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Telehealth Education and Training for School Nurses

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Telehealth Education and Training for School Nurses

by

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A thesis submitted to the faculty of
Gardner-Webb University Hunt School of Nursing
in partial fulfillment of the requirements for the
Master of Science in Nursing Degree

Boiling Springs, North Carolina

2018

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Abstract

Telehealth, as a healthcare delivery model, is quickly integrating into various healthcare fields. School health is one area of nursing that is preparing for this integration. This study explored through literature review, the previous studies conducted on this type of service. Evidence found more research was needed on this topic. The purpose of this study was to demonstrate an increase in school nurse's confidence and commitment level to implementation of telehealth. A purposeful sample was used in the selection of participants for this study. This project was conducted in a small rural county school system located in the North West portion of North Carolina. The sample size consisted of the six school nurses that were working within the school system. Data was obtained using a Kirkpatrick Blended Evaluation Model survey. The school nurses completed the survey directly following the educational session. The descriptive statistics gathered from this data represented the training was successful in meeting the goal of this study. Overall, the program shows promise for nurses in rural areas to provide telehealth services without major disruptions to their normal daily activities. Although the overall confidence and commitment levels were high from the respondents, it is apparent that additional training and studies are needed to address these concerns.

Keywords: telehealth, school telehealth, school-based telehealth, telehealth in rural areas, rural telehealth, community telehealth, nursing education for telehealth, telehealth continuing education, and telehealth competencies.

Acknowledgments

I would like to take this opportunity to thank the special people in my life who have seen me through this academic process. This journey has been an emotional one, with a lot stress, fear and sometimes even tears. My husband has been such a trooper to put up with the madness of being married to an older nurse who had the dream of going back to school. He has kept me going by providing me with assistance of proof reading my work, checking my math in the statistical areas and helping around the house. I would like to thank my two girls, Breah (17) and Briley (14). I have tried not to let this take away from their lives too much, especially with this being Breah's senior year. I hope they know how much I love them. I would like to thank Angela King for being my editor, her last-minute proofing helped me tremendously. Finally, I would like to recognize Dr. Ashley Isaac-Dockery, DNP, ANP-BC at Gardner-Webb University for being my advisor and assisting me through this process.

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CHAPTER I

INTRODUCTION

Poverty and uninsured individuals are still issues faced by many within the United States. According to the US Census Bureau (2016), 17.4% of the children 18 years and younger live in poverty and 5.9% are without medical insurance. These poverty populations are mainly in the rural regions in America. To put that percentage in perspective, forty-two million Americans live in rural areas, which means 25% of children and their families live in deep poverty (Fathi, Modin, & Scott, 2017). In North Carolina, 23.6% of children 18 and younger live in poverty (U.S. Census Bureau, 2016). These numbers, in addition to the fact that North Carolina declined the Medicaid Expansion, leaves the population with many social determinants of health. The CDC defines social determinants of health as, "conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes" (Centers for Disease Control [CDC], 2018, para.1). According to the National Rankings for Child Well-Being, the state of North Carolina ranks 31st for the health and well-being domain, 22nd in the education domain, 36th in the family and community domain, and 37th in the economic and well-being domain. Poverty, lack of health insurance, and access to health care are some of the social determinants of health which have led to the low rankings for this state (Thompson, 2017). Most counties in North Carolina are considered rural (80 counties have a population density of 250 people per square mile or less) (U.S. Census Bureau, 2016). In these counties there are approximately four million people, which make up 41% of the population for North Carolina (Rural Center Expands Its Classification of North Carolina Counties, 2018). In rural areas, parents face many

problems trying to obtain healthcare for their families. These problems are access to providers, financial strains, distance, lack of transportation, and health insurance or the lack thereof (Burke, Bynum, Hall-Barrow, Ott, & Albright, 2008, p. 927).

Access to health care is just one of those determinants and is a major issue right now in North Carolina. Barriers to achieving good health for people who live in a rural community are caused by the lack of health services (Rural Health Information Hub, 2017). In North Carolina access to healthcare is exhibited by the shortages of physicians. There are 20 counties that are without pediatricians, 26 are without an OB-GYN and 32 are without psychiatrist (Knoph, 2018). Access to health care is also one of the objectives set by Healthy People 2020. "The Healthy People 2020 Leading Health Indicators (LHIs) were selected and organized using a Health Determinants and Health Outcomes by Life Stages conceptual framework" (Healthy People 2020, 2014b, para.3). "The Leading Health Indicators (LHIs) are high-priority health issues in the United States that serve as measures of the Nation's health and give objectives or goals for each indicator" (Healthy People 2020, 2014b, para. 1). This framework sets importance of individual and social health issues affecting the public's health and aids to health disparities from birth to death. Strategies are emphasized for improvements to the quality of life for all Americans.

Telehealth is a healthcare option providing medical and preventative services to the underserved populations which helps improve health determinants. Poor distribution of medical providers and healthcare resources create challenges (health determinants) that telehealth can help to overcome. (Lambert, Gale, Hartley, Croll, & Hansen, 2016). Telehealth renders health care through state-of-the-art technology and has the potential to

aid in the success of achieving the quality aims addressing the obstacles of care in rural areas. (Fathi et al., 2017). Telehealth can also be referred to as telemedicine, but for this study the term telehealth will be used. This model of care can be used in a variety of settings; telepsychiatry, teledentistry, teledoc, etc., but for the purposes of this study, school-based telehealth in a rural county in North Carolina will be addressed. Telehealth is a relatively new term in rural North Carolina, especially in the school population. Different models or modes can deliver telehealth services. Synchronous and asynchronous are the two most common models. For this study the synchronous model/mode will be used.

According to the North Carolina State Center for Health Statistics, the rural county of interest for this project is in the North West region of North Carolina. There are 37,428 residents within this county (Kids Count Data Center, 2017). This county has 1.6 dentists per 10,000 residents and 2.3 primary care providers per 10,000 residents (Kids Count Data Center, 2017). There are no hospitals, urgent cares or after-hours health care options for the residents and it is roughly a 30 minute drive to the nearest emergency room. The latest statistics for children in the county are: 23% of the children live in poverty, 77% of the total number of children are school-aged, 54.2% receive free and reduced lunch, 52% are enrolled in Medicaid or North Carolina Health Choice and of that number, only 56% receive an annual well child preventive visit (Kids Count Data Center, 2017). There are 10 schools (one high school, two middle schools and seven elementary schools) in this county and the school system employs six registered nurses. The high school is the only school in the county that has a nurse full-time due to the number of students. The elementary and middle schools share their nurses in a divided schedule.

The fact this county ranks 70 out of 100 for the accessibility of healthcare combined with the statistics listed above shows the need for a telehealth program for this underserved school population (County Health Rankings and Roadmaps, 2017).

The use of telehealth in the school population serves as a conduit for educating the students, students' families, and staff as a coordinated health service program (National Association of School Nurses, 2017). For this coordination of health services to take place, the school nurse must be able to understand and be able to effectively utilize the technology equipment. One study stated that for the adoption of a telehealth program to be successful, the user (school nurse) needs adequate demonstration of the telehealth model (Odeh, Kayyali, Nabhani-Gerbara, & Philip, 2014).

As a school nurse, day-to-day operations are basic and routine with little to no use of computerized charting or interaction with providers. Utilization of a telehealth system would be an entirely new skill level for the school nurse position. Currently in North Carolina the job description is very outdated and has no mention of telehealth or healthcare services of that nature. The duties listed in the current job description relating to telehealth are things such as; work with other agencies in the community to design the program in the schools, able to negotiate services (professional and medical) that are needed for the program, and acts in the role of a resource for health-related issues (North Carolina Department of Instruction [NCDPI], 2018).

Significance

With the fast-paced advancement of new technology, it is imperative for school nurses to keep up to date and continually increase their knowledge of new ways to care for the needs of their school population. The findings from this study justified the need

for school nurses to have more training when new technology and/or services are implemented. The results provided information related to the training and skills school nurses needed to effectively use telehealth system. In the future when more school systems opt to implement telehealth services, these results can be used for training and education purposes.

Problem Statement

The topic of telehealth for the school nursing population is a new and unknown delivery method for healthcare, especially in the rural school setting. Since this is such a new topic it is imperative for school nurses to be knowledgeable and trained in this type of healthcare. Since this model of healthcare is so new, there is little known regarding the school nurse and their level of confidence and commitment to the implementation of such a service. Therefore, research is needed to understand at what level the school nurse is trained and prepared for implementation of telehealth and if other training is needed to help with their transition in providing this type of service.

Purpose

The purpose of this study was to validate school nurses will express a confidence and commitment to implementing a new school telehealth program after attending an educational session with a hands-on educational training intervention. A small school system in a rural county in North Carolina was used for this study. The information obtained from this study was valuable in determining if hands-on training sessions are necessary for the school nurse to provide competent care in utilizing a new telehealth program.

Theoretical or Conceptual Framework

For the purposes of this study, Patricia Brenner's From Novice to Expert Theory was selected (Figure 1). This concept describes how nurses acquire their skills and expertise in their related field of nursing through time and experiences (Petiprin, 2016). There are five stages detailed in this theory: novice, advanced beginner, competent, proficient, and expert. The thought is each of the stages build from the previous stage and the learner advances in his/her skill through experience (Dracup & Bryan-Brown, 2004). School nurses are experts in their profession, but when telehealth and new technology are added, it thrusts them back to being into the novice stage. This is known as, "novice-to-expert flip" (Gallagher-Lepak, Scheibel, & Gibson, 2009).

With the advances in technologies, nurses will have to be educated and trained on new models of health care and be willing to adopt them in to practice (Bala, 2017). The process of adopting a new telehealth program into the normal workflow doesn't happen overnight, but with proper training and hands-on practice the nurse can master this mode of healthcare (Bala, 2017).

Stage one (Novice), is typically used to describe a new student that has little to no experience and they are taught by preceptors and learn skills as they work (Petiprin, 2016). In the process of school nurses learning telehealth, they have no experience with this type of health care and some have never heard of telehealth. This is the stage where some seasoned nurses may have some apprehension and may be hesitant in learning this program. During the training phase, the school nurse would be in this stage.

Stage two (Advanced Beginner), would be the new nurses who are working in their first positions and have some knowledge of what their duties are, but aren't

considered experienced (Petiprin, 2016). In telehealth implementation, school nurses show acceptable performance and knowledge that is gained with experience (Petiprin, 2016). After effective training, the school nurse will begin to guide her workflow and practice with components learned through repetitive use of the telehealth system (Petiprin, 2016).

Stage three (Competent), is a nurse that has worked in the same field for several years and experiences the same type of patients and problems on a day-to-day basis (Petiprin, 2016). In the telehealth role, the school nurse will be considered competent when she can plan and execute the goals for their practice and in turn, improve efficiency in the program (Petiprin, 2016). In the school nurse role, this level can be achieved sooner than two to three years, depending on the frequency of utilization with the telehealth system.

Stage four (Proficient), is the level where a nurse has enough experience with her position that any disruption of the normal day-to-day events can be easily modified (Petiprin, 2016). For a school nurse, disruptions of his/her usual day can occur frequently. Once the nurse is proficient in their skills with telehealth, the disruptions will not cause major issues and the modification is easily accomplished (Petiprin, 2016). Using the telehealth system, the school nurse will be proficient in the decision-making when it comes to holistic care for the student (Petiprin, 2016).

Stage five (Expert), where the seasoned school nurse would typically be described. His/Her skill level and performance are top-notch, and their focus is on relevant issues with the child and they do not get distracted with the irrelevant situations

(Petiprin, 2016). At this level the school nurse will utilize and integrate the telehealth

system into holistic care for the patient (Dracup & Bryan-Brown, 2004)
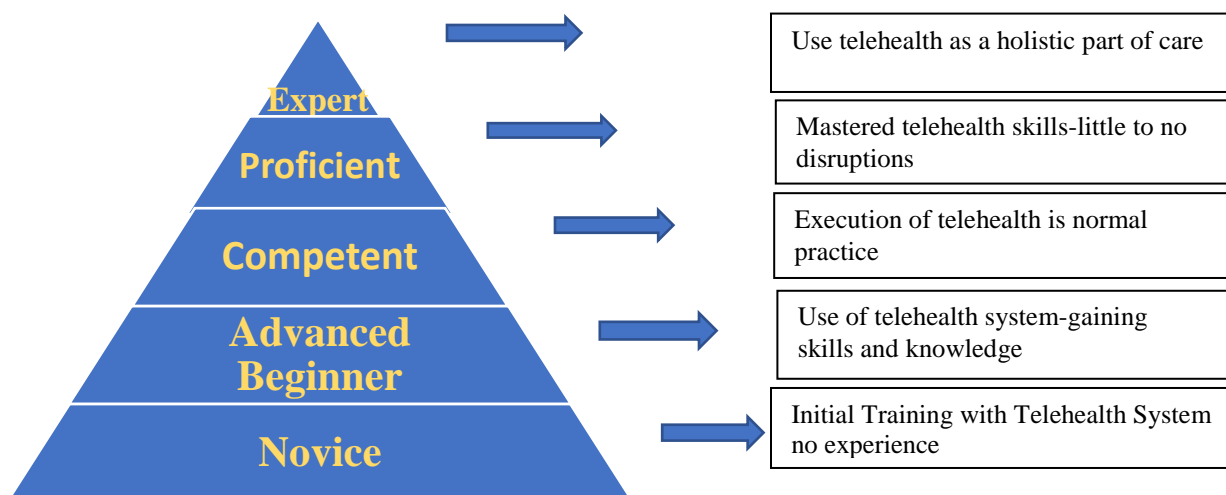
Figure 1. Brenner's Novice to Expert Model

Thesis Question or Hypothesis

School nurses may have a poor comfort and knowledge level prior to the

implementation of a new telehealth program. Their uncertainty towards telehealth could

be due to inexperience and/or lack of understanding regarding telehealth. The research

question for this project was: How effective will an educational training session with

hands-on demonstration of telehealth equipment be for the school nurses who participate

in the training?

Definition of Terms

- Asynchronous- "Asynchronous telehealth communication represents contact that

  is not face-to-face, but in real time, by way of email, internet, text messaging or as

'store and forward' wherein information is sent and picked up or responded to at a later date" (Fathi et al., 2017, para. 14).

- Disruptive Innovation- "groundbreaking products or services that are convenient, simple, and easy to use do not, initially, have the appeal of their established counterparts" (Grady, 2014, para. 1). The services might be lower than the status quo at first, but once their benefits are seen they become popular to specific markets areas (Grady, 2014).

- Healthy People- "Healthy People provides science-based, 10-year national objectives for improving the health of all Americans. For three decades, Healthy People has established benchmarks and monitored progress over time" (Healthy People 2020, 2014a, para. 1).

- Leading Health Indicators- the Healthy People 2020 reports "12 topics under the LHI with one of them including access to health services" (Healthy People 2020, 2014b, para. 1).

- Social determinants- "A range of personal, social, economic, and environmental factors contribute to individual and population health" (Healthy People 2020, 2014c, para.1).

- Synchronous- "Synchronous visits are typically facilitated at the originating site (where the patient is located)" (Fathi et al., 2017, para. 9).

- Teledoc- "Teladoc enhances access to affordable high-quality medical care for adults and children via videoconferencing or telephone consultations. The US-based board-certified physicians meet National Committee for Quality Assurance

(NCQA) standards and delivers a 97% patient satisfaction rate" (Definitions & Translations, 2018, para. 1).

- Telehealth- The U.S. Health Resources & Services Administration defines Telehealth as the following:

> Telehealth is defined as the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration. Technologies include video conferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications (US Health Resources & Services Administration. (2018), para. 3).

- Teledentistry- "Teledentistry is the use of information technology and telecommunications for dental care, consultation, education, and public awareness. Teledentistry can be used to assist general healthcare professionals in serving the oral health needs of patients" (College of Dentistry 2018, para. 1).

- Telepsychiatry- "Telepsychiatry, a subset of telemedicine, can involve providing a range of services including psychiatric evaluations, therapy (individual therapy, group therapy, family therapy), patient education and medication management" (American Psychiatric Association, 2018, para. 1).

CHAPTER II

LITERATURE REVIEW

The need for telehealth is growing especially in rural communities. These demographic areas have certain barriers putting the population at a greater risk of health problems and increase risk of chronic illnesses. The future of healthcare professionals working with telehealth will need to be proactive to reach certain populations through the different models of resources and communication (Crawley & Kuchta, 2012). The school nurse has an opportunity to aid in the future evolvement of healthcare for the American children and increasing their potential in their professional role (Costante, 2001). To be successful at this, the school nurse must be competent in the telehealth program to be able to provide the appropriate care for each problem/illness that arises. Since the US has over 70,000 nurses working in the public-school arena, it is vital their skills and knowledge are up-to-date (Ramos, Fullerton, Sapien, Greenberg & Bauer-Creegan, 2014). Hands-on training of the new digital systems can assist the nurses through the barriers of implementation and combining their school nursing model and the primary care practice forming a partnership improving the healthcare of the children in rural communities in North Carolina. (Taylor, 2016).

The literature reviewed for this study was conducted from the following databases; CINAHL, PubMed, EBSCOhost and requests from University Online Database library link, Interlibrary Loan. Results from CINAHL yielded 26 articles, PubMed yielded 216, EBSCOhost yielded 70 articles, ProQuest yielded 314. Filters that were used to narrow the search were set as full text, free full text, English only language and published in the last 10 years. The research topic identified a wide range of articles

that related to telehealth, these included; the elderly, veterans, dental patients, hospital patients, etc. For this study only those related to telehealth in schools and/or related to nurse education were used. Although filters were used to only list articles within a 10-year period, some articles outside that timeframe were chosen due to the pertinent data contained within them. The key words used were school telehealth, school-based telehealth, telehealth in rural areas, rural telehealth, community telehealth, nursing education for telehealth, telehealth continuing education, and telehealth competencies.

The articles reviewed for this research study led to four main concepts related to the school nurses' need for education and training related to telehealth implementation in the rural setting. The four concepts were: the need for telehealth education, the nurse's perception and readiness for telehealth, the policies needed for telehealth, and the limitations and barriers of telehealth education. These concepts were discussed and broken down into additional categories to show the significance of the need for education.

The Need for Telehealth Education

In the United States, the school nurse serves in a vital role within the infrastructure of pediatric health care (Ramos et al., 2014). Therefore, nurses require specialized skills and knowledge to adequately work within the framework of telehealth (Sevean, Dampier, Spadoni, Strickland, & Pilatzke, 2008). Children are in the school setting for approximately 6.5 to 7 hours a day or 30% of a day and 180 days or 50% of a year. With this amount of time spent in one place it would only make sense to offer medical management during the school day. The telehealth model of care is important in rural settings since resources are scarce and health outcomes are lower for this

population. The school would be the hub for the initiation of care for the child with an acute problem, care manager for chronic illnesses, and health promotion. This makes the school nurse (professionals) responsible for rendering these types of services to students within the school. School nurses can act as a liaison between the student, parent, and providers within the community (Ramos et al., 2014).

The time has come for school nurses to throw away the outdated ways of doing school health and learn the new ways to deliver healthcare. This is not necessarily to forget everything in the past, but rather the opportunity to do away with the non-pertinent and unsubstantiated ideas/actions that hold back the profession (Costante, 2001). Telehealth is one of the new modes of healthcare bringing prominence to the school nursing profession. In the rural community where access to healthcare is scarce, the school nurse can utilize cameras from within the school to consult with a physician/provider for medical diagnosis (Costante, 2001). Several articles reviewed exhibited similarities for the need for education related to telehealth.

Preparing the Nurse for Education Related to Telehealth

The first study was an evaluation study on an educational session intended to prepare rural nurses in remote areas how to use telehealth to perform assessments normally completed by providers (Sevean et al., 2008). A post-survey was used with the results of 65% saying they had experience with video conferencing, 50% with telephone and 20% stated they had experience with computers but not on regular basis (Sevean et al., 2008). The consensus of this study was the nurses felt the sessions were helpful, and it offered insight on how other nurses' do their jobs and educational sessions for rural nursing telehealth clinic were needed (Sevean et al., 2008).

Another study used a four round Delphi-study with an 80% threshold with an expert panel of 51 different nursing disciplines to develop a list of Nursing Telehealth Entrustable Professional Activities (NT-EPA's) (Van Houwelingen, Moerman, Ettema, Kort, & Ten Cate, 2016). The study provided 52 competencies for nurses to integrate into their telehealth training or continuing education (Van Houwelingen et al., 2016). The overall theme for this study was the need for life-long learning using telehealth competencies and activities that could be used in the nursing pathways (Van Houwelingen et al., 2016).

Hendrickx and Winters (2017), stated in their study using continuing education (CE) is necessary to stay current on health conditions and nurses in rural settings meet challenges in obtaining those CE. A survey was used for rural nurses in 22 states (n = 106; novice and expert) to rank their basic knowledge from their academic setting. The results were most nurses stated their knowledge from schooling was ineffective and 11% intended to move away from the rural setting and after a year 100% of them moved (Hendrickx & Winters, 2017). This study proves the need for evidence-based CE regarding advanced skills and knowledge of the latest technologies are available to rural nurses, so they can provide competent care to their patients (Hendrickx & Winters, 2017). Examples of journals and trainings through the Rural Nurse Organization websites were given on various topics related to rural nurses and webinars are also great tools for education purposes (Hendrickx & Winters, 2017).

Ramos et al. (2014), completed a rather lengthy study on the differences between rural verses metropolitan school nurse educational needs and the best way to support those needs. This study used an anonymous survey emailed and mailed to the 502 nurses

(N=502) in the state of New Mexico, using the nurse directory. The survey yielded a

71.7% response rate, (360 total responses) (Ramos et al., 2014). The school nurses

surveyed worked in the public-school system in grades kindergarten through 12th (Ramos

et al., 2014). The results were quite enlightening for that state and are as follows; 200

metropolitan nurses responded (64.3%), 88% of the responses were white and 96.4%

were female (Ramos et al., 2014). The majority were at least 50 years old and only 19.7%

that identified as Hispanic (Ramos et al., 2014). The differences in workload between the

two categories of nurses were noted to be significantly diverse with 67.3% of the rural

nurses compared to 30.1% (P>.001) providing care to several schools with various age

groups as well (elementary and middle schools caseloads) (Ramos et al., 2014). A

difference was noted in the education level between the two categories with metropolitan

nurses more likely to have a baccalaureate degree or higher (Ramos et al., 2014). The

most alarming difference when comparing metropolitan nurses with rural nurses was with

the topic of continuing education (Ramos et al., 2014). This is important due to the topics

in the survey being the most crucial for school aged children (Ramos et al., 2014). The

study revealed rural nurses had less CE than metropolitan nurses on the following topics;

anaphylaxis $(P < .0001)$, asthma $(P = .027)$, body mass index (BMI)/healthy weight

$(P=.0002)$, diabetes $(P < .0001)$, lesbian, gay, bisexual and transgender (LGBT) health

$(P=.0004)$, and suicide risk identification and prevention $(P = .015)$, and the time-frame

was within the last five years (Ramos et al., 2014). Results showed a significant

difference between the educational needs of rural nurses compared to metropolitan

nurses. The take away from this survey was there is a significant educational need for the

rural nurses and as technology and clinical practices evolve, their education and training will need to advance as well.

The last study in this category relates to the importance of integrating technology training into the undergraduate nursing programs (Lamb & Shea, 2006). With the boom of telehealth technology systems in different disciplines, nurses are already exposed to this type of health care delivery and with little to no knowledge prior to initiation (Lamb & Shea, 2006). This sets the program up for failure and decreases the nurse's willingness to use the system. The American Academy of Nursing Commission on Workforce and the American Nurses Association are currently working on ways knowledge and training of technology can be increased so nurses are adequately trained (Lamb & Shea, 2006). In previous studies nurses stated a barrier to implementing telehealth into their practice is the lack of knowledge and training with telehealth technology (Lamb & Shea, 2006). The University of Arizona surveyed nursing students after a one-day training session and the results showed an increase in their readiness to use this type of technology (Lamb & Shea, 2006). Findings from this study concluded there is a significant need for nurses to be prepared to utilize telehealth models by increasing their knowledge through education and training (Lamb & Shea, 2006). The article stated the need for further research regarding telehealth effectiveness and efficacy in nursing practice (Lamb & Shea, 2006).

It is imperative training on telehealth systems occur not only in the practice setting, but also in the academic program setting. Educators in nursing programs will agree a disruption needs to occur in the current methods of learning and new education on telehealth applications need to be included (Grady, 2014). A study by Grady (2014) used a survey to compile information from 36 countries regarding telehealth in curricula.

This study revealed 719 nurses used telehealth in their settings and 89% stated

technology of telehealth systems needs to be in the nursing curriculum in nursing schools

(Grady, 2014). The necessity of training on the actual equipment through experience and

hands-on training with instruction was noted by most nurses from this survey (Grady,

2014). Nursing educators advocating for new curriculum will enhance the proficiency of

nursing practice using telehealth type models of care (Fathi et al., 2017).

The Nurse's Perception and Readiness for Telehealth

There were several studies discussing the nurse's perception and readiness and

their importance to telehealth implementation. Perception is defined by Merriam-Webster

(2018) as, "quick, acute, and intuitive a capacity for comprehension" (para. 4). Nurses do

not want to actively participate with telehealth if they do not perceive it will lessen their

workload (Odeh et al., 2014). Readiness is defined by Merriam-Webster (2018) as, "the

quality or state of being ready: such as a state of preparation" (para. 1). Readiness needs

to be an initial step in the implementation of telehealth for it to be successful (Jennett,

Gagnon & Brandstadt, 2005). Nursing perception and readiness are going to be discussed

further in the following section below.

Nurses' perception. Knowing staff's perception of how they feel about telehealth

can affect the acceptability of implementation (Odeh et al., 2014). In a semi-structured

qualitative study, nine nurses working at 12 different general practices have been using

telehealth for an average of 15 months (Odeh et al., 2014). The interviews were

conducted via telephone, emails or face-to-face with a 78% response rate (84 responded)

(Odeh et al., 2014). The results from this research examined the nurses' experiences to

date and future expectations with telehealth. The themes revealed during the interviews

affecting perception were; "lack of resources, lack of organizational support and issues with technical support" (Odeh et al., 2014, p. 1134). If these barriers are addressed prior to implementation, then the perception of the nurse is more likely to be positive.

Additional source revealed three concepts affecting the acceptance of this type of health care delivery system (Odeh et al., 2014). These concepts were collaboration, training, and support. Change that does not include these concepts would cause a barrier for the implementation process (Odeh et al., 2014). This review stated using the three concepts mentioned above in the development of a thoroughly planned change-management would have a positive effect on the reception of a telehealth system (Odeh et al., 2014).

Readiness. Nurses need to examine their readiness towards telehealth and technology so when systems are implemented they are less disruptive to their day-to-day practices (Grady, 2014). Nurses who are positive and optimistic towards new innovations are called "thought-leaders" and they tend to rank higher on the readiness scale than those nurses that are skeptical and negative (Grady, 2014). The benefits of telehealth need to be discussed so nurses are more aware of what telehealth can do and this will decrease the negative inhibitors that are barriers to the implementation process (Grady, 2014). The Royal College of Nursing (RNC), conducted a survey for three months with 1,313 nurses (Odeh et al., 2014). This survey revealed that 55% had never heard of telehealth and 66% were ready for initiation of telehealth (Odeh et al., 2014). This percentage of uncertainty leads to barriers to implementation of telehealth programs. The conclusion from this survey showed a key factor to success with a telehealth program is to eliminate the lack of knowledge and training (Odeh et al., 2014).

A literature review set out to find questionnaires that could be used to implement telehealth programs. Six questionnaires were found, but only one would work for all types of telehealth programs (Légaré et al., 2010). Five of the questionnaires are: the Organizational Information Technology/Systems Innovation Readiness Scale (OITIRS), the Organizational Readiness for Change (ORC), the Assessment of the Readiness of Hospice Organizations to Accept Technological Innovation, the Assessing Care Agencies' Readiness for Telehealth Tool, and the E-health Readiness Assessment Tools for Healthcare Institutions in Developing Countries. The sixth one is made up of three different tools: the Practitioner Telehealth Readiness Assessment Tool, Patient/Public Telehealth Readiness Assessment Tool, and the Organizational Telehealth Readiness Assessment Tool which is the best tool with telehealth implementation (Légaré et al., 2010). Limitations to these questionnaires are psychometric evaluation is either not present or it is only directed towards a certain telehealth system (Légaré et al., 2010). The conclusion of this review was that completing a readiness tool prior to implementation is a great preparation tool, but future tools need to be improved or created to meet validity and psychometric standards (Légaré et al., 2010).

Jennett et al. (2005) used Rogers' Innovation Adoption Curve as a model and then later used Lewins' model to disseminate different methods to implementation of telehealth programs. A survey discussed in this research article used snowball sampling with 16 interviews, at two educational sessions in the community, conducted two-in depth interviews, and held five focus sessions with the community (Jennett et al., 2005). There is no mention of the number of participants or number of refusals. Six concepts were found to be significant to readiness: awareness and education, projection of benefits,

core, intra-group and inter-group dynamics structural, and assessment of risk (Jennett et al., 2005). The study also selected four readiness types; engagement, structural, non-readiness, and core (Jennett et al., 2005). The assets of this survey were through modification and participatory research. A readiness model was developed for the rural communities and a qualitative analysis was completed (Jennett et al., 2005). Another positive outcome from this study was there could be cost-savings when testing readiness is completed before telehealth implementation (Jennett et al., 2005). The limitations were this was only a peer-review and it was up to the participants' perception and not the actual community's readiness (Jennett et al., 2005). The barriers were the lack of funding, inefficient technology, demands on time, and resistance to change (Jennett et al., 2005).

The Policies Needed for Telehealth

In order for telehealth to be fully implemented in all sectors of healthcare, changes need to be made to policies, legislations, and restrictions on licensures. As the population increases not only in numbers, but in age and chronic illnesses, the quality and standards of care will need to increase as well. The use of telehealth and technology systems like it can help push healthcare to where it can keep up with the populations changes. The ever-changing barriers like ethical consideration, safeguard and confidently, standards and practice guidelines, and healthcare reform cause telehealth to be in a constant whirlwind of modification (Fathi et al., 2017). There are several areas of concerns that fall under the policy category. These include Safeguard and Confidentiality, Licensure and Legislations, and Healthcare Reform.

Safeguard and confidentiality. Privacy issues are seen as a barrier to the acceptance of telehealth, but telehealth is held to the same standards as any other

healthcare practice. The standards are set by several different federal entities such as the Health Insurance Portability and Accountability Act (HIPAA), the Food and Drug Administration (FDA), the Federal Trade Commission (FTC), the Federal Communications Commission (FCC), and the Department of Health and Human Services (DHHS) (Grady, 2014). School nurses are held to another standard under the Department of Education called the Family Education Rights and Privacy Act (FERPA). FERPA is related to confidentially concerning the child's school record.

Licensures and legislations. Nurses and other clinicians need to be advocates for transformation in state and government policies and within their scopes of practice. The Nurse Licensure Compact is just one example of this. Nurses can practice in multi-states and the telehealth delivery model can benefit from this since a license isn't required for each state (Fathi et al., 2017). Institutions, foundations, and initiatives pushed for changes within the nursing practice. In 2010, the Institute of Medicine (IOM), pressed for transformation of the way nurses provide care by increasing their training and pushed for higher education so nurses could work alongside health care provider/physicians (Fathi et al., 2017). The Josiah Macy Jr. Foundation recommended for the nurse role to be increased in the primary care system to meet the increasing demand of health care needs (Fathi et al., 2017).

Restrictions and laws have played a role in the slow-moving acceptance of using healthcare options like telehealth. Legislation and laws will need to change for healthcare services like telehealth to be reimbursed. These changes need to start at the bottom (with the providers) advocating and partnering for change with local and state officials (Fathi et al., 2017). Individual states make the mandates for reimbursement from Medicaid and

other private payer sources and as of 2016, there were 32 states who permitted private payer reimbursement and 48 states for Medicaid reimbursement for telehealth services (Fathi et al., 2017). The time is right, since Medicaid is being reviewed, for school nurses to promote telehealth services within the schools. (Reynolds & Maughan, 2015). Funding is needed for future research and the topic needs to be discussed and pushed so maybe in the future Medicaid and other insurances will reimburse for telehealth services (Reynolds & Maughan, 2015).

Fathi et al. (2017) presented the fact that reimbursement and licensure policies have an impact on the acceptance of telehealth adoption (Fathi et al., 2017). The telehealth legislation is and will continue to be a critical and significant issue where healthcare reform is concerned (Fathi et al., 2017). The future is uncertain for telehealth and reimbursement changes, but nurses as frontline workers need to use their voices to advocate for change (Fathi et al., 2017).

Healthcare reform. In a literature review, it was noted changes occurring to the Patient Protection and Affordable Care Act (ACA) and health care reform. The use of technology will increase, and school nurses began to get involved with telehealth (Reynolds & Maughan, 2015). The ACA has been the driving force behind health care delivery and health information technology (Fathi et al., 2017). The American Recovery and Reinvestment Act (2009) substantially funded healthcare information systems and in 2010, The National Broadband Plan used funding to expand access for high speed internet, which was the birth of telemedicine/telehealth (Fathi et al., 2017). The Accountable Care Organization (ACO), is the newest model of healthcare reform and it oversees the healthcare systems that provide better and more efficient care (Fathi et al.,

2017). A new change that is making its way up the healthcare reform ladder is Medicare Access and Chip Reauthorization Act (MACRA). This is a new value-based payment plan for providers including advance practice nurses (Fathi et al., 2017).

Summary

This literature review discussed the importance for current nursing knowledge and hands-on training with the telehealth healthcare delivery model prior to implementation. Evidence was presented that rural school nurses may need more education regarding telehealth than urban school nurses. Although there were various tools to test for the nurse's readiness concerning telehealth implementation, there weren't clear ways to test for the nurse's comfort knowledge. It will take further research and surveys to obtain this type of data. Although there were favorable results from the literature review, future recommendations for research were made for more research on the same topic, but more narrow or different variables or different methods of collecting data are needed.

As technology advances (90% of the world's population will be able to have access to some sort of smartphone by the year 2020), so will the need for continuing education (Dorsey & Topel, 2016). School nurses must be willing and able to complete the needed training and education to stay abreast with the current programs (Dorsey & Topel, 2016). Having a working knowledge of the latest modalities and digital platforms is imperative for the success of the telehealth program

CHAPTER III

METHODOLOGY

Implementation of telehealth within the school sector is new to most rural

schools. Most school nurses in rural areas do not have adequate knowledge or training

with this type of health care delivery system. It is essential for nurses to be equipped with

the knowledge and skills needed to effectivity use the telehealth equipment to deliver safe

care to the school population. School nurses need to know what their perceptions are

towards implementing this new form of healthcare. Not only does the nurse need to know

how the technology works, but also how to find their comfort level when using the

telehealth equipment. This personal information will make the implementation process

less of a disruption to the normal daily activities. This study was used to gather

information regarding the commitment and confidence level of a group of school nurses

regarding telehealth knowledge after participating in an educational session.

Study Design

This study used a post-test only design. The post-test only model is an evaluation

of a treatment/program/class when no other data is present (comparison group and/or pre-

test data). This design offered an inexpensive and convenient way for the researcher to

conduct this study. A self-completed questionnaire was completed by the participants

following an educational session. The questionnaire that was used in this study was

developed from the Kirkpatrick Four-Level Evaluation Model. The Kirkpatrick Four-

Level Training Evaluation Model was developed by Donald Kirkpatrick in 1959 and

updated in 1975 and 1994 (Kirkpatrick Partners, 2018). The Kirkpatrick Evaluation

Model helps objectively analyze the effectiveness, impact of the training provided, and to

evaluate improvements needed for the future (Kirkpatrick Partners, 2018). The Four

levels include: Reaction, learning, behavior, and results (Kirkpatrick Partners, 2018). For

the purpose of this thesis only Level One and Level Two were assessed. Level One

(Reaction) is the degree to which the participants (school nurses) react to the training and

identifies areas of improvement for future training (Kirkpatrick Partners, 2018). Level

Two (Learning) is the level to measure what the participants (school nurses) have

learned, in addition to how much their knowledge has increased as the result of the

training (Kirkpatrick Partners, 2018). The Kirkpatrick's Blended Evaluation-Participants

Survey (see Appendix A) was the post-test survey design that was used to gather

descriptive statistics on the school nurses' knowledge regarding telehealth. Permission

was obtained from Kirkpatrick Partners to utilize the tool. (Figure 2)

Figure 2. Post-Test Design Model

Setting and Sample

Purposeful sampling in the selection of participants was used for this thesis

project. The project was conducted in a small school system in a rural county in North

Carolina. The sample group was picked by utilizing a rural school system that was

interested in implementing a new telehealth program and within the same geographic

location to the researcher. The samples selected to participate were the six school nurses

(n=6) who were employed with the rural county school system. The sample size was small but was reflective of the population being researched. An invitation was sent via email requesting participation of all the school nurses within this county.

Design for Data Collection

Data collection began with the researcher contacting the school system regarding the need for telehealth implementation. After receiving approval from Superintendent of the school system and the University's Instructional Review Board (IRB), an invitation (see Appendix B) was sent to the school nurses via email using the school system directory. An explanation with the purpose of the study was included in the introductory email, as well as, plans for participation, a timeline for the study and a consent (see Appendix C). The educational session for the school nurses was mandatory, but participation in the post-test survey portion was voluntary.

Measurement Methods

The survey consisted of Likert scale questions and open-ended questions regarding the relevance and delivery of the class material and information learned from the class. The questionnaire was divided into two sections: (1) Level One-included four subsections: the learning environment, relevance, delivery, and overall. There was a total of 10 open-ended questions using a four-point Likert scale rating in this level. (2) Level Two had one section- energy for change which had two questions using the 10-point Likert scale. The four-point scale rated answers as (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. The 10-point scale rated the answers with (0) being not at all confident or committed to (10) being extremely confident or committed. Within the

survey, space was provided for participants to write comments, in addition to three questions requiring a written response.

The data was used to assess common themes from the post survey responses. This data was compiled and charted so common themes could be visible on a bar graph. Currently, per email correspondence with Kirkpatrick Partners, there was no evidence of the reliability and validity of this tool to date.

Data Collection Procedure

This study was completed the same day of the educational session; immediately following the training. The researcher met the school nurses at the local high school in one of the classrooms. The researcher opened the training with introductions and instructed the participants on the process of the training. The training lasted approximately two hours. The researcher instructed the participants that the post survey was completely voluntary following the educational session.

The researcher began the training with a quick discussion of the need for telehealth and how, if implemented, could help the school system. The researcher used a power point (see Appendix D) as the training technique. The power point included training on the telehealth program and how to use the equipment. Permission was obtained to utilize the education material for training by TytoCare. After the teaching portion of the training, the school nurses participated in a hands-on training using the equipment.

Once the educational session was completed and the nurses voiced an understanding of the information, the researcher went over the process of the survey. Once again, the researcher informed the nurses participation in the survey was voluntary

and they were free to leave prior to the beginning portion of the survey or they would have the option of turning in a blank survey and exit the room. The researcher had the printed surveys in an envelope marked "post-test survey". Instruction was given that once the researcher exited the room the nurses would get a copy of the survey, fill out the survey, and once completed, would return in the same envelope, and exit the room. Again, this was where, if the participant chose not to participate, they would follow the same procedure and turn in the blank survey and place in the same envelope and exit the room. Once all the participants left the room and the room was completely empty the researcher collected the envelope and then took back to the office to review the answers to the questions in search of common themes.

Protection of Human Subjects

The protection of the human subjects was ensued during the entire process of this study. Anonymity was kept by the lack of identifying information on the screening instrument and the nature of distribution and of the collection instrument. No deception of any kind was involved, and no incentives were used. This study was completely voluntary, and permission was obtained from the Superintendent of the school system prior to initial contact with the school nurses. The University IRB, after careful review, granted approval for the study design. Participants were made aware their consent would be considered for the initiation and completion of the survey. Participants were made aware the surveys, while not in use, would be kept in the envelope, in the researchers locked office, in a locked file cabinet. Participants informed the data would be kept at the University for three years after the completion of the thesis. Then after the three years the data would be destroyed following the University's protocol for destruction of records.

For the purposes of the results of the thesis, the research paper would be reported to the faculty sponsor, presented to members of the University's faculty during a poster presentation, loaded in ProQuest and to the researcher's facility (for information only).

Data Analysis

The researcher used an Excel 2013 spreadsheet to graph the data gathered from the Kirkpatrick's Blended Evaluation-Participants survey. The researcher manually entered the data verbatim from each survey. Once all the data was entered, questions one through 10 and 12 through 13 were grouped together to show the frequency of the answers. Questions 11 and 14 through 16 were open ended questions and these were grouped to identify themes and/or trends. Descriptive statistics was used to assess the confidence and commitment levels of the respondents.

CHAPTER IV

RESULTS

The intent of this study was to show school nurses who attended an educational session on implementation of school telehealth would express a high level of confidence and commitment to implementing a new school telehealth program. The Kirkpatrick's Blended Evaluation-Participants Survey was the tool used for this study. This tool measured the reactions and learning levels of the participants following the class/training session.

Sample Characteristics

This study involved six school health nurses as participants. The participating nurses worked in a rural county in North Carolina that had identified access to healthcare as a problem within their county. The school system was researching school telehealth as a solution to healthcare access for the underserved population. All six nurses who completed the training session submitted a completed survey.

Major Findings

The results from the surveys show the hypothesis; after an educational training session on school telehealth the school nurses participating in the study will report high commitment and confidence to telehealth implementation, was validated. The responses from questions 12-13 Level 2- Energy for Change (Figure 3) specifically related to the hypothesis with all six nurses responding with high confidence/commitment levels to extremely high confidence/committed levels.

Level 2-Energy of Change

Responses:
0= Not at all Confident/Committed to application
10= Extremely Confident/Committed to application
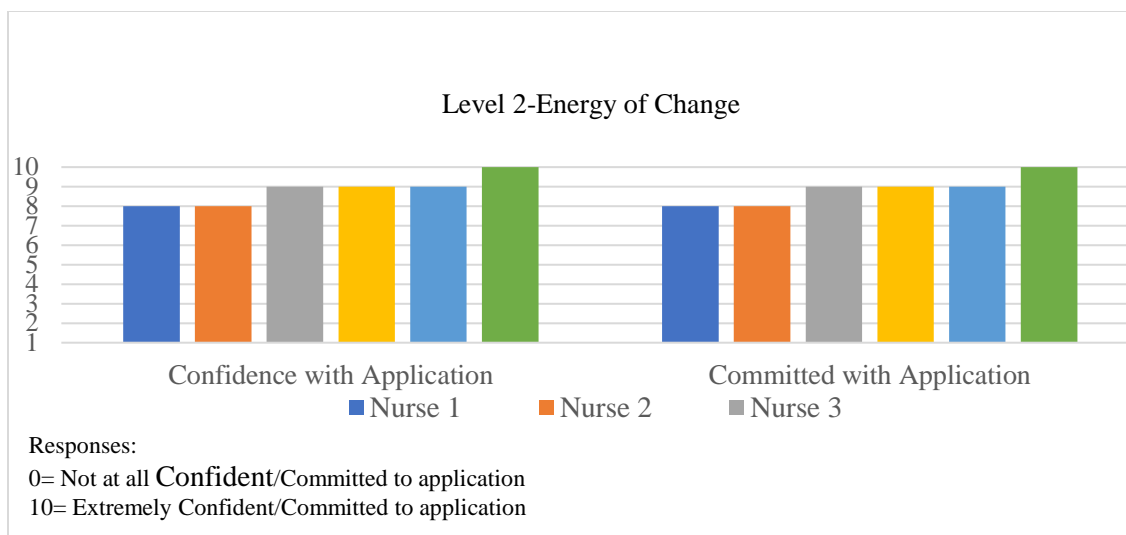
Figure 3. Summary of Level 2- Energy of Change

The questions related to the nurses' opinions to the training portion of the survey were questions 1-10, Level 1- Learning Environment, Relevance, Delivery and Overall Experience (Figure 4) and question 11 (Figure 5). Questions 14-16 (Figures 6-8) were open-ended questions. In Questions 1-10, 6 out of 6 (100%) of the nurses answered all the questions in this section and all responses either "agree" or "strongly agree" with each question. This confirmed the nurses found the educational session helpful.
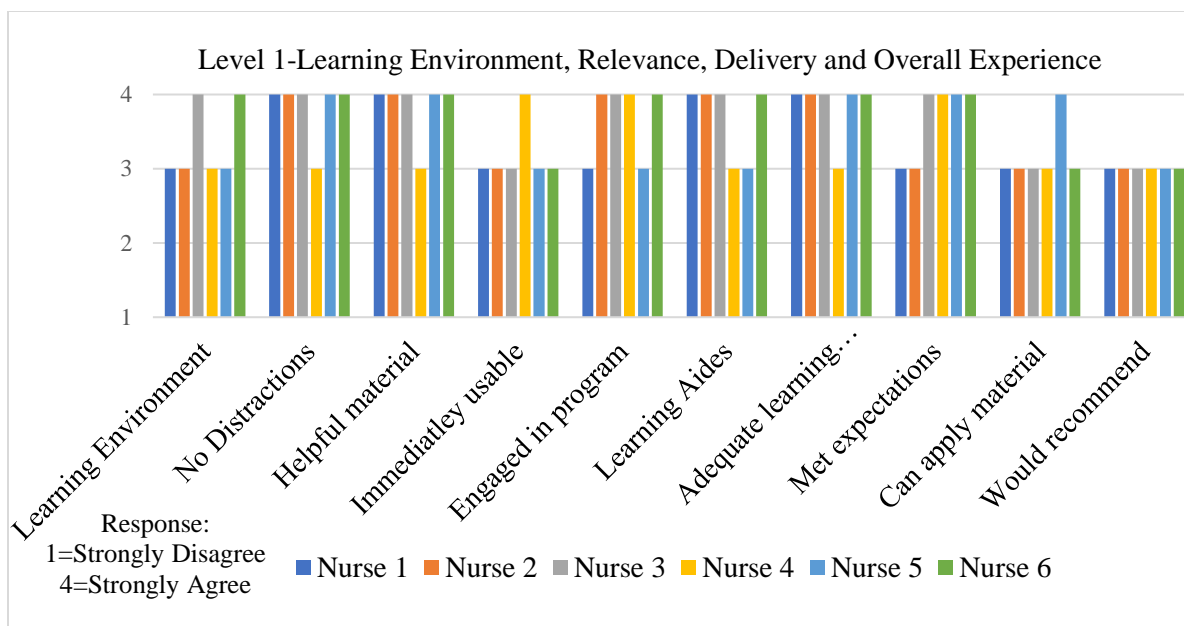
Figure 4. Summary of Level 1-Learning Environment, Relevance, Delivery and Overall Experience

Question 11 (Figure 5) asked what the nurses who participated in the survey would be able to apply on the job. Four out of six (67%) of the nurses responded with a written answer and one survey was blank and one had N/A for an answer. There was one common theme from the responses; how to use telehealth. Since this was an anonymous survey it is unknown what the blank answer and the N/A answer meant so these were omitted from the theme.

Figure 5. Summary of Question 11

Question 14 (Figure 6) asked the nurses who participated in the survey what they would consider to be a barrier to utilizing what they had learned. Three out of six (50%) of the nurses responded with a written answer and t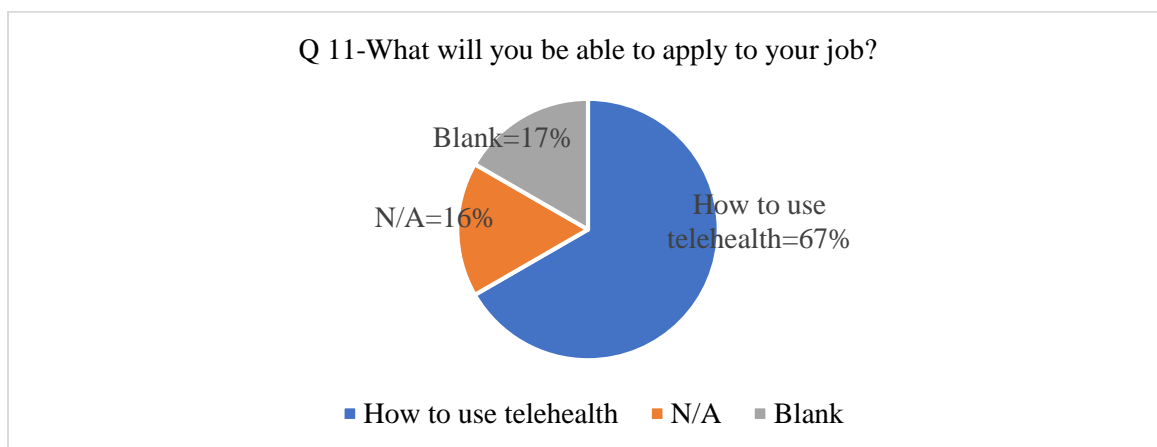wo surveys (33%) were blank and one responded N/A (17%). The common theme for this question was that time was a barrier. The blank answers and the N/A answer were omitted from the theme since it is unknown what the respondent meant with those responses.

Q-14 What barriers do you anticipate that might prevent you from applying what you have learned?

N/A 17%

Blank 33%

Time 50%

■ N/A ■ Blank ■ Time

Figure 6. Summary of Question 14

Question 15 (Figure 7) asked the nurses who participated in the survey what would help to overcome the barriers to using telehealth. Three out of six (50%) of the nurses responded with a written answer; push students ahead of scheduled patients (17%), no good answer (17%), educate teachers (17%) and two surveys (33%) were blank and one responded N/A (16%). Each nurse answered this question put something different therefore there was no common theme for this question.

Q-15 What might help you overcome those barriers?

Push students ahead of
scheduled patients…

N/A
16%

No good anwer
17%

Blank
33%

Educate teachers
17%

■ N/A ■ Blank ■ Educate teachers ■ No good anwer ■ Push student ahead of scheudled patients
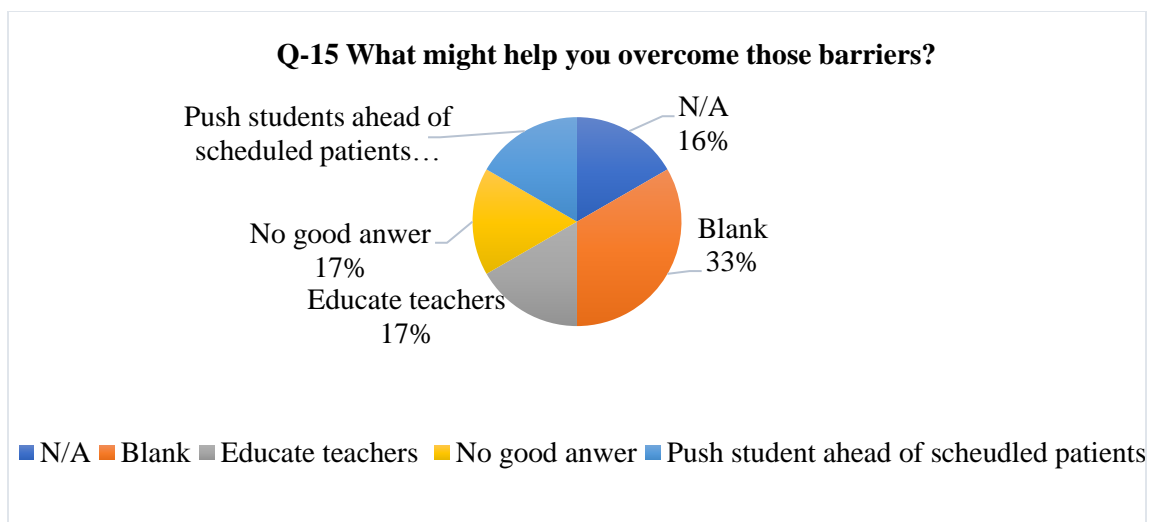
Figure 7. Summary of Questions 15

Question 16 (Figure 8) asked what was the outcome the nurses wanted to achieve.
Three out of six (50%) of the nurses responded with a written answer and two surveys
(33%) were blank and one had N/A (17%). The common theme for this question was to
have enough time to use telehealth. The blank answers and the N/A answer were omitted
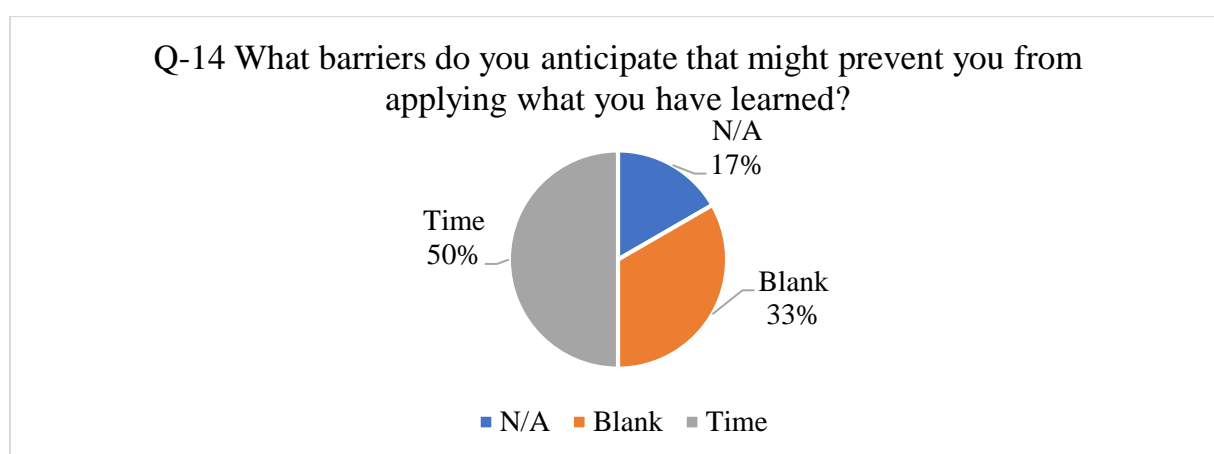from the theme since it is unknown what the respondent meant with those responses.

**Q-16 What outcomes are you hoping to achieve as a result of your
effots?**

17%

33%

50%

■ N/A   ■ Blank   ■ Have Enough Time
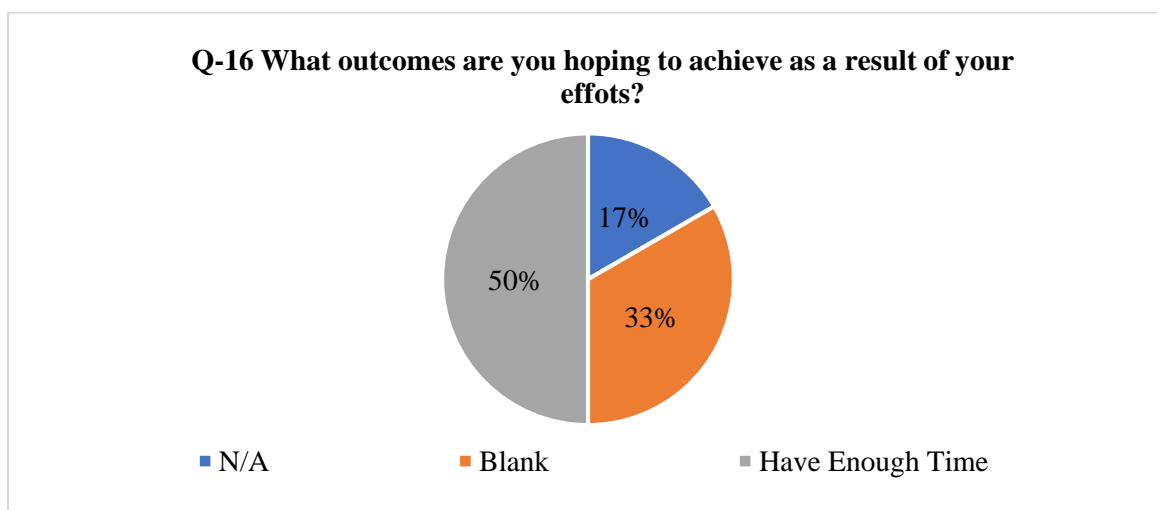
Figure 8. Summary of Questions 16

Summary

This study was an attempt to identify the need in rural areas for telehealth training for the nurses who implement this type of service. This study used six school nurses in a rural community to see if their confidence level and commitment level to telehealth implementation would increase after taking an educational session with hands-on training. The descriptive statistics gathered from this data represents that the training was successful in meeting this goal. Overall, the program shows promise for nurses in rural areas to provide telehealth services without major disruptions to their normal daily activities. Although the overall confidence and commitment levels were high from the respondents, it is apparent additional training and studies need to be performed to address these concerns/barriers.

CHAPTER V

DISCUSSION

This study set out to prove the hypothesis that nurse's confidence and commitment to telehealth improve after a hands-on education and training. The responses taken from the surveys offer a perspective of how the educational session on telehealth may have affected the respondents' commitment and confidence level regarding implementing a telehealth program. Based on the data, it is clear the telehealth training improved the nurses' confidence level as well as their commitment to implement this service. The nurses appear to feel at ease with the equipment and procedures after undergoing the training class. The author feels the unknown factor of implementing the new style of health service is the major barrier for nurses. With this simple training, the nurses understood the procedures and protocol which increased their comfort level and willingness to participate in the telehealth program.

However, through this survey it was noted that there are concerns with the time constraints involved in serving the population. The nurses noted barriers such as time, not enough time to use the telehealth equipment, and times for appointments might be an issue as well. These nurses offered some avenues to overcome these barriers such as; training teachers to triage students and only send those with valid complaints to the nurse and to have the provider's office put the students as a priority visit over the scheduled patients. Although the overall confidence and commitment levels were high from the respondents, it is apparent additional training and studies need to be performed to address these concerns.

Implication of Findings

The main finding from this study was that the hypothesis proposed by the author during the initial phase of this study, that school nurses who take part in an educational session that used hands on training of the telehealth equipment would verbalize a high confidence and commitment to using telehealth, was validated by the responses taken from the survey. This coincided with similar studies found within the literature review. In a previous study conducted by Lamb and Shea (2006), it was reported nurse's knowledge levels increased after only a one-day training session. Another study by the same authors stated, the only way nurses can be ready to use telehealth equipment is to increase their educational skills. Grady (2014), also noted the importance of hands-on training for nurses to increase their knowledge on new services. The information learned through the literature review was used to guide this study.

Application to Theoretical/Conceptual Framework

The conceptual framework used in this study was, Patricia Brenner's From Novice to Expert Theory. This theory was appropriate for this type of study and the findings from the survey provide evidence nursing skills and knowledge increase following training and education. As skills and knowledge increase over time the nurse tends to evolve from the novice stage into the expert stage. This theory helped guide the study through, instrument selection, the educational session and the evaluation portion of the training, and reviewing the responses from the survey. The idea behind this framework is with each skill learned, whether it is in the classroom or clinical setting, the nurses move to the next level of experience until they reach the expert stage. Although this study only used the first stage of this framework it can be assumed continual

experience with the telehealth system that the school nurses will become experts with this type of health care delivery.

Limitations

Limitations for this study, Telehealth Education and Training for School Nurses, potentially could include: time constraints which restricted this study to a small sample size, no comparison/control group and the lack of reliability and validity of the survey tool. Although the sample size (n=6), was conducive to the population that was being studied, this could be considered a small sample size. The small sample size could be considered as negative in the fact that it is only relative data to the nurses in this study and not representative to other school nurse populations. This study used a post-test only design which can be a limitation in itself. A better option in the future would be to use a pre/post-test study design that would give more data through control groups or comparison groups. Additional limitation noted from this study was the lack of reliability and validity of the survey tool, Kirkpatrick Blended Evaluation Tool.

Implications for Nursing

Just like the information found in the literature review, this study also validated the telehealth educational sessions for the rural nurse setting was helpful and were found to be needed (Sevean et al., 2008). The telehealth model of care is important in rural settings due to lack of resources (access to care) and health outcomes are lower for this population. Another implication for nurses is the school nurse oversees the initiation process and follow through for care for the students during the school day (Ramos et al., 2014). The school would be the center for this type of care, so it is imperative that nurses understand and can provide adequate care through this health care options. Additional

research is needed on telehealth educational training and implementation into rural school systems.

Recommendations

Several recommendations can be made from this study. Based on the information learned through the literature review there needs to be future research on the tools and questionnaires that are used to gather the data that is related to the study. There are plenty of tools out there, but most haven't been utilized or tested enough to show reliability and validity (Légaré et al., 2010). The findings from Lamb and Shea (2006), suggested more research is needed to show valid efficiency and effectiveness of telehealth in the nursing profession. Although this study validated the hypothesis, it may be beneficial to research this topic further using a larger sample size and a method other than purposeful sampling. This may allow for a deeper perspective of all nurses who are learning/training about new healthcare delivery methods such as telehealth.

Conclusion

This study used six school nurses in a rural community to see if their confidence and committed to telehealth implementation would increase after completing an educational session with hands-on training. The descriptive statistics gathered from this data represents the training was successful in meeting this goal. This study also found common themes on time constraints and scheduling as well as the nurses feel comfortable using the equipment required for telehealth services. Overall, the program shows promise in the rural area which could make it difficult to access health care without major disruption to normal daily activities. As the need grows for more health care options in

the rural community the information gathered from this study could be a preliminary

starting point for telehealth studies in the future.

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Appendix A

Kirkpatrick's Blended Evaluation-Participants Survey

Participant Survey

Instructions: Thinking about the course you just completed, please indicate to what degree you agree with each statement using this rating scale:

1 = Strongly Disagree	2 = Disagree	3 = Agree	4 = Strongly Agree

Please provide comments along with your rating to help us to improve this course in the future.

Learning Environment

The class environment helped me to learn.	1	2	3	4
There were no major distractions that interfered with my learning.	1	2	3	4

   Comments:

The program material will be helpful for my success in the future.	1	2	3	4
I will be able to immediately use what I learned.	1	2	3	4

Comments:

Delivery

I was well engaged with what was going on during the program.	1	2	3	4
The activities and exercises aided in my learning.	1	2	3	4
I was given adequate opportunity to demonstrate what I was learning.	1	2	3	4

Comments:

Overall

The program met my expectations.	1	2	3	4
I am clear on how to apply what I learned on the job.	1	2	3	4
I would recommend this program to my co-	1	2	3	4

workers. Comments:

From what you learned, what will you be able to apply on your job?

Energy for Change

How *confident* are you that you will be able to apply what you have learned back on the job? (Circle one rating)

0…..1…..2…..3….4…..5…..6…..7…..8…..9…..10

Not at all confident   Extremely confident

If you circled 6 or lower, please answer the following question. Circle all that apply.

My confidence is not high because:
   a.   I do not have the necessary knowledge and skills

   b.   I do not have a clear picture of what is expected of me

   c.   I have other higher priorities

   d.   I do not have the necessary resources to do it

   e.   I do not have the human support to do it

   f.   Other (please explain):

How *committed* are you to applying what you learned to your work? (Circle one rating)

0…..1…..2…..3…..4…..5…..6…..7…..8…..9…..10

Not at all committed   Extremely committed

If you circled 6 or lower, please answer the following question. Circle all that apply.

My commitment isn't high because:

    a. I do not have the necessary knowledge and skills

    b. I do not have a clear picture of what is expected of me

    c. I have other higher priorities

    d. I do not have the necessary resources to do it

    e. I do not have the human support to do it

    f. I am not required to do this

    g. I am not rewarded or recognized for doing this

    h. Other (please explain):

What barriers do you anticipate that might prevent you from applying what you learned?

What might help to overcome those barriers?

What outcomes are you hoping to achieve as a result of your efforts?

Appendix B

School Nurse Invite for Research

Dear School Nurse,

My name is Billie Walker and I am currently a Master of Science in Nursing student at Gardner-Webb University. I am working on my thesis and request your participation in a research study. The topic of my thesis is, Telehealth Education and Training for School Nurses. Telehealth programs are rapidly growing around the country, especially in the rural population. You represent a rural school nursing population and following the education session you should be able to report a high commitment and confidence to telehealth service implementation.

Project Information:

You will attend a mandatory educational session. This session will take approximately two hours. The mandatory educational session being conducted will include training on the telehealth program and the use of the equipment to effectively complete a telehealth exam. Once the educational session is completed, you will be asked to take a voluntary post-test survey. Participants may turn in a blank survey if you choose not to participate with this study.

   Please feel free to contact me or my faculty advisor should you have any comments or questions. Thank you for your assistance with this project.

Sincerely,

Billie Walker, BSN, RN	Ashley Isaac-Dockery, DNP, ANP-BC
Master of Science in Nursing Student	Assistant Professor of Nursing; Nurse
Practitioner	
Gardner-Webb University	Gardner-Webb University
Hunt School of Nursing	Hunt School of Nursing
(828) 312-8183	Faculty Advisor
bwalker@gardner-webb.edu	(704) 406-2459
	aisaacdockery@gardner-webb.edu

Appendix C

Informed Consent

TITLE OF STUDY

Telehealth Education and Training for School Nurses

PRINCIPAL INVESTIGATOR

Billie Walker
Master of Science in Nursing Student
Gardner-Webb University, Hunt School of Nursing
bwalker@gardner-webb.edu
(828) 312-8183

FACULTY SPONSOR

Ashley Isaac-Dockery, DNP, ANP-BC
Gardner-Webb University, Hunt School of Nursing
aisaacdockery@gardner-webb.edu
(704) 406-2459

PURPOSE OF STUDY

You are being asked to participate in a research study. Before beginning this research study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information.

Following a telehealth education and hands-on demonstration of telehealth equipment, school nurses will report high commitment and confidence to telehealth service implementation The Kirkpatrick Blended Model-Participant Survey will be used to provide this information.

STUDY PROCEDURES

As per the email that you received, you will attend a mandatory educational session and be asked to participate in a voluntary post survey. Completion of the survey constitutes your consent to participate in this study.

You may decline to answer any or all questions and you may terminate your involvement at any time if you choose by turning in a blank survey.

RISKS

There are minimal risks for participants in this study.

BENEFITS

Results from the study may benefit the nursing profession, specifically related to use of telehealth within rural school systems.

CONFIDENTIALITY

Your responses to this survey will be anonymous. Please do not write any identifying information on your survey.

CONTACT INFORMATION

If you have questions or concerns at any time about this study you may contact the student whose contact information is provided on the first page.

VOLUNTARY PARTICIPATION

Although your participation is mandatory for the educational session, your participation in this study is completely voluntary. Your completion of the survey constitutes your consent to participate in this study. You may choose to withdraw from this study by turning in a blank survey in the provided envelope and exiting the room. Withdrawing from this study will not affect the relationship you have, if any, with Alexander County Schools.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that completion of the survey constitutes my consent to participate in this study. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without penalty. I understand that by completing and submitting this survey, I consent to the responses being used in this research study.
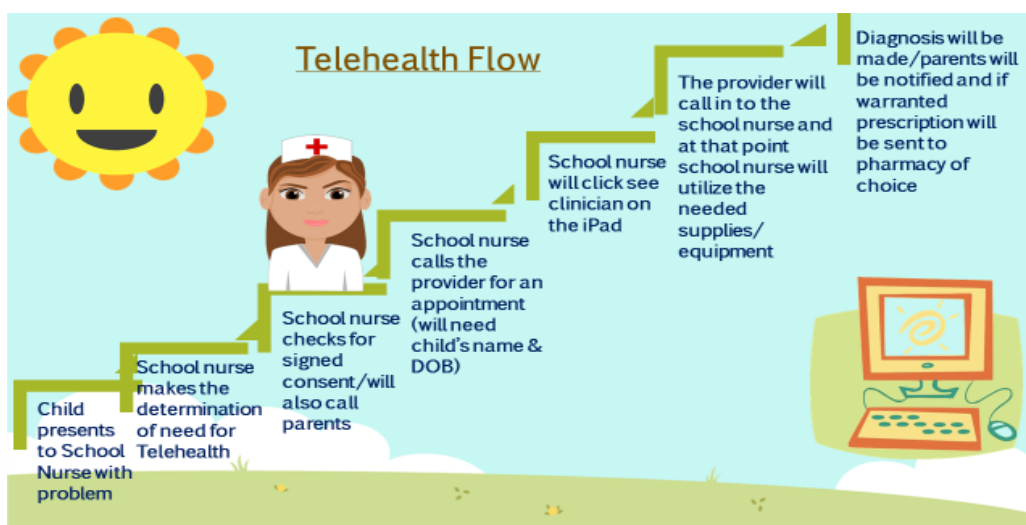
Appendix D

Telehealth Training Power Point
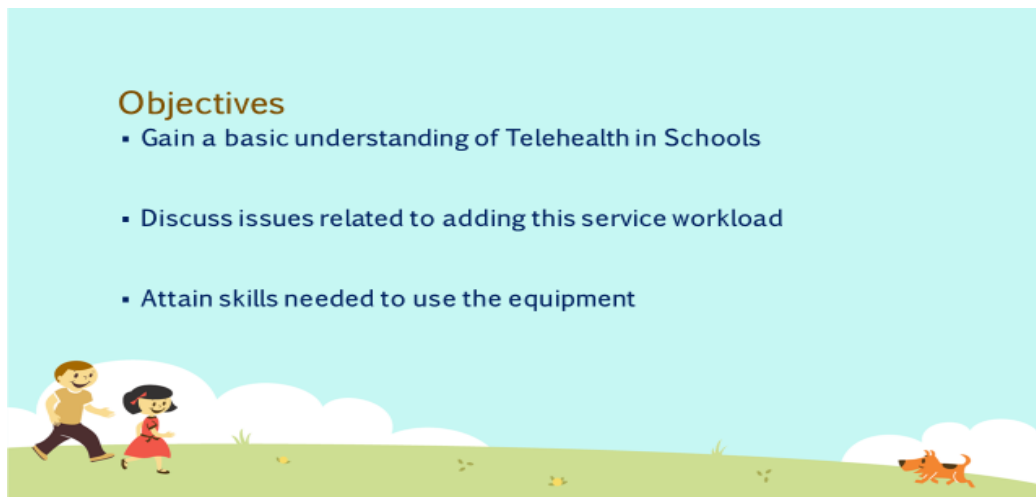
What is Telehealth?

- Healthcare delivered via technology from one site to another (remote healthcare)

- This tool can be used for sick visits and as an educational session

- This tool doesn't have to be used on every patient, just the ones the nurse deems necessary

Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

Telehealth Flow

Child presents to School Nurse with problem

School nurse makes the determination of need for Telehealth

School nurse checks for signed consent/will also call parents

School nurse calls the provider for an appointment (will need child's name & DOB)

School nurse will click see clinician on the iPad

The provider will call in to the school nurse and at that point school nurse will utilize the needed supplies/ equipment

Diagnosis will be made/parents will be notified and if warranted prescription will be sent to pharmacy of choice

TytoCare

Product overview
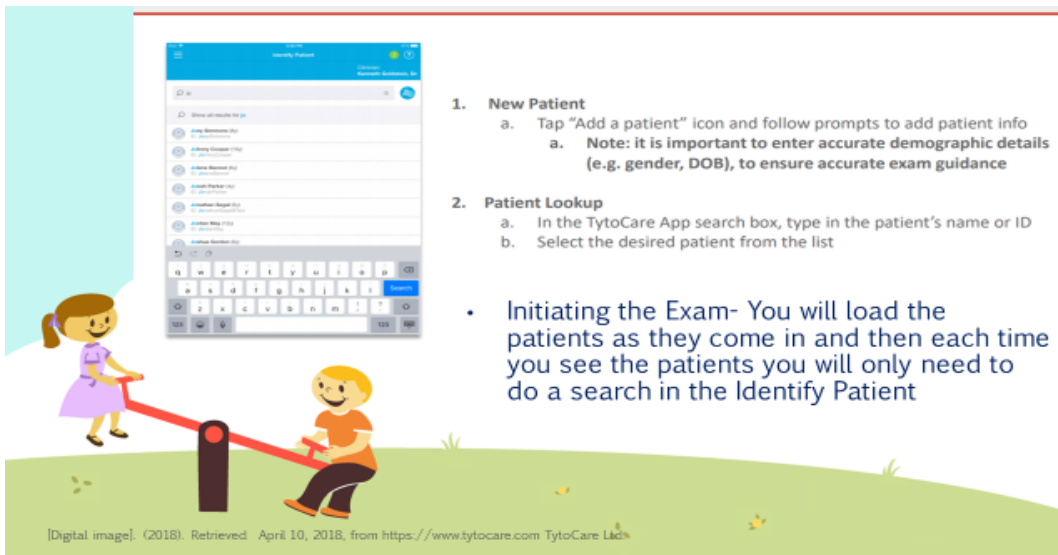
[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

Point of Care

- Where the patient is located is considered as the Point of Care
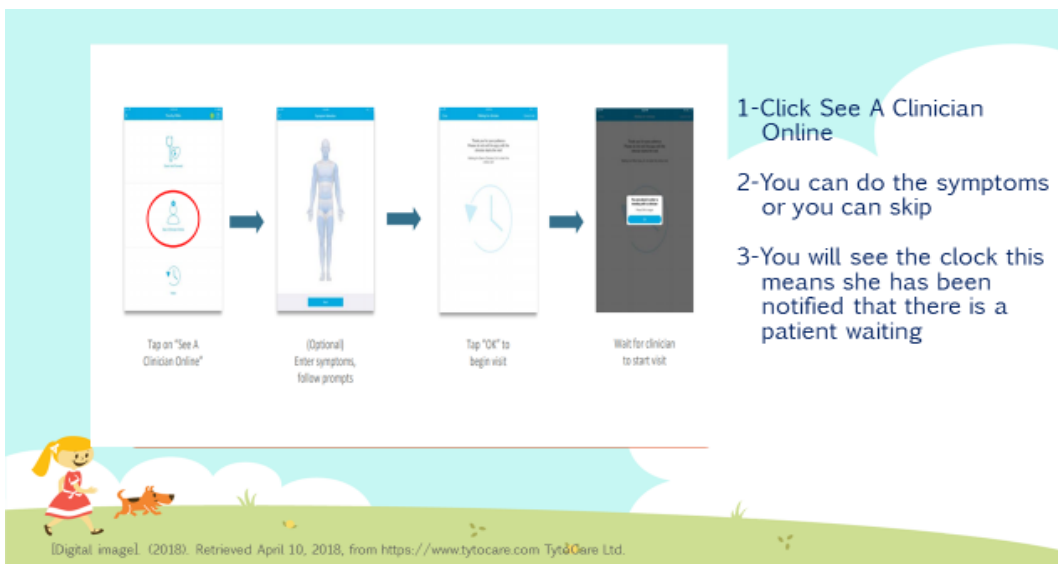
[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

1. **New Patient**
   a. Tap "Add a patient" icon and follow prompts to add patient info
      a. Note: it is important to enter accurate demographic details (e.g. gender, DOB), to ensure accurate exam guidance

2. **Patient Lookup**
   a. In the TytoCare App search box, type in the patient's name or ID
   b. Select the desired patient from the list

- Initiating the Exam- You will load the patients as they come in and then each time you see the patients you will only need to do a search in the Identify Patient

[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

1-Click See A Clinician Online

2-You can do the symptoms or you can skip

3-You will see the clock this means she has been notified that there is a patient waiting

Tap on "See A Clinician Online"

(Optional) Enter symptoms, follow prompts

Tap "OK" to begin visit

Wait for clinician to start visit

[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

Exam Equipment

- The Tyto Device, without adaptors, is used during:
  - 🌡 ▪ Temperature Exam
    Temp
- Tips for a successful exam
  - Ensure measurement target on forehead is free of sweat and hair
  - For most accurate measurements, ensure the patient and Tyto Device have been in the same room and acclimatized to the environment for at least 15-20 minutes
  - Point the Tyto Device **without making contact with the skin surface** (no more than 2 inches) at the forehead

- The Tongue Depressor adaptor is used during:
  - 🗣 ▪ Throat Exam
    Throat
- Tips for a successful exam
  - Open mouth wide!
  - Use of the tongue depressor is optional

[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

- The Otoscope adaptor is used during:
  - 👂 ▪ Ear Exam
    Ears
- Tips for a successful exam
  - Use the appropriate size ear speculum (4mm = adult, 3mm = child)
  - Pull ear backwards and upwards to straighten ear canal
  - **Note:** Clean otoscope lens thoroughly between exams, including when switching between ears
  - **Note:** By design, the otoscope camera will automatically switch off after 45 seconds to avoid overheating

[Digital image]. (2018). Retrieved April 10, 2018, from https://www.tytocare.com TytoCare Ltd.

After the Exam

- The Provider will call the parents and discuss the findings
- If the child needs a prescription then one will be called in for them at the pharmacy on their consent form
- If the child is contagious then send the child home
- If the child isn't contagious recommendation is for the child to go back to class

Important things to remember if parents ask:

- Summary of this visit will be faxed to the child's Primary Care Provider
- This doesn't take the place of a child's Primary Care Provider. We still want and need to emphasize that so there aren't any misunderstandings
- No cash payment is taken at the visit. The health department will file the visit with childs insurance.
- If there is a referral for that same day, the health department will not bill for this visit.

Questions?????

Hands on Demo

Each nurse will take a turn completing parts of the exam on another nurse in order to familiarize yourself with the equipment.