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OPRE Report No. 2014-62

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Office of Planning, Research, and Evaluation
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Table of Contents

1. Introduction

1.1 Overview of the Health Profession Opportunity Grants (HPOG) Program and HPOG Research

As part of the Affordable Care Act of 2010, Congress authorized funds for the Health Profession Opportunity Grants (HPOG) program "to conduct demonstration projects that provide eligible individuals with the opportunity to obtain education and training for occupations in the healthcare field that pay well and are expected to either experience labor shortages or be in high demand" [Affordable Care Act, Public Law 111-148, 124 Stat. 119, March 23, 2010, sect. 5507(a), adding sect. 2008(a) to the Social Security Act, 42 U.S.C. 1397g(a)]. In September 2010, the U.S. Department of Health and Human Services (HHS) Administration for Children and Families (ACF) awarded 32 grants to government agencies, community-based organizations, post-secondary educational institutions, and tribal-affiliated organizations to conduct these activities in 23 states to provide education and training services to Temporary Assistance for Needy Families (TANF) recipients and other low-income individuals. Five of these grants were awarded to tribal organizations.

The HPOG objectives stem from the career pathways framework of postsecondary education, a framework designed to address the challenge of preparing nontraditional student populations with varying ranges of assets and challenges related to employment and training. Specifically, HPOG is intended to:

- Target skills and competencies demanded by the healthcare industry.
- Support "career pathways"—clearly defined routes that allow participants to build a career, rather than simply getting training for a job, by advancing through successively higher levels of education and training, exiting into employment at multiple possible points.
- Result in employer- or industry-recognized, portable education credentials (e.g., certificates or degrees) and professional certifications and licenses (e.g., a credential awarded by a Registered Apprenticeship program).
- Combine support services with education and training to help participants overcome barriers to employment.
- Provide training at times and locations that are easily accessible to targeted populations.

The 32 demonstration projects are intended to address two pervasive problems: the increasing shortfall in the supply of qualified healthcare professionals in the face of expanding demand, and the increasing requirement for a postsecondary education to secure a job with a living wage for families.

This report describes the research design of the HPOG Impact Study (HPOG-Impact), one of the initiatives in ACF's HPOG research portfolio. ACF is implementing a multi-pronged research and evaluation approach for the HPOG program to better understand and assess the activities conducted and their results. As detailed in this design report, HPOG-Impact will answer questions about overall HPOG program effectiveness and explore how variations in program services affect program impacts, including identifying which elements of career pathways programs contribute most to advancing the labor market success of participants. Few large-scale impact studies of career pathways efforts exist, and none exist that test the impact of specific program components.

The ACF research agenda for the HPOG program and for other career pathways programs is overseen by the Office of Planning, Research and Evaluation (OPRE). In addition to HPOG-Impact, the research agenda includes the following initiatives:

- *The HPOG Implementation, Systems, and Outcomes Evaluation Design and Performance Reporting.* This initiative includes three main components: the development, maintenance, and operation of the Performance Reporting System (PRS); the design of a study to evaluate implementation, systems change, and outcomes (the National Implementation Evaluation); and the coordination of efforts across all HPOG research projects to avoid duplication and ensure comparability of results.
- *The National Implementation Evaluation (NIE).* This research project aims to describe and assess the implementation, systems change, and outcomes related to the 27 HPOG (non-tribal) grantees serving TANF recipients and other low-income individuals.
- *Evaluation of Tribal HPOG.* This evaluation includes an implementation and outcome evaluation of the tribal HPOG grantees. It aims to provide documentation of and lessons about a range of programmatic approaches for health professions training serving this target population.
- *Pathways for Advancing Careers and Education (PACE) Project.* The PACE Project is a multisite, random assignment evaluation of promising career pathways strategies for increasing employment and self-sufficiency among low-skilled, low-income individuals. Three HPOG grantees are participating in PACE. (From the project inception in 2007 through October 2014 the project was called Innovative Strategies for Increasing Self-Sufficiency.)
- *University Partnership Research Grants for HPOG.* These studies are being conducted by research partners at universities that have partnered with one or more HPOG program to answer specific questions about how to improve HPOG services within local contexts.

1.2 HPOG-Impact Grantees

To support the research design we begin with an overview of how HPOG grantees are being studied across the multi-faceted research effort. (We refer to the HPOG grantees as the funded units of the national HPOG program.)

Of the 32 HPOG grantees nationwide, 23 HPOG grantees are engaged in data collection associated with HPOG-Impact and make up the HPOG-Impact analytic sample. This includes the 20 HPOG grantees that are not already engaged in other ACF-supported evaluations, as well as three additional grantees and one additional program that are engaged in the PACE Project's evaluation. We refer to this sample as the 20 HPOG-Impact grantees and three HPOG/PACE grantees.[1] The three HPOG/PACE grantees and the HPOG/PACE program operating under one of the HPOG grantees are not part of the HPOG Impact implementation analysis because the PACE Project includes extensive analysis on program implementation. The projects are coordinated such that these HPOG/PACE grantees will have comparable data that we expect to pool with the data collected from the 20 HPOG grantees participating in HPOG-Impact to form

[1] More specifically, the five HPOG grantees serving Native Americans are part of the Evaluation of Tribal HPOG and not included in HPOG-Impact; of the 27 HPOG grantees remaining, four grantees are excluded from HPOG-Impact because they are being evaluated through University Partnership Research Grants that collect individual-level data.

the study's analytic sample.[2] Exhibit 1.1 details the participation of the HPOG grantees in these ACF-supported research projects.

Exhibit 1.1: Participation in ACF Evaluations by HPOG Grantee

HPOG Grantee	HPOG-Impact	PACE	University Partner-ship Grant	Tribal HPOG	NIE
Alamo Community College District and University Health System	X				X
Bergen Community College	X				X
Buffalo and Erie County WDC	X				X
Central Community College	X				X
Central Susquehanna Intermediate Unit	X				X
Community Action Project of Tulsa County, Inc.			X		X
Eastern Gateway Community College	X				X
Edmonds Community College*	X				X
Full Employment Council	X				X
Gateway Community and Technical College (KY)	X				X
Gateway Technical College (WI)			X		X
Kansas Department of Commerce	X				X
Milwaukee Area WIB	X				X
New Hampshire Office of Minority Health	X		X**		X
Pensacola State College	X				X
Pima County Community College		X			X
Research Foundation of CUNY-Hostos Community College	X				X
San Diego Workforce Partnership		X			X
Schenectady County Community College	X				X
South Carolina Department of Social Services	X				X
Southland Health Care Forum, Inc.			X		X
Suffolk County Department of Labor	X				X
Temple University, Center for Social Policy			X		X
The WorkPlace	X				X
WDC of Seattle - King County		X			X
WIB SDA-83 Inc. (LA)	X				X
Will County WIB	X	X***			X
College of Menominee Nation				X	
Cankdeska Cikana Community College			X	X	
Turtle Mountain Community College				X	
Cook Inlet Tribal Council				X	
Blackfeet Community College				X	

* Everett Community College, one of two organizations implementing the Edmonds Community College HPOG program, is participating in the PACE Project and HPOG-Impact. Unlike among the other HPOG grantees participating in the PACE Project, only a subset of the student population will participate in PACE, and the community college can ensure that the participants randomly assigned to the control group for either study will be exempt from random assignment if they choose to enroll in the other study.

**The University Partnership Research Grant does not anticipate collecting individual-level data at the New Hampshire Office of Minority Health so the grantee is participating in HPOG-Impact.

*** Instituto del Progreso Latino, implementing one of Will County WIB's six HPOG programs, is participating in the PACE Project and is excluded from the HPOG-Impact's data collection. The comparable data collected under the PACE Project will be included in the HPOG Impact Study's analytic sample.

[2] For simplicity, we will refer to the three HPOG/PACE grantees and the one HPOG/PACE program operating under an HPOG grantee as the "three HPOG/PACE grantees."

1.3 Research Questions for HPOG-Impact

Within the context of OPRE's overall research strategy for HPOG, the HPOG Impact Study's impact analysis addresses the following research questions:[3]

1. What impacts do the HPOG programs as a group have on the outcomes of participants and their families?
2. To what extent do those impacts vary across selected subpopulations?
3. Which locally adopted program components influence average impacts?
4. To what extent does participation in a particular HPOG component (or components) change the impact on trainees?

While these are the impact evaluation's overarching research questions, the study is prioritizing the first research question and selected outcomes at specific follow-up time points to establish confirmatory hypotheses. These hypotheses are in line with the program's logic model and are especially important for informing policy decisions and program learning about career pathways programs. By "confirmatory," we mean hypotheses that are signal indications of a tested intervention's progress and ultimate success. Specifically, at the 15-month follow-up point, we will consider educational progress to be the primary outcome; and at 36-months, we will consider both educational progress and earnings as the primary outcomes. While these three selected analyses will be constructed to provide strong evidence on the program's effectiveness on these outcomes, they are but three of the tests that the study will undertake. This evaluation has a unique opportunity to contribute to the field's knowledge regarding what it is about multi-faceted career pathways training programs that are the essential ingredients. The evaluation's implementation analysis—undertaken to complement the study's investigation of impacts—will be useful in adding to our knowledge about how these programs operated in the field.

1.4 Overview of Design and Analysis

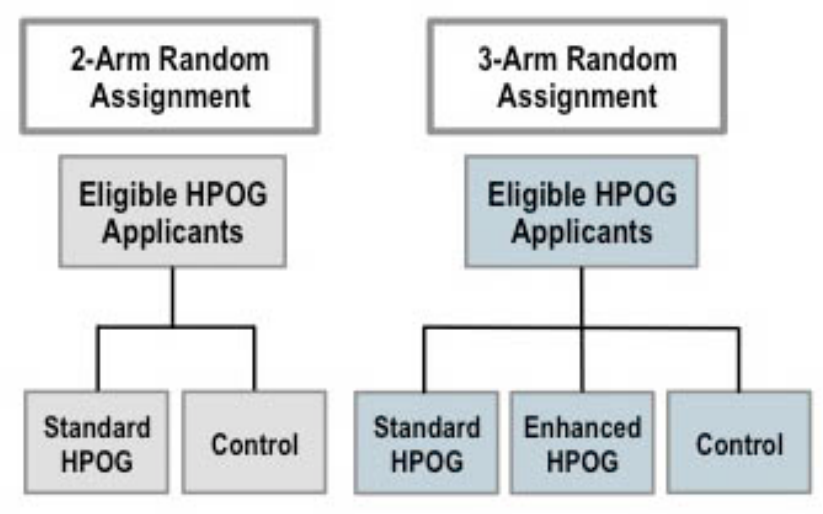
To define the research design for the study, we need clear terminology regarding the administrative framework of the HPOG program and how that framework interacts with our research design. We use the following definitions in this section and throughout the Design Report:

- **Grantee** – the funded unit of the national HPOG program.
- **Program** – a unique set of services, training courses and personnel. Many grantees fund and operate one program; some fund multiple programs.
- **Administrative division** – a program intake location or locations with a dedicated case management and/or counseling staff that advises participants, connects them to education and training services, and provides participants with support services or refers them to these services. An administrative division may be a single intake location or may be multiple locations served by a single set of case managers and program administrators. Administrative divisions will be formed by combining such locations. Programs may have one or more such divisions.

[3] Questions addressed by the study's implementation analysis are presented in the next section.

This study is based on an experiment in which eligible applicants are randomly assigned to either a treatment group that is offered access to the HPOG program or to a control group that is not offered the opportunity to enroll in HPOG. Within a subset of grantees' programs, three rather than two groups of eligible applicants are established at random: those with access to a "standard" HPOG program, those with access to an "enhanced" HPOG program, and those in a control group who are not offered the opportunity to enroll in HPOG. Regardless of whether a grantee offers treatment services to one (standard) treatment group or two (standard and enhanced) treatment groups, control group members have access to only whatever other programs and services are available in the community. Hence, impacts are measured as the *improvement* on existing non-HPOG services created by HPOG programs.
Exhibit 1.2 depicts the study's experimental design.

Exhibit 1.2: HPOG-Impact Evaluation Design that Uses Two- and Three-Arm Randomization



As shown in Exhibit 1.2, some grantees and programs are implementing a two-arm randomization of program eligibles into the standard HPOG program or into a control group. Others are implementing a three-arm randomization into a standard HPOG program, an enhanced HPOG program or to a control group.[4] Together with the two-arm grantees, the grantees implementing enhancements as experimental tests will help form the contrasts of interest that are at the core of the impact analysis. The impact analysis will focus on how average outcomes vary among the randomized groups, differences that will be attributable to the HPOG program.

Each of these contrasts will be examined to address the research questions put forward at the beginning (referenced here by "RQ#"):

- Comparison of all treatment group members to all control group members (RQ1)
- Comparison of treatment to control group members for individuals in specific demographic categories such as women or high school dropouts (RQ2)

[4] The study is testing three different program enhancements with three-way randomization: peer support groups, emergency assistance and non-cash incentives. The enhancements are described in detail later in this report.

- Comparison of treatment to control group members whose HPOG programs provide certain intervention components (RQ3)
- Comparison of treatment to control group members with equivalent baseline characteristics that, in the treatment group, are associated with participation in a particular intervention component (RQ4)

A more complete explanation of this analysis is provided later in the document. A key feature of the HPOG-Impact impact analysis is the exploitation of cross-site variation in program design and implementation, both planned and natural, and variation in individuals' experience of program variation, to address the program component-focused research questions (RQ3 and RQ4).

Exhibit 1.3 shows how the study's hierarchical units—individuals, administrative divisions, programs and grantees—are distributed across the HPOG-Impact and PACE studies, as well as across the two randomized experimental designs. As indicated, overall 14,463 individuals are nested within 96 administrative divisions, 42 programs and 23 grantees. For three-arm randomization sites, the study includes 5,800 individuals within 33 divisions, 19 programs and 10 grantees.

Exhibit 1.3: HPOG-Impact Units of Analysis and Corresponding Sample Sizes

Units using Two- and Three-Arm Randomization	HPOG	HPOG/**PACE**	Total
Grantees	20	3	23
Programs	36	6*	42
Administrative divisions	90	6	96
Individuals	10,784	3,679	14,463
Units using Three-Arm Randomization Only			
Grantees in three-arm experiments	10	0	10
Programs in three-arm experiments	19	0	19
Administrative divisions in three-arm experiments	33	0	33
Individuals	5,800	0	5,800

* These six programs are: five of the six HPOG programs at the three HPOG grantees participating in the PACE Project and the Will County WIB HPOG grantee's Instituto del Progreso Latino HPOG program that is participating in the PACE Project.

The HPOG-Impact implementation analysis will describe the intervention and how it differs from other services available in the community (the control condition). The implementation analysis will play a critical role in defining the service contrast tested and will assist in interpreting impact findings. Specifically, the implementation analysis of HPOG-Impact will:

1. Describe and document the HPOG program designs and operations of the studied programs (the "treatment"), as well as the local healthcare labor market and other important contextual factors.
2. Document the use of HPOG services and training courses by treatment group members.
3. Describe and document the services in the community available to, and used by, control group individuals (the "counterfactual"), and assess the extent and nature of the contrast with HPOG services.
4. Assess the implementation of the experimental study's design by reviewing the processes used to screen eligible people, collect baseline data, randomly assign individuals to an experimental status and ensure against assignment group cross-overs or intergroup contamination.
5. Aid in the interpretation of impact findings.
6. Provide program design and operational lessons that other programs and policy-makers may use.

1.5 Design Report Organization

This document is the project's "blueprint" for its design and analysis, with definitions of key measures and reference to the data collection efforts that will support the research for both the impact and implementation analyses. Following this introduction, Chapter 2 describes the program components, contexts, and administrative structures of interest, and describes our current understanding of programmatic variation in the field. Chapter 3 describes measures and data sources; Chapter 4 describes the impact analysis design and general analysis plans, both for the experimentally-based impact estimates as well as those that rely on cross-division variation and individual-level variation; Chapter 5 presents the implementation analysis plan; and Chapter 6 presents the project schedule and deliverables. Appendices include data collection instruments or additional technical detail as referenced throughout.

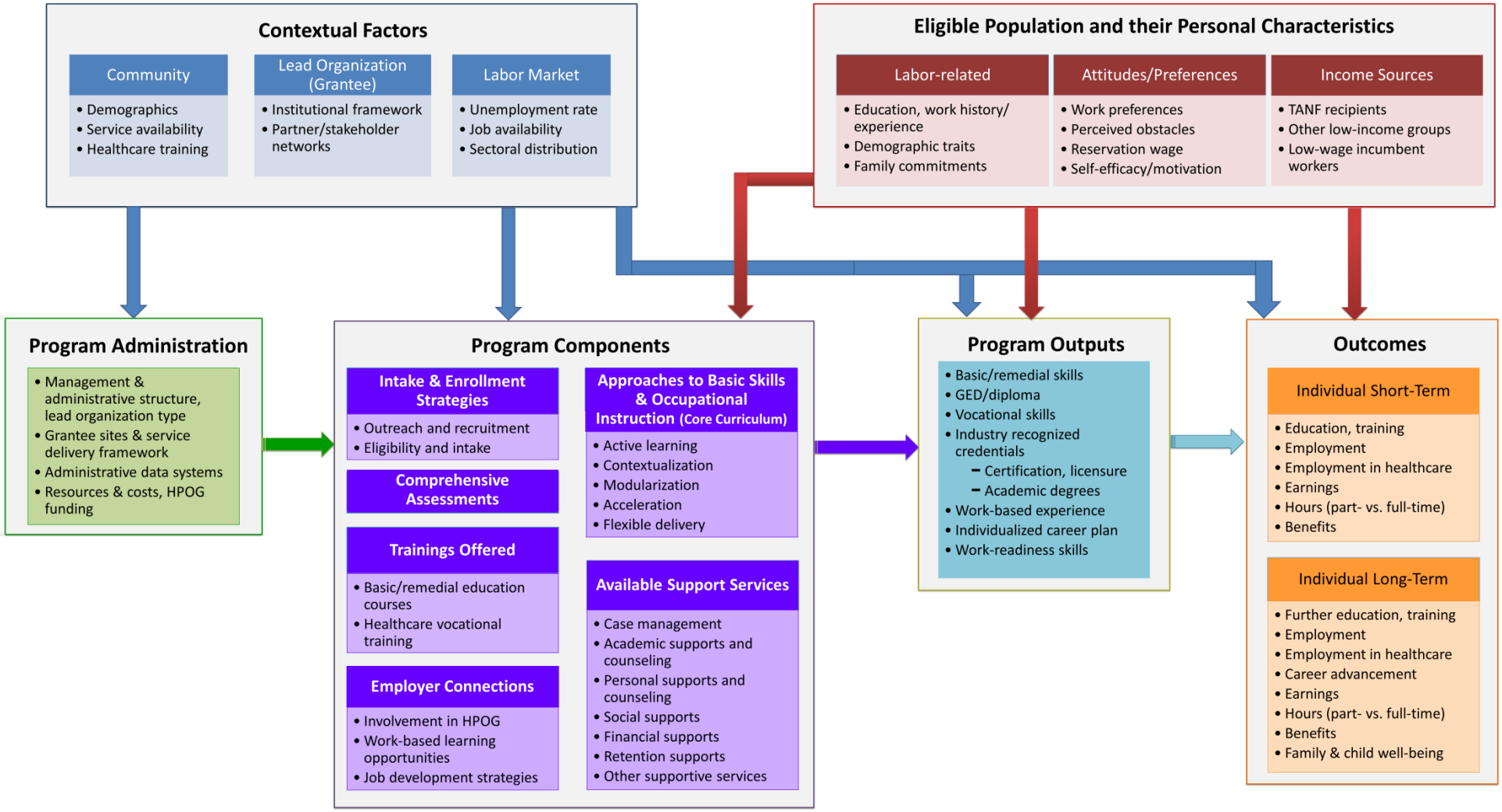
2. Framework for HPOG Career Training

The HPOG programs are based on the career pathways framework of postsecondary education designed to address the challenge of preparing low-income and poorly educated populations for employment and employment advancement. This framework embodies several core principals. Career pathways programs provide postsecondary education and training as a series of manageable steps leading to successively higher credentials and employment opportunities in growing occupations. Each step is designed to prepare students for the next level of employment and education, and also to provide a credential with labor market value. To effectively engage, retain, and facilitate learning for a diverse population, programs integrate screening, instruction, academic and non-academic supports, and employment experiences and opportunities. HPOG programs vary in their design and implementation of these core principals. Each grantee creates a constellation of services and supports that are appropriate for the given grantee organization, its context, its objectives, and its target population.

Presented below in Exhibit 2.1 is a logic model of the career pathways framework as implemented in HPOG and used to conceptualize the HPOG-Impact design. The study is particularly interested in disaggregating the relative effects of elements that appear in the "Program Components" box as well as other implementation strategies found in the "Program Administration" and "Contextual Factor" boxes. The study will also examine the range of local demographic, institutional, and labor market contexts in which HPOG grantees operate their programs to understand how impacts may vary across different environmental and institutional settings. The model that Exhibit 2.1 depicts is the same that our partner project HPOG National Implementation Evaluation (NIE) uses, with one exception: we do not include the long-term systems change outcomes, which are a focus of NIE but not HPOG-Impact project work.

The following sections of this chapter provide an overview of the program contexts, target population, administration, and components of interest in HPOG-Impact. The last section of the chapter describes our current knowledge of the variation of these characteristics across the 23 grantees to be included in the study's impact analysis and their programs.

Exhibit 2.1: HPOG Career Pathways Framework Logic Model



2.1 Contextual Factors

Program context (see the "Contextual Factors" box in the logic model, Exhibit 2.1) affects the services and activities offered and the grantee's ability to train, place, and retain program participants in targeted jobs. Contextual factors include the overall community demographics and services landscape, the healthcare labor market environment, and the grantee's institutional framework and network of partners and stakeholders.[5]

2.1.1 Community

Local HPOG program development and operations are influenced by the community in which a program resides. For example, the demographic and socioeconomic characteristics of a community may influence a grantee's eligibility criteria and target populations. The availability of existing community training opportunities in relation to healthcare industry demand may also influence grantee choices for occupational trainings. Finally, the availability and extent of support services in the community affect the degree to which an HPOG grantee can depend on community resources or may need to provide some services itself.

2.1.2 Institutional Framework

The design and implementation of an HPOG program are influenced by the type of institution that received the grant (e.g., Workforce Investment Boards, other state and local government agencies, postsecondary institutions, nonprofit organizations). In addition to having different institutional cultures and missions, different types of grantees may also have varied institutional resources and experience. For example, some postsecondary institutions offered healthcare training prior to receiving HPOG funding, but some institutions might not have had the financial capacity to provide support services that TANF recipients and other nontraditional students may need. Similarly, some institutions might not have had a reason or incentive to structure and schedule courses to accommodate the needs of low-income adults. In contrast, social service agencies or community-based organizations may have more experience delivering services to TANF recipients, but may not have experience designing training and facilitating it. These organizations may be able to recruit TANF recipients more effectively than other kinds of grantees, but may need to partner with outside organizations to provide training. The lead organizations will influence the populations targeted under HPOG, the trainings and support services provided, and the extent to which the agency relies on partnerships.

2.1.3 Partner/Stakeholder Networks

To implement HPOG programs that successfully address all the needs of their target populations, grantees had to develop or rely on existing partnerships with other agencies and institutions. Some of these partnerships were mandated by the HPOG Funding Opportunity Announcement (FOA) (ACF, 2010), which required grant applicants to demonstrate that their HPOG programs would be implemented by partnerships that include state and local Workforce Investment Boards (WIBs), and state TANF and apprenticeship agencies (p. 7). The FOA also encouraged grantees to cultivate "strategic partnerships" with a variety of key stakeholders and service providers, including employers and labor organizations; social service agencies, nonprofit organizations, and foundations; other organizations

[5] Though not shown in the exhibit, certain contextual factors will also affect services, activities, and outcomes for control group members—factors like community demographics, availability of non-HPOG training services, and local healthcare labor market conditions.

implementing projects funded by the American Recovery and Reinvestment Act of 2009; and the education and training community and registered apprenticeship programs (p. 6).

Accordingly, many grantees operate HPOG programs in partnership with these types of organizations. The term "partner" includes entities that participate in HPOG operations, such as by referring prospective HPOG participants, providing data to HPOG programs useful for program recruitment and implementation, offering opportunities for work-based learning or other work-based experiences, and providing other services or trainings.

A grantee's relationships with partnering organizations also could affect its ability to generate sustainable programs. Partner and stakeholder networks differ across grantees, depending on the specific institutions involved and their culture and community context. HPOG grantees' networks can differ both in the number of organizations involved and in how active partners are in implementing programs. At some grantees, the lead institution administers all or most aspects of the program, while communicating and cooperating with mandated partners; at other grantees, key partners take responsibility for distinct aspects of service delivery while the grantee lead provides some services and manages the program. Of particular importance and interest to HPOG programs is the connection with employers in the healthcare industry. Some HPOG grantees sought to involve employers and employer organizations in program design, training, in-program workplace training placements, and post-program employment. Other grantees developed agreements with healthcare employers to train their current employees for career advancement (incumbent worker training). An HPOG grantee's or program's partner networks may shape the grantee's capacity to effectively design and deliver services.

2.1.4 Local Healthcare Labor Market

The local healthcare labor market presents employment opportunities for HPOG participants, and influences HPOG grantees' choices of occupational trainings. Successful outcomes for participants are partly dependent on grantees' providing trainings that meet local employers' needs and expectations. Given the career pathways focus of many programs, it is important to identify entry-level occupations with articulated trajectories to higher-paying jobs.

2.2 Eligible Population and Characteristics

The populations that grantees target and serve are expected to affect the choice of program services and trainings as well as individual outputs and outcomes.[6] ACF requires HPOG grantees to implement programs that serve TANF recipients and other low-income individuals. Across grantees and their programs, the eligible populations vary in their characteristics, assets, and challenges, likely affecting the kinds of services and resources programs offered (see the "Eligible Population and their Personal Characteristics" box in the logic model, Exhibit 2.1). For example, HPOG participants vary in their academic achievement levels, employment-related experiences, attitudes, preferences about work and education, and career knowledge. These characteristics will likely influence participants' decisions about training (e.g., where on the career pathway to start), as well as completion of the program, ability to obtain and retain good jobs, and potential for advancement.

[6] This statement is true of control group members as well as HPOG program participants.

2.3 Program Administration

Grantees vary in their administrative approaches and resources in ways that influence program structure and services and, in turn, may influence participant outcomes (see "Program Administration" box in the logic model, Exhibit 2.1).

2.3.1 Management and Administrative Structure

The grantee's management structure is the hierarchy of responsibilities in overseeing program implementation and performance. Some HPOG programs are managed entirely within the grantee organization, while others are managed by multiple partners and service providers. In these latter cases, the grantee provides oversight and coordinates the work of other organizations, rather than directly supervising their staff. A grantee's management structure can affect the organization and amount of services and the achievement of program performance goals.

A grantee's administrative structure refers to how the HPOG program delivers services and conducts activities. Grantees vary in how they administer and staff programs and in how they are organized to deliver services and training. A key implementation difference is that some grantees have adopted a centralized administrative structure while others have a decentralized administrative structure.

In a centralized administrative structure one organization assumes primary responsibility for overseeing the delivery of core HPOG program activities and services to all program participants and maintaining and submitting participant- and grantee-level data.

In a decentralized administrative structure, many organizations are responsible for overseeing the delivery of core program activities and services to all program participants and maintaining and submitting participant- and site-level data. In these instances, the HPOG programs in different locations may be quite distinct, serving different target populations and offering unique combinations of support services and trainings. In other cases, HPOG grantees with multiple administrative divisions may implement a single program design, in which all intake locations provide the same universe of program activities and services.

Staff and supervisory functions vary widely across grantees, depending on the range of services and training offered and the extent to which grantees use partners to deliver services. Finally, the competencies and experience sought in staff members can differ a great deal across grantees, as can prevailing organizational cultures and attitudes about work and training. This variation in administrative structure may influence grantees' ability to provide the above support services and core program activities.

2.3.2 Resources and Costs: HPOG and Other Funding Sources

In making choices about how best to serve their target populations, grantees are constrained by their overall budgets and the portion of their budgets provided by the HPOG grant. The HPOG grantees were first funded on September 30, 2010. Over the first three of the five program years, annual HPOG awards have ranged from $1 million to over $5 million. Some grantees choose to provide more-intensive services (counseling or financial support, for example) to fewer participants, resulting in a relatively higher per-participant cost, while other grantees choose to provide a more-standard level of service to more participants. Finally, HPOG grantees and/or participants have varying access to resources in the community, particularly for support services.

2.4 Program Components

HPOG programs vary in their design and implementation of key program components of the career pathways framework, with any particular grantee creating a unique constellation of services and supports. Program components of greatest interest for the study are the ones that, based on the current literature on occupationally focused training and career pathways approaches to helping low-skill workers—and on our own observations of HPOG program operations—are most likely to affect individual outcomes.

2.4.1 Intake and Enrollment Activities

HPOG grantees use a variety of approaches to screen potential participants for eligibility and enroll them. All grantees require potential participants to verify that they meet basic income criteria. Some grantees also require participants to demonstrate they meet additional "suitability" criteria, including possessing the motivation, interest, and personal and social skills to succeed in the program. These additional intake steps often involve potential participants' completing screener assessments, one-on-one interviews, and informational orientations, as well as criminal background checks and substance abuse screening. The intake and enrollment approaches that HPOG grantees implement influence the characteristics and skill sets of the pool of program participants.

2.4.2 Comprehensive Assessments

Comprehensive assessments are an important pre-training component in many HPOG programs. Academic assessments help identify the appropriate first course level within a training pathway or the specific education and training courses needed. Non-academic assessments can identify participants' support service needs (Fein, 2012). Both of these types of comprehensive assessments are often conducted prior to the start of courses to better understand the services and education and training courses individuals may need to succeed in HPOG. HPOG grantees may also use these for ongoing monitoring of participants' education progress and career planning. The breadth and effectiveness of grantees' use of the assessments to place participants in skill-level-appropriate training courses and identify participants' support service needs may be associated with participants' perseverance and completion.

2.4.3 Trainings Offered

HPOG programs provide a range of remedial and occupational training courses that HPOG participants have access to through the HPOG program. Some HPOG programs offer minimal or no basic education courses, so eligibility is limited to those who have the requisite academic skills to meet the requirements of vocational courses. Other programs have available, or provide access to, basic education courses so that participants with lower basic skill levels can upgrade their academic skills and have access to other HPOG services.

The wide range of vocational trainings offered by HPOG grantees vary in length and intensity, depending on the requirements of the target profession. Some certificate programs for entry-level positions may be as short as six weeks, while more-advanced training, such as for nursing positions, may require commitments of four years or more. Consistent with the career pathways framework, programs are structured to allow multiple entry and exit points along training pathways to allow participants to gain work experience and return to training for additional credentials needed for higher-level positions.

Some HPOG grantees offer incumbent worker programs, usually by agreement with participating employers. These services are intended to train low-income employees in the healthcare industry for higher-paying jobs with a career path, usually with the same employer.

The level of choice grantees provide participants in defining their career pathways can also vary by grantee. Some grantees offer participants a "bounded choice" of training options, while others promote "individual choice." The grantees that offer bounded choice training options bundle courses in sequences so that the grantee is outlining specific pathways for participants. This approach aims to relieve participants from the burden of having to navigate possibly overwhelming numbers of available training options (Fein, 2012). The grantees that offer individual choice allow participants to enroll in a wide variety of available training courses, and often encourage participants to work with case managers or counselors to develop an individualized career pathway that explicitly outlines participants' desired occupational goals and associated competencies. This approach recognizes that individuals may have varying assets and challenges to training and employment, as well as varying career goals and occupational interests, and so require a more personalized training program.

2.4.4 Approaches to Basic Skills and Occupational Instruction (Core Curriculum)

Career pathways program training approaches are designed for nontraditional students, many of whom are balancing training with other commitments. The most common career pathways approaches to providing basic skills and occupational skills training include the following.

Active learning is an instructional approach that emphasizes learning through project-based instruction. HPOG programs that feature active learning encourage more student interaction than do traditional lecture formats and "skill and drill"-based approaches. Participants enrolled in courses using this approach are expected to be more actively engaged, interested, and motivated than participants enrolled in courses using more-traditional instructional approaches (Fein, 2012).

Contextualized basic skills instruction creates explicit connections between the teaching of basic skills (reading, writing, or math) and occupational skills. An example of contextualization would be a community college course in math (which is a prerequisite for many healthcare courses) that uses mathematical problems derived from healthcare-related tasks, such as calculating prescription dosages from the weights, ages, and other-medication dosages of different patients. This approach is hypothesized to make basic skills training more relevant to individuals seeking career training and economic advancement (Alssid et al., 2002; Perin, 2011).

Modularization is an approach to offering courses in comparatively short and well-articulated curriculum modules associated with clearly defined and industry-recognized credentials, sequenced to present a clear career pathway within a given occupation or industry. Modularization also allows for stackable certifications and credentials in which individuals can accrue credits and certificates that can be combined progressively through extended career upgrading.

Acceleration is an approach to facilitate program retention and completion by reorganizing instruction and curricula to reduce the time required to complete courses (Endel, Anderson, and Kelly, 2011; Hinckley and Hull, 2009; Zacker, 2011; Jobs for the Future [JFF], 2010; Kazid and Liebowitz, 2003). One way to achieve this is to compress the curriculum from two or more courses into the time span of one course, which reduces the required hours. Another way is to allow students requiring remediation to simultaneously enroll in remedial training and vocational training, instead of requiring students to sequentially complete these training courses.

Flexible delivery involves offering training at times and places that are convenient for working and parenting adults, including nontraditional class schedules and training structures that have multiple entry and exit points. Flexible delivery facilitates participation by economically disadvantaged adults with multiple demands, including work and parenting responsibilities (Zacker, 2011).

2.4.5 Available Support Services

HPOG programs offer academic and non-academic supports to enhance participants' ability to attend and complete education and training while often balancing other demands on their time. The types of support services are described below.

Case management includes the monitoring of participant progress, ongoing assessment of needs, and provision of, and/or referrals to, other support services. This type of personal support focuses on helping participants secure necessary and available resources. The type, intensity, and structure of case management that HPOG grantees provide may be associated with participants' program retention and completion. For example, some HPOG grantees actively manage the number of case managers relative to the number of participants. The assumption is that a lower student to staff ratio will encourage a more personal and ongoing (i.e., multiple points during the program term) connection between staff and participants. Developing a personal relationship with non-academic staff is associated with students' higher educational success (Scrivener and Weiss, 2009). Empirical evidence shows that "getting close" to clients, and lower participant-to-staff ratios, are associated with more-favorable labor market outcomes for participants (Bloom, Hill, and Riccio, 2003).

Some HPOG programs also seek to identify obstacles that could derail participants' successful completion before actual problems arise. Proactive or "intrusive" case management is designed to allow case managers to identify barriers participants are facing or are likely to encounter and to help address those barriers before they interfere with program participation (JFF, 2010; Karp, 2011; Pleasants and Clagett, 2010). This contrasts with other grantees' reactive case management structure, which addresses participants' problems after they occur. In this latter approach, it is the participants' primary responsibility to initiate contact with case managers.

Academic supports and counseling provide assistance in overcoming academic challenges or barriers to vocational training enrollment, retention, and completion. HPOG grantees' provision and type of academic supports may be associated with program retention and completion. Academic supports encompass the range of services that focus on academic needs, and may include individual tutoring, group sessions on specific academic or vocational topics, study groups, and self-paced computerized instruction (JFF, 2010; Stephens, 2009). Academic supports may also include training that supplements vocational training, such as college-readiness training. College-readiness training is intended to provide nontraditional postsecondary students with an understanding of expectations and responsibilities of students, and strategies for navigating and completing postsecondary education (Karp, 2011).

Personal supports and counseling include direct provision of individual or group counseling services, as well referral to other counseling providers. The objective of these supports is for staff to maintain personal connections with participants to ensure participants have access to program services and activities (Goldberger, 2005; Jenkins, 2006; JFF, 20010; Pleasants and Clagett, 2010; Stephens, 2009). Some grantees include personal counseling as part of ongoing case management, and other grantees use separate specialist counselors.

Social supports are offered to cultivate connections between participants and their student peers, as well as with program instructors, case managers, counselors, and other program staff. Specific approaches include learning communities, mentors, and peer support groups (JFF, 2010; Karp, 2011; Stephens, 2009; Zacker, 2011). The HPOG grantees that offer these types of social supports are providing opportunities for participants to create personal relationships, which can increase their accountability and commitment to retention and program completion.

Financial assistance is provided to help participants overcome a variety of practical barriers to training/education participation and completion in general. In particular, the type and level of financial assistance HPOG grantees offer may be associated with program retention and completion. One type of financial assistance is the direct provision of financial payments such as tuition assistance or tuition waivers, payments for school supplies and uniforms, and payments for, or waivers of, fees for certifications and licensing exams.

Retention supports are additional financial and nonfinancial resources specifically aimed at supporting program retention and completion. For example, some programs provide emergency assistance because unanticipated financial needs are believed to be a major reason for dropping out; easier access to emergency funds could buffer participants in times of crisis and improve program retention and completion. Another approach to boosting retention is the use of non-cash incentives (for example, vouchers to purchase school supplies, uniforms, baby equipment, and food), which reward participants for reaching specific program benchmarks. This approach both celebrates students' accomplishments and addresses students' financial needs.

Other support services include other resources available to meet participants' practical needs to allow them to attend and complete training. Among the more common support services are transportation assistance, childcare assistance, driver's license assistance, housing support services, medical care, legal assistance, family preservation services, and services to ameliorate substance abuse, domestic abuse, and mental health problems (Estrada, 2010; Hinckley and Hull, 2009; Jenkins, 2006; JFF, 2010; Pleasants and Clagett, 2010; Stephens, 2009). These supports can be provided in-house or via referral to a partner organization.

2.4.6 Employer Connections

HPOG grantees also engage local healthcare employers during and after trainings in order to connect participants to aspects of the local labor market. Three specific approaches—employer involvement, work-based learning opportunities, and job development services—are described below.

Employer involvement facilitates connections with industry-specific employers. Programs generally involve employers and business groups in advising on program design or curriculum development, providing work-based learning opportunities, or assisting with job development services. The type and intensity of employer involvement may influence grantees' ability to effectively align training curricula with local labor market demand, and capacity to provide participants with work-based learning experiences and job development supports.

Work-based learning opportunities integrate occupation-specific employment experiences into training programs. Approaches include work-study placements, internships, visits to local employers, job shadowing, and apprenticeships. These opportunities are expected to improve participants' career awareness and knowledge, facilitate connections with local employers, and build participants' resumes while they are in training (Fein, 2012).

Job development services include various activities aimed at helping participants secure and retain employment after training. Job development services include job search training and assistance, job search counseling, job clubs and job fairs. In addition, program staff may work with employers to create dedicated positions for participants (e.g., through apprenticeships or unsubsidized jobs) or, provide personal or financial supports for a set period of time after participants secure employment. In general, development efforts aim to create a more amenable labor market into which trainees can enter.

2.5 Program Outputs and Outcomes

On the right side of the logic model are the program outputs that are intended to be influenced by community and participant characteristics and, more importantly, program activities and design, which then lead to the program's shorter- and longer-term outcomes.

Program outputs are defined as the direct results of the program activities. For example, some of the HPOG program outputs are to train some number of individuals, to provide some number of credentials, to establish individualized career plans, or to engage some number of students in a work-based experience. In theory, these program outputs are necessary to influence subsequent outcomes.

As shown in the right-most box in Exhibit 2.1, those outcomes occur in the shorter- and longer-term. Among the short term outcomes that HPOG programs aim to influence are educational progress and training-related outcomes along with employment and associated earnings. For example, the program, by virtue of providing rich education and training in health sector careers within a supported environment, is theorized to increase the documented achievements of its participants, including participation in and completion of health sector training and greater levels of credentials and degrees. These achievements should lead to better employability and therefore greater levels of employment, both overall and in the health sector. Under the premise that health sector jobs offer more stability and career opportunities than jobs low-income individuals could obtain without HPOG training, HPOG training should lead to higher earnings and benefits, and better opportunities for career advancement.

While all these outcomes are called out in the program's logic model, the evaluation will prioritize key outcomes at each of its known follow-up time points to provide the strongest evidence possible about impacts on those selected outcomes. Although we will measure employment and earnings at both the 15- and 36-month follow-up times, we assert that it is appropriate to designate earnings as a "confirmatory" hypothesis of the program's success only at the longer-term follow-up. In doing so, we will consider the most recent quarter of earnings as our confirmatory measure, thereby allowing individuals the time needed to demonstrate their advancement in the work world. Furthermore, we will designate educational progress as confirmatory at the 36-month follow-up as well, since the nature of career pathways programs is to encourage lifelong learning and the in-and-out of education and training that a work career demands.

In the shorter term, at the 15-month follow-up time point, we designate individuals' educational progress as the "confirmatory" hypothesis that can inform the extent to which the program is making progress toward its goals. Specifically, the evaluation will use training completion or ongoing enrollment in *health sector* training as the intermediate measure of the program's progress. Since this is the outcome that the program is most proximally and centrally designed to improve, it seems warranted to gauge the program's progress at 15-months by this test. Of course, the ultimate success of the program comes from the longer-term outcomes translating into more and better employment and greater earnings in the long-

run. And, as importantly for the evaluation are questions pertaining to the drivers of these impacts: we will seek to learn which HPOG features most enhance the program's impact on educational progress and subsequent employment and earning, so as to influence future program design.

2.5 Variation among HPOG-Impact Grantees

Research on the grantees' HPOG programs shows substantial variation in contextual factors, administrative strategies, and program components, and that this diversity is sufficiently rich across grantees that future analysis of the influence of these program characteristics on program impacts is likely to be fruitful. This section provides an overview of the 23 grantees included in the HPOG-Impact analytic sample, including their program components of interest. How we will take advantage of the variation in program components across sites to get at "impact drivers" is explained in Chapter 4 on impact analysis.

The 20 HPOG-Impact grantees and three HPOG/PACE grantees vary by geographic region, organization type, grant amount, and enrollment goals, as well as by their designs. Exhibit 2.2 presents regions, organization types, Year 1–4 funding levels, original total enrollment goals, and the number of programs and administrative divisions for each HPOG-Impact and HPOG/PACE grantee.

HPOG grantees also vary by the types of program components they offer HPOG participants. Exhibit 2.3 presents the availability of the program components of interest for the study's analysis of cross-site natural variation of impact drivers.[7] In the table, both "Y" and "*" indicates that a grantee, or if applicable, at least one of the multiple programs administered by a specific grantee, offers the program components. Grantees marked with a "Y" make the component available to HPOG participants only, while grantees with a "*" offer it to all of their clients, including those in the control group served by the grantee under non-HPOG auspices. Chapter 3 describes the data sources the study will use to measure in more detail the availability and specific design of the abovementioned program components, contextual factors, and administrative strategies across the HPOG-Impact grantees.

[7] Note that grantees sometimes add or delete program components, particularly available trainings; the study documents all such substantive changes.

Exhibit 2.2: Contextual Factors and Administrative Characteristics of HPOG-Impact Grantees

HPOG-Impact and HPOG/**PACE** Grantees	Contextual Factors		Administrative Characteristics			
	State (City)	Organization Type	Total Y1-4 HPOG Funding	Total Enrollment Goal	Number of HPOG Programs	Number of Administrative Divisions
HPOG-Impact						
Alamo Community College District and University Health System	TX (San Antonio)	Higher Education Institution	$3,745,999	375	1	4
Bergen Community College	NJ (Hackensack)	Higher Education Institution	$18,888,394	5000	11	11
Buffalo and Erie County WDC	NY (Buffalo)	WIB	$5,094,471	1250	1	1
Central Community College	NE (Grand Island)	Higher Education Institution	$6,615,041	1175	1	4
Central Susquehanna Intermediate Unit	PA (Lewisburg)	Government Agency	$7,409,208	464	1	1
Eastern Gateway Community College	OH (Steubenville)	Higher Education Institution	$11,305,079	2000	1	11
Edmonds Community College	WA (Lynnwood)	Higher Education Institution	$6,077,363	415	1	2
Full Employment Council	MO (Kansas City)	WIB	$4,125,000	783	1	4
Gateway Community and Technical College (KY)	KY (Florence)	Higher Education Institution	$6,257,785	945	1	2
Kansas Department of Commerce	KS (Topeka)	Government Agency	$12,098,981	2500	5	17
Milwaukee Area WIB	WI (Milwaukee)	WIB	$11,280,613	1550	1	3
New Hampshire Office of Minority Health	NH (Concord)	Government Agency	$10,255,059	1250	1	5
Pensacola State College	FL (Pensacola)	Higher Education Institution	$6,965,383	1000	1	1
Research Foundation of CUNY-Hostos Community College	NY (Bronx)	Higher Education Institution	$5,945,874	924	1	1
Schenectady County Community College	NY (Schenectady)	Higher Education Institution	$9,201,517	1500	1	3
South Carolina Department of Social Services	SC (Columbia)	Government Agency	$5,347,825	575	1	4
Suffolk County Department of Labor	NY (Suffolk)	WIB	$4,167,741	1125	1	1
WIB SDA-83 Inc. (LA)	LA (Monroe)	WIB	$11,641,764	1000	1	11
Will County WIB*	IL (Joliet)	WIB	$4,197,688	790	6	6
The WorkPlace	CT (Bridgeport)	WIB	$3,741,737	500	1	1
HPOG/**PACE**						
Pima County Community College District	AZ (Tucson)	Higher Education Institution	$14,207,064	1742	1	1
San Diego Workforce Partnership	CA (San Diego)	WIB	$20,125,000	2550	4	4
Workforce Development Council of Seattle-King County	WA (Seattle)	WIB	$8,462,366	920	1	1

Sources: State (city) and organization type: HPOG NIE Evaluation Design Report (2014); Funding: http://taggs.hhs.gov/

*Instituto del Progreso Latino, implementing one of Will County WIB's six HPOG programs, is participating in the PACE Project and will be included in the HPOG Impact Study's analytic sample.

Exhibit 2.3: Program Component Offerings by Grantee

HPOG-Impact and HPOG/**PACE** Grantees	Comprehensive assessments	Personal Supports and Counseling		Academic Supports and Counseling			Social Supports		Financial Supports		Retention Supports		Other Support Services		Employer Connections	
		Case management	Other counseling	Academic counseling/ advising	Tutoring	College skills training	Mentoring/peer support	Cultural programming	Tuition assistance	Training/work-related resources	Emergency assistance	Non-cash incentives	Housing support services	Social support services	Work-based learning opportunities	Job development services
HPOG-Impact																
Alamo Community College District and University Health System	*	Y	N	*	Y	Y	*	*	Y	Y	*	N	Y	Y	*	Y
Bergen Community College	*	Y	Y	Y	Y	Y	Y	*	Y	Y	*	Y	*	Y	Y	Y
Buffalo and Erie County WDC	*	Y	N	N	N	N	N	N	Y	Y	Y	N	Y	Y	N	Y
Central Community College	Y	Y	*	Y	Y	Y	Y	N	Y	Y	*	Y	*	*	*	*
Central Susquehanna Intermediate Unit	*	Y	*	*	*	Y	Y	N	Y	Y	*	N	*	*	Y	Y
Eastern Gateway Community College	Y	Y	Y	*	*	*	Y	Y	Y	Y	Y	Y	*	*	Y	Y
Edmonds Community College	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	N	*	Y	Y	Y
Full Employment Council	*	Y	Y	*	*	*	*	N	Y	*	*	*	N	Y	*	Y
Gateway Community and Technical College (KY)	*	*	*	*	*	*	N	*	Y	Y	*	N	*	*	*	Y
Kansas Department of Commerce	*	Y	*	Y	*	*	Y	N	Y	Y	*	N	*	*	Y	Y
Milwaukee Area WIB	*	Y	N	*	*	*	Y	N	Y	*	N	N	N	Y	*	*
New Hampshire Office of Minority Health	*	Y	N	*	Y	*	Y	Y	Y	Y	Y	N	*	Y	*	Y
Pensacola State College	Y	Y	*	Y	*	*	N	N	Y	Y	Y	N	Y	Y	N	Y
Research Foundation of CUNY-Hostos Community College	*	Y	*	*	*	*	Y	Y	N	Y	N	N	N	Y	Y	*
Schenectady County Community College	Y	Y	N	*	Y	N	Y	Y	Y	Y	Y	Y	*	Y	Y	Y
South Carolina Department of Social Services	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y
Suffolk County Department of Labor	*	*	N	*	*	N	Y	N	Y	Y	*	N	*	*	Y	Y
WIB SDA-83 Inc. (LA)	*	Y	N	Y	Y	*	N	N	Y	Y	N	N	N	Y	Y	Y
Will County WIB*	Y	Y	N	Y	Y	Y	Y	*	Y	Y	Y	N	*	Y	Y	Y
The WorkPlace	*	*	*	*	*	N	*	N	Y	Y	Y	N	*	*	*	*
HPOG/**PACE**																
Pima County Community College District	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	*	*	Y	Y
San Diego Workforce Partnership	Y	N	N	Y	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y
Workforce Development Council of Seattle – King County	Y	N	N	Y	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y

Notes: Source for this information for the HPOG-Impact grantees is the grantees' EDIPs. Source for this information for the HPOG/PACE grantees is the grantees' site profiles created for the PACE Project. **Instituto del Progreso Latino, implementing one of Will County WIB's six HPOG programs, is participating in the PACE Project and will be included in the HPOG Impact Study's analytic sample.

3. Measures and Data Collection

This chapter summarizes the data collection strategy for HPOG-Impact. To address the study's research questions and meet its research goals, we will be collecting a wide range of data from both primary and secondary sources, as well as information gathered in the course of other study implementation activities. Moreover, the data collection for HPOG-Impact will also rely on surveys developed for HPOG NIE.[8] The HPOG NIE Evaluation Design Report (OPRE Report No. 2014-02) provides detail on a number of the data collection tools we summarize below. In addition, some measurement and data collection in the PACE Project will overlap or mirror the measurement and data collection taking place in HPOG-Impact and HPOG NIE. These projects are working together to ensure coordinated measurement and data collection processes in the anticipation that each project can benefit from the efforts of the others, in some cases to the end of pooling data to increase sample size and programmatic variance to assist in impact estimation.

HPOG-Impact will use the following primary and secondary data concerning HPOG program activities and participants:

- Individual-level data collected through the HPOG Performance Reporting System (PRS) (baseline data and data on services, trainings, outputs and outcomes)
- The HPOG-NIE Grantee and Management and Staff surveys
- Evaluation Design and Implementation Plans (EDIPs) used to design and guide the implementation of HPOG-Impact in each grantee program
- Grantee- and program-level data collected through the HPOG PRS
- Data from HPOG grantee semi-annual Performance Progress Reports (PPRs)
- Data from study Pilot Phase site reports
- Data from biweekly site monitoring calls between HPOG-Impact site teams and grantee personnel
- Implementation site visits
- The HPOG-Impact 15-month follow-up survey
- National Database of New Hires (NDNH) data
- The HPOG-Impact 36-month follow-up survey[9]

In addition to the primary and secondary sources listed above, HPOG-Impact will also use extant data for capturing details on local contexts: Census data on local site socioeconomic and demographic characteristics; and Bureau of Labor Statistics data on local industrial composition, employment and other economic measures.

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[8] Most of the instruments developed for HPOG NIE and HPOG-Impact are available in the justification package submitted to the Federal Office of Management and Budget (OMB) under the Paperwork Reduction Act. See OMB package #0970-0394.

[9] The 36-month follow-up survey will be fielded under a separate contract, and its content is the subject of current planning and therefore might change slightly relative to what is summarized here.

Exhibit 3.1 presents a high-level view of how the various data sources (columns) map to topical domains relevant to the evaluation (rows).

Exhibit 3.1: Domains Included in HPOG-Impact—Data Collection Sources and Uses

	PRS	15-month follow-up Survey	36-month follow-up Survey	Impact Implementation Site Visits		NIE Surveys				NDNH	PPRs	EDIPs*	Biweekly Site Team Calls*	Pilot Phase Reports*	Other Secondary Data
				Two-Arm Grantees	Three-Arm Grantees	Grantee	Management and Staff	Stake-holder/ Network	Employer						
Program context	✓			✓	✓	✓	✓	✓	✓		✓	✓			✓
Eligible population and baseline personal characteristics	✓			✓	✓	✓	✓			✓		✓			
Program administration	✓			✓	✓	✓	✓				✓	✓	✓	✓	
Program components	✓			✓	✓	✓	✓	✓			✓	✓	✓	✓	
Program enhancements	✓				✓	✓						✓	✓	✓	
Program implementation experience				✓	✓		✓		✓		✓	✓	✓	✓	
Counterfactual and contrast				✓	✓			✓				✓	✓		✓
Program and contrast changes over time				✓	✓	✓	✓				✓	✓	✓	✓	
Implementation of experimental study design				✓	✓							✓	✓	✓	
Treatment group use of services and trainings	✓*	✓	✓												
Control group use of services and trainings		✓	✓												
Individual-level interim outcome measures		✓								✓					
Individual-level long-term outcome measures			✓							✓					

3.1 Baseline Measures

The study team will use the HPOG Performance Reporting System (PRS) to capture both treatment and control group members' baseline characteristics.

3.1.1 HPOG Performance Reporting System (PRS)—Individual Characteristics

Baseline data about study participants, including both treatment and control group members, are collected through the PRS. The PRS is the administrative data system developed for the HPOG program to serve two main purposes: (1) as a management information system to document program activities and accomplishments against program goals and to assist with program management, and (2) to provide data for research purposes. For the grantees participating in HPOG-Impact a Supplemental Baseline survey has been added to the PRS to capture data about individuals' self-efficacy and their education and employment aspirations and expectations. For the implementation analysis, the PRS data will be used primarily to describe the baseline characteristics of the research sample and to document the treatment group's use of services and training experiences.[10]

Items from the PRS provide the study team with important baseline information about study participants including identifying, administrative, demographic, and socioeconomic data. Including these items will allow HPOG-Impact to describe the study sample; to assess balance between the treatment and control groups; to increase the precision of estimates regarding the impact of program components; and to identify subgroups for subgroup impact analysis at follow-up. The contact information collected at baseline enables researchers to locate respondents for follow-up surveys that will measure intervention outcomes (described in Section 3.2 below).

The Supplemental Baseline survey includes a subset of questions about participants' experiences in and expectations for education and employment, and barriers to employment. In addition, it includes some questions about individuals' work preferences and self-efficacy. As with the PRS baseline data collection, variables collected through the Supplemental Baseline survey will be used to demonstrate that random assignment yielded balanced groups. The data elements that comprise the Supplemental Baseline survey will also increase the study team's ability to test the relative effectiveness of specific program components and to assess variations in impacts for specific subgroups of interest. Specifically, understanding people's barriers to and preferences for work and their motivations and feelings of self-efficacy will improve the study team's ability to identify which treatment group members access various components of the HPOG program, an essential step in measuring the impacts of those components on individuals' outcomes as described in Chapter 4. Prior work documents that psychosocial questions such as these are important to sorting participants by characteristics that predict outcomes of interest (e.g., Gibson, 2003; Peck, 2007). In fact, some of our planned analyses depend critically on the richness of these covariates, which is why we have included these specific additional variables at baseline—to increase our ability to predict the later program experiences of treatment group members.

The Supplemental Baseline survey also includes a child roster, which lists research sample members' children under age 18 who reside with them at least half of the time. This roster will be used to create a sampling frame for including a child outcomes module as part of the long-term follow-up survey.

[10] The data items collected by the PRS on individual characteristics are presented in Appendix A; Appendix B presents the Supplemental Baseline survey questionnaire.

The sample's characteristics that come from the PRS, including the Supplemental Baseline survey, include the following:

- Characteristics at intake/enrollment
  - Demographic characteristics (sex, race/ethnicity, marital status, parental status, citizenship, tribal status, veteran status, homeless status, disability status, ex-offender status)
  - Socioeconomic characteristics (receipt of public assistance, education level, literacy and numeracy, employment status, employment experience, healthcare employment experience, incumbent worker status, earnings, family income)
- Prior education and training program participation
- Family member income/benefit receipt
- Child roster
  - First name of child
  - Relationship to participant
  - Child birthdate
  - Amount of time child lives with participant
  - Other individuals with whom the child lives
- Expectations, self-perceptions, and motivations (items included in the Supplemental Baseline survey)
  - Highest level of education participant expects to complete
  - Expectation of education if selected for HPOG
  - Expectation of work in the near term
  - Plans for education and work if not selected for HPOG
  - Perceptions about career
  - Factors that have interfered with previous education or work
  - Work preferences
  - Minimum pay requirements
  - Perceptions of self-efficacy

3.2 Measuring the Characteristics of HPOG Programs

The study team will use several data sources to measure and describe HPOG program characteristics of interest, both for the evaluation's implementation analysis and for the impact analysis's examination of individuals' use of various program components. This section describes the data sources and their uses related to the study's implementation and impact analyses. First we describe the PRS and NIE survey data, with these being central to the impact analyses. Then we describe the additional sources that are relevant to the implementation analysis, which include the following: EDIPs, semi-annual Performance Progress Reports, Pilot Phase Reports, Biweekly Site Monitoring Calls and finally the Implementation Site Visits.

3.2.1 HPOG Performance Reporting System (PRS)—Program Characteristics

The PRS includes program-level data on available services and training courses, as well as microdata on participants' program experiences. These data will be used in the implementation analysis in two major ways: to describe program offerings and to measure participants' use of services and training

opportunities. Individual-level PRS data on program experiences will also be used in the impact analysis to specify endogenous subgroups (related to RQ4). PRS data to be used for these purposes are listed below.[11]

Program administration

- Available remedial/pre-training programs
  - Type of remedial/pre-training activity
  - Training hours (number and type)
  - Degree
  - Training vendor
- Available education and training programs
  - Occupation training type (Standard Occupational Code)
  - Training hours (number and type)
  - Degree
  - Training vendor

Receipt of the following program services by individual participants

- Eligibility and intake activities
  - Pre-enrollment screening services
  - Initial/intake assessment activities
- Comprehensive post-enrollment assessment
- Remedial/pre-training services
  - Type of activity
  - Begin and end date
  - Education degree or certification sought
  - Completion status
  - Training vendor
- Occupational/vocational training activities
  - Occupational training by Standard Occupational Code
  - Begin and end date
  - Education degree or certification sought
  - Regulatory license or certification sought
  - Completion status
  - Training vendor
- Support services
  - Counseling services
  - Case management services (case management/career advisor/navigator)

[11] See Appendix C for further detail.

  - Cultural programming
  - Social and family services
  - Housing support services
  - Social services resources
  - Tuition assistance
  - Training- and work-related resources
  - Other support resources
- Employment development/employment activities
  - Type of employment development activity
  - Activity begin and end date
  - Actual hours completed
  - Career counseling/job coach/navigator activity
  - Job search/placement assistance
  - Job retention services
- Enhancement participation (within programs randomizing to these enhancements)
  - Type and amount of emergency assistance used
  - Type and amount of non-cash incentives used
  - Peer support beginning and ending dates

3.2.2 National Implementation Evaluation Surveys

Data from the National Implementation Evaluation (NIE) surveys will be an essential source of information for HPOG-Impact's implementation analysis by providing a comprehensive description of HPOG grantees and will assist the impact analysis in identifying grantee variation. The NIE is a comprehensive study of HPOG implementation, outcomes, and systems change. NIE surveys will offer more detail than the PRS on HPOG services and trainings. To meet its multiple research goals, the NIE is fielding a number of surveys, including surveys of HPOG grantees, management and staff, HPOG program stakeholders and members of the HPOG network, and employers who have hired or have been asked to hire HPOG participants. The surveys were designed primarily to meet NIE research goals, but were done so in coordination with the HPOG-Impact Study to ensure that the data collected help HPOG-Impact meet its research goals as well.

In preparation for the HPOG-Impact implementation site visits, site teams will have access to NIE survey responses and will use them to help focus their on-site interviews and discussions. For example, the NIE Grantee survey will provide detail on HPOG trainings and services, which will be a main subject of field research. The NIE Employer survey will identify employers that work most directly with HPOG and/or hire HPOG graduates and would be candidates for the employer on-site interviews described later.

In addition to the NIE surveys' use for the implementation analysis, the NIE Grantee and Management and Staff surveys will be used to describe the universe of HPOG grantees and will explore variation in how grantees implement their programs.[12] The Grantee survey includes questions about the characteristics of programs that are hypothesized in the career pathways literature to yield particularly strong participant

[12] Although we refer to this as the "Grantee" survey, it will be administered to each distinct program, as we have identified them. The Grantee survey is presented in Appendix E.

impacts. The Grantee survey will be the primary source of data for the impact analysis that considers how variation in program characteristics drives program impacts (related to RQ3). The Grantee survey includes the following areas, and selected, specific measures from with each section are detailed in Exhibit 3.2 as the measures that are candidates for the impact analysis:

- Grantee background
- Community context
- Perspectives on the HPOG mission and healthcare training opportunities
- Relationships with other organizations
- Marketing and research
- Intake and enrollment
- Education and training
- Support services

The NIE Management and Staff survey will be used to examine the interactions between participants, case managers, counselors, and other staff with direct participant contact, including academic advisors, job developers, etc.[13] It is commonly believed that the interactions between program staff and the clients they serve influence how social programs are implemented. The character of this implementation will be captured in measures from this survey. Until relatively recently, the majority of the information for this theory has come from case studies and other qualitative research. However, more recently, researchers used information about how case managers approach their work in statistical models, and found significant relationships between variations in case manager approaches and variations in program impacts (Bloom, Hill, and Riccio, 2003). The Management and Staff survey data will help determine the ways in which HPOG management and staff practices and attitudes relate to program impacts. The survey asks staff and managers working directly with HPOG participants about their approaches to key program services and activities, as well as beliefs and attitudes about the HPOG program and its target population. The survey will focus on the following general areas:

- Staff background and program involvement
- Type of assistance provided to participants
- Nature and amount of assistance provided to participants
- Professional and program context

The Exhibit below summarizes the measures that are the likely candidates for inclusion in the impact analysis' cross-division consideration of the role of program components and features in influencing program impacts. It lists the variables as well as specifics about their operationalization along with their data source. Where we note that "indices" will be constructed, additional details on operationalization will be reported in the study's analysis plan.

[13] The Management and Staff survey is presented in Appendix F.

Exhibit 3.2: Measures for Analysis of Impact Drivers

Domain and Variables/Constructs	Measures	Data Source
HPOG Program Context		
Percentage of jobs in healthcare	Healthcare jobs as a percentage of total area employment	Bureau of Labor Statistics Occupational and Employment Statistics (OES)
Labor market conditions	Proxy measures based on secondary government and healthcare industry data (e.g., unemployment rate among "healthcare workers" and median wages for healthcare workers).	Bureau of Labor Statistics Occupational and Employment Statistics (OES)
Management and Administrative Structure		
Management and staff background	Constructs based on staff professional background and educational levels (e.g., educational requirements; experience requirements)	Staff/management survey
Management and staff attitudes about HPOG and participants	Indices based on management and staff attitudes and beliefs about program efficacy and likelihood of participant success (e.g., high, medium, low)	Staff/management survey
Staff discretion	Index (e.g., high, medium, low) based on management staff survey responses	Staff/management survey
Intake and Enrollment Activities		
Locations for intake and enrollment	Number of intake locations	Grantee survey/PRS
Applicant burden Summary Index	Index of applicant burden (high, medium, low) based on applicant behavioral requirements (such as independent exploration of academic options, lengthy program orientation, staff assessment of motivation, multiple interviews, number of appointments/visits required for eligibility and intake process, etc.)	Grantee survey
Academic assessments	As part of the intake or enrollment process, are academic assessments provided? (Y/N) If so, do they include tests of: basic academic skills (Y/N); learning styles/disabilities (Y/N); career aptitude/interest (Y/N)?	Grantee survey (7.11, 7.12)
Non-academic assessments	As part of the intake or enrollment process, are non-academic assessments provided? (Y/N) If so, do they include tests of: psycho-social skills (Y/N); job-readiness skills (Y/N); coping skills (Y/N); support needs (Y/N)?	Grantee survey (7.11, 7.12)
Type of orientation (1)	Is the orientation session mandatory (Y/N)?	Grantee Survey (7.5a)
Type of orientation (2)	Is the orientation session provided on an individual basis (as opposed to a group format) (Y/N)?	Grantee Survey (7.5d)
Comprehensive Assessments		
Academic Assessments	After the point of HPOG program enrollment, are academic assessments provided? (Y/N) If so, do they include tests of: basic academic skills (Y/N); learning styles/disabilities (Y/N); career aptitude/interest (Y/N)?	PRS or Implementation Study Site Visit: Staff Survey
Non-academic Assessments	After the point of HPOG enrollment, are non-academic assessments provided? (Y/N) If so, do they include tests of: psycho-social skills (Y/N); job-readiness skills (Y/N); coping skills (Y/N); support needs (Y/N)?	PRS or Implementation Study Site Visit: Staff Survey
Core Curriculum		
Adult basic education	Is adult basic skills instruction available (Y/N)?	Grantee survey (8.3)
Available vocational training courses	Number of different occupational trainings available	Grantee survey (8.10)
College skills training	College skills training available?	Grantee Survey (8.1)
HPOG-only courses	Did grantees offer HPOG-only courses? This can be either a completely new course developed for HPOG or an already available course that is purchased for HPOG cohorts.	Grantee Survey (8.1)

Domain and Variables/Constructs	Measures	Data Source
Certificate or Degree potential from remedial/Pre-training	Does the grantee include adult basic or other non-vocational (pre-training) that leads to: General Education Degree (GED) (Y/N); High School Diploma (Y/N); Certificate of Completion (Y/N)	PRS
Certificate or Degree potential from Vocational Training Program	Does the grantee include training that leads to: certificates (Y/N); licenses (Y/N); associate's degrees (Y/N); bachelor's degrees (Y/N); master's degrees or higher (Y/N)?	PRS
Active learning	Does the grantee incorporate principles of active learning (Y/N)?	Implementation Study Site Visit: Instructor Survey
Contextualization	Does the grantee incorporate principles of contextualized learning (Y/N)?	Implementation Study Site Visit: Instructor Survey
Modularization	Does the grantee offer training options that provide credentials that are "stackable" with other available training (Y/N)?	Grantee survey (8.7) or Implementation Study Site Visit: Instructor Survey
Acceleration	Does the grantee incorporate principles of accelerated learning (Y/N)?	Grantee survey (8.10) or Implementation Study Site Visit: Instructor Survey
Flexible delivery	Does the grantee incorporate principles of flexible delivery to accommodate nontraditional learner schedules (Y/N)?	Implementation Study Site Visit: Instructor Survey
Supports		
Case management (1)	Does the grantee use case managers as distinct from counselors/advisors (Y/N)?	Grantee survey
Case management approach (2)	Are case managers proactive in making regular contacts with participants (Y/N)?	HPOG-NIE Management and Staff Survey (21-S)
Case management approach (3)	Indicators for case manager responsibilities, For example, participant monitoring, academic counseling, career counseling, job search/placement, etc.).	Grantee survey (9.2)
Academic supports and counseling (1)	Are the following academic supports available (Y/N): tutoring, academic/career counseling?	Grantee survey (8.15)
Academic supports and counseling (2)	Is academic counseling mandatory (Y/N)? Is it a group activity (Y/N)?	Grantee survey
Academic supports and counseling (3)	Are there distinct academic counselors (Y/N)?	Grantee survey
Employment supports and counseling (1)	Index for whether the following employment supports are offered: Job-readiness workshops; Job search skills workshops; Identifying job openings for program graduates; Meeting with employers to identify job openings for graduates; One-on-one job search assistance; Advising on career and job choices; Operating or referrals to job fairs; Providing participants with job listings; Job screening (i.e., screen for suitability for a job); Post-placement services (e.g., in-person meetings, phone check-ins).	Grantee survey (9.21)
Employment supports and counseling (2)	Are there distinct employment counselors (Y/N)?	Grantee survey (9.25)
Social supports	Are the following social supports provided directly by the local HPOG program or their partners (Y/N): Mentoring activities; Peer support activities; Cultural programming?	Grantee survey (9.7-9.8)
Incentive for program retention and completion	Does the grantee offer non-cash incentives to participants for achieving program milestone (Y/N)?	Grantee survey (8.20)
Financial supports: tuition and fees	Index for whether the following financial supports or subsidies are available: funds for tuition/training; Licensing and certification fees; Exam/exam preparation fees	Grantee survey (9.14, 9.17)
Financial supports: in-kind academic supports	Index for whether the following financial supports or subsidies are available: Book costs; Work/training uniforms, supplies, tools; Computer/technology equipment	Grantee survey (9.17)

Domain and Variables/Constructs	Measures	Data Source
Emergency Assistance	Emergency assistance index based on availability of support for car repair costs; Car insurance costs; Utilities (e.g., heating, electricity, water bills); Food assistance (non-SNAP); Security deposit; Rent; Housing Program fees; and other items	Grantee survey (9.19)
Other supports	"Other supports" index based on the availability of the following supports: child care; transportation; addiction and substance abuse services; family preservation services; family engagement services; legal assistance; housing assistance; medical care	Grantee survey (9.11)
Employer Connections		
Employer involvement	In which of the following activities or services have local healthcare industry employers been involved (Y/N): Place job listings with HPOG program; Contact HPOG program representative(s) to provide referrals for job openings; Contact HPOG program representative(s) to provide job screening?	Grantee Survey (9.27)
Work-based training	Which of the following work-based training strategies are available (Y/N): Internships; Volunteer Positions?	Grantee survey (8.13)
Overall integration of Career Pathways framework		
Overall integration of Career Pathways framework	Summary index of degree to which each site implements an element of the career pathways framework for comprehensive assessments, core curricula, supports and employer connections.	Constructed from Grantee Survey items

Notes: In general, any grantee-level data elements will get assigned to the program; and, all staff/management variables will get "rolled" up to the program-level.

An additional explanation of the content in Exhibit 3.2 is warranted. In general, we draw on NIE Grantee Survey items to address and characterize program components and on Management and Staff Survey-based items to consider dimensions of the programs' implementation. In some instances, we will combine other sources of information with the NIE survey items to construct more nuanced quantitative measures: for example, using the implementation site visits to enrich what would otherwise be a straight five-point measure of the career pathways model. Items that have the Grantee Survey as their source will have program-level variation in their measures. The items that have the Management or Staff survey as their source will have division-level variation. As the Exhibit makes evident, more of the variables will be program-level and relatively fewer will be division-level; but, nevertheless, substantial and rich variation in what programs offer and how they offer them will be captured through these data. Additional details regarding the specifics of measures' operationalization will appear in the study's analysis plan.

3.2.3 Evaluation Design and Implementation Plans (EDIPs)

The evaluation team, in collaboration with grantee staff, developed Evaluation Design and Implementation Plans (EDIPs) for each program in HPOG-Impact. The EDIPs have three major purposes: to document the intervention and control conditions anticipated at the time random assignment begins, to record changes in the intervention or the counterfactual over the observation period for impacts, and to specify plans for implementing the experiment in the field (e.g., administering informed consent, collecting baseline information, conducting random assignment, maintaining the integrity of the experimental design). In addition to establishing a historical record of program changes as witnessed and recorded by grantee and site team staff over the course of the experiment, the EDIPs document intended study procedures and structures, enabling the evaluation to gauge actual implementation against these planned procedures and structures. Both types of information will be used in the implementation study described in Chapter 5.

3.2.4 Semi-Annual Grantee Performance Progress Reports (PPRs)

As part of their federal reporting obligations, grantees must complete semi-annual Performance Progress Reports (PPRs). The PPRs document grantee progress towards goals in program enrollment, completion and employment. Additionally, grantees use the PPRs to chronicle program challenges, achievements, and changes in services and trainings. HPOG-Impact will use the PPRs as a source of information primarily to document grantee changes over time. As discussed above, such changes may be valuable in interpreting variation in impact findings, particularly over time.

3.2.5 Pilot Phase Reports

The first three months of study operations in each study site is a pilot period during which study procedures are monitored closely for their adherence to EDIP specifications. Study site teams are in contact with site staff on a weekly basis to check on evaluation operations and to document divergences from the EDIPs and any corrective actions taken. At the end of the three-month period, each site team writes a Pilot Phase report describing study start-up experiences and assessing the integrity of the experiment. These reports will be used by the implementation analysis to summarize site start-up experiences and to note any remedial actions taken to correct variances in study procedures.

3.2.6 Biweekly Site Monitoring Calls

To monitor ongoing study operations in the field, site teams hold biweekly conference calls with study site representatives. The purpose of the calls is to ensure that the study is being administered correctly in each site, to address problems or questions, and to monitor the progress of each study site in recruiting individuals into the study and in serving the treatment group. Using PRS data, site teams discuss with site staff progress to date, and offer study-related technical assistance where needed. Call summary reports documenting the biweekly calls are a source of information about any changes in the intervention or in control conditions; EDIPs will be updated as needed on the basis of this information. Although important changes in program operations are also documented in grantee semi-annual PPRs, the biweekly calls should identify these changes as they occur and include them in call summaries. Biweekly calls are organized by discussion items that address the following issues:

- New study-related issues or problems
- Status of outstanding issues
- Progress to date in reaching sample goal; concerns or barriers to reaching sample goal
- Treatment group use of services and trainings
- Random assignment and the integrity of the experimental design
- Changes in the treatment or control conditions
- Staffing and administrative issues
- Data collection and data security
- Status of program enhancement (if applicable)
- Study-related technical assistance

3.2.7 Implementation Site Visits

The PRS and the NIE surveys (discussed earlier in this section) provide a wealth of close-ended qualitative and quantitative information about HPOG program design, implementation and operations. While these data will be useful in developing summary descriptions of the HPOG program and its variability across the HPOG-Impact sites, the data have limitations from the perspective of the study's implementation analysis. Most notably, they do not allow a nuanced picture of how program services listed in the PRS and characterized in the NIE surveys are actually delivered. The HPOG-Impact implementation analysis will rely on qualitative data collection to provide a fuller description of how HPOG program components, context, and administrative strategies operate in the field and how they vary across study sites.

During the period of random assignment, teams assigned to study sites will conduct site visits to all grantees and programs in HPOG-Impact (from May through August 2014). An additional visit to each three-arm program will take place about six months later. The first round of site visits will use respondent-specific Implementation Interview Guides to collect in-depth information about, for example: the grantees' rationale for applying for HPOG funding, and local needs; implementation experiences, including challenges and successes; administrative and staffing structure and roles; how key program components are implemented, including changes over time; lessons learned about how to operate career pathways programs for low-income populations; and respondent perceptions and assessments of the HPOG program and its effect on target populations. These data will be organized by cross-site themes rather than by individual study sites, in keeping with the pooling of outcome data across study sites in the impact analysis. The analysis of site visit interviews will synthesize the data, both to explore important similarities in design and implementation of program features and to document important variations across the study sites. In addition to describing the intervention, these data will aid in the interpretation of component-specific impacts, in particular by fleshing out the implications of pooling samples across study sites.[14]

Site teams will make a second implementation analysis site visit to the group of study sites implementing systematic program enhancements. The one additional visit to three-arm grantees will focus on the program enhancement and how it is structured and implemented in the field. The information will be used to support the analysis of results in the three-arm tests by describing in detail the implementation of enhancements and experiences over time. The visits to enhancement sites will also collect information about HPOG management and staff's perceptions of the value of the enhancements, the strength of their implementation, and participants' engagement and experiences with them. Finally the study will also collect information on lessons learned about how best to design and implement enhancements. As with the visits to all sites, the data collected for enhancement sites will shed light on the potential risks of pooling data for each enhancement across study sites.

The site visit teams will interview individuals from four respondent groups: HPOG program management, staff, instructors, and employers. Management and staff interviews are the most extensive and will be a main source of qualitative data about program design and implementation. The site teams will also interview instructors of HPOG-only pre-training and training programs, in particular to discuss instructional approaches adopted for the HPOG target population and their use of the career pathways

[14] The Interview Guides are included in Appendix D.

framework. Finally, the study will also interview local employers to gain their perspective on the job-readiness of HPOG graduates and the degree to which HPOG training meets their needs and standards.

Exhibit 3.3 presents the topic areas covered in each of the site visit guides.

Exhibit 3.3: Domains Included in Site Visit Interview Guides

Research Topic	Interview Respondent			
	Management	Staff	Instructor	Partnering Employers
Contextual Factors				
Program socioeconomic context	✓			✓
Employer and labor market contexts	✓	✓		✓
Institutional framework	✓			
Partner/stakeholder networks	✓			✓
Program Administration				
Program administration	✓			
Staff position and role	✓	✓	✓	
Program Components				
Outreach and recruitment	✓	✓		✓
Eligibility and intake	✓	✓		
Comprehensive assessments	✓	✓		
Core curriculum—basic skills instruction	✓	✓	✓	
Core curriculum—vocational training	✓	✓	✓	✓
Support services	✓	✓		✓
Academic and personal counseling	✓	✓		
Program enhancements	✓	✓		
Employment development and post-employment services	✓	✓		✓
Program Implementation				
Program structure, HPOG planning, and start-up	✓	✓		✓
HPOG program successes, challenges, and lessons learned	✓		✓	✓
HPOG staff experience		✓	✓	
Systems change and sustainability	✓			✓
Documenting and Assessing the Counterfactual				
Control group services	✓	✓		
Documenting and assessing changes over time				
Changes to program design, components, or operation	✓	✓		
Assessing the Implementation of the Experimental Study Design				
Experiences participating in HPOG-Impact	✓	✓		

3.3 Interim Outcome Measures and Data Sources

The study team will analyze available data sources to detect interim outcomes (e.g., receipt of HPOG participant services and training, educational attainment, certificate/credential completion, short-term labor market experience, earnings). The study team will field a follow-up survey 15 months post random assignment. Because most HPOG programs are short, programs will provide participants with many key program activities and services during the first 15 months after random assignment. By the end of this interval, we would expect to see evidence of progress towards completion of initial training steps and certifications, as well as some initial employment and earnings information. This will ensure that participants can report both on program services received and on early employment outcomes. However, it may take more than 15 months for sample members to make substantial progress towards major postsecondary training credentials and move into and advance in career-track employment.

3.3.1 15-month Follow-Up Survey

The 15-month follow-up survey will be used to document program impacts on educational attainment, training credentials, and employment and earnings outcomes (Appendix G). Data from the 15-month follow-up survey will be used to address all of the major research questions posed for the study. In particular, program experiences and program participation outputs will be collected to understand the contrast between the treatment and control groups. Further, program impacts—across all the outcomes collected in the survey—will be estimated as the difference in mean treatment group outcomes and mean control group outcomes measured at follow-up. This will extend both to the programs with a single treatment and to the programs where two treatments are in place: their standard HPOG program and the selected enhancement. The confirmatory hypothesis to be tested at this time point pertains to individuals' educational progress, which will be measured as training completion or ongoing enrollment in *health sector* training. In addition, the 15-month follow-up survey will collect information on the following constructs:

- School/training experiences (health sector; other)
- Credentials (health sector professions; other)
- Services and assistance received
- Education goals
- Perceptions of and experiences in HPOG programming (treatment group only)
- Healthcare and overall employment experiences
- Career goals
- Knowledge of career opportunities in healthcare
- Barriers to employment
- Perceived self-efficacy and motivation
- Receipt of public assistance benefits
- Income from all sources
- Household composition

We recognize that some outcomes will be observed for only a subset of the study sample. For example, details of coursework experience exist among only those who attend school, and details of job characteristics exist among only those with jobs. Our approach to dealing with this inevitability is to assign a logical value to those for whom the question is irrelevant, such as assigning zero earnings to those who are unemployed. In examining job characteristics, for example, we will need to be clear that the treatment-control comparison must be interpreted as the impact of having access to HPOG on job traits, conditioned on having a job. This sort of impact captures two things in one statistic: having a job and its characteristics. In this situation, we plan to report these two outcomes adjacent to one another: 50 percent of the control group was employed and 60 percent of the treatment was employed (after X months); and 20 percent of the control group and 40 percent of the treatment group had jobs with health benefits. We believe that the few of our outcome measures that are conditioned (as in this health benefits example) can be clearly described and interpreted accordingly, without having to construct alternative measures or engage in any more-sophisticated and less-transparent analytic approaches.

In brief, theory and prior research leads us at 15 months after random assignment to expect positive impacts on educational progress and training completion, and possibly some early impacts on current earnings. For example, in programs focused on shorter-term training, impacts on both education and earnings are likely. In the longer term, for example, at 36 months after random assignment, we expect to see positive impacts on both educational progress and current earnings. Even so, it must be kept in mind that programs may successfully engage some participants in longer-term training extending to three years and possibly beyond.

3.3.2 National Directory of New Hires (NDNH) Data

One of the key sources of information for interim and longer-term outcomes will be data from the National Directory of New Hires; these data provide information on participants' employment and earnings. They offer a uniform source of this information over time. The NDNH is maintained by the federal Office of Child Support Enforcement (OCSE). The NDNH provides quarterly earnings from state Unemployment Insurance (UI) records, including data from some employers not included in the UI program (e.g., the federal government).

While NDNH data are not publicly available to researchers, through arrangements between OCSE and OPRE this study will have access to these data for HPOG participants from 2009 (up to two years prior to the initiation of individual records in the PRS), and for up to 10 years after enrollment of the final HPOG participants. To preserve confidentiality, data records on HPOG participants, including demographic characteristics and program activities, will be sent to NDNH staff, who will link the PRS data to the NDNH data and return the linked records to the study analysts without individually identifiable information. Data available to the study will be a longitudinal series of quarterly information for each HPOG participant, including whether the participant was employed during the quarter, the number of employers in the quarter, and earnings from each employer in the quarter.

An advantage of NDNH data is their accuracy and coverage of most employers and jobs. Relative to self-reports by individuals or program staff, these administrative data come directly from mandatory employer reports as part of the UI system, so have a high degree of accuracy and coverage, and are provided in a consistent format. A disadvantage of the data is that they do not contain information on hourly wages or hours worked, and do not provide information on employer benefits. However, access to these data for this study will greatly enhance our ability to answer the research questions on the connection between program factors and participant outcomes. The NDNH data will be used to gauge long-term impacts as well.

3.4 Longer-Term Outcome Measures

The study team will use additional data sources to detect long-term outcomes, specifically on employment and earnings.

3.4.1 36-month Follow-Up Survey

A 36-month follow-up survey will be fielded to document longer-term program impacts. At 36 months, many study participants will have completed two-year degrees or transferred to four-year institutions; others will have gained employment after shorter credential programs, and their families and children may benefit from their additional education, earnings, and overall well-being. The 36-month survey will address the following areas:

- Education and training experiences
- Employment experiences
- Credentials (health sector professions; other)
- Financial assistance received
- Education goals
- Receipt of public assistance benefits
- Income from all sources (individual and household)
- 21st Century Skills (e.g., grit, career planning skills)
- Household composition
- Household well-being (e.g., food insecurity, material hardship)
- Time out of home/child supervision
- Child education-related goals and support (parent reported)
- Child outcomes (parent reported)

Importantly, the 36-month survey will allow us to measure educational progress (at this point receipt of a credential in a health profession or still in healthcare training) which will be subject of one of the two confirmatory hypotheses at this point.

3.4.2 NDNH

The NDNH data will be used to gauge long-term impacts as well, as noted above. Specifically, we will use the 12th quarter of post-randomization earnings as the measure of "current" earnings that will be subjected to the study's confirmatory hypothesis test at this time point.

Exhibit 3.4: Measure Details and Sources with Link to Research Questions

Measure	Timing	Research Question #*
Performance Reporting System	Baseline and updated for treatment group throughout participation through six months post-participation	1, 2
Interviews with grantee staff	May–July 2014	Describe and interpret program components and implementation strategies
Grantee survey	November 2013–March 2014	3,4,5
Management and Staff survey	November 2013–June 2014	Describe and interpret program components and implementation strategies
Stakeholder/Network survey	November 2013–April 2014	
15-month follow-up survey	June 2014–June 2016	1, 2, 3, 4, 5
36-month follow-up survey	September 2015–May 2017	1, 2, 3, 4, 5
NDNH data	Quarterly (from 2009 to 10 years after enrollment)	1, 2, 3, 4, 5

*Research Questions:
1) What impacts do HPOG programs have on outcomes of interest?
2) To what extent do those impacts vary across selected subpopulations?
3) Which program components lead to different average impacts from the program?
4) To what extent does participation of individual trainees in a particular HPOG component (or components) change the program's impact on those individuals?

4. Impact Study Design and Analysis Plan

This chapter details the design and analysis plans for HPOG-Impact's impact analysis. First, Section 4.1 elaborates on the research questions presented in Chapter 1. Next, Section 4.2 describes the study's process of enrolling study sample members through random assignment. Section 4.3 describes what program enhancements are part of the evaluation's three-arm tests, including why they were selected, where they have been implemented and how many programs and individuals are involved. Then, Section 4.4 details the experimental impact analysis methods, while Section 4.5 discusses our analytic extensions that capitalize on natural, cross-division differences in design and the variation in individuals' participation in specific program components. Finally, the chapter concludes in Section 4.6 with a discussion of the effect sizes that the study is powered to detect in its experimental analyses, both for HPOG in general and for the selected program enhancements in three-armed random assignment designs.

4.1 Research Questions

As noted in Chapter 1, the study's first research question concerns the program's overall effectiveness:

- What impacts do the HPOG programs as a group have on outcomes for participants and their families?

The second research question concerns the possibility that impacts vary by segment of the target population:

- To what extent do those impacts vary across selected subpopulations?

Questions about how variation in program design drives variation in impacts can help us understand *what* about these programs makes them work. Specifically, the third and fourth research questions focus on the following "what works" issues:

- Which locally adopted program components influence average impacts?
- To what extent does participation in a particular HPOG component (or components) change the impact on individual trainees?

These last two questions differ in that one focuses on the program's design and the other focuses on the individual's experience of that design. A key goal of these two research questions is to improve program design and inform sharper program service delivery.

In addressing these questions we classify certain impact hypotheses as "confirmatory" tests, as opposed to "exploratory" analyses. This allows us to manage the number of potential impacts that need to be examined in the analysis. Running tests of statistical significance for too many impact findings creates what is known as the "multiple comparisons" problem. To elaborate, the likelihood of finding one or more statistically significant impacts purely by chance when many tests are conducted can be quite high—much higher than the 5 percent chance that an individual test would suggest. For example, if we were to examine 20 outcomes that were unaffected by the intervention, we would expect to find one statistically significant impact estimate by chance when the odds of having falsely significant results are deliberately set at 5 percent for individual tests. Because statistical adjustments to account for this multiplicity can impose severe penalties in terms of power—i.e., the study's ability to detect true non-zero impacts of important magnitude when such impacts do occur—we propose, in coordination with the PACE

project and in line with ACF guidance, to designate as confirmatory a small number of impact hypotheses. The particular confirmatory impact(s) chosen reflect(s) the program's logic model and ACF's need for statistically conclusive results for the most policy-relevant information. Specifically, we propose a single confirmatory outcome—that of educational progress—at 15 months to gauge the program's success in making early progress. Then, we suggest one confirmatory outcome in each of two domains—educational progress and earnings—at 36-months to gauge the program's success in improving individuals' circumstances. With these as our designated confirmatory hypotheses, we designate the remainder of the analysis—including other outcomes and subgroup impacts—as "exploratory." Questions about how variation in impacts is attributable to various program characteristics are of great policy importance, but are too numerous and have too much uncertainty for us to designate any one of those questions as confirmatory. Exploratory findings, as the best available evidence on potential program effects in secondary areas, can help inform policy but should not be taken as definitive.

For all analyses, we will report three thresholds for statistical significance, each with a distinct meaning as concerns the strength of evidence: an alpha level of 0.10 (a 10-percent chance of concluding an impact has occurred when none has) will be used for "suggestive" evidence, 0.05 for "moderate" evidence, and 0.01 for "very strong" evidence. Confirmatory analyses will use one-tailed tests for impacts, and exploratory analyses will use two-tailed tests, in line with ACF's preference for ensuring consistency across its similar research projects and as justified by the nature of the hypotheses being considered.

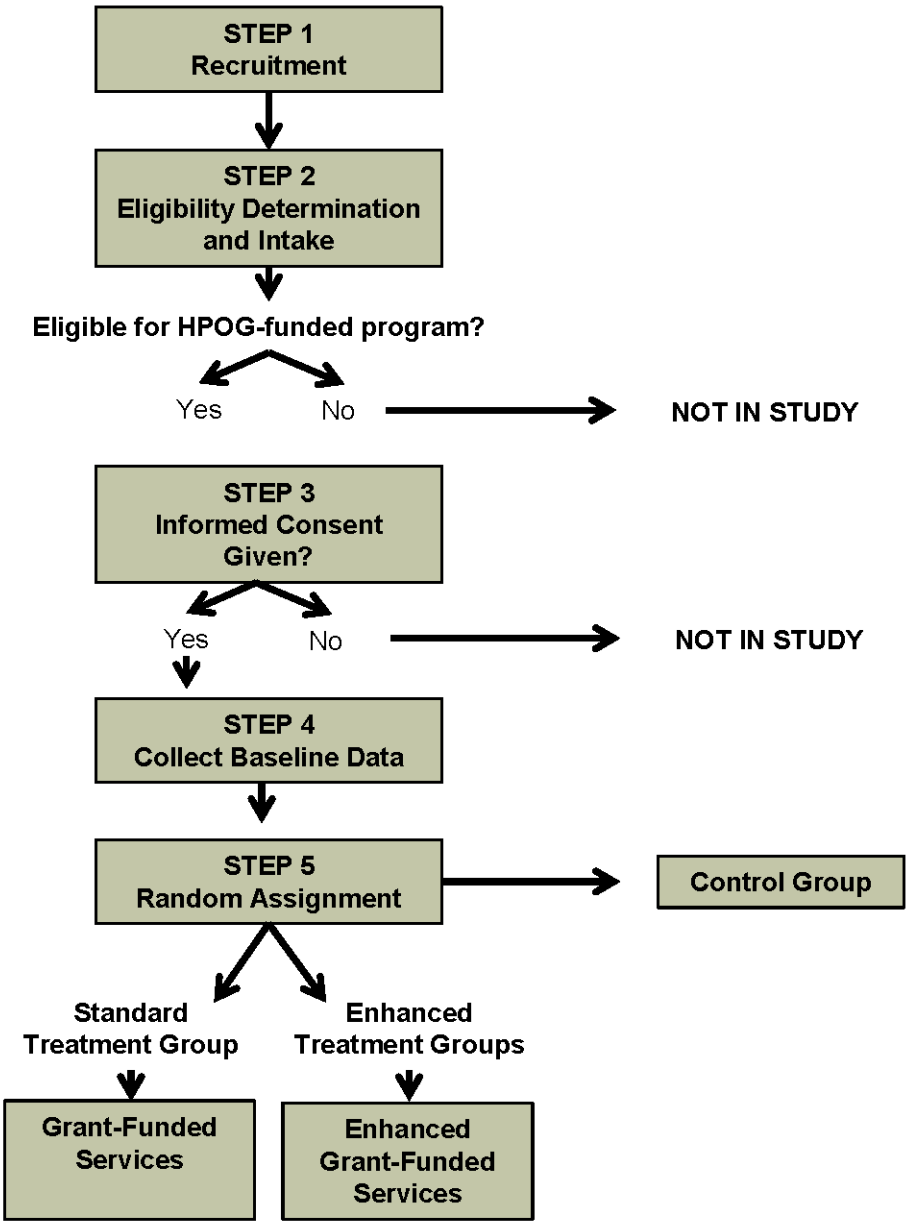
4.2 Random Assignment

HPOG-Impact's study design is an experimental one, where eligible individuals are randomized to a treatment group, which is given the opportunity to enroll in HPOG and receive all related program services, or to a control group, which is not given access to HPOG but may access any other services available in the community. Fundamental to the study design is the *random assignment* that allows us to make inferences about the overall effect of the standard HPOG treatment, as compared to business as usual with no HPOG-funded training or services. Randomization of individuals into treatment and control groups ensures that the two groups have no systematic (non-random) differences at baseline, making it possible to interpret subsequent differences in average outcomes between the groups as the impact of access to the HPOG intervention, with confidence that this attribution is accurate.

The ideal random assignment process collects relevant baseline information and assigns study sample members to research groups immediately after eligibility is determined and immediately before any intervention services are made available. The following describes how random assignment was designed and implemented in HPOG study sites, and is depicted in Exhibit 4.1.

A first step in establishing random assignment in each site was to develop a detailed description of the application and intake process used to screen out ineligible and inappropriate participants and select eligible and appropriate participants. Research teams visited sites to collect information about the application, eligibility and intake process. The teams developed flow charts of the intake process, detailing when and how eligibility is determined and when and how baseline information is collected. The flow charts also described when eligible participants are offered the first substantive intervention service. Site teams used the flow charts to indicate the point at which random assignment should be conducted for the study, after collecting baseline information and determining eligibility and before providing a substantive service. Flow charts of random assignment processes were reviewed by the study's core technical staff to ensure that they altered the normal intake process as little as possible while creating valid treatment and control groups prior to the provision of any substantive service.

Exhibit 4.1: HPOG Random Assignment Process for Three-Arm Random Assignment[15]



[15] For two-arm random assignment, eligible applicants who give consent are randomly assigned to either the Standard Treatment group or the Control Group.

The study uses the PRS to perform random assignment using a computerized random selection program. Once an individual is assigned to a study group, the PRS ensures that the individual may not reapply for HPOG and be processed again. As noted, while each HPOG program in the field has its own specific eligibility criteria and data collection processes, the study team has worked closely with the programs to ensure that the intake processes are as consistent as possible across the programs, and that the point of random assignment is immediately before any substantive service has been provided. The evaluation chose a ratio of one control case for every two treatment cases for two main reasons: first, because we anticipated having a very large sample, and in pooling that sample from many locations any given location's contribution to the control pool could be permitted to be modest; second, we anticipated that the ratio would be better received by the many grantees that we would need to partner with in this evaluation, making it relatively easier for grantees to participate in an experimental evaluation that they may not really want to participate in to begin with. Although it is true that deviating from a 1:1 ratio reduces the power of the design to detect impacts of a given size, that loss is relatively small.

The random assignment algorithm was created and stratified by each unit within which sites needed to ensure precisely matching the 2-to-1 treatment-to-control ratio for program administration reasons. Further, the study team established a blocking strategy to limit the likelihood of long "unlucky" strings of either treatment or control cases, and also to accommodate program planning and administration.

Random assignment began in the first programs in March 2013; the final programs began random assignment in May 2014. Programs will continue enrolling individuals into the study sample through November 2014, by when we expect a sample size of about 9,500 individuals across the two-arm experimental groups within the 20 HPOG grantees that are part of the Impact Evaluation. The HPOG/ PACE programs will add another roughly 3,700 individuals to this sample. About 1,300 individuals will be part of the enhanced treatment groups. This design supports rigorous estimation of two sets of impacts: the impact of HPOG compared to the control group's experiences, and the impact of specific program enhancements to HPOG compared to the basic version of HPOG. Data from these programs will allow us to make additional rigorous inferences about the contribution of the component being added as a program enhancement to the overall effectiveness of the program, by comparing outcomes of individuals in the enhanced treatment group to those of individuals in the standard treatment group.

Finally, analyses of the contribution to impact of program components that are part of standard HPOG treatments will use natural rather than randomly induced variation in the availability of those components across programs and thus individuals. We first discuss how the experimental (randomized) portion of the study will isolate the contributions of specific intervention components, before turning to the portion of the research that uses natural variation for this purpose.

4.3 Selected Program Enhancements

Prior research highlights that several specific elements of the multi-faceted HPOG intervention could be considered to be "impact drivers" that *cause* favorable impacts to occur or to be greater in magnitude. The study team, in partnership with ACF, narrowed the project's list of possible causal agents, or impact drivers whose contributions to impacts are to be measured through the experimental study. This section describes the program enhancements selected for the experimental test: facilitated peer support groups, emergency assistance, and non-cash incentives. We describe the rationale for selecting these enhancements from among the initial, larger set of program components that might be hypothesized to influence program impacts.

4.3.1 Description of Selected Program Enhancements

Peer Support

Peer support provides opportunities for participants to create personal relationships that can increase their accountability and commitment to retention and program completion. HPOG staff and program participants in programs with a strong peer support component have noted that the support and associated accountability is considered to be one of the most important program elements. In addition, research reveals connections between social integration at college and college success. For example, Karp (2011) reports more-favorable outcomes among students that established meaningful social relationships; and Grant-Vallone et al. (2004) find that better-adjusted students are more committed to their educational goals. Non-traditional students tend to have lower levels of social integration (Tinto, 1993), something peer support may help remedy. This evidence is suggestive and highlights that a more rigorous test is justified.

The peer support literature identifies three core program models for fostering social and emotional connections between students and with faculty and staff: peer leaders, staff-facilitated peer support groups, and learning communities. The study will examine the effect of staff-facilitated peer support groups. One model of the facilitated peer support group is a weekly student forum format used in the Capital IDEA program at the Austin Community College, one of the Courses to Employment (C2E) career pathway demonstration projects targeting low-income individuals.[16] In Austin, Capital IDEA provides a forum, facilitated by Capital IDEA staff counselors, for students to meet weekly with other participants enrolled in the same course or occupational track for one-hour peer support sessions. Sessions are held at locations and times that are convenient to students, and involve discussions of topics such as career opportunities, study skills, and overcoming challenges.

The grantees implementing the facilitated peer support program enhancement established a system through which those randomly assigned to the enhanced treatment arm are expected to meet regularly, at least twice a month and more often if possible, to share group time with peers. This time is facilitated by a staff member and focused on strengthening relationships and accountability. Examples of meeting topics include: discussions of challenges that may impede students' academic success and information about available HPOG services or additional community resources; study group sessions that encourage collaborative learning, student-led discussions, and self-reflective "lessons learned" to supplement content learning; and social events for group members or group members' families and friends to expand participants' social networks.

Emergency Assistance

Program staff cite unanticipated financial need as a major reason for program dropout, and believe that easier access to emergency funds could buffer participants in times of crisis and improve program retention and completion. Some examples of these crises include: imminent eviction from housing, utility shutoff, vehicle repair needs, etc.

Financial constraints are among the most commonly cited barriers to low-income students' entering and completing postsecondary education, according to the Education Longitudinal Study of 2002. More

[16] The Courses to Employment (C2E) demonstration was a three-year initiative that selected six community college and nonprofit partnerships to offer low-income participants a range of academic and non-academic supports to help them achieve educational and employment goals related to a particular industry sector. For more information see http://www.aspeninstitute.org/sites/default/files/content/docs/pubs/C2E.pdf

recently, the Dreamkeepers and Angel Fund Emergency Financial Aid Programs were funded by the Lumina Foundation to assist community college students who are in danger of dropping out due to sudden financial crises. In a 2008 study, researchers reported that college administrators as well as students claimed that the emergency financial assistance helped students stay enrolled in college (Geckeler, 2008).

The grantees implementing the emergency assistance enhancement are establishing a set of rules and a process for allocating funds in emergency situations and then making that support available as needed. Rules have included a maximum amount of assistance per request and/or placing limits on the number of instances over a specified time span an individual can access assistance. The specific rules need not be constant across grantees testing the effects of emergency assistance; instead, grantees are making their rules appropriate to their own setting, deciding what level and configuration of assistance will best meet their own expectations for increasing retention and completion among their program participants.

Non-cash Incentives

Career pathways literature suggests that awarding students with financial incentives is a promising strategy that both celebrates students' accomplishments (Endel, Anderson, and Kelly, 2011) and addresses students' financial needs (Kazid and Liebowitz, 2003). The Opening Doors study found that cash incentives increased credits earned, college retention, and measures of motivation for students in a community college in Louisiana (Richburg-Hayes, 2009).

The literature describes two types of incentive programs: those that reward desired *results* and those that reward *behaviors* that lead to desired results (Hill and Pavetti, 2000). For example, in a job retention and advancement program, a results-based incentive might reward those individuals who stay employed for six months, while a behavior-based program might reward individuals who arrange for a back-up mode of transportation to ensure they can get to work or class. Hill and Pavetti argue that in many cases, targeting desired results is more straightforward than targeting behaviors, because results tend to be more concrete and easily measured. However, results-based incentives assume participants know how to achieve the desired results and simply need motivation. Targeting changes in those behaviors that lead to desired results teaches participants how to reach the desired outcomes.

To optimize the use of results- and behavior-based rewards, programs that include a non-cash incentive program structure these incentives explicitly to improve outcomes. For example, the Advanced Works program in Larimer County, CO uses incentives to encourage participants to stay in their jobs and participate in post-employment workshops. After two weeks of employment, program participants receive a "Start to Work Kit" that includes $50 worth of work-related coupons. Additional incentives are provided after participants have been employed for two months, four months, and six months. This program targets both results and behaviors by rewarding a result—sustained employment for specified periods of time—with incentives that encourage behaviors related to retention. For example, the "Start to Work Kit" includes gas and haircut coupons, which may encourage recipients to maintain dependable transportation to work and a professional appearance while at work (Hill and Pavetti, 2000). The New Hope program is another example of an incentive program that offers financial and non-financial work supports to working poor families in Milwaukee, WI. In that program, participants could receive income supplements, as well as health insurance, childcare subsidies, and access to a minimum wage community service job if they could not find a job in the private sector. This program reduced by half the number of families who were never employed during the study period. Program participants' earnings were also 13 percent higher than nonparticipants' earnings (Bos et al., 1999).

Another important component of incentives programs is recognition of individual success. Project Match in Chicago, IL has a long history of using public recognition to reward program participants for each small (or big) step that they take toward achieving their goals. For example, program participants are recognized in the program's newsletter for attending GED classes, receiving a GED certificate, attending training or college, and continuous employment. Recognition of employment begins very shortly after program participants begin work. Program staff acknowledge participants who have been employed for one week to three months. This incentive program targets both behaviors and results by rewarding intermediate achievements like attending a training or working for several weeks, which incrementally can lead to economic independence (Hill and Pavetti, 2000).

HPOG grantees are not able to provide direct cash incentives; however, some programs have created a non-cash incentive structure whereby students/trainees earn points for achieving specific program milestones and convert those points into tangible rewards, such as vouchers for use at the college bookstore, work-related equipment (such as scrubs or a stethoscope), or gift cards to support meeting basic needs (such as for transportation/gas or food). We would anticipate that non-cash incentives for both results- and behavior-based rewards may have similar positive effects on HPOG participants' training completion and retention. The grantees implementing the non-cash incentive enhancement have established for approval the activities and achievements to be incentivized, a payment system, and the redeemable goods and/or services.

4.3.2 Rationale for Program Enhancements Selection

Organized peer support, emergency assistance, and non-cash incentives are the program enhancements chosen according to four key selection criteria: (1) evidence of likely impact; (2) practicality; (3) evaluability; and (4) grantee interest. Practicality refers to the enhancement being clearly defined as a possible program component and being likely to be implemented fully in a relatively short period of time (within three to six months) with a budget that fits within the available resources. Evaluability refers to the technical ability to evaluate the enhancement as a distinct program component added to a core HPOG program design, and to do so with individual random assignment.

This decision-making process found organized peer support, emergency assistance and non-cash incentives to be the most viable candidates for experimental study in a multi-arm trial as part of HPOG-Impact. These program enhancements have at least some evidence suggesting their likely impact, are replicable in a relatively consistent form, are able to be implemented within the required short time frame, can be randomized as required by the study design with limited spillover effects, and some grantees have expressed interest in them as desirable program enhancements.

In addition to meeting these selection criteria, organized peer support groups, emergency assistance, and non-cash incentives are among the less commonly provided supports to low-income students in vocational training programs. For example, one-on-one personal supports, such as case management, and peer supports are both strategies that intend to help low-income students develop and maintain personal connections that can increase their program retention and completion. Between the two, peer support is a less costly strategy and may be easier to implement; however, the vocational training programs and workforce development policies that target low-income students often favor one-on-one case management structures. The study will not be able to compare the effects of peer support groups to the effects of one-on-one personal supports; however, it is designed to inform the field about the effectiveness of facilitated peer support, a low-cost support that may be underused.

Similarly, many of the available financial supports for low-income students are restricted to training costs, such as tuition, or expected logistical needs, such as childcare or transportation costs. It is likely that there are fewer available financial resources for low-income students that are designated or able to address unanticipated financial needs. The study will be able to determine whether emergency assistance significantly increases HPOG participants' program retention and completion, and in turn, inform the field whether this is important support that should be more widely available to low-income postsecondary students.

Understanding the associated effects of these program components will provide valuable information about how to design effective vocational training programs for low-income students, especially with respect to the effectiveness of supports that many training programs may lack.

4.3.3 Grantee Selection Criteria for HPOG-Impact Systematic Variation Component

A grantee that meets certain selection criteria for undertaking three-arm random assignment had the opportunity to test an enhancement of its choice. The selection criteria to qualify for testing an enhanced treatment include timing feasibility, and sufficient contrast between the enhanced and standard programs.

- **Timing feasibility:** An important logistical challenge for grantees participating in the systematic variation portion of the study is that they need to implement fully the selected program enhancement in their HPOG program within a relatively short time frame (within three months of the standard treatment and control group random assignment start date, for example) to allow sufficient time to enroll sample members and have them experience the enhanced treatment. To be eligible for this portion of the study, grantees seeking to implement enhancements must demonstrate that they can meet this requirement.
- **Sufficient contrast:** Grantees must demonstrate that the enhancement as they propose to design and implement it has the potential to increase impact magnitude appreciably on average.

Exhibit 4.2 shows which grantees are enrolling individuals into two treatment groups (standard and enhanced) and a control group. The black cells identify those grantees, within which is reported the sample size expected to be enrolled via three-arm random assignment, by enhancement. The gray cells indicate there is not a sufficient contrast for the grantee to be a viable candidate for the experimental test of each given enhancement. The reason for not being a good candidate is that the grantee already offers some form of the component in its standard program. These grantees will be included in the analysis that uses information from all grantees on their program offerings. The white cells indicate there is a sufficient contrast for the grantees to be candidates for offering the enhancement experimentally, but, these grantees' programs were not recruited to do so.

As shown in the Exhibit below, half of the HPOG-Impact grantees had chosen to participate in three-arm random assignment. These ten grantees represent 19 distinct programs and 33 administrative divisions. Two grantees, Eastern Gateway Community College and Full Employment Council, offer peer support as part of their standard HPOG program. The three grantees implementing the facilitated peer support enhancement include the Buffalo and Erie County WDC, New Hampshire Office of Minority Health, and the WorkPlace. Over half of the 20 HPOG-Impact grantees (12 programs across 11 grantees) offer the emergency assistance component as part of their standard HPOG program. The Research Foundation of CUNY-Hostos Community College grantee, Full Employment Council grantee, and nine programs within the Bergen Community College grantee are offering the emergency assistance enhancement via three-arm random assignment. Five grantees are implementing the non-cash incentives enhancement, including

Gateway Community and Technical College, South Carolina Department of Social Services, Suffolk County Department of Labor, the Essex Community College HPOG program within the Bergen Community College grantee, and Alamo Community College District and University Health System.

This study aims to make the most of all information on the role of program components available from the programs that the analysis will include, including making use of (a) planned variation in certain grantees, where subsets of participants are randomized to gain access to a specific program enhancement in addition to the basic program; (b) natural variation in program components across grantees, programs and administrative divisions; and (c) individual-level variation in participation in selected components of the intervention. We have developed design and analysis approaches that exploit all three of these sources of variation to measure as closely as possible the roles of various program components in influencing impacts. The next section describes these methods.

Exhibit 4.2: Program Enhancements by Grantee

HPOG-Impact Grantees	Peer Support	Emergency Assistance	Non-Cash Incentives
Bergen Community College		(9 Programs)* T=441 TE=189	(Essex CC)** T=208 TE=71
Eastern Gateway Community College	NV	NV	NV
Kansas Department of Commerce			
Schenectady County Community College		NV	NV
New Hampshire Office of Minority Health	T=271 TE=219	NV	
Milwaukee Area WIB			
South Carolina Department of Social Services			T=250 TE=138
Buffalo and Erie County WDC	T= 354 TE=76	NV	
Gateway Community and Technical College (KY)		NV	T=135 TE=79
Central Community College			NV
Suffolk County Department of Labor		NV	T=249 TE=87
Pensacola State College		NV	
WIB SDA-83 Inc. (LA)			
Research Foundation of CUNY-Hostos Community College		T=221 TE=143	
Will County WIB		(some)*** NV	
Full Employment Council	NV	T=113 TE=91	NV
Central Susquehanna Intermediate Unit		NV	
The WorkPlace	T=176 TE=137	NV	
Alamo Community College District and University Health System			T= 141 TE=87
Edmonds Community College		NV	

Notes: The source for this information is HPOG-Impact EDIPs. Black cells indicate that a sufficient contrast exists and the grantee will implement the enhancement for an experimental test of its effectiveness. Gray cells indicate that there is not sufficient contrast ("NV" indicates that these programs might be used to explore the natural variation that exists on this program component). White cells indicate that sufficient contrast exists for such a test.

* Nine HPOG programs within the Bergen Community College grantee are implementing the enhancement.

** The Essex Community College program within the Bergen Community College grantee is implementing the enhancement.

***There is not a sufficient contrast at a subset of the grantee's programs.

4.4 Experimental Impact Analysis Methods

This section details the analytic methods we will use to estimate impacts of the standard HPOG program and the enhanced program for the overall sample and for subgroups. Subsequent sections explain how analyses will be extended from their experimental base to measure the impact of components that vary

naturally across divisions and to explore the effects within programs of individual participation in specific HPOG components.

4.4.1 Analysis of the Overall Effect of the HPOG Program

To address research question 1—how HPOG affects the average outcomes of its participants—we will compute the difference in mean outcomes between the standard intervention group and the randomized control group using pooled data from all grantees:[17] $I = \bar{Y}_t - \bar{Y}_c$. I here refers to the estimated impact, which is equal to the treatment group's mean outcome ($\bar{Y}_t$) minus the control group's mean outcome ($\bar{Y}_c$). These impact estimates will involve survey and administrative (NDNH) data at both the 15- and 36-month follow-up points. Results will represent estimated effects of the intention to treat (ITT), since some of those in the treatment group who are offered access to the HPOG program may not end up participating in the program. The difference in treatment-control outcomes represents the average impact of the "intent" to treat, or making the program available to treatment group members, including a blend of impacts from participating and zero effects on nonparticipants in the treatment group.

Although the simple difference in means is an unbiased estimate of the treatment's effect, we will instead estimate ITT impacts using a regression model that adjusts the difference between average outcomes for treatment and control group members by controlling for exogenous characteristics measured at baseline, as depicted in the program's logic model (see Exhibit 2.1). Controlling for baseline covariates reduces distortions caused by random differences in the characteristics of treatment and control group members and thereby improves the precision of impact estimates, allowing the study to detect smaller true impacts. Regression adjustment also helps to reduce the risk of bias due to follow-up data sample attrition. We use the following, standard impact equation to estimate the effect of being given access to the basic HPOG program, estimating the equation for the combined sample of all individuals in the standard HPOG treatment group or in the control group across the 23 grantees that the impact analysis will analyze:

$$y_i = \alpha + \delta T_i + \beta X_i + \varepsilon_i$$

where

y_i is the outcome of interest (e.g., employment, earnings);

α is the intercept, which can be interpreted as the regression-adjusted control group mean;

T_i is the treatment indicator (1 for those individuals assigned to the HPOG treatment group; 0 for the control group individuals);

δ is the impact of being in the HPOG treatment group relative to the control group;

X_i is a vector of baseline characteristics, including program-of-random-assignment dummies;

β are the coefficients indicating the contribution of each of the baseline characteristics to the outcome;

[17] We do not intend to examine any site- or geography-specific impacts. The study involves a "many sites" design from which we can learn from the collection of sites, with no site's sample deliberately designed to be large enough to support precise estimation of impacts. Although some sites might have such sample sizes, we have not communicated the possibility of analyzing them independently to the grantees, instead emphasizing that data will be pooled in all analyses, with special consideration of selected program components and implementation strategies that will be analyzed separately, but not for any given location.

ε_i is the residual error term; and

the subscript *i* indexes individuals.

This ITT impact estimate (δ) will be used to address questions regarding HPOG's impact on selected subgroups by subsetting the sample along selected baseline characteristics.

We expect to analyze the impacts for selected (exogenous) subgroups, defined by baseline characteristics, for several groups. Classification details will need to be worked out later in some instances (where no specific categories appear) from a collection of baseline items:[18]

- Sex (women only)
- Public assistance receipt (receiving TANF at baseline)
- Age (typical postsecondary age vs. older students, specific age cut-offs TBD)
- Level of education (<HS, HS or HS equivalency, some postsecondary, >=bachelor's)
- Employed (yes/no)
- Parenting status (# kids, age of youngest; single parent; gave birth to child as teen)
- Reported obstacles (childcare, transportation, health; yes/no on each or sum)
- Self-efficacy
- Composite measure of baseline disadvantage
- Career aspirations/expectations

We also anticipate subsetting the sample to conduct a sensitivity test of the influence of control group "contrast" in the evaluation. That is, at the outset of the study, we recognized that some of the HPOG grantees' programs were not markedly different from what was available in the community, with the ease of service access and additional structural support that HPOG offered being the main difference in these "low" contrast programs. While the 15-month follow-up survey will be the main source for information on the contrast in experiences between treatment and control group members, we may want to demarcate at the outset the subset of study locations where expected Treatment-Control contrasts are not negligible: those in which the HPOG treatment is noticeably different from "business as usual." Some few, selected

[18] For example, the self-efficacy scale will be created from responses to the following, based on the work of Albert Bandura (e.g., 1977, 1997): "In general, some people have an easier or harder time with these kinds of problems or difficulties. How true do you believe are the following statements: (Not at all true, Somewhat true, Mostly true, or Entirely true)."

- I can always manage to solve difficult problems if I try hard enough.
- If someone opposes me, I can find the means and ways to get what I want.
- It is easy for me to stick to my aims and accomplish my goals.
- I am confident that I could deal efficiently with unexpected events.
- Thanks to my resourcefulness, I know how to handle unforeseen situations.
- I can solve most problems if I invest the necessary effort.
- I can remain calm when facing difficulties because I can rely on my coping abilities.
- When I am confronted with a problem, I can usually find several solutions.
- If I am in trouble, I can usually think of a solution.
- I can usually handle whatever comes my way.

programs might be classified as being low-contrast. If these lower contrast programs also have smaller impacts, then they may be suppressing the impacts estimated across the rest of the programs; excluding them in a sensitivity analysis will allow us to judge the extent to which this is the case, and interpret the balance of results accordingly.

4.4.2 Analysis of Randomly Assigned Program Enhancements

The research design involves two treatment arms and a control group in a subset of grantees that have agreed to implement an experimental test of a particular enhancement. The comparison of outcomes between the enhanced treatment group and the standard treatment group will show the marginal contribution of the single enhancement to the overall impact of HPOG. To derive this extra information in the analysis, we will first group the three-arm random assignment grantees according to the particular enhancement randomized (e.g., creating a separate sample for the peer support enhancement sites). For each group we will include in the analysis individuals from all three random assignment arms, extending the basic experimental analysis described above by adding a second treatment group indicator for those participants assigned to the enhancement. Thus, the impact regression equation becomes:

$$y_i = \alpha + \delta_1 T_i + \delta_2 E_i + \beta X_i + \varepsilon_i$$

where

y_i is the outcome of interest;

α is the intercept, which can be interpreted as the regression-adjusted control group mean;

T_i is the treatment indicator (1 for those individuals assigned to the standard HPOG treatment and enhanced HPOG treatment groups; 0 for the control group individuals);

E_i is the enhanced treatment group indicator (1 for only those individuals assigned to the enhanced HPOG treatment group; 0 otherwise);

δ_1 is the impact of being in the standard HPOG treatment group relative to the control group;

δ_2 is the impact of being in the enhanced HPOG treatment group relative to the standard HPOG program;

X_i is a vector of baseline characteristics, including program-of-random-assignment dummies;

β are the coefficients indicating the contribution of each of the baseline characteristics to the outcome;

ε_i is the residual error term; and the subscript i indexes individuals.

The estimate (δ_1) is the ITT impact estimate of the average impact of the standard HPOG programs, whereas the estimate (δ_2) is the additional impact of the enhancement for the average case. Sample sizes will likely be too small to estimate the marginal effects of the enhancements on participant subgroups.

4.5 Extensions of Impact Analyses to Other Sources of Variation

Randomized experiments provide researchers with a powerful method for understanding a program's effectiveness. However, once we understand the sign and magnitude of the average program impact, policy-makers inevitably ask why the program did or did not have its intended effects, and how the achieved effects might be increased through changes in program design. Multi-site experiments such as

HPOG-Impact offer an opportunity to address these questions by "getting inside the black box" to explore what influences impact magnitude (e.g., Bloom, Hill, and Riccio, 2001, 2003; Greenberg, Meyer, and Wiseman, 1994). Here we extend methods for estimating the influence of program and participant characteristics on program impacts at the local level by considering how randomization of individuals to multiple program versions—with and without enhancement components—in certain locations strengthens standard methods from this literature. After detailing our approach to exploiting division-level variation in program components and implementation, this section explains how we will also use variation in individuals' participation in programs or achievement of intermediate milestones to estimate the impact of selected program components and milestones.

4.5.1 Exploiting Division-Level Variation

In addressing research question 3, our goal is to understand how program characteristics influence the magnitude of intervention impacts so that stronger program designs can be developed in the future. The programs that randomize to three experimental arms provide some of this information, but for samples of limited size and only for the three HPOG components being tested experimentally as program enhancements. The study will take advantage of the large samples of standard program participants and control group members and the naturally occurring variation in program components across research sites to extend findings about how specific program components may influence impacts. The availability of various components across program locations may or may not lead to program-level impacts that vary meaningfully in magnitude—other program-level factors, such as the local unemployment rate for example, have an overriding influence on that result. Even in studies with fairly uniform impacts across programs, individual program components may be pushing up impacts where they are present (offset by other downward factors, or by *different* upward factors in other programs). In response, it seems warranted to examine the multiple possible determinants of program impact magnitude as those determinants vary across programs, to see which have statistically significant influences. Motivated by these observations, we plan not to use a threshold test of cross-program variation as a precursor to pursuing cross-program analyses, as some in the field might suggest warranted. We defend this position with the real possibility that average impacts across programs may mask important within-program and cross-program variation in a manner that might not be detected by such a test.

Outcome Regression Equation

Our goal is to understand how program characteristics influence intervention impacts. In HPOG-Impact, we will use the administrative division as our "level two" unit of analysis. For any administrative division, outcomes for sample members will be modeled as a function of their individual demographic and personal background characteristics and the training services and economic environment to which an individual has access in the community—including the HPOG program's offerings for members of the experimental treatment group. We hypothesize four types of factors that affect the magnitude of program impacts, including individual characteristics, HPOG program activities, HPOG program administration, and local context as follows:

- ***Individual Characteristics.*** We may expect impact size to vary for various types of clients. Individual characteristics of interest may include demographic, education, and economic descriptors as well as household composition (marriage status, number and age of children, etc.). Bloom, Hill, and Riccio (2003) note that the client characteristics judged to be most relevant for welfare-to-work programs are those representing employability, including formal education, prior employment experience, and past welfare receipt.

- ***Program Activities.*** Program activities can be thought of as services provided to program participants. These will be the HPOG program "components" that will be the target of our analyses, those further defined and described in Chapter 2. While the three components being tested experimentally as program enhancements will be at the top of our list, we also anticipate analyzing the effectiveness of the other components identified in Chapter 2 and that vary randomly across programs in HPOG . We will have experimental evidence on the effectiveness of those components being tested as program enhancements (peer support, emergency assistance, non-cash incentives) in some locations, and we explain later how that evidence strengthens the otherwise non-experimental evidence that we would glean from examining cross-division natural variation alone.
- ***Program Administration.*** Program administration variables are those that describe the administrative approaches and resources that influence program structure and services that are defined and described in Chapter 2. HPOG-Impact will have only non-experimental evidence—akin to that of Bloom, Hill and Riccio (2003)—on the role of these implementation strategies in influencing cross-division variation in program impacts.
- ***Local Context.*** Division-level local context variables are those that represent the environment in which the division is located. For example, if each division is located in a different city, local context variables may measure the economic and other relevant characteristics of the city. Local context variables of interest may include characteristics related to the economy (e.g., the unemployment rate), crime, the housing market, demographic characteristics, policy or political regime, or other relevant measures related to the availability of services in the community.

We plan to specify and analyze multi-level models to estimate the relationship between program impacts and the relevant individual and program-related characteristics on the primary outcomes of employment and earnings. For this analysis, we propose a two-level model. The unit of analysis for level one is the individual sample member, while the unit of analysis for level two is the administrative division. As noted in Section 1.4, the study will have 96 divisions, which represent the level-two degrees of freedom. This limits the number of level-two variables—program components, implementation strategies and contextual factors—that we can consider. Our intent with this multi-level modeling strategy is to be able to use the entire experimental sample, including the treatment and control groups from both the three- and two-arm programs.

Level 1: Individuals

(1) $Y_{ji} = \alpha_j + \delta_j T_{ji} + \sum_k \beta_k X_{kji} + \sum_k \gamma_k T_{ji} X_{kji} + \varepsilon_{ji}$

where:

Y_{ji} is the outcome measure for person *i* from division *j*;

α_j is the average outcome in division *j* absent the intervention;

δ_j is the average impact of being assigned to the standard HPOG in division *j*;

T_{ji} is the treatment indicator (=1 if person *i* in division *j* is randomly assigned to the intervention, = 0 otherwise);

β_k is the influence of individual characteristics on person *i*'s outcome in division *j*;

X_{kji} is a vector of individual characteristics *k* for person *i* in division *j*;

γ_k is the influence of individual characteristic *k* on impact magnitudes; and

ε_{ji} is the random component of the outcome for person *i* in division *j*.

Level 2: Administrative division

(2) $\delta_j = \delta_0 + \sum_m \pi_m P_{mj} + \mu_j$

where:

δ_0 is the grand mean (cross-site average) impact of the intervention;

π_m is the influence of intervention feature *m* on impact magnitude, *m* = 1, . . ., *M*;

P_{mj} is intervention feature *m* in division *j* (grand mean centered), *m* = 1, . . ., *M;*[19] and

μ_j is the random component of intervention impact in division *j*.

Although they will be included in the study's analysis, for simplicity keeping the focus on the program's characteristics, P_{mj}, *m* = 1, . . ., *M*, this equation omits local context variables such as employment rates that may also influence the magnitude of impacts.

Finally,

(3) $\alpha_j = \alpha_0 + v_j$

where,

α_0 is the grand mean outcome across divisions absent the intervention; and

v_j is the random component of average outcome in division *j* absent the intervention.

Local context variables that may influence outcomes absent the intervention are also omitted for simplicity but will be included in the analytic model.

One might seek to employ the full model in Equations (1) through (3) to obtain an estimate of π_m—the relationship between intervention feature m and intervention impact magnitude—for each m = 1,…, *M* program feature. The strength of this estimation approach is the separation of the measured effects of intervention features from influences of other individual and site characteristics on impact magnitude.

Pooling Purely Experimental and Non-Experimental Evidence on the Effects of Enhancements

Bell (2013) shows how to use within-site experimental evidence to reduce the bias in cross-site estimates, an approach that we will apply in this project. Specifically, the approach we will take highlights HPOG-Impact as involving a "within-study comparison" (WSC) as key within the "design replication" literature (e.g., Cook, Shadish, and Wong, 2008). In that work, research gauges the extent to which bias exists in non-experimental impact estimates when an unbiased experimental impact estimate is

[19] A given intervention characteristic might be a continuous measure (e.g., staff-to-client ratio) or a 0/1 indicator (e.g., offers childcare assistance on site) of the program's design or implementation in a given division.

available. Here, we have an unbiased, purely experimental estimate of the impact of the program enhancement, and we can use that estimate as the benchmark for moving the corresponding non-experimental estimates (from the multi-level modeling approach) closer to unbiasedness, thereby improving the non-experimental methodology for attributing site-level impacts in general to program features. This not only improves the reliability of the cross-site estimate of the influence of the experimentally varied enhancement feature, but it also *improves the reliability of all* the cross-site estimates.

The strongest evidence on impacts of the enhancements that HPOG grantees are adopting as extensions to their regular programs can be achieved by pooling the experimental data. Using a non-experimental methodology for estimating the effect of an enhancement that closely replicates the experimental result in the locations where three-arm random assignment can be conducted will not guarantee success in overcoming location-factor confounding elsewhere in the sample of HPOG-Impact grantees. Even so, the credibility and face validity of the method when applied elsewhere in the sample to natural variation will be greatly enhanced by demonstrating that it reproduces an experimental finding where the latter is available. For example, if our analysis of the experimental evidence on the effectiveness of facilitated peer support shows that it generates an extra $250 in quarterly earnings impacts (our best guess at the point estimate), then we have a benchmark for considering and interpreting the results from a the non-experimental analysis.

4.5.2 Exploiting Variation in Individual-Level Participation in Program Components

HPOG-Impact will not only capitalize on the cross-location planned and natural variation, but it will also capitalize on the substantial individual-level variation in program experiences. The impact estimates produced by the above analysis concern how much program enhancements contribute to impact magnitudes and how effective unenhanced programs, with all their components, are for the average participant. We can also examine the role of individual's participation in selected program components and/or achievement of intermediate milestones in response to research question 4, in an analysis of selected "endogenous" subgroups. Examples of endogenous subgroups of potential policy and analysis interest, defined by post-random assignment events (both individually- and program-related) for treatment group members, include HPOG participants who after entering HPOG:

- Earned a credential/certificate
- Earned a license/degree
- Received emergency assistance
- Received non-cash incentive
- Participated in peer-support
- Took classes in basic skills or ESL
- Took classes in other skills

This line of analysis capitalizes on the variation across individuals in order to consider which program components contribute most to HPOG impacts or achievement of which program milestones should be touted as more important in individuals' subsequent employment and earnings trajectories. Next we describe the analytic specific methods for obtaining estimates of impact for endogenous subgroups that build on the experimental design and have strong internal validity.

The Research Challenge and the Response

The main problem with estimating impacts of various program participation patterns when evaluating multi-faceted interventions is that the particular program components that individuals experience are not randomly assigned to them. Individuals who access particular program services—those who use of emergency assistance, for example—differ from participants who do not use those services *in ways other than service receipt that affect their outcomes.* This means we cannot compare those who participate to those who do not participate; nor can we compare those who participate in the treatment group to the control group as a whole. Because the two groups differ in each instance on measurable and potentially unmeasurable background characteristics related to outcomes, both of these comparisons would result in biased impact estimates even when those estimates are adjusted for measured differences.

To overcome this limitation, we propose to estimate the effect of participating in specific program components using a technique developed by Peck (2003) and applied in other social program experimental impact analyses (e.g., Moulton, Peck and Dillman, 2014; Peck and Bell, 2014). Peck's method—strengthened in the recent scholarly literature (Bell and Peck, 2013; Harvill, Peck and Bell, 2013)—identifies and analyzes what Orr (1999) calls "endogenous subgroups" on the basis of traits that are not endogenous to the treatment. In general, endogenous subgroups are sets of individuals revealed by behaviors or outcomes occurring after random assignment that can be affected by the treatment intervention—implying that equivalent behaviors and outcomes are never observed in the control group. By identifying the treatment path—or combinations of program components—that treatment group members follow as a function of their baseline characteristics, we can estimate the impact of having followed that path (or participated in that combination of program components) by comparing average outcomes of treatment and control group members with the same predicted pathway. An advantage of this approach is that it uses the experimental design to support experimentally-based estimation of impacts of program components on those who take them up even when the components are not varied at random across individuals.[20] While the methodology has disadvantages based on the potential fallibility of the assumptions it makes (described below in the subsection labeled "Underlying Assumptions"), it is the best method known to tackle the endogenous subgroup problem at the individual level. This methodology, labeled an "analysis of symmetrically predicted endogenous subgroups," or ASPES, by Bell and Peck (2013), focuses on treatment group members who participate in a specific intervention component, and their predicted counterparts in the control group. A Technical Supplement to this Design Report—the study's detailed Analysis Plan—elaborates on the steps in the procedure, its assumptions and interpretation and reporting of results.

4.6 Minimum Detectable Effects (MDEs)

It is important to calculate minimum detectable effects (MDEs) before beginning an evaluation, to ensure that the study is large enough to have a good chance of detecting impacts of magnitudes that are (1) small enough to be plausible and yet (2) large enough to be relevant to policy-makers.

[20] Various other analytic frameworks or approaches exist that could be used to address the same or similar questions about the relative impacts on endogenous subsets of an experimental sample—such as instrumental variables estimation, propensity score matching, Baron-Kenny style mediation analysis (structural equation modeling), and principal stratification. None of these capitalizes on the experimental design in the manner in which our primary planned approach does. We discuss briefly later the possibility of using the new structural equation modeling approach as a possible supplement to the analysis described here, specifically in the case where the study would explore the interactions of exogenous and endogenous subgroup traits in contributing to program impacts.

In this section, we provide MDEs for credential/educational attainment and earnings for sample sizes that correspond to the overall impact analysis and the three enhancement tests, given the study's expected sample sizes.

Given current projections, the study will enroll just shy of 11,000 individuals: this includes 5,945 in the study's basic HPOG treatment group, 1,315 individuals in the study's enhanced HPOG treatment group, and 3,623 individuals in the study's control group. The study will also include the additional 1,800+ individuals from the HPOG/PACE sites and their corresponding control group (of about 1,800 as well). A sample of this size provides sufficient power to detect the impacts of the HPOG program if the impacts are similar to the effects from the best known experimental evaluation of vocational training conducted to date—the National Job Training Partnership Act (JTPA) Study. We calculate that HPOG-Impact will be able to detect an average impact on credential attainment of 1.7 percentage points at 15 months and 1.9 percentage points at 36 months; and of $141 in "current" quarterly earnings as of 36 months (see Exhibit 4.3). This earnings impact is slightly smaller than the estimated impacts of JTPA: our calculations suggest that the impact on average quarterly earnings from the National JTPA Study for adult women was $170, when inflated to current dollars (Orr et al., 1996). Approximately 90 percent of HPOG participants during the random assignment period are expected to be women. As shown in Exhibit 4.3, when we combine the HPOG/PACE programs with the HPOG-Impact grantees, the resulting MDE is smaller: $118 in current quarter's earnings or a 1.6 percentage point increase in credential attainment.

That said, more-recent programs such as the Sectoral Employment Impact Study (SEIS) have detected effects that were much larger (four times as large; $682 averaged per quarter; Maguire et al., 2010) than those found in JTPA, which implies two things: (1) that HPOG-Impact is indeed very well powered to detect its main effects; and (2) that the larger impacts that must occur to be detectable in three-arm tests, with their smaller individual samples, are potentially plausible. To illustrate the latter, Exhibit 4.3 also shows the smallest contribution to impact from the stated enhancement components that we expect the study to be able to detect with 80 percent confidence. These MDEs assume that data will be pooled across programs and that hypothesis testing will be conducted with pooled standard errors that ignore variation in program effects across divisions and programs.[21]

With the roughly 1,250 individuals being randomized into standard HPOG and peer support-enhanced HPOG, we estimate that the study will be able to detect an incremental impact of the peer support enhancement component on quarterly earnings of $399 per person using the experimental data. With an estimated 1,200 and 1,500 individuals being randomized to test the emergency assistance and non-cash incentive enhancements, respectively, the MDEs of incremental contributions to impact magnitude from these components are computed to be $404 and $377 in quarterly earnings.

[21] Improved external validity of inferences could be obtained by using standard errors that reflect variability in effects across divisions and programs, which would serve to inflate the MDE estimates (as elaborated in Judkins, 2013). We do not do this because HPOG-Impact is focusing on the effectiveness of the programs included in the evaluation, within which there is substantial variation in program context, such that many dimensions of external validity are covered.

Exhibit 4.3: Minimum Detectable Effects for Credential Attainment and Most Recent Quarter of Earnings

Treatment Type, Experimental Group Sizes (# programs)	At 15 months	At 36 months	
	Credential Attainment	Most Recent Quarter Earnings	Credential Attainment
MDE for Standard HPOG Treatment			
5,945 Standard HPOG Treatment group:	1.7%	$141	1.9%
3,623 Control group (20 grantees)			
7,786 Standard HPOG + PACE Treatment group:	1.4%	$118	1.6%
5,461 Control group (23 grantees)			
MDE for Enhanced HPOG Treatment			
432 Enhanced HPOG Treatment group assigned to Peer Support:	4.7%	$399	5.3%
801 Standard HPOG Treatment group (3 programs)			
422 Enhanced HPOG Treatment group assigned to Emergency Assistance:	4.8%	$404	5.4%
774 Standard HPOG Treatment group (11 programs)			
461 Enhanced HPOG Treatment group assigned to Non-Cash Incentives:	4.5%	$377	5.0%
982 Standard HPOG Treatment group (5 programs)			

Note: MDEs based on 80 percent power with a 5 percent significance level in a one-tailed test, assuming estimated in model where baseline variables explain 20 percent of the variance in the outcome. MDEs for earnings are based on standard deviations using data for adult women from National JTPA study.[22] The number of grantees and corresponding sample sizes are current as of May, 2014.

To put these numbers in perspective, the relative effects of the different approaches to training estimated for the U.S. Department of Labor's Individual Training Account (ITA) Demonstration are of slightly smaller magnitude: the evaluation found that providing intensive case management and direction in terms of the training program selected, relative to simply offering individuals a training voucher and the opportunity to choose a training program, produced earnings impacts of $332 per quarter (D'Amico, Salzman and Decker, 2004) in current dollars. While the ITA demonstration is relevant in its test of competing approaches (enhancement versus program), the SEIS impacts (program versus control) showed effects twice the size of what we might expect from a potentially important program component such as peer support. This evidence suggests that—despite seemingly "large" MDEs for the components relative to the study's overall MDE—HPOG-Impact is in a strong position to provide useful information to the field from experimental evidence on the effectiveness of these three selected program components.

[22] The standard deviations for the women population in the P/PV Sectoral Employment Study (D'Amico, Salzman and Decker, 2004) and Welfare-to-Work Voucher Evaluation were higher and lower respectively; thus the figure from the National JTPA study was around the average from the previous two studies noted above. The binary outcome is assumed to be 70%, which is what the employment rates were in year one in both the JTPA and NEWWS studies.

5. Implementation Analysis Plan

This chapter describes in more detail the core objectives and design of the HPOG-Impact implementation analysis. Those goals and components include describing the HPOG intervention and local context; documenting the treatment group use of services and trainings; documenting the counterfactual and assessing its contrast with the treatment; assessing the implementation of the experiment; bringing implementation and contextual information into the interpretation of the impact findings; and developing program design and operational lessons for future consideration by ACF and the field.[23]

5.1 Implementation Analysis Design

5.1.1 Describing the HPOG Intervention and Local Context

A major focus of HPOG-Impact is to evaluate separately the impact of specific program components and designs, including program enhancements in the three-way random assignment study programs. To support this goal, the implementation analysis will describe in detail the variety of HPOG program components that various HPOG programs adopt, and document their contrast with control group services. The descriptive analysis of program characteristics will be organized by specific program component. A narrative description will define each program component, as well as the variety of ways in which grantees implement the component. A quantitative analysis will document the distribution of each specified program component across the study sites and research sample, as well as whether and how readily similar assistance components are available to control group members.

In addition to conducting a detailed description of program components, the implementation analysis will describe the administrative structures, key baseline characteristics of program participants, as well as the range of local demographic, institutional and labor market contexts in which HPOG grantees operate their programs. The latter contextual information will be summarized across all study sites rather than be reported for specific HPOG programs. Although HPOG-Impact focuses on estimating effects of program components, the contextual information is important in understanding how impacts may be different in different environments and institutional settings.

5.1.2 Documenting the Treatment Group Use of Services and Trainings

A second key goal of the HPOG-Impact implementation analysis is documenting and describing "take-up," or the use of key HPOG program components by all treatment group members across all study sites, including those in the basic HPOG treatment arm as well as those in the enhanced treatment arm, where appropriate. These data may be particularly important when interpreting impact findings for specific program components. Specifically, knowledge of participant use of services and trainings provides insight into the degree to which "intent-to-treat" impact findings—as defined in Chapter 4—may be tied to exposure to program components. For example, if no impacts are found for a particular component or group of components, it is helpful to know whether the finding may be due to the fact that very few participants took advantage of the component, or that many participants did take advantage but the component still did not make a detectable difference in outcomes.

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23 Note that the HPOG-Impact implementation analysis will collect and analyze data on the 20 grantees in HPOG-Impact. The additional HPOG study sites in ISIS are included in the PACE Implementation Study. Findings from the PACE Implementation Study will be included in descriptive sections of the HPOG-Impact report to support the use of PACE/HPOG sites in the HPOG-Impact impact analysis.

The implementation analysis will document the treatment group's use of the HPOG program components described in Section 2.4 during the period of random assignment and program operations.[24] The take-up of services and trainings will be presented for the study's treatment groups as a whole, as well as for subgroups of interest analyzed separately for impacts. The major sources of data will be the HPOG PRS, which serves both as a management information system for the HPOG program and a data source for research, the NIE surveys, and the 15-month follow-up survey.

5.1.3 Documenting the Counterfactual and Assessing the Contrast

In addition to describing services received by the treatment group, the implementation analysis will describe the "counterfactual;" that is, the services available to the control group and the extent to which the control group received career-pathways and other related services and training from their communities. To understand what the study is testing, the study must have information about the contrast between the treatment group's experience and the counterfactual.

The task of documenting the counterfactual and assessing the contrast may be thought of as addressing three interrelated research questions:

- What services comparable to those available to HPOG participants exist in the local community?
- What is the relative supply of, and accessibility to, those counterfactual services?
- What services and trainings did control group members use?

The implementation analysis will address the first two questions using information provided by study site HPOG management and staff in study site EDIPs, as well as through site visits. The EDIPs—developed at the time the experiment is implemented, or before it is—give us a prospective view of the likely strength of the contrast between treatment and control group services. Moreover, the study will monitor any important changes in the counterfactual over the course of the 15-month observation period through ongoing contact with staff in the study sites. Although the contrast between the expected treatment and control group services and the "landscape" of what services exist in HPOG and from other non-HPOG sources are important indicators of the *potential* strength of the interventions to be tested, *actual* take-up of relevant services by the treatment and control groups is a far more telling sign of the differential in services across the two research groups.[25] The implementation analysis will rely on the 15-month follow-up survey to collect information on the treatment and control group's use of services.

5.1.4 Assessing the Implementation of the Experiment

In addition to the descriptive research goals outlined in Section 1.3, the implementation analysis will assess HPOG-Impact grantees' ability to implement the experiment and maintain the integrity of random assignment. This includes gathering information about how program staff conduct the intake process for the study, collect baseline data, conduct random assignment, provide information about community services available to the control group, and maintain research group assignments through the life of the study. The HPOG-Impact final report will include a summary assessment of the integrity of the study, documenting any variances from the study design as presented in the EDIPs and/or from sound experimental study practice, and assessing any potential biasing of study results as a result.

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[24] HPOG grants are due to expire at the end of September 2015.

[25] The two types of contrast ("potential" and "actual") are, of course, related, since individuals' knowledge and perception of available services will affect their take-up of those services.

The primary data source for this analysis is the record of the study activities and experiences of HPOG-Impact grantees maintained by study staff, both during the pilot phase of the experiment and ongoing through the period of random assignment and the observation period for impacts. As described in Chapter 3, each study site has a pilot phase of three months, during which site research teams monitor closely the implementation of study procedures, most notably baseline data collection and random assignment. Pilot stage experiences, including any variances from planned procedures and their result and remediation, are summarized in reports that document study-related activities and assess the integrity of the early implementation of the study. These reports will be used in the implementation study's assessment of the implementation process. Additionally, site teams routinely monitor and document study-related site activities throughout the course of sample intake, and file biweekly monitoring reports that include any incidents of errors in study procedures. These site monitoring reports will be another primary data source for assessments of study implementation. The topic areas covered by both sets of reports are presented in Chapter 3 on data sources. Finally, site teams also provide technical assistance to grantees on study-related issues. This assistance is also documented in reports and will be an additional source of information about any specific problems that may have represented a risk to the study's technical integrity.

5.1.5 Interpreting Impact Findings

As discussed earlier, part of the role of an implementation study in the context of an impact study is to aid in the interpretation of impact findings. To fulfill this role, the HPOG-Impact implementation analysis will need to provide systematic information about: (1) what intervention services were implemented, how they were implemented, and whether and how they vary across HPOG programs and time; (2) whether or not the treatment group took up HPOG services and to what degree; and (3) what services were received by control group members compared to those received by the treatment group.

From this information, the implementation analysis will assist in the interpretation of impact findings in a number of ways. For example, the description of the intervention as implemented defines what was tested. Second, the description of control group services and their comparison with treatment group services specifies the contrast behind impact estimates. Third, the implementation analysis will help measure the strength of program implementation and take-up and thus the robustness of the test. That is, for any specific program component or components, the implementation analysis will identify weak and/or undersubscribed program realizations that may be important in drawing policy or practice implications from the impact findings. Finally, the implementation analysis can help develop potential reasons for variations in impacts across subgroups, time periods, and/or other groupings, such as grantee institutional type or location—factors that will go into the cross-site quantitative impact comparisons described in Chapter 4.

5.1.6 Developing Program Design and Operational Lessons

An important goal of HPOG-Impact is to develop lessons for the future about effective program design and implementation. By relating variation in program design and implementation to variation in impacts, HPOG-Impact may identify promising practices, and will be able to collect and analyze information about how those practices are implemented in the field. The HPOG-Impact implementation analysis will summarize those lessons in a form that is useful to policy-makers and program practitioners.

A first step in developing lessons for policy-makers and program operators is to use Impact Study findings to identify program components associated with larger positive impacts, in both the natural variation analysis and the analysis of the impacts of systematically varied program enhancements

described in Chapter 4. Using qualitative data drawn largely from site team field visits and site EDIPs, the study will synthesize information about how those promising strategies are implemented in the relevant programs. The implementation analysis will also include reflections from HPOG program staff on why and how successful program features work to improve individual outcomes.

The program design and operational lessons will be communicated in nontechnical language to be most useful to the field. That is, this section of the study report will summarize briefly and in layman's terms how HPOG-Impact identified promising practices, and will communicate any cautions about the findings. The lessons will include descriptions of the promising strategies, how they operate in the field, and their rationale in the context of programs' overall goals, theories of change, and target population needs.

5.2 Implementation Analysis Methods

The comprehensive data that will be available to the HPOG-Impact implementation analysis –described in Chapter 3—will provide a variety of information about the HPOG program and its context. These data must be organized and analyzed to be useful to the overall goals of HPOG-Impact. This section describes the analyses that will provide this synthesis, including both narrative and tabular descriptive analysis and presentation.

The descriptive goals of the HPOG-Impact implementation analysis are: describing the intervention and the counterfactual in each study site, including variations in intervention design, components, and context; documenting the use of services and trainings by treatment and control group members; and documenting the enhancements in the three-arm test study sites. This section outlines our approach to addressing these goals. As an overall reference for the descriptive analyses, the study will define the program components by the categories presented in the logic model (and in the PRS and EDIPs). For each program component, it will also summarize the range of implementation approaches found in the study sites.

5.2.1 Describing the Intervention and the Counterfactual

In describing the intervention and the counterfactual across study sites, the implementation analysis will provide a narrative description of program contexts, components, and administration as they operate in the field, as well as a tabular representation of the services and trainings available to the treatment group and the control group. The narrative description of program components, context, and administration will be organized by the relevant domains and concepts in the HPOG logic model. For each component, context, and administrative characteristic, the narrative will include the range of approaches implemented in the study sites and, where appropriate, describe the "average" or "typical" realization of a component or strategy among the sites as a group. The goal of the descriptive narrative will be to allow the reader to understand what the intervention is for each tested program feature and what pooling across sites includes for that program feature.

To help develop the narrative descriptions, implementation analysis team members will participate in a day-long analysis meeting. All site visitor teams will be represented at the meeting. Prior to the meeting, site teams will organize and distribute summary descriptions of relevant program features for each study site. For each program component, context, and administrative characteristic, the meeting chair will present a general definition, mainly from the literature and the specifications used in the PRS glossary. Site teams will have the opportunity to discuss the description and offer refinements based on the site visit interviews as well as other data sources, such as the EDIPs, biweekly site monitoring calls, and NIE data. As a group, the meeting participants will aim to develop a consensus around each description and the range of approaches found in the field, as well as about how to synthesize the site-level data into an

overall characterization of the component as tested. The findings of the analytic meeting will form the basis for the narrative descriptions in the Final Report.

In addition to narrative descriptions of HPOG program components, context, and administration, the implementation analysis will include tabular summaries of program components' availability to treatment and control group members across all study sites. The purpose of these tables is to inform readers about the sample used to estimate impacts of locally adopted program features, and about the extent to which pooling across study sites for descriptive summary purposes and analyses is appropriate. Exhibit 5.1 is an illustrative descriptive table of how we might summarize information about program components' availability across the study's many locations.

Exhibit 5.1: Illustrative Table of Cross-Site Program Components

Program Component	Number of Study Sites with Component Available to Treatment Group	Number of Sites with Component Available to Corresponding Control Group	Number of Individuals in Study Sites with Component Available to Treatment Group	Number of Individuals in Study Sites with Component Available to Corresponding Control Group
Full tuition assistance	7	1	1,350	85
Tuition support with HPOG funds	32	0	5,760	0
Financial supports by referral only	12	8	1,950	625
(etc.)	*X*	*Y*	*Z*	*W*

5.2.2 Documenting the Treatment and Control Group Use of Services

For each study site and available service and training, the implementation analysis will analyze and present data from the 15-month follow-up survey on the treatment and control groups' use of services and training courses over the 15-month observation period following random assignment. The study will document treatment group use of services in two ways. First, as a measure of the take-up of HPOG services and courses, the implementation analysis will analyze and present their use by treatment group individuals as indicated by PRS data. These data will be summarized by program component and across all study sites. Specific domains in the PRS will be represented in tables: academic and non-academic assessments, academic tutoring and counseling; pre-training services; occupational training services; employment services; support services; and program enhancements. Exhibit 5.2 is an illustrative table for this section of the implementation component of the final report.

Exhibit 5.2: Illustrative Table of Treatment Group Use of HPOG Services

Services and Trainings	Treatment Group Use of HPOG Services and Trainings		
	Number with Service/Training Available	Number Received Service Or Training	Percentage Receiving Service or Training
Assessments and Counseling			
Comprehensive assessment	4,320	3,950	91%
Academic counseling/tutoring	6,750	4,600	68%
(etc.)			
Pre-Training Course/Service			
GED prep	5,750	1,200	21%
Adult basic education	5,600	2,200	39%
(etc.)			
Occupational Training Course			
Personal care technician	4,900	2,300	47%
Licensed practical nurse	3,400	830	24%
(etc.)			
Employment Service			
Employment counseling	7,300	3,900	53%
Job search assistance	5,700	2,800	49%
(etc.)			
Support Service			
Financial assistance	6,900	6,800	99%
Transportation assistance	7,500	6,700	89%
(etc.)			
Enhancement			
Peer support group	1,450	1,200	83%
Emergency assistance	720	590	82%
Non-cash incentives	640	490	77%

In addition to summarizing the take-up of HPOG services and trainings by the treatment group, the implementation analysis will document the use of services by control group members. For each category of service and training included in the 15-month follow-up survey, the study will summarize comparable information reported by *both* treatment group and control group members. These data differ from PRS data on the treatment group in two important ways. First, the survey data use comparable service and training variables for both research groups, and second, survey data include both HPOG and non-HPOG services and trainings. The implementation analysis will summarize survey information about service and training use across all study sites to allow readers an overview of the differential in service use between treatment and control groups. The service and training categories available through the follow-up survey include:

- Education and training
  - Adult basic education
  - English-as-a-second-language training
  - College credit courses
  - Non-credit vocational training courses
  - "Soft skills" training
- Counseling/assessments
  - Assessments
  - Academic counseling

  - Career counseling
  - Tutoring
  - Financial counseling
- Supports
  - Case management to help arrange needed supports
  - Emergency financial assistance
  - Tuition assistance
  - Peer support groups
  - Incentive awards
- Work-related experience/work-based training
  - Work study jobs
  - Apprenticeships
  - Clinical placements
- Employment assistance
  - Job search/job placement assistance

Exhibit 5.3 is an illustration of how the study will report treatment and control group use of services from all sources (HPOG and non-HPOG).

Exhibit 5.3: Illustrative Table of Treatment and Control Group Use of HPOG Services

Services and trainings	Study Sample Use of Similar Services and Trainings		
	Percentage of Treatment Group Members Receiving Service/Training* (N = 7,000)	Percentage of Control Group Members Receiving Service or Training (N = 3,500)	Difference in Percentage Points (T – C)
Assessments and Counseling			
Assessment	91%	84%	7%
Academic counseling	98	72	26
(etc.)			
Pre-Training Course/Service			
ESL	11	9	2
Adult basic education	61	54	7
(etc.)			
Occupational Training Course			
Personal care technician	31	22	9
Licensed practical nurse	16	11	5
(etc.)			
Employment Service			
Job search assistance	95	80	15
(etc.)			
Support Service			
Tuition assistance	96	65	31
(etc.)			
Enhancement			
Peer support group	22	9	13
Emergency assistance	34	27	7
Non-cash incentives	18	0	18

*Note that these will include both HPOG and non-HPOG services and trainings received by treatment and control group members.

5.2.3 Describing Program Enhancements in Study Sites with Three-Arm Tests

An important feature of HPOG-Impact is the implementation of three-arm random assignment of eligible individuals to access to specific program enhancements: peer support groups, emergency financial assistance funds, and non-cash incentive awards. Because these tests are the most robust method to isolate the independent impact of a specific program feature, the implementation analysis will focus more-intensive research efforts in study sites with three-arm tests. Specifically, the site teams will make an additional field visit to sites implementing enhancements to develop in-depth profiles of enhancement design and implementation. These additional field visits may include focus groups of participants in the treatment enhanced research groups with discussions around whether and how the enhanced services have helped participants remain engaged in the program. Additionally, the second round of visits will gather more detailed information about how enhancements are operated in order to place them in the context of the existing research literature.

The profiles will focus on the design and implementation of the enhancement and its contrast with services available to the non-enhancement treatment group and the control group. The profiles based on these visits will be organized by enhancement and will document differences in the design and implementation of the enhancement across relevant study sites, as well as differences in the contrast available in the study sites. Given that the impact analysis for the three-arm tests will be pooling samples across relevant study sites, the profiles will be particularly important in interpreting results and describing the overall enhancements as implemented in the pooled sample.

To develop the enhancement profiles, the study will use the same general methodology used to develop the narrative descriptions of HPOG program context, services, and trainings described above. That is, for each of the three enhancements and their sites, relevant site teams will be convened for an analysis meeting to focus on the design and implementation of the enhancement in the field. Each team will summarize and distribute prior to the meeting their findings on how enhancements were designed and implemented as well as their assessments of how well enhancements were implemented. The profiles will also document enhancement take-up by members of the enhanced treatment group. Finally, the profiles will make recommendations about successful design and implementation strategies for enhancements in future programs and in future three-armed experimental impact evaluations.

6. Project Schedule and Deliverables

This report discusses the design and analysis plans for the study of the HPOG program's impacts, both in general and also specifically with respect to selected program components and selected enhancements. We conclude with a brief table of the project's schedule and deliverables. Exhibit 6.1 depicts the project tasks, brief descriptions of activities within each task, and the projected date ranges over which each of the activities will occur, beginning in July 2012 and through the end of the study in mid-2017.

Exhibit 6.1: Project Tasks, Deliverables and Timeline

Task	Subtask/Description	Date(s)
Develop Knowledge Base	Coordinate information across HPOG research studies	Ongoing
Site Selection	Grantee outreach and program clarification	7/2012 – 12/2013
	Grantee site visits and finalize EDIPs	9/2012 – 12/2013
	Develop grantee subcontracts and budgets	12/2012 – 12/2013
Evaluation Design	Recommendations on program enhancements	9/2012
	Plan for determining grantee interest in enhancements	11/2012
	Draft and final evaluation design	1/2013 – 5/2014
Technical Support	Draft TA materials	1/2013
	Host RA webinars/conference calls	ongoing, as necessary
	Site monitoring and support	3/2013 – RA period
Pilot Testing	Pilot test supplemental baseline questions	12/2012
	Site visitor RA training and materials	11/2012 – 3/2013
	Train grantees on RA	2 – 12/2013
Implementation Study	Develop implementation data collection protocols for OMB package	1 – 6/2013
	Grantee, Management and Staff, Stakeholder/Network, and Employer surveys*	11/2013 – 6/2014
	Conduct grantee staff and management interviews	5 – 7/2014
Impact Study	Pre-test and finalize 15-month-up survey	6 – 7/2013
	Baseline data collection and RA begins	3 – 12/2013
	Baseline data collection and RA ends	11/2014
	Analysis Plan	2/2015
	15-month follow-up survey	6/2014 – 6/2016
	36-month follow-up survey	9/2015 – 5/2017
Reporting and Dissemination	Dissemination plan	12/2012
	Report to OCSE on findings using NDNH data	Starting one year post analysis
	Draft and final implementation study site visit report	8 – 12/2014
	Draft and final Analysis Plan, include sample baseline characteristics	9/2014 – 2/2015
	Draft and final impact study report based on 15-month follow-up survey	2 – 5/2017**
	Special Topics Analyses and Reports	12/2014 – 6/2017**
Data Files and Documentation	Submit data files and documentation to ACF	6/2017**

*Grantee, Management and Staff, Stakeholder/Network, and Employer surveys are being fielded by the HPOG National Implementation Evaluation. Data from the surveys will be used by HPOG-Impact. **Dates for reports and data files and documentation are approximate and will depend on the final data collection timeline.

As of May 2014, all 20 grantees have begun random assignment. Random assignment is scheduled to conclude for all programs by November 2014.

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