MEDICAL STAFF EDUCATION IMPROVES PATIENT EDUCATION THROUGH

THE USE OF TECHNOLOGY IN A PREDOMINANTLY SPANISH SPEAKING

POPULATION: A QUALITY IMPROVEMENT PROJECT

by

Rita Gonzalez

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As members of the DNP Project Committee, we certify that we have read the DNP project

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Project and recommend that it be accepted as fulfilling the DNP project requirement for the
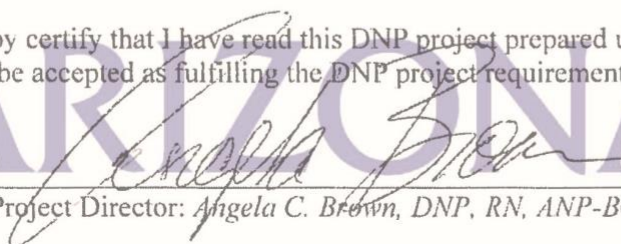
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of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend
that it be accepted as fulfilling the DNP project requirement.

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This doctoral project would not have been possible without my family. They lifted me up through the rough times and celebrated with me through the good times. Thank you for the endless love, support and for keeping me sane and allowing me to continue my dream.

DEDICATION

Dedicated to my mother,

Without your daily sacrifice I would not be the person I am today.

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ABSTRACT

This quality improvement project focused on an underserved clinic which serves primarily underserved Hispanic patients in the Phoenix area. The primary purpose of this QI project is to enhance existing tablets/screens with Spanish content at the Wesley Golden Gate community clinic (WGGCC). The secondary purpose of this QI project is to increase the use of tablets/screens overall among the medical staff at the WGGCC. Using the Plan, Do, Study, Act cycle, there was a two-fold increase use of tablets/screens by the medical staff during the data collection period.

INTRODUCTION

Patient education in the U.S has evolved and transformed many times since the beginning of organized healthcare dating back to mid-1800's (Roter, Stashefsky-Margalit, & Rudd, 2001). In the early 1960's, physicians were seen as the authority, responsible for the diagnosis, treatment and plan (Hoving, Visser, Mullen, & van den Borne, 2010). While patients were seen as passive, were not expected to participate actively and conform to physician' plans despite patient preferences (Hoving, Visser, Mullen, & van den Borne, 2010). In the 1970's self- care groups began to emerge, causing patient education to shift toward patients actively involved in their care. This movement grew and expanded in the 1980's when patients began to have an active role in their health (Hoving et al.,2010). Informed and involved in their care, through the 1980s-1990's, patients became active in lifestyle changes. Technology, the internet and social media became the source of healthcare information for patients leading to a paradigm of patients and providers actively making healthcare decisions together.

Regardless of setting, patient education changed simultaneously as new medical advances emerged it changed the ways patient education was and is currently done (Roter et al., 2001). Deebren (2010), stated that there are two categories of patient education, clinical patient education and health education. Clinical patient education is performed in clinical settings it is a "… planned systematic, sequential, and logical process of teaching and learning provided to patients and clients." The goals of clinical patient education are constructed by the patient's assessment, evaluation, diagnosis, prognosis, and specific needs and requirements related to interventions (Deebren, 2010, p. 4). Likewise, health education is also a teaching and learning process comparable to patient education, except the area of concentration is on wellness,

prevention and health promotion (Deebren, 2010). In contrast, the focus of health education is to improve communal health which can be taught to individuals, groups and/or communities (Deebren, 2010). For the purpose of this DNP quality improvement project, the term "health education" will be defined as preventative patient education.

Patient education mediums consist of one-on-one verbal education, demonstrations, brochures or other printed materials, podcasts, YouTube videos, videos or DVDs, PowerPoint presentations, posters or charts, models or props, group classes and trained peer educators (U.S. National Library of Medicine, 2017). With the infusion of technology along with social media, there is an understanding that patients play a bigger role in their health than ever before. The amendment of the Health Information Technology for Economic and Clinical Health ACT of 2009, puts into place programs that are technology-based to improve patient education and quality of care in healthcare (healthIT.gov, 2017).

Learning has transformed in many ways because of technology and now is readily available to anyone who has access to the world wide web or internet (Bonk, 2016). Adult patients learn best by using a combination of visual, kinesthetic and auditory styles (Russell, 2006). In a study done by Gerber et al. (2003), patients were more accepting of using interactive technology in form of a touch screen tablet for smoking or alcohol cessation. Lua, Neni, Lee, & Abd Aziz (2013), performed a study where patients with epilepsy used animated and interactive technology for education and showed positive findings; the program was 100% acceptable and received full support from patients. Goodman et al. (2015), performed a study where patients viewed and education video on the benefits of vaccines while pregnant and their results were optimistic, although the rates of vaccines did not increase the misconception of vaccines was

eliminated. What did increase the vaccines rates were the direct recommendation from the provider (Goodman et al., 2015). The studies aforementioned have showed positive outcomes with interactive technology for patient education.

Patient education is best explained/given in the patients' native language. One of the largest groups of migrants in the U.S over the last 30 years are Spanish-speaking patients (Squire, 2018). This group of patients tend to face a language barrier in healthcare (Squire, 2018). A study done by Stanford University School of Medicine and Lucile Packard Children's Hospital Stanford found that Spanish-speaking patients recorded higher level of satisfaction and higher ratings of the quality of information they received versus the control group and families that worked with an interpreter (Digitale, 2015). The Spanish-speaking patients also noted the importance of speaking in their native language when discussing care higher than English-speaking patients (Digitale, 2015).

Local Problem

The underserved clinic is made up of two community centers and health clinics attached. The community center provides a variety of classes that can be broken down into three categories: athletic programs, community education, and neighborhood programs. The health clinic provides affordable primary care to those who are primarily low income and uninsured/ underinsured, some services provided are: family medicine, pediatric care, prenatal care, family planning, cancer screening, lab testing, counseling and preventive patient education (Wesley Community & Health Center, n.d).

According to the Health Resource and Services Administration (HRSA) (n.d), the underserved clinic is a federally qualified health center (FQHC). Twenty-six million people

across the nation rely on FQHC's for healthcare services (HRSA, n.d). FQHC's are "community-based and patient-directed organizations that deliver comprehensive, culturally competent, high-quality primary health care services" (HRSA, n.d). FQHC's "… often integrate access to pharmacy, mental health, substance abuse, and oral health services in areas where economic, geographic, or cultural barriers limit access to affordable health care services" (HRSA, n.d). FQHC's deliver care to the Nation's most vulnerable individuals and families, for example, people experiencing homelessness, agricultural workers, residents of public housing, and veterans (HRSA, n.d). FQHC not only provide services on a "sliding scale" based on the patients' ability to pay but also meet a strict set of requirements in order to keep their funding.

This quality improvement (QI) project will focus on an underserved clinic which serves primarily underserved Hispanic patients in the Phoenix area. Each exam room is equipped with an interactive 3D screen and/or tablet that contains educational health videos. Outcome Health, based in Chicago, IL, is the company who provided the tablets and who oversees the educational content on the tablets/ screens. The goal of Outcome Health is to increase health education for patients at the point of care (Outcomehealth.com, n.d.). The tablets were initially added in order to increase patient awareness for medications that are in clinical trials, but companies lost funding and now are currently used to increase patient education through health education videos. The tablets contain health education content from organizations such as the Centers for Disease Control and Prevention, The World Health Organization and The American Heart Association. The tablets contain health education content that is very useful, however it is in English. Patients at the underserved clinic are predominantly Spanish speaking and are not able to use the tablets or screens because of the language barrier.

Purpose and Aims

The primary purpose of this QI project is to enhance the existing tablets/screens with Spanish content at the Wesley Golden Gate community clinic (WGGCC). The secondary purpose of this QI project is to increase the use of tablets/screens overall among the medical staff at the WGGCC.

Aims

Aim 1: The first aim of this study was to assess and overcome perceived barriers of current tablet/screen use in the clinic.

Aim 2: The second aim of this study was to increase staffing education on the tablet/screen use.

Aim 3: The third aim of this study increase tablet utilization thorough out the clinic.

Project Question

Will the addition of Spanish videos increase the use of the educational videos by medical staff at the underserved clinic in Maricopa County?

Stakeholders

Stakeholders for this QI project includes: the administrative chief officer, licensed medical assistants, providers and the outcome health company. The aforementioned stakeholders were approached to initiate the project. The staff were from one of the two community clinics in Phoenix and a convenience sample was used. According to Polit and Beck (2012), a convenience sample compromises of all willing and available participants. The inclusion criteria will be: (a) all providers (b) Medical Assistants (MA) at the clinic for the entire time of data collection. The providers are comprised of four full time Nurse Practitioners (NP), one part-time NP, one part-time Physician Assistant (PA) and two Medical Doctors (MD) that practice between both clinics.

The providers do rotate between both clinics throughout the week as well as the medical assistants. The exclusion criteria are: (a) medical students/NP students; (b) any staff that does not provide direct patient care; and, (c) participants less than 18 years of age. The reason these criteria was chosen is because this study is aimed to educate medical staff to increase the use of the tablet/screens. Providers and MA's are the only staff that provide direct patient care and will be able to introduce the patients to utilizing the technology for health education. The target number for this QI project is anticipated to be eight providers and nine medical assistants.

THEORETICAL FRAMEWORK

The framework that will drive this QI project is the *Diffusion of Innovation Theory* (DIT) by Everett Rogers (2003). This theory has been used successfully in many different fields such as communication, agriculture, public health, criminal justice, social work, and marketing for the diffusion of innovations. For the purpose of this project, the framework will be the theory that understands how change will take about. There are four elements that make up the DIT: innovation, communication, time and the social system (Rogers, 2003). For the purpose of this project, the word innovation and technology will be used interchangeably. In this project the word technology refers to the tablets/screens and the word adopters refers to the medical staff. Please see Figure 1 for a visual representation of the DIT theory.
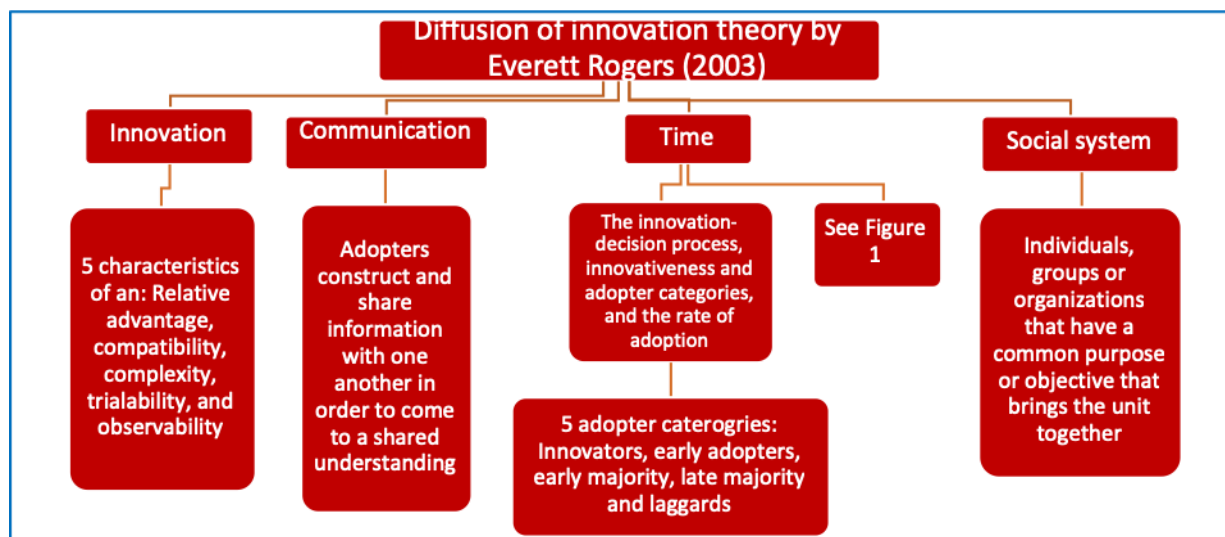
FIGURE 1. The Diffusion of Innovation. (Adapted from Rogers, 2003)

Innovation

The first element is *innovation*. Innovation can be an idea, object, policy or technique (Rogers, 2003). Rogers (2003), explains that the innovation does not necessarily need to be new, it can be something that the staff are aware of, but have not taken interest in using it. Although this technology is not new, the daily use of the technology will be new to the medical staff. Within the element of innovation, there are five characteristics: "relative advantage, compatibility, complexity, trialability, and observability" (Rogers, 2003 p. 63). *Relative advantage* is the degree in which the technology is perceived better than the present state (Rogers, 2003). For example, '*Will the use of the tablets be better than not using them at all?*' If the medical staff perceive the use of the tablets as an advantage, the staff is then perceiving the relative advantage as greater and the adoption rate of the tablets will then happen at a rapid rate. *Compatibility* is the level in which the technology is seen as being in line with the current ideals, past experiences, and desires of potential adopters (Rogers, 2003). If the technology is

incompatible with the values of the medical staff, it is unlikely that the technology will be used. *Complexity* is the degree in which the technology is perceived difficult to use (Rogers, 2003). If the medical staff find the innovation hard to use, then it is doubtful that is will be adopter. *Trialability* is the point where the adopters can trail an innovation before it is put into place, if the staff is able to trial the technology first, the rate of adoption is much quicker than implementing it as a whole (Rogers, 2003). Adopters tend to be less intimidated by an innovation if given the chance to trial it. And lastly *observability*, is the degree in which the results are noticeable to the adopters (Rogers, 2003). If the adopters are able to see the results of the innovation, it is more likely to be used. Innovations that are perceived by the adopters as having grander relative advantage, compatibility, trialability, observability and less complexity the more expected and quickly the innovation will be adopted. In order for the innovation to spread there must be some type of communication.

Communication

The second component is *communication*. Communication it is the process by which adopters construct and share information with one another in order to come to a shared understanding (Rogers, 2003). Communication can take place by flyers, meetings or even simple daily interactions. Diffusion is a certain type of communication in that the message contains the innovation. This project will use an interpersonal channel which is a face-to-face exchange of the technology. Rogers (2003) explains that individuals typically do not examine the innovation by objective measure but by subjective measure that was shared through other individuals. Which means if the technology is conveyed in a positive manner, the medical staff will be encouraging of the innovation.

Time

The third element is *time*. The time element is what gives this theory its strength. There are three categories with in this element which are: "the innovation-decision process, innovativeness and adopter categories, and the rate of adoption" (Rogers, 2003, p. 86). The innovation-decision process is the amount of time the organization becomes aware of the innovation to the point at which the organization either accepts or rejects the change (Rogers, 2003, p. 89). The five stages of the innovation-decision process are "agenda-setting, matching, redefining/restricting, clarifying, and routinizing" (Rogers, 2003, p. 1042). This process can be further broken down into two broad activities initiation and implementation. The initiation is made up of the agenda-setting stage and matching stage. Agenda-setting is where the organization perceives the need for the innovation (Rogers, 2003). Matching is "defined as the stage in the innovation process at which a problem from the organization's agenda is fit with an innovation, and this match is planned and designed (Rogers, 2003 p.1047)." The problem that was noted in this project is that the tablets/screens did not have any Spanish content and therefore not being used in the clinic where predominately speaking patients seek their care. Thus, through verbal meetings with the stake holders it was established that the problem and the technology matched to solve this issue. The implementation activity is made of the redefining/restructuring stage, clarifying stage and routinizing phase. The redefining/restructuring stage is a critical stage, this is where the innovation redefines the organization, the organization structure changes to fit the innovation (Rogers, 2003). Clarifying stage is where the innovation is introduced widely into the organization making the purpose of the innovation clearer to the individuals of the organization (Rogers, 2003). In this project, this

stage should be perceived to the medical staff that the use of the video health tablets will increase

patient education. Lastly, routinizing is when the innovation becomes incorporated into the

organization daily routines and it is no longer viewed as a separate entity (Rogers, 2003). See

Figure 2 for visual representation of the innovation process.
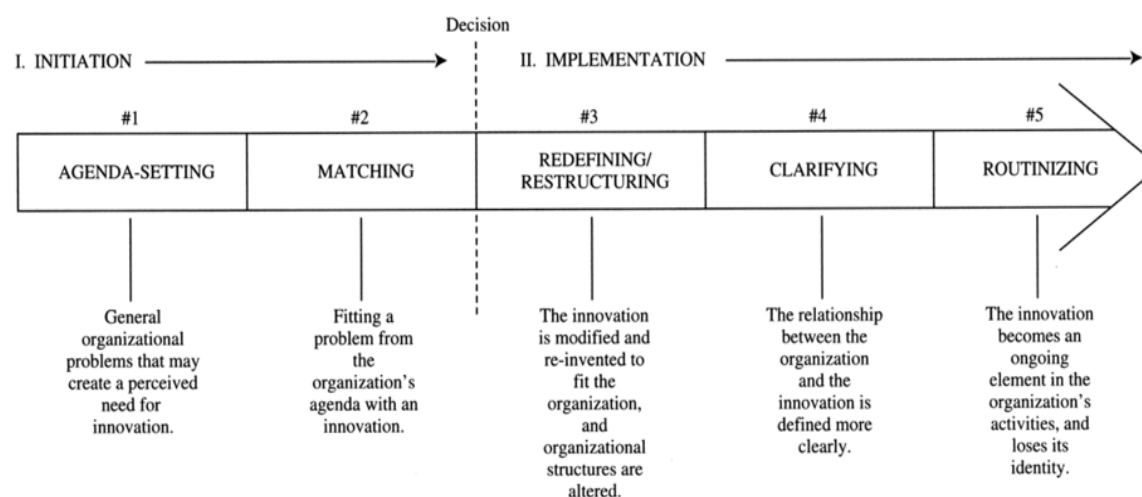
FIGURE 2. The five stages of the innovation process in an organization. (Adapted from Rogers, 2003)

The second category within time is innovativeness and adopter categories. Every

individual in an organization does not simply adopt the change at the same time. Innovativeness

is the degree in which an individual is fairly early in adopting the innovation than other members

of the organization (Rogers, 2003). Thus, for this project, the medical staff that quickly adopts

the technology have an increase innovativeness. Because increased innovativeness is a main

focus of the change, it became the main dependent variable in diffusion research (Rogers, 2003).

Innovativeness implies obvious behavioral change which is the ultimate goal of the theory,

instead of just a cognitive or attitudinal change. The adopter categories are how motivated an

individual is to adopt the new ideas compared to other staff. Breaking this down further into

pieces is "Innovators, early adopters, early majority, late majority and laggards (Rogers, 2003 p. 708)." If these categories are put on a spectrum of how likely they are to change, innovators are the individuals that are open to change at any time and at the other end of the spectrum are the laggards. The laggards are the last group of individuals to change. This group tends to stay in a traditional mind set and tend to question new ideas, procedures and products (Rogers, 2003). Rogers (2003) explains, that every diffusion of innovation has these five categories, it is important to communicate differently to each group of people in order to have the buy in on the innovation. In order to get the laggards to buy into the technology it is important to address this group in a traditional way, therefore explaining to the medical staff the positive outcomes that will benefit the clinic and patients.

Social System

Finally, the last component of the DIT is the *social system*. The social system can be individuals, groups or organizations that have a common purpose or objective that brings the unit together (Rogers, 2003). In the case of this project, the social system is the whole medical staff at the clinic. Since this clinic is small and does not have many employees this would facilitate the adoption of the technology at a faster rate because there is less staff that needs training and acquire buy in.

Adopting and sustaining an innovation in an organization can be very difficult but by using the DIT, it can help facilitate the change. Becoming aware of all the components that are needed to effectively have the medical staff adopt the technology and sustain the technology will ensure that the technology will be routinized throughout practice.

LITERATURE REVIEW

To find supporting evidence on the benefits of interactive technology (IT) in patient education and the use of the patients' primary language in education, two separate scholarly searches were performed in CINAHL and PubMed. For the first search regarding interactive technology in patient education a variety of key words were used including: "Interactive technology" and "patient education." The following limitations were applied: Clinical trials, systematic reviews, randomized controlled trials, meta-analysis, English language, full article texts and published within 10 years. This search yielded five results from PubMed and 16 from CINAHL. After further review, 10 articles were selected for review as they were relevant to the study question. In the second search a variety of key words were applied: "Patient education in Spanish language." This search was to identify what research exists on the use of Spanish language in patient education. This search yielded 33 from PubMed and three from CINAHL. After further reviewing titles and abstracts, four articles from PubMed and none from CINAHL were chosen as they aligned more with research on existing Spanish patient education. Because of the lack of studies that incorporate interactive technology in patient education using Spanish or primary language within the same studies, this literature review will discuss strengths of IT and Spanish patient education separately and the weaknesses together.

Strengths of IT

The current research on IT has assessed multiple different types of IT to improve patient education. With the data collected from these articles it has shown that individuals acquire more information using IT in education than just a face-to-face interaction (Freeman et al., 2014). IT used to improve patient education include: health educational videos, interactive learning,

interactive video doctor, interactive game-based learning and an animated education program. Consistency was found amongst multiple studies that support the use of IT to improve patient education that accompanied encouraging outcomes such as: increase prenatal care education, facilitate provider-patient communication post IT use, increase smoking and alcohol cessation, improved vaccination beliefs about the safety and effectiveness of the flu vaccine, improve HPV and colorectal cancer screening and increased knowledge on disease processes (DeStephano, Flynn & Brost, 2010; Gerbert et al., 2003; Goodman, Mossad, Taksler, Emery, Schramm, & Rothberg, 2015; Sossauer et al., 2014; Menon et al., 2008; Boeker, Andel, Vach, Frankenschmidt, 2013; Marinho et al., 2016; Lua, Neni, Lee, & Abd Aziz, 2013). Fremman et al., (2014) and Boeker, Andel, Vach, Frankenschmidt (2013), increased student knowledge using interactive game-based learning and multimodal education sessions resulting in an increase in test scores and success in college (mean of 28.6 points out of 34 total and the conventional group scored a mean of 26 points) and showed 1.5 times less likely to fail in college. With technology being at the forefront of society, switching traditional learning to a multimodal interactive learning has shown to increase understanding in a diverse population of participants. Study results exhibit that no matter what the level of education the patient has or where they come from, using this type of education can target any population the provider is trying to reach. Video education in primary care settings has been shown to increase treatment regimen and change health behaviors (Gerbert et al., 2003; Goodman, Mossad, Taksler, Emery, Schramm, & Rothberg, 2015).

Strengths in Spanish Patient Education

Current research has evaluated patient education in Spanish and the improvement of knowledge in the participants. With the limited availability of documented evaluation of patient education in Spanish, it is a federal and state law that requires healthcare providers to ensure all patients that have limited English proficiency be cared for in a language the patient is most comfortable with (Chen, Youdelman, & Brooks, 2007). Interventions included were a symposium, group sessions, multimodal education. It was assessed that these articles found support in improvement in patient education in Spanish. Positive outcomes found within these articles were: increase in disease knowledge, improvement in disease control, maintenance of function and prevention of disease exacerbation and improvement in medication adherence (Ailinger, Martyn, Lasus, & Lima Garcia, 2010; Castillo et al., 2010; Chaet, Morshedi, Wells, Barnes, & Valdez, 2016; Martin, Garcia, Christofferson, Bensen, Yeh, & Park, 2016). Other pertinent findings in the studies aforementioned were researchers culturally tailored education increasing patient comfortability.

Weaknesses

A weakness that the principal investigator found during the literature search was in the study conducted by Gerbert et al. (2003), according to the clinic staff the implementation of the video-doctor had a negligible impact on clinic patient flow. This can be seen as a weakness due to the fact that clinic staff and/or providers may fear it will increase patient wait times thus having a negative connotation to interactive technology. Another weakness found by the principal investigator is in the study done by Goodman, Mossad, Taksler, Emery, Schramm, & Rothberg (2015), the physician's recommendation was strongly associated with both an

improvement in health beliefs about the dangers of influenza and with becoming vaccinated. Thus, it was the providers influence that created at higher response rate for vaccination. Another weakness that was brought up from the literature review was the lack of primary care settings found. Two out of the 14 articles that were reviewed were from primary care clinics thus not giving a true significance of the primary care settings. Future research must be targeted to include IT in Spanish speaking patients in a primary care setting.

Literature Gaps

By completing the literature review the QI leader found a major gap where no studies were conducted in federally funded health clinic that included the use of interactive technology for patient education in Spanish. Being able to apply evidence-based practice with this project can increase the use of interactive technology. This will aid, not only providers-patient education, but the patients as well. Being able to study medical staff on increasing video education and other technology in primary care can be difficult but finding the right balance between increasing patient education and using technology still needs to be researched (Cassano, 2014). Overall the literature review results were found to have optimistic results regarding the use of interactive technology. Patients left the research studies with a better understanding of either their disease process, health maintenance or reportable symptoms using interactive technology.

METHODS

Purpose and Aims

The primary purpose of this Quality Improvement (QI) project is enhance the existing tablets/screens with Spanish content at the Wesley Golden Gate community clinic (WGGCC).

The secondary purpose of this QI project is to increase the use of tablets/screens overall among the medical staff at the WGGCC.

Aims

Aim 1: The first aim of this study was to assess and overcome perceived barriers of current

tablet/screen use in the clinic.

Aim 2: The second aim of this study was to increase staffing education on the tablet/screen use.

Aim 3: The third aim of this study was to increase tablet utilization thorough out the clinic.

Project Question

Will the addition of Spanish videos increase the use of the educational videos by medical staff at the underserved clinic in Maricopa County?

Setting

The setting for this QI project is a federally funded community clinic in Phoenix, AZ. The clinic is located in central Phoenix that serves a predominately Spanish speaking population. This clinic was chosen because a needs assessment found a lack of technology utilization at this site. The community clinic strives to educate patients by providing free diabetes classes, prenatal classes and even nutrition classes. Although patient education classes are provided free of charge, there is little participation and providers want to research alternatives to increase patient health literacy. Currently technology at the clinic includes interactive videos/tablets. However, the interactive videos/tablets are not being used. Therefore, a project will be completed that will educate medical assistants and providers regarding utilization of the health video tablets.

Model for Improvement

The Model for Improvement (MI) framework from the Institute for Healthcare

Improvement (IHI, 2018) will guide the quality improvement design itself (Figure 3).
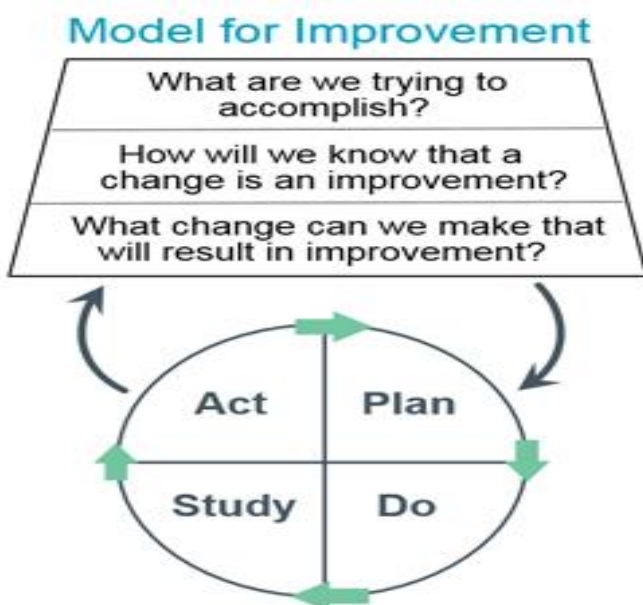
FIGURE 3. Model for improvement and PDSA cycle (IHI, n.d.)

The MI consists of two parts: 1) Three fundamental questions that need to be asked and

addressed; and, 2) The Plan-Do-Study-Act (PDSA) cycle to test changes in the work setting (IHI,

n.d.). The PDSA cycle leads the test for changes, the cycle can conclude if the changes are truly

creating improvements (IHI, n.d.). Before starting any QI project, forming a team with the right

people is critical for the success of the project. As for this project, this author will be the leader

of the project, other members are the Chief Administrative Officer, a nurse practitioner who is

full-time at the Wesley Clinic, the medical assistants and the lead marketing agent of the

outcome health team. The first part of the Model for Improvement consists of asking the

following questions: "What are we trying to accomplish? How will we know that a change is an

improvement? and What change can we make that will result in improvement?" (IHI, n.d.). To answer the first questions an aim (or aims) should be created. Three aims were created in order to address the problem. The aim should include the "six overarching aims for improvement:" avoid injuries in patients from the change that is planned to help them, be effective by avoiding the use of ineffective care, be patient-centered, be timely by reducing the wait for both patient and healthcare worker, be efficient by reducing waste and lastly equitable by reducing racial and ethnic gaps in health status (IHI, n.d.). The aims of this project include all the requirements of the six overarching aims. Establishing measures will aid in answering the second question. (IHI, n.d.). The measurement of improvement should bring about new knowledge in daily practice, tests should be sequential and/ or observable, stabilize biases from test to test, collect just enough data to learn from and complete another cycle, and "small tests of significant changes" can hasten the degree of improvement (IHI, n.d.). Lastly, when answering the third question selecting a change can be an idea from the team or from someone who is directly working in the area or processes one would like to change. The change selected in this QI project was found upon a needs assessment done by the leader of this QI project and was discussed with the rest of the QI team.

The second part of the MI is the Plan-Do-Study-Act (PDSA) cycle. This cycle tests the change one is trying to implement by planning it, doing it, studying the results and proceeding on what was learned by the results (IHI, n.d.). To further break down the PDSA cycle, the first step is to plan the change. When planning the change, one must state the objective and plan the method to collect the data. Step 2 is the "do," it is best to try out the change on a small scale while documenting the problems and unexpected observations as the change is happening (IHI,

n.d.). In step 3 "study," the leader of the project must set time aside and analyze the data and also study the results. One thing that is important in step 3 is that one must summarize and reflect on what was learned. Lastly is step 4 "Act," this is where the QI team refines the change based on the reflections and what was learned from the test (IHI, n.d.) Once these changes are made the team prepares for the next test to take place. The PDSA cycle is a continuous fast cycle of learning and improvement used across the globe.

Plan, Do, Study, Act Cycle I

Prior to start of this project Institutional Review Board (IRB) approval was obtained (Appendix D). The Plan, Do, Study, Act (PDSA) cycle is a simple yet strong tool to test if improvements are really happening (IHI, n.d.). For visual findings of the P-D-S-A cycle I please see Table.1. First, the QI leader spoke with the stake holders about the plan to start the project and learn their comfort level with patient education materials for Spanish speaking patients.

Do

The QI leader had discussions with the medical staff during their lunch breaks over two consecutive days, Wednesday and Thursday to learn the barriers of use of the tablets/screens in the Wesley clinic using a seven-item questionnaire (Appendix B). Consent was signed prior to the discussions (Appendix A). These conversations were held to seek and learn the knowledge gaps and barriers to patient education technology and Spanish speaking patients.

Study

After the discussion the QI leader reviewed with the medical staff the information that was acquire from the questionnaire to ensure the correct information was acquired. The identified gaps and barriers dictated the next PDSA cycle.

TABLE 1. *PDSA cycle I.*

Medical Staff Questionnaire on the Use of Tablets and Screens	Common Findings / Quotations
Do you know how to use the tablets/screens in the patient rooms?	Yes
Did you noticed Spanish content was incorporated on them?	Yes "I have not paid attention to them" "people do not ask about them"
Would using the tablets slow the productivity of the clinic?	No, Maybe "If the videos take too long, it may make the process slower
What do you think is the hardest thing about the tablets?	Nothing, no issues "they are easy to use"
Has a patient ever asked to use them?	No "they are in English and patients do not understand that language" "No one has ever asked me to use them"
How can this be a daily routine for you?	Before routine tasks, after routine tasks "We can try to play them as soon as we room the patient and come back" " It will be easier to play the video when we are done rooming the patients"
Would you continue to use the tablet after the project is done?	Yes, Maybe "If it's easy to do then yes" "Maybe, if I remember to play the videos, sometimes we get so busy"

Plan, Do, Study, Act Cycle II

Plan

The first phase of the second PDSA cycle was to plan the educational/instructional session. The session was conducted during lunch on Friday the day after the initial discussion. The staff that signed consent was a part of the session. To see visual representation of P-D-S-A Cycle II please see Table 2.

Do

The QI leader created an educational/ instructional session for medical staff that completed a consent (Appendix C). The session was during lunch, all staff that signed consent was asked to attend. The QI leader provided snacks during the session. The educational/instructional session was no longer than 10 minutes and included the following

information: introduction to the technology, using the technology to increase patient health literacy, how to utilize the technology, and the purpose of the project. A poster board was provided on the following Monday (Figure 4).

Study

The QI leader followed up with studying the results of the poster board tallies at the end of the second week.

TABLE 2. *PDSA cycle II.*

Week	Findings:
1	**Mid-week check in:** • MA's were optimistic on using the tablets • MA's found it easy to use • Some tablets were facing exam room and not visible to patients **End of the week check-in:** **Barriers Found**: • MA's forgetting to start videos • MA'S forgetting to add stickers to poster board **Changes:** • Tablets were repositioned in front of patients' seat • QI leader added reminders on each tablet **Results:** • Health videos were played 70 times
2	**Mid-week check- in:** • MA's voiced appreciation for the reminders • One MA voiced that patients were grateful for making the tablets accessible • One MA voiced patients were initiating the health videos on their own **End of the week check-in:** **Barriers Found:** • MA's Forgetting to add sticker to poster board **Changes:** • None **Results:** • Health videos were played 113 times

Data Collection

Data collection begun as soon as the first PDSA cycle was under way. Field notes were taken with each discussion. Field notes were taken in a QI designated notebook that was only in hands of the QI leader. Further information was collected regarding real-time utilization of the

health video tablets using a poster board with staff initials (Figure 4). The poster board was hung

by the MA hall not visible to patients and was used to tally up real-time uses of the health

education videos. After the video was started, the MA then stepped out of the room and placed a

sticker in the column where staff initials were located. The first week a "star" sticker was used to

assess how many times the health videos were played. The second week "smiley face" stickers

were used to assess the increase use from the first week to the second week. Field notes were

taken for any issues that occurred. The field notes were most useful to recognize issues that may

interfere with sustainability regarding the technology utilization. On the 2rd Friday at 5:15 pm,

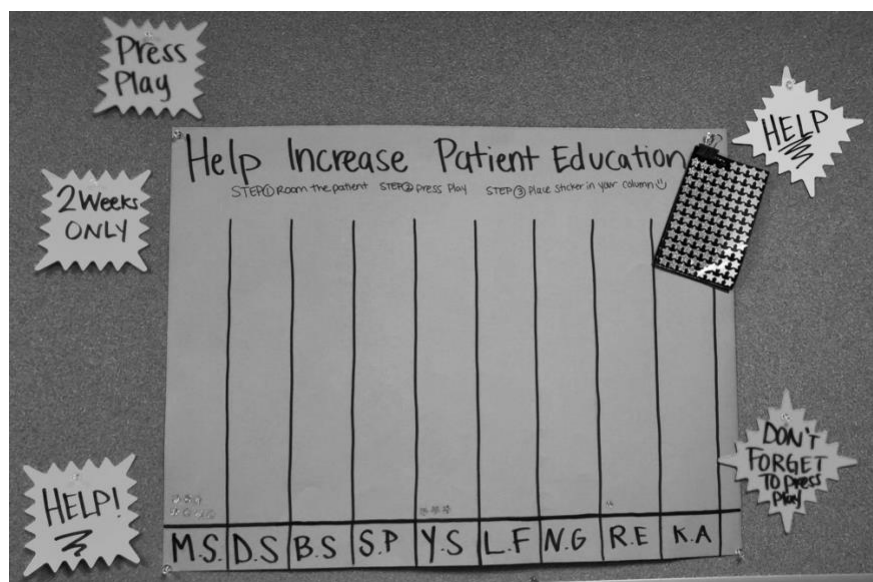the poster board was taken down and tallied.

FIGURE 4. Poster board provided to tally up real-time uses

Data Analysis

Field notes from each encounter with staff were used to analyze and adjust for the next PDSA cycle. Since there is not concrete information on previous use of tablets, field notes from the first week to second week were compared to examine the use of the health videos during this QI project. Health video tablet utilization information will be tallied to reveal exactly how many times the health videos were played.

Ethical Considerations

All ethical considerations were reviewed while preparing the project educational/ instructional session to avoid foreseeable risk.

Respect for Persons

The patient population for this project is not considered a vulnerable population and has no special needs. To guarantee that autonomy is provided, all subjects will be provided with clear consent language and affirmative consent will be attained prior to participation. All project data will be de-identified, and access will be restricted to individuals with a clear need to know and access.

Beneficence

To ensure beneficence, the project has been designed to ensure the safety of all participants. The risks and benefits of the study have been understood to increase the overall knowledge of increasing usability of technology in the clinic.

Justice

To guarantee justice, this study will focus on the appropriate target population with fair inclusion and exclusion criteria based on the evidence. Every participant will be treated fairly.

All participants were recruited by voluntary manner, may choose to withdraw at any moment and all answers to surveys will be anonymous. All participants of this project are providers and staff therefore not considered a vulnerable population.

RESULTS

This QI project was conducted at WGGCC for a total of two weeks (Monday-Friday) and three additional business days. A total of nine participants signed consent form and were a part of this QI project. All were MA's. Out of the nine that signed the consent form only three did not rotate through WGGCC during the time of data collection. After the first PDSA cycle, the QI leader was able to discuss all seven questions from the questionnaire through verbal discussion with all nine participants and take field notes. MA's were able to verbalize how to use the tablets but were unaware that Spanish content was included. Two MA's were concerned that the use of the videos would slow office productivity but were optimistic on using the tablets, all other MA's expressed that patients would have something educational to do in the rooms rather than just waiting. All MA's agreed that the tablets were very simple to use, expressed no difficulty using them and also expressed no patients ever asking them to use them. Half of the MA's stated possibly playing the videos for the patients before doing their routine with the patients (i.e., vital signs, questionnaires), the other half expressed playing the videos for them after all their tasks were completed. Lastly, MA's expressed if during the QI project they found it easy to incorporate it to their daily routine they had no problem using it. Prior to the second PDSA cycle, the QI leader was able to identify gaps and barriers to the use of the tablets. The QI leader made sure all tablets were in functioning condition with the Spanish content included. The QI leader

reminded the MA's of the collection of real-time uses starting the following Monday. One MA

conveyed enthusiasm towards the poster.

Once the poster was put up, MA's quickly began to add their designated "stars." After the

third day of the implementation of the poster board the QI leader checked in with the MA's and

asks how the project was going. The two MA's that were on for the day communicated positive

feedback from patients. One barrier that was found was some tablets were not facing the patient

seat thus making it hard for the patient to view the video. After this discussion, this QI leader

changed the positioning on the tablets to face all patient seating in rooms. After the first week,

two common barriers were voiced: forgetting to start the video after tasks were completed and

forgetting to add a sticker after videos were played. Thus, the QI leader added bright colored-

paper notes to each tablet for the following week (Figure 4). At the end of the first week the

board was tallied, health videos were played 70 times.
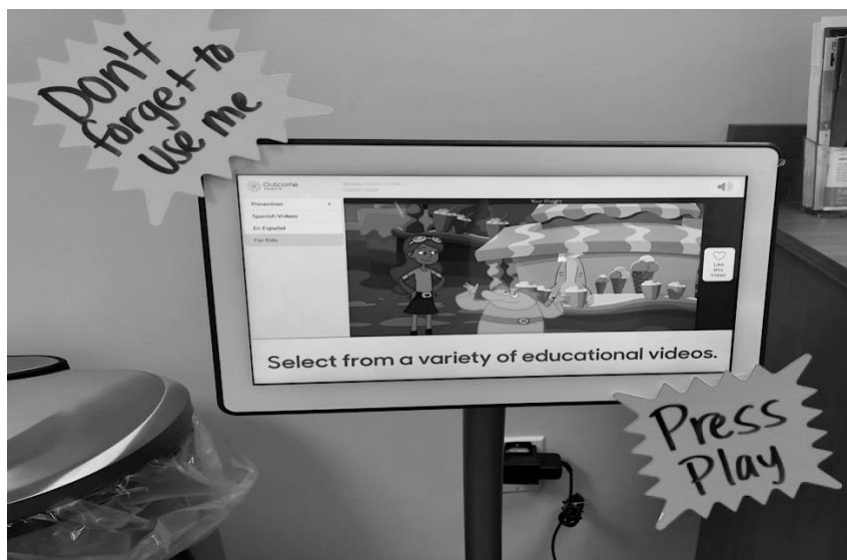
FIGURE 5. Reminder notes to each tablet.

During the second week of intervention the MA's voiced appreciation for the reminder notes. As this increased the tablets use. Some MA's stated patients were touching the screens and flipping through videos on the tablets on their own. Other MA's stated some patients expressed gratitude for making the tablets available to them. Most MA's were able to remember to turn on the videos for the tablets with every encounter. One barrier that were voiced during the second week was: forgetting to place a sticker on the board once video was played due to performing patient care tasks instead of leaving the room. Unfortunately, this barrier the QI leader was unable to modify as the leader was not observing all MAs and patients at the same time. After the second week the poster board was taken down and tallied. The total number of health videos played were 113 times (Figure 5).
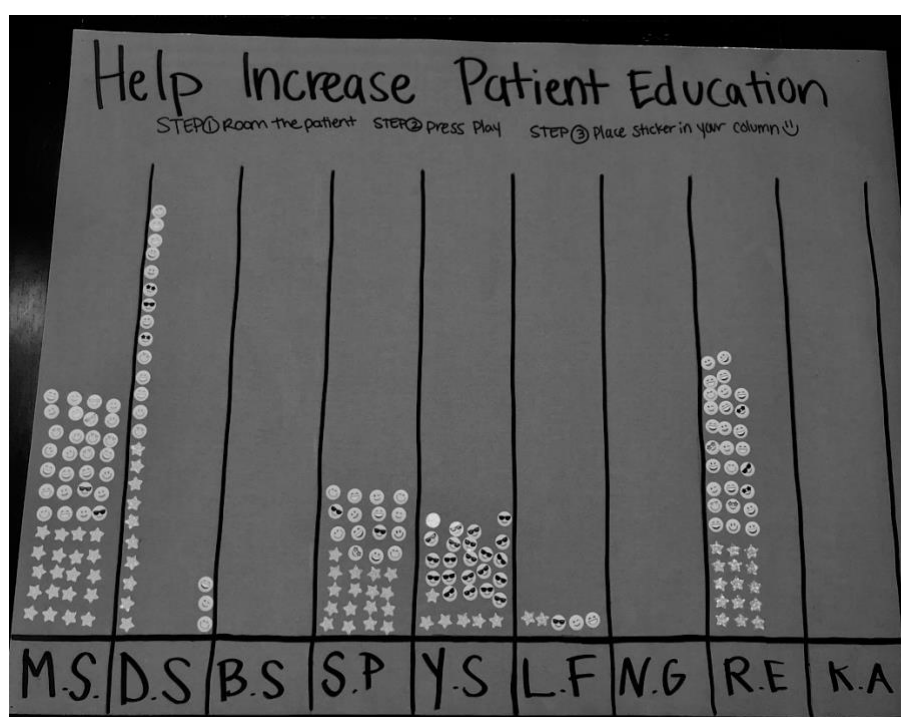

FIGURE 6. Total number of videos played by the end of data collection.

This QI project had two purposes, the first one was to enhance the existing tablets/screens with Spanish content at the WGGCC. Which was completed prior to the beginning of this QI project and ensuring all tablets/screens were functioning properly. Confirming Spanish content on all tablets/screens would be the only way to go forth with the secondary purpose of this project. The secondary purpose of this QI project was to increase the use of tablets/screens overall among the medical staff at the WGGCC. This was shown through the increase of times the health videos were played from 70 times after week 1 to 113 times after week 2.

DISCUSSION

Using DIT and the PDSA cycle showed success in this QI project to facilitate the adoption of the technology by the increase use of the health videos by the end of week 2. Since there are only nine MA's in the clinic system, adopting and sustaining this technology was easily attainable. The six MA's that were a part of the data collection showed optimism on routinizing this technology in their daily activities. The primary purpose of this project was the enhancement of the tablets/screens to include Spanish content. With the Spanish content included, this project was able to be integrated in the clinic flow. One particular strength in this QI project is that patients began to initiated health videos without being prompted by the MA's, which was not possible prior to this QI project. The secondary purpose was to incorporate the use of the tablets into the clinic routine, this was obtained as evidence by doubling the amount of health videos that were played. This information confirms and supports the purpose of this QI project.

Limitations

After speaking with the stake holders prior to the start of the QI project, the administrative chief officer and providers believed that only the MA's should be primary focus

of this QI project as this particular staff has first encounter with the patient. Typical wait time from MA to provider can be anywhere from 10-25 minutes. After discussions with the providers over lunch breaks, the providers expressed that if they played videos after seeing the patients, it may have a negative impact on the office productivity. Thus, the stakeholders agreed to have the MA's be the only ones to participate in the QI project. The lack of participation from the providers may have negatively affected the results of real-time use of the health videos by not having the videos played every time for every patient. Due to the time constraint, a longer QI project could have shown a greater increase in health videos played and possibly see the routinization of the health videos. Major strengths of this project were that patients began to seek out patient education by playing the health videos on their own without prompting from staff. Which ultimately can continue to make the patients feels empowered with their care.

Implications for Future Scholarship

Following this QI project, additional projects are needed on which types of health videos are were played the most, what types of information is lacking (i.e., disease processes, preventative care, medication classes or instructional videos), patients' perceptions of the information and pre/post projects on how much information was transmitted and understood by the patients. Additionally, projects that focus on long-term care of the patients whether or not technology is helping the patients' stay complaint with care or if there are less 'sick visit's throughout the year. Other projects that can also come from this is, are more patients complaint with preventative care due to the technology and information offered to the patient. Another projects that can be done is adding a feature in the EHR to remind the staff to play videos that correlate to the different comorbidities that is charted in the patients record. can also increase the

compliance of this technology. It is imperative that these additional QI projects are conducted to understand how technology can aid patient education in a primary care setting. Future projects are needed in more underserved/ FQHC organizations on technology use for increasing patient education. Current projects exist in supporting the use of technology as patient education, but more projects are indicated in the underserved population.

Implications for Practice

The results of this QI project have positive implications for practice in the realm of patient education in an underserved population through the use technology. Being able to use the staff to introduce health videos to patients and engaged them in technology has shown to increase the curiosity of patients. This curiosity leads to learning more by just visiting a site or channel they have not done so in the past. By starting this project on a smaller scale, staff and patients were able to adjust to a new routine and ultimately get more out of their appointment by increasing their knowledge with the health videos. This may positively affect health practices in patients by viewing these videos. Having a technology such as this, in this community can increase medical care compliance and bring about other topics that the patients may be interested in. Not only is the patient being provided accurate information but also have the ability to ask to follow up questions to the providers on site. With the tools attained from this QI project, this QI leader will be able to successfully carry out future QI projects and increase technology use in primary care.

Conclusion

The enhancement of the tablets to incorporate Spanish content increased the use of technology two-fold throughout the clinic during this QI project. This QI project was possible to

do through the use of the DIT and the PDSA cycle. The PDSA cycle was a successful tool used to acknowledged if a change really occurred. The content that was added into the tablet have helped the patients feel empowered by attaining additional education at each clinic visit which can be used moving forward.

APPENDIX A:

CONSENT TO PARTICIPATE

Consent to Participate in a Quality Improvement Project
University of Arizona ● Tucson, AZ

Medical Staff Education Improves Patient Education Through The Use Of Technology In A Predominely Spanish Speaking Population: A Quality Improvement Project

Title of Study: _____

Investigators:

Name: Rita Gonzalez   **Dept:** DNP Student   **Phone:** 602-657-2246

Introduction
- You are being asked to be to participant in a quality improvement project to increase technology in this primary care clinic.
- You were selected as a possible participant because you currently work in Wesley Community Clinic as either a provider or medical assistant, are over the age of 18 and work directly with patients.
- I ask that you read this form and ask any questions that you may have before agreeing to be in the quality improvement project.

Purpose of the Quality Improvement Project

- The purpose of the study is to increase the use of patient education health videos in the clinic.

Description of the Quality Improvement Project Procedures
- If you agree to be in this study, you will be asked to do the following things: have discussions with the quality improvement leader, play health videos for every patient you see and place a sticker for how many times you have played a video for each patient.

Risks/Discomforts of Being in this Quality Improvement Project

- There are no foreseeable or expected risks. There may be unknown risks.

Benefits of Being in the Quality Improvement Project
- There are no benefits of being in this Quality Improvement project.

Confidentiality

- This quality improvement project is anonymous. We will not be collecting or retaining any information about your identity.
- We will not include any information in any report we may publish that would make it possible to identify you.

Payments

- You will not receive any payments of reimbursements for your participation in this quality improvement project.

Right to Refuse or Withdraw

- The decision to participate in this quality improvement project is entirely up to you. You may refuse to take part in the quality improvement project *at any time* without affecting your relationship with the quality improvement leader or the University of Arizona. Your decision will not result in any loss or benefits to which you are otherwise entitled. You have the right not to answer any single question, as well as to withdraw completely from the quality improvement project at any point during the process; additionally, you have the right to request that the interviewer not use any of your interview material.

Right to Ask Questions and Report Concerns

- You have the right to ask questions about this quality improvement project and to have those questions answered by me before, during or after the quality improvement project. If you have any further questions about the quality improvement project, at any time feel free to contact me, Rita Gonzalez at ritagonzalez3@email.arizona.edu or by telephone at 602-657-2246.

Consent

- Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

Subject's Name (print): _____

Subject's Signature: _____ Date: _____

Quality improvement
leader's Signature: _____ Date: _____

APPENDIX B:

MEDICAL STAFF QUESTIONNAIRE ON THE USE OF TABLETS AND SCREENS

Medical Staff Questionnaire on the use of Tablets & Screens

Hello, my name is Rita Gonzalez and I am currently a Nurse Practitioner student with the University of Arizona. I am completing my Doctoral project here at the clinic. The goal of my project is to increase the use of the health video tablets. In order to gather more information, I would like for you to complete a consent in order to participate in this QI project. I will give you time to read through the consent. Thank you for participating in this project. In order to reach the goal, I would like to assess the barriers you have on the use of the tablets/screens in the clinic

Remember, all participation is 100% volunteer and you may choose to withdraw at any moment. All data collected will be anonymous.

1. Do you know how to use the tablets/screens in the patient rooms?

2. Did you noticed Spanish content was incorporated on them?

3. Would using the tablets slow the productivity of the clinic?

4. What do you think is the hardest thing about the tablets?

5. Has a patient ever asked to use them?

6. How can this be a daily routine for you?

7. Would you continue to use the tablet after the project is done?

APPENDIX C:

EDUCATIONAL AND INSTRUCTIONAL SESSION

Educational and Instructional Session

Thank you for volunteering in my project. If you are volunteering in my project the requirements of this project are:

- You are a licensed provider or medical assistant that provides direct patient care
- You will be at Wesley Golden Gate community clinic for the time of data collection
- You are 18 years or over

This educational session will be about the tablets/screens here in the clinic. We currently have two types of electronic patient education systems here at the clinic. One is the video health tablets and the other is the 3D exam board. As you know they were in English, but I have spoken to the company and have added Spanish content to all tablets and we are working on getting Spanish content on the 3D exam boards.

These tablets were placed to increase patient education at the point of care meaning where patients are seen for care. Studies have shown when patients are exposed to education in their language, they are more apt to use it and ask questions about it. The way the tablets work is by touch screen. In the main screen it shows you if you either want to click on Spanish or English. Please ask the patient which language they would rather hear and click on that section. Following that you will the list of videos please pick an appropriate video for the patient. For example, if they are here for blood pressure issues, please play a video that correlates to this disease process. Once you start the video you may step out of the room and continue your work.

The project will take approximately 2 weeks. There will be a board with everyone's initials by the MA's station away from any patient room. To tally the number of times each video was played, the 1st step is to room the patient and perform your normal routine. Step 2 prioer to leaving the room you will play an educational health video for which ever disease process correlates with the patients visit. For instance, if the chief complaint is "Diabetes follow-up" you would play the video pertaining to diabetes care. Step 3. Walk out of the room and add a sticker to your column for every time you play a video.

If you have any questions or concerns, please contact the principal investigator of this Quality Improvement project and University of Arizona DNP Student, Rita Gonzalez, BSN, RN-PCCN at 602-657-2236 or Ritagonzalez3@email.arizona.edu

APPENDIX D:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

LETTER

THE UNIVERSITY OF ARIZONA
Research, Discovery & Innovation

Human Subjects
Protection Program

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

Date:	October 03, 2018
Principal Investigator:	Rita Rodriguez Gonzalez
Protocol Number:	1810985227
Protocol Title:	Medical Staff Education Improves Patient Education Through the Use of Technology in a Predominately Spanish Speaking Population: A Quality Improvement Project
Determination:	Human Subjects Review not Required

Documents Reviewed Concurrently:

Data Collection Tools: *Educational and Instructional Session.docx*
Data Collection Tools: *Medical Staff Questionnaire on the use of Tablets.docx*
HSPP Forms/Correspondence: *Advisor Confirmation Email.pdf*
HSPP Forms/Correspondence: *Gonzalez Determination 1.1.pdf*
Informed Consent/PHI Forms: *Consent to participate 1.1.doc*
Other Approvals and Authorizations: *Site letter approval for UofA IRB 1.2.pdf*

Regulatory Determinations/Comments:

- Not Research as defined by 45 CFR 46.102(l): As presented, the activities described above do not meet the definition of research cited in the regulations issued by U.S. Department of Health and Human Services which state that "Research means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities. For purposes of this part, the following activities are deemed not to be research."

The project listed above does not require oversight by the University of Arizona.

If the nature of the project changes, submit a new determination form to the Human Subjects Protection Program (HSPP) for reassessment. Changes include addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the study activity. Please contact the HSPP to consult on whether the proposed changes need further review.

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

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