

REFINING AN EVALUATION TOOL FOR SOUTHEAST ARIZONA HEALTH
EDUCATION CENTER: A QUALITY IMPROVEMENT PROJECT

by

Esther Lee

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DEDICATION

I would like to dedicate this Doctor of Nursing Practice Project to my mother and father, who have generously supported me in my academic endeavors. I am eternally grateful for my family for their encouragement to pursue my dreams.

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ABSTRACT

Background: Lack of congruence between the Southeast Arizona Area Health Education Center (SEAHEC) objectives and components of the Health Professions Training Opportunities Program (HPTOP) program evaluation framework rendered successful program impact evaluation unfeasible.

Objective: Alignment of the SEAHEC objectives with components of the HPTOP evaluation framework to create a comprehensive HPTOP evaluation tool.

Design: Gap analysis.

Setting: SEAHEC in Nogales, Arizona.

Target: Two SEAHEC stakeholders, the SEAHEC executive director and the HPTOP project coordinator

Interventions: Gap analysis and logic model were implemented using qualitative data gleaned from discussions with stakeholder, as guided by the Plan-Do-Study-Act framework.

Brainstorming, thematic association between components of the HPTOP evaluation framework, and development of recommendations for a revised HPTOP evaluation tool and refined HPTOP evaluation framework based on gap analysis findings were executed in this quality improvement (QI) project.

Results: The results were assessed thematically in terms of HPTOP program objectives, measures, activities, and expected outcomes.

INTRODUCTION

The Doctor of Nursing Practice (DNP) is the terminal degree in nursing practice that equips advanced practice nurses to strategically contribute to enhancing healthcare quality while addressing national healthcare disparities (Institute of Medicine [IOM], 2003; American Association of Colleges of Nursing [AACN], 2004). The DNP prepared nurse scholar is uniquely trained to mediate a longstanding gap between knowledge discovery and scholarly implementation of new knowledge through translation, application, and integration (AACN, 2006; Lathrop & Hodnicki, 2014). The DNP project is a model implementation of this role, fulfilling five criteria targeted at enhancing health and practice outcomes, demonstrating culmination of practice inquiry, engaging partnerships, implementing and translating evidence into practice, and evaluating healthcare, practice, or policy outcomes (Waldrop, Caruso, Fuchs, & Hypes, 2014).

Purpose

The purpose of this DNP project was to develop and implement a quality improvement (QI) initiative with the Southeast Arizona Area Health Education Center (SEAHEC) in Nogales, Arizona to refine the method of evaluating their Health Professional Student Training Opportunities Program (HPTOP). The purpose of HPTOP is to help resolve the shortage of health professionals in underserved areas of southeastern Arizona and is linked with its program objective, as represented by Arizona Area Health Education Center (AzaHEC) Scope of Work Objective 3, which is to:

“Prepare individuals to more effectively provide health services to underserved areas and health disparity populations through field placements or preceptorships in conjunction with community-based organizations, accredited primary care residency

training programs, FQHCs, rural health clinics, public health departments, or other appropriate facilities.”

Therefore, this DNP project systematically evaluated HPTOP program objectives, program measures, participant activities, and expected program outcome by aligning them with SEAHEC and HPTOP program objectives for health professions student clinical placement experiences in order to develop an accurate and comprehensive HPTOP program evaluation tool.

By creating and adhering to a proposed QI plan, examination of the current HPTOP program evaluation method guided recommendations for a refined HPTOP program evaluation tool that was proposed to stakeholders for use in future program evaluation. The purpose of the DNP project, problem of the shortage of health professionals in underserved communities, local problem, and synthesis of the literature regarding the problem in focus and current strategies to resolve it will be discussed in depth.

Background Knowledge

The health professional shortage in underserved areas has both global and local impacts. From a global standpoint, the United Nations International Labor Organization (ILO) (2015a) identified 1.4 billion people living in extreme poverty in 2011, of which 70% comprised rural populations. The most vulnerable of underserved populations are those at greatest risk for poverty and experience lack of access to health care; which are women, minority populations, older adults, and migrants (ILO, 2015a). Further evaluation of health disparities on a rural-urban spectrum reveals that rural populations are doubly disadvantaged in accessing healthcare, compared to their urban counterparts (ILO, 2015a). From a local standpoint, the US Census Bureau identified 43.1 million people in poverty in 2015. In terms of healthcare access, there

were 16,746 health professional shortage areas and 4,217 medically underserved areas and populations based on 2017 data (Health Resource and Services Administration [HRSA], n.d.).

Even if laws guaranteed healthcare access, the ILO (2015b) states that rural populations are often excluded from healthcare, due to poor enforcement of laws that may grant access to healthcare, underfunding, poverty, and lack of healthcare professionals, which altogether contribute to healthcare disparities (ILO, 2015a; ILO, 2015b). According to the National Health Care Workforce Analysis of the US in 2014, the ratio per capital of rural to urban physicians, physician assistants, and registered nurses in the US were 0.42, 0.66, and 0.91, respectively (HRSA, 2014). Worldwide, an estimated 10.3 million skilled health workers are needed, and 70% of this need is found in rural communities (ILO, 2014a; ILO, 2014b).

Common socio-economic causes of the shortage of health professionals in underserved areas include geographic factors involving spousal satisfaction, financial factors such as long term earning potential, community and hospital support for practice, such as technology and limited availability of specialist providers, and personal factors, such as long working hours associated with rural practice (Schmitz, Baker, Nukui, & Epperly, 2011). Causes unique to the medical profession include less than desirable on-call schedules, low reimbursement for fee-for-service, concerns surrounding family life and recreation (Curran & Rourke, 2004; Lee & Nichols, 2014). An interesting deterrent to rural practice is low volume emergency rooms, which often require physicians to assume greater scope of responsibility that increase the stress burden in emergency situations (Lee & Nichols, 2014; Curran & Rourke, 2004).

Challenges in recruitment and retention of health professionals in underserved communities have been a long-standing impetus for change in both national and international

arenas. The ILO (2015a) states that rural healthcare disparities are often linked to the scarcity of public investments and key socio-medical infrastructures, which are identified as potential sources of reform. It also suggests that the recruitment and retention of health professionals in rural communities is a public responsibility. A similar impetus in the United States stimulated the emergence of Area Health Education Centers (AHEC) in 1971, as proposed by the Carnegie Commission Report, during a national effort to avail healthcare to all Americans as a *safety net*, regardless of geographic residence (The National AHEC Bulletin, 2003). As a strategic component of a three-part collaboration with federal public health interventions and local universities, AHECs were designed to equalize the distribution of health professions workforce in underserved and underrepresented areas in both urban and rural locales; decentralize health professions training to enhance both quality of training and exposure to underserved communities; and optimize both the delivery of health professionals to those communities and the healthcare delivery system (The National AHEC Bulletin, 2003). In addition to a central National AHEC Organization (NAO), approximately 200 AHECs exist to date in service to meeting the needs of underserved communities across the US (SEAHEC, n.d.).

To illustrate the role of regional AHECs in this initiative, the role and function of SEAHEC will be discussed. SEAHEC partners with underserved Southeastern Arizona communities and the University of Arizona Health Science programs (i.e., College of Nursing, College of Public Health, College of Medicine) to actively immerse health professions students of varying stages of career development into underrepresented and rural communities. Immersion involves in depth orientation to a selected community and placement in a clinical site for clinical preceptorship. Additional resources that are provided to facilitate a rural immersion

include subsidized housing during rotations, stipends for transportation and housing, optional engagement in community service projects and optional participation in various educational events (SEAHEC, n.d.). Clinical placements are coordinated via collaboration between one HPTOP program coordinator and various academic clinical recruitment offices affiliated with the University of Arizona (UA), AT Still University (AT Still), Midwestern University (Midwestern), Northern Arizona University (NAU), and Cochise Community College. Placements are located in various rural, tribal, and U.S.-Mexico border communities in southeastern Arizona. Before and after each immersion, students are asked to assess their experiences and inclination for practice in underserved areas. At one-year follow up, students' practice locales and inclination for practice in underserved areas are reassessed. SEAHEC collaborates with state-level, Arizona AHEC and national AHEC. Data obtained from its programs are organized and submitted to specific agencies to demonstrate the impact of its programs as well as to justify funding resources.

Local Problem

The World Health Organization (WHO) (2009) states that the causes of health professional shortages in underserved communities are well known. Establishing strategies tailored to address regional shortages, however, is stunted by insufficient evidence or support to fully endorse their use (WHO, 2009; WHO, 2013). Therefore, academic-community collaborations that support continual program improvement and knowledge growth are an essential groundwork for strategically improving the recruitment and retention of health professionals throughout the US. One such collaboration can be exemplified by SEAHEC and its partnership with the University of Arizona.

Since its inception in 1985, SEAHEC has sought to bridge healthcare disparities in rural southeastern Arizona by cultivating the rural community-academic partnership as groundwork for a goal of maximal output of health professionals committed to rural practice. Although the SEAHEC HPTOP program is well recognized, a comprehensive measure of its program processes and impact is unknown. The objective of this DNP project is to develop an enhanced program evaluation tool to bridge this gap in knowledge. Not only do evaluations of existing strategies help to fine tune the program and inform the quality of outcome assessments; they also guide workforce planning and policy development that further support the recruitment and retention of health professionals committed to rural practice (NAO, 2007).

Multiple forces occurring in individual, practice-level, and macro-level contexts influence the recruitment and retention of health professionals and health professions students in underserved communities. While the research community has evaluated the social determinants of this public health issue, the persisting health professions workforce shortage demonstrates the need for more robust evaluation of the issue. According to the National Rural Health Association (NRHA, 2012), key health workforce policy issues comprise of economic income disparities in underserved areas, rural workforce training and development, challenges associated with recruitment and retention, reimbursement and payment issues, and health professions shortage areas (HPSA)/medically underserved areas (MUA) designations. Although each policy issue is distinct, they are inevitably linked (NRHA, 2012). The interplay of low population density, disproportionate economic income, dearth of health professional training sites in underserved areas, and lower reimbursement rates altogether impact the recruitment of physicians to underserved communities (NRHA, 2012). Additional factors that compound the health

professions workforce shortage in underserved areas include individual, gender-related, familial factors, and financial influences, such as employee turnover (NRHA, 2012).

Literature Synthesis

A literature review was performed to capture issues related to the recruitment and retention of health professions students in underserved areas. Database resources, such as PubMed and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) were utilized in the literature review process. The following combination of key and related terms were applied in this search: pipeline program, health professions student, health disparities, academic community partnership, workforce development, medically underserved, area health education center (AHEC), recruitment, retention, survey tool, and workforce analysis. Exclusion criteria were applied to the search, comprising of a publication date within five years to date, English language, and subject relevance. Due to the relative dearth of literature on the subject, articles with evidence levels ranging from I to VII were considered in this review. Articles that provided background information and expert opinion on this topic were utilized as a reference point of the state of knowledge on this topic. The database search initially yielded 158 articles, which later totaled 34 after exclusion criteria were applied.

Recruitment and Retention of Health Professions Students in Underserved Areas

The recruitment and retention of health professionals and health professions students in underserved areas is an area of research with potential for growth. Various governmental and institutional studies have demonstrated a consistent correlation between the low prevalence of qualified health professionals in underserved areas and the poor health status of underserved

populations (ILO, 2015a). Resolving the health professional shortage in medically underserved areas therefore remains a necessary yet challenging undertaking.

Current interventions to increase inflow of health professionals to underserved communities can be categorized into educational, financial, regulatory, professional and personal support strategies (Grobler, Marais, & Mabunda, 2015). Financial interventions may include scholarships or direct financial incentives with rural practice service requirements (Grobler et al., 2015). Conferences and local academic activities, as well as accommodations for family or other personal needs represent some professional and personal support strategies (Grobler et al., 2015). Examples of regulatory approaches include required community service in underserved areas and recruitment of foreign physicians with practice limited to rural areas (Grobler et al., 2015). Furthermore, educational strategies may include academic immersion in rural and underserved communities, academic fellowships in those communities, and selective academic admission criteria, such as student rural or underserved background or intent to serve in these areas at program entry (Grobler et al., 2015).

While strategies have been posited to have a positive effect on the health workforce development of underserved communities, innate factors have also been found to be critical. Students of rural or underserved backgrounds have been consistently identified as most likely to return to and remain in their communities as health professionals (Brooks, Eley, & Zink, 2014; Curran & Rourke, 2004; Grobler et al., 2015; Hancock et al., 2009; Lee & Nichols, 2014). A systematic review by Lee and Nichols (2014) highlighted study findings by Chan et al. (2005) further elucidating that although students of rural or underserved backgrounds are more likely to choose rural medical practice, exposure to rural medicine among students of urban backgrounds

during academic preparation is most likely to influence actual rural medical practice. In addition to socio-economic background, factors such as self-actualization, sense of place, and engagement in the rural and underserved community were also shown to increase the likelihood of students to pursue rural practice (Hancock et al., 2009; Lee & Nichols, 2014).

Targeting specific student characteristics and applying educational strategies to the target population has been identified as a promising intervention. The Rockford Rural Medical Education (RMED) program of the University of Illinois demonstrated the impact of selective program admission criteria and reinforcing a student's innate desire for rural medical practice with focused rural, primary care training (MacDowell, Glasser, & Hunsaker, 2013). MacDowell et al. (2013) describe this approach as a "grow your own" method, which resulted in 56.3% of its graduates serving in rural primary care capacities and long term retention of physicians in the underserved community. In contrast to financially incentivized programs, such as the National Service Health Corps, these authors specify that rural, community-based programs may provide favorable outcomes over a longer term utilizing this method. The strategy applied by the RMED program is also supported by a systematic review by Verma, Ford, Stuart, Howe, Everington, & Steele (2016). The authors state that the generalizability of these findings is unclear given that their evaluation focused on one program in a single location (MacDowell et al., 2013; Grobler et al., 2015).

Academic-Community Partnership as Strategy

Academic-community partnerships share the integrative approach observed in the RMED program, but uniquely seek active participation of the targeted community, students, health centers, and the academic institution in the recruitment and retention of health professionals in

underserved areas (Fowkes, Blossom, Mitchell, & Herrera-Mata, 2014; Greenhill, Walker, & Playford, 2015). Career pipeline programs, such as Area Health Education Centers (AHEC), focus on education and complement the service objective of community health centers (CHC), which together train medical providers who will remain in underserved communities and therefore meet the demand for medical care in underserved areas (Fowkes et al., 2014). The mission of AHEC is to “recruit, train, and retain health professionals for underserved populations by linking academic and clinical resources to address community health needs” (Fowkes et al., 2014, p. 3). Limited federal funding has been associated with organizational stress, resulting in deviation from the organizational mission among some local AHEC centers, conflict, and loss of independence for some centers. Such challenges have fostered greater collaboration and strengthening of shared missions between AHECs and CHCs, which are aided by private and public funding.

Taylor, Kioovsky, Kayser, and Kelley (2015) sought to evaluate the impact of a AHEC-sponsored clerkship associated with the Indiana University School of Medicine, Department of Medicine, and determined that 63.7% of medical students who participated in an AHEC clerkship during their third year at Indiana University School of Medicine reported a greater likelihood of practicing in primary care in medically underserved areas. The authors suggest that further research is needed to explore if students who report intent to practice in medically underserved areas actually do so (Taylor et al., 2015). Multiple variables are suspected to mediate a student’s intent to practice and actual practice location, and the following predictors have been associated with actual practice in underserved areas: (a) underrepresented ethnic background; (b) low socio-economic background; (c) interest in working in a MUA prior to

medical school admission; (d) interest in incentives, such as loan repayment (Taylor et al., 2015). Although there were several limitations to this study, including small sample size and the subjective nature of self-report data, it was posited that AHECs allow medical students to hone competencies unique to serving the medically underserved patient populations (Taylor et al., 2015; Ferguson, Cashman, Savageau, & Lasser, 2009; Ko et al., 2005).

AHECs across the nation differ in form and the quality of each program is highly dependent on the quality of the centers it comprises (Fowkes et al., 2014). The AHEC program in California sought to unify its various centers by establishing organizational, functional, and community impact features of successful AHEC centers (Fowkes et al., 2014). An instrument was developed and has since been regularly utilized to assess the degree to which centers meet these quality indicators (Fowkes et al., 2014). The degree of collaboration and missional congruence between AHEC centers and their partnering agencies is assessed to measure their organizational capacity (Fowkes, Blossom, Mitchell, & Herrera-Mata, 2014). Functional features are evaluated by the center's scope of capacity building, brokerage of resources and community interests, and educational program development (Fowkes et al., 2014). Lastly, community impact is assessed by the degree to which the center has influenced its local community (Fowkes et al., 2014). Regular use of this standardized instrument has helped to recognize a given center's strengths and weakness, permitting quality improvement plans and regular feedback to center directors and advisory boards (Fowkes et al., 2014). Funding obligations can also be justified using this information, as the flow of data is submitted from AHEC to the Health Resources and Services Administration (HRSA), a governing federal body (Fowkes et al., 2014).

Research literature on evaluative tools used to measure the success and impact of pipeline programs, such as AHECs, is lacking. Literature searches on the use of survey tools, or program evaluation tools, to evaluate pipeline program outcomes rendered two relevant studies (Katz, Barbosa-Leiker, & Benavides-Vaello, 2016; Purohit, Maneskar, & Saxena, 2016). A quantitative study by Katz et al. (2016) sought to psychometrically analyze survey scores, evaluate changes observed in pre- and post-program scores, and longitudinally assess changes in survey items. Findings demonstrated that the survey enabled evaluation of changes to responses for each survey item over time, while total scores or sub-scale scores could not be utilized to evaluate participant perceptions of pre- and post-program (Katz et al., 2016). Purohit et al. (2016) studied the motivation of medical providers in serving rural areas using a survey instrument they developed and quantitatively analyzed in relation to the findings. Although the instrument they developed was found to be psychometrically sound, they conclude that there is a significant need for instruments used to assess the motivations of medical providers (Purohit et al., 2016).

While various strategies have been associated with positive impact on the recruitment and retention of health professions students in underserved areas, a systematic review of the literature by Grobler et al. (2015) clarifies that current proposed strategies and their impact are largely supported by observational and descriptive studies and low quality of evidence. The gravity of this issue can be illustrated by the authors' exclusion of 8,944 studies from their original search and inclusion of only one study in their review (Grobler et al., 2015). Selection criteria included "randomized trials, non-randomized trials, controlled before-and-after studies, and interrupted time series studies evaluating the effects of various interventions on the recruitment and/or retention of health professionals in underserved areas" (Grobler et al., 2015, pp. 8). The deficit in

reliable evidence on the subject is reinforced by systematic review findings by Lee and Nichols (2014) and Verma et al., (2016). The recruitment and retention of health professionals in underserved communities is thus a relatively understudied subject (Grobler et al., 2015).

Retrospective Pre-Test

The Retrospective Pre-Test (RPT) is an evaluation tool that can be implemented to assess student learning (Coulter, 2011; Taminiau-Bloem et al., 2016; Gouldthorpe & Israel, 2013; Malagon-Maldonado, 2016; Davis, 2003). The RPT is intended to detect change in student knowledge by assessing their perception of pre- and post-participation experiences at the program completion (Coulter, 2011; Malagon-Maldonado, 2016). While it is similar to the traditional pretest-posttest design in the use of Likert scales, it is posited that the RPT is more efficient and effective than the traditional design as it involves one administration and improved accuracy (Davis, 2003; Malagon-Maldonado, 2016; Gouldthorpe & Israel, 2013; Taminiau-Bloem et al., 2016). Demonstrating program impact using a RPT lends credibility and justifies the use of resources, as this model overcomes time constraints involving traditional pretest-posttest instrument creation and implementation, participant attrition, and measurement error due to response-shift bias that often influences the traditional tool (Diem, 2003; Davis, 2003; Gouldthorpe & Israel, 2013). Some advantages of the RPT include stability of instrumentation and maintaining the same frame of reference for pre- and post-participation experiences (Gouldthorpe & Israel, 2013). Disadvantages to this design, however, include social desirability bias among participants, reliance on recall, and lack of evidence on the impact of participant attrition (Gouldthorpe & Israel, 2013).

Summary

Health professions workforce development in underserved areas is an ongoing concern in the US and globally (WHO, 2013; WHO, 2009; ILO, 2015a; MacDowell et al., 2010). The variables that deter trained health professionals from seeking employment outside the rural and underserved setting are well known. Although interventions targeted at improving the recruitment and retention of health professionals in underserved areas have increased over time, persisting workforce disparities and their consequences solicit the need for more enhanced measures that will have long term, positive impact on health professions workforce development in these settings.

METHODS

The methods used to accomplish this DNP project will be discussed in depth. The purpose of this DNP project was to develop and implement a quality improvement (QI) initiative with the Southeast Arizona Area Health Education Center (SEAHEC) in Nogales, Arizona to refine the method of evaluating their Health Professional Student Training Opportunities Program (HPTOP). This QI project systematically examined HPTOP program objectives, outcomes, and evaluation tool(s) using a gap analysis, guided by the Model for Improvement (Institute for Healthcare Improvement [IHI], 2017).

Ethical Considerations

Competence was applied to this QI effort by encouraging collaboration between QI team members, in a manner that respected and employed the expertise and knowledge of each member. Integrity, honesty, and respect for people were demonstrated throughout the QI process by protecting sensitive organizational information. The DNP candidate did not receive any

monetary gain associated with the completion of this DNP project. The welfare of stakeholders and QI team members was upheld through continual feedback and communication on stakeholder needs, risks, and other factors associated with various QI activities, followed by prompt collaborative resolution of issues. This project was reviewed by the University of Arizona College of Nursing and University of Arizona Human Subjects Protection Program, which determined that human subjects review was not required (Appendix A & B).

Setting

This QI initiative was implemented at SEAHEC which is located in Nogales, Arizona. The varying locations of participants engaged in field placement and clinical preceptorship sites in program-affiliated community-based organizations, accredited primary care residency training programs, federally qualified health centers (FQHCs), rural health clinics, public health departments, or other appropriate facilities comprises the general SEAHEC service area. SEAHEC overall is directed by executive director, Gail Emrick, and HPTOP is collaboratively managed by the executive director and project coordinator, Erin Sol. SEAHEC works in partnership with five inter-professional, Arizona-based health professions programs and offers approximately 10 different SEAHEC service sites for participants across six southeastern Arizona communities. From October 2016 quarterly data alone, 30 health professions students participated in SEAHEC (SEAHEC, 2016). The number of participants varies quarterly and annually based on clinical placement needs and available SEAHEC resources (E. Sol, personal communication, February 24, 2017).

Design

Quality improvement (QI) is a strategy through which organizations optimize the status quo and promote quality innovation (Institute for Healthcare Improvement [IHI], 2017). The Associates in Process Improvement (API) (2017), defines the science of improvement as the application of knowledge with a systems level approach to better understand the concept of change, variation within a context, and performance improvement of “processes, services, organizations, and communities.” The design of this QI initiative was guided by the Model for Improvement, which offered a framework for creating, testing, and implementing change at various system levels through a QI lens (Langley, Nolan, Nolan, Norman, & Provost, 2009; HRSA, 2011).

Sample

The QI project sample consisted of SEAHEC Project Coordinator and SEAHEC executive director. Blank HPTOP pre-, post-, and follow up surveys were evaluated, and direct interaction with HPTOP participants and their responses did not occur during this project.

Organizing Framework

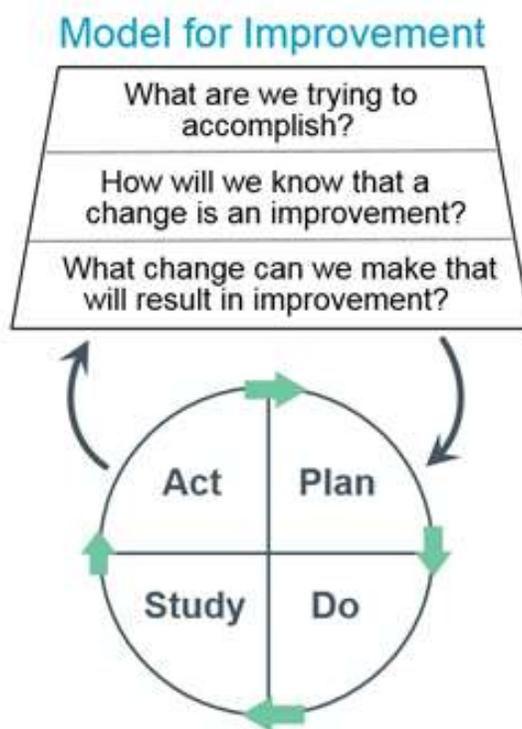
Model for Improvement

The Model for Improvement (Figure 1) is a tool that enables organizational systems to produce and adapt to changes that are in fact improvements (Berwick, 1996 Primer; Langley et al., 2009). It operates under the premise that not all change result in improvement, but that all improvement represent change (Berwick, 1996; IHI, 2017). Furthermore, it lends the following three questions to guide the trajectory of improvement:

i.) What is one trying to accomplish?

ii.) How will one know if a change leads to an improvement?

iii.) What changes could one make that may result in improvement? (Berwick, 1996; IOM, 2001; IHI, 2017).



(IHI, 2017)

FIGURE 1. Model for improvement.

Concepts of the scientific method are interwoven into the fabric of the Model for Improvement, such that the dynamic and pragmatic process of “specification, production, and inspection” leads to the acquisition of knowledge (Moen & Norman, 2010, p. 25; Shewhart, 1939). Furthermore, the process of comparing observed data to a hypothesis or an expected outcome entails utilization of a standardized method, reasoning, and new information; which altogether resemble the scientific method (Moen & Norman, 2010). Inspired by the original Plan-Do-Study-Act (PDSA) cycle, this model (Appendix C) was developed in 1994 to highlight

the outcomes-oriented, continuous, and interactional relationship between the components of the PDSA improvement cycle (Moen & Norman, 2010; Moen, Nolan, & Provost, 1991; Langley, Nolan, & Nolan, 1994).

Setting Aims, Establishing Measures, and Selecting Changes

The first question proposed by the Model for Improvement pertains to the aim of improvement (IHI, 2017 website setting aims). Setting an aim for a quality initiative comprises of establishing a time-specific, measurable, and population-specific objective(s) that is mutually agreed upon by stakeholders; is feasible based on evaluation of available resources, limitations, and organizational standards; and accounts for expected outcomes or predictions (IHI, 2017).

The Institute of Medicine (IOM, 2001) recommends that QI initiatives prioritize aims in the context of safety, evidence-based effectiveness, patient-focus, timeliness, efficiency, and equity.

In their second question, the Model for Improvement prompts quality initiatives to consider how one will determine if a given change leads to improvement (IHI, 2017; IOM, 2001). Establishing measures enables testing and implementing changes, while also assessing the quality and value of these changes (IHI, 2017). According to the IHI (2017), measures are utilized to gather sufficient data about a program during an evaluation in order to implement new information into each sequential, observable cycle of testing toward improvement. Process measures are used to confirm what the program is and that it is delivered as intended to target participants, while outcome measures are utilized to assess the impact of the program on target participants (Rossi, Lipsey, & Freeman, 2004). Process measures are particularly critical in program process monitoring, which involves measuring and recording data about a program during active, ongoing implementation (Rossi et al., 2004). Biases are often stabilized in each

cycle of testing, and balancing measures are used to evaluate the presence of undesired collateral effects associated with changes being implemented (Rossi et al., 2004).

The final question posed by the Model for Improvement encourages quality initiatives to consider what changes can be implemented in a program that may result in improvement (IHI, 2017; IOM, 2001). As selecting a change to test is a critical step in the improvement process and not all change represents improvement, change concepts may provide clarity and direction in the selection process (IHI, 2017; Langley et al., 2009). Brainstorming and collaboration between program stakeholders may elucidate key areas for program improvement, in connection with general change concepts, such as improving work flow (IHI, 2017).

Plan-Do-Study-Act Cycle

Furthermore, the Plan-Do-Study-Act (PDSA) cycle (Appendix D) is a systematic and continuous process of applying new knowledge gleaned from tests of change that is, in turn, re-applied to subsequent tests of change to promote progressive transformation and improvement (IHI, 2017). Each test of change, or PDSA cycle, produces new knowledge about the change, system, variations within a context, and the performance of processes, activities, and organizations (Taylor et al., 2014; API, 2017). As not all change results in improvement, some tests of change may not directly contribute to the success of a quality initiative but may provide critical learning lessons for stakeholders and quality initiatives (Taylor et al., 2014).

Kurt Lewin's Theory of Change

The steps toward change were modeled in the context of Kurt Lewin's Theory of Change, which endorses the process of unfreezing, changing, and subsequently refreezing social systems to implement change (Sarayreh, Khudair, & Barakat, 2013; Lewin, 1947).

Planning phase (plan). An intrinsic organizational desire to change the existing program evaluation tool represents a driving force of change in this quality improvement project (Sarayreh et al., 2013; Lewin, 1947). Lewin describes the initial phase of change implementation within a microsystem as an assessment of the status quo and then *unfreezing the status quo*. In the context of this project, it comprises of examining the current HPTOP evaluation framework, identifying gaps in HPTOP program objective(s) and participant activities, and then refining the program evaluation tool to align these components (i.e., *unfreezing*) (Sarayreh et al., 2013; Lewin, 1947). QI team members comprising the SEAHEC executive director, HPTOP project coordinator, and DNP candidate met once a month over a course of three months to brainstorm HPTOP program infrastructure, HPTOP program needs, desired project outcomes among stakeholders, DNP project needs, current data, and available resources. The DNP candidate and DNP project director met approximately once every two to three weeks over a span of two months via teleconference to fine tune the focus of the DNP project based on limited available information provided by SEAHEC and HPTOP stakeholders. An approximated one-year gap occurred between these two activities due to personal reasons. Fine tuning rendered a focused project, which was subsequently proposed to stakeholders for their review and feedback, and was ultimately approved.

Establishing a focus for program evaluation. SEAHEC stakeholders initially requested that this DNP project execute a program evaluation using existing pre-, post-, and follow up surveys to determine the impact of the HPTOP program on health professions (HP) students' decision to seek employment in medically underserved areas after participation in HPTOP. The problem was defined as the low interest rate among health professions students to seek future

employment in MUAs after participating in the HPTOP program. Stakeholders further shared that there is a discrepancy between the number of health professions students who initiate participation in HPTOP community-based clinical training, quantity of post-participation and follow up student survey responses, and number of post-participation and follow up survey respondents who express continued interest in working in a MUA upon graduation. It was conveyed that there is a lack of data to demonstrate the impact of HPTOP in garnering the interest of health professions students to work in MUAs as licensed professionals. To supplement this evaluation, stakeholders also requested that existing surveys be refined as well.

The breadth of the program evaluation project was requested to include HP students, HP volunteers, and community residents involved in health-related projects; however, the target population was reduced to HP students to ensure a focused DNP project. Documents furnished by stakeholders included the following: SEAHEC HPTOP recruitment and retention logic model; HPTOP expected measures; SEAHEC website; and blank HPTOP pre- and post-program participation surveys. Stakeholders shared that the quantity of post- and follow up participation survey reports was often less than that of pre-participation survey reports. Furthermore, expected HPTOP program outcomes were not explicitly stated by stakeholders, but were described by them as HPTOP program measures, which comprise of HP student perceptions of their clinical setting, preceptor-student interaction, and community impact.

Unfreezing the status quo requires an initial assessment of the status quo, which in the context of this DNP project is represented by the existing HPTOP evaluation framework. This entails extracting current data on HPTOP program mission, program objectives, program measures, program activities, and expected program outcomes from both written and reported

sources, such as the SEAHEC website, AzAHEC Scope of Work, and direct e-mail or verbal correspondence with the HPTOP executive director and project coordinator.

Examining the HPTOP evaluation framework. Lewin stresses the importance of force field analysis in understanding the variables that influence a microsystem, which in the context of evaluating the impact of HPTOP, infers the need to understand the components of a program evaluation framework (Lewin, 1947). Examination of the current HPTOP evaluation framework comprises an assessment of the program mission, program objective, measures, program activities, and anticipated program outcomes.

Program mission. The SEAHEC mission is to “improve the recruitment, placement, and retention of culturally competent health professionals” in rural and underserved areas of Southeastern Arizona (SEAHEC, n.d.). As previously outlined, the HPTOP program objective, as one of several SEAHEC programs, is to support and prepare HPTOP students academically and clinically in the rural healthcare setting through SEAHEC-affiliated community-based clinical training.

Program measures. Furthermore, SEAHEC stakeholders identify the following HPTOP program measures: (a) the quality of the community-based clinical setting; (b) quality of preceptor-student interaction; (c) student perceptions of feeling welcomed in the local community; (d) quality of community and HPTOP orientation; (e) quality of student housing, personal interest in working in a medically underserved area (MUA) among students; (f) cultural competency.

Program activities. HPTOP program activities specified by SEAHEC stakeholders include the following: (a) coordination of community-based clinical sites and preceptorships; (b)

community-based clinical training; (c) local community orientation; (d) community windshield tour; (e) introduction to vital community contacts; (f) housing and travel stipends; (g) housing coordination; (h) volunteer opportunities; (i) community service projects in MUAs; (j) National Health Service Corps (NHSC) updates for students; (k) introduction to future employment opportunities in MUAs (i.e., 3RNET, NHSC).

Expected program outcomes. Furthermore, stakeholders identified that expected outcomes include the following: (a) optimal clinical setting; (b) optimal preceptor-student interaction; (c) provision of a welcoming environment for health profession students; (d) adequate community and program orientation; (e) optimal student housing; (f) personal interest in working in MUAs; (g) improved cultural competency.

Identifying the program mission, objectives, measures, activities, outcomes and the components of the existing HPTOP program evaluation framework informed the groundwork for this QI project. Program evaluation is defined as an “examination of the worth, merit, or significance of...any set of organized activities supported by a set of resources to achieve a specific and intended result” (Centers for Disease Control and Prevention [CDC], 2012). To better understand the scope of HPTOP and refine the current program evaluation tool, the previously discussed critical program evaluation data were subsequently requested by the DNP candidate and reviewed.

The process of root cause analysis helped to capture presumed linkages between HPTOP program components (i.e., program mission, objective, activities, expected outcomes), which, in turn, helped to identify missing linkages. Examination of blank HPTOP pre-, post-, and follow up surveys revealed inconsistencies in the quality of program evaluation questions, which

rendered it an unfeasible program evaluation tool. A gap analysis of the HPTOP evaluation framework was therefore solicited to better understand the quality of these inconsistencies.

Reframing Project Aim to Support Program Evaluation Refinement

As a quality improvement (QI) tool, gap analysis is an approach for program enhancement that can strengthen current HPTOP evaluation infrastructure. QI is a component of performance management, defined as “systematic and continuous actions that lead to measurable improvement in healthcare services and the health status of targeted patient groups” (US Department of Health and Human Services, 2011). The QI approach allowed this DNP project to focus on ways to bridge the above gaps and thereby refine the HPTOP program evaluation framework for future program evaluation. Gap analysis of available information on program objective(s), measures, activities, and expected outcomes revealed additional information deficits, which further rendered current HPTOP evaluation data as insufficient for successful program evaluation. Identified information disparities included the following: (a) absence of consistency across survey questions between HPTOP pre-, post- and follow up surveys; (b) absence of explicitly stated HPTOP program sub-objectives in relation to expected program measures, program activities, evaluation tool, and expected program outcomes; (c) exclusive focus of AzaHEC Scope of Work Objective 3 on HP student recruitment. These findings were discussed with SEAHEC stakeholders to promote collaborative resolution of information gaps and areas of program nonconformity during the initial phase (Appendix E). Elucidating these information disparities to stakeholders reflected the initial process of transformation that characterizes the second stage of Lewin’s Theory of Change (Lewin, 1947).

Marked areas of inconsistency between each component of the existing HPTOP program evaluation framework and root cause analysis with stakeholders guided the development of a refined HPTOP program evaluation tool for future program evaluation. AzaHEC Scope of Work Objective 3, also regarded as HPTOP program objective, is the focus of refinement (Appendix F).

Deliberation between SEAHEC stakeholders, namely HPTOP program coordinator and program director, DNP candidate, and DNP project director on areas of non-conformity to program objective and expected outcomes resulted in the following changes to the document: (a) construction of sub-objective 3.1B, 3.1C, and 3.1D with additional itemization of sub-objectives to account for specific expected outcomes; (b) construction of a list of explicitly stated program activities derived from the SEAHEC website and program coordinator; (c) construction of expected outcomes derived from program measures for each objective, sub-objective, and further itemized sub-objectives. De-identified surveys were not utilized in this QI project (Appendix E).

Phase of execution (do). The phase of execution involves the utilization of gap analysis findings to enhance the fidelity of program evaluation components to the program objective and intended outcomes. This is accomplished by developing a HPTOP program logic model and aligning HPTOP program objective, sub-objectives, activities, measures, and expected outcomes. AzaHEC Scope of Work Objective 3, also regarded as HPTOP program objective, is the focus of refinement. Deliberation between SEAHEC stakeholders, DNP candidate, and DNP project director on areas of non-conformity to program objective and expected outcomes resulted in the following changes to the document: (a) construction of sub-objective 3.1B, 3.1C, and 3.1D with additional itemization of sub-objectives to account for specific expected outcomes; (b)

construction of a list of explicitly stated program activities derived from the SEAHEC website and program coordinator; (c) construction of expected outcomes derived from program measures for each objective, sub-objective, and further itemized sub-objectives.

Phase of analysis (study). The analysis phase of this QI project occurred concurrently with the execution phase, in which stakeholder input was implemented during the re-alignment of HPTOP program components. Qualitative data derived from gap analysis were captured in a way that supported sound decision-making. Concurrent data collection, synthesis of qualitative data, and implementation of recommendations that emerged from these data occurred over a four-week period (IHI, 2017). During this process, data collection on unexpected obstacles, stakeholder concerns, and unintended outcomes of the change also occurred. The DNP candidate and HPTOP program coordinator collaboratively conducted data collection, and the DNP candidate analyzed the qualitative data, such as stakeholder descriptions about the HPTOP program. The support and expertise of DNP project director and SEAHEC executive director were consulted as needed throughout this process as well.

Recommended refinement of the HPTOP program evaluation tool and critical gaps between program objective, original HPTOP evaluation framework, and expected outcomes were discussed among QI team members during telephone meetings at regular intervals, resulting in mutually agreed upon changes. These changes were applied to HPTOP program objective as they emerged. A revised AzaHEC Scope of Work Objective 3 and sub-objective 3.1 was presented to stakeholders to ensure the fidelity of program components to program objective and expected outcomes. Their feedback was utilized to further refine the program evaluation tool. This gap analysis yielded high quality data that guided the development of a refined HPTOP program

evaluation tool that is aligned with program objectives and expected outcomes. It was also anticipated that the refined program evaluation tool would capture key program data to inform future program evaluations on process and impact.

Phase of improvement (act). The improving phase comprises of determining additional necessary modifications to program evaluation components and preparing a plan for the next cycle of change (IHI, 2013). To address stakeholder's original request to assess program impact, it was recommended to continue efforts to strengthen the HPTOP program evaluation tool for future evaluation of program impact. Strengthening program evaluation tool(s) and evaluation framework is a feasible next step, which may be pilot-tested by an evaluator according to the PDSA cycle.

In addition to refining the HPTOP program evaluation tool, a Retrospective Pre-Test (RPT) model for program evaluation was introduced to stakeholders to cohesively bridge areas of inconsistency, such as attrition in the number of completed HPTOP post- and follow up student program evaluations. Existing pre-, post-, and follow up blank evaluation surveys were also revised in accordance with the RPT framework. Modifications to the existing HPTOP program evaluation framework, rationale, and recommended improvements for the refined program evaluation tool were provided to the SEAHEC executive director and HPTOP program coordinator through a Zoom teleconference presentation for their review and feedback. A further refined HPTOP program evaluation tool was resubmitted to the SEAHEC executive director and HPTOP program coordinators after incorporating their feedback, and thereafter mutual agreement with the final product, with no further revisions, was obtained. Stakeholder approval

and plan to implement the findings and recommendations of this QI project and PDSA cycle represents the final stage of Lewin's Theory of Change, which is refreezing (Lewin, 1947).

Concepts

An explanation of discussed concepts may help to further support the case for a refined program evaluation tool to facilitate future SEAHEC HPTOP program evaluation endeavors, from a quality improvement (QI) standpoint. Quality is an achievable measure that healthcare organizations increasingly seek to uphold and is defined as the degree to which clients' needs and expectations are met (HRSA, 2011; IOM, 2001). Furthermore, enhancing quality is a process of improvement. Improvement is contextual, requires an evaluation of the status quo, is defined in terms of organizational goals and desired outcomes, and operates under the premise that it is innovative (Langley et al., 2009; Taylor et al., 2014; IOM, 2001).

QI is defined as a systematic, cyclical, and progressive process that produces measurable improvement in healthcare-related services and the health status of target populations (HRSA, 2011). Underlying QI principles focus on patient outcomes, collaboration, and data utilization to inform decisions and changes (HRSA, 2011). The significance of QI in the healthcare setting is highlighted by the persisting state of a fragmented healthcare system and recent national efforts to prevent undesirable healthcare outcomes that emerged from this fragmentation (IOM, 2001).

This DNP project shared the tenets of QI initiatives, as it sought to evaluate the current evaluative method of a pipeline training program; bridge gaps between organizational goals, desired outcomes, and the evaluative tool it employs; and deliver recommendations for a refined program evaluation tool that would better support the HPTOP program objectives. Well-developed program evaluation tools equip evaluators to amass qualitative and quantitative data

from key participants in their program about their program activities, processes, and outcomes. Questionnaire surveys help elucidate participants' perception of delivered services, as well as the degree to which expected and actual experience of services correspond among participants (Al-Abri & Al-Balushi, 2014; Rama & Kanagaluru, 2011). A possible long-term implication of this DNP project is the continued use of the refined program evaluation tool to support future HPTOP program evaluation efforts. It is anticipated that the refined evaluation tool may undergo progressive fine-tuning in the future, based on the needs of the program.

This QI initiative complements current national efforts to improve the recruitment and retention of health professionals in underserved areas because it sought to support program evaluation efforts that are needed to assess the full impact of a pipeline health professions training program. Improving an evaluative tool enables these programs to more definitely assess their outcomes, generate actionable knowledge, and contribute lessons learned to local and national public health initiatives.

Summary

In conclusion, ethical considerations of this QI initiative, setting, guiding improvement framework, and concepts were discussed in this chapter. The objective and plan for QI initiative were discussed in light of the guiding principles of the Model for Improvement.

RESULTS

Qualitative gap analysis results demonstrated discrepancies between AzaHEC Objective 3, HPTOP program objective and sub-objectives, HPTOP program activities, HPTOP program measures, and HPTOP program expected outcomes. It was qualitatively determined through thematic association that the existing blank pre-, post-, and follow up surveys (i.e., program

evaluation tool) did not adequately demonstrate questions that directly and indirectly linked to or addressed the above programmatic components of HPTOP.

Program Measures

Four HPTOP program measures were categorized into themes of the “rural rotation,” preceptor-student interaction, “community impact,” and cultural competency, which were subsequently juxtaposed with the AzaHEC Scope of Work, HPTOP program objectives, activities, and expected outcomes to deduce common themes and identify areas of non-alignment. New program measures of health professions students’ intent to serve in MUAs and their satisfaction with HPTOP, as derived from prior brainstorming between stakeholders and the DNP candidate, were also included in this analysis.

Program Objectives

Thematically, the original four program measures were overall linked to the AzaHEC Objective 3 statement, but were not linked to any sub-objectives in this document that pertained to their measurement. As the AzaHEC Scope of Work represented the only available document outlining the programmatic structure of HPTOP, it was utilized as groundwork for constructing a comprehensive evaluation framework for HPTOP. Although this document outlined objectives and sub-objectives pertaining to health professions’ student recruitment, it neither specified program activities and expected outcomes associated with them, nor contained any objectives or sub-objectives pertaining to the above program measures (i.e., student intent to serve in MUAs post-HPTOP participation, student satisfaction with the program). New objectives and sub-objectives were therefore constructed to create linkages between program measures and the greater objective as stated by AzaHEC Objective 3 (Appendix E & F).

Expected Program Outcomes

Expected program outcomes were originally neither explicitly written nor clearly identified by stakeholders. Communication with stakeholders subsequently revealed that expected program outcomes were grossly equated to stated program measures. As such, 26 expected program outcomes linked with program activities, objectives, and sub-objectives were constructed for logic model demonstrating expected outcomes (Appendix C).

Program Activities

Eleven program activities were clearly identified by stakeholders, but were not explicitly written or incorporated in a working programmatic document. A statement identifying the program activity, its execution, and by whom it is executed, in light of program measures, was constructed for each activity (Table 1).

TABLE 1. *Thematic reconstruction of HPTOP program measures and activities.*

Reconstructed Program Measure	Itemized Activity	Reconstructed Activity Statement for Future Evaluation
Participant recruitment		
<ul style="list-style-type: none"> • Recruitment 	<ul style="list-style-type: none"> • Coordination of community-based clinical sites/preceptorships 	<ul style="list-style-type: none"> • Optimal student-preceptor interaction will be fostered by tailoring clinical settings, clinical learning opportunities, observational rotations, and month-long rotations to the educational needs of participating students.
Participant intent to service in MUAs		
<ul style="list-style-type: none"> • Cultural competency 	<ul style="list-style-type: none"> • Community-based clinical training 	<ul style="list-style-type: none"> • Optimal student-preceptor interaction will be fostered by tailoring clinical settings, clinical learning opportunities, observational rotations, and month-long rotations to the educational needs of participating students.
<ul style="list-style-type: none"> • Personal interest in working in MUAs 	<ul style="list-style-type: none"> • Community orientation • Windshield tour • Introduction to vital community contacts and available resources 	<ul style="list-style-type: none"> • Comprehensive community, clinical, and program orientation will be provided to SEAHEC health professions students by providing an in-depth orientation to the local Southeastern Arizona community, guiding a windshield tour of the community, coordinating the student experience with respective academic institutions, and introducing students to vital community contacts and vital resources. • Improved cultural competency will be promoted by SEAHEC by encouraging health professions students' involvement in the local underserved Southeastern Arizona community during their clinical preceptorship, field placement, community projects, or volunteer activities.
<ul style="list-style-type: none"> • Quality of clinical training 	<ul style="list-style-type: none"> • National Health Service Corps (NHSC) updates • Introduction to future employment opportunities in MUAs 	<ul style="list-style-type: none"> • Health professions students' personal interest in working in underserved communities will be supported by SEAHEC by offering clinical preceptors or field placements, community projects, volunteer opportunities that may enhance their interest, an introduction to future employment connections via 3RNET, and application updates from the National Service Health Corps (NHSC).

TABLE 1 – *Continued*

Reconstructed Program Measure	Itemized Activity	Reconstructed Activity Statement for Future Evaluation
Participant satisfaction with HPTOP		
<ul style="list-style-type: none"> • Sense of being welcomed • Community and program orientation • Student housing 	<ul style="list-style-type: none"> • Housing and travel stipends • Housing coordination 	<ul style="list-style-type: none"> • Optimal housing will be provided to health professions students participating in SEAHEC clinical training (i.e., preceptorships or field placements) by coordinating student housing and/or providing financial assistance through housing and travel stipends.
<ul style="list-style-type: none"> • Quality of clinical setting • Preceptor-student interaction 	<ul style="list-style-type: none"> • Community-based clinical training 	<ul style="list-style-type: none"> • Optimal student-preceptor interaction will be fostered by tailoring clinical settings, clinical learning opportunities, observational rotations, and month-long rotations to the educational needs of participating students.
<ul style="list-style-type: none"> • Cultural competency 	<ul style="list-style-type: none"> • Community service projects in MUAs • Volunteer Opportunities • Community orientation • Introduction to vital community contacts and available resources • Windshield tour 	<ul style="list-style-type: none"> • Comprehensive community, clinical, and program orientation will be provided to SEAHEC health professions students by providing an in-depth orientation to the local Southeastern Arizona community, guiding a windshield tour of the community, coordinating the student experience with respective academic institutions, and introducing students to vital community contacts and vital resources. • A sense of being welcomed by SEAHEC will be cultivated among participating students by encouraging their involvement in health professions student training and activities, providing adequate community orientation, and coordinating satisfactory housing arrangements.

Overall, the lack of congruence between each programmatic component of HPTOP rendered the type of evaluation requested by stakeholders, namely impact and outcomes assessment, unfeasible. This prompted the need to create linkages between each component that is needed for future program evaluation.

Utilization of Gap Analysis Findings for Improvement

Gap analysis findings informed recommendations and strategies to better link programmatic components of HPTOP. Two logic models were constructed to demonstrate areas of deficit. The first logic model reflected the existing HPTOP evaluation framework, while the second demonstrated a refined HPTOP program evaluation tool derived from recommendations to streamline linkages between programmatic components (Appendix F).

Recommendations derived from gap analysis were further utilized to construct a revised AzaHEC Objective 3 Scope of Work that demonstrated new linkages between each HPTOP programmatic component (i.e., objective, measures, activities, outcomes). Expected program outcomes were also constructed, each derived from stakeholders' explanation of program activities and measures. A refined program evaluation tool based on the RPT model was also accomplished based on recommendations, which now reflects questions that are linked to different programmatic components of HPTOP and can directly address future evaluation of each component. Over the course of approximately two to three weeks, gap analysis findings compiled into a DNP project summary were presented to stakeholders via ZOOM video conference for their review and feedback. Follow up correspondence between the SEAHEC executive director, HPTOP program coordinator, DNP project director, and the DNP candidate was conducted via e-mail.

Contextual Implications of QI Findings

This QI project was conducted at the main SEAHEC campus in Nogales, Arizona; onsite and remotely via teleconference. The population it serves ranges widely from health professions students of varying socioeconomic and ethnic backgrounds to rural, southeastern Arizona residents who seek exposure to the healthcare field. This local AHEC center, one of many centers across the US, is funded by AzaAHEC lottery dollars and by the federal government. Organizational infrastructure, limited grant funding, rural locale, and limited human resource to operate various SEAHEC program activities can potentially influence the successful study, utilization, and implementation of QI project findings. Feedback from the SEAHEC Executive director revealed a critical feature of SEAHEC and HPTOP operations, which is the utilization of standardized AzaAHEC reporting criteria that influences the manner in which their resources are used. More specifically, the feasibility of implementing the proposed recommendations, a refined HPTOP program evaluation tool using the RPT, may be dependent on the approval of AzaAHEC. The SEAHEC executive director conveyed a willingness to share the details and findings of this QI project with AzaAHEC to potentially implement the proposed recommendations.

Additional feedback from stakeholders entailed a few grammatical changes and a request for clarification on implementing the refined HPTOP RPT program evaluation tool. Changes were implemented accordingly and clarification was provided to stakeholders as requested, with subsequent receipt of stakeholders' final approval of the QI project findings, recommendations, and proposals.

DISCUSSION

Implementation of this QI project was unanticipated and emerged from an organizational assessment of an inadequate evaluation process of the HPTOP program. Lack of critical HPTOP program objective and sub-objectives, as well as incongruence between HPTOP survey questions and both measures and outcomes that the program sought to evaluate rendered program evaluation overall unfeasible. The absence of these key variables revealed the need to refine the current HPTOP evaluation framework in support of future evaluation.

Evaluation of the impact of HPTOP among health professions' students on future employment in MUAs advocated by stakeholders marshalled a critical question of whether the program was functioning as intended to produce measurable outcomes. This QI project represents a fundamental component of performance management, in which the performance of an existing intervention is incrementally optimized to, in turn, function and deliver outcomes as originally intended (US Department of Health and Human Services, 2011). Key QI tools, such as gap analysis and logic models, were implemented in this project to plan and identify focal areas for change, while illustrating thought process that supported QI activities. Fluid communication between stakeholders, namely SEAHEC executive director and HPTOP program coordinator, DNP project director, and the DNP candidate via face-to-face meetings, teleconference calls, and e-mail correspondence facilitated the transition from a focus of program evaluation to quality improvement.

Data collected throughout the QI project was primarily qualitative and derived from discussions with stakeholders, as the central aspect of this project was to refine the HPTOP program evaluation tool to reflect stakeholders' expectations and goals for the program.

Thematic associations between reported and/or written program objectives, measures, and activities were deduced to construct new program objectives and sub-objectives, measures, and expected outcomes.

Recommendations for Improvement

Inconsistencies across components of the original HPTOP evaluation framework solicited the need for refinement in the program evaluation tool that would build incrementally over time. The first area of suggested refinement emerged from the initial examination of pre-, post-, and follow up program evaluation tools, in light of re-aligned program evaluation components. The construction of a first draft of the refined program evaluation tool (Appendix F & H) that reflected program objective, sub-objectives, activities, and expected outcomes has been accomplished, and can be pilot tested by future program evaluators on its reliability and validity as a tool. Demographic questions from the current HPTOP evaluation tool were compiled in a demographic evaluation tool, while a combination of existing and new questions were included in the refined HPTOP evaluation tool (Appendix G & H).

The second area of recommended improvement emerges from stakeholder concerns regarding attrition-related disparities in the quantity of pre-, post-, and follow up survey reports. It is also derived from observed inconsistency across pre-, post-, and follow up survey questions, as well as their incongruence with program objectives, activities, and expected outcomes. To address these needs, a proposed evaluation framework, the Retrospective Pre-Test (RPT), which is designed to incorporate pre-evaluation and post-evaluation measures on the same evaluation tool was selected as a framework for evaluation (Malagon-Maldonado, 2016). RPT is an evidence-based evaluation framework (Appendix H & I) that implements a pre-test at the

completion of the program intervention (i.e., HPTOP), in which participants are asked to simultaneously reflect on what they believe their experiences and perspectives of HPTOP were before as compared to what they were after their participation in the program (Allen & Nikon, 2007; Klatt & Taylor-Powell, 2005; Story & To, 2016; Campbell & Stanley, 1963). Evidence demonstrates the use of the RPT can address attrition-related inconsistencies across pre-, post-, and follow up survey responses; promotes consistency of survey questions; and builds upon the current HPTOP evaluation tool. The reliability and validity of this program evaluation framework can be examined in future phases of evaluation.

Limitations

Qualitative gap analysis represents the methodology of this QI project, and its validity is demonstrated by its utility in answering the project objective and desired project outcome (Elo, Kaariainen, Kanste, Polkki, Utriainen, & Kyngas, 2014). Two separate methods were employed in this QI project, namely gap analysis and logic model, to triangulate and therefore validate data that illustrate the current HPTOP evaluation framework and desired or refined program evaluation tool (Robert Wood Johnson Foundation [RWJF], 2008). A suggestion for future HPTOP program evaluation is the use of thematic analysis and coding to triangulate future quantitative and qualitative findings. Imprecision in design, gaps in the project timeline toward completion, and bias in thematic association are additional sources of potential limitation.

Furthermore, another critical limitation of this study is the greater organizational (i.e., Mazatec) focus on health professions' student recruitment, as compared to other pipeline program quality indicators (G. Emrick, personal communication, November 8, 2017). This may influence the feasibility of implementing QI project findings and reproducing similar QI projects

for HPTOP and similar programs. Additional buy-in and more rigor may need to be applied to this QI project to implement findings.

Significance to Nursing

The objective and findings of this DNP project have significant implications for the nursing profession, as it elucidates the importance of striving to achieve quality care and programs, beyond the status quo. The utilization of evidence-based literature to guide the selection of tailored interventions to meet specific organizational or community needs, while involving key players, demonstrates the unique role and capacity of the doctorally prepared advanced practice nurse in changing the healthcare landscape.

The findings of the gap analysis demonstrate the comparative ease in which public health programs can be implemented, while the fidelity of the program components to the program objective or measures and infrastructure remain inadequate for successful program evaluation. The findings further reveal the need for evidence-based public health programs, strategies, and measurement approaches to optimize their impact on the communities they serve and ascertain their effectiveness. A potential implication of this DNP project for future scholarly practice and DNP projects is continued expansion on the project's groundwork that would further support the endeavors of SEAHEC HPTOP. This may comprise of pilot testing the proposed recommendations, evaluating the fidelity of specific HPTOP program components to the program objective and mission, and measuring the overall impact of HPTOP.

APPENDIX A:

LETTER OF APPROVAL FROM SOUTHEAST ARIZONA AREA HEALTH EDUCATION
CENTER (SEAHEC)



Esther Lee <estherl@email.arizona.edu>

RE: SEAHEC Farmworkers Program Eval or Student Training Opportunities Program Eval_ DNP Project

Gail Emrick [REDACTED] Sun, Feb 1, 2015 at 10:52 AM To: Esther Lee [REDACTED]
"Mcewen, Marylyn M [REDACTED] Cc:
Erin Sol [REDACTED] Claudia Velasco [REDACTED]

Hi Esther:

Thank you for your interest in evaluation of one of SEAHEC's programs. I will provide summarized descriptions of each of the two programs I was thinking might be appropriate (and that we need eval for):

- Health Professions Student Training Opportunities Program
- Healthy Farms Community Health Worker Program

SEAHEC's mission is to recruit, place and retain culturally competent health providers in rural and underserved southeast Arizona.

The Health Professions Student Training Opportunities program provides students from nursing, medicine, pharmacy, dentistry, PA and public health with clinical and community rotations with the objective of increasing likelihood that these students will ultimately return to and better serve our rural, tribal and/or border communities.

SEAHEC has a pre & post survey that students fill out, upon initiation of and completion of their rotation.

[Erin will send you a copy of this survey.](#)

For your evaluation, you could look at results from this survey both across time, as we have several years of data collected; and across professions. FYI, last year alone, SEAHEC placed over 60 students.

You could help determine the impact of student's rotation on their professional development choices.

SEAHEC's Healthy Farms Program is designed to help meet health needs of a vulnerable and isolated rural farm worker community in Cochise County. It originated out of work of a public health student, in 2008, that documented obstacles to health services for farm workers and their families in Winchester Heights.

SEAHEC, with other social service agencies in the county, proposed a community health worker response to addressing issues of lack of transportation, fear of travel to services, and lack of knowledge of health information and health services available. In 2011 SEAHEC wrote a grant to the Cochise Community Foundation and we have successfully implemented a CHW /promotor de salud training program. Our project has been limited in terms of funding (3 years of funding at average level of \$3,500 per year) and staff time dedicated to this project. There are currently 3 trained promotores who receive monthly support visits from SEAHEC health professions students (nursing, public health). Our project objectives include: number of promoters trained; number of classes provided; and number of home visits to other farm worker families.

You could evaluate this program in terms of those quantitative indicators as well as qualitatively regarding type of support promotores receive and need for future work. As well, your work would help SEAHEC prepare our year-end report to Cochise Foundation, due in June 2015.

Esther, either of these will provide a good program for you. My concern with option two is the lack of quantitative data to analyze. But let us know which you are interested in. You can come to meet with me/my staff on Tues. Feb 3rd or Thurs. Feb 5th between 9am and 4pm; or the following week Feb 9 or 11th.

Kind regards, Gail

Gail E. Emrick, MPH

Executive Director

Southeast Arizona Area Health Education Center

1171 W. Target Range Rd., Nogales, Az 85621

Phone: [REDACTED]

email: [REDACTED]



APPENDIX B:

THE UNIVERSITY OF ARIZONA HUMAN SUBJECTS PROTECTION PROGRAM

DETERMINATION OF NON-HUMAN SUBJECTS RESEARCH



Research
Office for Research & Discovery

Human Subjects
Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
<http://rgw.arizona.edu/compliance/home>

Date: October 18, 2017

Principal Investigator: Esther Lee

Protocol Number: 1710882581

Protocol Title: Refining an Evaluation Tool for Southeastern Arizona Area Health Education Center: A Quality Improvement Project.

Determination: Human Subjects Review not Required

The project listed above does not require oversight by the University of Arizona because the project does not meet the definition of 'research' and/or 'human subject'.

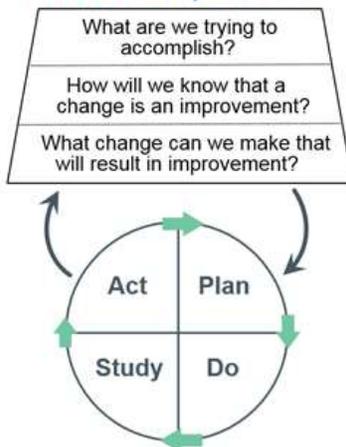
- **Not Research as defined by 45 CFR 46.102(d):** As presented, the activities described above do not meet the definition of research as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "research means a systematic investigation, including research development, testing and evaluation, designed to contribute to generalizable knowledge".
- **Not Human Subjects Research as defined by 45 CFR 46.102(f):** As presented, the activities described above do not meet the definition of research involving human subjects as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention *or* interaction with the individual, or identifiable private information".

Note: Modifications to projects not requiring human subjects review that change the nature of the project should be submitted to the Human Subjects Protection Program (HSPP) for a new determination (e.g. addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the research question). Please contact the HSPP to consult on whether the proposed changes need further review.

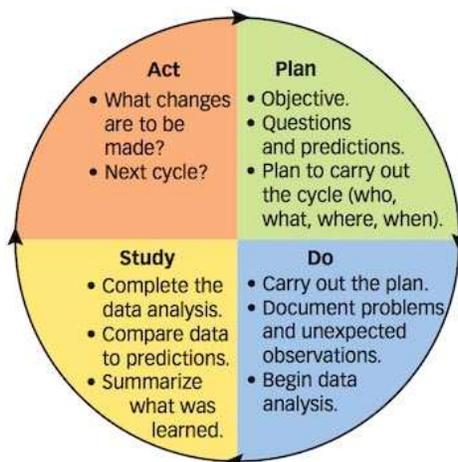
The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

APPENDIX C:
PLAN-DO-STUDY-ACT (PDSA) CYCLE

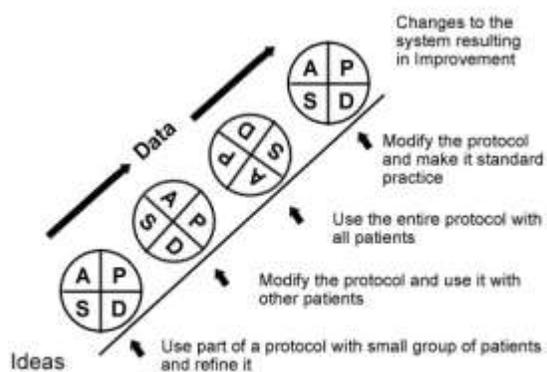
Model for Improvement



(IHI, 2017).



(New York University, n.d.)



(Wyoming Department of Health, 2017)

APPENDIX D:
DNP PROJECT PDSA CYCLE

PDSA Step	Definition	HPTOP Quality Improvement
Plan	A change aimed at improvement is identified	<ul style="list-style-type: none"> • Set quality improvement project aims • Refocus project aim based on available resources and information: <ul style="list-style-type: none"> ○ Look at gaps in Information
Do	Test the selected change	<ul style="list-style-type: none"> • Test of change: alignment of HPTOP program mission, objective, and expected outcomes • Document problems and unexpected observations: gaps in information critical for program evaluation • Deliberate with stakeholders regarding the re-aligned program evaluation components (i.e., feedback, consensus on recommendations) • Finalize information (i.e., objectives document) • <u>Begin</u> data analysis throughout test of change
Study	Examine the outcome of the change	<ul style="list-style-type: none"> • <u>Complete</u> data analysis
Act	Identify recommendations and next steps to inform a new cycle	<ul style="list-style-type: none"> • Recommendations for refined HPTOP program evaluation tool and HPTOP evaluation framework for future program evaluation

APPENDIX E:
EVALUATION LOGIC MODEL FOR SEAHEC HEALTH PROFESSIONS STUDENT
TRAINING OPPORTUNITIES PROGRAM (HPTOP)

**SEAHEC HEALTH PROFESSIONS STUDENT TRAINING OPPORTUNITIES PROGRAM (HPTOP)
AZ AHEC OBJECTIVE 3:**

Prepare individuals to more effectively provide health services to underserved areas and health disparity populations through field placements or preceptorships in conjunction with community-based organizations, accredited primary care residency training programs, FQHCs, rural health clinics, public health departments, or other appropriate facilities.

Change in Focus



Gaps Identified

Original HPTOP Evaluation Framework

Type of DNP Project: Program Evaluation

Focus of Program Evaluation:

- 1.) What do the pre-, post-, and follow up surveys demonstrate about the impact of the HPTOP Program on health professions (HP) students' decision to seek employment in medically underserved areas after participation in HPTOP?

Revised HPTOP Evaluation Framework

Type of DNP Project: Quality Improvement

Focus of Quality Improvement:

- 1.) How can the current program evaluation tool be enhanced to capture relevant data to answer stakeholder questions and facilitate future program evaluation?

Expected Measures <i>(Stated Priority)</i>	Objectives & Sub-Objectives	Activities (Input)	Expected Outcomes <i>(Output: Derived from Expected Measures)</i>	Resources Provided by Stakeholders		Expected Measures	Objectives & Sub-Objectives	Activities (Input)	Expected Outcomes (Output)
<p>1. "Rural rotation itself"</p> <p>Clinical setting <i>How was their clinical setting?</i></p>	<p>Objectives stated as "Expected Measures"</p> <p><i>No stated program sub-objectives provided</i></p>	<ul style="list-style-type: none"> Community-based clinical training Volunteer opportunities Coordination of community-based clinical sites/ preceptorships 	<p>Optimal clinical setting</p> <p><i>No stated expected outcomes provided</i></p>	<p>Pre-, post-, and follow up HPTOP blank surveys</p> <p>HPTOP list of activities</p> <p>HPTOP expected measures</p> <p>SEAHEC/AHEC Scope of Work</p> <p>SEAHEC website</p> <p>AHEC reporting requirements</p> <p>De-identified HPTOP surveys (Not used in current DNP Project)</p>	<p>Lack of general consistency of questions between current pre-, post-, and follow up surveys, rendering challenges in evaluating survey data (De-identified surveys will not be used in current DNP Project as a result)</p> <p>Lack of stated HPTOP program objective(s) and expected outcome(s) pertaining to each expected measure</p> <p>Lack of HPTOP objectives statement and expected outcome pertaining to program evaluation tool</p> <p>Lack of consistency between expected HPTOP program measures and stated objectives in SEAHEC/AHEC scope of work pertaining to HPTOP</p> <p>Limited focus of SEAHEC/AHEC Scope of Work on HP student recruitment objective and performance measures</p> <p align="center">Key Themes: HP student recruitment</p>	<p>1. Participant Recruitment</p> <p>Participant recruitment <i>Coordination of community-based clinical training with various academic clinical recruitment offices</i></p>	<p>Objective 3.1.A. A minimum of 50 health professions students will be recruited for community-based clinical training in medically underserved areas.</p> <p>Sub-Objective 3.1.A.a. SEAHEC will partner with academic clinical recruitment offices at the University of Arizona (UA), AT Still University (AT Still), Midwestern University (Midwestern), Northern Arizona University (NAU), and Cochise Community College to recruit health professions students</p> <p>3.1.B. SEAHEC will facilitate the completion of health professions students' community-based clinical training in the SEAHEC service by:</p> <p>3.1.B.a. SEAHEC will support 12 medical students from schools of medicine including UA Tucson and Phoenix campuses and Midwestern.</p> <p>3.1.B.b. SEAHEC will</p>	<p>All 3.1 activities will be coordinated by the Program Coordinator for Student Training Opportunities & under direction of the SEAHEC Executive Director. Program activities include:</p> <p>1. Optimal housing will be provided to health professions students participating in SEAHEC clinical training (i.e., preceptorships or field placements) by coordinating student housing and/or providing financial assistance through housing and travel stipends.</p> <p>2. Comprehensive community, clinical, and program orientation will be provided to SEAHEC health professions students by providing an in-depth orientation to the local Southeastern Arizona community, guiding a windshield tour of the community, coordinating the student experience with respective academic institutions, and</p>	<p>3.1.A.a.</p> <ul style="list-style-type: none"> Health Professions Training Opportunities Program Coordinator and academic clinical recruitment coordinators of UA, AT Still, Midwestern, NAU, and Cochise Community College meet on a quarterly basis to discuss academic recruitment needs (other activities?) Health professions students are recruited based on inclusion criteria mutually established by SEAHEC and academic clinical recruitment offices. <p>3.1.B.a.</p> <ul style="list-style-type: none"> Housing placement for medical students is provided upon request. Community and SEAHEC orientation is provided to medical students. Clinical placement with a preceptor in the SEAHEC service area is facilitated for medical students. <p>3.1.B.b.</p> <ul style="list-style-type: none"> Housing placement for medical students is provided upon request.
<p>Preceptor-student interaction <i>How was their interaction with their preceptor(s)?</i></p>	<p><i>No stated program sub-objectives provided</i></p>	<ul style="list-style-type: none"> Community-based clinical training Coordination of community-based clinical sites/ preceptorships 	<p>Optimal Preceptor-student interaction</p> <p><i>No stated expected outcomes provided</i></p>						

		<p>HP student satisfaction with community integration</p> <p>Quality of HPTOP on clinical objectives and career interests</p> <p>Effectiveness of HPTOP (HP student intent to pursue career in MUAs)</p> <p>Impact of HPTOP on HP student cultural competence</p>	<p>support 5 DNP students from the UA.</p> <p>3.1.B.c. SEAHEC will support for 8 dental students from AT Still.</p> <p>3.1.B.d. SEAHEC will support for 8-12 PA students (one/month) from Midwestern and NAU.</p> <p>3.1.B.e. SEAHEC will provide support 6 Cochise Community College undergraduate nursing students.</p>	<p>introducing students to vital community contacts and vital resources.</p> <p>3. Optimal student-preceptor interaction will be fostered by tailoring clinical settings, clinical learning opportunities, observational rotations, and month-long rotations to the educational needs of participating students.</p> <p>4. A sense of being welcomed by SEAHEC will be cultivated among participating students by encouraging their involvement in health professions student training and activities, providing adequate community orientation, and coordinating satisfactory housing arrangements.</p> <p>5. Health professions students' personal interest in working in underserved communities will be supported by SEAHEC by offering clinical preceptors or field placements, community projects, volunteer opportunities that may enhance their interest, an introduction to future employment connections via 3RNET, and application updates from the National Service Health Corps (NHSC).</p> <p>6. Improved cultural competency will be promoted by SEAHEC by encouraging health professions students' involvement in the local underserved Southeastern Arizona community during their clinical preceptorship, field placement, community projects, or volunteer activities.</p>	<ul style="list-style-type: none"> Community and SEAHEC orientation is provided to medical students. Clinical placement with a preceptor in the SEAHEC service area is facilitated for DNP students by HPTOP Coordinator and various academic clinical training coordinators SEAHEC collaborates with the UA College of Nursing to identify and develop 1 new placement site for DNP students per year. <p>3.1.B.c.</p> <ul style="list-style-type: none"> Housing placement for dental students is provided upon request by XXXX. Community and SEAHEC orientation is provided to dental students by XXXX. Clinical placement with a preceptor in the SEAHEC service area is facilitated for dental students by HPTOP Coordinator and various academic clinical training coordinators <p>3.1.B.d.</p> <ul style="list-style-type: none"> Housing placement for PA students is provided upon request by XXXX. Community and SEAHEC orientation is provided to PA students by XXXX. Clinical placement with a preceptor in the SEAHEC service area is facilitated for PA students by HPTOP Coordinator and various academic clinical training coordinators <p>3.1.B.e.</p> <ul style="list-style-type: none"> Community and SEAHEC orientation is provided to nursing students by XXXX. Travel stipends for clinical rotations and course work are provided to nursing students by XXXX.
<p>2. "Community Impact"</p> <p>Sense of being welcomed</p> <p><i>Did they feel</i></p>	<ul style="list-style-type: none"> Community orientation Windshield tour Introduction to vital <p>Provision of a welcoming environment to</p>		<p>2. Participant Intent</p> <p>Participant intent to serve in medically</p>	<p>3.1.C. Health professions students' intention to serve in rural or</p> <p>7. Surveys will be administered by the program administrator</p>	<p>3.1.C.a.</p> <ul style="list-style-type: none"> HPTOP retrospective pre-test (RPT) surveys are

<p>welcomed?</p>	<p>community contacts and available resources</p>	<p>HP students <i>No stated expected outcomes provided</i></p>			<p>underserved areas (MUA) <i>Cultural competency</i> <i>Personal interest in working in MUAs</i></p>	<p>underserved areas after completing community based clinical training in medically underserved areas will be measured. 3.1.C.a. SEAHEC will implement a program evaluation tool to assess health professions students' intent to serve in rural or underserved areas upon completion of community based clinical training in medically underserved areas.</p>	<p>and/or assistant before and at completion of clinical training to determine the following reportable information to the Health Resource and Services Administration (HRSA):</p> <ul style="list-style-type: none"> • Trainee identification and demographics (i.e., age, education, background, location, graduation year, profession year) • Trainee category (i.e., enrolled, quit early, fellowship/residencies, graduates, completers but not graduates, continuing education) 	<p>implemented at participant's program completion by XXXX. 3.1.C.b.</p> <ul style="list-style-type: none"> • HPTOP RPT surveys are implemented at participant's program completion by XXXX. • RPT survey reports are systematically evaluated by XXXX.
<p>Community and program orientation <i>Did SEAHEC provide a good orientation?</i></p>	<ul style="list-style-type: none"> • Community orientation • Windshield tour • Housing and travel stipends • Housing coordination • Introduction to vital community contacts and available resources 	<p>Adequate community and program orientation <i>No stated expected outcomes provided</i></p>				<p>3.1.C.b. SEAHEC will evaluate health professions students' survey reports to assess their intent to serve in rural or underserved areas after completing community based clinical training in medically underserved areas. 3.1.C.c. SEAHEC will report survey evaluation findings of health professions students' intent to serve in rural or underserved areas to AHEC.</p>	<ul style="list-style-type: none"> • Training site • Trainee employment locations • Encounters (i.e., who enrolled, quit, graduated) • Information on continuing education 	<p>3.1.C.c.</p> <ul style="list-style-type: none"> • HPTOP RPT surveys are implemented by XXXX. • Specific expected outcomes are developed by XXXX to measure participant intent pre- and post-participation. This will facilitate future QI and program evaluation efforts • RPT survey reports are systematically evaluated by XXXX. • Evaluation findings are synthesized by XXXX. • Evaluation findings are reported to AHEC via AHEC reporting guidelines by XXXX.
<p>Student housing <i>Were they happy with their housing/surroundings?</i></p>	<ul style="list-style-type: none"> • Community orientation • Windshield tour • Housing and travel stipends • Housing coordination 	<p>Optimal student housing <i>No stated expected outcomes provided</i></p>				<p>3.1.C.d. SEAHEC will implement relevant survey evaluation findings of health professions students' intent to serve in rural or underserved areas to the Health Professions Training Opportunities Program.</p>	<p>8. Surveys will be administered by the program administrator and/or assistant before, at completion of (i.e., 3 months or quarter), and at 1-year post-completion of health professions students' clinical training in the SEAHEC Health Professions Student Training Opportunities Program.</p>	<p>3.1.C.d.</p> <ul style="list-style-type: none"> • Cyclical planning, execution, analysis, and appraisal of survey evaluation findings are continuously implemented to support HPTOP mission and objective.
<p>3. "Cultural Competency"</p>					<p>3. Participant Satisfaction</p>	<p>3.1.D. Health professions students' satisfaction with the SEAHEC-supported community based clinical training in medically underserved areas will be measured.</p>		<p>3.1.D.</p>
<p>Personal interest in working in medically underserved area (MUA) <i>Could they see themselves working in a</i></p>	<ul style="list-style-type: none"> • Community orientation • Windshield tour • Introduction to vital community contacts and available resources • Community service projects in MUAs • National Health 	<p>Personal interest in working in medically underserved area (MUA) <i>No stated expected</i></p>			<p>Participant satisfaction <i>Sense of being welcomed</i> <i>Community and program orientation</i></p>			<ul style="list-style-type: none"> • HPTOP RPT surveys are implemented at participant's program completion to assess health professions students' perception of achieved personal educational objectives, preceptor

APPENDIX F:
REFINED PROGRAM EVALUATION TOOL FOR SEAHEC HPTOP

SEAHEC HPTOP
October 25, 2016

ORGANIZATIONAL OBJECTIVE 3:

Prepare individuals to more effectively provide health services to underserved areas and health disparity populations through field placements or preceptorships in conjunction with community-based organizations, accredited primary care residency training programs, FQHCs, rural health clinics, public health departments, or other appropriate facilities.

SUB-OBJECTIVES:

Participant recruitment

3.1.A. A minimum of 50 health professions students will be recruited for community-based clinical training in medically underserved areas.

3.1.B. A minimum of 50 health professions students will complete community-based clinical training in medically underserved areas.

Participant intent to serve in medically underserved areas

3.1.C. Health professions students' intention to serve in rural or underserved areas after completing community-based clinical training in medically underserved areas will be measured.

Participant satisfaction

3.1.D. Health professions students' satisfaction with the SEAHEC-supported community-based clinical training in medically underserved areas will be measured.

PROGRAM OBJECTIVES, SUB-OBJECTIVES, AND OUTCOMES:

Participant Recruitment:

3.1.A. SEAHEC will recruit a minimum of 50 health professions students for community-based clinical training.

3.1.A.a. SEAHEC will partner with academic clinical recruitment offices at the University of Arizona (UA), AT Still University (AT Still), Midwestern University (Midwestern), Northern Arizona University (NAU), and Cochise Community College to recruit health professions students

Outcomes

- HPTOP Program Coordinator and academic clinical recruitment coordinators of UA, AT Still, Midwestern, NAU, and Cochise Community College meet on a periodic (i.e., quarterly) basis to discuss academic recruitment needs.
- Health professions students are recruited based on inclusion criteria mutually established by SEAHEC and academic clinical recruitment offices.
- The HPTOP Demographic Intake Form will be administered to recruited students at the initiation of HPTOP community-based clinical training.

3.1.B. SEAHEC will facilitate the completion of health professions students' community-based clinical training in the SEAHEC service by:

3.1.B.a. SEAHEC will support 12 medical students from schools of medicine including UA Tucson and Phoenix campuses and Midwestern University.

Outcomes

- Housing placement for medical students is provided upon request by XXXX.
- Community and SEAHEC orientation is provided to medical students by XXXX.
- Clinical placement with a preceptor in the SEAHEC service area is facilitated for medical students HPTOP Coordinator and academic clinical recruitment coordinators.

3.1.B.b. SEAHEC will support 5 Doctor of Nursing Practice (DNP) students from the University of Arizona.

Outcomes

- Housing placement for DNP students is provided upon request by XXXX.
- Community and SEAHEC orientation is provided to DNP students by XXXX.
- Clinical placement with a preceptor in the SEAHEC service area is facilitated for DNP students by HPTOP Coordinator and academic clinical recruitment coordinators.
- SEAHEC collaborates with the UA College of Nursing to identify and develop 1 new placement site for DNP students per year.

3.1.B.c. SEAHEC will support for 8 dental students from AT Still University.

Outcomes

- Housing placement for dental students is provided upon request by XXXX.
- Community and SEAHEC orientation is provided to dental students by XXXX.
- Clinical placement with a preceptor in the SEAHEC service area is facilitated for dental students by HPTOP Coordinator and academic clinical recruitment coordinators.

3.1.B.d. SEAHEC will support for 8-12 Physician Assistant (PA) students (one per month) from Midwestern University and Northern Arizona University.

Outcomes

- Housing placement for PA students is provided upon request by XXXX.
- Community and SEAHEC orientation is provided to PA students by XXXX.
- Clinical placement with a preceptor in the SEAHEC service area is facilitated for PA students by HPTOP Coordinator and academic clinical recruitment coordinators.

3.1.B.e. SEAHEC will provide support 6 Cochise Community College undergraduate nursing students.

Outcomes

- Community and SEAHEC orientation is provided to nursing students by XXXX.
- Travel stipends for clinical rotations and course work are provided to nursing students by XXXX.

Participant Intent to Serve in Medically Underserved Areas:

3.1.C. Health professions students' intention to serve in rural or underserved areas after completing community-based clinical training in medically underserved areas will be measured.

3.1.C.a. SEAHEC will implement, analyze, and report findings from the RPT survey to assess health professions students' intention to serve in rural or underserved areas upon completion of community-based clinical training in medically underserved areas.

Outcomes

- A RPT will be administered to HPTOP students to assess their intention to serve in rural or medically underserved areas upon completion of their community-based clinical training.
- The RPT will also assess program measures pertaining to HPTOP student perspectives on their clinical setting, preceptor-student interaction, sense of being welcomed, community impact, student housing, and cultural competency.
- The RPT will be analyzed and findings will be reported per SEAHEC guidelines.
- Cyclical planning, execution, analysis, and appraisal of RPT-based evaluation findings are continuously implemented to support HPTOP mission and objectives.

Participant Satisfaction:**3.1.D. Health professions students' satisfaction with the SEAHEC-supported community-based clinical training in medically underserved areas will be measured.**

3.1.D.a. SEAHEC will implement a survey to assess health professions students' satisfaction with the SEAHEC-supported community-based clinical training in medically underserved areas.

Outcomes

- A RPT will be administered to HPTOP students to assess their satisfaction with serving in medically underserved and rural areas upon completion of their community-based clinical training.
- The RPT will be analyzed and Findings will be reported per SEAHEC guidelines.
- Cyclical planning, execution, analysis, and appraisal of RPT findings are continuously implemented to support HPTOP mission and objective.

PROGRAM ACTIVITIES:

All 3.1 activities will be coordinated by the Program Coordinator for Student Training Opportunities & under direction of the SEAHEC Executive Director. Program activities include:

1. Optimal housing will be provided to health professions students participating in SEAHEC clinical training (i.e., preceptorships or field placements) by coordinating student housing and/or providing financial assistance through housing and travel stipends.

2. Comprehensive community, clinical, and program orientation will be provided to SEAHEC health professions students by providing an in-depth orientation to the local Southeastern Arizona community, guiding a windshield tour of the community, coordinating the student experience with respective academic institutions, and introducing students to vital community contacts and vital resources.

3. Optimal student-preceptor interaction will be fostered by tailoring clinical settings, clinical learning opportunities, observational rotations, and month-long rotations to the educational needs of participating students.

4. A sense of being welcomed by SEAHEC will be cultivated among participating students by encouraging their involvement in health professions student training and activities, providing adequate community orientation, and coordinating satisfactory housing arrangements.

5. Health professions students' personal interest in working in underserved communities will be

supported by SEAHEC by offering clinical preceptors or field placements, community projects, volunteer opportunities that may enhance their interest, an introduction to future employment connections via 3RNET, and application updates from the National Service Health Corps (NHSC).

6. Improved cultural competency will be promoted by SEAHEC by encouraging health professions students' involvement in the local underserved Southeastern Arizona community during their clinical preceptorship, field placement, community projects, or volunteer activities.

7. The RPT will be administered by the program administrator and/or assistant before and at completion of clinical training to determine the following reportable information to the Health Resource and Services Administration (HRSA):

- A. Trainee identification and demographics (i.e., age, education, background, location, graduation year, profession type)
- B. Trainee category (i.e., enrolled, quit early, fellowship/residencies, graduates, completers but not graduates, continuing education)
- C. Training site
- D. Trainee employment locations
- E. Encounters (i.e., who enrolled, quit, graduated)
- F. Information on continuing education

8. The RPT program evaluation will be administered by the program administrator and/or assistant before, at completion of (i.e., 3 months or quarter), and at 1-year post-completion of health professions students' clinical training in the SEAHEC Health Professions Student Training Opportunities Program.

APPENDIX G:
HPTOP PARTICIPANT DEMOGRAPHIC AND ADMINISTRATIVE SURVEY

Southeast Arizona Area Health Education Center, Inc.
Health Professions Student Training Opportunities Program
Participant Demographic Survey

Legend:**Required by HRSA****Based on Logic Model****Created by SEAHEC**

Full Name *

(First, M.I., Last)

Current Address *

(Street Address, Apt #, City, State, Zip Code)

Current Phone Number *

Permanent Phone Number *

Non-University Email *

Emergency Contact Info

Primary Phone Number

Alternate Phone Number

Relationship

1. DOB ***2. Gender *****3. Academic Institution *****4. Rotation/Semester Start Date: *****5. Rotation/Semester End Date: *****6. Preceptor Name: *****7. Rotation Site: *****8. Rotation Type ***

9. Ethnicity: *

Hispanic

Non-Hispanic

10. Race: **(Check all that apply)*

1. African American/Black

2. American Indian/Alaska Native

3. Asian

4. Native Hawaiian/Other Pacific Islander

5. White

6. More than one Race

Other:

11. Can you answer yes to any of the following?**a. You are or will be the first generation in your family to attend college.**

Yes

No

b. You have or currently receive Scholarship or Loan for Disadvantaged Students.

Yes

No

c. While growing up, you or your family ever used federal or state assistance programs (such as: free or reduced school lunch, subsidized housing, food stamps, Medicaid, etc.).

Yes

No

d. While growing up, you lived where there were few medical providers at a convenient distance.

Yes

No

12. What is the zip code of the community where you grew up?

13. Are you in an education program?

Select One

Part Time

Full Time

Leave of Absence

14. Anticipated Date of Graduation *

15. Academic or Training Year

Select One

1-Undergraduate Year 1

2-Undergraduate Year 2

3-Undergraduate Year 3

4-Undergraduate Year 4

5-Graduate Year 1

6- Graduate Year 2

7-Graduate Year 3

8-Graduate Year 4

9-Graduate Year 5

10-Graduate Year 6

11-Graduate Year 7

12-Residency Year

13-Residency Year 1

14-Residency Year 2

15-Residency Year 3

16-Residency Year 4

17-Fellowship Year 1

18-Fellowship Year 2

16. Veteran Status: *

1. Active Duty Military

2. Reservist

3. Veteran

4. Retired Veteran

5. N/A

Other:

17. Chosen Health Field *

(Choose only one)

1. Allopathic Medicine
 2. Chiropractic
 3. Osteopathic General Practice
 4. Optometry
 5. Pharmacy
 6. Podiatry
 7. Psychiatry
 8. Veterinary Medicine
 9. Physician Assistant
 10. Licensed Practical/Vocational Nurse
 11. Nurse Midwife
 12. Nurse Practitioner
 13. Registered Nurse
 14. Dental Assistant
 15. Dental Hygiene
 16. General Dentistry
 17. Clinical Psychology
 18. Clinical Social Work
 19. Substance Abuse/Addictions Counseling
 20. Community Health Worker
 21. Health Education/Behavior
 22. Health Services/Hospital Adm.
 23. Nutrition – Dietetics
 24. Public Health (General Studies)
 25. Clinical Lab Worker
 26. EMT/Paramedic/1st Responder
 27. Health Information Systems/Data Analysis
 28. Occupational Therapy
 29. Physical Therapy
- Other (Specify below)

18. Are you a National Health Service Corps (NHSC) participant? *

Yes

No

Don't know what NHSC is.

19. How many hours would you be completing in this rotation? *

APPENDIX H:
PROPOSED RETROSPECTIVE PRE-TEST TOOL FOR FUTURE HPTOP PROGRAM
EVALUATION

Southeast Arizona Area Health Education Center, Inc.
Health Professions Student Training Opportunities Program
Community-based Clinical Training Experience Survey

Legend:**Required by HRSA****Based on Logic Model****Created by SEAHEC****Created by DNP Project****CLINICAL SETTING**

How would you rate your knowledge about the following topics:

Optimal clinical setting

1. Community-based clinical training in a medically underserved area meets my personal objectives.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

Secondary category: Participant satisfaction

2. Community-based clinical training in a medically underserved area meets my academic and clinical objectives.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

Secondary category: Participant satisfaction

3. Community-based clinical training in a medically underserved area effectively reinforces or expands my clinical knowledge.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

Coordination of community-based clinical sites/preceptorships

4. My community-based clinical training was well-coordinated to support my clinical learning.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

Secondary category: Participant satisfaction

5. Orientation to the community-based clinical training site adequately prepares me for my preceptorship this semester.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

Optimal preceptor-student interaction

6. My interaction with my clinical preceptor promotes a safe environment for learning.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

7. I feel comfortable learning and practicing clinical skills at my community-based clinical training site.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

8. I feel comfortable asking my preceptor questions during my community-based clinical training.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

COMMUNITY IMPACT

How would you rate your knowledge about the following topics:

Provision of a welcoming environment to HP students

9. As a result of receiving SEAHEC orientation to the local community, I feel **comfortable** interacting with the local community.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

10. As a result of receiving SEAHEC orientation and windshield tours, I understand the **role of SEAHEC** in the local community.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

11. As a result of receiving SEAHEC orientation, windshield tours, and community based clinical training, I understand **my role** in the local community.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

12. As a result of the windshield tour, I know where to find **different resources** that I need to navigate and interact with this community.

Before Program	Highly Disagree	Disagree	Neither	Agree	Highly Agree
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			Disagree/Agree		
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

CULTURAL COMPETENCY

13. As a result of receiving the windshield tour, I am able to identify the predominant **culture(s) and language(s)** comprising this community.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

14. As a result of the windshield tour, I understand the **socioeconomic and healthcare needs** of the community.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

INTENT TO SERVE IN MEDICALLY UNDERSERVED AREAS (MUA)

15. Do you intend/plan to work in: (Make sure you have a response for a-d) *

a. Arizona

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

b. Rural Arizona *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

c. Medically Underserved Communities *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

d. Rural/Underserved non-Arizona *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

16. I intend/plan/would like to enter a health career in primary care *
(such as Family Medicine, General Internal Medicine, General Pediatrics, Nurse Practitioner, Physician Assistant, Dentistry)

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

17. I intend/plan/would like to work with people who are medically underserved, that is people who face economic, cultural, or linguistic barriers to healthcare.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

18. Please rate the extent to which you agree with the following statements:

- a. Working in a rural/underserved area will meet my income needs. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

- b. Rural/underserved communities have all the amenities I need to meet my lifestyle needs. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

- c. Employment opportunities for my spouse exist in rural/underserved communities. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

- d. Rural/underserved communities can provide my children with the educational opportunities they need. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

- e. Rural/underserved communities appreciate health professionals. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

- f. Rural/underserved communities provide me privacy. *

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

PARTICIPANT SATISFACTION

18. Overall, I am satisfied with my community-based clinical training coordinated by SEAHEC.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

19. Overall, I am satisfied with my experience interacting with a medically underserved area.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

20. I would refer peers to participate in SEAHEC-coordinated community-based clinical training.

Before Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree
After Program	Highly Disagree	Disagree	Neither Disagree/Agree	Agree	Highly Agree

OPEN-ENDED QUESTIONS

21. What aspect of the Health Professions Student Training Opportunity Program was most beneficial to your learning?
22. What are some suggestions for program improvement?

APPENDIX I:
CONSIDERATION OF THE RETROSPECTIVE PRE-TEST AS A PROGRAM
EVALUATION TOOL

Retrospective Pre-Test Framework

Framework Components	Retrospective Pre-Test (RPT)	Implications for HPTOP Evaluation
Scope of Evaluation	<ul style="list-style-type: none"> • Audience • Purpose • Questions • Scope • Resources 	<p>Audience: Health professions (HP) students</p> <p>Purpose: Evaluate impact and outcomes of SEAHEC HPTOP</p> <p>Questions: Impact and outcomes-oriented questions</p> <p>Scope: How many aspects of the intervention (i.e., HPTOP) will be evaluated? How many representative groups will be evaluated? What is the time period?</p> <p>Resources: Staff, funding, time</p>
Type of Evaluation	<ul style="list-style-type: none"> • Process (formative) • Content • Outcome (summative) • Impact • Program/activities 	<p>Process evaluation: Pilot enhanced program evaluation tool to determine appropriateness and usefulness for HPTOP</p>
Design of Program Evaluation Tool	<ul style="list-style-type: none"> • Consistent with the scope of evaluation • Comprised of three key components: <ul style="list-style-type: none"> ○ Evaluation structure ○ Evaluation methods ○ Evaluation tools • RPT controls for response shift bias that occurs with traditional pre-test and post-test evaluation designs (Springers, 1989). • Surveys with 5-6 point Likert scales are generally effective (Suskie, 1996). • Logically ordered and grouped questions are generally recommended (Suskie, 1996). 	<p>Evaluation structure: Pilot implementation of RPT-based, modified HPTOP program evaluation tool at the completion of student community-based clinical training. Test the reliability and validity of the modified HPTOP program evaluation tool for continued use in HPTOP program evaluation</p> <p>Evaluation method: Pilot testing of RPT-based, modified HPTOP program evaluation tool; RPT Mixed methods design (qualitative and quantitative survey questions)</p> <p>Evaluation tool:</p> <ul style="list-style-type: none"> • RPT embedded in a Modified HPTOP pre-program evaluation tool • Use of 5-6 point Likert scales for survey questions • Categorize questions by program measure

Types of Data	<p>Process, outcome, impact, and program evaluations rely on the three following types of data:</p> <ul style="list-style-type: none"> • Environment • People • Intervention/activity (i.e., program itself, program evaluation tool) <p>These types of data can be further broken down into the following categories:</p> <ul style="list-style-type: none"> • Qualitative • Quantitative 	A combination of qualitative and quantitative data can strengthen RPTs.
Data Collection	<p>From whom is data collected? Different forms of data collection for different types of evaluation</p>	<p>Process evaluation: Data is collected from participants and others that are influenced by the process of HPTOP</p> <p>Content and Outcome evaluation: Data is collected from participants to accurately examine knowledge, skills, and attitudes longitudinally after a change (i.e., enhanced program evaluation tool) is implemented</p> <p>Impact and Program/ activities evaluation: Data is collected from both participants directly influenced by the implemented change and other individuals who are influenced by the change (i.e., enhanced program evaluation tool) over the longer term</p>
Data Collection (continued)	How and where is data collected?	<p>How: Modified, RPT-based HPTOP pre-program evaluation tool</p> <p>Where: Setting where the community-based training was just completed</p>
Evaluation Tool	<p>RPT tool selection, modification, or construction</p> <p>Modifying existing pre- and post-program evaluation tools is recommended to increase efficiency and decrease time and use of resources (Malagon-Maldonado,</p>	

2016)

It is helpful to have operational definitions for what is being measured

It is helpful to use a RPT tool that has documented reliability and validity for a similar target participant population (i.e., health professions students)

Data Analysis	Data analysis for RPT provides answers to evaluation questions and meaningfully organizes data findings	Types of data: <ul style="list-style-type: none"> • Quantitative data • Qualitative data Format of acquired data: <ul style="list-style-type: none"> • Graphs, tables, themes
Reporting	Reporting RPT results include the following information: <ul style="list-style-type: none"> • Evaluation design and results presented in accordance with purpose of evaluation • Evaluation findings provided in light how they can be utilized • Reported findings are consistent with actual data • Discussion of limitations of the RPT 	Reporting of RPT data, findings, and recommendations

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