Implementation of a Virtual Nurse Residency Program for Public Health Nurses: A Pilot Study

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ABSTRACT

Background: Nursing retention is a growing concern for many healthcare organizations. One of the Georgia Department of Public Health's goals is to improve the recruitment and retention rates of public health nurses in the state. In this cohort study of nurses with less than 18 months of experience in public health, pre and post-tests were conducted to measure stress, confidence, job satisfaction, and public health core competencies.

Methods: The participants took part in asynchronous and synchronous online content led by public health professionals. These two modules included content in an overview of public health and communicable diseases. A debriefing allowed participants to provide feedback about the program.

Results: Comparative analysis showed a significant increase in the mean scores for Module 1 M=57 (SD=11.43) and the mean for the post-Module 1 assessment M=83.86 (SD= 5.67). A significant improvement in the mean of the second module pre-assessment mean was also found M=57 (SD=14) compared to the post-assessment M=91.4 (SD= 12.91) for public health core competencies.

Conclusions: This project validated that public health nurses who participate in an online residency program may benefit as demonstrated by improved scores in public health competencies and reported positive experiences in the program.

Keywords: Virtual nurse residency program, nurse residency program, public health nurses, nursing retention

INTRODUCTION

With a national nursing shortage and an expected 700,000 nurses set to retire in the next 5-7 years (The Advisory Board Company, 2017), staff retention and job satisfaction are growing concerns for nursing leaders and employers. The Georgia Department of Public Health (DPH) (2016) identified a 34% decrease in the number of Public Health nurses the state employed over the past decade. One of the DPH's goals is to improve the recruitment and retention rates of public health nurses in Georgia. The DPH proposes addressing this objective through targeted training and development opportunities for public health nurses (Georgia DPH, 2016).

One method to improve the long-term retention of nurses is a residency and mentoring program to help support nurses as they transition into new nursing roles (MacKusick & Minick, 2010). The Institute of Medicine (IOM) recommends and supports the development and use of residency programs to support new graduate nurses' transition into practice (IOM, 2011).

This pilot project aims to execute a nurse residency program for newly hired public health nurses in the state of Georgia to increase retention rates and job satisfaction. Current new-hire training includes a preceptorship with a fellow registered nurse. The preceptor and new hire receive a manual with a list of skills the new registered nurse must complete. Once the new nurse demonstrates competency in a particular skill, the preceptor will mark the item as completed.

Background

Staff turnover is a costly problem for hospital leaders and administrators. The Advisory Board Company (2017) estimated that the potential fiscal impact of nurse turnover is 1.5 times the nurses' average annual salary of $90,000. A 2016 study reports that job satisfaction is critical to retaining public health professionals (Leider et al., 2016). Research also shows that new nurses leave practice because they feel a lack of support from peers and nurse managers (MacKusick & Minick, 2010). Healthcare administration and nursing leaders are researching ways to improve nursing retention and job satisfaction to combat the high cost of nursing turnover (Ulep, 2018).

One method to improve long-term nurse retention is a residency and mentoring program (MacKusick & Minick, 2010). Another method to improve job satisfaction among healthcare professionals is resiliency education to help nurses manage occupational stress (Low et al., 2019).

Henry (2014) found that organizations using some of these interventions experience increased nursing retention rates and reduced turnover.

The Iowa Online Nurse Residency Program (IONRP) pioneered a virtual residency program as an alternative to institutions seeking an affordable residency program for nurses of any specialty (Wilson et al., 2018). This pioneering program was designed as a standardized turnkey 12-month residency program for any newly graduated registered nurse to complete, with minimal startup costs to the healthcare organization. The program incorporates synchronous and asynchronous work with the assignment of a unit mentor to work alongside each new nurse and concludes when the nurse resident completes quality improvement or evidence-based practice projects (Wilson et al., 2018). This online residency program model enables healthcare organizations that have limited resources, such as the DPH, to support new nurses while conserving vital financial and human resources. This pilot study used methods similar to those of the IONRP to develop an operational nurse residency program for the DPH.

The Southeastern Wisconsin Public Health Nurse Residency Toolkit (Manske et al., 2017) was the first model to provide a structured program to support the development and training of public health nurses in Wisconsin. This toolkit bases ix core sessions on the foundational public health services model. Each session aligns with one essential area of that model including public health overview; communicable disease; chronic disease and injury prevention; environmental public health; maternal, child, and family health; and access to and linkage with clinical care (Manske et al., 2017). The program has succeeded; when evaluated, 70% of participants reported "excellent" and the other 30% rated the program as "very good" (Manske et al., 2017). This study uses the Southeastern Wisconsin Public Health Nurse Residency Toolkit to develop a virtual residency program for public health nurses.

Research shows that many new nurses leave practice due to a lack of support from peers and nurse managers (MacKusick & Minick, 2010). Healthcare administration and nursing leaders are researching ways to improve nursing retention and job satisfaction to combat the high cost of nursing turnover (Ulep, 2018). One method for improving job satisfaction among healthcare professionals is resiliency training, which helps nurses manage occupational stress (Low et al., 2019). Henry (2014) found that organizations using some of these interventions experienced increased nursing retention rates and reduced turnover. Successful use of a virtual nurse residency program could increase nursing retention rates and reduce the turnover of registered nurses in the DPH.

Benner's Novice-to-Expert Model

Patricia Benner's novice-to-expert model provides contextual background to support this pilot study. This program provides the public health nurse with a preceptor and course facilitator to guide them through the early stages of their career. Patricia Benner's novice-to-expert model best reflects the concepts of this type of program and provides the theoretical framework for this pilot study (Benner, 2004).

According to this model, new nurses progress from novice to advanced beginner to competent levels based on experiential and contextual influences over time (Benner, 2004). Other agencies and organizations have used this model in mentoring programs and preceptor training for new nurses (Butts & Rich, 2018). Benner's model guides potential interventions for job stress and anxiety based on the nurse's stage in the novice-to-expert continuum: novice, advanced beginner, competent, proficient, and expert (Benner, 2004). This model also provides a timeline for the organization of the project. The average amount of time a nurse progresses from novice to expert is 1-2 years (Benner, 2004). Patricia Benner's model will enable preceptors and course facilitators to lead new public health nurses through the residency program based on guidance appropriate for their stage modeled after Benner's (2004) continuum. This continuum will also allow the preceptors to watch for potential job-related stress and anxiety the residents may experience related to their stage in the framework.

METHODS

The project was modeled after other successful nurse residency programs found in the literature. Key components of other successful residency programs appropriate for this project included (a) precepting, (b) didactic classroom experiences, (c) looping outside of the primary clinical setting, and (d) debriefing throughout the program (Larsen et al., 2018). The initial project had a six-month timeline, but the COVID-19 pandemic caused a modification to two months. IRB approval was obtained from Indiana Wesleyan University prior to the recruitment of participants. The project facility (the state of Georgia) did not require IRB approval. New nurse residents were identified by the district nursing director and invited to participate in the pilot program as part of their new-hire training. Due to the small sample size (n=3) from Georgia, public health nurses from Wisconsin were also invited to participate in the study to increase the sample size to eight. Enrolled study candidates were not required to complete the Casey-Fink Graduate Nurse Experience Survey or the Quad Council Public Health Nursing Competencies Tier assessments to participate in the pilot study.

Initially, the plan was to pair nurse residents with volunteer nurse preceptors. The condensed timeline precluded the pairing for the pilot project, but preceptors will be added to future residency programs. Eventually, preceptors will be trained to become mentors and professional role models for the new public health nurses as they transition to practice. These preceptors and nurse residents may or may not work at the same clinical site. The preceptors will be encouraged to contact the study participants at least once a week for the program's duration, either in person, through email, or by phone. The preceptors will also be available to the new

nurses to provide debriefing in challenging patient interactions.

Once the nurse residents were identified and the proper consent signed, they were given access to the course content online. Each participant was given login information to the site with password information to maintain confidentiality. On the program's first day, each public health nurse took the Casey-Fink Graduate Nurse Experience Survey and the Quad Council Public Health Nursing Competencies Tier to measure baseline scores for stress, confidence in the job, satisfaction with current roles, and knowledge of public health competencies. Once the Casey-Fink Graduate Nurse Experience Survey and the Quad Council Public Health Nursing Competencies Tier assessments were completed, the participants received access to both modules. The first module covered content including public health policy, law, ethics, and health literacy. The second module covered communicable diseases and reviewed surveillance, tuberculosis, sexually transmitted diseases, and contact tracing.

The nurse residency program was designed for participants to complete the asynchronous content at their pace, within four weeks per module. These evidence-based learning opportunities enabled them to address the Core Competencies for Public Health Professionals, which are necessary skills for public health nursing practice (Swider et al.,2013). The synchronous classroom experiences, scheduled once per module at a designated time, included modules on the following core competencies earmarked for improvement: (a) assessment, (b) policy development, (c) communication skills, (d) cultural competency, (e) community dimensions of practice skills, (f) public health science skills, (g) financial management and planning, and (h) leadership and systems thinking (Swider, et al., 2013). The modules and interactive case studies were led by district professionals who are experts in their respective domains. During these case studies and classroom discussions, residents received feedback on complicated patient interactions during debriefings.

Each module of the residency program included a scavenger hunt, which allowed nurses to tour their health department and participate in looping experiences by interacting with other interdisciplinary team members. At the end of each module, the nurse residents completed a post-module assessment to determine how effectively the module met the course objectives.

This pilot study took place in one health district in Georgia comprised of 13 independent county offices, each employing 1-10 registered nurses. The participant population was eight new public health nurses. Three nurses were licensed and practicing in a Georgia public health district, and five were licensed and practicing in Wisconsin. For this study, a new public health nurse was defined as a registered nurse who had been employed in public health for less than 18 months at the project's start. Nurse residents were identified and recruited for project participation by the district nursing officer, responsible for all new nurse

education. The nursing director strongly encouraged the nurses who met the requirements to complete the program. The Casey-Fink Graduate Nurse Experience Survey and the Quad Council Public Health Nursing Competencies Tier assessment completions were optional.

Other project participants included the district nursing officer, who ensured the required educational objectives were met during the didactic classroom interactions and debriefing experiences. District health department employee volunteers taught and interacted with the residents in the asynchronous experiences.

Data Collection

Before the initiation of the residency program, all participants voluntarily completed the Casey-Fink Graduate Nurse Experience Survey, which is comprised of 41 questions distributed among five sections: demographics, skills and procedure performance, work environment and role transition, job satisfaction, and comfort and confidence (Cline et al., 2017). Initially developed in 2008, the survey was pilot-tested on oncology and bone-marrow transplant nurses and then revised in 2009; a panel of experts then reviewed the edited content, and psychometric analysis revealed the survey to be valid (Buffington et al., 2012). The original plan was for participants to complete the Casey-Fink Assessment after six months in the program, and repeat the assessment at 12 months, but due to time constraints placed by the COVID-19 pandemic, this was not possible. To protect participants' privacy, numerical identifiers were assigned instead of names.

Before the first module began, all participants completed the Quad Council Public Health Nursing Competencies Tier 1 Assessment and a module pre-test. After participants completed each module, they took a post-test to assess how well they had met the course objectives and competencies. The Tier 1 Core Competencies is a self-assessment that applies to generalist public health nurses in state and local health departments (Swider et al., 2013). The competency tool assesses the eight domains of skills essential to public health nursing. Participants completed this assessment before the first session, and the original plan was to have them complete it again at the last session, but pandemic-related time constraints prevented the re-assessment.

The pre and post-tests for Modules 1 and 2 were analyzed to assess participants' growth and learning during the modules. A debriefing session was held at the end of Module 2 to allow the participants to provide qualitative feedback to the project manager on what they liked most about the program and ways to improve the program for future modules.

RESULTS

Eight nurses began the virtual nurse residency program in November 2020. All completed the first module, including the pre-and post-Module 1-course assessments. Six completed the pre- and post-Module 2-course assessments, and six participated in the post-pilot debriefing. After the data were collected, a paired-sample t-test was conducted to compare the mean Module 1 and Module 2 pre-assessment test scores to the mean post-Module 1 and Module 2 scores.

The t-test found a significant improvement in the mean scores from the Module 1 pre-assessment M=57 (SD=11.43) and the mean for the post-Module 1 assessment M=83.86 (SD= 5.67). A significant increase from the pre-test to the post-test was found (t (6) =5.5 p=0.007). The t-test was repeated to compare the Module 2 pre-assessment test scores to the Module 2 post-assessment scores. A marked improvement in the mean of the Module 2 pre-assessment M=57 (SD=14) was also found, compared to the post-assessment M=91.4 (SD= 12.91). A significant increase from the pre-test to the post-test was found (t (4) =4.8 p=0.009). Based on this analysis, the nurses who participated in the residency program pilot had a statistically significant increase in the public health competencies assessed in Modules 1 and 2.

Debriefing Experience

Six of the eight participants (75%) participated in a debriefing experience at the end of the pilot program. Four out of six (67%) reported a positive experience with the pilot study, saying the program was an opportunity to connect and network with others in public health, providing an overview of public health, and were engaged in the modules. The participants noted that the modules were well-organized, had the appropriate length of time, and were useful for their work. The enrolled participants found the communicable disease module of particular use in response to the COVID-19 pandemic. Four out of the eight participants (50%) indicated that they applied their coursework to their professional responsibilities. One reported that she bookmarked several links on her work computer and referenced the links as resources. Another stated she used the skills she had learned in the health literacy lecture to develop new educational tools for her department. One reported she received no formal orientation, so this program was her only opportunity for an orientation to public health. Also, she noted her gratitude for the opportunity.

Three of the six (50%) participants spoke of how the program reaffirmed their desire to remain in public health. They appreciated the opportunity to discuss burnout early in their careers and what potentially led to a turnover. However, they consistently stated that low pay, not job dissatisfaction, was the main reason they believed professionals left public health. Participants agreed the residency program could support retention efforts in the public health setting, especially in areas where other training for new hires was not offered.

All participants (100%) noted their supervisors supported their participation in this project. They noted other novice public health professionals could benefit from the additional support the program provided. When asked what issues were missing from the current modules, the participants spoke of how new public health professionals need knowledge about what public health is and how to spread public health awareness in the local community. The participants felt strongly that the modules should address health equity and poverty.

All participants (100%) agreed the pandemic impacted their work in public health. Two reported the disease investigation unit helped prepare them for their work with COVID-19. Three (67%) stated the program was a welcome break or a "lifeline" to escape from COVID-19 for a time.

DISCUSSION

The pilot study provided valuable information for public health leaders, nurses, and other stakeholders interested in improving job satisfaction and competencies among public health nurses. Eight nurses met the criteria to complete the pilot study and completed both modules, although only six completed the final Module 2 post-assessment. The assessments' results demonstrated a statistically significant increase in the baseline public health competencies acquired in the two modules. The participants reported positive feedback related to participation in the pilot study and several shared examples of how they used their new skills to improve work in their public health practices. Participants also reported how the residency program reaffirmed their commitment to a career in public health.

At least one public health nurse works in each of Georgia's 159 counties (Georgia Department of Public Health, 2016), and they provide essential services such as immunizations and management of public health outbreaks and other natural disasters. They also serve many individuals in their communities referred by care providers and other agencies for primary care needs. According to the DPH (2016), the capacity of public health to fulfill its mission depends on the capacity of public health nurses. The effects of a declining public health nursing workforce can be seen in several ways, including the most vulnerable of populations not receiving healthcare, delays in detecting cancers and other preventable illnesses, more unplanned pregnancies, and the closure of some health departments (Georgia Department of Public Health, 2016). The goal of any organization is to retain employees once they have been hired and onboarded. The DPH is committed to workforce development that encourages retention and reduces turnover among public health nurses (Georgia Department of Public Health, 2016). The continuation of this project can create additional data and opportunities for setting up online nurse residency programs within the DPH. This innovative project was based on evidence designed to improve nursing retention, decrease turnover, and improve job satisfaction among newly hired public health nurses in an already strained public health system.

Limitations

The lack of literature to support an online nurse residency program in the DPH limited the ability to create and develop such a program. This lack of research may impede buy-in from some local health department stakeholders.

The COVID-19 pandemic placed several limitations on this project. The program was designed to take place over six months, with assessments for job satisfaction and retention held at the six-month mark. Due to the pandemic, the study was condensed to a smaller, two-month window, which limited data collection. The pandemic may also impede the project's continuation at this time due to time and staffing constraints of local health departments.

The original plan for this project was to include additional counties in Georgia due to limitations placed by COVID, this was unable to occur. Therefore, due to the small number of nurses who fit the criteria for inclusion in the original project (n=3), nurses from another state were included to increase the collected data. This original low sample size allowed the project team to collect a larger data sample, though the nurses were from geographically different locations and may not share similar backgrounds and experiences in public health. Finally, there was no comparison group of public health nurses who had used an internal program for training. These comparisons will be needed to measure the actual effectiveness of the online residency program.

Recommendations

A recommendation is to expand the online residency program to an entire year, which would fit within the best practice of offering a program of 10-15 months in length (Perron et al., 2019). Each module could be offered monthly, for a total of 12 modules in a year. This timeframe would allow participants to complete both the Casey-Fink Graduate Nurse Experience Survey and the Quad Council Public Health Nursing Competencies Tier 1 assessment at the six-month and 12-month marks to reassess job satisfaction, turnover risk, and public health competencies.

Another recommendation would be to include the enlistment of a dedicated preceptor for each participant in the residency program. The preceptor is an essential part of the residency program (Wildermuth et al., 2019), but due to COVID-19 pandemic restrictions, this was not feasible for the pilot implementation.

The online nurse residency program piloted in this project offers the DPH a structured, evidence-based program through didactic classroom experiences, looping opportunities, and debriefing experiences. This project validated that nurses who participate in an online residency program may benefit as demonstrated by improved scores in public health competencies and may have positive experiences in the program. The online nurse residency program should be further considered by DPH as an option for workforce development in the pursuit of improved job satisfaction, nursing retention, retention risk mitigation, and improving public health competencies among new public health nurses.

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