for an RA program, the following actions must be taken:

1. The employer contacts the respective state approving agency because VA GI Bill benefits are managed by each state even if an employer has registered a national RA program with the DOL. (Note: The state approving agency is not the same as the state apprenticeship agency.)
2. The employer completes and submits VA Form 22-8865: Employer’s Application to Provide Job Training and VA Form 22-8794: Designation of Certifying Official(s). The state approving agency will also ask for a copy of the DOL-approved Standards of Apprenticeship package.
3. The state approving agency sends the forms to a VA representative for the state. Upon approval, the VA will send a letter to the employer issuing a Facility Code and VA Form 22-1999: Enrollment Certification for employers to register veterans for the program.

The employer or sponsor incurs the time involved in completing and maintaining the relevant documentation. State approving agency representatives for Pennsylvania, New Jersey, and Delaware and a DOL representative who specializes in veterans benefits are listed in the section on Key Contact Individuals and Resources section.⁴³

Employers may also want to know about a new U.S. Department of Defense initiative that provides a “bridge” for active duty military service men and women who are transitioning to civilian life. The initiative, DoD SkillBridge,⁴⁴ enables service members meeting certain qualifications to participate

⁴¹ The guide is available at https://innovativeapprenticeship.org/wp-content/uploads/2017/06/Employer-Guide_June-2017.pdf.

⁴² See <https://doleta.gov/OA/veterans.cfm> and www.doleta.gov/OA/pdf/Appshp_Sponsor_FactSheet.pdf.

⁴³ For state approving agency contact information for all states, see www.nasaa-vetseducation.com/Contacts.aspx.

⁴⁴ See <https://dodskillbridge.com/>. For information, contact Mark Toal, national veterans’ employment manager at the DOL, at 202-693-4708 or Toal.Mark.J@DOL.gov.

in apprenticeships, internships, and other employment training during the last six months of their active duty service.

The next section contains five case studies that examine longstanding programs. The Insights sections of these case studies may be of particular interest. This guide also contains material on new and noteworthy programs and contact information and resources on apprenticeship.

CASE STUDIES

COMMUNITIES IN SCHOOLS OF PHILADELPHIA: URBAN TECHNOLOGY PROJECT



BACKGROUND

The origin of this initiative was an extracurricular IT-oriented club at Edison High School where students learned computer repair as a way to build their skills and serve their north Philadelphia community. The club was first called the Latino Tech Collective and was later renamed the Urban Technology Project (UTP).⁴⁵

In 2002, the School District of Philadelphia started a Digital Service Fellows (DSF) program, which became affiliated with AmeriCorps, in which participants provide a year of IT-related service and shadow district computer technicians. Schools soon displayed interest in hosting DSF IT technicians who could provide support for computer needs. Elizabeth St. Clair, manager of technical support in the school district's Office of Educational Technology and director of the RA program, said that the DSF AmeriCorps program is an informal type of pre-apprenticeship that will be more formally linked to the RA program in the next year.

In 2005, the Pennsylvania Apprenticeship and Training Council approved an RA application from Communities In Schools of Philadelphia (CISP),⁴⁶ a local affiliate of a national nonprofit focused on dropout

⁴⁵ See <http://utp-philly.org/>.

⁴⁶ See www.cisphl.org/.

prevention, in partnership with the School District of Philadelphia to create an apprenticeship for “internet-working technicians.” The technicians have since become known as community support specialists (CSS).

The program meets a real need in the school district, which only has seven IT technicians to support over 200 schools, according to St. Clair. The school district receives about 42,000 requests for assistance with 120,000 desktops, laptops, and other IT equipment during the school year.

Philadelphia high school graduates provide one year of service as DSF fellows and AmeriCorps members to assist schools with IT needs.⁴⁷ The high school graduates strengthen their IT skills, are mentored by school IT technicians, and receive supportive services as needed in such areas as child care and housing. They receive paid public transportation for the year, laptop computers, access to certification software, industry-level soft-skill and technical training, free vouchers for certification exams, hands-on learning, and mentoring.

UTP recruits for the apprenticeship program from DSF AmeriCorps members, high school students who have interest or experience in IT, STEM [science, technology, engineering, and mathematics] club participants, career and technical education program graduates, high school guidance counselors, and Philadelphia Housing Authority sites.

The apprentices work in schools or in the school district’s headquarters. They are mentored by a school technology teacher-leader and/or a regional technology support specialist in the school district. Those apprentices who have appropriate skill sets are encouraged to apply for full-time IT positions that become available in the school district. UTP provides assistance in interviewing and resume preparation.

PROGRAM MANAGEMENT

CISP is the employer of record for the program and oversees financial accounting and documentation. The School District of Philadelphia selects the schools in which the apprentices will work on computer needs and learn customer service skills, and identifies the technology teacher-leaders at each school who will serve as mentors. The district also solicits IT equipment and in-kind training from IT firms.

ON-THE-JOB LEARNING

Apprentices receive OJL totaling 5,115 hours during the three-year apprenticeship.

At the end of the apprenticeship, apprentices get a DOL certificate of completion and receive assistance in finding employment.

RELATED TECHNICAL INSTRUCTION

The curriculum for the RA consists of online software and reading modules. Instruction consists of online computer courses to prepare for certifications and a summer IT course at the Community College

⁴⁷ See www.nationalservice.gov/programs/ameri-corps.

of Philadelphia. Apprentices earn eight to 12 college credits through the apprenticeship program. CSS apprentices are encouraged to take courses and obtain industry certifications. The apprentices are given access to online training for IT certifications and payment of fees for certification tests.

During the three-year apprenticeship, apprentices receive 463 hours of in-person and online instruction in technical support techniques, workplace expectations, vendor-specific hardware and support, and certification preparation. This includes 70 hours of formal in-person training every year.

RESULTS/IMPACT

UTP is one of the longest-running IT apprenticeship programs in the U.S. and one of the only programs that has an affiliation with AmeriCorps. It is one of a limited number of RA programs that focuses on youth. The DOL selected the program as an ApprenticeshipUSA Leader of Excellence in Apprenticeship Development, Education, and Research (LEADER).⁴⁸

Of the 115 apprentices who started the program, 42 percent received a certificate of completion from the DOL.

Some graduates of the apprenticeship program work for the school district, while others work for IT companies, universities, nonprofits, and companies that have IT needs throughout Philadelphia. UTP has cultivated relationships with about 30 firms. Some firms have hired apprentices part-time prior to completion of the apprenticeships. While some UTP alumni have obtained entry-level technical support positions, others have become cybersecurity specialists. Other positions include network systems administrator, webmaster, software engineer, director of operations, owner of a retail technology products company, and owner of an IT solutions firm.

PROGRAM COSTS AND RETURN ON INVESTMENT

The cost of a CSS apprentice will be \$44,000 per year in 2017–2018. This cost consists of the apprentice salary of \$23,660, a 32 percent benefits package, certification software and fees for certification tests, training and related materials, salary increases for certification attainment, tuition for one college course, apprenticeship management, and STEM club materials. Over 85 percent of the cost for a CSS position supports the apprentice in his or her apprenticeship. Program costs are funded from the budgets of the individual schools that participate in the program.

The School District of Philadelphia does not calculate a strict ROI, but it believes that UTP provides a kind of societal ROI in that its students build upon their IT skills and interests through work and learning experiences and are prepared for employment in an expanding industry. The apprentices are also encouraged through their year of service to be involved in their communities. UTP has an overall focus on the students' personal development. Many are low-income and are assisted with their needs in a supportive environment that values diversity.

⁴⁸ See www.dol.gov/apprenticeship/leaderslist.htm.

FUTURE PLANS

CISP plans to change the program standards and reduce the length of the RA from three years to two. Also, the school district wants to expand the number of apprentice positions at district schools and to develop an IT project management apprenticeship with corresponding positions in schools. It hopes to provide CSS apprentices with monthly evening workshops in which industry experts will provide instruction on coding, server support, cloud computing, and other technical topics. It also wants to formalize its partnership with one employer who has hired many of its apprentices.

INSIGHTS

Dawn L. McCray, president and chief executive officer of CISP, said: “Building an apprenticeship program requires a significant amount of commitment and buy-in from all partners. It is especially essential to find the right partnership so the relationship is mutually beneficial. As all partners explore the possibility of partnership, a few essential questions must be answered to determine and ensure the benefit for moving forward: What are the goals of each partner? What is the current capacity level of each partner? What are the skills and knowledge depth of each partner? What are the risks associated with developing the partnership?”

CONTACT INFORMATION

For program-related inquiries, contact Elizabeth St. Clair, Manager, Technical Support, Office of Educational Technology, School District of Philadelphia, 440 North Broad Street, Suite 402, Philadelphia, PA 19130; 215-495-3209 or estclair@philasd.org; <http://utp-philly.org/>.

For employer-related inquiries, contact Dawn L. McCray, President and Chief Executive Officer, Communities In Schools of Philadelphia, 2000 Hamilton Street, Suite C-100A, Philadelphia, PA 19130; 215-498-6384 or dmccray@cisphl.org; www.cisphl.org.

**COMMUNITIES IN SCHOOLS OF PHILADELPHIA:
URBAN TECHNOLOGY PROJECT REGISTERED APPRENTICESHIP PROGRAM**

Historical Program Data (from date started to April 28, 2017)

Program start date	November 2015
Number of apprentices who started program since inception	115
Percentage of apprentices who completed program (completers)	42%
Percentage of completers who are new hires vs. incumbents*	8% new hires 9% incumbents
Percentage of completers who are still working for apprenticeship employer	12%

Current Data as of April 28, 2017

Number of apprentices enrolled in program	9
Average age	22
Gender	78% male 22% female
Race/Ethnicity	78% African American (not Hispanic or Latino) 22% White (not Hispanic or Latino) 0% Asian (not Hispanic or Latino) 0% Other race/Two or more races (not Hispanic or Latino) 0% Hispanic or Latino (any race)

* Incumbent workers were already employed by the employer when they started the RA program.

NORTHEAST CARPENTERS APPRENTICE TRAINING AND EDUCATIONAL FUND



BACKGROUND

The United Brotherhood of Carpenters and Joiners of America has a long history that dates back to 1881 when it was founded by 36 carpenters from 11 cities. In that era, carpenters sometimes worked seven days a week to earn a living. Carpenters in the colonial U.S. were considered skilled artisans, and those who immigrated to the U.S. were often part of a European “guild system” in which masters, journeypersons, and apprentices had an unwritten division of work responsibilities.

The Northeast Regional Council of Carpenters (NRCC), which has 10 locals with 40,000 active members in New Jersey, New York (not including New York City), metropolitan Philadelphia, Delaware, and Maryland, initiated its RA program in 1969 as a way to train carpenters for positions in the commercial construction industry. The NRCC partnered with employers to create a training program that would ensure that union members had successful careers and that the employers were getting skilled carpenters.

The training program, also known as the Northeast Carpenters Apprentice Training and Educational Fund, is funded entirely through employer contributions based on a percentage of the negotiated hourly wage. The fund, which is a 501(c)(3) nonprofit, is part of a collective bargaining agreement between the NRCC and the Associated Construction Contractors of New Jersey and their affiliates, most recently for 2016 to 2019. The employers pay a percentage of the carpenters’ hourly wages, and those funds are

dedicated to the training fund. On January 1, 2016, the NRCC training program merged with that of Empire State Carpenters, creating a program that serves the carpenters' unions in both New Jersey and New York State (not including New York City).

Ridgeley Hutchinson, executive director of the Northeast Carpenters Apprentice Training and Educational Fund, explained that carpentry is the oldest and most respected trade in the construction industry and that commercial carpenter apprentices are trained for many different types of building projects, including hotels, casinos, pharmaceutical office buildings, industrial complexes, nuclear plants, oil refineries, and bridges.

The NRCC RA program runs for five years and is based in Edison, NJ. Apprentices focus on one of four crafts: carpentry, floor laying, mill cabinetmaking, and millwright installations. The work done by employed carpenters in each of these crafts is wide-ranging and increasingly computerized.

There are many specialties in the carpentry trade, such as:

- **Carpenters:** They prepare concrete foundations and frame and finish walls and ceilings in building projects.
- **Floor layers:** These specialists install a wide variety of flooring materials, including carpet, linoleum, hardwood, laminates, and sport surfaces.
- **Mill cabinetmakers:** These craftspeople create decorative moldings, paneling, cabinets, and woodwork and install windows, doors, staircases, and furniture.
- **Millwrights:** They install, maintain, diagnose, and repair machines such as compressors, pumps, conveyers, and gas and steam turbines. They also install and calibrate machinery.

The NRCC has training centers in Kenilworth in Union County, NJ, and in Hammonton in Atlantic County, NJ, and is building a new 100,000-square-foot, state-of-the-art center in Edison. NRCC also oversees three newly renovated training centers in New York State.

In addition to the apprenticeship program, the NRCC has additional training programs that are available free of charge to all journeymen who wish to update their skills or add an industry-required certification or qualification.

PROGRAM MANAGEMENT

The Northeast Carpenters Apprentice Training and Educational Fund is part of a larger group of funds that includes the carpenters' pension and welfare monies. All funds are overseen by an administrative manager. The executive director of the fund manages day-to-day operations and reports directly to the administrative manager and the board of trustees. The board is composed of an equal number of employers that are participating in the collective bargaining agreement and union member employees.

RECRUITMENT

Apprentices are recruited through word of mouth, the Northeast Carpenters Apprentice Training and Educational Fund's website, and community-based organizations. Applicants for the apprenticeship program contact the training center and fill out an application, take a proficiency exam, interview with

one of the union locals, and are considered based on employer needs. Applicants for the apprenticeship program are scheduled for technical training and enter the apprenticeship program before they are hired by the employer. The union assists them in finding employment.

The NRCC has sought to increase membership from underrepresented populations, including women, racial and ethnic minorities, young people, and ex-offenders.

Some highlights of these efforts include the following:

- In 2015, the United Brotherhood of Carpenters and Joiners of America selected New Jersey to pilot a new effort to increase the number of women union members in the carpentry trade. An NRCC committee created a recruitment and retention plan for this effort called Sisters of the Brotherhood, which seeks to expand woman apprentice enrollment to 10 percent. The participation of women in the NRCC's apprenticeship program has increased from 2 percent to 5 percent in the past two years.
- The NRCC has had a targeted effort in Hudson County, NJ, to recruit, train, and place qualified minority and female residents in its pre-apprenticeship program. This effort was funded by a grant from the New Jersey Department of Labor and Workforce Development in partnership with the NRCC, Hudson County One-Stop Career Centers, and the Hudson County Schools of Technology. The fund staff provided outreach and organized recruitment sessions at the Hudson County One-Stop Career Centers and at various locations within Hudson County, workforce readiness and adult basic education at the One-Stop Centers and at Hudson County Schools of Technology, and classroom training and hands-on carpentry training at a New Jersey carpenters training center.
- In 2014, the NRCC signed an agreement with the Puerto Rican Association for Human Development, Inc., in Perth Amboy, NJ, to create a training program that could lead to women and minority candidates becoming union apprentice carpenters. The NRCC and the association signed a memorandum of understanding about their respective roles and responsibilities. The training is conducted at the NRCC's training center in Kenilworth.
- The NRCC is participating in a state-funded Youth Transitions to Work⁴⁹ program designed to interest high school juniors and seniors in pursuing high-skill, high-wage employment in apprenticeable occupations after graduation. While in high school, students are introduced to the apprentice training model, participate in job shadowing, and attend instruction at the NRCC's training centers. High school juniors and seniors who are accepted into the pre-apprenticeship program receive workforce readiness and trade-specific classroom training and are placed into apprenticeship training following graduation. Thirty juniors and seniors have been accepted into the pre-apprenticeship program in the past three years.
- The NRCC has also participated in the New Jersey Youth Corps, which engages young people who have dropped out of high school.

PRE-APPRENTICESHIP

In 2011, the NRCC started a pre-apprenticeship program consisting of 200 to 400 hours to help determine whether applicants have the qualifications and desire to become carpenters. Pre-apprenticeship creates an opportunity for individuals to participate in part of the RA program's technical training curriculum while deciding if it is the right career choice for them. The pre-apprenticeship program includes construction safety, CPR/first aid, qualifications in setting up scaffolding and operating aerial lifts and forklifts, basic rigging,

⁴⁹ For details on this program, which involves the New Jersey Department of Labor and Workforce Development, see http://careerconnections.nj.gov/careerconnections/plan/foryou/youth/youth_transitions_to_work.shtml.

drywall installation, math in the carpentry trade, and workforce readiness skills. It also gives the training program staff the chance to evaluate participants to discern if they have the ambition, commitment, and interest in the carpentry trade, Hutchinson said. The designated training hours during the pre-apprenticeship must be completed in order for the participant to be considered as a full-fledged carpenter's apprentice.

Participants who complete the program receive a strong recommendation to the local union for acceptance into the full apprenticeship program, a process that requires union membership. Once they are accepted into the program, credit is given toward their required training hours for training already completed during the pre-apprenticeship.

ON-THE-JOB LEARNING

Apprentices are paired with journeyworker carpenters in the same craft specialty, often on a rotating basis with different employers.

Apprentices are paid a percentage of the journeyworker's wage and receive incremental raises during their training. They must be proficient in all aspects of carpentry before becoming a journeyworker carpenter.

RELATED TECHNICAL INSTRUCTION

The program requires at least 1,000 hours of RTI, which is provided at the NRCC training centers. Instruction is typically given by journeyworker carpenters who have also received teacher training. Apprentices receive instruction at an NRCC-affiliated training center located near their union local for a 40-hour training week for five weeks per year for about 200 hours annually. The curricula for the apprenticeship program and other NRCC training are developed at the union's international training center in Las Vegas.

Upon completion of the apprenticeship program, apprentices receive 24 credits toward an associate degree at one of the community colleges in New Jersey and can receive 34 credits toward a construction-related program at Thomas Edison State University.

RESULTS/IMPACT

The program has created a skilled workforce of carpenters working in the commercial construction industry. The training has given apprentices the opportunity to obtain good-paying jobs and careers with health-care and pension benefits.

PROGRAM COSTS AND RETURN ON INVESTMENT

The program's RTI costs \$6,000 to \$7,000 per apprentice per year. The training program measures its ROI by monitoring the success of the participants' careers and the employers' satisfaction with the production and skills of program graduates. Hutchinson explained: "During the course of negotiations,

whether or not the employers are prepared to continue contributing to the training program is largely a result of their experience with the apprentices as they go through the program and their proficiency and skill when they complete the program.”

FUTURE PLANS

The Northeast Carpenters Apprentice Training and Educational Fund is in the early stages of developing a pile driving training program that will become part of its RA. The program would support the Wharf and Dock Builders, Pile Drivers, and Divers Local No. 179, a specialty trade union composed of members who perform heavy foundation, earth retention, marine construction, and commercial diving services throughout the eastern half of Pennsylvania; the southern half of New Jersey; Delaware; Maryland; Washington, D.C.; and northern Virginia.

INSIGHTS

The fund’s Hutchinson said: “Apprenticeship training has been around for a long time, and for good reason. The apprenticeship experience teaches essential life skills like responsibility, respect for each other, and admiration for the master craftsperson. This admiration or appreciation for the experiences of others is of vital importance because apprentices are learning the trade not only during their apprenticeship but throughout their career. Respect for another’s methods, ideas, and techniques is mandatory for a successful career in any industry or profession. These are skills that help individuals succeed in their careers and, ultimately, in life. The apprenticeship provides a structured learning experience that requires dedication, commitment, and a sincere interest in the trade, and that can contribute to long-term personal development.⁵⁰ It is an opportunity for apprentices to assess their priorities, consider their aims in life, and begin to set goals in order to realize and maximize their potential.

“The NRCC finds that pre-apprenticeship programs provide a detailed method of assessing candidates, reduce attrition numbers, give applicants an opportunity to confirm that they want to gain skills in a certain field, help reach targeted populations for better program diversity, and help recruit better quality candidates for apprenticeships.

“The NRCC is finding that its pre-apprenticeship program is very helpful in determining good candidates.”

CONTACT INFORMATION

Ridgeley Hutchinson, Executive Director, Northeast Carpenters Apprentice Training and Educational Fund, 609-931-9100 or traincarp@msn.com; <http://ncatf.org/>.

⁵⁰ The fund cites this resource on personal development: www.skillsyouneed.com/ps/personal-development.html.

**NORTHEAST CARPENTERS APPRENTICE TRAINING AND EDUCATIONAL FUND
REGISTERED APPRENTICESHIP PROGRAM**

Historical Program Data

Program start date	1969
Number of apprentices who started program since inception	N/A
Percentage of apprentices who completed program (completers)	N/A
Percentage of completers who are new hires vs. incumbents*	N/A new hires N/A incumbents
Percentage of completers who are still working for apprenticeship employer	N/A

Current Data as of December 31, 2016

Number of apprentices enrolled in program	2,302
Average age	31
Gender	95% male 5% female
Race/Ethnicity	69% White (not Hispanic or Latino) 13% African American (not Hispanic or Latino) 12% Hispanic or Latino (any race) 5% Other race/Two or more races (not Hispanic or Latino) 1% Asian (not Hispanic or Latino)

* Incumbent workers were already employed by the employer when they started the RA program.

**NORTHEAST CARPENTERS APPRENTICE TRAINING AND EDUCATIONAL FUND
APPRENTICES PARTICIPATING IN REGISTERED APPRENTICESHIP
PROGRAM AS OF DECEMBER 31, 2016**

	New Jersey	New York
Carpenter	1083	873
Mill Cabinetmaker	27	1
Millwright	91	88
Floor Layer	84	11
Lather	N/A	21
Casino Worker	14	N/A
Ride Mechanic	9	N/A
Total	1,308	994
Pre-Apprentices	57	N/A

OBERG INDUSTRIES



BACKGROUND

Oberg Industries, a contract manufacturer of precision metal components, makes medical devices and other products for the aerospace, energy, automotive, metal packaging, housing/construction, and consumer product sectors. Based in Freeport, PA, north of Pittsburgh, Oberg has manufacturing facilities in Freeport and nearby Sarver, PA, as well as two facilities in Costa Rica. Oberg had 61 apprentices, slightly more than 9 percent of its U.S. workforce, as of February 1, 2017.

Upon starting Oberg Industries in 1948, Don Oberg began training his own workforce because of the limited number of skilled tool and die makers available in the area. His training program was approved as an RA program in 1972. Oberg's program is designed to provide a journeyman certificate in a specific skilled area of work to each apprentice who completes the requirements set forth by Oberg and the DOL.

Oberg now has 12 RA programs focusing on stamping, grinding, toolmaking, machining, and computer numerical control for machine operators and set-up operators. About half the programs, which last from two-and-a-half to four years depending upon the program of study, were added in the past three years.

The 12 programs are competency-based, and the competencies are centered on 100 to 130 different skills of which apprentices must show proficiency before graduating from the program. Oberg provides

all classroom training and on-the-job skills training during working hours at the company's two campuses in Pennsylvania. When apprentices successfully complete classes and demonstrate all on-the-job competencies, they obtain a journeyperson certificate, a merit pay increase, and a bonus for completing the program. Oberg's apprentices are usually new hires, although the program design can also accommodate incumbent workers.

Apprentices receive starting wages and benefits and are eligible for pay increases every six months based upon competencies demonstrated. Full-time apprentices are offered the same benefits as Oberg's journeypersons and administrative and management personnel. Oberg provides full-time employment to all apprentices after they graduate from the program.

The company has created its RA curriculum and has aligned the competencies with those of the National Institute for Metalworking Skills (NIMS),⁵¹ which establishes national performance standards for the metalworking industry. Oberg apprentices have the opportunity to earn at least two NIMS credentials, which are portable and nationally recognized. Oberg provides the materials and inspection portions of earning NIMS credentials; the apprentice pays the fee for the licensing test.

Oberg adjusts its RA on an ongoing basis to keep apprentices up-to-date on industry trends and customer needs. The apprenticeship program is part of a broader emphasis on training at the company. Incumbent workers, for example, receive up-skill training and machine-specific training as new versions of machines, software, or controllers become available.

PROGRAM MANAGEMENT

The RA is managed by a program manager and two directors, but the majority of the skills attainment is managed by three apprentice leads who reside in two departments. The apprentices begin the program in "boot camp," which is held in Oberg's Grinding Department and Apprentice Training Center. Once the apprentices complete boot camp, they join the production floor and rotate through several departments where they build and demonstrate competencies. Rotations normally last six months but can vary based on competency completion.

RECRUITMENT

Oberg recruits for the RA program through three separate avenues: area high school career and technical centers, a Junior Apprentice Advantage (JAA) program, and the careers page on the company's website. Candidates must pass both the National Tooling and Machining Association (NTMA) mechanical aptitude test and Butler County Community College placement tests before interviewing for the apprenticeship. Oberg also uses a behavioral assessment designed by Predictive Index. Oberg has increased the difficulty of its entry-level test because it wants to recruit and hire the best candidates; Oberg's minimum score is higher than NTMA's passing grade. Due to the extensive testing done at the start of the hiring process, there is normally not a need for remedial training; however, Oberg also works with adult education services at Butler County Community College for remediation when necessary.

⁵¹ See www.nims-skills.org/web/nims/recommendedcompetencies and www.nims-skills.org/c/document_library/get_file?folderId=416539&name=DLFE-4507.pdf.

Since 2014, Oberg has partnered on the JAA with Highlands High School in Natrona Heights, PA, located near the company's headquarters in Freeport. The company has held open houses at the school and discussed the apprenticeship program with students and their parents. Seniors can apply for a pre-apprenticeship program in which they take a manufacturing-oriented curriculum⁵² taught by Highlands' faculty and travel to Oberg at different intervals for lesson-specific enrichment, job shadowing, and hands-on learning with engineers, machinists, and other Oberg employees. Students who complete the JAA in good standing and satisfy Oberg's apprenticeship entrance requirements are offered preferred placement in Oberg's apprenticeship program upon graduation. There are no costs or fees to the student for participation in the JAA. To date, all eight JAA applicants have been accepted into Oberg's apprenticeship program. Oberg also recruits high school seniors who are spending their senior year at the company on a work-study basis as part of career and technical education cooperative education programs. In addition to school programs, Oberg solicits and reviews apprenticeship applications sent to its website once a year.

Each apprentice is assigned a mentor who is selected by production leads, supervisors, and managers. Mentors are trained in-house by the program manager and then assessed through NIMS.

ON-THE-JOB LEARNING

Apprentices take at least 2,500 hours of OJL. The majority of OJL performed on the production floor is monitored by NIMS-credentialed on-the-job trainers.

RELATED TECHNICAL INSTRUCTION

Apprentices take over 144 hours of RTI annually. Oberg partners for classroom studies with Butler County Community College, which provides an Apprenticeship Technology Certificate (26 credits).

RTI is taught by both the apprentice leads and college instructors who come to Oberg twice a week and hold classes during regular work hours. Community college professors provide instruction in a four-semester program (two fall semesters, two spring semesters). Apprentices must receive at least an 80 percent grade in all their classes. Only two apprentices failed to maintain this grade average in the past 34 years, and Oberg found other positions for them in the company.

RESULTS/IMPACT

Oberg's apprenticeship program has been an essential component for developing and maintaining a workforce with a high level of skills, which Oberg believes enables the company to meet and exceed the expectations of its customers. Oberg's apprenticeship program has successfully developed and equipped over 700 employees since it was created. The company expects it will need up to 30 apprentices annually for the next few years.

⁵² The curriculum consists of courses in engineering design, metrology, advanced geometry and trigonometry, and an introduction to precision manufacturing. It also includes a course in English and technical writing because of the importance of communication skills among workers on manufacturing contracts and sometimes between workers and business customers.

According to the company, apprenticeship is truly a win-win situation for both its employees and the company. Many apprentices have become executives, managers, engineers, and supervisors at the firm, and more than 20 have started their own companies. This business growth increases the competition faced by Oberg for both employees and customers. On the positive side, the business growth has improved the local economy by providing more people with a better living wage, thus expanding the tax base available for municipal services. It has also increased the overall machining capacity of the region, which brings larger manufacturing orders into western Pennsylvania.

Oberg's manager of corporate communications wrote in a DOL blog post that the company's apprenticeship program enhances the company's reputation, strengthens its brand, and sets it apart from its competition as a leader in advanced manufacturing. The program also helps establish long-term customer partnerships and shows that Oberg is looking to hire from its community.⁵³

PROGRAM COSTS AND RETURN ON INVESTMENT

Oberg regards the apprenticeship program as a cost to the business that is necessary to continue being a top precision machining company. After years of being unable to find employees from regular recruiting channels, Oberg's apprenticeship program allows the company to have control over the talents needed in its workforce, the company said.

Oberg's ROI calculations take into account the individual's productivity, Oberg's manufacturing costs, and the cost of quality. Historically, the ROI for the apprenticeship program has always been a positive number. For example, a 2016 review of the apprentice graduates revealed that the average ROI ranged from 131 percent to 326 percent. Typically, the ROI is negative for the first 12–18 months depending on the program. Most programs show a positive ROI by the midpoint of the program. The most dramatic increase in ROI, however, usually occurs during the last year of the program.

The company invests an average of approximately \$200,000 on each apprentice (for hourly compensation, bonuses, and benefits) and provides materials, knowledge, training, facilities, and equipment. Oberg subsidizes some costs associated with the program through grants. For example, the company receives grants from its local workforce development corporation (WDC) for some textbook costs and a state WEDnetPA⁵⁴ grant through the WDC to help reduce training costs.

INSIGHTS

Greg Chambers, director of Corporate Compliance at Oberg Industries, said: "Over the years, Oberg's RA has proven to make a difference in the quality of the employees that we are able to attain. Our greatest strengths lie in the quality of the training that is provided to each apprentice while helping them become that quality employee we desire. We just recently invested \$500,000 in our new Apprentice Training Center and will continue to expand the program for the foreseeable future.

⁵³ See <https://blog.dol.gov/2015/01/21/a-leader-in-apprenticeships-oberg-industries>.

⁵⁴ See <http://www.wednetpa.com/>.

“Our recommendations for other employers are:

1. Ensure that you have the proper training plan and curriculum in place prior to hiring the first apprentice.
2. Ensure that you take the time to identify your company’s subject matter experts to provide the training to the apprentices.
3. Work with your local community colleges, career and technical centers, and high schools to advertise your program.
4. Start small, optimize your program, then expand.

“Smaller manufacturers interested in apprenticeship may want to consider collaborating on a joint apprenticeship program, rather than incur the financial burden and time to organize individual programs. The manufacturers may also find that they have some employees who are subject matter experts and can teach apprentices.”⁵⁵

RESOURCES ON OBERG’S PROGRAM

The apprenticeship training program brochure is available at www.oberg.com/_pdf/Apprentice-Training.pdf.

CONTACT INFORMATION

Joe O’Brien, Director of Human Resources, Oberg Industries, 724 294-1223 or joe.o'brien@oberg.com.

Greg Chambers, Director of Corporate Compliance, Oberg Industries, 724-294-1212 or greg.chambers@oberg.com. (A long-time member of the Pennsylvania Apprenticeship and Training Council, he chairs the board of directors of NIMS and is a member of DOL’s Advisory Committee on Apprenticeship.)

Linda Wood, Training and Learning Experience Coordinator, Oberg Industries, 724-294-1261 or linda.wood@oberg.com.

Special thanks to Linda Wood for her assistance in developing this case study.

⁵⁵ In one regional effort, manufacturers from 14 counties in Ohio and western Pennsylvania created a group-sponsored apprenticeship in 2015 for machinists and developed common standards and curriculum. The joint effort, called the Greater OH-Penn Manufacturing Apprenticeship Network, obtained a DOL grant that provides reimbursement funding to manufacturers. Five workforce development boards were involved. For information, see <https://www.pawork.org/greater-oh-penn-manufacturing-apprenticeship-network-greater-oh-penn-manufacturing-apprenticeship-network-calling-for-other-manufacturers-to-join-group-model-take-advantage-of-grant-funding/> or contact Jessica Borza at 330-853-7906 or jborza@tpma-inc.com.

OBERG INDUSTRIES REGISTERED APPRENTICESHIP PROGRAM

Historical Program Data (from 2000 to April 28, 2017)

Program start date	1977
Number of apprentices who started program since inception	288
Percentage of apprentices who completed program (completers)	56%*
Percentage of completers who are new hires vs. incumbents**	99% new hires 1% incumbents
Percentage of completers who are still working for apprenticeship employer	64%

Current Data as of April 28, 2017

Number of apprentices enrolled in program	55
Average age	28
Gender	98% male 2% female
Race/Ethnicity	99% White (not Hispanic or Latino) 1% African American (not Hispanic or Latino) 0% Asian (not Hispanic or Latino) 0% Other race/Two or more races (not Hispanic or Latino) 0% Hispanic or Latino (any race)

* Two recessions since the inception of the program each led to a temporary reduction of workforce and of apprentices.

** Incumbent workers were already employed by the employer when they started the RA program.

PHILLY SHIPYARD, INC.



BACKGROUND

Philly Shipyard, Inc. (PSI) is a commercial shipbuilder that builds new ships in accordance with the Merchant Marine Act of 1920. This statute, also known as the Jones Act, requires all commercial vessels transporting merchandise between U.S. ports to be built in the U.S.; owned, operated, and staffed by U.S. citizens; and registered under the U.S. flag.

PSI is located on a portion of the former Philadelphia Naval Shipyard that was completely rebuilt from 1998 to 2000 to support commercial shipbuilding operations. PSI's predecessor, Kvaerner Philadelphia Shipyard, was founded in 1997 by the City of Philadelphia, the Commonwealth of Pennsylvania, the U.S. government, and the Kvaerner Shipbuilding Division. In 2005, the shipyard became part of a new company formed to build and own Jones Act tankers. In 2015, a newly streamlined company focused exclusively on shipbuilding was formed and renamed Philly Shipyard ASA, with headquarters in Oslo, Norway. Its operating subsidiary, PSI, is located in Philadelphia. PSI builds two to three ships a year. Since 2003, PSI and its predecessor companies have delivered more than 50 percent of all Jones Act ocean-going merchant ships, including containerships, product tankers, and large crude oil tankers.

Kvaerner Philadelphia Shipyard started an apprenticeship program in 2004 because it could not find skilled workers to meet its production needs. PSI's current RA program is part of a collective bargaining agreement between the 10-union Philadelphia Metal Trades Council and PSI for the period of February 1, 2015, to January 31, 2019. As of May 1, 2017, of the 642 employees and approximately 300 contractors working for PSI, 75 are apprentices.

PSI's RA program takes three years to complete. Apprentices specialize in one of four crafts: shipbuilder, welder, outfitter, and machine operator. OJL and RTI classes are provided at PSI's training center, which is located near its large production facility in the naval shipyard. Apprentices, who are on probation for the initial 2,080 work hours, master their crafts through scheduled job rotations.

A six-member Joint Apprenticeship Committee, consisting of three representatives each from PSI and the council, determines the curriculum, which is based on the standard for shipbuilding: the National Shipbuilding Research Program's production competencies for shipbuilding and ship repair.

PROGRAM MANAGEMENT

The training manager with support from the training coordinator is responsible for the candidate recruitment process; candidate selection, interviewing, and hiring; and administration of all RTI. Additionally, the training manager is responsible for the quarterly performance reviews of apprentices until they complete the program. A weld instructor reports to the training manager and is responsible for all activities during the initial 12 weeks that apprentices spend at PSI's training center.

RECRUITMENT

PSI recruits apprentices internally through word of mouth and externally through high school career and technical education programs and trade schools. PSI invites Philadelphia career and technical high school students to visit the shipyard and has worked with the Philadelphia Youth Network to invite high school students for supervised exposure to welding.

Applicants must take and pass a pre-employment assessment administered by Bucks County Community College that includes math, reading, problem solving, measurement, and mechanical aptitude. PSI interviews applicants starting with those who obtain the highest scores and continues until the list is exhausted. Acceptance into the apprenticeship program is contingent upon applicants passing background checks, drug and alcohol tests, and company physicals. Applicants must be at least 18 years old, possess a high school diploma or high school equivalency, and must be physically able to perform the trade with reasonable accommodations and without hazard to themselves or others.

Apprentices receive weekly written reviews from their supervisors and quarterly reviews from representatives of the Joint Apprenticeship Committee. The reviews cover performance on the job and in RTI as well as in safety compliance and attendance. Based on performance, the apprentice is considered for salary increases every six months.

ON-THE-JOB LEARNING

Apprentices complete 6,000 hours of OJL through scheduled job rotations determined by PSI's production needs. Apprentices work a 40-hour work week, and, based on assignments, this can be Monday to Thursday from 6:00 a.m. to 4:30 p.m. or Monday to Friday from 6:00 a.m. to 2:30 p.m.

Apprentice starting wages are 60 percent of the direct worker rate with pay increases determined by hours worked and performance. The direct worker rate is \$26.77 an hour under the current contract that expires January 31, 2019. Over a three-year period, apprentices progress from 60 percent to 100 percent of the direct worker final rate.

RELATED TECHNICAL INSTRUCTION

A total of 144 classroom hours of RTI is provided annually. RTI consists of two parts: classes provided by Delaware County Community College (DCCC) and independent learning through online Penn Foster learning modules. DCCC provides instructors and materials for classes under a contract between PSI and the Collegiate Consortium for Workforce and Economic Development.⁵⁶ Apprentices take classes in cohorts of 10 to 13 on Fridays and Saturdays. They are not paid to attend class.

Upon completion of the apprenticeship program, apprentices receive 29 college credits⁵⁷ from DCCC toward a technical studies degree.

RESULTS/IMPACT

Since the program's inception in 2004, PSI has hired 322 apprentices as of April 2017. Of this number, 140 are still with the company, including 14 production supervisors and seven who have moved into management positions. Twenty-two percent of PSI's employees are either apprentice graduates or incumbent apprentices who are completing the program.

When the recession hit in 2010, PSI lost graduates and apprentices due to significant layoffs. The workforce went from over 700 employees to under 200. Since the layoffs in 2010–2011, PSI has hired 178 apprentices, 118 of whom are still employed, for a retention rate of 64 percent.

The average age for apprentices is currently 30, whereas it was 24 prior to the recession. Successful applicants have been older since the recession. According to PSI, older, displaced workers are looking for new opportunities and have the necessary knowledge when taking the assessment to score at a higher level. Younger adults and recent high school graduates, on the other hand, have had some difficulty in passing the basic math, reading, problem solving, measurement, and mechanical aptitude assessment.

⁵⁶ The consortium is a nonprofit organization that is a partnership of Drexel University and five area community colleges: Community College of Philadelphia, Delaware County Community College, Bucks County Community College, Camden County College, and Montgomery County Community College. See www.collegiateconsortium.org/.

⁵⁷ The 29 credits consist of 20 transfer credits and nine credits that go toward apprentices' personalized education plans.

PROGRAM COSTS AND RETURN ON INVESTMENT

In 2016, it cost about \$2 million in salaries and benefits for 50 apprentices. PSI invests over \$200,000, including about \$10,000 in annual related instruction or educational costs, per apprentice during a three-year period. At this time, PSI doesn't formally measure ROI.

Apprentice salary and benefits costs for the first year are charged to overhead. During this period, the apprentices are acquiring the basic knowledge, skills, and abilities to support the company's production function. These costs are charged to the production function in the second and third year of the apprenticeship. PSI obtains funding for about 10 percent of the cost of RTI through Pennsylvania's Industry Partnership in Metal Fabrication and Transportation.⁵⁸ PSI also receives some funding for OJL from Philadelphia Works, Inc.

INSIGHTS

James Clark, who recently retired as manager of training at PSI, provided the following comments:

"Creating the workforce of tomorrow requires commitment today in developing the talent necessary to keep the skill level where it is needed. The apprentice program has been and continues to be the lifeblood of the organization, providing opportunities for individuals to learn craftsmanship, academic skills, and leadership in a structured Registered Apprenticeship program. PSI's experience is that apprenticeship is a good way for employers to develop skilled employees when employers are otherwise not able to find them. Apprentices ideally learn craftsmanship, scholarship (in job-related academic study), and leadership.

"We find that apprentices hired from within our company tend to have higher completion rates because the incumbent workers understand the rigors of working in a shipyard environment governed by a labor-management contract. In a small pilot program, 10 incumbent union workers were given the opportunity to move into the apprentice program; eight completed the program. The Joint Apprenticeship Committee approved credit for work hours on the shop floor prior to joining the apprenticeship, program and the candidates needed to complete all of the technical instruction, reach 6,000 total work hours, and be rated competent by the supervisor in their craft. Going forward, this process will be considered when we need to recruit more apprentices.

"We think that employers may want to consider a pre-apprenticeship program for entry-level employees who can learn the expectations and demands of the position and can then apply for an apprenticeship program. We do not have a pre-apprenticeship program but are exploring the idea. In a pre-apprenticeship program at PSI, participants would become familiar with the demands of working in a shipbuilding facility; the demands include extremes of temperature and noise.

"Employers that start apprenticeship programs need staff who can work well with millennials and other population groups and who can manage, coach, and listen well. An apprenticeship usually entails a long-term commitment, and it's probably not suitable for an individual seeking instant gratification.

⁵⁸ For information on Pennsylvania industry partnerships, see www.pawork.org/about-us/industry-partnership/.

"It's important to keep apprentices accountable and informed about their progress or lack of it. Employers should try to instill a sense of commitment and responsibility and show apprentices that they are an important part of the success and growth of the company.

"Employers interested in starting apprenticeship programs should reach out to other agencies and the apprenticeship support network for assistance. The U.S. Department of Labor website provides information to help guide an organization considering creating an apprenticeship program. The American Apprenticeship Round Table⁵⁹ is an organization comprised of companies with apprenticeship programs, and its members are extremely supportive in helping companies in developing a Registered Apprenticeship program."

CONTACT INFORMATION

Mike Giantomaso, Vice President of Human Resources, Philly Shipyard, Inc., 215-875-2600 or Mike.Giantomaso@phillyshipyard.com; www.phillyshipyard.com.

Raymond Mee, Training Manager, Philly Shipyard, Inc., 215-875-2774 or Raymond.Mee@phillyshipyard.com; www.phillyshipyard.com.

James Clark, Training Manager (retired), Philly Shipyard, Inc., jim.clark2006@comcast.net.

⁵⁹ See <http://aart-us.org/>.

PHILLY SHIPYARD, INC., REGISTERED APPRENTICESHIP PROGRAM

Historical Program Data (from date started to April 28, 2017)

Program start date	July 2004
Number of apprentices who started program since inception	322
Percentage of apprentices who completed program (completers)	26%*
Percentage of completers who are new hires vs. incumbents**	85% new hires 15% incumbents
Percentage of completers who are still working for apprenticeship employer	67%

Current Data as of April 28, 2017

Number of apprentices enrolled in program	75
Average age	30
Gender	98% male 2% female
Race/Ethnicity	72% White (not Hispanic or Latino) 20% African American (not Hispanic or Latino) 7% Hispanic or Latino (any race) 1% Asian (not Hispanic or Latino) 0% Other race/Two or more races (not Hispanic or Latino)

* This percentage is affected by recession-related layoffs, which are discussed in the Results/Impact section.

** Incumbent workers were already employed by the employer when they started the RA program.

TRI-M GROUP, LLC



BACKGROUND

Tri-M Group, LLC, headquartered in Kennett Square, PA, was founded by two brothers, Tom and Dick Musser, in 1964. Tri-M is an industrial electrical contractor offering comprehensive solutions and services in electrical infrastructure, building automation systems, energy analytics, security, and data and telecommunications. The company, which describes itself as a merit shop, has over 400 employees working out of five offices in three states.

From its inception, the company realized that it was challenging to find the skilled labor needed to perform the work. As the company grew from two employees and some part-time labor, Tom Musser started an RA program in 1979. Early in its history, Tri-M was strictly an electrical contractor, so the RA program reflected that. As the company added complementary services, however, it simultaneously increased the training offered to employees.

Tri-M has a four-year RA program, during which apprentices focus on one of three specialties: electrical construction, building automation, or high voltage. Each discipline has a different set of skills that the students must master.

PROGRAM MANAGEMENT

The RA is managed internally by the Human Resources Department and the Training Department.

RECRUITMENT

Tri-M has sought to be creative with its recruiting techniques because of a lack of interest in the trades. It has established co-op programs with local technical schools that function similarly to pre-apprenticeship programs.⁶⁰ Tri-M works closely with Cecil County School of Technology, Chester County Technical College High School, Pennsylvania College of Technology, and Thaddeus Stevens College of Technology. Tri-M strives to educate young people and their families as well as high school counselors and advisors about the benefits of being an electrician.

As part of the candidate screening process, applicants are given a placement test in part to identify the need for any remedial education, such as in math or English. If a need is identified, an instructor or Tri-M's training coordinator, who is a former teacher, provides supplemental assistance after class hours. Apprentices are given electronic tablets to use during their schooling to become familiar with the technology used on job sites.

ON-THE-JOB LEARNING

Apprentices must obtain 8,000 hours of OJL in order to complete their apprenticeship. The starting wage of a first-year apprentice is typically between \$13 to \$15 per hour, depending on academic history and previous employment. The average starting wage upon completion of the apprentice program is \$21 per hour.

RELATED TECHNICAL INSTRUCTION

Tri-M, which recently decided to provide its apprenticeship training and instruction in-house, built its own lab for hands-on learning and contracted with Independent Electrical Contractors (IEC) to provide the curriculum and send an instructor to train students on-site. The IEC instructor evaluates apprentices and provides feedback to Tri-M in the form of an overall grade and class ranking. The curriculum is approved by the American Council on Education, enabling apprentices to earn 34 credits toward an associate degree in construction management.

Tri-M's apprentices experience what the company calls "a blended learning environment" that includes classroom and hands-on training at its training lab in its Kennett Square headquarters. The apprentices must complete four, 40-hour weeks of classroom training each year of the program. All the apprentices attend classes together. Tri-M's satellite-office students are housed in company-provided accommodations for the duration of their classes. Tri-M believes there are major benefits in bringing all their apprentices to one central training facility. It allows the apprentices to learn from each other, share best practices, and build sustainable relationships so they have a trusted resource they can reach out to throughout their career.

⁶⁰ Tri-M does not have its own pre-apprenticeship program.

RESULTS/IMPACT

Tri-M currently has 37 apprentices. The average starting wage upon completion of the apprentice program is \$21 per hour. Once apprentices become journeypersons, they can earn from \$21 to \$35 per hour.

Tri-M reported it has sustained “incredible” results from its apprentice program, especially with the recent transition to in-house training. The amount of time that apprentices spend in the lab applying their classroom training is dramatically increasing their skills and abilities in the field. The apprentices demonstrate their technical knowledge daily on the job site, and their supervisors and other coworkers are extremely happy with the value apprentices bring to the team.

PROGRAM COSTS AND RETURN ON INVESTMENT

Tri-M firmly believes that the value received from its RA program far surpasses the cost. James T. Horn, president and chief executive officer of Tri-M, said: “Our reputation is built on the foundation of growing and employing top-performing industry professionals. We view the expenditure as an investment in our employees and our company; in fact, we see instant return on investment.” (Note: Tri-M does not calculate an actual ROI.)

Tri-M fully funds all aspects of the RA program. The company’s investment to train its apprentices surpasses \$250,000 a year, including tuition, housing, salaries, supervision, and additional training programs. Tri-M was awarded a grant under WEDnetPA,⁶¹ which was put toward a portion of the training costs of Pennsylvania residents.

INSIGHTS

Amanda Novak, director of human resources at Tri-M, said: “Tri-M believes that the trades offer many opportunities for young men and women to use their minds and their hands. Finding the non-college-bound student is key.

“Managing an apprenticeship program and working with individuals as they progress through their professional careers and develop into a seasoned journeyperson is an extremely rewarding experience. Apprentices are viewed as valuable assets within the organization. Many of the apprentices perform at a level well above what is expected. They are sought after and given the opportunity to take on more responsibility and learn new areas of our business.

“Very robust classroom instruction supplements the apprentices’ related training and instruction and on-the-job learning. When working in the trades, there is nothing like hands-on training and putting the classroom learning to work in the field. Also, in a recent reassessment of the RA program, Tri-M learned that the most effective way to train its apprentices is extensive hands-on lab experiences.

⁶¹ See www.wednetpa.com/.

“An integral part of the Tri-M apprenticeship program is the use of mentors. The mentoring program allows the apprentices to be paired with a more senior member of the team, a process that helps apprentices’ professional development. Mentors are selected based on personality, skill set, and the job sites where they are working. Tri-M’s mentors complete preparatory mentoring and coaching programs. Tri-M’s Training Department meets with mentors and mentees before they start to work together in order to define expectations and set goals. Mentees complete a self-evaluation during this process. Mentors who excel are recognized for this service in their annual performance review.

“Tri-M’s recent decision to manage its program in-house reflected in part a desire for its employees to maintain a good work–life balance as well as meeting the needs of the next generation. Training is now provided on site and during normal working hours. Previously, apprentices had to travel to an alternative training facility some distance from apprentices’ homes and job sites, attending evening classes two nights a week. This has been a great recruiting and retention tool since it limits interference with employees’ work–life balance.”

CONTACT INFORMATION

Amanda Novak, Human Resources Director, Tri-M Group, LLC, 610-444-1000, ext. 114, or anovak@tri-mgroup.com; www.tri-mgroup.com.

Mike Hecker, Safety and Training Manager, Tri-M Group, LLC, 610-444-1000, ext. 340, or mhecker@tri-mgroup.com; www.tri-mgroup.com.

Special thanks to Amanda Novak for her assistance in developing this case study.

TRI-M GROUP, LLC, REGISTERED APPRENTICESHIP PROGRAM

Historical Program Data (From date started to April 28, 2017)

Program start date	1979
Number of apprentices who started program since inception	240
Percentage of apprentices who completed program (completers)	70%
Percentage of completers who are new hires vs. incumbents*	85% new hires 15% incumbents
Percentage of completers who are still working for apprenticeship employer	45%

Current Data as of April 28, 2017

Number of apprentices enrolled in program	37
Average age	22
Gender	100% male 0% female
Race/Ethnicity	65% White (not Hispanic or Latino) 20% African American (not Hispanic or Latino) 15% Hispanic or Latino (any race) 0% Asian (not Hispanic or Latino) 0% Other race/Two or more races (not Hispanic or Latino)

* Incumbent workers were already employed by the employer when they started the RA program.

NEW AND NOTEWORTHY PROGRAMS

This section contains descriptions of new and noteworthy RAs. These programs, which were approved in 2016 or early 2017, are listed by sponsoring organization and occupational fields.

Pennsylvania

- Central Susquehanna Intermediate Unit — Certified Nursing Assistants
- Cetrionia Ambulance Corps and Eastern Pennsylvania EMS Council — Emergency Medical Technicians and Paramedics
- District 1199C Training & Upgrading Fund — Community Health Workers, Early Childhood Education Teachers, Direct Support Professionals Pre-apprenticeship, and Medical Assistants
- GlaxoSmithKline — Compound Operators, Process Coordinators, Calibration and Instrumentation Technicians, and Clinical Operators
- Hanover Area Chamber of Commerce — Welding, Machining, and Mechatronics
- Harrisburg Area Community College — Machinists, Tool and Die Workers, and Industrial Manufacturing Technicians

New Jersey

- New Jersey Health Care Employers District 1199J-AFSCME Training and Development Fund — Certified Nursing Assistants and Physical Therapy Aides (Youth Apprenticeships)
- Edna Mahan Correctional Facility for Women — Skilled Trades Awareness
- New Jersey Health Care Talent Network — Community Health Workers and Certified Nursing Assistants

CENTRAL SUSQUEHANNA INTERMEDIATE UNIT — CERTIFIED NURSING ASSISTANTS

Background

The Central Susquehanna Intermediate Unit (CSIU) provides educational programs to public, nonpublic, and private schools as well as continuing education classes for businesses and nonprofits in central Pennsylvania. In 2010, the CSIU was awarded a federal, five-year Health Profession Opportunity Grant (HPOG)⁶² from the U.S. Department of Health and Human Services to implement the Work Attributes Toward Careers in Health (WATCH) Project.⁶³

The WATCH Project was renewed in 2015 and serves participants in 11 central Pennsylvania counties. The program's goal is to create a sustainable regional framework that helps low-income participants to enter self-sufficient, high-demand, nursing-related careers that meet local health-care employment needs. The CNA [certified nursing assistant] Apprenticeship Program was originally developed with

⁶² RAs were a requirement of the 2010 HPOG application; CSIU was one of only two HPOG grantees that successfully developed an RA program. For more information, see www.acf.hhs.gov/ofa/programs/hpog.

⁶³ For information about the WATCH Project, see www.csiu.org/index.cfm?pageid=572&programid=271.

input from regional employers as part of the WATCH Project. CNAs are at the lowest economic end of the pathway and need opportunities to gain skills to increase wages.

In March 2016, the CSIU received a Pennsylvania Nontraditional Apprenticeship Grant to market state-wide, expand, and enhance an existing CNA apprenticeship program. The goal of this new statewide CNA Apprenticeship Program is to implement a sustainable program that improves quality of care by increasing skills along a nursing pathway, awarding college credits, increasing employee satisfaction, reducing employee turnover, and providing a self-sufficiency wage.

Recruitment for the apprenticeship program is a two-step process. Because the CSIU is an intermediary, it must first establish buy-in from long-term care employers. Once buy-in is established, the CSIU helps employers recruit within their CNA staff.

Description

The CNA Apprenticeship Program consists of four modules: advanced CNA, geriatrics, dementia, and mentoring. Apprentices must have a nursing aide certification before starting the apprenticeship and must begin with the advanced CNA module and either the geriatrics or dementia module. Although apprentices proceed at their own pace, they are expected to complete the two modules in approximately 12 months. After apprentices successfully complete the first two modules, they may stack additional credentials by completing the other modules (the mentoring module is completed last).

Throughout the program, which totals 2,150 hours, apprentices benchmark the achievement of core competencies, build a portfolio of skills and interim credentials that validate the acquired skill levels, and are mentored through OJL and RTI by on-site licensed practical nurses (LPNs), registered nurses (RNs), and/or CNAs who have completed the mentoring specialty (journeypersons). Apprentices also receive feedback and guidance from a site supervisor. Apprentices then receive incremental pay increases as agreed to by their employer.

CNA apprentices may receive college credits for successfully completing the program's advanced CNA and geriatric specialty modules. Apprentices may use these credits to continue along a nursing career pathway to become either an LPN or an RN.

As of March 2017, two employers were using the new program: Susque-View Home in Lock Haven, PA, and the Rouse Home in Youngsville, PA, had a total of four apprentices.

Need

In 2015, there were 4,097 CNAs employed within the WATCH Project region, with anticipated growth of 7 percent by 2020. Yet employers find there is a significant turnover in this entry-level position. CNAs see little opportunity to grow professionally without additional credentials and are willing to move from one long-term care employer to another for a few extra cents per hour. Apprenticeship offers a way for CNAs to continue working while advancing their knowledge and skill levels through stackable and nationally recognized credentials.

Costs

Costs are borne by the employer. Tuition is paid by the facility/agency and costs \$2,000 per apprentice for the advanced CNA module and one specialty module.

The Pennsylvania Nontraditional Apprenticeship Grant was designed to market the apprenticeship opportunity statewide as well as complete the modules and develop a sustainability model through education and recruitment of long-term care facility employers. All tuition received from employers is used to sustain the apprenticeship program after the conclusion of the grant.

Human Capital Increases

Starting wages are determined by the employer. If an employer chooses to participate in the CSIU Standards of Apprenticeship, the apprentice receives \$1.50 per hour of incremental raises upon the successful completion of the advanced CNA module and one additional specialty module.

Challenges

Apprenticeships in health-care fields are new across the state. Long-term care facilities and hospitals have expressed concern about adding responsibilities to current employees to fill the site supervisor and mentor positions required by the apprenticeship.

Noteworthy Aspects

Participating employers believe that the RA program promotes employee advancement and reduces turnover. CNAs, in turn, increase their nursing skills and advance in their careers while maintaining their income and remaining in the provider's system. The CSIU works with both nonunion and union employers and adjusts the curriculum to meet any specific employer skill needs.

Based on their performance during the apprenticeship, CNAs receive pay increases. They can also apply the knowledge gained and credits earned toward becoming an LPN or an RN. For employers who underwrite the cost of tuition, credits earned through the CNA apprenticeship are less costly than those earned through institutions of higher education.

Apprentices receive RTI through videos delivered by an RN, supplemented by a textbook, workbook, and online secure assessments. Online RTI is particularly valuable for apprentices living in rural regions.

Katherine Vastine, WATCH Project program manager at the CSIU, said an intermediary organization that becomes an apprenticeship sponsor can assume the sponsorship on behalf of interested employers and expedite employers' involvement. Without such a sponsor, employers would need to invest extensive time and effort to develop their own Standards of Apprenticeship.

Contact Information

Amy Pfleegor, Program Support Supervisor, Central Susquehanna Intermediate Unit, 90 Lawton Lane, Milton, PA 17847; 570-523-1155, ext. 2306 or apfleegor@csiu.org; www.csiu.org.

CETRONIA AMBULANCE CORPS AND EASTERN PENNSYLVANIA EMS COUNCIL — EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS

Background

Two programs providing apprenticeships for emergency medical technicians (EMTs) and for paramedics were started in 2016 in the Lehigh Valley of Pennsylvania with the assistance of PA CareerLink Lehigh Valley. The Pennsylvania Apprenticeship and Training Council approved Cetronia Ambulance Corps's program in February 2016 and the Eastern Pennsylvania EMS Council's programs in November 2016. The organizers of the EMS Council programs built upon the experience of the Cetronia program.

Description

Cetronia Ambulance Corps in Allentown, PA, designed a four-year program to create a career pathway for unemployed and underemployed residents to become paramedics.⁶⁴ The apprentices initially work for six months as nonemergency paratransit drivers to learn customer service skills and the geographic location of hospitals and health-care facilities. During this time, they take a noncredit EMT course at Lehigh Carbon Community College (LCCC) and prepare for national EMT certification tests. Once they receive EMT certification, they are paired with paramedics for OJL and take courses at LCCC.

Apprentices are paid wages from their first day of hire at Cetronia. WIOA funds are used to cover the EMT course in the first year. During the second and third years, apprentices use Federal Pell Grants for college credit courses. Cetronia pays for the apprentice's paramedic education in the fourth year. In that year, the apprentices enroll in paramedic courses and enhance their OJL training. At the completion of the fourth year, the apprentices take their paramedic national certification exam and receive their journey person certificate. Up to 20 college credits are applied toward an associate degree, and some credits may be applied toward an advanced nursing program. The two apprentices who were in the program as of March 2017 had no previous health-care background but had aspirations to enter the field.

The Eastern Pennsylvania EMS Council in Orefield, PA, has developed two separate programs: a one-year EMT program and a two-year paramedic program. Two apprentices — an EMT worker and a paramedic — were enrolled as of March 2017 and are doing their OJL at Suburban EMS in Easton, PA. The EMS Council, which developed the programs with input and support from the Pennsylvania Department of Health, plans to expand the programs statewide with a goal of 150 apprentices in each RA program by the fall of 2017. The council's RA advisory committee includes Larry A. Wiersch, chief executive officer of Cetronia Ambulance Corps, along with members of the EMS community and staff members of the Eastern Pennsylvania EMS Council.

Need

The programs of both organizations address an anticipated regional shortage of EMS workers and paramedics as current personnel retire. The anticipated shortage is based on data from Pennsylvania's Center for Workforce Information and Analysis (CWIA).

⁶⁴ An article on the Cetronia program is available at www.lvb.com/article/20161103/LVB01/161109944/cetronia-ambulance-corps-launches-pas-first-emptparamedic-apprenticeship-program.



Costs

For each apprentice, there are wages, fringe benefits, and training costs. As the program was implemented, Cetronia took advantage of Lehigh Valley Workforce Development Board resources and special on-the-job grant funds, which initially offset the cost of the new hire. Related instructional costs total \$6,750 for noncredit courses (EMT/paramedic), and costs vary for college credit courses. WIOA funds may be used to support the program initially during the first year; however, the employer is ultimately responsible for wages and training costs.

Human Capital Increases

According to the Pennsylvania CWIA, the average wages for EMTs and paramedics are \$19 per hour. CWIA's 2014–2024 Long-Term Projections show that the Allentown–Bethlehem–Easton metropolitan statistical area will need 1,240 EMTs/paramedics by 2024, an 11.7 percent increase from 2014. There are 31 average annual openings due to growth and labor force replacements.

Challenges

Cetronia's apprenticeship program was developed, approved, and registered relatively quickly. When implementing Cetronia's program, challenges included recruiting a sufficient talent pool due to the strict eligibility requirements, testing, and overall vetting process associated with the position. To facilitate the implementation of Cetronia's apprenticeship program, Cetronia created a new position for a director of education to help oversee the new program. Cetronia has also developed systems to monitor apprentices' progress and success.

Challenges faced by the Eastern Pennsylvania EMS Council included organizing employer implementation and scholastic training. The council continues to work with educational partners and employers to develop training programs.

Noteworthy Aspects

The Eastern Pennsylvania EMS Council's one-year EMT program is unusual in that EMT training typically requires three years of preparation.

The Lehigh Valley Workforce Development Board and PA CareerLink Lehigh Valley assisted both programs with registration and organization, including recruitment, aptitude assessment, program design, and resume review.⁶⁵ This was the first time that a PA CareerLink office assisted in the development of RA programs, according to its staff.⁶⁶

Contact Information

Jason T. Smith, Deputy Director, EMS Operations, Eastern Pennsylvania EMS Council, 4801 Kernsville Road, Suite 100, Orefield, PA 18069; 610-820-9212 or jason@easternemscouncil.org; www.easternemscouncil.org/.

⁶⁵ The Lehigh Valley Workforce Development Board funded these activities and books, uniforms, curriculum, and certification exam fees through a federal Job-Driven National Emergency Grant that paid for OJL and RTI and through OJL grants obtained under WIOA.

⁶⁶ CareerLink Lehigh Valley also helped Ocean Spray develop an electromechanical technical hybrid apprenticeship and is developing another apprenticeship program.

Larry A. Wiersch, Chief Executive Officer, Cetronia Ambulance Corps, 4300 Broadway, Allentown, PA 18014; 610-398-0239 or wierschl@cetronia.org; www.cetronia.org/.

Nancy Dischinat, Executive Director, Lehigh Valley Workforce Development Board, 555 Union Boulevard, Allentown, PA 18109; 610-841-1122 or ndischinat@lvwib.org; www.lvwib.org/.

DISTRICT 1199C TRAINING & UPGRADING FUND — COMMUNITY HEALTH WORKERS, EARLY CHILDHOOD EDUCATION TEACHERS, DIRECT SUPPORT PROFESSIONALS PRE-APPRENTICESHIP,⁶⁷ AND MEDICAL ASSISTANTS

Background

The District 1199C Training & Upgrading Fund (Training Fund) was created in 1974 by collective bargaining agreements with District 1199C of the National Union of Hospital and Health Care Employees, AFSCME, and health-care employers in southeastern Pennsylvania and southern New Jersey. Today, the Training Fund works with more than 50 acute-care hospitals, long-term care facilities, behavioral health facilities, and home care and community health agencies. The Training Fund, which follows a work-based learning⁶⁸ approach, serves both affiliated union members and low-income community residents, including young adults, recent immigrants and nonnative English speakers, people in recovery, returning citizens, and unemployed or underemployed job seekers.

The Training Fund braids monies from multiple federal, state, city, and foundation sources to fund its apprenticeship and other workforce programs. It also provides initial and periodic training to employer mentors for all its apprenticeship programs.

To estimate projected employer demand for individual occupations, the Training Fund relies on the short- and long-term occupational employment projections issued by the Pennsylvania CWIA. As a labor force intermediary, the Training Fund meets one-on-one and in small groups with its employer partners to help design customized solutions to their workforce needs, especially on apprenticeship programs. A relevant study about health-care career opportunities that do not require a bachelor's degree was produced by the Metropolitan Policy Program at the Brookings Institution.⁶⁹

⁶⁷ The fund has started apprenticeship programs for community health workers, early childhood education teachers, and medical assistants as well as a pre-apprenticeship program for behavioral health technicians.

⁶⁸ The fund's approach to work-based learning and integrated education and training is described in "Jobs to Careers: Reflections from Cheryl Feldman," The Hitachi Foundation, October 5, 2016 (www.hitachifoundation.org/news-a-views/thf-blog/615-jobs-to-careers-reflections-from-cheryl-feldman-); Peter Chomko, Cheryl Feldman, and Sally Klingel, "Union-Management Training That Works," *Perspectives on Work*, 18(4), 2014 (http://1199ctraining.org/docs/Newsroom_Reports/POW_Vol18_Rnd4.pdf); and Lindsey Woolsey and Anand Vimalassery, "Designing a Healthcare Work-Based Learning Continuum for Out-of-School, Out-of-Work Young Adults," The Woolsey Group and District 1199C Training & Upgrading Fund, May 2015 (http://1199ctraining.org/docs/Newsroom_Reports/WBLforOSOWyouth.pdf).

⁶⁹ See Martha Ross, Nicole Prchal Svajlenka, and Jane Williams, *Part of the Solution: Pre-Baccalaureate Healthcare Workers in a Time of Health System Change*, Washington, D.C.: Metropolitan Policy Program at the Brookings Institution, 2014.

COMMUNITY HEALTH WORKERS

Background

A community health worker (CHW) serves as a bridge between high-risk, high-cost patients and their health-care providers, with the goal of improving communication and health outcomes. CHWs may visit patients in their homes and travel with them to appointments. Community health work is an emerging profession in which training and skill requirements are determined totally by employer need. There is no credentialing process industrywide or nationally. There is credentialing for CHWs in some states. The Centers for Medicare & Medicaid Services are not reimbursing providers for community health work services unless the centers provide a waiver. Community health work services are often paid for by grant programs at health centers or bundled payment programs at large health systems. In some states, these services are paid for as part of Medicaid expansion.

Description

Approved in November 2014 by the Pennsylvania Apprenticeship and Training Council, the CHW RA is “front-loaded,” meaning that participants complete related classroom instruction before moving to OJL. The program, which is administered by the Training Fund and sponsored by Philadelphia FIGHT, a Philadelphia AIDS service organization, requires 150 hours of related classroom instruction and 2,200 hours of OJL. The program recruits students from a CHW training program developed in 2012 by the Training Fund, Temple University Health System (TUHS), and the Temple University Center for Social Policy and Community Development (CSPCD).

The program provides intensive, short-term, competency-based training to economically disadvantaged students, who will receive three college credits at Temple University. There have been 218 graduates of the training program, which has had several rounds of cohorts in Philadelphia and Harrisburg. Six graduates have moved into the FIGHT apprenticeship, three have completed their apprenticeships, and three are currently enrolled.⁷⁰

The Training Fund supervises apprentice training, data entry, and recordkeeping. Other partners, especially TUHS, CSPCD, and the public workforce system, provide program services with funding from federal, state, and city sources.⁷¹

Need

Philadelphia FIGHT saw a business need for CHWs because many of its clients have challenging health conditions and CHWs play an important role in keeping track of medical protocols. Doctors and nurses welcome CHWs because they don’t have sufficient time to follow up with patients after their appointments.

Costs

Not available.

⁷⁰ For information on the FIGHT training program, contact Shirley Moy, director of CSPCD, at 215-204-3424 or smoy@temple.edu.

⁷¹ For more information, see the fund’s case study on the CHW apprenticeship at www.1199ctraining.org/docs/Newsroom_Reports/CaseStudy_CHW.pdf.

Human Capital Increases

The average wage for CHWs is \$15 per hour. They receive full benefits.

Challenges

There is growing employer demand for CHWs, but reimbursement mechanisms are not yet established for the work they do.

Noteworthy Aspects

Community health work is an emerging occupation, and there were no standardized competencies until they were developed for the apprenticeship program. People who have many different titles are doing the work of CHWs. Health-care employers, however, have been pleased that they can train CHWs according to their specialized needs and see immediate positive results of their work. For example, one apprentice who finished an apprenticeship has been promoted to a more senior position and another took on mentoring new apprentices.

EARLY CHILDHOOD EDUCATION TEACHERS

Background

Earlier in 2017, the Pennsylvania Apprenticeship and Training Council approved the Training Fund's RA for early childhood education teachers in Philadelphia. The program, which will take between two and two-and-a-half years to complete, will enable those with a child development associate (CDA) credential to become lead teachers. The RA was developed in partnership with the Delaware Valley Association for the Education of Young Children (DVAEYC), Public Health Management Corporation, Community College of Philadelphia (CCP), and early childhood education employers, with support from the Pennsylvania Office of Child Development and Early Learning and the Philadelphia Mayor's Office of Education. Funding from the William Penn Foundation has supported the current demonstration cohort in Philadelphia. Some 20 employers registered 36 apprentices in spring 2017 for this apprenticeship.

Description

The Early Childhood Education Apprenticeship Program requires 930 hours of related classroom instruction at CCP and 4,000 hours of OJL. Employer sponsors include Montgomery Early Learning Centers, Smart Beginnings, Brightside Academy with the United Child Care Union, and SPIN with AFSCME District Council (DC) 47 Local 1739. Apprentices receive nine credits for experience and demonstrated mastery of on-the-job competencies and another nine credits when they become lead teachers. Apprentices will earn associate of arts degrees in early childhood education upon program completion. CCP and Drexel University are finalizing an agreement that will enable program graduates with associate of arts degrees to articulate into Drexel's bachelor's degree and teaching certification programs. The Training Fund is serving as the project's fiscal agent, working with employers, compiling progress data, and providing extensive counseling, mentoring, tutoring, and case management to apprentices and student coaches on the job.

DVAEYC is providing mentoring to the student coaches to ensure that OJL is implemented as robustly as possible.

Need

State and local initiatives to create high-quality child care have included an emphasis on quality measures. There is a shortage of lead teachers who have associate degrees. This program creates a career pathway for CDAs who otherwise face an arduous route to advance in their careers. This accelerated program includes the supports CDAs need, such as tutoring, counseling, and peer study groups.

Costs

The William Penn Foundation provided a grant to build program infrastructure, and a joint scholarship program of the Pennsylvania Department of Human Services and the Pennsylvania Department of Education pays for most tuition of the apprentices.

Human Capital Increases

Apprentices start at \$10 to \$13 per hour and receive four increments during the apprenticeship program. The average wage for lead teachers is \$12 to \$14 per hour.

Challenges

The infrastructure of new apprenticeship programs is underfunded.

Noteworthy Aspects

Program organizers say that this is one of the first apprenticeship programs in the U.S. that enables early childhood workers to become lead teachers and obtain associate degrees. This program complements Philadelphia's Mayor James Kenney's pre-K quality child-care initiative.

The program provides a well-defined career pathway with noteworthy articulation agreement facilitating attainment of bachelor's degrees. It also leads to better quality of care for children who are at a critical developmental stage of their lives.

The program serves a wide range of employers, including small- and medium-sized employers and corporate multisite employers.

DIRECT SUPPORT PROFESSIONAL PRE-APPRENTICESHIP

Background

The Training Fund operates a 12-week pre-apprenticeship program in the behavioral health field for out-of-school youth between the ages of 17 and 24. Many of these young people have experienced trauma or mental health and drug and alcohol issues personally, in their family, or in their community, and are expected to relate well to clients.

Description

The pre-apprenticeship program provides skill building (workforce readiness and academics) and exposure to behavioral health careers via workplace visits. Employer sponsors include Community Behav-



ioral Health, Philadelphia Mental Health Care Corporation, and JEVS Human Services and SPIN, both in connection with AFSCME DC 47 Local 1739.

Upon completion of the pre-apprenticeship program, qualified graduates will be hired as apprentices in the one-year Direct Support Professional Apprenticeship Program, approved by the Pennsylvania Apprenticeship and Training Council in early 2017. Apprentices will receive 24 college credits from Philadelphia University for completed coursework during the apprenticeship program and may continue their education by pursuing an associate degree in health and human services, a bachelor's degree in behavioral health, and a master's degree in trauma counseling at Philadelphia University. The Training Fund's employer sponsor partners will hire their initial apprentices from the pre-apprenticeship program.

Need

The Training Fund wanted to introduce out-of-school youth to behavioral health careers. The program enables them to learn about the field, do job shadowing, participate in job readiness, and improve academic skills.

There were no existing credentials for direct support professionals in behavioral health prior to the apprenticeship program. The job is very different in different settings. The Training Fund has been involved in behavioral health training since 1978 and recognized that it would be useful to standardize occupational competencies.

Costs

The Training Fund is using multiple funding sources for each of its apprenticeship programs.

Human Capital Increases

Apprentices start at \$9.80 to \$15.38 per hour and earn \$11.10 to \$15.77 per hour upon completion of the apprenticeships.

Challenges

It will be a challenge to sustain funding for the program. The Training Fund is working with different employers to customize competencies for OJL and is preparing youth to succeed in these positions.

Noteworthy Aspects

The program helps standardize competencies for the direct support professional position. The program also gives apprentices the opportunity to earn significant college credits toward associate degrees and engages youth interested in human services careers with an opportunity that has not previously been available in Philadelphia.

MEDICAL ASSISTANTS

Description

The Medical Assistant Apprenticeship Program is an in-school program that enrolls career and technical education (CTE) students at Sayre High School, leading to their medical assistant certification and

offering them employment and experience at Sayre’s in-school Community Health Center. The program requires 424 hours of related classroom instruction over 2.5 years and 2,000 hours of OJL. The related instruction is taught by Sayre health professionals. Graduates can go on to college or work as medical assistants. The RA was approved by the Pennsylvania Apprenticeship and Training Council in February 2017 and started with one apprentice who is being supervised by an RN.

Need

The Community Health Center at Sayre High School is a federally qualified health center that employs a student as a part-time medical assistant. The demand for medical assistants is expected to grow significantly along with increased demand for physician services for the aging baby boom generation. Also, health care has been moving from institutional settings to outpatient physician offices, urgent care centers, and community health centers. The latter types of providers have a strong demand for medical assistants.

Costs

Not available.

Human Capital Increases

Not available.

Challenges

Not available.

Noteworthy Aspects

This program provides medical assistant apprentices with a full-time opportunity for OJL. The Training Fund wants to explore apprenticeship possibilities at other federally qualified health-care centers and at other employers. It is also exploring how to connect in-school programs to apprenticeships.

FUTURE PLANS

The Training Fund is also developing a nurse aide apprenticeship program and an advanced home health-care aide apprenticeship program. The two programs were approved at the May 2017 meeting of the Pennsylvania Apprenticeship and Training Council.

Cheryl Feldman, executive director of the Training Fund, said: “While apprenticeship is a new approach to training in the health and human services sector, we have found it to be an effective one, with advantages for employers and apprentices. The combination of classroom and on-the-job learning is particularly effective in helping employers who want to grow their own internal talent pipeline by creating structured advancement opportunities for dedicated, motivated, high-performing workers in front-line occupations or who are looking to new populations — out-of-school youth, for instance — as they prepare for baby boomer retirements.”

Contact Information

Cheryl Feldman, Executive Director, District 1199C Training & Upgrading Fund, 100 South Broad Street, 10th Floor, Philadelphia, PA 19110; 215-568-2220 or cfeldman@1199ctraining.org; www.1199ctraining.org. (Feldman is a member of the DOL's Advisory Committee on Apprenticeship.)

Susan B. Thomas, Industry Partnership Director, District 1199C Training & Upgrading Fund, 100 South Broad Street, 10th Floor, Philadelphia, PA 19110; 215-568-2220, ext. 5102, or sthomas@1199ctraining.org.

GLAXOSMITHKLINE — COMPOUND OPERATORS, PROCESS COORDINATORS, CALIBRATION AND INSTRUMENTATION TECHNICIANS, AND CLINICAL OPERATORS

Background

GlaxoSmithKline (GSK), a global health-care company focused on medicines, vaccines, and consumer health-care products, started RA programs at three of its U.S. facilities in 2016, including its facilities in Upper Merion, PA, and Upper Providence, PA. In 2017, the company is starting apprenticeship programs at five additional sites.

GSK, based in the UK, has had successful experiences with more than 200 apprenticeship programs in 14 occupations globally. GSK started the U.S. program to address a need for specific occupations.

Description

In Pennsylvania, GSK offers apprenticeships for compound operators and process coordinators in Upper Providence and for calibration and instrumentation technicians and clinical operators in Upper Merion. During these three-year programs, apprentices are assigned a line manager, a mentor who assists them with personal development, and a "buddy" who is another apprentice.

Candidates must have a high school diploma or GED but are not required to have any professional work-related experience for the entry-level apprenticeships. GSK recruits candidates through its website, social media, and relationships at area high schools, technical institutions, and other sources. Candidates are interviewed by phone and attend a half-day event at which their teamwork and soft skills are assessed in group exercises.

GSK enrolls the apprentices in classes and pays for them to receive an associate degree from one of its partnering community colleges with the potential to go on for further study.

In the U.S., GSK hired six apprentices in 2016 and hopes to add another 14 in 2017. It has two apprentices at its Upper Providence site and plans to add three in fall 2017. The company is also recruiting apprentices for its Upper Merion location.

Need

GSK's apprenticeship program allows the business to take a proactive approach to stabilizing the pipeline of future engineers and to fill capability gaps. The program leads to highly skilled employees trained to business specifications.

Costs

Costs per hire include apprentice's salary, college fees, development courses, and recruitment. The time that apprentice line managers, team members, and mentors dedicate to training and developing apprentices is also factored in as a cost.

Human Capital Increases

GSK apprentices receive entry-level salaries and benefits.

Contact Information

Frances Stewart, Early Talent Recruitment Specialist, Global Recruitment, Global HR Operations, GlaxoSmithKline, 5 Crescent Drive, Philadelphia, PA 19112; 215-751-4939 or frances.m.stewart@gsk.com.

Information on GSK's program in the U.S. is available at <http://us.gsk.com/en-us/careers/apprenticeships/>.

HANOVER AREA CHAMBER OF COMMERCE — WELDING, MACHINING, AND MECHATRONICS

Background

In February 2017, the Pennsylvania Apprenticeship and Training Council approved the application of the Hanover Area Chamber of Commerce to start an RA program. The Hanover chamber is developing a group nonjoint RA program in welding, machining, and mechatronics⁷² in conjunction with two area school districts. It is initially working with four companies: Elsner Engineering Works, Inc.; KLK Welding; R.H. Sheppard Co., Inc.; and Utz Quality Foods, LLC. The four companies have combined revenues of about \$1.5 billion and a total of approximately 1,300 employees.

For the past 14 years, the Hanover chamber has held an Introduction to Manufacturing program to make area high school students aware of manufacturing employment opportunities in the region. The 18-week program involves classroom presentations and job shadowing at area manufacturers. Gary M. Laird, president of the Hanover Area Chamber of Commerce, said that close relationships have been built among teachers, guidance counselors, and businesspeople in the course of working together on the program.

Description

The chamber and the two school districts plan to start the program in fall 2017. High school seniors would enter a pre-apprenticeship (for six months to a year), take some relevant courses, and work with one of the participating companies. Upon graduation, the students will have the opportunity to complete a second year as a paid employee and apprentice with one of the four companies. The apprenticeship is planned to last from two to four years depending on the specialty selected. The school districts and

⁷² Mechatronics combines mechanical and electrical engineering and computer science. For information, see <http://engineering.nyu.edu/gk12/amps-cbri/pdf/Intro%20to%20Mechatronics.pdf>.

industry leaders are reviewing a “Right Skills Now”⁷³ curriculum as a starting point for the pre-apprenticeship program.

Need

The program was developed based on the current and foreseeable attrition rate of employees at local manufacturers.

Costs

The program is being funded by school districts and local employers. The approximate cost for the pre-apprenticeship program is \$150,000. Grants have been applied for but nothing has been awarded to date.

Challenges

No major challenges have been experienced due to the commitment of the business and education partners.

Noteworthy Aspects

This program is unique in that it begins in high school and transitions to local employers in the community. It provides an opportunity to retain local talent.

The Hanover Area Chamber of Commerce is the first Pennsylvania chamber to have an RA program application approved by the Pennsylvania Apprenticeship and Training Council.

Contact Information

Gary M. Laird, President, Hanover Area Chamber of Commerce, 146 Carlisle Street, Hanover, PA 17331; 717-637-6130 or glaird@hanoverchamber.com; www.hanoverchamber.com.

HARRISBURG AREA COMMUNITY COLLEGE — MACHINISTS, TOOL AND DIE WORKERS, AND INDUSTRIAL MANUFACTURING TECHNICIANS

Background

The Harrisburg Area Community College (HACC), the first and largest of Pennsylvania’s 14 community colleges, has started three hybrid RA programs. The programs for machinists and for tool and die workers were approved in October 2016 by the Pennsylvania Apprenticeship and Training Council. The industrial manufacturing technician (IMT) RA, which was approved by the council in February 2017, is the first IMT apprenticeship program started by a community college in Pennsylvania.

⁷³ See www.themanufacturinginstitute.org/Skills-Certification/Right-Skills-Now/Right-Skills-Now.aspx.



Description

Some key features of each program are listed here:

- The machinist RA is a four-year program with a total of 8,000 hours of OJL and 576 hours of RTI. The program was requested by a manufacturer in Lebanon County that contacted the Pennsylvania Governor's Office for assistance and was referred to HACC. The Lebanon County manufacturer plans to start five or six incumbent workers in the program in the fall of 2017.
- The tool and die worker RA is a four-year program with 8,000 hours of OJL and 576 hours of classroom RTI.
- The IMT RA is an 18-month program designed for entry-level apprentices to learn to set up, operate, monitor, and control production equipment. Several companies have expressed interest in this program, which is notable for the relatively short period of preparation before apprentices begin to assume larger roles for their employers. HACC plans to start offering classroom RTI for this program in June 2017 at its Lancaster campus or at an employer's facility. This program consists of 3,000 hours of OJL and 264 hours of RTI.

HACC faculty developed the curricula for the machinist and the tool and die worker programs and adapted the curriculum for the IMT program. Apprentices in the three programs will be mentored by journeypersons and HACC instructors.

HACC will provide up to 30 credits toward an associate degree for participation in related training and instruction for the four-year programs. Apprentices will receive a journeyperson's certificate upon completion of their programs.

Need

The IMT program was created due to the high need of area manufacturers to find skilled workers. Manufacturers are facing a double-edged sword in hiring: Aging workers are retiring at a rapid pace and the pipeline for skilled workers is not adequate. This apprenticeship program seeks to create a pipeline of skilled candidates to meet the immediate needs of companies.

Costs

The programs for machinists and for tool and die workers cost about \$15,000 per student. The IMT apprenticeship program costs \$7,500 per apprentice. This cost covers textbooks and fees. Grants are available for companies until Labor Day; after that, HACC will work with public and private funders to find grants and other ways to alleviate the full cost of training for manufacturers.

Human Capital Increases

Hourly wages start from \$10 to \$12 per hour and can increase to \$15 to \$18 per hour upon completion of the program.

Challenges

Identifying curriculum needs, working with employers, and recruiting individuals into the program all take time and capital that can be taxing to a team. HACC's workforce development team has chosen to see this as an opportunity to continue serving the community and business partners by providing skilled training in this new area.

Noteworthy Aspects

HACC's goal is to have 30 apprentices enrolled in the three programs by the end of 2017, said Lauren S. Holubec, director of Career and Technical Education in HACC's Workforce Development and Continuing Education Division. She said: "Additionally, HACC is in discussions with career and technical education programs at several vocational-technical high schools in central Pennsylvania about developing plans for a pre-apprenticeship manufacturing-related program. These discussions include provision of some college credits to participating high school students."

Contact Information

Lauren S. Holubec, Director, Career and Technical Education, Workforce Development and Continuing Education Division, Harrisburg Area Community College, One HACC Drive, Midtown 1, Room 108A, Harrisburg, PA 17110; 717-736-4212 or lsholube@hacc.edu; www.hacc.edu/.

NEW JERSEY HEALTH CARE EMPLOYERS DISTRICT 1199J-AFSCME TRAINING AND DEVELOPMENT FUND — CERTIFIED NURSING ASSISTANTS AND PHYSICAL THERAPY AIDES (YOUTH APPRENTICESHIPS)

Background

The New Jersey Health Care Employers District 1199J-AFSCME Training and Development Fund was established in 1987 to provide upgrading opportunities for employees as part of a joint labor-management collective bargaining agreement. The fund has an adult basic education program (for employees who do not have a high school diploma or a GED), an English-as-a-second language program, and a computer literacy and training program. The fund has been active in Essex, Union, and Hudson counties and added Passaic County in its coverage area last year. A significant number of participants are low- and moderate-income.

Description

The two programs, which are funded through New Jersey's Youth Transitions to Work program,⁷⁴ start in high school and lead to one-year RAs for CNAs and physical therapy aides. District 1199J organized an advisory consortium for each program consisting of employers; health-care professionals; county apprenticeship coordinators⁷⁵; and representatives from public and vocational high schools, community colleges, and community-based and faith-based organizations. Each consortium also includes representatives of state regulatory agencies that govern licensing for the two occupations.

Recruitment in both programs begins with presentations to high school juniors and seniors about health-care occupations. Interested students submit applications, attend three mandatory workshops, and come for a personal interview. Selected candidates who provide references and documentation and complete homework assignments are accepted into a six-month pre-apprenticeship that entails work

⁷⁴ Other youth apprenticeships in New Jersey funded through the Transitions to Youth program may be found at http://careerconnections.nj.gov/careerconnections/plan/foryou/youth/youth_transitions_to_work.shtml.

⁷⁵ County apprenticeship coordinators, located throughout New Jersey, promote apprenticeship opportunities to job seekers. The coordinators are often based in vocational schools and may be teachers, guidance counselors, vocational-technical instructors, or retired teachers.

readiness skills and OJL with both union and nonunion employers. Those who complete the pre-apprenticeship are placed into apprenticeships that pay between \$10 and \$15 per hour.

The physical therapy aide apprenticeship was the first in the country when it was approved in 2012, and it is still the nation's only such program, according to program staff. Before the DOL accepted a physical therapy aide as an "apprenticeable occupation," District 1199J embarked on a two-year process in which it surveyed employers and documented demand for the position, analyzed salaries and earnings potential, formed an advisory consortium, and worked with the DOL and the New Jersey Department of Labor and Workforce Development. The pre-apprentices spend 20 hours in labs and physical therapy workshops at Rutgers University's Department of Rehabilitation and Movement Science.

Contact Information

Dr. Stephanie Harris-Kuiper, Executive Director, District 1199J, 9-25 Alling Street, 3rd Floor, Newark, NJ 07102; 973-643-0589 or harris.kuiper1199j@gmail.com; www.tdfund1199j.com/our-mission-and-history.htm.

EDNA MAHAN CORRECTIONAL FACILITY FOR WOMEN — SKILLED TRADES AWARENESS

Background

This pilot pre-apprenticeship program is providing women who are transitioning out of the Edna Mahan Correctional Facility for Women in Clinton, NJ, with awareness of career opportunities in trades such as carpentry, roofing, sheet metal working, plumbing, electrical contracting, masonry, painting, and insulation. The pilot began in November 2016 with its first cohort. The DOL's apprenticeship office in New Jersey is exploring the potential of this program to become an RA and serve as a model for similar programs in other state and federal correctional facilities.

The program was created through a partnership with the facility, the New Jersey Department of Corrections, Hunterdon County Polytech Career and Technical School, a DOL apprenticeship specialist in New Jersey, and the New Jersey Department of Labor and Workforce Development. The latter department had issued a notice of a grant opportunity to increase the number of women and minorities in the construction trades. Hunterdon County Polytech received the grant and developed a 160-hour curriculum that combines academic and hands-on experience and is provided at the correctional facility.

Description

The program consists of RTI, OJL, and speaker presentations. RTI includes OSHA safety instruction and certification, team-building and communications skills, information on job markets, assistance in resume writing and interviewing, and pre- and post-test adult basic education. OJL consists of planning, measuring, and constructing sheds at the facility. Guest speakers at the facility have made presentations on careers in electrical, plumbing, HVAC, roofing, painting, and other trades.

Of a cohort of 15 women who started the program in November 2016, 11 completed it in February 2017. A second cohort of 27 women started in February 2017.

Hunterdon County Polytech, which has previously implemented other training programs at the facility, serves as a county apprenticeship coordinator in New Jersey. About 90 people have completed the school's various apprenticeships in the past 10 years. The school is in the process of developing an apprenticeship for veterinary assistants.⁷⁶

Potential barriers to implementing the program (such as bringing in tools/equipment to the correctional facility) were identified and resolved by the education supervisor at the correctional facility.

Contact Information

Christina Shockley, Adult and Continuing Education Coordinator, Hunterdon County Vocational School District, 8 Bartles Corner Road, Suite #2, Flemington, NJ 08822; 908-788-1119, ext. 2007, or cshockley@hcvsd.org; www.hcpolytech.org/apps/pages/index.jsp?uREC_ID=237717&type=d&termREC_ID=&pREC_ID=510286.

NEW JERSEY HEALTH CARE TALENT NETWORK — COMMUNITY HEALTH WORKERS AND CERTIFIED NURSING ASSISTANTS

Background

A DOL State Accelerator grant is being used to develop apprenticeships through three New Jersey Talent Development Centers.⁷⁷ The centers, organized by the New Jersey Department of Labor and Workforce Development, are located at institutions of higher education to serve as centers for excellence for workforce training and skill development focused on specific industries in New Jersey: advanced manufacturing at Camden County College; health care at Rutgers University School of Management and Labor Relations (SMLR); and transportation, logistics, and distribution at Union County College.

The New Jersey Health Care Talent Network⁷⁸ (NJ HCTN), in close cooperation with SMLR, which is based in Piscataway, NJ, has started two one-year hybrid RA programs: one for CHWs and the other for CNAs.

Descriptions

CHWs provide education and outreach on critical health issues. For example, some work with pregnant mothers and ensure that they receive adequate care before, during, and after pregnancy to reduce infant mortality rates, while others help clients with diabetes management. Apprentices obtain 2,100 hours of OJL at federally qualified health centers and receive 160 hours of RTI at SMLR. Six apprentices have completed the program, which was approved by the DOL in 2015, and 45 apprentices are currently enrolled. NJ HCTN and SMLR started the CNA program using existing Standards of Apprenticeship approved by

⁷⁶ Hunterdon County Polytech also has pre-apprenticeship programs for high school students in automotive, culinary, electrical, and plumbing trades. High school students taking automotive or culinary courses receive college credits for work hours and/or RTI. The students complete their apprenticeship programs following graduation through employment and further technical instruction.

⁷⁷ The centers also serve as anchors for expanded employer-driven partnerships and are intended to build the capacity of the state's higher education institutions to provide education and training aligned with the needs of the state's key industries. Each center provides industry-focused training for dislocated, currently employed, and incumbent workers and coordinates its efforts with the state's industry-specific Talent Networks. See http://careerconnections.nj.gov/careerconnections/partners/talent/talent_development_centers.shtml.

⁷⁸ See <http://smlr.rutgers.edu/content/apprenticeship>.

the DOL. Apprentices receive 96 hours of RTI at SMLR using the CNA curriculum approved by the New Jersey Department of Health. Apprentices participate in 2,000 hours of OJL at behavioral health centers, community-based organizations, hospitals, and long-term care institutions. Twenty apprentices are currently enrolled in the program.

Need

These two programs were developed to meet growing demand identified in meetings with employers. For example, CHWs reach out to patients who are discharged from hospitals following surgery or a hospital stay to ensure that they follow physician instructions. Since the Affordable Care Act emphasizes performance-based reimbursement, hospitals are penalized for high readmission rates. As a result, hospitals are interested in reaching out to patients to follow up on post-discharge care.

Costs

The CNA program costs an average of \$1,200 per candidate, and the CHW program costs an average of \$3,200 per candidate. The rate of return on the CHW program is almost \$4 per \$1 spent on training. Program organizers do not have enough data yet to measure the rate of return on the CNA program.

Human Capital Increases

A typical CHW with a high school diploma can earn \$15 per hour. Some CHWs in trauma centers are earning \$25 per hour.

Challenges

The programs are year-long, and many people who are transitioning from the Temporary Assistance for Needy Families program are finding it difficult to sustain their living wages as well as their affordable housing and other benefits. Child care, transportation, and other support services are gradually disappearing, and it is difficult to motivate apprentices to persist unless there is a defined career pathway and progressive educational ladder.

Noteworthy Aspects

Apprentices learn the organization's culture and are coached by their mentors at work. Mentor-mentee relationships build loyalty, resulting in increased retention rates. The "earn-while-you-learn" approach of apprenticeship is attractive to program participants. They also can discover if a job or organization suits them and find a good job where they can work hard, move along a pathway, and succeed.

Future Plans

NJ HCTN and SMLR are developing one program for certified alcohol and drug counselors and another for EMTs to become paramedics.

Contact Information

Padma Arvind, Ph.D., Director, SMLR, Rutgers University, 94 Rockefeller Road, Piscataway, NJ 08854; 848-445-4531 or parvind@smlr.rutgers.edu; <http://smlr.rutgers.edu/content/apprenticeship>.



CONCLUSION

Until recently, apprenticeship has been a specialized field used mostly by the skilled trades and construction. DOL funding to states has resulted in an unfolding of new activity during the past year in which the concept of apprenticeship is being applied in new occupations and industry sectors that, until recently, were unfamiliar with apprenticeship. Much new activity is occurring in information technology, health care, and advanced manufacturing. There is considerable creativity and experimentation in this new round of activity. At the same time, foundations, state governments, educators, and policymakers are expressing a growing interest in apprenticeship. Many are intrigued by the possibility of simultaneously addressing employers' talent recruitment and development needs and providing a structured pathway to employment with industry-recognized credentials for people who would normally not have these opportunities.

Employers or other sponsors that start new RA programs often build upon existing partnerships with workforce development corporations, community colleges, nonprofit and other training providers, and high school vocational–technical or career and technical education programs.

Employers interested in apprenticeship may want to talk to other employers that have operated apprenticeship programs. Interested employers will also want to talk with state apprenticeship agency staff in Pennsylvania and Delaware and with DOL apprenticeship specialists in Pennsylvania and New Jersey.

The experience of gathering information in the three states for this guide suggests that communication and information-sharing among RA programs are limited within states and across state lines. Especially given the latest round of new activity, it may be valuable if employers and sponsors of both longstanding and new programs find a way to share their experience and lessons learned, including with employers and sponsors that are interested in starting new programs. This could become a “community of practice” for ongoing learning.

KEY CONTACT INDIVIDUALS AND RESOURCES

KEY CONTACT INDIVIDUALS

Pennsylvania

Eric M. Ramsay
Director
Apprenticeship and Training Office
Pennsylvania Department of Labor and Industry
651 Boas Street, 12th Floor
Harrisburg, PA 17121
717-787-6997
ERamsay@pa.gov
www.dli.pa.gov/

Jim Foti
Regional Director
Office of Apprenticeship
U.S. Department of Labor
170 S. Independence Mall West, Suite 825 East
Philadelphia, PA 19106-3334
215-861-4830
Foti.James@dol.gov
www.dol.gov/apprenticeship/

Ronald D. Leonard
Multi-State Director
Office of Apprenticeship
U.S. Department of Labor
170 S. Independence Mall West, Suite 825 East
Philadelphia, PA 19106-3334
215-861-4841
Leonard.Ronald@dol.gov
www.dol.gov/apprenticeship/
(Multi-State Apprenticeship Director for PA,
MD, DE, D.C., and VA)

New Jersey

Bernard E. Trembl III
State Director
Office of Apprenticeship
U.S. Department of Labor
Metro Star Plaza, Suite 201A

190 Middlesex Essex Turnpike
Iselin, NJ 08830
732-750-0766
Trembl.Bernard.e@dol.gov

Donna Scalia
Apprenticeship and Training Program Specialist
Office of Apprenticeship
U.S. Department of Labor
Metro Star Plaza, Suite 201A
190 Middlesex Essex Turnpike
Iselin, NJ 08830
732-750-0776
Scalia.Donna@dol.gov

Patricia Moran, Ph.D.
Assistant Commissioner for Workforce
Development
New Jersey Department of
Labor and Workforce Development
1 John Fitch Plaza
P.O. Box 055, 7th Floor
Trenton, NJ 08625-0055
609-984-9414
Patricia.Moran@dol.nj.gov
http://careerconnections.nj.gov/careerconnections/hire/training/apprentice/registered_apprenticeship.shtml

Delaware

Kyle Maguire
Apprenticeship Training Manager
Division of Employment and Training
Delaware Department of Labor
4425 N. Market Street
Wilmington, DE 19802
302-761-8328
Kyle.Maguire@state.de.us

VETERANS

State Approving Agencies

Christine Hawk
Veterans Education Manager
Division of Veterans/Military Education
Pennsylvania Department of Education
333 Market Street, 12th Floor
Harrisburg, PA 17126-0333
717-787-2414
ChHawk@pa.gov
www.education.state.pa.us/Veterans

Dr. Patricia Keeton
State Director
Delaware State Approving Agency
35 Commerce Way
Dover, DE 19904
302-857-3313
Patricia.Keeton@doe.k12.de.us
www.doe.k12.de.us/domain/430

Charles Rowe
Bureau Chief
New Jersey Department of Military and
Veterans Affairs
Eggert Crossing Road
P.O. Box 340
Trenton, NJ 08625-0340
609-530-6849
charles.rowe@dmava.nj.gov
www.nj.gov/military/saa/

U.S. Department of Labor

Mark J. Toal
National Veterans' Employment Manager
Veterans' Employment and Training Service (VETS)
U. S. Department of Labor
202-693-4708
Toal.Mark.J@dol.gov
www.veterans.gov

RESOURCES ON APPRENTICESHIPS

U.S. Department of Labor

ApprenticeshipUSA Marketing and Outreach to Business on Apprenticeship, <https://apprenticeshipusa.workforcegps.org/resources/2017/02/02/10/12/Marketing-Outreach-to-Business-on-Apprenticeship>

Office of Apprenticeship, www.dol.gov/apprenticeship/

List of Apprenticeable Occupations, www.doleta.gov/OA/occupations.cfm

Office of Apprenticeship Sponsors Database, <https://oa.doleta.gov/>

Apprenticeship Leaders, www.dol.gov/apprenticeship/leaderslist.htm

Registered Apprenticeship-College Consortium, <https://doleta.gov/oa/racc.cfm>

Veterans, www.doleta.gov/OA/veterans.cfm

Other Resources

Jones, Diane Auer, and Robert Lerman. *Starting a Registered Apprenticeship Program: A Guide for Employers or Sponsors*. Washington, D.C.: Urban Institute, 2017; available at https://innovativeapprenticeship.org/wp-content/uploads/2017/06/Employer-Guide_June-2017.pdf.

The American Institute for Innovative Apprenticeship provides detailed information and resources on apprenticeships in the U.S., including national occupational frameworks and analysis of apprenticeships in other countries. See <http://innovativeapprenticeship.org/>.

The American Apprenticeship Round Table, founded in 1943, is an organization of companies with apprenticeship programs. See <http://aart-us.org/>.

The Eastern Seaboard Apprenticeship Conference is a 73-year-old organization consisting of apprenticeship representatives of 14 Atlantic Coast states and the District of Columbia. The group holds an annual conference. See www.esaconference.org/about/.

The Apprenticeship School, founded in 1919, recruits and trains men and women for shipbuilding careers in Newport News, VA. See www.as.edu/.

The International Foundation of Employee Benefit Plans provides a number of resources on apprenticeship on its website. See www.ifebp.org/Resources/apprenticeships/Pages/default.aspx.

Rolland, Keith L. "Apprenticeships and Their Potential in the U.S.," *Cascade*, No. 90, Winter 2016; available at www.philadelphiafed.org/community-development/publications/cascade/90/01_apprenticeships.

Pennsylvania

The Apprenticeship and Training Council approves Registered Apprenticeship applications from sponsors. See www.dli.pa.gov/Individuals/Labor-Management-Relations/llc/apprenticeship/Pages/default.aspx.

The Pennsylvania Apprentice Coordinators Association promotes apprenticeship, especially in the unionized building trades, and provides a medium for the exchange of ideas and information on apprenticeship. See www.apprentice.org/.

Delaware

Delaware General Assembly: 1101 Apprenticeship and Training Regulations. See <http://regulations.delaware.gov/AdminCode/title19/1000/1100/1101.shtml>.

Research on Apprenticeship

Reed, Debbie, Albert Yung-Hsu Liu, Rebecca Kleinman et al. *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States*. Oakland, CA: Mathematica Policy Research, July 25, 2012; available at https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2012_10.pdf. (The 10 states include New Jersey and Pennsylvania.)

Lerman, Robert I. "Skill Development in Middle Level Occupations: The Role of Apprenticeship Training." IZA Policy Paper 61, May 2013; available at <http://ftp.iza.org/pp61.pdf>.

Youth Apprenticeships

Halpern, Robert. *The Means to Grow Up: Reinventing Apprenticeship as a Developmental Support in Adolescence*. New York: Routledge, 2009.

ApprenticeshipUSA: Apprenticeship & Youth. See <https://apprenticeshipusa.workforcegps.org/resources/2017/02/02/10/56/Apprenticeship-Youth>.

Karas, Andrew, and Robert I. Lerman. "Implementing Financial Education in Youth Apprenticeship Programs: An Exploratory Study," Urban Institute, October 16, 2016; available at www.urban.org/research/publication/implementing-financial-education-youth-apprenticeship-programs-exploratory-study.

Lerman, Robert I., and Arnold Packer. "Youth Apprenticeship: A Hopeful Approach for Improving Outcomes for Baltimore Youth," Urban Institute, May 5, 2015; available at www.urban.org/research/publication/youth-apprenticeship-hopeful-approach-improving-outcomes-baltimore-youth.

Work-Based Learning

Showalter, Thomas, and Katie Spiker. "Promising Practices in Work-Based Learning for Youth," National Skills Coalition and National Youth Employment Coalition, October 2016; available at www.nationalskillscoalition.org/resources/publications/file/10-4-NSC-YouthWorkBasedLearning_v4.pdf.

Wilson, Bryan, and Sapna Mehta. "Work-Based Learning Policy: 50-State Scan," National Skills Coalition, April 2017; available at www.nationalskillscoalition.org/resources/publications/file/WBL-Learning-Policy-50-State-Scan.pdf.

Organisation for Economic Cooperation and Development. OECD Thematic Studies: Work-Based Learning in Vocational Education and Training (VET); available at www.oecd.org/edu/skills-beyond-school/work-based-learning.htm/.

Apprenticeships in the UK

Magistris, Amy. "Working as a Degree Apprentice at IBM, I Have the Best of Both Worlds," Tech Partnership; available at <https://www.thetechpartnership.com/inspire/my-tech-story/students-and-degree-apprentice-stories/the-best-of-both-worlds-amy-magistris/>.

"The Complete Guide to Higher and Degree Apprenticeships," 2017/2018; available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/513573/The_Complete_Guide_to_Which_Uni.pdf.

High Fliers Research for The Times and the Milkround School Leavers. "The Times Guide to Higher & Degree Apprenticeships," 2017; available at www.milkround.com/staticpages/150909/the-times-guide-to-higher-and-degree-apprenticeships/.



FEDERAL RESERVE BANK OF PHILADELPHIA

COMMUNITY DEVELOPMENT STUDIES & EDUCATION