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IMPLEMENTATION OF TELEHEALTH EDUCATION IN A PRE-LICENSURE BSN NURSING PROGRAM IN RURAL SOUTHEAST KANSAS

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An Abstract of the Project by
Anna Beth Gilmore, MSN, APRN, NP-C

The purpose of this project was to facilitate the implementation of a successful telehealth education program in a pre-licensure nursing program at a regional university in the Midwest. The project took place at Pittsburg State University Irene Ransom Bradley School of Nursing. Participants included eighty-six undergraduate senior students in their last semester of nursing school enrolled in Community Health Nursing preparing to begin their nursing career. The group completed a 20-hour self-paced telehealth educational program offering made available through a partnership with Dr.'s Carolyn Rutledge and Tina Gustin of Old Dominion University Center for Telehealth Innovation, Education and Research (C-TIER). The educational program offering consisted of didactic content, experiential learning activities, student projects, simulated learning and clinical encounters. Upon completion of the educational program, participants were invited to complete a voluntary anonymous feedback survey. The survey was offered online through the software program Qualtrics. Participants were sent a link via Canvas© Learning Management System and invited to complete the survey. The survey consisted of nineteen questions, sixteen questions rating participant perception of the educational program offering and three open-ended questions. The project conclusion revealed overall positive feedback of the educational program from the majority of respondents.

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Introduction

Telehealth has not only become a buzzword in today's society but it is also quickly becoming a critically important component of healthcare. Patients can be evaluated effectively, whether across the street or across the globe, as long as access to high-speed internet is available (Dinesen et al., 2016). As our society is faced with a global pandemic, face-to-face contact has become less ideal and has amplified the need to keep medically fragile patients safe. Providers in multiple specialties are turning to telehealth as the answer. However, telehealth was not just invented to meet the needs of healthcare in today's worldwide pandemic. Telehealth has assisted in helping improve access and quality of care, especially in rural communities, for many years (Soto et al., 2019). Telehealth has recently taken off at lightning speed and will have a strong significance on healthcare delivery and medicine over the next decade. Telehealth is experiencing rapid growth that could potentially transform healthcare delivery for a large portion of the population (Dorsey & Topol, 2016).

Telehealth has proven to improve access to healthcare as well as to reduce costs for the patient and the healthcare system, especially when it comes to treating patients in rural settings (Seto et al., 2019). Not only is telehealth able to provide a way to help people stay at home and out of harm's way, it also helps in stretching the grasp of

specialty services. The reach of nursing and medicine can be expanded with the use of telehealth, helping to minimize social and geographic inequities previously experienced (Dorsey & Topol, 2016). Telehealth can also be beneficial in helping to provide more effective and efficient care. Schwaam et al. (2017) found that multiple challenges in the current healthcare climate can be addressed with a telehealth strategy.

Financially, telehealth is appealing from a provider and patient standpoint. Hunter et al. (2015) found that telehealth recently has gained popularity because of things such as better communications and technologies combined with increased cost containment when caring for an aging population. Telehealth can provide beneficial services for both young and old patients across the lifespan. Efficient, effective and affordable care avenues are being opened in pediatrics due to telehealth services (Olsen et al., 2018). In addition to assisting patients of all ages, telehealth can provide services for patients with multiple needs. Telehealth technology has been implemented in providing functional analysis and functional communication training among children with developmental disabilities and behavior support needs (Benson et al, 2018). Telehealth also is not only designed for low acuity patients. Traditionally, a patient requiring dialysis is considered high acuity and in need of in-person care. Bieber & Weiner (2018) found that even these patients can benefit from telehealth which offers more streamlined logistics and more efficient care when an acute problem is encountered (Bieber & Weiner, 2018).

One often hears the terms telehealth and telemedicine used interchangeably. It is important to distinguish between them as much as possible. Health Information and Technology Evaluation and Quality Center (2020) compares telemedicine to remote clinical services while telehealth is a more overarching term that can include remote

clinical services in addition to remote non-clinical services such as provider training. For the purpose of this scholarly project, all telehealth/telemedicine services will be referred to as "telehealth." From a global perspective, healthcare systems vary greatly between countries, but the need for telehealth services is worldwide (Dinesen et al., 2016).

While the need for telehealth services is global, many questions remain about its increased use. Does telehealth offer the same quality as in-person care? Do patients feel comfortable with telehealth services? Is this a feasible method of care delivery that can be relied upon? Powell et al. (2017) found that all participants in their study were interested in future video telehealth appointments. Providers must remember that using telehealth will not be as natural for some patients as it is for others (Dinesen et al., 2016).

Statement of the Clinical Problem

Patients across the United States in need of primary care and specialized care daily are forced to go without that care due to lack of access. Telehealth can help provide the answer. Telehealth assists homebound patients, patients who live in rural or underserved areas, and patients with other limited access to care (Chaet et al., 2017). Getting care to the most vulnerable is what one would consider a gold standard of telehealth, but does not go without complications. Unique challenges arise when providing telehealth in rural communities (Seto et al., 2019). Issues such as poor internet connection or inexperienced technology users can arise quickly during telehealth delivery and leave participants on both ends feeling frustrated and annoyed. This is not a reason to quit. The percentage of patients in the United States who do not have access to a primary care provider or complete access to a primary care provider is estimated to be around 25 % (Polinski et al., 2015). Telehealth services can assist in providing an answer to this

problem for a large number of patients. Dorsey & Topol (2016) indicate three trends currently shaping the world of telehealth including (a) transformation of telehealth from increasing access to providing convenience and reducing cost; (b) expansion from only providing acute care to including chronic conditions; and (c) the shift of telehealth services from hospital and satellite clinics to patients' homes and mobile devices. It is likely telehealth services will continue to evolve over the next decade.

Figuring out the dynamics of telehealth reimbursement can be challenging. The evidence of benefit continues to grow, but reimbursement has focused on processes within healthcare facilities instead of processes that affect patient outcomes (Dinesen et al., 2016). Reimbursement is important when determining the use of clinical interventions and is based primarily on the value of care provided in the lowest possible cost setting while providing efficient care (Tuckson et al., 2017). Likewise, reimbursement on a federal level has also been limited to only live video care and only for patients in rural communities with a specific strict definition (Dinesen et al., 2016). Recent developments have changed the limitations of reimbursement.

Technology continues to grow which continues to offer more options in regards to telehealth proving the need for business models and telehealth reimbursement (Dinesen et al., 2016). It is difficult to assess the economic impact of telehealth due to the inability to separate out remote monitoring from video consultations or other types of telehealth specialties (Hunter, 2015). Patients report the reduced cost of attending the appointment is a perceived benefit of telehealth services (Powell et al., 2017).

Current telehealth diagnostic capabilities are limited, but the potential for expansion is present (Hunter, 2015). Integration of telehealth services has been slow

despite the improvement to care it provides (Cimperman et al., 2016). It is often the consensus that telehealth and telemedicine are drastically changing the way medicine is delivered with the continuous change and increased level of technological sophistication (Chaet et al., 2017). Seto et al. (2019) found that telehealth systems are most often underutilized.

It is vitally important that providers maintain quality of care in the virtual world. Even with new ways of providing care, providers still have the same obligation to their ethical responsibilities (Chaet et al., 2017). The obligation to know how to use the technology is also present in addition to the ability to provide quality care (Chaet et al., 2017). Telehealth is not a shortcut. It is important to maintain the commitment to quality.

Significance to Nursing

As the COVID-19 pandemic dredges on, nursing continues to be at the frontlines providing in person patient care. Face-to-face is always best, but when the risks outweigh the benefits, telehealth is a great alternative. Telehealth is especially beneficial for patients and healthcare providers who are comfortable with technology (Chaet et al., 2017). Advocating for the necessary technologies to provide telehealth services is the responsibility of the healthcare team, not just the individual healthcare provider (Chaet et al., 2017). Helping provide accessible care is part of our duty as nurses. Often patients are unable to access care due to their employment or other personal responsibilities and telehealth services are often the answer to this dilemma (Polinski et al., 2015). Nursing is directly involved with and impacted by telehealth delivery.

Nurses pride themselves in providing patient-centered care. This is one more reason to embrace telehealth and incorporate telehealth services into nursing care.

Patients often report a perceived benefit from telehealth appointments. Powell et al. (2017) found that the majority of participants in their study enjoyed the convenience of the visits including not having to miss work or sit in a waiting room and also mentioned the ease with which they were able to include family members in telehealth visits in comparison to face-to-face visits. This ever-evolving way of delivering care is governed just like every other aspect of healthcare. Some basic rules exist that one must be aware of before beginning to learn about and beginning to work with the telehealth team. ‘‘Telemedicine,’’ including ‘‘telehealth,’’ means the delivery of healthcare services or consultations while the patient is at an originating site and the healthcare provider is at a distant site. Telemedicine shall be provided by means of real-time two-way interactive audio, visual, or audio-visual communications, including the application of secure video conferencing or store-and-forward technology to provide or support healthcare delivery, that facilitate the assessment, diagnosis, consultation, treatment, education and care management of a patient’s healthcare. ‘‘Telemedicine’’ does not include communication between (a) Healthcare providers that consist solely of a telephone voice-only conversation, email or facsimile transmission; or (b) a physician and a patient that consists solely of an email or facsimile transmission” (Kansas Statute 40-2211, 2020). Interpretation of telehealth services in the United States is performed at the state level (Dinesen et al., 2016).

Communicating important health information with patients is sometimes perceived as a better delivery via telehealth. Powell et al., (2017) found that several study participants stated that they would prefer to receive life-altering news regarding their health via telehealth services. Younger generations who have experienced increased

exposure to technology are more likely to use telehealth services (Dinesen et al., 2016). Telehealth has been recognized as leading agent in providing care for patients with chronic diseases on a global level (Dinesen et al., 2016). Overall, the type of patient that can be reached with telehealth is very broad. More patients are appropriate for this type of service than are not. While that is true, more research is necessary to determine the types of visits and patient populations most appropriate for telehealth services (Powell et al., 2017).

Purpose of the Project

This project's purpose was to facilitate the implementation of a successful telehealth education program in a pre-licensure nursing program at a regional university in the Midwest. The Pittsburg State University Irene Ransom Bradley School of Nursing (PSU IRBSON) is a School of Nursing in Pittsburg, Kansas with multiple nursing degrees offered. The Bachelor of Science in Nursing (BSN) program at the School of Nursing was and continues to be the focus of this project. Pittsburg is located in the southeast corner of the state and has a population of approximately 20,000 (United States Census Bureau, 2020). According to the City of Pittsburg, (2020) a diverse group of hard-working and focused people call Pittsburg home and strive to make the community a better place. The community surrounding Pittsburg is considered rural and houses its own unique health care needs. While the community is home to Pittsburg State University (PSU), a well-known Division II school, it is often a challenge to provide specialized health care services. This means that patients typically must leave the community of Pittsburg when specialized care is necessary. More robust and readily available telehealth services in this community will ultimately improve the overall health

of the community. With the program physically located in a rural area, the need for telehealth services arises often. There is a need for nursing students to have access to quality telehealth training and competence in providing care in a telehealth setting. With the recent pandemic taking a global toll, now more than ever, telehealth services are needed.

Telehealth is not the answer for every patient and every medical condition. Often, the nurse must be the one to make the call on the appropriateness of telehealth use. It is important to understand that patients in a telehealth setting need some access to basic technologies and healthcare providers must be allowed to meet established clinical standards (Chaet et al., 2017). Also, healthcare providers must determine if telehealth services are in the best interest of the patient being treated and if their needs can be met using these services. Powell et al. (2017) found that telehealth services can assist in providing more timely communication in regards to test results. Increasing and improving communication is a known benefit of telehealth services.

Conceptual Framework

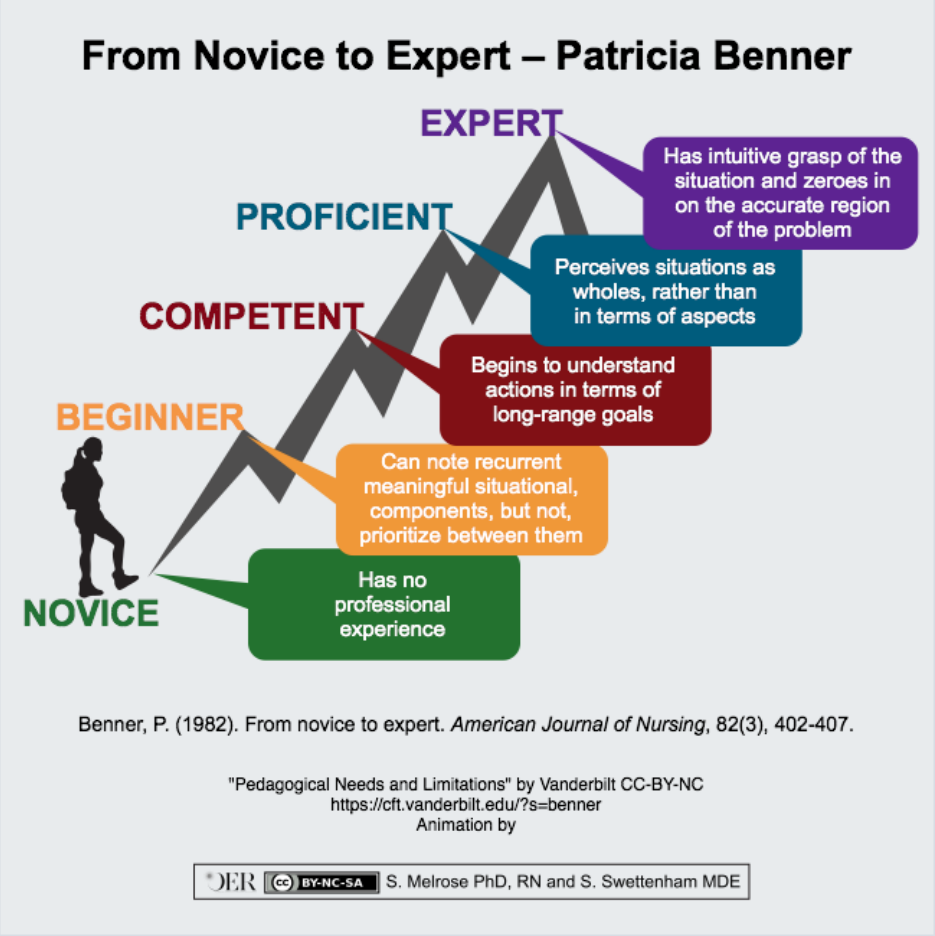
The conceptual framework chosen for the implementation of this project is Dr. Patricia Benner's "From Novice to Expert" theory. This fits so well with nursing education as most nurses have experienced or will experience every component of this theory in their own nursing education journey. Benner (1982) describes five stages of clinical competence starting with stage 1: novice, moving to stage 2: advanced beginner, stage 3: competent, stage 4: proficient, and stage 5: expert.

Implementation of telehealth education in a prelicensure nursing program will require the faculty and students to travel through Benner's stages. Faculty and students

will participate in a telehealth education program together during the first offering. In Stage 1 as the novice, the learner is not expected to have the ability to predict what will happen in patient scenarios. Novice nursing students are expected to be inflexible. In Stage 2, which is the advanced beginner, the learner has moved into a more knowledgeable role. Benner provides an example of this as when a nursing student graduates and starts their first job. Stage 3 is labeled as "competent" and is described as a nurse that is able to recognize patterns and the nature of a situation more quickly than an advanced beginner, but lacks speed and flexibility. Benner (1982) characterizes Stage 4 as "proficient" as the nurse is able to see the whole situation. Proficient nurses learn from the experience and modify their plans accordingly. In the final stage, Stage 5, the nurse becomes an expert, which portrays a nurse who reaches their goals by using their intuitive understanding of the situation (Benner, 1982).

Figure I.

From Novice to Expert (Benner, 1982)



Note. From OER-9 "From Novice to Expert," by P. Benner, in S. Melrose and S. Swettenham (Eds.), Open Educational Resources, 2017, Pressbooks. CC-BY-NC-SA 4.0

The nurse educator moves through these steps when learning a new task just as a student. Becoming a lifelong learner is an important part of being a nurse. Nurses must continue to be self- challenging and learn how to take on new tasks. Continuing to move through the novice to expert stages is a fantastic way to advance learning.

Research Questions

1. Will pre-licensure students in an undergraduate BSN program self-report the ability to define different telehealth terminology and modalities following the participation in a telehealth education offering?
2. Will pre-licensure students in an undergraduate BSN program self-report that participation in a telehealth education offering enabled them to examine the impact of and barriers to telehealth services?
3. Will students in a pre-licensure undergraduate BSN program self-report that participation in a telehealth education program assisted them in developing a plan to utilize telehealth as nurses in practice?

Definitions of Key Terms/Variables

Electronic Health Record- "(EHR) digital version of a patient's paper chart. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users." (HealthIT, 2020a).

Healthcare kiosk- "An integrated unit that combines diagnostic capabilities with high-definition video conferencing and integration with patient health records" (Hunter 2015, p 1258).

Health Information Technology- (HIT) "involves the exchange of health information in an electronic environment" (Health and Human Services, 2020).

Medically Underserved Areas and Populations- (MUA & MUP) "MUAs have a shortage of primary care health services for residents within a geographic area and MUPs are specific sub-groups of people living in a defined geographic area with a shortage of primary care health services" (Health Resources and Service Administration, 2020).

Registered Nurse- An individual who has graduated from a state-approved school of nursing, passed the NCLEX-RN Examination and is licensed by a state board of nursing to provide patient care (National Council of State Boards of Nursing, 2021).

Rural- "encompasses all population, housing, and territory not included within an urban area. Whatever is not urban is considered rural" (United States Census Bureau, 2020).

Telehealth- "the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration." (HealthIT, 2020b).

Telemedicine- use of communication equipment to link health care practitioners and patients in different locations (Kansas Dept. of Health and Environment, 2020).

Logic Model

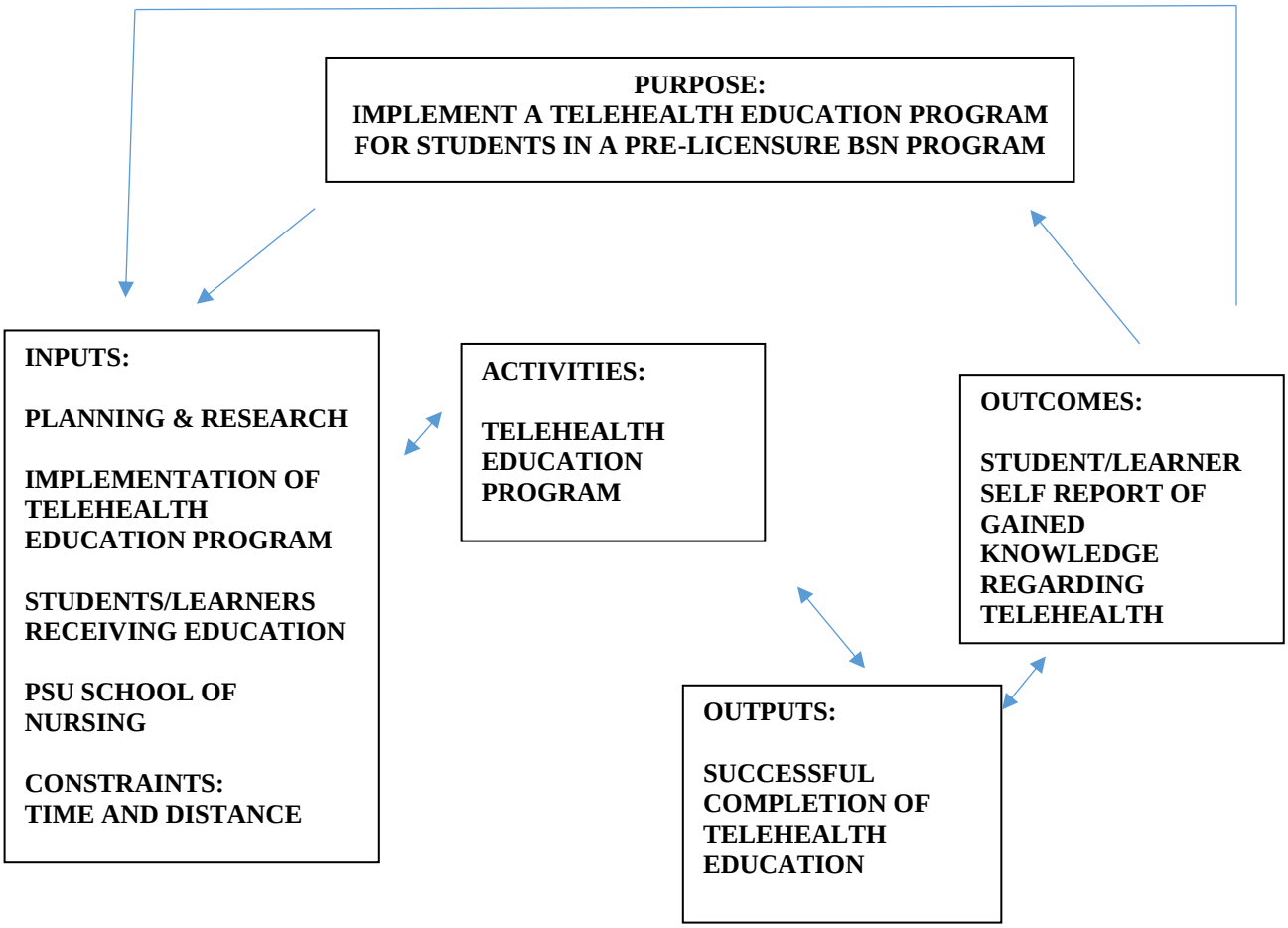
The logic model for this project involves the great underlying need for telehealth services and the need for students in the BSN program within the PSU IRBSON to be competent in providing these services. There is no doubt that these services are beneficial and meet the needs of our ever-changing society. Implementing telehealth education in a pre-licensure undergraduate BSN program will assist in preparing nurses from day one for providing telehealth services.

The inputs for the logic model involve the planning, research and project design as well as the development of the telehealth education program. Included in the inputs are also the students who will receive the education and the PSU IRBSON. Possible constraints consist of time and distance. The activities in the logic model consist of the actual education provided on telehealth. This activity is the primary goal of the entire

project and the main focus. The faculty will develop the telehealth education and implement in to all parts of the pre-licensure undergraduate BSN program.

Figure II.

Implementation of Telehealth Education Program in Pre-Licensure BSN Program Logic Model.



Summary

There is patient demand for telehealth services that has been brought to attention during the COVID-19 pandemic. While that demand is present, there are many issues to consider. Reimbursement for telehealth services is clouded by healthcare providers needing education on the best practices for implementation of telehealth services in their practice. Nurses can help with the lack of knowledge in this area and that starts with the participation in telehealth education programs. Nursing programs can assist in bridging this gap as well by providing telehealth education from the beginning. Most healthcare providers have incorporated some form of technology into their practice. For example, EHR (electronic health record) has been adopted into the Health Information Technology (HIT) by approximately 40% of physicians in the United States (Dinesen et al., 2016). Varying levels of knowledge and ability are present. Very promising data exists on patient acceptance of telehealth.

Pre-licensure nursing students will likely be faced with patients needing telehealth services. The need for students to be prepared upon graduation is evident. Implementing telehealth education during pre-licensure undergraduate nursing education will assist in closing the knowledge gap regarding telehealth and improve telehealth practices in our healthcare communities.

Chapter II

Review of the Literature

Understanding what telehealth is and what it can do is the first step in implementing a telehealth education program. Also understanding the value that telehealth brings provides the learner with motivation to learn about telehealth. Telehealth should be safe, timely, effective, efficient, equitable, and patient-centered (Schwamm et al., 2016).

Patients report high satisfaction with telehealth services, citing convenience and perceived quality of care as important factors (Polinski et al., 2015). Providing telehealth services offers convenience and cost savings for both the patient and healthcare provider. Hunter (2015) offers that the basic consensus now is that telehealth services do save money over a long period of time in caring for chronically ill and elderly patients.

The idea of telehealth is continually evolving and expanding access to healthcare (Fronczek et al., 2017). Connecting to telehealth services is sometimes a breeze and other times not. Powell et al. (2017) found that the majority of participants reported that connecting for their appointment was easy, but some patients did report technical challenges including problems with passwords and visit codes. A few participants had difficulty with connection and internet issues. Preparing the healthcare team for possible

scenarios like this and having a technical support team member on board can help the process run smoothly.

Telehealth has been implemented nationwide in various capacities and has been deemed very successful overall. Telehealth has not only become successful in regard to one-on-one direct patient care, but also to provide patient education, sometimes one-on-one and sometimes to a larger group. Sweeney et al., (2018) successfully used telehealth to integrate interprofessional collaboration education. Casey et al., (2018) successfully carried out telehealth reproductive health education to rural high school students in West Virginia.

Maintaining Quality of Care

As discussed in Chapter 1, it is imperative that telehealth not become a shortcut or a symbol for less quality healthcare. Healthcare providers have an obligation to protect the privacy and confidentiality of those cared for in every setting, including telehealth. It is important for appropriate protocols to be in place preventing access that is unauthorized and protecting the privacy of the patient (Chaet et al., 2017). Communication among providers is an integral part of telehealth services. Routine collaboration between the patient and/or family and all members of the healthcare team, including the primary care provider are known to have better plans of care in place (Chaet et al., 2017). From the beginning, there should be protocols in place to assure quality of care and that care is consistent and providers need to be credentialed and licensed (Jalalabadi et al., 2018).

The healthcare team needs to understand the standard of care in their state in order to prevent any liabilities (Jalalabadi et al., 2018). It's also important to understand that

not every diagnosis is appropriate for telehealth, so implementing a tool such as a decision tree can help make the call if telehealth is the right choice (Chern et al., 2019). Technology continues to increase in healthcare, but it is important to not let technology replace the relationship between a nurse and patient (Fronczek et al., 2017). Standard competencies for healthcare providers specific to telehealth need to be developed and made available (Rutledge et al., 2017).

Another major role in promoting quality of care in telehealth is the gathering of data. Patient-generated data and data not collected by traditional office visits offers the possibility of increased efficiency in the distribution of healthcare and the possible improvement of health outcomes (Dinesen et al., 2016). Telehealth opens the door to so many options in data collection. It offers patients a way to be more active in their care than ever before. Mobile devices combined with improved equipment opens the door to more expansive trials and the ability to explore what telehealth has to offer (Hunter, 2015). Making sure that a secure connection is established will be important when deploying a telehealth program due to the need to assure that no data breaches in unsecure platforms have occurred (Jalabadi et al., 2018).

Education

Nursing has led the integration efforts of telehealth since the beginning (Sweeney-Haney et al., 2018). Educating telehealth providers and team members is the first step in ensuring the commitment to high quality care is met. Training must be done to help meet the growing need of today's patient. Polinski et al. (2015) provided nurses with two weeks of training before assisting with telehealth delivery. Nurses participated in self-paced learning modules and hands-on training as well as practice with telehealth

equipment before actually working with telehealth patients. The telehealth team must be properly trained (Jalalabadi et al., 2018).

Education regarding telehealth during nursing programs of study has been lacking for some time. It has often been the case that nurses had to obtain on-the-job training in regards to telehealth due to no formal education during their professional training (Rutledge et al., 2017). Students are often resistant to the idea of learning about telehealth in the beginning offering an excuse that they will never use it or that the patient will not like it (Rutledge et al., 2017). It is a necessity for nursing education to include telehealth technology content and practice for both undergraduate and graduate courses (Fronczek et al., 2017). One of the most important parts of providing telehealth education is the increased need to help students gain a positive attitude towards telehealth (Rutledge et al., 2017). Multiple collaborations in the personal, interpersonal and social systems when combined with King's systems-based approach provides a strong framework to establish telehealth education for nurses (Fronczek et al., 2017).

With quickly changing technology, it is important for the healthcare team to assist each other in staying up to date. Getting started with a telehealth program will require a commitment from healthcare professionals to spend time learning. Jalalabadi et al. (2018) offers some advice in how to deploy a telehealth platform citing that considering things from a risk management viewpoint from the beginning will help the program get started strong. Providers need to form communities of expertise and assist each other in applying the most recent evidence-based practices (Dinesen et al.,2016).

Teaching telehealth assists students in seeing patient care through the lens of interprofessional collaboration instead of the traditional silo view (Sweeney Haney et al.,

2018). Nurses should practice patient education before providing said education via telehealth which will assist in gaining self-confidence and competence and increase the nurses' motivation to use telehealth for patient education (van Houwelingen et al., 2015). Faculty needs to make sure to provide students with the opportunity to blend nursing as an art with the science of technology (Fronczek et al., 2017). It is important for nurse faculty to provide encouragement to keep an open mind and to present factual data about how well received telehealth as become (Rutledge et al., 2017).

Experiential learning is vital to the acceptance of telehealth in nursing education (Rutledge et al., 2017). Any time a nursing student can learn something hands on, there is likely to be more buy-in. Simulations in telehealth have become to be known as a safe way to introduce the concept and give the learners hands-on experience (Rutledge et al., 2017). Another option if simulation is not available is to have students directly placed in clinical settings where they experience telehealth first hand (Rutledge et al., 2017). Knight & Prettyman (2020) prepared an interprofessional telehealth simulation to meet telehealth educational needs of nurse practitioner students in rural areas. The simulation allowed BSN and NP students to work together and establish skills in caring for medically underserved patients and was well received by students and faculty (Knight & Prettyman, 2020). Hands-on learning must take place and competencies in telehealth must be developed in order to provide quality education (Rutledge et al., 2017).

The COVID-19 pandemic has brought to light that telehealth is not only beneficial for patient care but also for education settings. With nursing programs being forced to deliver coursework to students in quarantine and isolation, new ways of meeting course objectives were developed. Telehealth has become necessary not only to meet the

direct needs of patients, but also the needs of healthcare education (Sweeney-Haney et al., 2018).

Options in Telehealth

From setting up a secure face-to-face virtual appointment to visiting a healthcare kiosk, it seems as if the options are endless when it comes to what telehealth can offer. Healthcare kiosks offer the ability to collect a range of diagnostic data such as vital signs, ear, nose and throat assessment and a stethoscope to assess heart, lung and bowel sounds as well as the ability to have a face-to-face video consultation with a healthcare provider (Hunter, 2015).

Smart phones offer the possible ability to monitor health status, assist in diagnosing and connect patients to providers (Dorsey & Topol, 2016). Telehealth offers the option to provide specialty care for those who cannot travel (Rutledge et al., 2017). Wearable devices are just starting to be recognized for all of the potential that they could have in regards to telehealth. The data that could be collected and shared with a healthcare provider is astronomical. Homebased vital sign and glucose monitoring has the ability to be sent directly to the healthcare provider providing a strengthened chain of communication (Goldstein, et al., 2018).

Those leading the way in telehealth adoption are looking at human resource issues that can arise when telehealth services are offered (Alverson, et al., 2019). Transparency is important when providing telehealth services as well as informed consent for the services (Chaet et al., 2017). Patients and caregivers need to be educated on the technologies used to provide telehealth services and their role in the interaction. For

instance, if monitoring devices are used in the home, education must take place on how to use these modalities and what to expect when using (Chaet et al., 2017).

Cost

Telehealth uses technology to help patients get in touch with the healthcare resources that are right for them at that time (Goldstein et al., 2018). It has been established that telehealth saves the patients time and money. That cannot be argued. Cost and transportation were two major factors in participants' choosing video telehealth visits over in-person face-to-face visits in a study done by Powell et al. (2017). Not having to deal with traffic, parking, finding the office and child care, missing work and finding a convenient appointment time led patients to choose telehealth over in-person face-to-face options (Powell et al., 2017). In regards to the cost to the healthcare system, specific reimbursements have been a challenge on a global level (Dinesen et al., 2016). Until recently, the reimbursement for telehealth services has been minimal at best. Much time and energy on governing fronts is spent discussing the cost of telehealth services, but not much has been discussed when it comes to the money saved because of telehealth (Dinesen et al., 2016).

Legislation originally focused primarily on implementation of EHR within HIT programs (Dinesen et al., 2016). There are current barriers in the market and legislation that must be taken into consideration when starting a telehealth program, so it will be important to stay up to date with the latest info (Jalalabadi et al., 2018). Rutledge et al. (2017) found that telehealth is becoming vital in the process of providing quality and cost-effective access to care for patients, especially those farther away.

Nurses should be aware of the cost of telehealth services to the healthcare organization and the patient as it will assist them in providing the most adequate care (van Houwelingen et al., 2015). Recently, the cost of telehealth has become more affordable due to the decreased cost of technology, the use of standards-based operations, increased use of handheld devices and an overall simplification of the process (Rutledge et al., 2017). Current issues in allocation of healthcare resources can be improved with the use of telehealth systems (Rutledge et al., 2017).

Even when talking about the cost of telehealth, it is still important to bring it back to quality of care. Healthcare providers need to avoid the misconception that more volume equals more money as it is a harmful thought process (Jalalabadi et al., 2018).

Benefit to Rural and Underserved Communities

Who are the patients most likely to benefit from telehealth? The data is not completely clear on this question. Telehealth is a valid answer to the question of how to get care into the hands of the patients who need it most and experience a barrier in accessing care (Serwe, 2018). In regards to providing telehealth in rural settings, Seto et al. (2019) found the following: both the patient and clinician need to be on board and any negative previous experiences need to be addressed, the scheduling process has to be streamlined and automated as much as possible, both the patient and clinical need to have up-to-date technology and human resources and technology infrastructure must be established when expanding telehealth systems. Keeping patients engaged is a key part of making technology-based treatment systems a success (Dinesen et al., 2016).

Telehealth services can assist in reducing urban-rural disparities (Chern et al., 2019). Increasing access to care, making care more efficient and enhancing collaborative

efforts specifically for medically underserved populations is a leading reason for telehealth (Sweeney Haney et al., 2018). Telehealth can assist in caring for the increasing number of patients with chronic illness and older adults in need of home care (van Houwelingen et al., 2015). Primary care providers of patients from disadvantaged and rural populations must establish the knowledge, skills and attitudes necessary for implementation of telehealth services in their practice.

Van Houwelingen et al. (2015) found that patients were more likely to agree to the use of telehealth services if they recognized the value. They were more likely to recognize the value of said services if the nurse shared their beneficial experience. Patients listen to their nurses and feel comfortable talking to their healthcare providers via telehealth services (Powell et al., 2017). When a nurse is better equipped and understands telehealth, they are more likely to improve the quality of life of their patients (van Houwelingen et al, 2015). This all begins with education. Helping nurses understand telehealth from the beginning will help them along the way when caring for patients using telehealth. There are healthcare workforce shortages in rural areas and nurses going to work in these areas will need to have knowledge of telehealth (Knight & Prettyman, 2020).

Goldstein et al. (2018) found that the use of telehealth helps with the synthesis of more personnel resources on any given healthcare team and helps expand the reach of healthcare teams beyond traditional staffing. A cardiologist in Kansas City could easily see patients in Western Kansas, Central Kanas and Kansas City all in one day with the utilization of telehealth. No longer do clinics need to be canceled due to poor road

conditions or bad weather. Patients' care is less likely to be delayed when telehealth services are rendered.

Summary

Telehealth is a beneficial service that can meet the needs of a variety of patients. It is important for nurses to receive adequate training in regards to telehealth and how it is delivered. There are multiple ways in which telehealth can be delivered. Direct face-to-face appointments via virtual platform are the most popular. Patients can also access a healthcare provider via a healthcare kiosk. Another way patients can connect with their healthcare provider using telehealth is through the use of a patient portal online. This is a beneficial service for patients and providers to check in and provide information back and forth.

The gap in telehealth knowledge causes confusion and uncertainty among patients and providers. It is up to nurse faculty to help bridge this gap and provide adequate education on the topic of telehealth in order to better prepare our students to care for patients in this capacity upon program completion. Schools of nursing will be on the front lines as telehealth education programs are developed and will be prepared to respond to the challenges ahead (Rutledge et al., 2017).

So much is still to be learned about the benefits and best practices of telehealth. This is a quickly evolving and expanding area of healthcare with so many doors still to be opened. It is likely that staying up to date on telehealth education will take much commitment. It is an exciting aspect of healthcare as it helps get care into the hands of those who need it most and puts some of the best and most qualified healthcare providers right in the patient's own living room.

Chapter III

Methodology

Project Design

The purpose of this project was to facilitate the successful implementation of a telehealth education program across the curriculum of an undergraduate nursing program in response to the COVID-19 pandemic. It was the hope that the COVID-19 pandemic would be under control as this project was implemented, but even then, the need for telehealth does not disappear. Never has telehealth been a more valuable tool in healthcare. Telehealth gained sudden strong popularity during the pandemic. It was and will continue to be important to implement quality telehealth education that can be embedded into the curriculum as telehealth is here to stay. While facilitating the implementation of a telehealth education program, it was important to adhere to the highest of quality standards and have a strong and in-depth understanding of the legal regulations surrounding telehealth services. Understanding telehealth best practices and the "dos and don'ts" of telehealth in addition to becoming a telehealth "expert" was critical to this scholarly project.

Consultation services of Dr. Carolyn Rutledge and Dr. Tina Gustin were utilized for this project. Drs. Rutledge and Gustin directed the telehealth education delivery and

provided an education model that outlines didactic content, experiential learning activities, student projects, simulated learning and clinical encounters. An evaluation tool (Appendix A) was utilized to assess knowledge, skills and attitudes of students in regards to the telehealth education program developed by Drs Rutledge and Gustin. The primary focus of the telehealth education offerings was utilizing telehealth services in response to the COVID-19 pandemic crisis and the role of the RN regarding telehealth. The education also focused on the four Ps of telehealth: planning, preparing, providing and performance evaluation (Rutledge et al., 2020).

Breaking down the four Ps of telehealth began with the planning phase. In this phase, it is important to begin to identify the population being served, the equipment necessary for the service, the legal and regulatory constraints, how reimbursement occurs and who provides the care (Rutledge et al., 2020). The preparing phase involves developing a protocol including a consent process, learning how to use equipment, receiving telehealth etiquette and videoconferencing training, getting everything organized in order to start providing telehealth care (Rutledge et al., 2020). The providing phase is when the care is delivered and the performance evaluation phase is when the care is evaluated (Rutledge et al., 2020).

As stated, the training of students was provided through the consulting services of Drs. Rutledge and Gustin. They provided training modules for undergraduate students as well as assisted in the development, implementation, and evaluation of the educational program. In addition, they were available to consult with faculty as needed to integrate telehealth within specific curriculum or clinical sites. As a result of COVID-19, they

provided their services through virtual sessions using programs such as Zoom and Blackboard.

Utilizing this education program, the first goal was to enhance current clinical longitudinal immersion training experiences to include telehealth-enabled COVID-19-related training and distant care services for pre-licensure students. The second goal was to implement COVID-19 telehealth training and distant care through use of telehealth technologies including the Hyflex model. The facilitator was responsible for overseeing the establishment of a shared vision with mutually agreeable and sustainable strategies to support activities to advance telehealth training in response to the COVID-19 pandemic, in addition to overseeing virtual training to incorporate evaluation in the clinical practicums including video conferencing demonstrations and telehealth simulation. The facilitator was also responsible for assisting in creating a robust self-sustaining telehealth training and delivery program for pre-licensure students on strategies/methods used to further enhance the student training and experience in telehealth. Other responsibilities of the facilitator included evaluating student understanding and performance related to the utilization of telehealth to address patients' needs. The facilitator was responsible for implementing the evaluation of the clinical and didactic knowledge, skills, and attitudes for the COVID-19 response in primary care and worked to culminate learning achievements with telehealth student projects, assist in creating video conferencing demonstrations and new simulation scenarios to include additional COVID-19 response content within an interprofessional, MUA, primary care setting.

During the implementation of telehealth education, it was important to be aware of different teaching modalities that could be utilized in order to assist students in

understanding telehealth services. Facilitating presentations in addition to case studies and clinical simulations working with patients via telehealth assisted learners in understanding the vast majority of patients one can assist with the use of telehealth services. Annual formal education will be added to curriculum in Community Health Nursing within the undergraduate pre-licensure program.

As the PSU IRBSON is a nationally recognized School of Nursing with approximately 180 current undergraduate pre-licensure nursing students, graduates from this nursing program must be able to meet the needs of many diverse populations following graduation. Thus, it is important that graduates be prepared to interact with patients in a variety of situations, especially using telehealth. In the current COVID-19 pandemic and with projections for a resurgence, the need for graduates of the PSU IRBSON to be well-versed in telehealth services is vitally important.

As discussed previously, the telehealth education program was facilitated for students in the prelicensure undergraduate nursing program. The telehealth education included presentations, case studies, simulations and other teaching modalities. The project was designed as a quality improvement project. The Doctor of Nursing Practice (DNP) program graduates are prepared to focus on clinical prevention and population health and to be able to incorporate quality improvement initiatives (American Association of Colleges of Nursing, 2006). The term quality is subjective and will change based on the view in which it is defined (Moran et al., 2017). A need was identified in the School of Nursing for telehealth education. It was determined that the school is lacking in quality education on this topic. Implementation of a telehealth education program in the

form of classroom content lectures and simulation activities assisted in quality improvement.

The quality improvement method for this scholarly project was known as the Shewhart Cycle. In this method, the plan, do, study, act (PSDA) cycle was utilized (Moran et al., 2017). The steps of this project included the following: plan a change, which was implementation of telehealth education within the School of Nursing; do the project, which was the actual implementation of the education; then study the results of what was implemented; and finally act on the change, which would consist of permanent implementation of the teaching telehealth education (Moran et al., 2017). The four Ps of telehealth were utilized to tie the quality improvement method together with the education (Rutledge et al., 2020).

Target Population

Undergraduate pre-licensure BSN students within the PSU IRBSON were identified as the target population for this scholarly project. The group consisted of eighty-six undergraduate senior students in their last semester of nursing school preparing to begin their nursing career.

Facilitating the implementation of telehealth education program into the Community Health Nursing course within the undergraduate curriculum allowed for the educational offerings to be delivered equally among the group of eighty-six students.

Recruitment

Pre-licensure students were offered the education through coursework in Community Health Nursing. The aim was to establish and expand academic-practice partnerships for the purpose of providing longitudinal immersive clinical training

experiences in community-based primary care teams for pre-licensure nursing students. This directly correlates with Community Health Nursing.

Inclusion/Exclusion Criteria

Inclusion and exclusion criteria for this project was straightforward. All undergraduate senior pre-licensure students enrolled in Community Health Nursing in the PSU IRBSON met inclusion criteria to participate in the professional development opportunities. Students in the Irene Ransom Bradley School of Nursing who did not participate in the Telehealth education were excluded from providing feedback after the implementation was complete. All participants were over the age of 18 and English speaking.

Protection of Human Subjects

The plan for this project, as a quality improvement project, was to be exempt from Institutional Review Board. The PSU IRBSON Institutional Review Board (IRB) committee was presented the project proposal for confirmation. Once reviewed by the PSU IRBSON IRB, the application was presented to the PSU IRB for further confirmation of the exempt status. The post-education evaluation tool (Appendix A) was administered on a volunteer basis and included no identifiers or demographic information.

Instruments

This scholarly project involved facilitating the implementation of telehealth education program developed by Drs. Rutledge and Gustin into the Community Health Nursing curriculum within the undergraduate pre-licensure program within the IRBSON. Technologies utilized consisted of Microsoft PowerPoint®, Canvas Learning

Management system, Blackboard Learning Management System and Zoom video conferencing software.

Procedure

This project proposal went before the scholarly project committee for approval upon completion of this chapter. Once approved, the facilitator began work on implementing the telehealth education program developed by Drs. Rutledge and Gustin in to the School of Nursing undergraduate curriculum. Formal implementation of the sustainable telehealth education program into curriculum will be presented for approval to the BSN program committee. Objectives and outcomes will be presented to the committees and included in course syllabi.

Treatment of Data

A formal evaluation was obtained from participants (Appendix A) on a voluntary basis and was used to determine effectiveness. The facilitator worked with undergraduate pre-licensure students to assist in utilizing the telehealth education program to benefit the greatest number. Upon completion of the study, the data was stored on the principal investigator's password protected computer to remain for three years. The three-year time frame is the standard at PSU for educational records. Since this project is part of the principal investigator's educational process, it must be retained for the three-year time period.

Evaluation Plan

The project was evaluated by meeting the objectives through planned outcomes. Implementation of a sustainable telehealth education program within the IRBSON that

meets the telehealth education needs of the School of Nursing and overall improves curriculum quality will prove this project successful.

Outcomes

Outcome data were determined by evaluation of the attainment of the objectives of the project. An evaluation tool was utilized to measure objectives developed by Drs Rutledge and Gustin. The following questions were incorporated into the scholarly project outcome evaluation:

1. Will pre-licensure students in an undergraduate BSN program self-report the ability to define different telehealth terminology and modalities following the participation in a telehealth education offering?
2. Will pre-licensure students in an undergraduate BSN program self-report that participation in a telehealth education offering enabled them to examine the impact of and barriers to telehealth services?
3. Will students in a pre-licensure undergraduate BSN program self-report that participation in a telehealth education program assisted them in developing a plan to utilize telehealth as nurses in practice?

Evaluation Tools Linked to Objectives

Evaluation measures for this project utilized an evaluation tool (Appendix A) linked to objectives developed by Drs. Rutledge and Gustin. The evaluation tool was administered to undergraduate pre-licensure students upon completion of the telehealth education. Participants were asked to rate their level of agreement to the degree that each objective was met on the following scale: 5= strongly agree; 4= moderately agree; 3=

agree; 2= disagree, 1= strongly disagree. Evaluation of the outcome data was obtained in the evaluation tool.

Table I.

Objectives

Objectives
Participants will self-report the increased ability to describe differences between telemedicine and telehealth.
Participants will self-report the increased ability to discuss the history of telehealth and tele-nursing.
Participants will self-report an increased ability to define different telehealth terminology.
Participants will self-report an increased ability to identify different telehealth modalities.
Participants will self-report the ability to examine the impact of and barriers to telehealth.
Participants will self-report. The ability to recognize different roles/setting for nurses in telehealth.
Participants will self-report the ability to develop a plan for how they will utilize telehealth as nurses in practice.

(C. Rutledge, personal communication, February 8, 2021).

Sustainability

Sustainability is part of the structure of telehealth. Telehealth is sustainability in action. Allowing patients in rural areas to check in via telehealth with their healthcare provider or specialist located several hundred miles away is increasing sustainability. Utilizing telehealth services to provide critical care consultation in rural hospitals, which allows patients to be treated in their hometown is sustainability. Using telehealth services to assist in allocating resources such as PPE where most needed is another example of sustainability. Telehealth allows patients to seek care from a distance. The use of telehealth assists in providing adequate care to patients with multiple comorbidities, who are at high risk for contracting COVID-19. Telehealth services assist in lowering overhead costs and helping the facility run more efficiently (Rutledge et al., 2020), thus, there are fiscal, safety and time benefits. Telehealth assists in allocating resources where needed most, which is an important need in the COVID-19 pandemic. Telehealth allows

for keeping staff safe and limiting exposure to COVID positive patients. This assists in keeping healthcare resources where most valuable while still providing patients with needed care.

Facilitating the implementation of a quality telehealth education program into the PSU IRBSON undergraduate pre-licensure curriculum ensures the telehealth education will be provided to future PSU students. The incorporation of this content creates a sustainable future for the telehealth education program within the School of Nursing and provides an increased benefit for the students within the IRBSON as well as the communities they serve and will serve in their future careers.

Summary

Facilitating telehealth education across the curriculum for undergraduate pre-licensure students at the PSU IRBSON assisted in preparing undergraduate students to participate in care of patients via telehealth upon graduation. Understanding the four Ps of telehealth: planning, preparing, providing and performance evaluation (Rutledge et al., 2020) assisted the facilitator in providing learners with the most important need-to-know information regarding telehealth education. While all of the four P's are important, it is of the most importance for the learner to understand the steps in the planning and preparing phases so that they may follow through with the providing and performance evaluation phases efficiently.

Students are often open to the idea of telehealth, but lack the ability to fully implement telehealth to its full capacity (Rutledge et al., 2020). Beginning telehealth education early in one's nursing journey will increase the comfort level and understanding and therefore ultimately increase the implementation by the healthcare

workforce. The COVID-19 pandemic has caused a national immersion into telehealth services that has not been without complications (Rutledge et al., 2020). Continuing to develop increased understanding of telehealth education will assist in increasing the quality of telehealth services. Facilitating the implementation of telehealth education at the PSU IRBSON was the first step.

Chapter IV

Evaluation Results

Purpose

The overall purpose of this project was to facilitate a successful telehealth education program offering for pre-licensure nursing students at the PSU IRBSON and furthermore influence the quality of care provided by these future nurses. As stated in the DNP Student Handbook (2020), the goal of the DNP scholarly project is to have an impact on the healthcare system and quality of care as well as provide a benefit for a group, population, community or policy and to advance nursing practice. This project fulfilled that goal by facilitating the educational offering that would assist pre-licensure BSN students in providing quality telehealth care which provided a direct benefit for the students receiving the education, and also for the patients with whom they would have the pleasure of working. This project also worked to advance nursing practice during a global pandemic by educating the participants on effective ways to offer patient care when face to face care is not an option.

The project questions that guided this scholarly project are the following:

1. Will pre-licensure students in an undergraduate BSN program self-report the ability to define different telehealth terminology and modalities following the participation in a telehealth education offering?
2. Will pre-licensure students in an undergraduate BSN program self-report that participation in a telehealth education offering enabled them to examine the impact of and barriers to telehealth services?
3. Will students in a pre-licensure undergraduate BSN program self-report that participation in a telehealth education program assisted them in developing a plan to utilize telehealth as nurses in practice?

Sample Population

Participants in the telehealth education offering consisted of PSU IRBSON senior students in their last semester of nursing school preparing to begin their nursing career. There was a high likelihood that the majority of these students would encounter a patient needing care in a telehealth setting sometime during their first year in the nursing profession given the current global pandemic. These students experienced the full impact of the COVID-19 pandemic on their nursing education. The sample population included traditional and non-traditional college students. Each student was required to participate in the telehealth education offering through their enrollment in the Community Health Nursing course. While participation in the educational offering was mandatory, completion of the feedback survey was voluntary.

The educational offering took place in an online format in self-paced independent modules with a final scheduled group project. The students had two weeks to complete

the 20-hour course beginning in early March. The majority of the students were able to complete the independent learning modules as well as the final group project module before the March 12th, 2021 deadline. Approximately 5% of participants required an extension, but 100 % of the group had completed the learning by Friday, March 19, 2021. The presenters were undoubtedly accommodating to senior nursing students and their busy schedules.

Key Terms

Electronic Health Record- "(EHR) digital version of a patient's paper chart. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users." (HealthIT, 2020a).

Healthcare kiosk- "An integrated unit that combines diagnostic capabilities with high-definition video conferencing and integration with patient health records" (Hunter 2015, p 1258).

Health Information Technology- (HIT) "involves the exchange of health information in an electronic environment" (Health and Human Services, 2020).

Medically Underserved Areas and Populations- (MUA & MUP) "MUAs have a shortage of primary care health services for residents within a geographic area and MUPs are specific sub-groups of people living in a defined geographic area with a shortage of primary care health services" (Health Resources and Service Administration, 2020).

Registered Nurse (RN)- "An individual who has graduated from a state-approved school of nursing, passed the NCLEX-RN Examination and is licensed by a state board of nursing to provide patient care (National Council of State Boards of Nursing, 2021)."

Rural- "encompasses all population, housing, and territory not included within an urban area. Whatever is not urban is considered rural" (United States Census Bureau, 2020).
Telehealth- "the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration." (HealthIT, 2020b).
Telemedicine- use of communication equipment to link health care practitioners and patients in different locations (Kansas Dept. of Health and Environment, 2020).

Through the telehealth education offering students were able to learn about the different options in providing care via telehealth. Students were taught the difference between telehealth and telemedicine. The participants learned about identifying patients who could benefit from telehealth, such as those in a rural setting or in a medically underserved area or population. The rural and medically underserved areas/populations are especially important to this group of students, as PSU is located in a rural and medically underserved area. The patients directly benefiting from telehealth services are those that participants in this program work with daily. Participants were able to see examples of telehealth patient care and different treatment modalities. Activities in the telehealth educational offering included case studies, lectures, interactive virtual simulations, videos and quizzes.

The telehealth educational offering consisted of ten different modules, each one focusing on a different aspect/educational focus of telehealth. Topics included, but were not limited to telehealth technology, remote patient monitoring, legal and regulatory issues related to telehealth, how to prepare patients for telehealth encounters, setting up telehealth programs, telehealth etiquette and performing a physical exam via

videoconferencing. All educational content from the program is copyrighted information owned by the presenters and therefore will not be discussed in further detail.

Data Acquisition

Following the successful completion of the educational offering, an invitation to take a Qualtrics survey was sent to participants via a Canvas message link. Completion was voluntary. Reminder messages were sent one and two weeks following the initial delivery of the survey. The survey produced a 23 % response rate from the participants. The survey consisted of 19 questions: 16 questions rating the effectiveness of the telehealth educational offering and three questions offering the opportunity to provide feedback in writing. The survey was designed to measure the educational offering's effectiveness in answering the project questions as well as determine the next steps for implementing permanent telehealth education into the curriculum within the pre-licensure undergraduate program.

Data Analysis

To answer project questions, participants were asked to rate a series of statements on a scale of 5 to 1 as follows: 5=strongly agree; 4=moderately agree; 3=agree; 2=disagree; 1=strongly disagree. Each statement is provided below along with an analysis of responses.

The first question in the telehealth education feedback survey asked if the "respondents felt that the educational program enabled them to describe the differences between telemedicine and telehealth." As one can see in figure III below, 85% of respondents reported that they either "agree," "moderately agree" or "strongly agree" that

the telehealth education program enabled them to describe the difference between telehealth and telemedicine.

Figure III.

The Educational Program will enable the participant to: Describe differences between telemedicine and telehealth.	
5= strongly agree	35% (n = 7)
4= moderately agree	20% (n = 4)
3= agree	30% (n = 6)
2= disagree	0%
1= strongly disagree	0%
No answer	15% (n = 3)

The telehealth education feedback survey asked respondents to "identify if the telehealth educational program enabled them to discuss the history of telehealth and tele-nursing." Respondents (80%) reported that they either "agree," "moderately agree" or "strongly agree" that the program did enable them to discuss the history of telehealth and tele-nursing. 10% reported that they "disagree" with this statement, and 15% provided no answer (Figure IV).

Figure IV.

The Educational Program will enable the participant to: Discuss the history of telehealth and tele-nursing.	
5= strongly agree	10% (n = 2)
4= moderately agree	35% (n = 7)
3= agree	30% (n = 6)
2= disagree	10% (n = 2)
1= strongly disagree	0%
No answer	15% (n = 3)

The first research question stated: "Will pre-licensure students in an undergraduate BSN program self-report the ability to define different telehealth terminology and modalities following the participation in a telehealth education offering?"

As shown below in Figure V, 80% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” that the telehealth educational offering enabled them to define different telehealth terminology; 5% reported that they “disagree” with the statement, and 15 % provided no answer.

Figure V.

Educational Program will enable the participant to: Define different telehealth terminology.	
5= strongly agree	30% (n = 6)
4= moderately agree	20% (n = 4)
3= agree	30% (n = 6)
2= disagree	5% (n = 1)
1= strongly disagree	0%
No answer	15% (n = 3)

To answer the second part of the first research question, one must look to Figure VI, which demonstrates that 85% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” that the “telehealth educational offering enabled them to identify different telehealth modalities.” One respondent reported that the most beneficial thing about the telehealth education educational offering was “learning about different modalities of telehealth delivery, especially post-COVID-19. Telehealth is being used more and more. It will be beneficial to my future nursing practice.” Another respondent stated “learning about telehealth overall and the many different kinds of telehealth” was the most beneficial part of this telehealth educational offering.

Figure VI.

The Educational Program will enable the participant to: Identify different telehealth modalities.	
5= strongly agree	40% (n = 8)
4= moderately agree	10% (n = 2)
3= agree	35% (n = 7)
2= disagree	0%
1= strongly disagree	0%
No answer	15% (n = 3)

The second research question asked: "Will pre-licensure students in an undergraduate BSN program self-report that participation in a telehealth education offering enabled them to examine the impact of and barriers to telehealth services?" Figure VII shows that 80% of respondents reported that they either "agree," "moderately agree" or "strongly agree" that the telehealth educational offering enabled them to examine the impact of and barriers to telehealth. It is also important to note that 15% of respondents did not provide an answer to this question and one respondent disagreed that the educational program will enable the participant to examine the impact of and barriers to telehealth.

Figure VII.

The Educational Program will enable the participant to: Examine the impact of and barriers to telehealth.	
5= strongly agree	40% (n = 8)
4= moderately agree	15% (n = 3)
3= agree	25% (n = 5)
2= disagree	5% (n = 1)
1= strongly disagree	0%
No answer	15% (n =3)

Respondents were asked to rate their level of agreement that the educational program enabled them to recognize the different roles/settings for nurses in telehealth. Figure VIII shows that 80% of respondents reported that they either "agree," "moderately

agree" or "strongly agree" that the educational program enabled them to recognize the different roles/settings for nurses in telehealth; 5% of respondents reported that they disagree, and 15% of respondents provided no answer.

Figure VIII.

The Educational Program will enable the participant to: Recognize the different roles/settings for nurses in telehealth.	
5= strongly agree	40% (n = 8)
4= moderately agree	20% (n = 4)
3= agree	20% (n = 4)
2= disagree	5% (n = 1)
1= strongly disagree	0%
No answer	15% (n = 15)

The third research question stated: "Will students in a pre-licensure undergraduate BSN program self-report that participation in a telehealth education program assisted them in developing a plan to utilize telehealth as nurses in practice?" Figure IX reveals that 80% of respondents reported that they either "agree," "moderately agree" or "strongly agree" that the telehealth educational offering will enable them to develop a plan for how they will utilize telehealth as nurses in practice.

Figure IX.

The Educational Program will enable the participant to: Develop a plan for how they will utilize telehealth as nurses in practice.	
5= strongly agree	45% (n = 9)
4= moderately agree	10% (n = 2)
3= agree	25% (n = 5)
2= disagree	5% (n = 1)
1= strongly disagree	0%
No answer	15% (n = 3)

Participants were also asked to rate the overall educational offering and presenters on a scale of 5 to 1. Figures X-XVIII show the data from each of these questions.

Respondents were asked to rate the level to which they agreed or disagreed that the presenters were knowledgeable about the subject of telehealth. As shown in figure X, 80% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” that the presenters were knowledgeable about telehealth; 5% of respondents reported that they “disagree” with this statement, and 15% provided no answer.

Figure X.

Presenter(s) were knowledgeable about subject.	
5= strongly agree	40% (n = 8)
4= moderately agree	15% (n = 3)
3= agree	25% (n = 5)
2= disagree	5% (n = 1)
1= strongly disagree	0%
No answer	15% (n = 3)

Participants were asked to rate the learning experiences and teaching methods on their level of appropriateness. As shown in figure XI, only 50% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” that learning experiences and teaching methods were appropriate, while 35% reported that they either “disagree” or “strongly disagree” that learning experiences and teaching methods were appropriate. Again, 15% of respondents provided no answer.

Figure XI.

Learning experiences and teaching methods were appropriate.	
5= strongly agree	25% (n= 5)
4= moderately agree	0%
3= agree	25% (n = 5)
2= disagree	30% (n = 6)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

When asked if they agree that presentations were clear and understandable, figure XII reveals that 70% of respondents reported that they either "agree," "moderately agree" or "strongly agree" that the presentations were clear and understandable; 15% of respondents reported that they either "disagree" or "strongly disagree" with this statement, and another 15% provided no answer.

Figure XII.

Presentations were clear and understandable.	
5= strongly agree	30% (n = 6)
4= moderately agree	5% (n = 1)
3= agree	35% (n = 7)
2= disagree	10% (n = 2)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

Telehealth education participants were asked to rate the handouts received during the program. When asked to rate their level of agreement with the following statement, "handouts were appropriate and helpful," figure XIII shows that 60% of respondents either "agree," "moderately agree" or "strongly agree." Conversely, 15% reported that they either "disagree" or "strongly disagree" and 15% of respondents provided no answer.

Figure XIII.

Handouts were appropriate and helpful.	
5= strongly agree	25% (n = 5)
4= moderately agree	5% (n = 1)
3= agree	30% (n=6)
2= disagree	20% (n = 4)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

Figure XIX shows respondent level of agreement with the following statement: exercises were helpful. Only 45% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” with this statement, while 40% reported that they either “disagree” or “strongly disagree,” and 15% provided no answer. The statistics on this particular statement are not as positive as previous statements, however, very few comments were provided with rationale for this rating.

Figure XIX.

Exercises were useful.	
5= strongly agree	15% (n = 3)
4= moderately agree	0%
3= agree	30% (n = 6)
2= disagree	35% (n = 7)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

When asked to rate their level of agreement concerning whether the educational offering “met their needs for nursing practice,” figure XV shows that 55% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” with this statement. It is noted that 40% of respondents reported that they either “disagree” or “strongly disagree” with the statement and 15% provided no answer.

Figure XV.

Educational offering met your needs for nursing practice.	
5= strongly agree	20% (n = 4)
4= moderately agree	15% (n = 3)
3= agree	25% (n = 5)
2= disagree	20% (n = 4)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

Participants were asked to evaluate the level to which they agree that the educational offering was "relevant to their practice area of nursing." As shown in figure XVI, 70% of respondents reported that they either "agree," "moderately agree" or "strongly agree" that the educational offering was relevant to their practice area of nursing, while 15% reported that they "disagree" with this statement and 15 % of respondents provided no answer.

Figure XVI.

Educational offering was relevant to your practice area of nursing.	
5= strongly agree	15% (n = 3)
4= moderately agree	15% (n = 3)
3= agree	40% (n = 8)
2= disagree	15% (n = 3)
1= strongly disagree	0%
No answer	15% (n = 3)

Respondents were asked to rate their level of agreement with the following statement: "Date and time of educational offering were convenient." Figure XVII shows that 65% of respondents either "agree," "moderately agree" or "strongly agree" with this statement and 20% reported that they "disagree," while 15% provided no answer.

Figure XVII.

Date and time of educational offering were convenient.	
5= strongly agree	25% (n = 5)
4= moderately agree	5% (n = 1)
3= agree	35% (n = 7)
2= disagree	20% (n = 4)
1= strongly disagree	0%
No answer	15% (n = 3)

Figure XVIII shows the level of agreement with the following statement: “Length of educational offering was appropriate.” Results reveal that 50% of respondents reported that they either “agree,” “moderately agree” or “strongly agree” that the length of the educational offering was appropriate, while 20% reported that they “disagree” and 15% provided no answer.

Figure XVIII.

Length of educational offering was appropriate.	
5= strongly agree	25% (n = 5)
4= moderately agree	0%
3= agree	25% (n = 5)
2= disagree	30% (n = 6)
1= strongly disagree	5% (n = 1)
No answer	15% (n = 3)

Some benefits of the telehealth educational offering did not fall within a specific research question. One participant stated “becoming more comfortable with telehealth” while another participant stated “being able to do it on your own time” when asked about the most beneficial part of the telehealth educational offering. The flexibility of the program was a highlight in participant responses.

When asked what participants found to be “least beneficial,” one respondent stated that they did not like the telehealth simulation at the end, citing the reason being that they were paired up with people from a different school. Another student noted that the difference in time zones and lack of communication with the telehealth instructor was of concern. Another concern noted by multiple participants was the learning management system in which the education took place. The education was offered via Blackboard© which was unfamiliar to participants who are enrolled at PSU IRBSON. PSU students use Canvas© LMS on a regular basis, thus they are not comfortable with Blackboard©.

One respondent stated “having to learn a new system (Blackboard) was very confusing” and anther wrote “We had never used Blackboard before and were expected to know how to operate the system, which made things very difficult to do and in all made everything really confusing.” Finding a way to offer the education via Canvas© would be beneficial for all participants already familiar with this learning management system.

Summary

This project’s primary purpose included facilitating a telehealth education program offering to pre-licensure BSN students in an undergraduate nursing program. The purpose of this project was achieved through the successful completion of the telehealth educational offering by eighty-six students. Following the educational offering, 23% of the participants completed the volunteer feedback evaluation survey, which provides answers to the research questions. Overall, positive feedback regarding the value of the educational offering was reported by respondents. Further discussion of these results will be provided in Chapter V.

Chapter V

Discussion

This project sought to facilitate a successful telehealth education program for pre-licensure undergraduate nursing students in a BSN program in rural Southeast Kansas and therefore improve the quality of education within this program. The project's purpose was to assist pre-licensure undergraduate BSN students in preparing to provide patient care in a telehealth setting. Students participated in a 20-hour course taught by Drs. Carolyn Rutledge and Tina Gustin in an entirely online format via Blackboard© Learning Management System, through Old Dominion University Center for Telehealth Innovation, Education and Research (C-TIER), featuring self-paced modules. Upon successful completion of the course, participants received a 2-year telehealth certification, allowing them to add the title of Certified Telehealth Provider & Educator to their resumes. Participation in this telehealth course was mandatory for the undergraduate pre-licensure nursing students enrolled in Community Health Nursing. Upon completion, participants were asked to complete a voluntary feedback survey. The survey was reviewed and approved by the IRB within the IRBSON and the University IRB at PSU.

Relationship of Outcomes to Research

The overall purpose of this project was to facilitate the implementation of a 20-hour telehealth education program successfully in a group of 86 pre-licensure BSN students enrolled in Community Health Nursing in the final semester of their nursing program. Throughout this project, it was discovered that telehealth is a valuable tool that can meet the needs of patients in a variety of ways. New and innovative ways to utilize telehealth were discovered. As evidence-based research has shown, the overall benefit in utilizing telehealth services in school is to provide the participants the ability to work with patients in this low-stakes setting. It was anticipated that participants would find a perceived benefit from the educational program. The specific data related to each project question was previously discussed. Due to the nature of this program and the voluntary program feedback survey requirements, the response rate is less than anticipated by the project writer.

Ability to Define Different Telehealth Terminology & Modalities

The first research question asked if pre-licensure students in an undergraduate BSN program would self-report the ability to define different telehealth terminology and modalities after completing a telehealth education offering. The majority of telehealth education feedback respondents reported that they "agree," "moderately agree" or "strongly agree" that the telehealth educational offering enabled them to define different telehealth terminology as well as identify different telehealth modalities. Breaking down this information further required one to take a closer look at each part of this question. When asked to self-report the level of agreement that this telehealth program assisted them in the ability to define telehealth terminology, 30% of respondents reported that

they “strongly agree” with this statement, 20% reported that they “moderately agree” and 30% reported that they “agree” for a total of 80%. When asked to self-report the level of agreement that this telehealth program enabled them to identify different telehealth modalities, the responses were positive as well. 40% of respondents self-reported that they “strongly agree” that the program enabled them to identify different telehealth modalities, 10% reported that they “moderately agree,” and 35% reported that they “agree” for a total of 85%. Because the education is the intellectual property of the course creators/instructors, the actual data showing that learning took place including education post-tests, was not available to this project writer. As part of this project, the project writer participated in the learning activities alongside the pre-licensure undergraduate students and will be responsible for implementing a sustainable telehealth module into the course curriculum in Community Health Nursing.

Examine the Impact of and Barriers to Telehealth Services

The impact of telehealth is almost immeasurable as patients are able to seek specialist care without traveling hundreds of miles, access to care is improved (Seto et al., 2019), providers are able to catch a glimpse of their patients in their own home, and data sharing is available in real time. According to Rutledge and Gustin (personal communication, February 12, 2021), quality of care is increased, patient outcomes are realistically met and continuity of care is maintained, even in the midst of isolation and quarantine orders. Evidence based research has shown the impact of telehealth to the healthcare community, including the positive impact on health care providers and patients.

Telehealth services are bound to have barriers which could include provider/patient unwillingness to participate, provider/patient unwillingness to use or provider/patient lack

of understanding of platform. Barriers also could include difficulty with connection/broadband or no access to a telehealth capable device. Over the course of this global pandemic, the healthcare community found that many of its members were familiar with the idea of telehealth, but were not well equipped to provide quality care utilizing these services. This project sought to identify if participants would self-report that the telehealth education program enabled them to examine the impact of and barriers to telehealth. As discussed in chapter IV, 40% of program feedback survey respondents reported that they "strongly agree" that the telehealth education program offering enabled them to examine the impact of and barriers to telehealth while 15% reported that they "moderately agree" and 25% reported that they "agree."

The survey findings show that the majority of respondents found a benefit in the telehealth education program offering and its ability to enable them to understand the impact of and barriers to telehealth. The goal of this project was achieved through the positive feedback and overall rating of "agree," "moderately agree," or "strongly agree" by 80% of respondents when asked if they were enabled to examine the impact of and barriers to telehealth upon completing this telehealth education program offering. The project would be strengthened by more respondents completing the voluntary feedback survey.

Development of Plan to Utilize Telehealth as Nurses in Practice

Part of the overall goal of this project was to prepare participants for successful patient care via telehealth. During the telehealth education program offering, students were required to evaluate telehealth etiquette of healthcare providers and identify ways that providers could improve said etiquette. They were also required to participate in a

telehealth simulation in which they played one of four parts each time until all they completed all four with the parts being patient, care provider, care evaluator and etiquette evaluator. Participation in this simulation allowed the student to put their learning into practice. This simulation allowed them to identify areas of weakness or misunderstanding so to better prepare themselves in planning to provide quality patient care via telehealth. Participation in this simulation also assisted students in development of that plan to utilize telehealth as nurses in practice.

Observations

There are many observations to speak of during the course of this project. A noteworthy observation is that in the telehealth education feedback survey, sixteen questions showed 15% of respondents with "no response," which was a disappointing finding. There are many possible reasons for the poor response from participants, one reason being that the group of students asked to complete the feedback surveys were in the last semester of nursing school and extremely busy. The feedback survey submissions were anonymous and voluntary. It is a possibility that students opened the link to the Qualtrics survey upon receiving the notification and did not complete the survey at that time. The possibility that 15% of respondents only felt the need to provide qualitative data should be considered as well.

Overall, evaluation feedback survey data showed a positive perception of the telehealth education program offering among participants. While this is true, some participants took the time to note in the evaluation feedback survey a few recommended changes as discussed in chapter IV. During the last semester of an undergraduate BSN

program is possibly not the most ideal time to offer training of this intensity on a new topic due to the excessive amounts of stress already present.

Evaluation of Theoretical Framework

Patricia Benner's (1982) middle range theory "From Novice to Expert" is supported by this project. As telehealth education program participants completed each module, they continued to gain knowledge towards becoming an expert in telehealth. Benner (1982) describes the next to last stage on this continuum as the proficient stage. Upon completion of the twenty-hour telehealth course, participants were undoubtedly at the proficient stage and well on their way to expert. The course instructors verified the participant attainment of knowledge by providing the telehealth certification to all those who successfully completed the program. Recognizing that learning has taken place is another way to identify that one has moved along the continuum "From Novice to Expert." Participants who completed the telehealth education feedback survey primarily provided positive feedback and acknowledged that learning took place. It is likely that participants would begin to move backwards on the continuum if they do not utilize their newfound knowledge. This thought process is why the telehealth certification has an expiration date two years following course completion: to encourage continued learning and maintenance of competence.

Evaluation of Logic Model

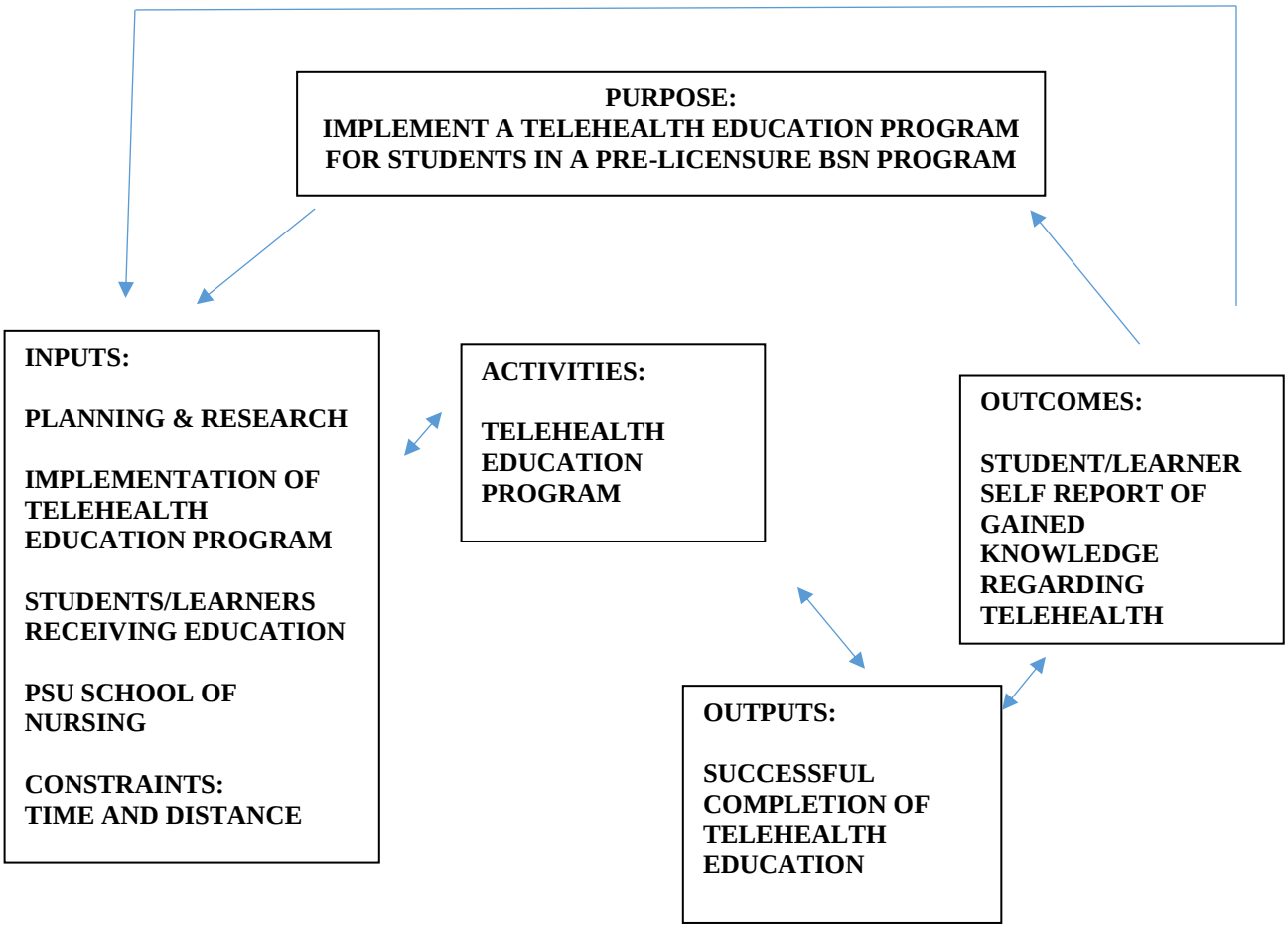
The project results support the logic model introduced in Chapter 1 by indicating a student/learner self-report of gained knowledge regarding telehealth. The planning and research was completed and the facilitation of the program implementation occurred. Eighty-six students successfully completed the program and the constraints of

time/distance did not impede the project. The School of Nursing was involved in all aspects of the project.

This project identified the anticipated relationship between the purpose, inputs, constraints, activities, outputs and outcomes. The overall purpose of the project, the implementation of a telehealth education program in a pre-licensure BSN program, was achieved.

Figure II.

Implementation of Telehealth Education Program in Pre-Licensure BSN Program Logic Model.



Limitations

The first limitation of this project is that evaluative data such as post-module quizzes were not accessible by the project writer due to the written agreement between the course instructors and the University. This limitation created a challenge when determining the meeting of objectives, but also allowed the project writer to propose innovative and less traditional evaluation methods. Asking the participants to self-report the degree to which the objectives were met allowed for self-reflection regarding their participation and learning in the program. Learning that there are multiple ways to evaluate learning was a valuable take-away from this project.

When reflecting on other limitations of the project, the small sample size of feedback surveys returned bears mentioning. Only 23% of those invited to participate in the survey did so. While this is unfortunate, the timing of this program is probably the biggest reason for the poor return. Students were in the final weeks of their last semester of nursing school and were focused on other things such as board preparation, job searches, and experiencing burnout. With the feedback survey's voluntary status, it left the project writer to the mercy of the students. This author is familiar with working with senior nursing students; thus, the small number of responses was not surprising. While this is a limitation of the project, the fact that 86 students did successfully complete the educational offering remains a positive aspect of the Scholarly Project.

The inclusion of demographic responses would have been very beneficial to this project. While the overall demographics of program participants are known, it would have been helpful to see which participants took the time to complete the evaluation

feedback survey. It would have been beneficial to see if there was a correlation between ratings and demographic information as well.

In addition, it would have been beneficial for the project writer to take the course and be exposed to the learning prior to the student participation in the course. It proved to be a challenge to walk students through the course and assist them the best way possible as the project writer was also in the middle of taking the course. Many participants reported that using Blackboard© was challenging and confusing as they are used to the Canvas© Learning Management System (LMS). Learning a new LMS required extra time to be spent learning how to use Blackboard© so that assistance could be provided to students/participants by this DNP student/faculty member. If the project writer had the opportunity to complete the course before the students, it would have been a more streamlined approach and would have allowed for better assistance to be provided to the students/participants. Ultimately, everyone survived and learning occurred which was the primary goal.

The final sustainable telehealth education module in Community Health Nursing will not be introduced to students until Spring 2022. Given that the class of 2021 completed a 20-hour course, it was unnecessary for them to also be exposed to a condensed and sustainable version. Gerontological Nursing, taught in the second or third semester of the undergraduate nursing program also provides education on the use of telehealth. The project writer will work with Gerontological Nursing faculty to ensure continuity of content and a to decrease repetition of content.

Implications for Future Research

The need for telehealth services will continue to be present in our healthcare system and the technological capabilities will continue to grow. While this remains true, the need for educated telehealth providers will also continue to grow. It is imperative that quality of care remain the highest priority when providing care via this avenue. Convenience and ease of care are important, but the commitment to quality will remain the highest priority. Within the PSU IRBSON, the need exists to incorporate telehealth education into the curriculum. This content will need to become a curricular thread and immersed throughout the four-semester program.

This project could be replicated with a new group of learners or carried further with the same group. The project could be expanded to include practicing nurses and care providers and possibly other members of the healthcare team such as social work, physical therapy and occupational therapy. The use of telehealth to provide an interdisciplinary and collaborative approach to patient care could be included in this education.

Another expansion of the project could be gathering patient perception of telehealth and providing patient education on the use of telehealth. This would assist in increasing the comfort of telehealth use and would also allow providers to better understand the needs and expectations of patients when using telehealth services which would allow for better preparation regarding care via telehealth. Continued research on the use and benefits of telehealth, including telehealth best practices should be maintained. Because the use of telehealth services has grown so rapidly over the past year, it will be difficult to maintain momentum as the pandemic control begins to grow,

so a continued re-focusing on quality of care will require the promotion of evidence-based practice around every corner.

Implications for Practice, Health Policy, Education

This project has clinical, health policy and educational implications. The significance of telehealth to healthcare is only as strong as the systems implementing and utilizing the services. The systems doing so can only function if there is funding and understanding of said services. It is important for the clinical, health policy and educational implications to be well understood and executed equally as well.

Clinical

Clinical implications include the continued commitment to quality patient care, no matter what modality is utilized. Learning how to provide quality care via telehealth improves patient outcomes. Teaching healthcare providers how to provide services via telehealth in order to maintain that expected level of quality will be included in the clinical implications. Understanding ways to collect physical exam data, even when not in person face-to-face and continuing to meet the commitment to patient privacy and confidentiality are encompassed in the clinical implications as well.

Health Policy

Health policy implications include the commitment to avoid backsliding when it comes to telehealth legislation. Upon the beginning of the COVID-19 pandemic, telehealth restrictions were loosened almost immediately under emergency legislation acts. While some of this can be reined in as the COVID-19 pandemic becomes an endemic, there is no need to return to pre-COVID-19 levels. The healthcare community

has established that telehealth does serve a valuable purpose and can be done well. Advanced practice nurses can advocate for pro-telehealth legislation, including proper reimbursement of these services.

Education

The implications for education with this project coincide with the health policy and clinical implications. In order for one to truly understand the clinical and health policy implications of this project, one must be adequately educated. During the COVID-19 pandemic, healthcare team members and patients were thrown into telehealth with little to no understanding or training. While this was all a part of being in a pandemic, we no longer can use that excuse. Adequate training is available and should be utilized by all healthcare team members who plan to or who are currently participating in telehealth care delivery.

Conclusion

The overall purpose of this project was to facilitate a successful telehealth education program for pre-licensure undergraduate nursing students in a BSN program in rural southeast Kansas. This was a quality improvement project designed to impact the educational experiences of pre-licensure students and ultimately improve the quality of care they provide via telehealth. In summary, 86 senior nursing students successfully completed a 20-hour telehealth education program provided by Drs. Carolyn Rutledge and Tina Gustin of Old Dominion University C-TIER. Upon completion of this program, student participants received a 2-year telehealth certification, with an opportunity for renewal. Student participants were asked to complete a voluntary post-telehealth education program feedback survey discussing their experience. Based on student

participant feedback, the telehealth education program was successful. Continuing to meet the needs of students in the pre-licensure BSN program will require that sustainable telehealth education to be provided on an annual basis.

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APPENDIX

Appendix A:

Pittsburg State University
Irene Ransom Bradley School of Nursing

Program: Telehealth Education

Date: Spring 2021

Presenter: Drs. Carolyn Rutledge & Tina Gustin

Instructions: Check the box that corresponds with your level of agreement with the statements below.
5=strongly agree; 4=moderately agree; 3=agree; 2=disagree; 1=strongly disagree

The Educational Objectives Were Met: The Educational Program will enable the participant to:	**5**	**4**	**3**	**2**	**1**
1. Describe differences between telemedicine and telehealth.					
2. Discuss the history of telehealth and tele-nursing.					
3. Define different telehealth terminology.					
4. Identify different telehealth modalities.					
5. Examine the impact of and barriers to telehealth.					
6. Recognize the different roles/settings for nurses in telehealth.					
7. Develop a plan for how they will utilize telehealth as nurses in practice.					

Speaker: Dr. Carolyn Rutledge					
	5	**4**	**3**	**2**	**1**
1. Presenter(s) were knowledgeable about subject.					
2. Learning experiences and teaching methods were appropriate.					
3. Presentations were clear and understandable.					
4. Handouts were appropriate and helpful.					
5. Exercises were useful.					
6. Educational offering met your needs for nursing practice.					
7. Educational offering was relevant to your practice area of nursing.					
8. Date and time of educational offering were convenient.					
9. Length of educational offering was appropriate.					

(more on back)

1. In your opinion, what was the most beneficial part of the telehealth offering?

2. In your opinion, what was the least beneficial part of the telehealth offering?

3. Other comments: