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Development of an Advanced Practice Registered Nurse Primary Care Telephone Clinic

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A DNP Clinical Scholarship Project Submitted to the Graduate School at the University of Missouri-St Louis in partial fulfillment of the requirements for the degree of Doctorate of Nursing Practice

March, 2012

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Acknowledgements

I would like to take this opportunity to acknowledge my project committee for taking the time and effort to contribute their knowledge and expertise for successful completion of this project. I would especially like to acknowledge the committee chair, Dawn Garzon, who graciously took on my project and guided me so patiently. I owe her all of my gratitude.

This project could not have been accomplished without the assistance of the PACT teamlet, Robert Carpenter, L.V.N., Elvis Scott, clinic clerk and Cheryl Davis-Brooks, R.N. I would like to thank them for their willingness to participate and support this endeavor. I hope we have all learned and grown as the result of this project.

Acknowledgement is due to my parents, George and Deloris Dyhouse, for instilling in me the importance of education and perseverance to achieve my goals. I would also like to acknowledge my sister, Vicki Dyhouse, who was taken from us much too early. I know she is with me every day in spirit and would be very proud of this accomplishment.

To my children, Kyle and Kendra, who, I love beyond words and have brought me much joy. I have loved watching them develop into the wonderful adults they have become. I hope I have been the inspiration to them that they are to me.

Finally, I would like acknowledge my husband, David Kaiser, who has been so patient through this process. He has given me all of his support, without complaining about my long hours in front of the computer and the many evenings of cold sandwiches, during

my doctoral education. He is my best friend, confidant, and has always been at my side, encouraging and supporting the pursuit of my dreams.

Acknowledgement of VA Research Support

This material is the result of work supported with resources and the use of facilities at the VA Community Based Outpatient Clinic in O'Fallon, Missouri, a satellite facility of the John Cochran VA Medical Center, Saint Louis, Missouri**.**

Acknowledgement of VA Employment

The author of this material, Linda Kaiser, Nurse Practitioner, is a full time VA employee of the Primary Care Service Line at the John Cochran Department of Veterans Affairs Medical Center, Saint Louis, Missouri.

Abstract

Development of an Advanced Practice Registered Nurse Primary Care Telephone Clinic

This pilot project developed and implemented a telephone clinic based on established Veterans Affairs telephone policy and procedures and determined patient acceptability of this new visit type as an alternative to face to face visits. The review of the literature produced research that indicates telephone clinics are a viable visit option for patients. Telephone visits provide access to the primary care provider while being convenient and economical for patients. Research studies demonstrate that patients are satisfied with this visit option.

The pilot project was successfully implemented in a Veterans Administration Community Based Outpatient Clinic. To evaluate the effectiveness of the project, cycle time measurements and patient satisfaction surveys for telephone visits and face to face visits were obtained. The telephone visits were found to have shorter provider visit wait times than patients having an in-clinic provider evaluation and also were found to have shorter provider visit durations than face to face visits. These findings did not affect patient satisfaction as patients who received telephone visits responded positively regarding their satisfaction with care.

Overall, there was no statistical difference in patient satisfaction with patients who received telephone visits as compared to those who received a face to face provider visit. The telephone clinic improved clinic efficiency and provided more available appointment slots to care for more complex patients.

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Project Purpose

The Institute of Medicine's (2002) report, *Crossing the Quality Chasm: a New Heath System for the 21st Century* chronicled failures of the United States' health care system. It addressed the importance of maintaining continuity of health care and, through the Ten Rules for Redesign, offered areas in which improvements in primary care could be made. The report emphasized the need for patients to be able to access health care at the time it is required with minimal wait time. The optimum and goal is same day access. It suggested that health care organizations innovate to customize how health care is delivered to patients, including providing alternative visit types.

Providing alternate ways for patients to access health care other than attending in-clinic visits is necessary because patients often have many barriers that preclude them from attending in-clinic visits (Uppal et al., 2003). Health care providers need to be creative and open to new ways of delivering care. According to Bodenheimer and Grumbach (2007), face to face medical care, also referred to as usual care, is considered the norm with no other options being available to patients. The authors felt that health care problems do not always require an in-person evaluation by a health care provider. The availability of alternate visit types would provide a means of increasing primary care access to patients. Telephone visits in primary care would increase health care provider access and are a viable alternative to in-person medical evaluations.

The purpose of this project was to determine patient acceptance of and satisfaction with an Advanced Practice Registered Nurse-led (APRN) telephone clinic within a Veterans Administration primary care clinic. The telephone clinic was piloted in the

primary care setting and based on VA policy and procedure. The goal was to determine if patients would accept APRN-led telephone visits in a Veterans Administration primary care clinic. This project assessed if APRN-led telephone visits improved, reduce or had no effect on patient satisfaction with telephone visits when compared to face to face visits. The objectives of this pilot project were to:

1. To determine if patients receiving telephone visits would be as satisfied with care as patients receiving in-clinic provider visits.
2. To determine if patient wait times for telephone visits would be less than in-clinic provider wait times.
3. To determine if decreased wait times correlated with positive patient satisfaction.
4. To determine if the mean length of telephone visits would be less than in-clinic provider appointments.
5. To determine if there would be a negative impact of telephone visits on patient satisfaction.

Long Term Objective:

To increase patients' access to primary care providers while maintaining or improving patient satisfaction.

BASELINE DATA TO SUPPORT THE ISSUE

Historical Aspects of Veterans Administration Health Care Delivery

O'Toole (2010) described the sweeping overhaul of primary care services within the VA over the past 15 years. Throughout its history, the Veterans Health Administration's

(VA) has evolved through innovation in its delivery of health care. The innovations were an attempt to improve the quality of care delivered to its veteran population.
The successful implementation of these models of care has lifted the VA to become a leader in health care (Kizer, Demarkis and Feussner, 2000). In 2010, there were a total of 7.8 million veterans enrolled and 5.4 million outpatient visits were conducted by VA clinicians (Department of Veterans Affairs, 2010).

Despite its current leader status, historically, the VA has not always focused on outpatient visits as the primary service. The change to a primary care focus within the VA is a recent change. Early in its existence, the VA was not delivering holistic care to its patients. At that time, the organization's focus was more toward inpatient care that was driven by specialty care. According to Kizer (1997), the hierarchy focused more on obliging specialty physicians and hospital management instead of delivering holistic patient care. With the focus on only the acute inpatient medical problems of the patient, the system lacked assignment to a health care provider to guide the overall care of the patient once discharged from the acute setting. This lack of integration and continuity of the total care of the patient resulted in patients being lost to negotiate the enormous bureaucratic health system unaided. Concerns of ineffective care escalated to a point where the organization was portrayed in a negative light through various media outlets thus earned the VA a reputation of not providing empathetic, patient-centered care.

Veterans Administration's Evolution to a Primary Care Focus

In a response to negative criticism and in an effort to change its image, there was a push in the 1990's by Veterans Administration to reengineer the focus of health care

delivery. To reduce care fragmentation, the redesign of the infrastructure was to move from a specialty, inpatient focus to that of a primary care focus.

Primary care became a cog in the wheel and the center point for the integration and coordination of the patient's care. All patients enrolling in the Veterans Administration were, and, are today, assigned a primary care provider. This provider serves as a gatekeeper to assist patients in negotiating through the health care maze and in coordinating care. As a result, patients enrolled in primary care increased from 20% to 70% (Kizer, 1997). The redesign in health care delivery demonstrated success in terms of providing more patient-centered care. This change also served to strengthen the patient-provider relationship. A stable patient-provider relationship has been documented as a component of patient satisfaction (Feddock et al., 2005). It may also have been a reason for an improvement in overall patient satisfaction. The success of the VA redesign was demonstrated through an increase in the number of patients who indicated satisfaction with their health care. According to Kizer (1997), in 1996, 69% of patients rated the VA excellent to very good compared to only 49% in 1995. However, over time, patient satisfaction scores decreased. In 2009, 57% of patients rated the care they received as a nine or ten, on a range of zero to ten, which declined to 55% in 2010 (Department of Veterans Affairs, 2010). This was the impetus for continued improvement.

As a continuation of its transformation to improve health care delivery and patient satisfaction, the VA mandated a redesign of primary care. This process began in 2009 and continues to be implemented through the VA today. This redesign was coined as the

Patient Aligned Care Team or "PACT". The VA PACT model of primary care health care delivery, which is based on the Medical Home Model and IOM's Ten Rules for Redesign (IOM,2002), was implemented in an effort to promote patient-centered care within VA primary care clinics (O'Toole, 2010). The components of these models place an emphasis on increased patient responsibility for their own health care, making patients partners with their primary health care provider. An additional emphasis is to increase access to health care to improve patient satisfaction to promote patients' feelings of safeness and friendliness. The VA's PACT model of delivery of primary care serves as the theoretical model for this clinic scholarship project.

A proposed method to accomplish increased patient access is to offer alternative visits types outside of the traditional in-clinic, face to face primary care visit. A Department of Veterans Affairs Memorandum, dated March 30, 2011, from the Deputy Under-Secretary for Health Operations and Management, endorsed telephone visits as usual care. The memo also implied that telephone visits should become a part of practice in primary care as they are an efficient method of providing care. This pilot project implemented Veterans Health Administration (VHA) PACT mandates and policy and procedures for conducting telephone visits.

EPIDEMIOLOGICAL RELEVANCE TO POPULATION HEALTH OUTCOME

The Use of Telephone Care in Primary Care

The telephone can be an efficient tool in providing care to patients (Boxer et al., 2007; Gingrich, Boxer & Brooks, 2008; Innes, Skelton & Greenfield, 2006). Townsend, Maxwell and Sears (2001) indicated that telephone communication with patients

comprised a major component of primary care healthcare delivery. The National Ambulatory Medical Care Survey indicated an increased use of provider telephone follow-up. Provider telephone follow-up increased from 1.7% of all visit types in 2006 to 2.5% in 2008 (Centers for Disease Control, 2008).

Telephone visits are a suggested method to improve patient access to a primary care provider and is evolving to be an important component of patient-centered care by providing a choice of health care delivery to patients (Allen et al., 2010; Evans, Edwards & Elwyn, 2003). The telephone visit offers accessibility as it occurs when it is convenient for the patient and provides a choice of visits that enables more efficient use of clinic space and time. The convenience of telephone visits is aided by the fact that fewer than 3% of persons in the United States lack telephone access (Piette, 2005). The growth of accessibility of cellular phones has aided in resolving any disparity. In 2008, 225.2 million households had access to a telephone landline or wireless telephone (U.S. Census, 2011). Kimman et al. (2010) demonstrated increased patient satisfaction with provider access among women receiving telephone visits for post-breast cancer follow-up. The provision of telephone care is not unfamiliar to nursing. Nursing has provided patient care via the telephone for many years.

Telephone Care in Nursing

Nurse-led care has been successfully delivered in various modalities including clinic settings and telephone care. Nurse-led telephone care includes nurse advice telecommunication (Omery, 2003), nursing triage services (Greenburg, 2000; Breslin & Dennison, 2002; Belman et al., 2005) and follow-up telephone care (Uppal et al., 2003;

Holst, Willenheimer, Martensson, Lindholm & Stromber, 2007; Shaida et al., 2007; Cusak & Taylor, 2010; Martin, French & Janos, 2010; Beaver, Williamson & Chalmers, 2010). Nurse-led clinics manage chronic illnesses such as hypertension, diabetes, congestive heart failure and chronic bowel disease (Miller, Caton & Lynch, 2002; Ayers, 2005; Chang et al., 2007; Hebert et al., 2008). Telephone care can be initiated by the patient or the nurse. Nurse-led telephone care most often involves the nurse initiating a telephone call to assess patient condition. Vasquez (2008) defines telephone monitoring as a nurse initiated phone call to a patient to monitor the status of a chronic illness or condition. Smith (1999) indicates that nursing is well suited to deliver telephone care via the nursing process. The nursing process involves collecting data which is then used to develop working diagnoses. These data guide in the development of a plan of care which can be individualized to meet the patient's needs. Telephone care differs from bedside nursing in that the implementation of the plan of care is the responsibility of the patient (Smith, 1999). Greenberg (2009) confirms Smith's earlier depiction of telephone care. She describes telephone nursing as an interactive process of translating collected patient data obtained during the telephone call to identify needs then providing healthcare information back in understandable terms.

Safety and Efficiency of Nurse-led Telephone Care

The safety and efficiency of nurse–led telephone care while maintaining patient satisfaction has been clearly documented through research (Al-Dawoud, Thompson & Al-Khaffaff, 2009; Anderson, 2010; Jeffery, Doumouchtsis & Fynes, 2007; Shaida et al., 2007; Uppal et al., 2003). APRN's are in a unique position to provide high level care to

patients in various modalities including telephone care. The APRN has a breadth of skills from a combination of learned nursing knowledge, and professional expertise and their education in medical diagnosis and treatment (Hill, 1992). This allows the APRN to offer nursing and medical interventions via telephone that result in positive patient outcomes (Czarnecki, Garwood & Weisman, 2007). Czarnecki et al. (2007) noted no patient complications, such as adverse reactions from pain medications or an unplanned clinic visit for pain control, with an APRN-led telephone follow-up in a pediatric population being followed for post-operative pain management after spinal surgery. Anderson (2010) indicated that nurses need to expand the services that they provide. The APRN-led telephone clinic successes demonstrate competency with an expanded role.

Expanding Role of the APRN in Primary Care

The VA transformation to a primary care focus led to an increased role of non-physician providers, including APRNs. According to Kizer and Norby (1998), the new model allows non-physician providers to be utilized at the full level of their expertise and educational level. The primary care APRN has much autonomy in practice as they are assigned a panel of primary care patients with responsibility of total medical management with physician consultation as needed. These patients have complex and chronic medical problems that require ongoing management. The APRN is responsible for ordering labs, radiologic imaging as indicated, referring to specialty care as warranted by patient need and determining need for further evaluation. The VA Office of Nursing Service also supports the role of the APRN within the VA as documented in their policy statement:

"APNs may function autonomously within a defined scope of practice or in collaboration with other health-care providers. They manage acute and chronic conditions and promote optimal health…" (Department of Veteran Affairs, 2010, p.10). There have been calls for increased APRN involvement in primary care.

The Institute of Medicine (2010) report indicated that APRNs should have a larger role in the delivery of primary care to reduce fragmentation of healthcare in the United States. The APRN is a legitimate health care partner to be involved in health care innovation. The multi-dimensional APRN possesses a wide knowledge base, professional experiences and recognizes the health needs of the population they serve. The APRN's diversity of practice settings serves to increase health care access to patients.

PRIMARY CARE ACCESS WITH APRN-LED TELEPHONE VISITS

Primary Care Supply and Demand

Primary care visits comprise the majority of visits to all physicians accounting for 56% of visits (Health Resources and Services Administration, 2008). The demand for primary care health care exceeds the supply of primary care providers. According to HRSA (2008), only 37% of doctors practice in primary care. This results in difficulty accessing needed health care visits. This was demonstrated during the time period between 1997 until 2002 in which patient reports of the inability to schedule an appointment in a timely manner increased from 23% to 33% (Strunk & Cunningham, 2002).

The imbalance in supply and demand often subjects patients to long wait times for appointments to see a healthcare provider. A survey conducted in 2006 found that

four-fifths of patients had a preferred provider but only 27% felt they could access care in a timely manner if it was needed (Beal, Doty, Hernandez, Shea & Davis, 2007). Rust et al. (2008) found that patients were more likely to seek care in an emergency room if they encountered barriers while attempting to see their usual provider. This study also found that most of the medical problems which prompted the ED visit did not require emergent care but could have been treated in the primary care setting. The shrinking primary care work force, accelerated by fewer physicians entering primary care, will worsen this trend. This trend is occurring due to heavy workloads encountered in primary care in addition to less monetary reimbursement for services.

Potential Reasons for the Primary Care Provider Shortage

Primary care providers face increased responsibilities with the epidemic of chronic disease. The primary care provider must manage multiple chronic illnesses, in addition to providing preventative care. It is estimated that family physicians manage 3.05 problems on average per visit (Beasley et al., 2004). Ostbye et al. (2005) estimated that 10.6 hours per day were needed by a primary care provider to manage a panel of 2500 patients. Yarnell et al. (2009) evaluated the amount of time required for a primary care provider to manage the complexity of medical problems presenting to a primary care clinic. They evaluated acute, chronic and preventative visit durations and estimated that it would take 17.4 hours a day for a primary care provider to manage the medical problems encountered in a primary care clinic for a panel size of 2000 patients.

Strategies to Improve Primary Care Access

The IOM (2002) report urges matching supply and demand to improve efficiency in health care thereby increasing health care access. Tailoring care to meet the needs of the patients improves patient satisfaction with their health care (Miller, Caton, & Lynch, 2002). Uppal et al. (2003) and Shaida et al. (2007) noted that telephone visits decreased the number of unnecessary face to face visits which increased access to those patients needing follow-up nasal surgery clinic appointments. This same concept could be attempted in primary care to increase appointment access.

Primary care APRN-led telephone visits increase patient access to the primary care provider. It allows the patient a choice of visit type and provides the components of patient-centered care. Patient-centeredness is "a system that works or fails to work to meet individual patient needs while maintaining qualities of compassion, empathy and responsiveness to patients' needs and values" (IOM, 2002, p.6). According to Uppal et al. (2003), telephone follow-up by nurse practitioners provides continuity of care to patients not needing face to face visits, thus allowing complex patients more access to specialists.

COMPREHENSIVE REVIEW OF THE LITERATURE

Three main themes evolved during a literature review of health care provider-initiated telephone visits. The themes included that healthcare provider-initiated telephone care in various settings can be delivered in a safe manner and improve clinic efficiency without compromising patient satisfaction.

Telephone Clinics and Patient Satisfaction

There is little literature regarding APRN-led primary care telephone clinics. Nurse practitioners were involved in two studies that substituted provider-initiated telephone visits for face to face clinic visits in a primary care setting. Wasson et al. (1992) conducted a randomized control trial of 497 men in a Veteran's Affairs primary care clinic. The patients were randomized to face to face visits or telephone visits. The primary care providers, three of which were nurse practitioners, doubled their recommended revisit interval in the telephone visit group. The telephone group received three telephone visits at scheduled intervals of 0.25, 0.75 and 1.5 multiples of the standard follow-up intervals before their next face to face follow-up appointment. If a provider wanted the patient to return for a face to face visit in three months, therefore the return date doubled to six months. A provider initiated telephone follow-up was scheduled at three, nine and eighteen weeks. The usual care group continued the recommended face to face follow-up without scheduled telephone visits. Over a two year period, the proportion of patient hospitalizations in both groups were very similar at 0.31hospitalizations in the usual group with a 0.29 hospitalizations in the telephone group (P =0.7). The telephone group had 10.5 hospital days as compared to 14.5 hospital days in the usual care group (P=.005). If admitted to an acute care hospital, telephone visit patients had shorter stays of 28% fewer hospital days (P=.005). In addition, the telephone group had 14% (P=.006) less medication usage than the usual care group. One negative effect of telephone visits was loss of blood pressure control in the experimental telephone group. There was a 2.4% to 4.5% (P= .02) increase in proportion of patients

that experienced an increase in blood pressure above 160/100 mm Hg during the study period. This analysis was based on one blood pressure reading and the authors suggested further study is needed.

Patient satisfaction was also measured as part of the study (Wasson et al., 1992). Patients completed questionnaires at the beginning of the study and at the end and rated their satisfaction with access, quality and continuity of care. This study found that the cohort receiving telephone visits experienced overall satisfaction with telephone care indicating that they felt the clinician resolved their health care concern thus saving the patient a clinic visit to see the clinician (ANCOVA by matching $P < 0.001$).

Welch et al. (2000) attempted to replicate the Wasson et al. (1992) study utilizing a randomized control trial of 512 men in a Veteran's Administration general medicine clinic. Three of the providers in this study were nurse practitioners. The study, conducted over a two year period, demonstrated no effect on hospital admission rates or mortality. The control and experimental groups each had 123 hospital admissions ($P > 0.2$). Among the experimental telephone cohort, 13 deaths occurred during the study while 14 occurred in the non-telephone cohort ($P > 0.2$). It was the premise of the study's authors that telephone visits were not efficient and tended to increase healthcare utilization as there was an increase in referrals to subspecialty and ancillary services. This is evidenced by 17.4 sub-specialty and ancillary clinic visits per patient in the telephone group as compared to 15.4 visits per patient in the usual care group. Referrals to sub-specialists were higher in the control telephone group; they had 5.3 visits to medical/surgical specialists as compared to 4.4 in the control group. This was not

statistically significant. The authors hypothesized that study results occurred because providers found direct referral to the sub-specialists as an efficient way to address the presenting symptoms being discussed during the telephone visit. The authors did not mention if those referrals were appropriate. The telephone patients had less unscheduled visits than the usual care group (P= 0.01). Patient satisfaction was measured by a 13 item scale that measured general satisfaction with medical care. The satisfaction with telephone visits measurement tool utilized in the Wasson et al. (1992) study was also utilized in the Welch et al. (2000) study. The telephone and in-clinic provider visit groups approved of the medical care received. In addition, the telephone group perceived the telephone calls as being an important aspect of their medical care.

A systematic review of nine studies by Bunn, Byrne and Kendall (2005) noted that patient satisfaction with telephone visits was mixed. Two randomized controlled trials compared patient satisfaction between the control and experimental groups. In a study conducted by Mckinstry, Walker & Campbell (2002), consistency of positive patient responses regarding satisfaction of care was demonstrated among patients receiving a provider telephone visits and in-clinic provider visits. The second study demonstrated that patients receiving a telephone visit demonstrated a higher degree of satisfaction ($P<0.05$) (Jiwa, Mathers & Campbell, 2002).

Pascoe and Neal (2004) recruited a convenience sample of 271 patients in a primary care practice to assess patients' perceptions regarding utilizing alternate visit forms such as telephone or email visits and compared them to the nurses' perceptions. Upon presenting for their face to face clinic visit, participating patients completed a

questionnaire which evaluated the patient's perception of the treatment of the presenting medical concern to ascertain if it could have been addressed with an alternate type of visit such as telephone or email. The primary care office nurses completed the same questionnaire. The authors found that nurses working in a primary care setting felt that only 3% of patients could have had their care provided through a telephone visit. Patients echoed this belief in that 94% felt that their concerns could not have been treated via email or telephone. This study did not support alternate visit forms in a nurse-led clinic. The possible rationale for this is the patients' and nurses' perception differed on whether a hands-on clinical evaluation was indicated which could not have been accomplished with a telephone or email visit. The authors note that study issues included lack of standardization of the questionnaire. The patient questionnaire response rate was moderate with115 patients out of 271 consultations responding (42.4% patient response rate) as compared to a 99.6% nurse response rate. The study did not indicate if the nurses or patients were involved in alternate visits forms in the past.

The nursing literature involving APRN-led telephone clinics was disease or condition specific. Hartford (2002) conducted a randomized control trial of 131 patients undergoing coronary artery bypass grafting for the first time. Patients were randomized to usual care or telephone intervention at scheduled intervals following their hospital discharge. The telephone intervention was provided by a nurse with cardiac specialization, who, through structured protocols, provided education to promote self-care management strategies to effect learning and behavior changes. Nurse-led telephone care was conducted at set intervals for up to seven weeks post-discharge. Some patients

initiated life style changes by the end of the period as the result of individualized teaching. This study did not measure patient satisfaction with the telephone interventions.

A retrospective study from a convenience sample of 61 patients conducted by Czarnecki et al. (2007) demonstrated efficiency and safety of patients who received telephone care. This study utilized APRN-led telephone follow-up to successfully manage a pediatric population who underwent spinal fusion surgery. The pain management APRN initiated post-discharge phone calls to evaluate the effectiveness of the prescribed pain management. Data collected from the chart review included diagnosis, type of surgery, narcotic pain use at home, and dose titration which included side effects encountered and weaning. Caregiver support and education was provided during pain medication weaning. The APRN-led telephone contact continued until successful completion of pain medication weaning. This equated to an average of four phone calls over a nine day period of time. The authors noted that phone calls took less than five minutes although it does not appear phone call length was formally measured. The interventions of the APRN-led telephone visit were efficient in that no patients needed to have an unplanned office visit for titration of pain medication.

Brandon, Schuessler, Ellison and Lazenby (2009) studied outcomes of heart failure patients receiving care through an APRN-led telephone clinic. The study entailed random assignment of twenty patients to either the APRN-led telephone intervention or to an in-clinic patient visit, considered usual care, with a cardiologist. The patients completed a pre and post-test to assess the impact of the APRN's intervention. The patients in the

telephone clinic received weekly APRN-initiated telephone calls for two weeks, then every two weeks for the next ten weeks. The telephone calls lasted five to thirty minutes in duration depending on the level of self-management support needed by the patient. The study found a reduction in hospitalization rates of (P =0.13) and improvement in quality of life among the experimental group (P=0.05).

Beaver, Williamson and Chalmers (2010) conducted a qualitative study with women who received telephone follow-up to investigate patient feelings regarding telephone follow-up following breast cancer diagnosis. Patients were selected from an earlier randomized control trial of 374 women that compared hospital and telephone follow-up after breast cancer diagnosis (Beaver et al., 2009). A random sample of 20% of those who participated in telephone visits were invited to participate in the qualitative arm of the study. Thirty-four agreed to participate, though six were not available. Therefore, twenty-eight patients completed this portion. In addition, investigators recruited four experienced breast cancer nurses to document the nurses' feelings regarding telephone follow-up. A questionnaire was developed to explore the patients' view and one was developed for the breast cancer nurses' view. The investigators concluded that patients felt that telephone visits were more convenient and relaxed than hospital follow-up visits and provided continuity of the provider-patient relationship. The breast cancer nurses' feelings echoed those of the patients.

Patient satisfaction with nurse-led telephone care was noted in a study by Anderson (2010). This author found that 90 percent of men diagnosed with prostate cancer who received telephone follow-up for the condition were very satisfied. Al-Dawoud,

Thompson and Al-Khaffaf (2009) had similar findings in a study of a nurse-led telephone clinic of 176 patients with peripheral vascular disease who experienced intermittent claudication. The patients were contacted by the nurse every six months for 12 months to assess the patient's status. The telephone visit followed a structured format designed to simulate a telephone conversation and included content that prompted discussion regarding the important aspects of peripheral vascular disease If, based on the telephone conversation with the patient, the nurse determined that there was no disease progression the telephone visit interval was lengthened to every 12 months. Patient satisfaction was defined as the patients' perceptions of their experience with the telephone visit along with personal level of satisfaction with the service. The authors indicated that all patients receiving telephone visits were satisfied. At the completion of the study, there was a statistically significant 17% reduction (P </= 0.05) for non-urgent face to face clinic visits. This served to increase access to patients requiring an urgent face to face visit.

Uppal et al. (2003) evaluated the effect of nurse-led telephone visits after nasal surgery on patient satisfaction as compared to face to face follow-up visits. Patients were assigned to face to face post-surgical visit with an Ear, Nose and Throat Specialist or a nurse-led telephone visit. The nurse-led telephone clinic followed a total of 75 patients. After the visit, the patient completed a patient satisfaction questionnaire. Forty-two patients in the nurse-led telephone clinic returned the completed patient satisfaction as compared to 46 patients in the face to face visit group. The results indicated that patients had increased satisfaction with the nurse-led follow-up telephone visit and were less satisfied with specialist face to face follow-up visit (P=0.001). This investigation

also demonstrated increased clinic efficiency because 41 patients in the telephone group did not need an in-clinic visit.

Dedicated Telephone Clinic

The literature varies on the amount of time that should be dedicated for completion of telephone visits or even if dedicated time is required. Wasson et al. (1992) dedicated sixty minutes per week for providers to complete at least four phone calls, whereas Welch et al. (2000) developed a morning telephone clinic which consisted of four fifteen minute appointment slots. Welch et al. (2000) does not address why this time of day was chosen or if it was more convenient for patients, staff or possibly both. Other studies regarding nurse-led telephone clinics indicate that telephone visits were nurse-initiated but did not report development of designated telephone clinics (Anderson, 2010; Jeffery, Doumouchtsis, & Fynes, 2007; Shaida et al., 2007; Uppal et al., 2003).

Provider Visit Wait Times and Patient Satisfaction

Many studies address the impact of clinic wait times on patient satisfaction. An early study by O'Malley, Fletcher, Fletcher and Earp (1983) found from a sample of 258 patients in a general medicine clinic that patient dissatisfaction occurred with excessive wait times. It was the authors' premise that excessive wait times impaired health care quality. Dansky and Miller (1997) had similar findings. They found that total time spent waiting to see a provider was a significant predictor of patient satisfaction ($P=<.05$). The authors concluded that interventions such as communicating with patients regarding the length of the wait time could improve patient satisfaction. Eilers (2004) found that wait times greatly influenced patient satisfaction. A patient satisfaction survey completed by

412 out of 500 patients indicated wait times as a major concern. Leddy, Kaldenberg and Becker (2003) compared wait times in physician offices and outpatient test and treatment facilities. Although patients' wait times were less in the outpatient test and treatment centers than in physician offices, patient satisfaction was strongly correlated to the duration of time they waited for services. Feddock, Bailey, Griffith, Lineberry and Wilson (2010) had a 52% patient satisfaction questionnaire response rate and found that longer wait times increased patient dissatisfaction (P=<0.0001).

Cole, Mackey and Lindenberg (2001) studied the effects of how long patients waited for care on patient satisfaction. The APRN-run clinic recruited a convenience sample of 47 patients, measured patient cycle times, defined as the total amount of time elapsed from the patient's clinic arrival until departure, to determine if wait times had an effect on patient satisfaction. The 47 patients were asked to respond anonymously to a patient satisfaction survey. The authors found that there was no relationship between patient satisfaction and wait times (P= .80). Comparisons of patient satisfactions between telephone and face to face visits have been studied.

Shaida et al. (2007) compared patient satisfaction with nurse-led telephone visits with face to face follow-up in men diagnosed with prostate cancer. The authors included measurement of patient wait time to evaluate the impact of nurse-led telephone visits. The researchers compared three groups of men at different phases of follow up. The first group completed a face to face follow-up visit prior to being enrolled in telephone follow up visit, the second group had a telephone follow up visit prior to receiving an office follow-up visit and the third group only received an office visit follow-up. Wait times

were measured for patients who received face to face and telephone visits. The wait time for clinical contact was significantly less in the telephone visit follow-up only group. The mean wait time for clinician contact in the telephone only group was 1.4 minutes. Mean wait times to see the clinician for a face to face visit was 30 minutes and 27.2 minutes in groups 1 and 2 respectively. Patients in Group 1 waited a mean time of 30 minutes to see the specialist with only 10 minutes of direct contact. Group 2 patients had similar wait times of 27.2 minutes with face to face contact of 17 minutes. The authors note that telephone visits carried out by nurse specialists with less complex patients enabled specialists to spend increased time in-clinic with more complex patients thus improving clinic access and efficiency.

Shaida et al. (2007) measured patient satisfaction for each group. The response rate of patient satisfaction questionnaires was 42.3% for the telephone visit only group. Several areas of patient satisfaction were measured, including overall general satisfaction, quality of professional care received, depth of the patient-provider relationship, and time that the patient perceived was spent in the consultation. The telephone visit only group had lower scores related to depth of the patient-provider relationship (P=0.01), and perceived time (P=0.02). Patient satisfaction scores received for general satisfaction and level of professional care were consistent among all groups.

In an effort to reduce long wait times in a clinic for chronic bowel disease, Miller et al. (2002) initiated a nurse-led clinic. The study included 150 patients, identified by the gastroenterology specialist as appropriate for participation. A questionnaire was sent to participating patients upon completion of the twelve month

project. The authors indicated that three-fourths of patients provided positive feedback regarding the nurse-led telephone clinic. The authors increased clinic access by decreasing the number of face to face clinic appointments for medically stable patients which in turn increased clinic access to patients with acute exacerbations.

Patient Inclusion Criteria for Telephone Visits

Medical stability was evident as selection criteria in nurse-led telephone clinic studies (Miller et al., 2002; Uppal et al., 2003; Shaida et al., 2007; Anderson, 2010). Vasquez (2008) pointed out patients must be chosen with care and also suggested that patients demonstrate good phone and communication skills along with the ability to understand and comply with instructions. Welch et al. (2000) excluded any patient who had uncontrolled hypertension. Wasson et al. (1992) excluded patients with similar characteristics as Welch et al. (2000), but also excluded patients with only psychiatric diagnoses, active alcohol abuse, and those who were receiving chronic medicinal injections or were on chronic anticoagulation. The exclusion conditions selected by the authors may reflect medical instability which can interfere with seeking routine medical care and those who were receiving scheduled medical interventions. Miller et al. (2002) demonstrated medical stability by remission of chronic bowel disease without any symptoms of disease exacerbation.

The literature also documented the importance of an established patient-provider relationship for patient selection criteria for provider-initiated telephone visits. Welch et al. (2000) excluded any patient who had not been seen in the VA clinic in more than eight months. Provider input was also a factor in patient selection. A patient was excluded if

the providers' perception was that the patient was not a candidate for a telephone visit (Welch et al., 2000). This was consistent with a study by Schwartz, Woloshin, Wasson, Renfrew and Welch (1999) which demonstrated that physicians' perception of patients' health played a major role in determining when physicians requested return visits.

Stakeholders

Clinic PACT Team

Stakeholders of this project included the staff of the Community Based Outpatient Clinic (CBOC), which consisted of two physicians, an APRN, two registered nurses, two licensed practical nurses, a phlebotomist and two clerical staff. The Saint Charles Community Based Outpatient Clinic was selected to trial the PACT initiative. The PACT pilot team, consisting of the APRN, a Registered Nurse, a licensed vocational nurse (LVN), and a clerk are responsible for the management of the APRN's panel of patients. The pilot teamlet was assigned the task of evaluating clinic processes then redesigning them to fit within PACT philosophy. Full implementation of the PACT model included the expectation that teamlet staff assumes expanded responsibilities that enables them to function at the highest level that their licensure allows. The clinic staff slowly bought into the new model of care that allowed successful implementation of the telephone clinic. As a result of the implementation of telephone visits the staff gained more time within the clinic day to manage other patients as there were fewer in-clinic patient visits. Teamlet stakeholders had the ability to be change innovators and to model telephone visits for other VA primary care clinics.

Patient Stakeholders

The St. Charles CBOC provides primary care services for approximately 3,000 male and female veterans with 4,610 visits conducted between from May 1, 2010 ending April 30, 2011(J. Winters, personal communication, May 11, 2011). The APRN has a panel of approximately 915 patients and is responsible for the total management of those patients with collaboration with the CBOC or specialty physicians. The APRN initiates and adjusts medications as needed, orders diagnostic exams and refers to appropriate specialties as indicated.

Patient stakeholders benefited from this pilot project. The availability of telephone visits met the needs of clinically stable patients. It increased clinic access and established procedures necessary to successfully implement and run a telephone clinic. It provided a visit option to patients.

VA Primary Care Stakeholders

As the VA moves toward to the PACT model**,** VA primary care providers will need to implement alternate types of visits within all primary care clinics. This pilot project benefits other VA primary care providers as it offers guidance on telephone clinic implementation.

Project Activities/Methods

Project Plan

This pilot project implemented an APRN-led telephone clinic process and evaluated patient's acceptability of telephone visits. Although telephone care was a part of primary health care delivery at the St. Charles CBOC, a formal process did not exist. The first

step in implementation was to conceptualize how the process would work. This was accomplished by developing a flow map to depict the telephone clinic process (Appendix A). A flow map is a step by step account of all that is involved in a clinic process (Backer, 2002). The telephone clinic flow map showed in picture form each step of the process which included each clinical contact that a patient would encounter in the course of a telephone visit. The pilot project utilized the skills of the LVN to initially review the medical record for inclusion and exclusion criteria, to provide that information to the APRN and to make a pre-visit telephone call to the patient to determine any changes in health status. The pilot project utilized the skills of the APRN to collaborate with the LVN in assessing patient suitability and to conduct and document the telephone visits.

Measurement of Patient Satisfaction

To assess patient acceptability of telephone visits, one of the aims of the pilot project, patient satisfaction was measured for both face to face and telephone visits utilizing a standardized patient satisfaction questionnaire (Appendix B). The VA has adapted a patient satisfaction survey based on the Consumer Assessment of Healthcare Providers and Systems Survey, also known as CAHPS (VA, 2010). The CAHPS project, launched in 1995 by the United States Agency for Healthcare Research and Quality (AHRQ, 2008), is a standardized patient satisfaction tool used to measure areas that are considered of high importance to healthcare consumers such as health care accessibility and effective provider communication. To determine patient acceptability of an APRN-led telephone visit, an audit of patient satisfaction was completed for patients who had a telephone visit.

For comparison, an audit of patient satisfaction of patients who had a face to face visit was completed.

Measurement of Telephone and Face to Face Cycle Times

There are many variables that affect patient satisfaction, one, is the amount of time patients wait to see their provider for an in-clinic provider visit. Patients spending extended periods of time without staff interaction can indicate that clinic process need examining to determine why waits are occurring and how could it be more efficient. Reducing wait times can improve patient satisfaction (Potisek et al., 2007; Backer, 2002). Patient satisfaction can also be improved by increasing the amount of time spent with the provider (Camacho, Anderson, Safrit, Snow-Jones & Hoffmann, 2006; Anderson, Camacho & Balkrishman, 2007). Improving clinic flow and thereby improving patient satisfaction can satisfy the IOM aim of timeliness (Leddy, Kaldenberg & Becker, 2003). In its effort to meet the IOM goal of timeliness and improve patient satisfaction, the VA standard of care requires that all appointments begin within 10 minutes of scheduled appointment time. Therefore, for the purpose of this pilot project, the operational definition of wait time was a patient visit beginning ten minutes after the scheduled appointment time. One of the ways of assessing clinic efficiency is to measure patient satisfaction and wait times (IOM, 2002).

This pilot project measured patient wait times to evaluate the difference in wait times between telephone and face to face groups. Telephone visits were shown in studies to be more efficient and have less wait time than face to face visits. To determine how long patients were waiting, clinic flow was measured and monitored periodically to assess

how efficiently patients move through the clinic. Cycle time measurements were utilized to evaluate wait times.

Cycle time is defined as the total minutes from the first clinical contact until the last clinical contact (Backer, 2002; O'Malley, Fletcher, Fletcher & Earp, 1983). The combined total of minutes spent in each subset is total cycle time. Actual clock time is documented to note the start and end of each subset. The VA's goal for total cycle time is less than 60 minutes. Cycle times for face to face visits were collected and measured for this pilot project. Cycle time had previously been collected and measured in the clinic once a month for the past 14 months as part of data collected for the PACT redesign process. Telephone visit cycle time measurements had never been completed therefore varied from standard clinic routine and were measured as part of this pilot project.

Project Design

This project piloted a new telephone clinic process and evaluated cycle time and patient satisfaction.

Project Question

Project questions derived from project objectives are:

1. Will patients receiving telephone visits be as satisfied with care as patients receiving in-clinic provider visits?

2. Will patient wait times for telephone visits be different than in-clinic provider wait times?

3. Will decreased wait times correlate with positive patient satisfaction?

4. Will the mean length of telephone visits be different than in-clinic provider appointments?

5. Will there be a negative impact of telephone visits on patient satisfaction?

Project Setting

This project was conducted in a Department of Veterans Affairs Community Based Outpatient Clinic in a suburban area in the Midwestern United States. VA CBOCs, established in 1995, are clinics situated away from the main VA hospital in order to improve access to primary care by veterans (Maciejewski, Chapko, Hedeen & Fortney, 2002).

Project Participants

Study participants were recruited from approximately 915 patients receiving their primary care at the St Charles CBOC, were assigned to the APRN's panel of patients, had a scheduled appointment at the St. Charles CBOC, and agreed to complete a de-identified patient satisfaction survey upon completion of the telephone or face to face visit. A total of 167 patients were seen during the data collection period. Of those patients seen, 68 participants were recruited for cycle time measurement calculations and 99 participants were recruited to complete patient satisfaction surveys. Participants were not compensated for participation in this pilot project. The following inclusion criteria for telephone visits were developed:

1) patient had a face to face clinic visit in last six months, 2) did not require a physical examination, 3) had available social supports, 4) did not have a diagnosis of dementia or other chronic mental illnesses, 5) had no hearing impairments, 6) had the ability to

participate in their own care, 7) had telephone access, 8) desired a telephone visit, 9) had less than eight prescription medications. Patients were excluded from receiving telephone visits if they were a new patient to the clinic, or did not meet all of the criteria for inclusion.

Operational Definitions

For the purpose of this project, social support was defined as the availability of a supportive person to assist the patient in meeting his/her needs (Anthony and O'Brien, 1999). The availability of social support was documented within the social history of the APRN's CPRS visit note.

The operational definition of the ability to participate in their own care was the patient possessed the ability to understand their medical condition, disease course, risk and benefits of treatment or treatment refusal and ability to make treatment choices as evidenced by the patient's ability to accurately verbalize medical information (Leo, 1999). Medical decision making capacity was assessed at each patient encounter through questioning of the patient's understanding of their disease process and course, risk and benefits of treatment in addition to their ability to make treatment choices.

Project Plan Awareness/Approval

IRB Approval

Veterans Administration Institutional Review Board approval was granted on September 12, 2011. University of Missouri Institutional Review Board approval was granted on October 20, 2011 with University of Missouri Graduate School approval being granted on November 16, 2011.

Human Subject Protection

All pilot project staff participants fulfilled HIPAA training requirements. All aspects of the protocol and pilot implementation met HIPAA requirements as specified by the Saint Louis VA and University of Missouri-Saint Louis Institutional Review Boards.

A Request for Waiver or Alteration of Authorization to Use and Disclose PHI in Research was approved by the VA and UMSL IRB. The APRN and LVN had access to the computerized medical record for use in patient care within the respective scope of practices and adhered to VA and Confidentiality policies and procedures.

A Request for waiver of "Documentation of Informed Consent" was approved by the VA and UMSL IRBs. There was no collection, storage or analysis of PHI. The LVN utilized the approved "LVN script" which served to provide informed consent to the patients' participation in the pilot project (Appendix C).

There were no human subject problems or violations of patient confidentiality. All research data were de-identified and stored in a locked cabinet at the Saint Charles Community Based Outpatient Clinic accessible only to the PI. The Principal Investigator and the Committee Chair were the only persons to have access to the data. Only the PI had access to Computerized Patient Record System (CPRS).

The required records, including the investigators research records, have been retained until disposition instructions are approved by the National Archives and Records and are published in VHA's Records Control Schedule (RCS 10-1).

Nursing Service Research Approval

Since the pilot project was a part of the PACT initiative, no additional approvals were needed. Approval to conduct nursing research was required through the Chief of Nursing. This approval was granted for 8 hours per week of protected time for data collection and the use of the clinic LVN to assist in data collection. The APRN was granted approval for data collection and analysis during off-duty hours.

Project Methods

Date Collection Timeline

A power analysis determined that a sample size of 34 face to face visits and 34 telephone visits was needed to determine a moderate effect size with an alpha 0.05. Data collection commenced on November 17, 2011 after VA and UMSL IRB approvals were obtained. Date collection ceased on December 30, 2011 when 34 face to face cycle time measurements and patient satisfaction surveys were obtained and 34 telephone visit cycle times and patient satisfaction surveys were obtained.

Patient Selection for Telephone Visits

The patient selection process in the pilot APRN-led telephone clinic project involved an initial review of the computerized medical record by the LVN of all face to face patients. The LVN documented any pertinent medical information that suggested medical instability and not meeting inclusion criteria. A collaborative review of the scheduled face to face appointments by the LVN and APRN four days in advance of the appointment during a daily teamlet meeting time. If examination of the medical record by the LVN and APRN ascertained a patient met inclusion criteria, the LVN contacted

the patient by telephone. During the telephone contact, the LVN screened the patient for acute medical problems or change in health status. The LVN discussed any concerns or issues with the APRN prior to scheduling a telephone visit. If there were no concerns and the inclusion criteria were met, the patient was offered to participate in a telephone visit and scheduled if he/she accepted.

Measurement of Patient Satisfaction

Procedure

Patients who agreed to a telephone visit were offered the opportunity to participate in a patient satisfaction survey. If agreeable, the LVN utilized the "LVN Script" (Appendix C) to provide informed consent to the patient. Upon patient affirmation, the LVN mailed a de-identified patient satisfaction survey that included a de-identified, self-addressed, postage-paid return envelope. The patient was instructed that the information obtained from the patient satisfaction survey was confidential and was to be used to evaluate a pilot telephone visit project. The patient satisfaction survey did not contain personal health information and had "Telephone Visit" written in the top left corner of the survey for tracking and data analysis purposes. The returned patient satisfaction surveys were secured in a locked cabinet in the APRN's office. The APRN kept a tally of the number of patient satisfaction surveys mailed and returned (Appendix D). The APRN did not have knowledge of which patients agreed or did not agree to complete the patient satisfaction survey.

Patients who had face to face visits in the clinic were asked by the LVN at time of check-in if they were willing to complete a patient satisfaction survey. The patient was

instructed by the LVN that the information obtained would be kept confidential and would be used to evaluate a pilot telephone clinic project. A de-identified patient satisfaction survey was provided by the LVN to those patients who agreed to participate. The patient satisfaction survey did not contain any personal health information and "Face to Face Visit" was written in the top left corner of the survey for tracking and data analysis purposes. The APRN did not have knowledge of which patients agreed or declined to complete a patient satisfaction survey. Patients who completed the survey while in the clinic were directed to place the completed patient satisfaction survey in a secure box located at the check-in desk. Patients were provided a de-identified, self-addressed, postage-paid envelope to return by mail if the patient desired to complete the survey outside of the clinic. The APRN kept a tally of the number of patient satisfaction surveys issued and returned. The survey collection box was secured at the close of business each day in the APRN's office. Completed patient satisfaction surveys were secured in a locked cabinet in the APRN's office.

Measurement of Telephone and Face to Face Cycle Time

Telephone Cycle Time Measurement Procedure

Telephone visit cycle times were measured as part of this pilot project to compare provider visit wait times and provider visit duration between telephone visits and face to face visits. Telephone cycle time measurement varied from usual care as this measurement had not been previously completed. Face to face cycle times were measured prior to this pilot project as a part of PACT redesign process. Telephone cycle time started when the APRN placed the telephone call to the patient and was divided into

subsets to measure the patient's wait time and length of clinical contact with the APRN. The subsets included the time the call was placed by the APRN, the time the call was answered by the patient, the length of patient and APRN contact with visit completion being the time the patient disconnected the call. Telephone visit cycle time measurement was documented on the telephone visit cycle time data collection tool (Appendix E). This tool contained no personal health information. No staff members other than the APRN were involved in conducting of the scheduled telephone visit. The completed de-identified telephone visit cycle time data collection tools were maintained in a locked cabinet within the APRN's office. Cycle time data collection for telephone visits occurred during protected research time and during the APRN's off-duty time.

Face to Face Cycle Time Measurement Procedure

Cycle time data collection was documented on the face to face data collection tool during protected research time when five or more patients were scheduled for in-clinic provider visits (Appendix F). The cycle time data collection tool did not contain any personal health information and were de-identified. The clinic clerk initiated the face to face visit cycle time data collection tool by documenting the patient's appointment and check-in time. The LVN documented the clock time at which the patient was met in the waiting room and placed in an examination room and the time LVN check-in was completed. The APRN documented provider visit start and completion time. The clinic clerk documented patient check-out time. The completed cycle time data collection tool was placed by the clinic clerk in a secure box at the check-in desk. The completed cycle

time data collection tools were collected by the APRN at close of business each day of data collection and are secured in a locked cabinet located in the APRN's office.

Data Summary

Comparison of Patient Satisfaction between Telephone and Face to Face Visit Groups

A purpose of this pilot project was to determine if patients who received telephone visits would be as satisfied as patients having face to face clinic visits. To evaluate this, an audit of patient satisfaction surveys of patients who had telephone and face to face was completed. A total of 43 patient satisfaction surveys were distributed to patients who had face to face clinic visits with 36 returned for an 84% return rate. A total of 56 patient satisfaction surveys were mailed to patients who accepted telephone visits with 37 surveys returned for a 66% response rate.

Patient responses to Question #2 through Question #6 on the patient satisfaction survey measured patients' satisfaction with the care they received. The response choices yielded either a "Yes, definitely" or "Yes, somewhat" response. No negative responses for either visit types regarding their visit experience were obtained on the patient satisfaction surveys.

Patients were asked to respond if they received enough information during their visit. The Chi Square indicated there was no statistical difference between the groups.

Table 1. Question #2: Did you receive enough information about your condition and treatment?

	Yes, definitely	Yes, Somewhat	No	Chi Square 0.097
Telephone	32 (89%)	5 (11%)	0	Df= 1
Face to Face	32 (89%)	4 (11%)	0	P= 0.755

Patients in both groups responded positively that they received understandable information about their medical plan of care. There was no statistical difference between the groups.

Table 2. Question #3: Did you receive clear information about your condition and treatment?

	Yes, Definitely	Yes, Somewhat	No	Chi Square 1.845
Telephone	33 (89%)	4 (11%)	0	*Df*= 1
Face to Face	35 (97%)	1 (3%)	0	*P* = 0.755

Patients in both the telephone and face to face groups responded positively to Question #4 that staff was attentive during their visit. The Chi Square, summarized in Table #3, demonstrated no statistical difference between the groups.

Table 3. Question #4: Did the staff listen carefully to what you had to say?

	Yes, Definitely	Yes, Somewhat	No	Chi Square 0.001
Telephone	34 (92%)	3(8%)	0	Df = 1
Face to Face	33 (92%)	3(8%)	0	P=0.974

Patients in both visit types responded positively that they had sufficient time to discuss their health care with staff. The Chi Square demonstrated no statistical difference between the groups.

Table 4. Question # 5: Did you feel you had enough time with staff to discuss your care?

	Yes, Definitely	Yes, Somewhat	No	Chi Square=0.787
Telephone	34 (94%)	2(6%)	0	Df =1
Face to Face	32 (89%)	4 (11%)	0	P=0.3750

Patients' responses to Question #6 indicate that both telephone and face to face visit groups felt they were treated with respect and dignity during their visit. A Chi Square demonstrated no statistical difference between the groups.

Table 5. Question # 6: Did you feel like you were treated with respect and dignity during your visit?

	Yes, Definitely	Yes, Somewhat	No	Chi Square 1.001
Telephone	33(92%)	3(8%)	0	Df = 1
Face to Face	35 (97%)	1(3%)	0	P=0.3170

Patient responses to Question #7 on the patient satisfaction survey were used to compare overall patient satisfaction between those having a telephone visits and those experiencing an in-clinic visit. Question #7 asked patients to rate the quality of the provider visit with response choices being "Excellent"; "Very Good"; "Good"; "Fair"; or "Poor". Summarized in table 6 are the patient responses to Question #7. There were no "Fair" or "Poor" responses obtained from either group.

Table 6. Question # 7: Overall, how would you rate the quality of your visit today?

	Excellent	Very Good	Good	Fair	Poor
Telephone	21 (57%)	9 (24%)	7 (19%)	0	0
Face to Face	29 (81%)	6(16%)	1 (3%)	0	0

To evaluate if there was a difference between the two groups' responses regarding visit quality, a Chi Test was performed on "Excellent" and "Very Good/Good" responses obtained on Question # 7. The Chi Test was statistically significant demonstrating a difference in the responses of "Excellent" and "Very Good/Good" between the telephone and face to face groups. Although there were statistically significant differences between the groups, this difference is not clinically significant as responses of "Excellent", "Very Good" and "Good" are considered favorable responses within the VA with responses of "Fair" and "Poor being unfavorable. There were no "Fair" or "Poor" responses obtained from either group.

Table 7. Chi Square of patient responses to Question #7

	Excellent	Very Good to Good	
Telephone Group	21	16	Chi Square 4.789
Face to Face Group	29	7	Df = 1
			P= 0.02869

Evaluation of Provider Visit Wait Times and Effect on Patient Satisfaction

The second outcome of interest was if the wait times for telephone visits were shorter, and if so, did the shorter telephone visit wait times elicit positive patient

satisfaction responses. Cycle times for telephone and face to face visits were measured to determine length of wait times. The average wait time for a face to face provider visit was 12.8 minutes as compared to 8.4 minutes for a telephone visit.

Face to face cycle times were obtained on selected clinic days and continued until 34 cycle times were completed. The face to face cycle times were calculated from patient check-in time until patient check-out time and ranged from 28 minutes to 105 minutes (median 60 minutes). Of the 34 total face to face cycle times, 17(50%) had cycle times less than VA goal of 60 minutes.

Each subset of the cycle time was calculated but emphasis was placed on the subsets which constituted waiting time for the patient or time with the provider. These subsets have been identified as key predictors for patient satisfaction. The first face to face cycle time subset calculated was from patient check-in time until rooming time which is defined as the time the LVN escorts the patient to the examination room. The rationale for this being appointment time does not provide an accurate reflection of the patient's actual wait time as does the documentation of clock time of patient check-in and time of first staff contact with the LVN. These times provide a more accurate reflection of the length of wait by the patient due to the fact that patients were asked to arrive 30 minutes before the scheduled appointment time. For instance, it appears the patient had no wait if a patient arrival time of 12:30 for an appointment time of 1 pm was used for cycle time calculation. Using the rooming time of the patient, for example, of 12:37 pm, demonstrates the reality of a 7 minute wait for staff contact. The longest wait time, from

check-in until rooming time, experienced- by a patient was 22 minutes with the shortest being no wait time. Average wait time was 6.2 minutes.

The second subset calculated was the time from the end of the LVN check- in process to start of the provider visit. This time equates to patient wait time. The patient is typically sitting idle in the examination room not involved with any clinic staff during this time. The shortest wait time from the end of LVN check- in until start of the provider visit was one minute with the longest being 39 minute with an average of 6.58 minutes. The average wait time of the face to face patient was a total of 12.78 minutes. This was obtained by totaling the two wait times as the patient had a waiting room wait average of 6.2 minutes and a pre-provider visit wait time of 6.58 minutes.

The third cycle time calculation was from the time of patient check-in until the start of the provider visit. The shortest patient wait for the start of the provider visit was seven minutes with the longest wait being 53 minutes (Mean 23.76).

Telephone cycle times were documented with each scheduled telephone visit during the data collection period until a total of 34 cycle times were completed. Patient wait times were calculated by the difference in scheduled appointment time and time was call was placed by the provider. The average wait time was 8.47 minutes, with the shortest being 0 minutes to a longest of 17 minutes. Two calls were placed by the provider 2 and 6 minutes prior to the scheduled appointment time. Only 3 telephone calls were placed greater than 10 minutes of the scheduled appointment time. An unpaired t-test was statistically significant in demonstrating a difference in the mean wait times for telephone

and face to face visits. The mean wait times of telephone visits were significantly less than face to face visits (P=0.0001)

Table 8. Telephone and Face to Face Visit Wait Times

	Shortest	Longest	Mean	Unpaired T-test
Telephone	-6 minutes	17 minutes	4.3 minutes	t= 8.7839
Face to Face	7 minutes	53 minutes	23.76 minutes	DF= 66
				P= 0.0001

The data, summarized in Table 9, revealed that patients who had an in-clinic provider visits did have longer wait times than patients receiving telephone visits. Patient Satisfaction Survey Question #1 directed patients to indicate the length of time after the scheduled appointment time they waited to see the provider. This data was used to compare the patients' responses regarding how long they waited to see the provider with cycle time data collected by the staff. Although only 3 telephone calls were placed greater than 10 minutes of the scheduled appointment time, 11 patients indicated on the patient satisfaction survey that they received their call within 11 to 30 minutes after their scheduled telephone appointment time. In actuality, 91% (31/34) of telephone visits were initiated in 10 minutes or less and 8% (3/34) initiated within 11-20 minutes. Possible explanations for this are that patients lose track of time or do not even pay attention to the time the call was received while at home since they did not have to travel to the clinic. Although the LVN confirms the telephone appointment date and time with the patient upon the patient's acceptance of the telephone visit it is possible that they were not aware that they had an assigned appointment time. Interestingly, five of the returned patient

satisfaction surveys did not complete Question #1. Of the patients not completing Question #1, several written comments were received: "had a telephone visit", another indicated that the question was not applicable, and "did not see provider".

Table 9. Patient Responses Regarding Wait Time to See Provider

	10 minutes Or less	11-20 Minutes	21-30 Minutes	31-60 Minutes	More than 1 hour	Can't Remember	Did not complete
Telephone	14 (40%)	12(34%)	4(11%)	0	0	0	6 (17%)
Face to Face	25 (69%)	8(22%)	3(8%)	0	0	0	0

The data summarized in Table 10 compared patients' responses regarding length of their wait time to see the provider after their scheduled appointment time. Since the VA goal is to begin all visits within 10 minutes of the scheduled appointment time the responses were grouped as "Less than 10 minutes and "Greater than 10 minutes". A Chi Square compared how patients in each group rated their wait times. There was not a statistically significant difference between the telephone and face to face groups' response to their provider visit wait times.

Table 10. Patient Response to Length of Time Waited to See Provider after Scheduled Appointment Time

	< 10 Minutes	> 10 Minutes	
Telephone	14	16	Chi Square= 3.512 Df= 1 P= 0.0609
Face to Face	25	11	

Shorter telephone provider visit wait times did correlate with positive patient satisfaction as there were no negative responses on the telephone visit groups' patient satisfaction surveys. Patient responses to Question #8, which asks the patients to rate the overall quality of their health care, were received from both groups. The Chi Square demonstrated no statistical difference between the groups regarding overall patient satisfaction with health care. The data is summarized in Table 11.

Table 11. Patient responses to Question #8: Overall satisfaction with health care received.

	Very Satisfied	Somewhat Satisfied	
Telephone Visit Group	28	6	Chi Square 0.61 Df=1 P= 0.434
Face to Face Visit Group	32	4	

Evaluation of Length of Provider Visit and Patient Satisfaction

Telephone visits durations were significantly shorter than in-clinic visits. The shortest visit length of a telephone visit was 3 minutes with the longest length being 22

minutes (mean 9.3). The shortest length of a face to face provider visit was 13 minutes with the longest being 48 minutes (mean 25.62). An unpaired t-test comparing the mean visit durations demonstrated a statistically significant difference in the visit length between the telephone and face to face groups (P =<0.0001).

Table 12. Length of Provider Visits

	Shortest Visit Duration	Longest Visit Duration	Mean Visit Duration	
Telephone Visits	3 minutes	22 minutes	9.3 minutes	Unpaired T-test 8.7567 Df= 66 P= <0.0001
Face to Face Visits	13 minutes	48 minutes	25.62 minutes	

The effect of provider visit length on patient satisfaction was assessed by comparing the responses of the telephone and face to face patient to question #5 on the patient satisfaction survey. This question asks patients if there was enough time to discuss his/her care with staff. To compare each group, a Chi Square test was performed using the response totals of "Yes, definitely" and "Yes, somewhat" of each group. The Chi Test was not statistically significant indicating that patients receiving telephone visits felt they had enough time to discuss their care as the face to face visit group. There was no negative impact to patient satisfaction with the shorter visit duration of telephone visits.

Table 13. Did you feel you had enough time with staff to discuss your care?

	Yes, Definitely	Yes, Somewhat	No	
Telephone	34 (94%)	2(6%)	0	Chi Square 3.34 Df=1 P= 0.066
Face to Face	32 (89%)	4 (11%)	0	

Overall, there were no clinically significant differences in patient satisfaction between face to face and telephone visits. Also, even though telephone visits were significantly shorter than face to face visits, all patients in both groups were satisfied with the amount of time spent with staff. Therefore, the decrease in time spent with provider during the telephone visit did not negatively impact the patient's perceptions of the care they received.

Barriers and Challenges

Development of the Telephone Clinic Process

A telephone visit clinic process, developed by the APRN, was initiated prior to this DNP Clinical Scholarship Project. It was not successful as it was missing key components, discussed within this section, and strayed from PACT principles in that it failed to include teamlet members in the process. In addition, the initial process was very cumbersome and time consuming. Therefore, this DNP Clinical Scholarship Project afforded the opportunity to reevaluate and redesign the telephone clinic process.

Involvement of PACT Teamlet Members

The redesigned telephone clinic process increased involvement of the LVN who would assist the APRN in reviewing the face to face schedule. The LVN and APRN would review the face to face schedule four days in advance of the appointments. The LVN, prior to the collaborative schedule review, would perform a review of the computerized medical record to collect pertinent information to determine if the patient met inclusion criteria for a telephone visit. A form was developed to assist the LVN with the computerized medical record review. The LVN, having reviewed the medical record, alerted the APRN to any health changes or conditions that precluded the scheduling of a telephone visit. The LVN and APRN then engaged in discussion regarding the plans of care of patients identified as telephone visit candidates. The LVN made pre-visit telephone calls to patients identified as candidates for telephone visits. The LVN would alert the APRN of health issues related by the patient during the pre-visit call that would deter a telephone visit. The APRN and LVN reviewed the patient's computerized medical record together if needed. The decision making process was expedited by involvement of the LVN and through the LVN being more informed of the patients' conditions at the time of the face to face schedule review through prior scrutiny of the medical record. Patients identified as meeting telephone visit criteria and accepting a telephone visit would then need to be scheduled into a telephone appointment.

Dedicated Telephone Clinic

Telephone visits were a new concept for the PACT staff and clinic patients. So a challenge was educating clinic and primary care administrative staff to the telephone clinic process. A major barrier and challenge of the pilot project implementation revolved around the scheduling and timing of telephone visits. The challenges ranged from a delay in the development of a computerized telephone clinic grid to inappropriate clinic scheduling.

The first barrier was the lack of a dedicated telephone clinic. The original telephone clinic process had two glaring flaws, one of which was the lack of dedicated clinic time to review patients and conduct the telephone visits. A designated telephone clinic time would prevent other clinic interruptions from preempting the APRN from initiating and completing the telephone visits (Appendix G and H). Telephone appointment scheduling in the literature varied from 20 minute scheduled appointments, (Cox et al., 2008) to four15 minute scheduled telephone appointments per day (Welch et al., 2000), to 60 minutes allotted per week to complete telephone visits (Wasson et al., 1992). Initially, it was not clear how many patients would meet inclusion criteria and, of those, how many would be interested in participating in a telephone clinic. As a starting point, a designated forty-five minute telephone clinic which consisted of three 15 minute telephone visits per day five days per week was implemented. Early morning appointments were chosen based on an informal patient survey which indicated they desired an early morning telephone visit as not to interrupt their daily schedule. The revised clinic schedule was structured so that telephone visit appointment slots could be

added which was required approximately one month into the project due to an increased patient interest in telephone visits. The clinic goal was to increase the amount of daily telephone visit appointments to obtain a ratio of 30% telephone visits to 70% face to face appointments. Once the dedicated telephone clinic time was determined a computer-based scheduling grid needed to be developed in which to schedule patients.

Appointment Scheduling Barriers

Development of a Computer-based Scheduling Grid

The VA utilizes computer-based scheduling grids which must be developed for each specific team clinic. Patients cannot be scheduled into a clinic without the existence of scheduling grids therefore development of a computer-based scheduling grid was necessary in order to initiate the telephone clinic. The scheduling grid needed to be designed for 15 minute appointment slots at the designated telephone clinic times with those appointment slots available each day the provider was in the clinic seeing patients. The PACT teamlet members, not having the computer capability to create the scheduling grid, had to rely on primary care administrative staff for assistance. The primary care administrative staff, located at the main VA hospital, did not have prior experience with development of the computer-based scheduling grid for telephone visits therefore were perplexed on how to proceed. Once it was devised, the responsible staff person did not implement the telephone clinic grid at the requested designated telephone clinic times. This made it impossible for the St. Charles CBOC's clerical staff to schedule patients into the telephone clinic. This caused even more confusion to staff regarding when the

telephone visits were to be conducted and to patients as they did not receive the telephone visit at the time they were instructed it would occur.

The lack of a computerized scheduling grid delayed the start of telephone visits and was addressed by the APRN working individually with the primary care administrative staff person responsible for designing the telephone clinic grid. This took approximately three weeks of multiple phone calls, faxing of clinic schedules and emails by the APRN for the correct clinic grid to be designed and implemented. Once designed, the telephone clinic grid was not implemented and available for scheduling each day the clinic was open. Again, this was resolved by working directly with the primary care administrative staff responsible for development and implementation of computer-based scheduling grids. Once developed, the PACT teamlet discovered other scheduling issues that presented challenges.

Scheduling Guideline Restrictions

Scheduling guideline restrictions presented a major challenge and barrier to implementation of the telephone visit pilot project. One major challenge encountered was a lack of communication among the teamlet staff which was perpetuated by the lack of scheduling access. The LVN, who took on the task of verbally scheduling telephone visits with patients, lacked the capability to access the computer-based schedule to cancel a patient's face to face visit and reschedule the patient into the telephone clinic. The clinic process lacked a method to notify other teamlet members, which included the clerical staff, RN and APRN, of a change in a face to face appointment to a telephone visit. This lead to confusion regarding the number of daily scheduled telephone and face

to face visits. It caused confusion regarding the time and type of visits for individual patients. The clerk or APRN would not have an updated daily schedule of the telephone and face to face visits. A telephone note could not be initiated if the patient's name did not appear on the computerized telephone clinic schedule. This added extra work for the APRN as the telephone visit note could not be typed during the visit and would have to be completed at a different time which did not improve the efficiency of the clinic. It was imperative that a system be developed to notify the clerical staff since they were the only staff in the clinic with scheduling capabilities.

The current scheduling guidelines only allow clerical staff and a limited number of other VA staff scheduling capability in the computer-based scheduling grid. The limited access of the computerized scheduling grids to only the clerks complicated the barrier of staff notification of scheduling changes in face to face appointments. The APRN petitioned, on behalf of the PACT teamlet, for the teamlet to receive a mandatory four hour training course, which once completed, would grant access to the scheduling grids. The PACT teamlet was scheduled for the mandatory training which was then canceled by the Associate Chief of Nursing for Primacy Care. A resubmitted request for the mandatory training is currently under consideration.

With the PACT teamlet denied the mandatory computerized scheduling training, an alternative process of utilizing a LVN-completed supplemental handwritten schedule was developed. Upon the patient's acceptance of a telephone visit, the LVN wrote the patient's name into a telephone appointment slot. The LVN provided the updated handwritten schedule to the clinic clerks, at the close of business each day, who then

updated the computerized scheduling grid to reflect the scheduling change from an in-clinic visit to a telephone visit. The LVN also provided, to the APRN and RN, a copy of the handwritten revised schedule during the teamlet huddle at the start of the clinic day. Although it did not totally solve the lack of scheduling capability access, the process eliminated confusion regarding the day's activities as the clerks were able to place patients in the appropriate scheduling grid prior to appointment start times. Unfortunately, it added a layer to the process that was not necessary had the needed computer scheduling access been granted.

Limiting Clinic Scheduling Access

Another scheduling issue involved the "Central Scheduling" department. The responsibility of this department was to schedule patients desiring primary care appointments for all primary care providers at the St. Louis VA. The Central Scheduling staff were not medically trained therefore did not triage patients for appointment reasons. Patients were scheduled by the "Central Scheduling" Department into face to face appointments without any information as to why an appointment was being sought. This was crucial as often patients do not require a face to face visit and can be managed by an alternate visit type such as a telephone visit. The Central Scheduling employees, also, were not aware of the uniqueness of the St Charles CBOC PACT clinics. The PACT teamlet had several computerized scheduling grids for each specialized clinic. For example, the PACT teamlet had a computer-based-scheduling grid for a Monday extended hour clinic; a computer-based scheduling grid for a Shared Medical Appointment which meets every two weeks and a computer-based scheduling grid for the

daily telephone clinic. Staff scheduling into the PACT teamlet clinics required working knowledge of the multiple clinic grids to schedule appropriately into the PACT teamlet clinic. The lack of this knowledge resulted in inappropriate scheduling by the Central Scheduling staff as evidenced by face to face appointments scheduled during the designated telephone clinic time. The inappropriate scheduling of patients created havoc in the clinic's daily schedule.

These issues were addressed in two ways, first, to further diminish the potential for scheduling errors, the PACT teamlet petitioned administrative staff to limit who could schedule into the teamlet's clinic. The APRN, on behalf of the PACT teamlet, successfully enlisted the support of Primary Care and Health Administration Service managers to implement exclusive scheduling for the clinic. The request that only St. Charles CBOC clerical staff have the ability to schedule patients into the various PACT teamlet clinic computer-based scheduling grids was granted. The second step taken was to close the computer-based scheduling grid for face to face appointments that was available during the telephone clinic to avoid double scheduling of patients. The Teamlet had also petitioned for clinic scheduling privileges to be limited to the PACT APRN, RN and LVN. Although the request was initially denied, it is currently being reviewed. Telephone visits were conducted once the scheduling issues were resolved. The telephone visits conducted by the APRN required documentation of the provided-patient visit.

Development of Computer-Based Telephone Progress Note Template

Telephone visits are a medical encounter and must be documented as such. VA billing guidelines mandated that a clinical care telephone visit for an established patient be documented by the provider in the Computerized Patient Records System (CPRS) and include the appropriate evaluation and management elements (VA, 2009). A computer-based template telephone visit progress note was developed to standardize documentation in accordance with VHA billing guidelines (Appendix H) as one did not exist. Standardization was necessary to ensure capturing all the important information related to medical problems (Al Dawoud et al., 2009). The computer-based telephone note template included the required elements of a chief complaint, history of present illness and a review of systems. The comprehensive note template also documented the current medication regimen and pertinent laboratory results. Car, Freeman, Partridge and Sheikh (2004), believe a thorough patient history can serve as a proxy for a physical examination. Therefore, patients were thoroughly questioned regarding pertinent medical information which, for example, may include but not limited to, body weight trends, home blood pressure readings, and self-monitored blood glucose results. Medical decisions were made and documented from the collected patient data.

Project Benefits

The pilot telephone clinic project has many benefits. For one, it established a foundation for providing patient-centered care by offering alternative visit types to primary care patients. The project, based on the VHA telephone policies and procedures, billing guidelines and the PACT model, could be adapted for use in other VA primary

care clinics. The telephone clinic process flow map, which pictorially depicts the process, could assist in transferring and adapting the process to the specific patient needs of other VA primary clinics. A workable system was developed through on-going process evaluation and revision of the flow map when process flaws were encountered. This project demonstrated the need for a dedicated telephone clinic and outlines a process that successfully accomplished the task.

One of the key project outcomes was the implementation of a process that identified patients appropriate for a telephone visit. The development of patient inclusion criteria were an effective guide to assist teamlet staff in identifying patient appropriateness for telephone visits. A comprehensive review of the literature indicated that medical stability was a key factor for telephone visit inclusion criteria. A large proportion of the APRN's patient population has stable chronic diseases which have been shown to be effectively managed with telephone visits. These inclusion criteria could be used as a guideline for other VA primary care clinics. Anecdotally, no patients required a follow-up in-clinic provider visit after having a telephone visit during the data collection period. This may suggest appropriateness of the patient telephone visit inclusion criteria. Scheduling barriers were overcome which allowed patients to be appropriately scheduled into the dedicated telephone clinic.

A telephone visit computer-based scheduling grid for a designated telephone clinic was developed. The necessary computer-based scheduling grid allows the provider to initiate a clinic note and receive credit for daily patient visits. This piece was needed for an accurate accounting of the provider's daily activities. The computerized-based

scheduling grid and designated telephone clinic can be individualized based on clinic need to schedule those patients who meet inclusion criteria for a telephone visit.

The development of the computer-based telephone visit template was needed to ensure proper documentation that meets VHA billing guidelines for documentation of telephone visits. It included a chief complaint, history of present illness and review of symptoms which are components of evaluation and management telephone documentation guidelines. There are many positive aspects of development and availability of the computer-based telephone visit note template. First, it serves as a venue for provider documentation in which to receive workload credit. Secondly, it provides standardization of the telephone visit note as it can be recreated by other VA providers. Finally, the completed telephone note template is available for review by other health care providers as it becomes a permanent part of patients' medical records in the Computerized Patient Record System (CPRS), which is the VA's sophisticated computerized medical record system. The positives of the APRN-led primary care telephone visit project for the PACT teamlet equaled the patients' positive experiences.

Most importantly, the telephone clinic project provided an alternate visit type and did not negatively affect patient satisfaction. Patients receiving telephone visits were just as satisfied as those patients who were receiving in-clinic provider evaluations. The shorter provider visit duration of telephone visits did not negatively affect patient satisfaction. This could be due to the fact that patients who did not require a physical examination could interact with their provider without the inconvenience of coming to the clinic as

suggested by the current literature. Teamlet staff has benefitted as the result of the telephone clinic.

The initiation of the telephone clinic benefitted all teamlet staff. The benefits to the teamlet were realized with fewer patients being seen in the clinic which freed the teamlet staff to efficiently manage more patients. It allowed for completion of medication refills within 24 hours and to complete and return patient-requested medical forms within 48 hours. More time to manage all of the needs of primary care patients reduced the stress on the teamlet staff. Telephone visit implementation increased availability of face to face appointment slots for scheduling patients with acute medical problems. Telephone visit implementation also allowed the APRN to manage more patients, for example, three patients could be managed in the 45 minute telephone clinic as compared to one patient in a 30 minute face to face appointment slot. Patients accepting telephone visits were satisfied and, there were no noted adverse outcomes.

Project Risks

Potential for negative patient outcomes is a risk of telephone visits. According to McKinstry, Walker, Campbell, Heaney and Wyke (2002), patients participating in telephone visits were more likely to need a face to face appointment within two weeks of the telephone visit ($P = 0.01$). Safety of the telephone visit is also a concern. According to Toon (2009), 80% of diagnoses are made based on the history that the patient provides. Car et al. (2004) voiced concern regarding the lack of training that exists for physicians in safely conducting telephone visits. The authors advocate increased training to substitute for no examination and the need for increased questioning of the patient. APRNs do not

receive formal training in conducting telephone visits but may possess telephone triage skills from their work as registered nurses.

Another potential risk is telephone visits being conducted while the patient is operating any type of moving vehicle or involved in an activity that requires mental attention. To avoid this potential risk, the LVN instructed patients that operation of a motor vehicle would result in termination of the telephone visit. The APRN inquired, at the time of the call, if the patient is operating a motor vehicle.

Patients who received telephone visits were identified to ensure the correct patient had been contacted so as not to breach patient confidentiality (Roberts, 2007). To achieve this, the patient was asked at the start of the telephone visit to state the last four of his/her social security number and date of birth. Telephone visits were conducted by the APRN in an office behind a closed door so that patient privacy was maintained.

Applications for Practice

The PACT teamlet staff currently is utilizing the pilot telephone clinic process as developed and outline in this paper. The literature demonstrated that telephone visits have been successfully implemented in various patient populations. Primary care is an appropriate venue for telephone clinics as an effective way to manage patients with less complex medical problems or with stable chronic diseases. This project could easily be implemented in other VA primary care clinics due to the homogeneousness of the population. Each clinic could fine tune the telephone clinic times which would be based on the uniqueness of that particular clinic. It could be implemented in practice settings outside of the VA utilizing PACT principles.

PACT principles emphasize communication among involved staff members which is crucial prior to setting up a time for the dedicated telephone clinic. PACT principles also call for a patient-centered approach so communication with patients is important in determining how and when to set up the telephone clinic. Health care practices that implement telephone clinics need to assess the availability of their patient population, for example, a pediatric APRN may want to schedule telephone appointments in the evening when parents are available. The time in the clinic day for the telephone clinic should not be the sole decision of the APRN. It should be a collaborative decision of the involved health care team as each team member has knowledge of the daily clinic schedule and clinic flow. Since only the APRN is completing the telephone visits, a time that staff is involved in other activities could be chosen. Staffing may be an issue in establishing a telephone clinic as time away from other duties was required for LVN participation.

Practice settings lacking computerized medical records may determine the project's process too time consuming and cumbersome. They may not want to tie up ancillary staff to perform medical record reviews and make pre-visit patient telephone calls. In order to translate this project to other patient populations a skilled, experienced and knowledgeable nursing and clerical staff is required.

Practice settings working with other patient populations contemplating the initiation of telephone visits would need to assess the characteristics of their patient population. From that data, medical stability could be determined to establish patient inclusion criteria for telephone visits to assist in preventing potential negative outcomes. Training of staff to recognize patients who may not be appropriate is a key component.

The inclusion criteria provided a guide and decreased the number of LVN previsit calls to patients to assess their status to prevent a potential negative patient outcome. Decreasing the workload of staff is a major advantage of telephone visits given the growth of chronic diseases and the shortage of primary care providers. It is an effective method to manage medically stable patients and improves availability of face to face visits for patients that require more intense teamlet interaction. The issue of reimbursement is an aspect that may affect the decision of private practices outside of the VA from implementing telephone visits.

Presently, there is no third party insurance reimbursement for telephone visits. The VA does not bill for telephone visits, but they are counted into the provider's workload credit. With the acceleration of electronic communication, the lack of reimbursement for alternate visit types is a concern. Other practices wanting to implement telephone clinics may not be able to afford to do so. To offset the lost revenue, practices dependent on face to face reimbursement may want to consider shifting chronic care management to other members of the health care team. The PACT teamlet RN has assumed a greater role in chronic disease management freeing the APRN to manage acute and complex patients.

The success of the APRN-led telephone clinic project has led to implementation of a RN-led telephone clinic for chronic disease management. The RN telephone clinic is utilized primarily for diabetes and hypertension management and has been successful in improving control of chronic disease and improving self management skills of the patients.

Implications for Further Research

This pilot project is in a position to generate more outcome research. Outcome research is needed regarding what types of patients utilized the telephone visits. The intent of this project was just to pilot the telephone clinic process therefore no demographic data was collected. Upon completion of data collection it has been anecdotally noted that patients with stable chronic illnesses needing periodic follow-up with the provider have benefitted from telephone visits. Also, those patients who required monitoring of minor medication adjustments after a face to face appointment have benefitted from telephone visits. More research is needed to answer if patients with a particular chronic disease are more appropriate for telephone visits.

Further research is needed to validate the appropriateness of the telephone visit inclusion criteria. Was it a coincidence that there were no negative patient outcomes or were patients selected appropriately based on the criteria? It was not within the scope of this pilot project to evaluate patient outcomes therefore this is an area where considerable research is needed. Also, findings from this project may have been influenced by the use of one APRN provider. Patient satisfaction is a complex phenomenon influenced by a number of factors from patient convenience to provider bedside manner. It is important to replicate this project in different settings with different providers. It is impossible to determine if the APRN's patient approach impacted patient satisfaction in a way that had nothing to do with the visit type. This is a limitation of the project.

DNP Education Influence on Personal APRN Practice

DNP education has taught me to be a change agent. Being assigned to the pilot

PACT teamlet was an excellent opportunity to utilize the DNP education and role. It provided an opportunity to be an innovator and influence practice changes based on scientific, evidence based information. The use of evidenced-based data to implement telephone project led to its success.

DNP education has also taught me to look beyond the limited view of the clinic setting that I work. The implementation of this project taught me to view the whole picture of a situation to determine the various stakeholders who will need to agree to a common ground to implement change. No aspect of this project would have been able to be implemented by the APRN alone. The teamlet was aware, due to PACT mandates, a telephone clinic needed to be developed and implemented. The question was how this was going to occur and who was going to be responsible for its development. Developing the pilot project was based on the input and concerns all of the stakeholders. Patients were instructed regarding evolvement of alternative visit types as PACT implementation moved forward. An informal survey of patients was very early in the PACT pilot process to determine a general consensus of times that would be appropriate for the telephone clinics. Stakeholders were approached with each challenge and barrier encountered during project development and implementation. One key stakeholder that was initially overlooked was the administrative primary care clerk responsible for development of the computer-based scheduling grid. There was no ownership of the telephone visit project at the main office so it took longer to obtain the necessary assistance. This person was instrumental to the success of the project and needed to be considered as a stakeholder much earlier in the process.

This project utilizes DNP education as it assisted in transforming health care to improve the efficiency of health care delivery. The literature demonstrates a trend in the use of telephonic technology in the care of patients but the use is evolving and patient outcomes are still unknown. This project could be a guide to assist other health care providers in developing and implementing telephone clinics. This visit type will require the skills and knowledge of the DNP.

The advanced practice nurse role is important with telephone visit. Patients were not present for a physical examination therefore a skillful patient interview along with symptom review was needed to ascertain the potential presence of an acute medical condition. Skill was also needed in review of patient self-management data, medication regimen review and having the knowledge as to when alternate action was needed.

DNP education has also assisted me in learning how to evaluate organizational systems. During PACT implementation, the teamlet conducted Plan-Do-Study-Act cycles on selected clinic processes. Clinic processes were revised based on the evaluation of PDSA data. The knowledge of basic statistics interpretation learned in DNP education was helpful in the evaluation process and to determine if the desired outcome was being achieved. The outcomes of this pilot project do indicate the need for further research. The gathering of demographic data to see what types of patients selected telephone visits over face to face visits. This project is limited by the use of a small sample and cannot be generalized to other populations. This calls for the PhD prepared nurse and the DNP to work collegially to answer questions which arose from this pilot project. These questions include: could telephone visits be a way to manage

chronic illnesses? What are the negative outcomes of telephone visits? Are the inclusion criteria appropriate?

Leadership was needed, not to dictate the process, but to elicit the input of all those involved in the process then evaluate how to move forward. My ability as a leader was fostered by DNP education. The clinic processes have improved based on the instituted changes. The success has been realized in that primary care management approached the PACT APRN to conduct training on the telephone visit process to other PACT teamlets. This pilot project will serve as a template to provide standardization as other primary care teamlets implement telephone clinics. I credit this project and the DNP education in the successes that have been realized.

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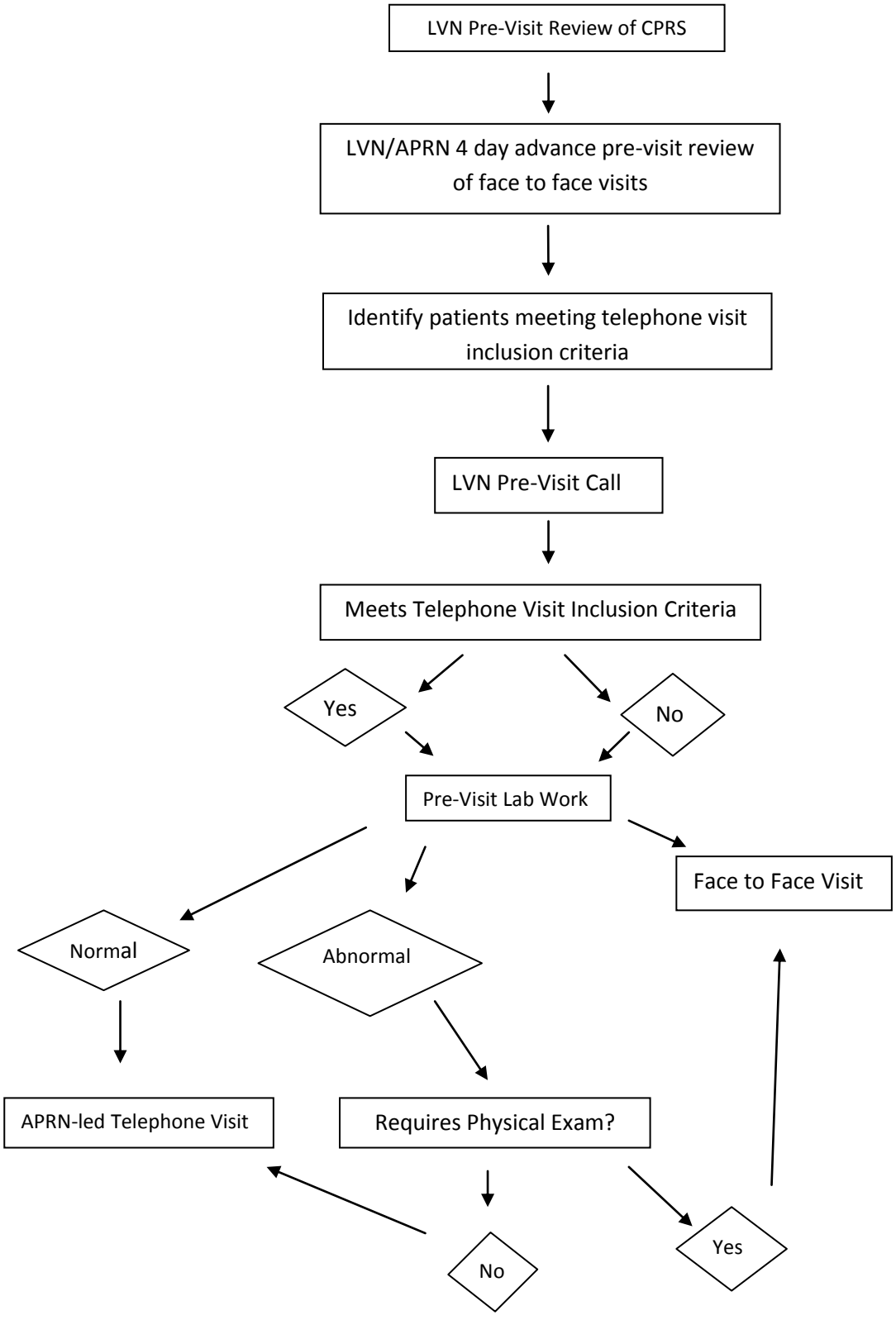
Appendix A: Telephone Clinic Flow Map



Appendix B: Patient Satisfaction Survey

In order for our Primary Care clinic to carry out its mission to provide the best possible care and services It is very important that you complete and return this questionnaire. We value your honest opinion so all information is *strictly confidential*. This questionnaire is being used in a research project at the Saint Charles Community Based Outpatient Clinic. The research project is collecting information regarding patient satisfaction with different types of visits. Thank you for your time.

Please read each question and circle the response that best describes your experience.

1. How long after your ***scheduled appointment time*** did you wait to be seen by your Primary Care provider?
   a. 10 minutes or less
   b. 11-20 minutes
   c. 21-30 minutes
   d. 31-60 minutes
   e. More than 1 hour
   f. Can't remember

2. Did you receive ***enough information*** about your condition and treatment?
   a. Yes, definitely
   b. Yes, somewhat
   c. No

3. Did you receive ***clear information*** about your condition and treatment?
   a. Yes, definitely
   b. Yes, somewhat
   c. No

4. Did the staff ***listen carefully*** to what you had to say?
   a. Yes, definitely
   b. Yes, somewhat
   c. No

5. Did you feel you had ***enough time*** with staff to discuss your care?
   a. Yes, definitely
   b. Yes, somewhat
   c. No

6. Did you feel like you were treated with ***respect and dignity*** during your visit?
   a. Yes, definitely
   b. Yes, somewhat
   c. No

7. Overall, how would you rate the ***quality*** of your visit today?
    a. Excellent
    b. Very Good
    c. Good
    d. Fair
    e. Poor

8. Overall, how ***satisfied*** are you with your health care?
    a. Very satisfied
    b. Somewhat satisfied
    c. Neither satisfied nor dissatisfied
    d. Somewhat dissatisfied
    e. Very dissatisfied

Appendix# C*:* LVN Script

Hello, this is _____, LVN from the VA St. Charles CBOC Clinic

I am calling to find out how you are doing and if you would like have a telephone visit with your provider.

How are you doing?

Have you had any changes to your health since your last visit? (Hospitalizations? New Diagnosis? New Medications? Surgeries?)

Do you have any concerns that you feel the provider needs to see you about?

Would you be interested in a telephone visit?

Out of concerns for your safety and the safety of others, please ensure that you will not be operating a motor vehicle at the time of the telephone visit. The provider will not conduct the visit if you are operating a motor vehicle at that time of the visit and the visit will need to be rescheduled. We appreciate your cooperation.

Would you be willing to fill out a patient satisfaction survey after your telephone visit?

This is part of a research study to evaluate patient satisfaction with telephone visits.

It is confidential and your responses will not be shared with anyone.

It will take approximately ten minutes to complete; a postage paid self addressed envelope will be provided for your convenience in which to return the questionnaire

Completion of the patient satisfaction survey poses no known risks; there will be no compensation for your participation. The benefit of your participation will assist in assessing patient acceptance of varied visit types which will assist in improving access to health care.

Would you be willing to fill out a patient satisfaction survey after your telephone visit?

Appendix # D: Data Collection Tool for Number of Patient Satisfaction Surveys Distributed and Returned

Face to Face Visits

# Patient Satisfaction Surveys Distributed	*# Returned*
43	*36*

Telephone Visits

# Patient Satisfaction Surveys Distributed	*# Returned*
56	*37*

Appendix E: Cycle Time Data Collection Tool for Telephone Visit

Scheduled Time of Telephone Visit	
Time Call Placed to Patient	
Time Call Answered	
Time Call Ended	

Appendix F: *Face to Face Cycle Time Data Collection Tool*

	Time	*Minutes*
Patient Scheduled Appt Time		
Pt Check In Time		
Rooming Time		
End of LPN Check in		
Start of Provider Visit		
End of Provider Visit		
Time of Last Clinical Contact Clerk Checkout		
Totals		

Appendix G: Current Clinic Schedule for Face to Face Visits

8:00 Appointment

8:30 Appointment

0900 Appointment

0930 Appointment

10:00 Appointment

10:30 Appointment

11:00 Appointment

11:30 Appointment

12:00 -1:00 No Appointments

1:00 Appointment

1:30 Appointment

2:00 Appointment

2:30 Appointment

3:00 Appointment

3:30 Appointment

4:00 to 5:30 Administrative Time

Appendix H:

Revised Clinic Schedule for Telephone and Face to Face Visits

0800-8:15 Teamlet Huddle

08:15 -08:30 Telephone Visit

08:30-8:45 Telephone Visit

8:45-09:00 Telephone visit

0900 Appointment

0930 Appointment

10:00 Appointment

10:30 Appointment

11:00 Appointment

11:30 Appointment

12:00 -12:30 No Appointments

12:30 telephone appointment

1:00 Appointment

1:30 Appointment

2:00 Appointment

2:30 Appointment

3:00 Appointment

3:30 Appointment

4:00 to 5:30 Administrative Time (Telephone Appointments if Needed)

Appendix I: Template Progress Note for Computer-Based Documentation of Telephone Visit

This year old patient has a telephone visit today for:

CC:

HPI:

Reviewed labs/diagnostic testing results with pt

Social:
Social Support:
Exercise:
Diet:
Smoking:
ETOH:
Illegal Drugs:

ROS: (**Individualized for Patient)**
General: NO weakness, fever, chills, night sweats, weight change
Skin no rashes, lesions, wounds
Eyes: No vision loss, blurred vision, diplopia
ENT: No hearing loss, tinnitus, nasal congestion, nasal discharge, sore throat, mouth pain, dental problems, snoring, apnea, difficulty swallowing
Resp: No sob, wheezing, DOE, cough
CV: No chest pain, sob, DOE, orthopnia, claudication, murmurs
GI: No n/v/d/c/ abd pain, melena, hemorrhoids, jaundice, indigestion,
GU: No dysuria, frequency, urgency, nocturia incontinence bladder, bowel, hematuria
Endocrine: No polydipsia, polyuria, polyphagia, heat or cold intolerance
MS: No joint pain, swelling, stiffness, muscle wasting, back pain
Neuro: No ha, syncope, seizure, paralysis, dizziness, incoordination, unsteady gait, mental status changes memory stm, ltm
Psych: No depression, anxiety, hallucinations, delusions, suicidal/homicidal ideation

Medications:

Objective:
Pertinent Laboratory Data

Home monitoring
Weight
Blood Pressure
SMBG readings

Assessment/Plan
Time spent with the patient on the telephone:
RTC: Patient will return to clinic in ___ months. The plan of care has been discussed with the patient. The patient voices understanding of the plan of care and is in agreement

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