How Effectively Do Health Care Providers Adhere To Established Clinical Guidelines Concerning Breast and Cervical Screening as Outlined by the American Cancer Society and the American College of Obstetrics and Gynecology?

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Abstract

Purpose: To investigate how effectively health care providers in a rural health clinic setting adhere to established clinical practice guidelines (CPGs) concerning breast and cervical screenings as outlined by the American Cancer Society (ACS) and the American College of Obstetrics and Gynecology (ACOG).

Methodology: A retrospective chart review of 226 randomly selected medical records of females aged 21 years to 69 years of age during the six month period from April 1, 2011 through September 30, 2011 was performed. Charts were reviewed using an investigator developed medical records review tool for date of last preventive screening, currency of screening, a recommendation for screening, and documentation of a reason for the lack of screening. Additionally, clinic providers were administered a questionnaire to examine their attitudes and beliefs concerning CPGs as well as their perceptions regarding barriers to preventive screenings among rural women.

Findings: n = 226. The findings from this retrospective record review reflected that 51.4% of subjects were not current in their mammography screening and 46% were not current in cervical screenings. Fifty-five subjects who were not current in mammography screening had no documentation of a recommendation for screening. Of the 104 subjects who were not current with their Pap testing, only fourteen (6.2%) received a recommendation for screening. A second purpose of this clinical project was to survey health care providers concerning their views regarding CPGs and perceived barriers in breast and cervical screenings. Results from a health provider questionnaire found the provider participants having mixed feelings concerning preventive screening barriers. Providers agreed that time constraints (66.6%) during routine visits was a factor, while 48% agreed that guideline confusion was an issue. All providers were
in agreement that reimbursement was not an influencing factor. Sixty-four percent of providers indicated that patient compliance influenced CPG non-adherence.

**Implications for practice:** Previous research supports that a recommendation from a health care provider is associated with adherence to preventive services for women. Findings from this clinical project indicated that in this particular sample (n = 226), a low percentage of rural women who were not current in their breast (51.4%) and cervical (46%) screenings, had documentation of having received a recommendation by a health care provider for a preventive screening. Findings also pointed out the need for clearer CPGs, clearer protocols for making recommendations, clearer documentation formats in the medical record, surveillance and monitoring of recommendations and preventive screening compliance, and education of providers and clients concerning changing CPGs. Community and state programs targeted to educate rural females concerning preventive services as well as grants/money to provide low cost breast and cervical screenings may help to increase compliance. Additionally, the findings indicate that there is a need for more education for health care providers concerning preventive maintenance services and the need to allocate more time for preventive care visits. Reducing morbidity and mortality related to both cancers improves the quality of life with early detection. Early initiation of treatment leads to a better prognosis.
# Table of Contents

- **Abstract** ........................................... 2
- **Table of Contents** ................................... 4
- **Introduction** ....................................... 6
- **Project Problem** .................................... 12
- **Review of Literature** ................................. 12
- **Project Framework** .................................. 28
- **Project Objectives** .................................. 32
- **Methods and Procedures** .............................. 32
  - **Project Design** .................................... 32
  - **Population and Sampling** ........................... 34
  - **Measurement Methods** .............................. 37
  - **Data Collection Plan** ............................... 39
  - **Data Analysis Plan** ................................. 42
- **Results/Findings** ................................... 43
- **Project Limitations** ................................ 51
- **Discussion** ........................................ 52
- **Conclusions** ....................................... 57
## Table of Contents

Implications .................................................................................................................. 58

  For practice ................................................................................................................. 58

  For policy ..................................................................................................................... 59

Appendices .................................................................................................................... 72

  A. Medical record review instructions and tool ......................................................... 72

  B. Health Care Provider Questionnaire .................................................................... 74

  C. Excerpt of Mosca et al. 2005 questionnaire ......................................................... 75

  D. Letter of Agreement ............................................................................................. 76

  E. IRB approval ......................................................................................................... 77
How Effectively Do Health Care Providers Adhere To Established Clinical Guidelines Concerning Breast and Cervical Screenings as Outlined by the American Cancer Society and the American College of Obstetrics and Gynecology?

Cancer is the second leading cause of death in the United States (U.S.) (American Cancer Society [ACS], 2011; Smith et al., 2012). Breast cancer is the second leading cause of death in women in the U.S. (ACS, 2011; Smith et al., 2012). Breast cancer is the second leading cause of death in Texas women (ACS, 2011; Texas Department of State Health and Human Services [TxDSHS], 2012). In the U.S. approximately 192,000 women are diagnosed annually with breast cancer and 40,170 die from the disease (Gierisch et al., 2010). Death rates in the U.S. from cervical cancer have declined by 70% since the 1970's due to prevention and early detection measures (ACS, 2012; Center for Disease Control and Prevention [CDC], 2012). Once a leading cause of death in U.S. women, cervical cancer rates have been on the decline due to increased Pap testing and the use of the Human Papilloma Virus (HPV) vaccine (ACS, 2012; CDC, 2012). The ACS (2012) estimates 12,710 new cases of cervical cancer annually with a projection of 4,220 deaths in that time period. In developing countries, cervical cancer is the 3rd leading cause of death in women. It is the 10th leading cause of death in developed countries (ACS, 2010). It is the 7th leading diagnosed cancer in women in Texas (TxDSHS, 2012).

Cancer screening and management are objectives of the United States Department of Health and Human Services (USDHHS, 2010) Healthy People 2020 initiative. A goal of Healthy People 2020 for women aged 40 years and older is to reduce breast and cervical cancer deaths by 2 per 100,000 (USDHHS, 2010). The National Cancer Institute (NCI) has established goals for increasing the number of women who get screened for breast and cervical cancer (Gierisch et al., 2010). According to the 2010 census, there are 53.2 million women living in the U.S. between
the ages of 40–74 years of age (Howden & Meyer, 2011). Routine breast screening can reduce breast cancer mortality by 30-50 % (ACS, 2010; Gierisch et al., 2010). According to the Partnership for Prevention (National Commission on Prevention Practices [NCPP], 2007), 3,700 additional lives of women would be saved if breast cancer screenings for women 40 and older could be increased to 90%. Regular cervical screenings have also been associated with the lowering of deaths from cervical cancer (ACS, 2010; Gierisch et al., 2010; Smith et al., 2012). According to Lemieux (2010), in the year 2000, 50% of US women diagnosed with cervical cancer had never undergone cervical screening. Many females were not receiving regular screenings.

Coffield, Maciosek, and McGinnis (2001) researched clinical preventive services in the U.S. and found that many of the recommended screenings/services were underutilized and delivered at low rates. Early detection and prevention are prerequisites in cancer control. Preventive screenings can identify cancer in early stages and improve survival. Healthy behaviors and adherence to a healthy lifestyle are paramount for overall health. Preventive care has become an important aspect of over-all health care. It is well-known that in U.S. there exist barriers to health care. One barrier is a lack of access to health care and preventive services (Coffield et al., 2001).

According to the ACS (2010), minority females have an even lower rate of preventive screening delivery. Health profiles vary among minorities. The disadvantaged are less likely to receive routine care and preventive services (Office of Minority Health [OMH], 2011). According to OMH, contributing factors to poor health outcomes among minorities include a lack of a primary health care provider, language and cultural barriers, lack of access to
preventive care, and lack of health insurance. Part of the problem of accessing preventive care services is impacted by the geographic distribution of services.

In the U.S. 6.2 million people live in rural areas with five million living in a health provider shortage area (Nelson & Gingerich, 2010). Residents of rural areas tend to have less opportunity for employer-sponsored health insurance, limited socioeconomic resources, engage in less preventive medical health services, be elderly, and are of minority status (Nelson, Lushhon, Pomerantz, & Weeks, 2010). Residents of rural communities have a higher incidence of chronic disease (Nelson et al., 2010). Incidence and mortality rates for cervical cancer are high in rural areas (TxDSHS, 2012). Rural Hispanic and Black females have high rates of reproductive cancer than their urban counterparts (TxDSHS, 2012). Urbanicity is associated with availability of a variety of health care providers, services and programs (Nelson & Gingerich, 2010; Nelson et al., 2010; Rayman & Edwards, 2010).

Since the late 1990’s women’s health issues have been the subject of research studies, and the study findings have helped to inform legislators and the general public. Historically, federal and state governments became aware of the special needs of women thanks to the efforts of organizations/agencies as the ACS and the Center for Disease Control and Prevention (CDC). Early programs focused on the reproductive needs of women. The CDC’s breast and cervical cancer national awareness campaign raised the awareness and concern for cancer in women. Early pioneering studies in women’s health care highlighted the need for available, cost effective preventive screenings and have highlighted the disparity that exists in accessing care.

**Background and Significance**

Concepts of primary care, preventive care services, and compliance are presented as a background for understanding the issue of guideline adherence. Quality health care encompasses
two basic elements that include appropriate preventive care and appropriate treatment of disease or illness (Fletcher, 2010). A lack of adherence to preventive screening guidelines by providers and patient compliance ultimately affects rates of cancer screening. The ACS has established guidelines for health screening in women. These guidelines have been in effect for many years, undergoing frequent review and revision. The ACS (2011) guidelines also address cervical cancer screening, colorectal, and endometrial cancer screening for women.

Primary care is a complex arena. Clinic visits range from acute illness presentations to patients with numerous co-morbidities. Delivery of preventive services consumes provider time (Maciosek et al., 2006; Yarnall, Pollack, Ostbye, Krause, & Michener, 2003). In a busy clinical day, providers may forego discussion related to preventive care and counseling. Studies have demonstrated that rates for preventive women’s health remain suboptimal. Studies suggest that the mere existence of clinical practice guidelines (CPGs) does not necessarily equate with changes in provider behavior (Cohen, Littenberg, Wetzel, & Neuhauser, 1982; Kenefick, Lee, & Fleishman, 2008; Timmerman & Mauck, 2005; Yarnall et al., 2003). Of the 2,462 guideline summaries within the National Guideline Clearinghouse, 512 pertain to women’s health. There is an abundance of evidence concerning the benefits of CPGs (NCPP, 2007; USDHHS, 2010). Screening for breast and cervical cancer in women is important because it serves as an essential element in preventive services and primary care. Successful disease prevention and health promotion depend on understanding the guidelines and on dissemination of information regarding preventive screenings to patients.

Cytological screenings were introduced in the 1950s in the form of the Papanicolaou (Pap) test to detect invasive cervical cancer (Smith et al., 2012). According to the United States Preventive Services Task Force (USPSTF), this test has proved to be the most successful cancer
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS

screening program of those available (Smith et al., 2012). Since the advent of cervical screenings, the cervical cancer rate has been reduced by 75%. In the United States (U.S.), the cervical cancer mortality rate fell from the second leading cause of death in the 1950s to thirteenth by 2002 (Smith, 20012).

Most cervical cancers are of squamous cell origin and begin in the retransformation zone as a squamous cell dysplasia. Early identification of the dysplasia through Pap testing would identify changes in an early, treatable stage. The Pap test is an excellent screening tool (Morrison, Moody, & Skelton, 2010). Cervical cancer that progresses beyond this area is said to be invasive, though slow growing. Another variety of cervical cancer is the adenocarcinoma which originates in the mucosal area of the endocervix (Morrison et al., 2010). Cervical cancer screening can prevent most squamous cell forms and some adenocarcinomas (Morrison et al., 2010). Most cervical cancers are preventable and related to infection with a high risk genotype of the human papillomavirus (HPV) for which a vaccine is available (Vanslyke et al., 2008; Wagner, 2009). The association between cervical cancer and a high risk genotype of HPV has been made (ACS, 2010; CDC, 2010). Therefore, another preventive service is the HPV vaccine to prevent HPV related dysplasia-cancer.

The target population for cervical screenings is sexually active women with a cervix. Cervical screening is recommended beginning three years after the first vaginal intercourse and no later than age 21 years (ACS, 2011; American College of Obstetrics and Gynecology [ACOG], 2009; Smith et al., 2012). This age group may then have a regular Pap test annually or every two years if using a liquid-based Pap test (ACS, 2011). After three annual, consecutive, normal Pap smears, women age 30 years and over, who are of average risk, may then be screened every three years using liquid-based tests or conventional Pap test, and have a HPV
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS

testing (ACS, 2011; ACOG, 2009; Smith et al., 2012). Both ACS and ACOG state that women with risk factors may require more frequent screenings. At age 70 years or older women, who have had three consecutive negative or more in the last 10 years may cease testing (ACS, 2011; Smith et al., 2012). The ACOG (2009) limit for discontinuing screening is 65-70 years of age if there have been three or more consecutive, negative cervical screenings in the last 10 years. The USPSTF (2009) identifies 65 years of age as the upper range for cervical screening.

Women who receive breast cancer screening have a reduced risk of cancer, yet only 80% of women aged 50-70 years receive annual breast exams and mammograms (Smith et al., 2012). Various tests are used to identify individuals at risk of developing disease. Diagnostics aim to identify those who may have a disease, but are asymptomatic (Smith et al., 2012). The ACS estimated 57,650 new cases of breast cancer in the year 2011. Approximately 85% of breast cancers are ductal carcinoma in situ (DCIS). In this form of cancer the cells are localized and have not spread to adjacent structures (ACS, 2011). Mammography can detect 80-90% of breast cancers in the early stages with screenings beginning at 40 years of age (ACS, 2011).

Clinical breast exams are recommended by the (ACS (2011) every three years for women of average risk between the ages of 20 – 39 years of age. Clinical breast exams are recommended annually beginning at age 40 years of age (ACS, 2011). ACS continues to recommend annual mammography for women ages 40 years and continuing annually as long as the woman is healthy (ACS, 2011). The USPSTF issued a controversial recommendation for breast screenings in 2009. Currently, the USPSTF recommends biennial screenings for women aged 50-74 years. USPSTF also states that women should discuss the need for biennial screenings before age 50 with their health care provider. This recommendation has been viewed with much controversy. Preventive screenings can identify cancer in early stages and improve survival, yet providers
differ in degrees of adherence to cancer screening guidelines (Fletcher & Fletcher, 2009). It is important to understand how provider non-adherence to CPGs impacts the dimension of breast and cervical screenings and to identify if other factors such as access, availability, and affordability of preventive services contribute to this issue.

**Project Problem**

How effectively do health care providers at a community rural health clinic adhere to established clinical practice guidelines concerning breast and cervical screenings as outlined by the ACS and the ACOG?

**Review of Literature**

The primary focus of this clinical project was to investigate health care provider adherence to established clinical guidelines concerning breast and cervical screening as outlined by the ACS and ACOG.

**Search Strategy**

The literature review was conducted by identifying, isolating, and reading relevant articles and studies. The search included the major databases: the Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, PubMed and Google Scholar. Databases were searched for English-language articles from 2001 through February 2012. Hand searches of cited reference lists of potentially relevant articles were also performed. Comprehensive search of the evidence included using medical subject headings and keywords to identify relevant studies. Key search terms used included “Clinical practice guidelines”, “adherence”, “cervical cancer screening”, “Pap test”, “cervical screenings”, “preventive services”, “provider adherence to CPG”, “mammograms”, “breast cancer screening” and “barriers to women’s preventive cancer screening”.

Studies and integrated literature reviews were included (1) if the sample was related to women’s preventive screenings, (2) if the study related to health care providers’ knowledge and attitude related to preventive clinical practice guidelines, and (3) if the study related to barriers encountered by women seeking health care. Studies were excluded if they (1) were only available as an abstract or an editorial, (2) were older than 10 years, unless they had historical relevance, (3) were non-English articles, and (4) were only related to compliance regarding a specific illness/condition.

**General Concepts of Prevention**

*Primary care* is the main point of contact for most patients. The primary care setting deals with diverse care needs of individuals and families in this country (Fletcher & Fletcher 2009). The aim of *primary prevention* is the avoidance of illness and the early detection of disease. Leading indicators identified for the next 10 years by *Healthy People 2020* includes access to health care (USDHHS, 2010). The focus of *Healthy People 2020* is health promotion and prevention. A basic tenet of care is that health care should be delivered by professionals who are skilled in communication, education, and evaluation of behavior. Providers in primary care have an opportunity to interface with patients and advise those concerning aspects of disease prevention and health promotion. Considerable evidence exists regarding the benefits of preventive health services.

Yarnall et al. (2003) sought to determine the amount of time required by primary care providers to provide recommended preventive services. Yarnall et al. reviewed published and recommended times for services. All services reviewed were recommended by the USPSTF. Yarnall et al. found studies agreed that preventive services are delivered at much lower rates than are recommended. Most commonly cited issues for low rates of service include a lack of time
during an acute care visit, inadequate reimbursement for preventive services, patient refusal of service, and lack of provider counseling technique. The review outlined the standard issues of low delivery of service, barriers to service as presented in the literature. There were no new interventions brought forth from this review. Yarnall et al. did identify a timeframe for a general cancer checkup of 28.7 minutes, excluding Pap smear. Even though this study was evaluating time measurement for preventive service, it highlighted issues of women’s health care delivery. Yarnall et al. also reported that only 77% of women in family practice settings in the state of Michigan had received Pap smears in the past three years and 56% of women aged 50 and older having had a breast exam and mammogram in the preceding one to two years. Several studies of women’s health reached similar conclusions. Preventive health services to women are being delivered at a low rate (Coffield et al., 2001; Maciosck et al., 2006).

Pollack et al. (2008) also studied the issue of time to deliver preventive care service in a primary care setting. The researchers found that preventive care visits took longer than chronic care visits. The study reviewed 2,977 preventive care visits versus 8,513 chronic care visits. Pollack et al. found that more time was spent during preventive counseling concerning prostrate, cholesterol, Pap test, mammography, exercise and blood pressure. Cervical screenings and tobacco cessation visits took the longest time. The researchers also found that the strongest predictor of a female following through with mammography was the recommendation by the provider.

Clinical Practice Guidelines

Clinical practice guidelines have been defined in many ways. There has been an explosion of clinical guidelines. Kenefick et al. (2008) states that guidelines are effective practice strategies that promote quality care and reduce unnecessary health care costs. Clinical
practice guidelines serve to provide direction to health care providers and to outline appropriate treatment methods. Guidelines are designed to improve the quality of care, support decision making, are based on evidence, and provide recommendations upon which to base practice decisions regarding patient care (Cardarelli, 2010; Kenefick et al., 2008; Maciosek et al., 2006; USDHHS, 2010; Yarnall et al., 2003). Early research in the area of compliance with screening guidelines identified practice variation as a barrier (Davis & Taylor-Vaisey, 1997; Giveon & Kahan, 2000; Lurie et al., 1993; May, Kiefe, Funkhouser, & Fouad, 1999; Phillips, Kerlikowske, Baker, Chang & Brown, 1998). Variations take place in clinical practice which pose a problem in health care delivery even though best practice guidelines exist. The reason for poor adherence to CPGs is multifactorial. The problem of provider compliance with guidelines has been studied across various dimensions of chronic disease to include diabetes, congestive heart failure, and asthma (Cardarelli, 2010; Kenefick et al., 2008; Maciosek et al., 2006; Timmerman & Mauck, 2005). Though a variety of reasons are suggested to explain the lack of attention to preventive clinical services, a time factor issue or focus on dealing with the presenting acute care presentation are most common (Maciosek et al., 2006; Yarnell et al., 2003).

Providers have identified the current health system as being acute care driven and focused on productivity (Yarnell et al., 2003). Preventive care and counseling services may not be viewed as productive services, and may not generate the revenue for the time it takes to provide the service (Yarnell et al., 2003). Other barriers have included guideline ambiguity, practice inertia, and patient preference (Davis & Taylor-Vaisey, 1997; Baiardini, Braido, Benini, Compalati, & Canonica, 2009; Benard et al., 2011; DePue et al., 2008; Hermens, Hak, Huoflscher, Braspenning, and Grol., 2001; May et al., 1999; Maciosek et al., 2006; Rayman & Edwards, 2010; Wallace, MacKenzie, & Weeks, 2006; Yarnall et al., 2003).
Evensen, Sanson-Fisher, D’Este, and Fitzgerald (2010) looked at CPGs and evidence-practice gaps. They looked at nine guidelines, two being breast and cervical cancer screenings. Evensen et al. identified a problem in that there is a lack of an effective strategy for implementing guidelines. Providers are expected to incorporate CPGs into their practice and are held accountable (Evensen et al., 2010). Vaughn et al. (2002) state that CPGs focus on changing attitudes and behavior of individual providers but fall short in considering the practice environment. Health systems and organizations influenced provider practice through availability of resources, culture, leadership, and expertise (Kenefick et al., 2008; Vaughn et al., 2002). Vaughn et al. also point out that health systems affect the implementation of CPGs through policies, procedures, rewards, and sanctions. Both Kenefick et al. and Vaughn et al. state that CPGs should inform clinical decision making by helping the provider be aware of information related to what intervention is effective and what is not. Browman (2000) found that CPGs must be seen as “enablers for clinical decisions in the environment” (p. 966). He further stated that “patients as the consumers of health care will determine the place of clinical practice guidelines …” (p. 966).

Issues of clinical guideline fidelity are not limited to the U.S. Hermens et al. (2001) studied general practitioners in the Netherlands in their 2.5 year study. A nation-wide program looked at the preventive services delivered by general practitioners. The Netherlands is known for its extensive use of electronic medical records and most medical practices are encouraged to use them in their practice (Hermens et al., 2001). The first of ten preventive services to be reviewed included cervical screenings. This national prospective cohort study used questionnaires to sample 4,758 general practices. The study included only 988 of the total practices invited to participate. The participating practices all used software that was able to
retrieve date of last screening and had the capability of sending out reminders to the general practitioner, patient data was available to the practitioner (age), and reminders to the patient could be generated. Cervical screenings increased when the practitioner received a reminder that a screening was coming due and was able to determine the age of the patient, and the date of the last screening before the system sent out the patient reminder. Reminders to the patient increased the rate of scheduling of cervical screenings in this study.

Lugtenberg, Zegers-van Schaick, Westert, and Burgers (2009) studied Dutch general practitioners and their adherence to 12 selected guidelines. Lugtenberg et al. found that CPGs were regarded as useful tools to promote quality care, but there factors that hindered use in practice. Women’s preventive health services were not among the selected guidelines. The CPGs did include pediatric asthma, sexually transmitted disease, urinary tract infection, depression, and cardiovascular/cerebrovascular disease, eye inflammation, and thyroid disease. Fifty six practitioners participated. Barriers to the use of CPG included lack of awareness of the CPG, lack of agreement with the CPG, lack of outcome expectancy, practice inertia, guideline ambiguity, patient preference, lack of time/resources, and lack of reimbursement (Lugtenberg et al., 2009).

Carlsen, Glenton, and Pope (2007) performed a meta-synthesis regarding general practitioner attitudes toward implementation of practice guidelines. The meta-synthesis involved 17 studies and research included reports from the United Kingdom, Canada, the United States (US), and the Netherlands. The studies covered various clinical guidelines to include women’s preventive health. Carlsen et al. identified six themes from the meta-synthesis that included (1) questioning of the guidelines, (2) general practitioner expense versus guideline recommendation, (3) preserving the doctor-patient relationship, (4) professional responsibility, (5) practice issues
as in lack of time to read lengthy guidelines, or perform the task, and (6) guideline format. The authors concluded that general practitioners attitudes were similar across the countries and health topics. There was consensus that preventive services demanded time and attention to detail (due dates). These authors suggested that any intervention at maintaining adherence to practice guidelines use diffusion theory to promote compliance.

Farquhar, Kofa, and Slutsky (2002) performed a systematic review of 153 studies concerning clinician attitudes to clinical guidelines. Studies reviewed had at least 100 respondents or greater than a 60 % rate of responses. Seven propositions were evaluated. These included if guidelines (1) are helpful resources, (2) good educational tools, (3) intended to improve quality of care, (4) intended to cut health care costs, (5) will increase litigation or disciplinary action, (6) reduce provider autonomy, and (7) are impractical and too rigid. The seven propositions were said to be common links among the survey studies reviewed. There were 11,611 survey respondents and the authors presented their finding in narrative form. The findings regarding practice guidelines included the following descriptions: (1) CPG are sources of advice (75%), (2) are a good educational tools (71 %), (3) CPG improve quality care (70 %), (4) CPG cut health care costs (51 %), (5) CPG too rigid to follow (30 %), (6) CPG reduced autonomy (34%), and (7) CPG could incur liability or disciplinary action (41 %).

Barriers to the use of CPGs by health providers have included lack of awareness of the CPG, lack of agreement with the CPG, lack of outcome expectancy, guideline variation, practice inertia, guideline ambiguity, patient preference, lack of time/resources, and lack of reimbursement for preventive services (Ayres & Griffin, 2007; Benard et al., 2011; Cardarelli, 2010; Carlsen et al., 2007; Lugtenberg et al., 2009; Maciosek et al., 2006; Mehta, 2004; Yarnall et al., 2003).
General Barriers to Women’s Preventive Care and Intervention

**Provider barriers.** Early field work in general women’s health demonstrated that most women who received a recommendation for preventive screening adhered to it. Historically, women who have had Pap smears and mammograms in the past three years had an association with a health provider recommendation (Giveon & Kahan, 2000; Lurie et al., 1993; May et al., 1999; Phillips et al., 1998; Pollack et al., 2008). More recent studies continue to support that a healthy provider/patient relationship and a recommendation for screening are important intervention (Ackerson & Gretebeck, 2007; Cardarelli, 2010; Costanza et al., 2006; Mack, Pavao, Tabnak, Knutson & Kimerling, 2009; Nuno, Castle, Harris, Estrada & Garcia, 2011; Wallace et al., 2007; Watts et al., 2009). Early studies on general compliance also support the use of a recall system to monitor and advise both the provider and the patient that a preventive clinical screening is due (Shojania et al., 2009; Wright, Poon & Wald, 2008). Additionally, studies on compliance found a lack of attention to preventive clinical services by the health care provider (Ayres & Griffin, 2007; Maciosek et al., 2006; Yarnall et al., 2003). Providers in busy practices lack time to provide preventive care teaching and counseling, resulting in low rates of preventive clinical services (Ayres and Griffin, 2007; Maciosek et al., 2006; Shell & Tudiver, 2004; Yarnall et al., 2003). Providers have identified time constraints when dealing with the presenting acute care presentation or with patients that have numerous co-morbidities. Yarnall et al. (2003) studied the delivery of preventive care services in Michigan and found that only 3% of women aged 50 years and over and 5% of men in same age range were receiving relevant cancer screenings. Pollack et al. (2008) investigated the delivery of primary care services and variations of preventive services among health care providers. The study showed that counseling
for preventive services is lacking. Pollack et al. reported that insufficient time was devoted to
counseling for smoking cessation and women's health.

Baiardini et al. (2009) reviewed factors that related to both provider and patient
difficulties in following guidelines. The review included 76 studies identifying 293 obstacles.
Upon synthesis, Baiardini et al. ascertained that the obstacles fell into three basic categories.
These included (1) knowledge, (2) attitude, and (3) behavior. Regarding knowledge, there could
be a lack of conscious awareness about a practice guideline or a lack of familiarity toward the
guideline. The issue of attitude was more complex and involved agreement with guideline, lack
of auto-effectiveness, lack of success expectation, and lack of motivation. A behavior barrier
included practice inertia, attitude by the organization, lack of resources, and economics.
Baiardini et al. reviewed some preventive care services within the context of the findings,
mentioning that mammograms carry a modest cost factor and the least fully compensated by
insurance. Controversy exists over recommendations for screening intervals. Offices may not
have effective methods of monitoring preventive care needs and services.

DePue et al. (2008) explored cancer prevention in primary care. His team surveyed 3,557
female patients with one of four cancer risks that included smoking, diet, sun exposure, and/or
mammography screening at baseline and at 24 months. The survey by DePue et al. was based on
the 4A's (Ask, Advise, Assist, and Arrange), approach but revised to include a fifth A (Agree).
Subjects were randomly assigned to either an office–based intervention group or a standard care
group. Practices were eligible if at least one physician was enrolled with the collaborating
insurer. There were 361 physicians in 274 practices participating. The study did not report any
nurse practitioner participation. Practices included Family Medicine, Internal Medicine, and
Gynecology. The background of the intervention group was described as practices in which the
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS

staff received training and where suggested scripts were used. The standard office condition served as the control, and the practice only received a copy of *Guide to Clinical Preventive Services* by the USPSTF (2003). Telephone screenings to patients were conducted at baseline and at 12 and 24 months. There was blinding of the participants. In the mammography arm of the study, 7% of women age 50 years and over were off-schedule. Results demonstrated through patient recall that there was more activity for smoking and mammography screening than for diet and sun protection (DePue et al., 2008). The study demonstrated that counseling for mammography screening was evident across the A’s (90% Asked, 86% Advised, 71% Assisted, 41% Arranged with n = 748). The study report did not give a number for the total population of women 50 years and over. Ages were given as ranges with the 50 year olds being grouped in the range of 45–50 years of age. DePue et al. concluded that counseling was a significant predictor. The study also concluded that a method to alert the provider to counsel patients on preventive services of mammograms facilitated discussion.

Patient barriers. A considerable body of research has focused efforts to identify and overcome a general lack of adherence to breast and cervical screening guidelines (Ackerson & Gretebeck, 2007; Ackerson, Pohl, & Low, 2008; Cardarelli, 2010; Costanza et al., 2006; Fox et al., 2009; Livingston, Minushkin, & Cohn, 2008; Lubekin, Santana, Tso, & Jia, 2008; USDHHS, 2010). Previous studies have categorized the barriers faced by females into structural or access factors and cultural barriers (Cardarelli, 2010; Collins, Villagran, & Sparks, 2008; Fernandez & Morales, 2007). Structural/access barriers included issues of finances, lack of insurance, transportation issues, child care issues, missing time at work to have screenings, a language barrier, misinformation, access to a health care facility, and fear of revealing illegal immigrant status poverty (Ackerson et al., 2008; Cardarelli, 2010; Collins et al., 2008; Fernandez
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS

& Morales, 2007; Mack et al., 2009; Nuno et al., 2011; Shell & Tudiver, 2004). The general literature also supported that cultural barriers to preventive screenings included health beliefs and a low acculturation level (Ackerson & Gretebeck, 2007; Cardarelli, 2010; Coe et al., 2007; Coffman, et al., 2007; Collins et al., 2008; Coughlin, Uhler, Hall & Briss, 2004; Deavenport, Modesto, Marshak, & Neish, 2010; Fernandez & Morales, 2007; Guilfoyle et al., 2007; Livingston et al., 2009; Lubetkin et al., 2008; Melville, 2010; Nuno et al., 2011; Shell & Tudiver, 2004; Wagner, 2009; Wallace et al., 2007; Watts et al., 2009). A small body of research found that health care provider ethnicity and gender were also factors (Arredondo, Pollack, Costanzo, McNeil & Myers, 2003; Fletcher & Bryden, 2005; Lurie et al., 1993).

Wallace et al. (2005) carried out a retrospective cohort study examining 472 patient records of women aged 50 – 69 years from the national Ambulatory Care Survey. The records reviewed equated to 16 million preventive visits. In their review, the authors arrived at five factors that influenced compliance. Those factors included race, income-level, smoking history, insurance status, and prevention visit prior to mammogram. Wallace et al. concluded that breast exams during a preventive care visit were a strong predictor of adherence to mammography screening. The provider recommendation during the office visit along with the breast exam was crucial to follow-through and compliance. The group also found that gynecologists fully adhered to practice guidelines for breast exams at specific ages, while family practitioners and internists were less likely to perform a breast exam. An incidental finding by Wallace et al. was that mid-level providers had a 94 % rate of performing breast exams during a preventive care visit with a 68 % rate of compliance with mammography.

System barriers. System barriers included such factors as health insurance, demand for productivity, time/scheduling allotments, use of electronic medical records, system
prompts/reminders, medical home concept, and having a primary provider (Cardarelli, 2010).

Ayres and Griffin (2007) studied barriers and facilitators to CPG implementation among contracted health plan providers in New Jersey. Three geographical regions of New Jersey were included in the sample. Ayres and Griffin found that participants identified barriers to CPG implementation as including cost issues, time factors, CPG inconsistencies, lack of methods to track delivered services and the patient-provider relationship. Facilitating factors included health plan support, patient education materials, provider awareness and sensitivity, as well as services tracking tools.

Shojania et al. (2009) studied the processes and outcomes of on-screen computer reminders delivered to providers at the point of care. Stating that previous reviews received mixed effect, his group set out to perform an intervention review. Shojania et al. reviewed 28 studies that addressed multiple topics. The studies were a mixture of randomized control trials and quasi-randomized trials. The review found small to modest benefits. Reminders to providers improved practices by a modest four %. The review included (1) reminders via computer, (2) reminders accessible from within the routine use of clinical information systems, and (3) reminders targeted the person responsible for the clinical activity (Shojania et al., 2009). Women’s preventive health screening was one of the on-screen advisories. The review did not report out adherence rates relative to the reminders.

Wright et al. (2008) studied provider-centered electronic health records (EMRs) containing a clinical decision support with tethered personal health module (PHR) which would be capable of decision support to both provider and patient. The study was conducted to see if health maintenance reminders to physician coupled with reminders to the patient would augment compliance with guidelines. The authors cited previous studies had demonstrated some modest
improvement in compliance with preventive services through the use of reminders to providers. Eleven primary care practices were randomized to one of two groups. One group was an intervention group that received a health reminder module. Patients in the intervention arm could receive counseling for six conditions including bone density testing, cholesterol testing, diabetes and coronary disease conditions, cholesterol testing for high risk groups, influenza vaccine update, mammography, Pap smear, and pneumococcal vaccination alert. There were 4,534 patients enrolled with 1,469 in the control group and 2,565 in the intervention arm. Average age of subjects was 49.8 years of age. There were 41% male subjects and 59% female subjects. Some participants did not log-in to the Patient Gateway to see the reminders. The analysis was limited to patients who opened the reminders (n = 644). Wright et al. concluded that reminders to patients and physicians for certain conditions were effective. Pap smear screening reached statistical significance.

Mehta (2004) addressed the issue of physician non-adherence to guidelines from the context of diabetes and hypertension (HTN). His review summary of 24 studies identified six areas of concern to practice and three systems issues. The practice issues have been echoed in other studies and include (1) clinical practice inertia, (2) ignorance of the guidelines, (3) time and cost factors, (4) lack of necessary data such as date of last exam, (5) lack of training or skill in quality improvement and (6) disagreement with guidelines. Systems issues included reimbursement, an illness-oriented environment and lack of uniformity in payment policy. Mehta suggest looking at global changes in practice to move from quantity to quality of care. Mehta also provided several short-term solutions to direct practice back toward the preventive side through utilization of EMR to prompt providers and patients when preventive care is due, and to facilitate consolidation of medical records.
Comparison of Adherence to CPG among Nurse Practitioners versus Physicians

Nurse practitioner programs are based on a primary care and preventive services model. Berry (2009) affirms that NPs focus on health maintenance and disease prevention through patient counseling and teaching. Newhouse et al. (2008), in a systematic review, looked at advanced practice nurse registered nurse (APRN) outcomes from 1990-2008. Findings of the review indicate similar or better outcomes associated with care delivered by advanced practice nurses (APRNs). Newhouse et al. (2008) found that APRNs provided safe, effective, quality care among a variety of settings and populations.

Judith Berry (2009) examined the use of clinical preventive services by practicing nurse practitioners (NP). Data sources included 53 transcribed NP-patient encounters and 28 NP surveys. Berry affirms that NPs focused on health maintenance and disease prevention through patient counseling and teaching. Berry collected data via taped encounters and survey responses. Preventive services identified by the study included women’s health care. Berry found that 56.6 percent of NPs (n = 53) discussed one or more recommended clinical preventive services during the clinical encounter. Berry also stated that one would have expected a higher rate on preventive care from NPs. Berry found that NPs thought (perceived) they were doing preventive care. In the survey, NPs reported doing mammogram referrals 87.1 % when the actual number was 22.2 %. The Pap smear rate post survey was 74.1% when in actuality it was a 16.7 % rate. Berry also reported on issues of time constraints, increasing patient complexity, limits NP on scope of practice, patient resistance to preventive services, lack of reimbursement, inadequate training, an illness oriented health system, and issues with specifics of guidelines. Berry found six of eight similarities in the literature between NP adherence to clinical guidelines and those of physicians. The similarities included practice inertia, focus on acute problems, time constraints,
patient resistance, and lack of reimbursement. The NP data did not support the physician issues of confusion over importance of guidelines or not wanting to upset the patient, both of which were cited in physician literature.

Van Leuven and Prion (2007) conducted focused interviews with a small sample of NPs attending a state conference. Participants surveyed were in agreement that health promotion activity was an integral component of NP practice. Obstacles impeding health promotion included time constraints during clinic visits, complexity of patient care, scope of practice and care of patients who were not amenable or appropriate for health promotion. Nurse practitioners described practice settings in which the complexity and numerous patient co-morbidities made it difficult to address preventive care. Adding health promotion activity to a visit would prolong the visit and cause long waiting times for other patients. NPs practiced in systems where they provided urgent or same-day care and were expected to refer the patient back to the primary physician for their preventive maintenance care. NPs described medical record systems that made it difficult to extract data concerning date of last screening visit and immunizations. The researchers identified strategies to overcome the identified obstacles' that included the scheduling of preventive care visits that are separate from the medical visit, developing a list of health promotion topics individualized to the patient’s risks and lifestyle, compiling health promotion literature for use or display, and scheduling group visits to discuss preventive care topics.

Physicians spent less time on preventive care than mid-level providers (Pollack et al., 2008). Wallace et al. (2006) studied guideline adherence among various health care providers and found that nurse practitioners (NPs) and physician assistants are more likely to adhere to CPGs than physicians.
Summary

The general literature regarding adherence to CPGs supports the overabundance of available guidelines among a variety of health care entities. The ACS, ACOG, and USPSTF are three groups who make guidelines available related to breast and cervical cancer screenings. The literature demonstrates that these screenings are delivered at low rates, and those rates vary among subsets of the female population. Cardarelli (2010) suggested that general barriers to cancer screening fell into three categories: (a) patient level, (b) provider level, and (c) system level. Patient level barriers included education, ability to pay, acceptance of screening procedure, trust in the health care provider, transportation, and comfort with gender of the provider. Provider level factors put forth by Cardarelli included gender of provider, awareness of screening guidelines, time constraints, inadequate preventive screening expertise, and inadequate knowledge of how to counsel patients, and distractions by patient co-morbidities. System level factors included health insurance coverage, time constraints placed by the system, and having a medical home and one health care provider.

Routine clinical breast exams and mammography allow for early detection of breast cancer and treatment. Health care providers, using preventive models, have an opportunity to assess and intervene on matters concerning cancer preventive care when interfacing with their female patients. Taking time to assess preventive screening status during an acute care visit could be beneficial. Recommending the HPV vaccine to eligible females may increase the rate of immunization. Assessing the HPV immunization status during acute care visits as well as during health maintenance visits would be helpful. The HPV vaccine has reduced the risk of cervical cancer. Cervical cancer is a preventable disease.
Reasons for a lack of attention to preventive clinical services has been varied, mostly being described as a time factor issue or focus on dealing with the presenting acute care presentation. Information gained from this literature review will help promote a better understanding of the barriers women face in accessing preventive services such as breast and cervical screening. Knowledge of these barriers is essential to the elimination of these obstacles in accessing preventive services among women. The review of the literature has laid a foundation for further study of the issue of provider adherence to established CPG, and has provided an awareness of other barriers to preventive screenings as well as the potential to identify other barriers that may be affect the accessing of preventive health care services.

A system to monitor and ensure the implementation of preventive clinical screening would reduce morbidity and mortality related to breast and cancer and improve the quality of life with early detection – early initiation of treatment leads to a better prognosis. It is imperative that an understanding of the provider barriers that lead to a lack of adherence to CPG be brought forth and identified.

**Project Framework**

Rogers’ Diffusion of Innovations (DOI) was the selected framework for this clinical project. Dearing (2009) describes diffusion as a process of communicating an idea through channels over a period of time. The basis of the theory involves achieving adoption and implementation of an innovation by an individual or group within a timeframe (Rogers, 2003). An innovation can be an idea, behavior, practice, technique or a technology. The innovation need not be a new idea or technology; it only needs to be perceived by the individual or group as being new. Diffusion of Innovations theory explains the process by which an innovation is
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS communicate through social channels leading to its adoption over time (Rogers, 2003). There are 5 stages in Diffusion of Innovations theory.

- Knowledge – exposure to the existence of the innovation,
- Persuasion – form a favorable attitude toward innovation,
- Decision – commitment to the adopting of the innovation,
- Implementation – putting the innovation to use or trial, and
- Confirmation – reinforcement based on positive outcome.

Rogers' Diffusion of Innovations theory has been field tested in a variety of areas to include public health (Rogers, 2003). Dearing (2009) suggests that DOI is part of a field of science which he refers to as dissemination science. He states that the disciples of medicine, nursing, education, and public health have all shown a keen interest in this area since 2005, coinciding with the emergence of evidenced-based practice. Dissemination science is described as the study of the process of how to adopt an evidenced-based practice, program, or policy within in an organization or sector to produce the best results (Dearing, 2009). DOI can move an intervention through to the adoption process. The adoption of an innovation involves a holistic approach. To implement a protocol (innovation) would also include strategies to adopt. The strategies are steps designed to influence or persuade in the adoption process. Those strategies would be incorporated into the DOI. Dearing describes this as the merging of intervention with implementation intervention.

Rogers (2003) also identified 5 categories of adopters. He identified adopters as the: Innovators, Early Adopters, Early Majority, Late Majority, and the Laggards. The Innovators are described as being the fastest group to embrace the innovation and can be viewed as the risk takers. The Early Adopters follow and are characterized as opinion leaders who have strong
social connections within the structure and influence the Early Majority to adopt the innovation. Rogers states that the Early Majority influences the Late Majority. Rogers characterizes the latter group as being conservative, skeptical, and needing proof. The Laggards are the last to adopt. Rogers characterizes this group as those who do not like change, are not risk takers, and prefer the status quo.

Both Rogers (2003) and Dearing (2009) identify similar components to diffusion theory using different terminology. Dearing says the components include the innovation and its attributes. Attributes are described as the cost, complexity, compatibility, observability, and trialability (Dearing, 2009). Stated another way, how will a potential adopter view the cost, how easy is the information to understand, will the innovation fit with the existing methods, will outcomes be evident/visible, and what is the extent of full adoption. Rogers' DOI framework addresses the importance of the characteristics of the innovation/intervention as being a factor in the adoption process. A second component is the adopter and how quickly or readily will the adopter be to accept the innovation. The third component is the social system, its structure, and the pressures to adopt the innovation. Another component is the adoption process which includes “awareness, persuasion, decision, implementation, and continuation” (Dearing, 2009, p.506). The last component is the diffusion system itself and the need to use champions, high status individuals, or paid change agents to interface with others to promote the innovation and change. Dearing reinforces the work of Rogers by stating that for an innovation to be accepted, it is important to communicate why the innovation/intervention works or to clearly outline the benefits of the implementation.

Mester and Meertens (1999) used diffusion theory to promote a pediatric asthma protocol. The researchers identified the variables in Rogers’ theory as including the rate of
diffusion, implementation, and maintenance over time. The researchers described their dissemination process as (a) awareness, (b) adoption, (c) implementation, and (d) continuation. In the first stage, Mester and Meertens made health care providers and personnel aware of the protocol. The second stage involved the commitment by providers and personnel to communicate the asthma protocol to other providers and staff. The third stage involved the dissemination of the protocol to patients and families through workshops and printed material. The last stage involved “to continue to encourage use of the asthma education protocol” (Mester & Meertens, 1999, p. 107).

Gosling, Westbrook, and Spencer (2004) studied nurses’ use of online clinical resources using diffusion theory as their framework. Gosling et al. (2004) were in search of “factors affecting uptake of online evidence” (p.209). The researchers found the compatibility factor to be important. The innovation which in this study was the need for online clinical information had to fit existing practice (Gosling et al., 2004). Davis, Jamison, Brumley and Enguidanos (2006) used Rogers’ DOI to study the barriers and facilitators in implementing an evidenced-based palliative care model. The research of Davis et al. supported the findings of Mester and Meertens (1999) in that certain influencing factors affected the adoption of an evidenced-based intervention. Davis et al. found that adoption of the palliative care model was influenced by such factors as the perception of the intervention (the fit into the existing practice) and the character of the adopters. Additionally, the researchers found that certain contextual factors affected adoption of the model. These factors included communication, leadership, management, and incentives (Davis et al., 2006).
Summary

Diffusion theory served as the framework for this clinical project. Recent changes in clinical practice guidelines for cervical screenings have been issued. As a result, health care providers may not be clear regarding the guideline changes. Baiardini et al. (2009) found that provider barriers to CPG acceptance and implementation fell into three categories that included (1) knowledge, (2) attitude, and (3) behavior. Additionally, the study involved a facility that did not use an electronic medical record system. These factors were potential barriers encountered during the project. Despite this, attributes of an innovation clearly fit the process of adopting a change in clinical practice. Diffusion theory formed the foundation for this project with the innovation being the recent CPG changes.

Project Objectives

The purpose of this clinical project was twofold. The main objective was to investigate health care provider adherence in a rural health clinic setting to established CPGs for cervical and breast screenings in women ages 21-69 years of age based on accepted ACS and ACOG guidelines. Additionally, clinical providers were surveyed concerning their views/attitudes regarding CPGs for women’s health and perceived barriers in obtaining preventive services.

Methods and Procedures

Project Design

The project was designed as a descriptive analysis involving a retrospective medical record review of randomly selected females 21-69 years of age visiting a rural health clinic during the timeframe of April 2011 through September 2011. The medical records for some clinic patients noted breast and cervical screenings dating back to five years (2006-2011). The medical records were reviewed by a staff member trained in the data collection process. The staff
member also successfully completed the National Institute of Health web-based training course “Protecting Human Research Participants.” The medical records were reviewed for evidence of documentation of having had a timely cervical and breast screening, having had a documented recommendation for a preventive cervical and breast screening, and/or reason for both breast and cervical screening being delinquent. Clinical practice guidelines outlined by the ACS and ACOG were used as the basis for the time interval for the preventive screenings. Both of these organizations recommend similar screenings intervals for the targeted age group. The ACS and ACOG recommend that women in the selected study age group, which is 40-69 years of age of average risk, “have a yearly mammogram for as long as a woman is in good health (ACS, 2011, p. 1). A clinical breast exam (CBE) is also recommended yearly for this age range. Cervical screenings for women 21-69 years of age, who have had 3 normal cervical screenings a year apart with no abnormal findings, may then be screened every 2-3 years “with either the conventional or liquid-based pap test, plus the human papilloma virus (HPV) test” (ACS, 2011, p. 2). ACOG additionally recommends that females should have more frequent screenings if they are immunologically compromised, have had exposure to diethylstilbestrol, or have had cervical or an actual history of cervical cancer (ACOG, 2009). This latter recommendation at the Clifton Medical Clinic is left up to provider preference.

A questionnaire was also designed to survey participating providers concerning their perception of barriers to adherence of CPGs. In an effort to avoid any bias, the questionnaire was administered to providers prior to the project being presented to the clinic’s Patient Advisory Committee. The questionnaire attempted to assess the beliefs and attitudes among the providers concerning adherence to breast and cervical preventive screenings. The information obtained
from the retrospective medical records review and the provider survey was useful in understanding provider behavioral performance.

**Population and Sampling**

The clinical project reviewed provider adherence to CPGs as outlined by the ACS and ACOG in a rural health clinic in Central Texas between the timeframe of April 1, 2011 through September 30, 2011.

Provider participants in this project included four family nurse practitioners, three family practice physicians, and one internal medicine physician in a provider-based rural health clinic. All participants provided women’s preventive health services. The Primary Investigator (PI) met with each provider individually, to explain the project and questionnaire. Written consent was obtained and completion of the questionnaire component was voluntary.

**Setting.** The setting for this project was Clifton Medical Clinic in Clifton, Texas which began operation as a provider-based rural health clinic on May 18, 1992. The clinic is under the administrative guidance of Goodall-Witcher Healthcare Foundation (GWHF). The organization continues to demonstrate efficient operations after twenty years in this medically underserved area of north central Texas which is classified as a primary care health care provider shortage area (HPSA).

Goodall-Witcher Healthcare Foundation was organized in July of 1966, as a non-profit corporation for the purpose of owning and operating a non-profit hospital and ancillary facilities. Goodall-Witcher Healthcare Foundation is the umbrella for Goodall-Witcher Hospital, Clifton Medical Clinic, Goodall-Witcher Home Health Agency, and Goodall-Witcher Nursing Facility. According to the Clinic Business Manager, J. Higginbotham (personal communication, September 20, 2011), in fiscal year 2010 – 2011, there were 43,099 clinic visits. There were
approximately 3,500 active clinic charts during that fiscal period. During the review timeframe of April 2011 through September 2011, the clinic lab logged-in 207 non-obstetrical cervical screenings. During the same timeframe there approximately 2,903 clinic visits by non-obstetrical females aged 21 to 69 years.

Bosque County is one of 254 counties in Texas, and one of 133 (52%) rural counties in the state (Table 1). According to the United States Census Bureau (US Census Bureau [USCB]), the 2010 census demonstrated a population of 17,631 residents (Table 1). The state population numbers over 25.6 million citizens of which 3 million live in rural areas (USCB, 2010). In 2010 the estimated population of Bosque Country was 17,631 (Table 1). Twenty-two percent of Bosque County residents were under the age of 18 years. Nineteen percent were 65 years of age or older. The 2010 census found 50.3 % of the population of the county was female mirroring the state female population of 50.4% (USCB, 2010). The ethnic breakdown of the county included 1.9 % Black, 12.2 % Hispanic/Latino, and 84.3 % white (Table 1). The state demographics demonstrate 37.6% Hispanics and 11.8% Black in the general population. The median age was 41.7 years. The median household income was $45,841. Residents with incomes below the poverty level were estimated at 12.7 %. Approximately 36% of county households had incomes of less than $14,999. Unemployment was 8.4 % for county residents. The county had strong agricultural ties with 24 % of residents being employed in some aspect of that area. Estimates from 2008 showed 33 % denoted self-employment. The county was and continues to be designated as a medically under-served area. During the study timeframe, there were three family practice physicians, one internal medicine physician, and one surgeon practicing full-time in the Bosque County.
**Table 1**

*Bosque County Data 2011*

<table>
<thead>
<tr>
<th>Demographics/County Facts</th>
<th>Bosque County</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, 2010 census</td>
<td>17,631</td>
<td>25,674,681</td>
</tr>
<tr>
<td>Persons under 18 years of age</td>
<td>22.0%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Persons 65 years of age or older</td>
<td>19%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Female population</td>
<td>50.3%</td>
<td>50.4%</td>
</tr>
<tr>
<td>White persons, percent</td>
<td>84.3%</td>
<td>70.4%</td>
</tr>
<tr>
<td>Hispanic/Latino persons, percent</td>
<td>12.2%</td>
<td>37.6%</td>
</tr>
<tr>
<td>Black persons, percent</td>
<td>1.9%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Median age</td>
<td>41.7 years</td>
<td>36.9 years</td>
</tr>
<tr>
<td>Median household income</td>
<td>$42,841</td>
<td>$49,646</td>
</tr>
<tr>
<td>Residents with income below poverty level</td>
<td>12.7%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Household incomes less than $14,999</td>
<td>36%</td>
<td>-</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>8.4%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Employed in agriculture</td>
<td>24%</td>
<td>14%</td>
</tr>
<tr>
<td>Self-employment, 2008</td>
<td>33%</td>
<td>-</td>
</tr>
</tbody>
</table>

*(USCB, 2010)*

Goodall-Witcher Healthcare Foundation and its affiliates are the only providers of health care for the Bosque County area. The mission statement and philosophy of the organization is “To provide access to and delivery of quality healthcare services through efficient, comprehensive, and friendly care” (GWHF brochure, 2010, p.2). The vision statement of the organization is “To be the premiere rural health care delivery system in the north central Texas area” (GWHF...
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS

brochure, 2010, p. 2). Delivering care based on current CPGs and adapting clinical practice to changing guidelines are two factors in the promotion of comprehensive care which is a component of the facility’s mission statement. Monthly medical staff meetings and quarterly patient care committee meetings are two avenues by which the facility promotes and encourages comprehensive, quality services. The current women’s health guidelines were discussed at a previous medical staff meeting to update all providers. The organization has the expectation that health providers deliver the appropriate standard of care to include breast and cervical screening which directly relates to the project framework.

**Measurement Methods**

**Record review tool.** An investigator-developed medical record review tool (RRT) was created to examine records for the retrospective review (Appendix A). The tool was developed to collect data regarding the four variables under investigation for each preventive screening. For each type of screening: (1) the record was reviewed for date of last screening, (2) currency of screening, (3) if not current was a recommendation documented or (4) was there documentation of a reason for the lack of screening. The four variables would collectively provide a picture of adherence to the CPGs related to the preventive screenings under review. The tool was reviewed for face validity by Dr. Reni Courtney PhD, who was an APRN and a certified FNP. Dr. Courtney served as the project advisor during proposal development and served as an expert in advanced practice nursing and women’s health. Her knowledge of clinical research, advanced practice, and her clinical expertise provided useful information and direction that guided tool development.

**Questionnaire.** Dr. Courtney suggested the use of a questionnaire using a Likert scale for responses. The questionnaire was designed to simply acquire the expert opinions of a small
HOW EFFECTIVELY DO HEALTH CARE PROVIDERS group of providers in a rural health clinic setting in order to add a qualitative dimension to the clinical project. The investigator modified an existing questionnaire for the project to examine providers' attitudes and beliefs concerning CPGs (Appendix B). The questionnaire format was modified from a tool used by Mosca et al. (2005) in a national survey of 500 physicians to evaluate adherence to cardiovascular disease CPGs. The standardized questionnaire used by Mosca et al. was designed to "assess awareness of, adoption of, and barriers to national cardiovascular disease prevention guidelines" (p. 499). Examples of statements used in the survey appear in Appendix C. Validity or reliability for the investigator-developed questionnaire was not established beyond face validity.

The questionnaire for this project was developed to gain insight into provider attitudes and beliefs regarding CPGs under investigation using DOI as the framework. CPGs regarding breast and cervical screenings have undergone changes over time. The CPG is the innovation. Initially, a small number within a group implements the innovation (early adopters) followed by an increasing number. A small percentage adopts the innovation much later (late adopters).

Eight questions comprised the questionnaire (Appendix B). Two items of the four-item questionnaire used by Mosca et al. were adapted to elicit provider information regarding their opinions regarding the use of CPGs. Mosca et al. used a questionnaire with a 10-point Likert scale. Dr. Courtney suggested the addition of the four open-ended questions in the survey designed to solicit the providers' opinions concerning barriers and facilitators to preventive cervical and breast screenings. In the DOI process, barriers can be encountered at any stage. The first four questions required responses based on a 4-point Likert scale ranging from "strongly agree" to "strongly disagree". The remaining four questions were open-ended, and required a response.
The questions included were:

- I agree that preventive counseling should be done with patients, but the time constraints of a routine visit do not allow it.
- Several health organizations have established clinical practice guidelines, each with a slightly different recommendation, making it difficult to determine which one to follow.
- If reimbursement for preventive screenings were better, I would spend more time doing them.
- The greatest barrier to preventive screenings is the patient herself.
- What do you see as barriers to preventive breast screenings in your practice?
- What do you see as barriers to preventive cervical screenings in your practice?
- What resources would facilitate incorporation of breast screenings in your practice?
- What resources would facilitate incorporation of cervical screenings in your practice?

**Data Collection Plan**

Approval for this descriptive study was obtained from the University of Texas at Arlington Institutional Review Board (IRB) (Appendix E). No research was conducted prior to IRB approval. Approval to conduct this investigation was also obtained from the host institution, the Clifton Medical Clinic in Clifton, Texas (Appendix D). Participation in answering the questionnaire signified consent from the individual participants.

After receiving approval from the IRB and approval of the clinical site, a retrospective medical record review was performed. The review was performed manually as the clinic does not have an electronic medical record system. This project also involved administration of a questionnaire to Clifton Medical Clinic health care providers.
The project was presented to the clinic’s Patient Advisory Committee which meets quarterly and as needed. Under the federally established guidelines for creation and maintenance of a rural health clinic, an advisory committee must be in place to review quality assurance and operational standards of the clinic. This committee consists of all five physicians, the four Family Nurse Practitioners, both the clinic and hospital administrator, and clinic department managers. The project was discussed, the ACS and ACOG preventive cervical and breast screening guidelines were reviewed, and appropriate resources were allocated which included a staff member to assist in the record review, and identifying the logistics to gather the needed medical records. There were no capital expenditures involved. A clinic licensed vocational nurse (LVN) was assigned to the investigator to assist in this project. Clinic filing clerks assisted in gathering the needed records. The investigator met with the clinic office manager to review the elements of the project. The manager then met with the staff member(s) assisting with the implementation. The investigator also met individually with staff members who were involved in the project to review the mechanics of the project to assure that all staff members were aware of the initiative, the benefits related to patient care that would be a driving force of the initiative, and the important role that the staff has in the success of the project.

All clinic patients had signed releases in place, obtained at the time of service, allowing chart data to be evaluated for quality assurance indicators. The clinic insurance/billing administrator generated a print out of female patients meeting the inclusion criteria per participating provider. Inclusion criteria for the project were (1) females within the age ranges of 21-69 years of age and (2) were seen in the clinic between April 1, 2011 – September 30, 2011. Exclusion criteria include females (1) who had a hysterectomy, (2) who had a bilateral mastectomy, and (3) who were pregnant.
As previously stated, a clinic staff member, an LVN, who successfully completed the web-based training course, “Protecting Human Research Participants”, reviewed the randomly selected medical records using a data collection tool. The goal was to review 25 records per provider. The medical records were randomly selected for audit. The clinic’s insurance department manager generated a listing of female, non-obstetrical patients within the given age range and timeframe parameters with every tenth record being selected for review. An over sampling method was used with 35 records per provider being randomly selected. Codes for providers and a system to cross reference charts were implemented to avoid any identification of specific provider or patient record. The records were reviewed from the selected timeframe of the past year for date of last preventive breast and cervical screening, currency status based on ACS or ACOG guidelines, or recommendation to have a preventive screening or documentation of a reason for the delinquent screening. A medical records review tool (RRT) was developed by the investigator for data gathering (Appendix A). Records that did not reflect currency of screening were reviewed for evidence of a recommendation having been made and documented by the health provider. To establish inter-rater reliability, the investigator and the LVN coded the same charts until an inter-rater reliability of 90% was established.

The host facility did not have an electronic medical record system in place for the clinic. The clinic’s medical records were designed to contain a flow sheet on the inside cover which had an area to document the date of the last preventive screening. The record also contained the screening reports if the screening took place in-house. Some patients had preventive service providers outside of the facility. Documentation of that screening date was expected to have been reflected in the flow sheet. A copy of the preventive screening report should have resided in
the record. The project involved a summary of findings from a questionnaire that was voluntarily completed by participating providers (Appendix B).

**Data Analysis Plan**

**Record review.** Data was analyzed by the investigator. There were 280 medical records randomly selected for review. Of those records, 226 met the criteria for inclusion in the review. The health care provider participants were described as either being a nurse practitioner or a physician. The preventive screening recommendations established by the ACS or ACOG were used to measure provider adherence to the guidelines. Each provider was assigned a code number. Descriptive statistics were used to organize and summarize data from the findings of the medical record review. Initially the investigator anticipated calculating a compliance score for each provider. The score per provider would reflect a percentage of patients meeting guidelines. An overall clinic score was also anticipated. Reviewing records for a multiple provider rural clinic practice became challenging in light of a number of unexpected factors. In the six month review period, it was found that a patient may have been seen by multiple providers in that time period and may not have seen their regular health care provider. Another scenario was that of the regular male provider having referred the patient to a female provider for a preventive screening. In another instance a health care provider saw the patient for an acute illness, made the recommendation for preventive screening, and the screening was performed by the patient’s primary provider; or the patient made her own appointment with a provider that was not her primary care provider. This project will only report a general adherence score/percentage to the established guidelines for breast and cervical screenings.

Data was collected and analyzed using International Business Machines (IBM) Statistical Package for Social Sciences (SPSS) statistics 19, a statistical analysis and data
management software system. Screening guideline adherence for mammograms and Pap test were examined for each record using four variables: date of screening, currency of screening, recommendation for screening, and reason for lack of screening. The findings were reported using basic descriptive statistics. There were no comparison groups used; therefore, no statistical significance test was generated as this was a descriptive analysis without groups for comparison or contrast and no competing treatments or intervention were used.

**Results and Findings**

**Sample characteristics.** The age range of subjects in the medical record review (Table 2) was 21 years of age to 69 years (n=226). The mean age of the subjects was 52.6 years of age, with a standard deviation of 7.7 years (Table 2). Eighty participants were under the age of 40 years (Table 2). Of the subjects, 146 were over the age of 40 years.

<table>
<thead>
<tr>
<th>Age Range of Subjects</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-29</td>
<td>35</td>
<td>15.5</td>
</tr>
<tr>
<td>30-39</td>
<td>45</td>
<td>19.9</td>
</tr>
<tr>
<td>40-49</td>
<td>54</td>
<td>23.9</td>
</tr>
<tr>
<td>50-59</td>
<td>59</td>
<td>26.1</td>
</tr>
<tr>
<td>60-69</td>
<td>33</td>
<td>14.6</td>
</tr>
<tr>
<td>Total</td>
<td>226</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean age = 52.66
Std/ Deviation = 7.669

**Mammography findings.** One hundred and forty-six subjects were aged 40 years and over and therefore were eligible for mammography screening (Table 3). Ninety-five of the records demonstrated that a mammogram was received at some point in the last five years.
However, of the subjects eligible for a mammogram, only seventy-one (49%) records reflected currency (Table 3). Seventy-five (51.4%) subjects had records reflecting a lack of current mammogram status, and only twenty (13.7%) records reflected a recommendation having been made for screening (Table 4). Fifty-five subjects (37.7%) were delinquent on mammography screening and did not evidence documentation of a recommendation (Table 4).

Table 3

**Records Demonstrating Current Mammogram Screenings**

<table>
<thead>
<tr>
<th>Current Screening</th>
<th>Documented Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=146</td>
<td></td>
</tr>
<tr>
<td>71 (48.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4

**Records Demonstrating Delinquent Mammogram Screening**

<table>
<thead>
<tr>
<th>Screening Not Current</th>
<th>Documented Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=146</td>
<td></td>
</tr>
<tr>
<td>75 (51.4%)</td>
<td></td>
</tr>
<tr>
<td>20 (13.7%)</td>
<td>55 (37.7%)</td>
</tr>
</tbody>
</table>

Table 5 demonstrates a cross tabulation of subjects’ age ranges, mammogram currency and documentation of recommendation. Regardless of the age breakdown of the groups, there was a lack of documentation of a recommendation for preventive screening. There were fifty-four subjects in the 40-49 year age range. Only twenty-four subjects had a current mammogram, while thirty subjects did not. Of the thirty subjects who were not current, only seven had documentation of a recommendation for screening and twenty-three did not. In age range 50-59 years of age, there were fifty-nine subjects. Thirty-three subjects evidenced a current mammogram status while twenty-six did not. Of those twenty-six subjects, nineteen did not
have documentation of a recommendation for screening. In age range 60 years and over, there were thirty-three subjects. Fourteen were current and nineteen were not current with mammogram screening. Of those lacking a current screening thirteen had no documentation of a recommendation.

Of the subjects who did not have current mammograms, fourteen records evidenced documentation of a reason for the lack of screening. Subjects identified issues of transportation, work schedule, clinic schedule, mammography associated pain, no family history of cancer, and cost/lack of insurance as factors.

Table 5

*Mammogram Currency and Documented Recommendation by Age Range*

<table>
<thead>
<tr>
<th>Age Range</th>
<th>n=146</th>
<th>Current</th>
<th>Not Current</th>
<th>Documented Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-49</td>
<td>54</td>
<td>24</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>50-59</td>
<td>59</td>
<td>33</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>60 or &gt;</td>
<td>33</td>
<td>14</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>71</td>
<td>75</td>
<td>20</td>
</tr>
</tbody>
</table>

*Cervical screening findings.* Of the 226 records reviewed, 153 patient records had documented Pap test dates which indicated that 153 subjects had received a Pap test at some point in the last five years. However, only 122 (54%) patient records demonstrated a current Pap test, while 104 (46%) lacked evidence of a current Pap test (see Table 5 and 6). See Table 5
for Pap screening currency by age range. The age groups were fairly evenly distributed in terms of percentage of currency of screening.

Table 6

<table>
<thead>
<tr>
<th>Age Range</th>
<th>n=226</th>
<th>Pap current</th>
<th>Not current</th>
<th>Documented Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>21-29 yrs</td>
<td>35</td>
<td>19</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>30-39 yrs</td>
<td>45</td>
<td>24</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>40-49 yrs</td>
<td>54</td>
<td>29</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>50-59 yrs</td>
<td>59</td>
<td>34</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>60 yrs or &gt;</td>
<td>33</td>
<td>16</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Totals</td>
<td>226</td>
<td>122</td>
<td>104</td>
<td>14</td>
</tr>
</tbody>
</table>

Seventy-three records (32%) showed no evidence of any Pap test on record. Of the one hundred and four records which were lacking current Pap testing, ninety (39.8%) records had no evidence of a recommendation by the provider (see Table 6 and 7). Fourteen records (6.2%) lacking current Pap testing had documentation of a recommendation having been made by the provider. One hundred and twenty-two records demonstrated a current Pap test. Four records, though current by date, were close to being due a screening. In three of those records a recommendation for screening was documented by the provider and one record lacked a recommendation, though an opportunity (a clinic visit) had taken place.

Of the 104 subjects who lacked current Pap testing, only nine records had a documented reason given by the subject for lack of screening. Reasons for lack of compliance with screening
included no family history of cervical cancer, cost/lack of insurance, clinic scheduling, transportation, child care issues, discomfort, and work schedule.

Table 7

Pap Screening and Recommendation/Documentation n=226

<table>
<thead>
<tr>
<th>Pap test</th>
<th>Documented Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>Not Current</td>
<td>104 (46%)</td>
</tr>
<tr>
<td>Current</td>
<td>122 (54%)</td>
</tr>
<tr>
<td>Total</td>
<td>226 (100%)</td>
</tr>
</tbody>
</table>

Health provider sample characteristics. Based on data received from administration, the clinical experience of the nurse practitioners ranged from one year to eighteen years of practice. Physician experience ranged from four to fifteen years of practice. Four providers were female with one provider being the internal medicine physician and the remaining were NPs. There were four male providers of whom one was a NP.

Questionnaire findings. Seven of the eight providers completed questionnaires. The questionnaire was designed to simply examine the clinic providers’ attitudes and beliefs concerning CPGs. The investigator, who was one of the four nurse practitioners in the host clinic, did not participate in the survey to avoid bias. One other provider did not respond to the Likert-style questions, but did respond to the open-ended questions. Concerning the Likert-style
questions, responses varied (Table 8). Question #1 pertaining to time constraints during a routine visit revealed that five of the six participants agreed that this was a factor. Providers (71.4%) either “agreed or “strongly agreed” that time constraints affected preventive screenings. Question #2 pertaining to guideline confusion demonstrated that providers (50%) were evenly divided in the degree of agreement with guideline confusion being a factor affecting preventive screenings (Table 8). Question #3 pertaining to issues of adequate reimbursement for preventive screenings. Providers had varying degrees of “disagreement” with the statement concerning reimbursement of preventive services (Table 8). Question #4 pertained to the patient acting as a barrier in preventive care. The providers “agreed” (50.0%) and “strongly agreed” (16.7%) that the patient played a role in being a barrier (66.7% cumulative total), while two providers (33.4%) disagreed (Table 8). Table 8 demonstrates the breakdown of the provider responses to the Likert-style questions. Table 9 demonstrates the descriptive statistics for questions one through four of the questionnaire.

Table 8

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time constraints</td>
<td>2 (33.3%)</td>
<td>2 (33.3%)</td>
<td>2 (33.3%)</td>
<td>0</td>
</tr>
<tr>
<td>Guideline confusion</td>
<td>2 (33.3%)</td>
<td>1 (16.7%)</td>
<td>3 (50.0%)</td>
<td>0</td>
</tr>
<tr>
<td>Reimbursement</td>
<td>0</td>
<td>0</td>
<td>4 (66.7%)</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>Patient as barrier</td>
<td>1 (16.7%)</td>
<td>3 (50.0%)</td>
<td>1 (16.7%)</td>
<td>1 (16.7%)</td>
</tr>
</tbody>
</table>
Table 9

*Descriptive Statistics for Likert-Style Questions*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N=6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.0</td>
<td>2.83</td>
<td>1.67</td>
</tr>
<tr>
<td>Median</td>
<td>3.0</td>
<td>2.50</td>
<td>2.00</td>
</tr>
<tr>
<td>Mode</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.894</td>
<td>0.983</td>
<td>0.516</td>
</tr>
<tr>
<td>Range</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Regarding the open-ended questions, responses from the participants were varied (Table 10). One provider responded to the perceived barriers for breast and cervical screening as being patient compliance, lack of insurance, and lack of support. Another provider only listed the patient as a barrier to both screenings. Another respondent cited cost as a factor and additionally cited pain, embarrassment and scheduling as barriers. One provider cited clinic time constraints as the issue as well as patient reluctance to have the screenings. Responses concerning barriers for both cervical and breast screenings were very similar with six responses relating to patient compliance of breast screenings, while four listed compliance issues with cervical screenings. Several respondents listed cost, lack of insurance or being underinsured as barriers. There were six responses relating to time and scheduling of cervical screenings. Three respondents listed pain and or embarrassment regarding the screenings as barriers.
Table 10

*Frequency Table of Provider Responses Regarding Preventive Screening Barriers n=7*

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Breast Screening</th>
<th>Cervical Screenings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Number of providers responding to the listed barrier)</td>
<td></td>
</tr>
<tr>
<td>Uninsured/underinsured/cost</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Provider time available</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Scheduling/patient work scheduling</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Patient compliance with recommendation</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Associated pain/discomfort</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Patient embarrassment/reluctance</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lack of support</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Concerning resources to promote and facilitate both cervical and breast screenings, three respondents listed the need for clearer CPGs (Table 11). Four respondents listed cost factors and two suggested patient assistance programs as a resource. Two respondents cited the need for educational materials, while two other respondents suggested community education. The remaining responses from single respondents included more time for breast and cervical screenings. Only one provider listed guideline confusion as a barrier and echoed the issue of patient compliance. Several providers listed a need for patient educational materials in the
How effectively do health care providers appropriate language, community-wide educational programs, patient assistance programs, and more flexible scheduling of procedures/preventive care visits.

Table 11

*Frequency Table of Provider Responses Regarding Resources for Facilitating Preventive Screenings n=7*

<table>
<thead>
<tr>
<th>Resources</th>
<th>Breast Screening</th>
<th>Cervical Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearer CPG</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Patient assistance/lower cost screenings</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Affordable insurance</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Scheduling/patient work schedule</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>More provider time for counseling</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Reducing screening discomfort</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Community awareness programs/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>patient education material</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Patient reminders</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

**Project Limitations**

Several factors may influence the results of this clinical project. The project used a convenience sample that was rural-based. Ethnic demographics were not included in the collection of data. No data was collected regarding the educational level of the clients along with any indication of their understanding of the recommendations related to health promotion or family histories/past medical histories influencing decisions related to screening and planning.
The limitations of this project included the accuracy of the chart data relative to timely documentation of patient information by providers or their staff. Mammograms or Pap tests may have been performed, but the report may not have been in the patient’s chart. A provider may have made a recommendation for a screening, but did not document the recommendation. The facility did not use an electronic medical record, thus the possibility of hindering the capture of all medical information. Interpretation of handwriting was also a factor in this project. Handwritten statements on some of reviewed records were illegible. A recommendation could have been made, but the handwriting hindered the reading of the statement. The health care provider sample was comprised of rural Family Medicine physicians, one Internal Medicine physician, and family nurse practitioners, therefore the data collected may only be generalized to similar small practices in other geographical areas. Data did not include what type of provider made the initially recommendation for screening nor who actually performed the screening. The data collection tool and questionnaire were developed for this rural-based clinical project. Face validity of the tools used was established, and reliability had not been established. The clinical project did not involve any comparison or contrast of groups and no competing treatments or interventions were involved; therefore, the findings were not statistically significant.

Discussion

The retrospective review included 226 randomly selected records. The documentation within the medical records contained medical information dating back at least five years. Age demographics demonstrated that 146 subjects were 40 years of age and over. These subjects were eligible for mammography screening (see Table 3, Table 4, and Table 5). Of the 146 records, 52 records lacked substantial documentation of the provider either checking current mammogram status, providing a recommendation for screening, or recording a reason given by
patient for being delinquent. Similar findings were recorded for Pap screening where all 226 subjects were eligible for the screening (Table 6). Seventy-three records had no evidence of any Pap test date in the documentation (Table 6 Table 7). Of the 146 (46%) records lacking evidence of current screening and 90 (39.8%) had no documentation of a screening recommendation.

Mammogram and Pap test screenings were being delivered at low rates.

Reasons for a lack of preventive screening were recorded in 23 of the medical records. Documented reasons given by the patient for a lack of preventive screening included:

- Work schedule,
- Gender of provider,
- Child care provisions,
- Perception of being low risk for either breast or cervical cancer,
- Transportation issues of no car, no gas money, cannot drive self,
- Availability of preventive care appointment slots,
- Lack of available late evening or weekend appointment slots,
- Pain associated with procedure, particularly the mammogram,
- Desire to have provider who spoke Spanish, and
- Lack of insurance and cost of self-pay screenings.

A questionnaire was included to gain insight into provider attitudes and beliefs concerning CPGs (Table 8, Table 9, and Table 11). At least half of the participants agreed that time constraints during routine visits, and patient compliance influenced CPG adherence (Table 8 and Table 9). Open-ended questions related to perceived barriers to adherence of guidelines were also included in the questionnaire (Table 10). Providers identified the following barriers:
• Cost,
• Transportation,
• Patient compliance,
• Work schedule,
• Clinic scheduling,
• Time constraints of a clinic visit,
• Lack of insurance or being underinsured, and
• Pain and embarrassment associated with screenings.

Patient and provider responses have related themes which include transportation, scheduling, discomfort, and cost. Similar barriers were identified in previous research in this area. This project would have benefitted from knowledge of additional patient demographics as ethnic background, educational level, patient understanding health promotion recommendations, and any relevant family/medical cancer histories.

Residents of rural areas face challenges in health care access and delivery that their urban counterparts may not face (Nelson & Gingerich, 2010; Nelson et al., 2010). The patient responses for reasons for lack of screening, coupled with the provider responses, may help explain the findings. Issues of transportation exist for rural residents. At the farthest point of the county, a patient may have a travel distance of over 25 miles in one direction to gain access to clinic services. Ziller and Lenardson (2009) state that rural residents have reported long travel distances averaging 60 miles to access care. There are patients who have no reliable transportation and must rely on family or friends to transport them to the clinic. The cost of gasoline is also an issue (Ziller & Lenardson, 2009). According to J. Rinewalt, GWHF Social
Worker (personal communication, April 12, 2012), a Bosque county rural transit van is available, but there are restrictions and limitations of those services.

A preventive care visit requires an appointment. According to J. Higginbotham, Clinic Business Manager (personal communication, April 9, 2012), most providers limit the number of preventive care appointment slots. It is possible to schedule the preventive care visit that includes the Pap test on the same day that the mammogram is scheduled, but the timing of each screening may not fit the patient’s schedule. The patient’s work schedule and provisions for child care are also factors (Nelson et al., 2010). Patients do not wish to miss any time off work. There are limited appointment slots for late afternoon preventive screening visits. Saturday clinic time is reserved for acute presentations only. The clinic does not offer child care services for those who bring children to adult preventive care visits.

The CMC had three Family Practice physicians and one Internal Medicine physician, plus four Family Nurse Practitioners. As recently as three years ago, the CMC had five Family Practice physicians and two Internal Medicine doctors. Physicians retired or moved away, leaving the clinic with a shortage of providers. The shortage of providers strains the clinic schedule.

An incidental finding in the record review was the number of patients who saw numerous providers during the review timeframe. A patient had a primary provider, but saw other clinic providers for acute presentations. Another finding of the review was the number of patients who had their provider retire or leave, who had not established with another provider for the monitoring of their care.

According to R. Spayberry, insurance and Medicaid coordinator at GWHF (personal communication, April 16, 2012), a woman’s preventive screening (Pap test) is $158.57. A
mammogram costs $357, plus an additional radiology fee of $50 for the reading of the mammogram. If the patient does not have a benefit such as Medicaid, Medicare, or private insurance, there is limited patient assistance for preventive screenings. The state contract for women's health screenings was awarded to Planned Parenthood of Central Texas (PP) which is located in Waco, Texas. The stigma of PP is a problem source for some patients. A one-way trip to PP is approximately 45 miles. There are lengthy scheduling waits at PP due to recent political issues and staffing problems. PP provides eligible clients a voucher for mammography at a local health care facility. The appointment for a mammogram requires a separate trip for the PP client. There are patients who have no insurance, do not qualify for PP preventive services, and cannot afford screening.

Morbidity and mortality from both of these cancers can be reduced through timely screening and intervention. Despite this, the record review revealed low rates of screening for both cancers. Previous research supports that providers are distracted by patient co-morbidities and that issues of time constraints loom in primary care (Carlsen et al., 2007; Yarnall et al., 2003). The review of the literature supported that the existence of CPGs does not necessarily equate with changes in provider behavior or practice. According to Vaughn et al. (2002), a healthcare system affects implementation of guidelines through such avenues as policies, procedures, rewards, and sanctions. Healthcare providers are also influenced to use practice guidelines through awareness of CPGs, agreement with the guideline, time/resources, and reimbursement (Ayres & Griffin, 2007; Benard et al., 2011; Cardarelli, 2010; Carlsen et al., 2007; Lugtenberg et al., 2009; Maciosek et al., 2006; Mehta, 2004; Yarnall et al., 2003).

Rogers' DOI was the selected framework for this review. Previous research into DOI in the health care setting illustrated that awareness and fit into the existing practice were two
essentials (Gosling et al., 2004; Mester & Meertens, 1999). The findings from this project mirrored those from previous research studies. Barriers affect the DOI process. Knowledge of those barriers along with the overcoming of said barriers facilitates the adoption of an innovation. Lack of a provider recommendation for a preventive screening is a barrier that can exist in the diffusion process (Rutten, Nelson, & Meissner, 2004).

Conclusions

The purpose of this clinical project was twofold. The main objective was to investigate health care provider adherence in a rural health clinic setting to established CPGs for cervical and breast screenings in women ages 21-69 years of age based on accepted ACS and ACOG guidelines. The second purpose of this clinical project was to survey clinic providers concerning their views regarding CPGs for women’s health and perceived barriers. Diffusion theory served as the framework for this clinical project. Recent changes in clinical practice guidelines for cervical screenings have been issued. As a result, health care providers may not be clear regarding the guideline changes. Attributes of an innovation clearly fit the process of adopting a change in clinical practice. Diffusion theory formed the foundation for this project with the innovation being the recent CPG changes.

The findings from this clinical project supported that a high percentage of female subjects in this retrospective record review were not current in their breast and cervical screenings, and the medical record did not evidence a recommendation by the health care provider for the preventive screening. The Clifton Medical clinic was delivering breast and cervical screening services at a low rate during the review timeframe.

Review of the literature of both historic and current studies supports that women who have had breast and cervical screening within the past three years had had an association with a
health provider recommendation (Giveon & Kahan, 2000; Lurie et al., 1993; May et al., 1999; Phillips et al., 1998; Pollack et al., 2008). In the review of the literature, Vaughn et al. (2002) stated that CPGs focused on changing provider attitudes and behavior, but failed to consider the practice environment. Previous studies attempted to look at and categorize types of barriers.

Three types of barriers emerged from the literature which included patient barriers, provider barriers and system barriers (Cardarelli, 2010; Collins et al., 2008; Fernandez & Morales, 2007; Mack et al., 2009; Nuno et al., 2011; Shell & Tudiver, 2004). A questionnaire sought to elicit responses from the health care provider regarding attitudes and beliefs concerning CPGs and their perception of barriers to women’s preventive screenings.

Time constraints when dealing with the presenting acute care presentation or with patients that have numerous co-morbidities were identified as barriers. Pollack et al. (2008) found that more time was spent in preventive counseling for certain screenings which included breast and cervical screening. Questionnaire responses from CMC providers regarding barriers in CPG adherence mirrored findings from other adherence studies.

**Implications**

It is known that timely breast and cervical screenings save lives. Adherence issues impact women’s preventive health. The collection and analysis of the data from this descriptive retrospective chart review revealed that the sampling of rural women were not all current in preventive breast and cervical screenings and record lack documentation of a provider recommendation. Participating providers revealed their perception of barriers to promotion and compliance with women’s preventive care. The themes and threads that emerged from the analysis included:
For patients:

1. Patient education materials and on-going community education on the importance of preventive screenings.
2. Local patient assistance programs for those who do not meet criteria for state/federal programs.
3. Providing a card at the time of the preventive care visit documenting the date of the current screening and dates for future screening.

For provider practice:

1. Local educational programs concerning CPGs, and the changing women’s health preventive screening guidelines.
2. Improvement of chart documentation of preventive screenings.

For clinic policy:

1. Clearer documentation formats in the medical record.
2. Clearer data collection and monitoring of recommendations and compliance of preventive screenings.
3. Education of providers concerning changing clinical practice guidelines.
4. Local programs to defray cost of preventive screenings.
5. Development of clinic protocols directed at women’s health.
6. Appropriate time allotments for preventive screenings.
7. Availability of female providers and/or technicians to perform women’s preventive screenings.
8. Review of current scheduling practices/offers for women’s health appointments.
For county policy:

1. Address scheduling needs of clients needing out-of-county transportation for health-related appointments.

For state/government policy:

1. The need for clearer CPGs.

2. Review of current financial resources/programs to defray the cost of preventive screenings.

Advanced practice nursing uses a wellness and health maintenance model for clinical practice. Advanced Practice Registered nurses (ARPNs) and Doctors of Nursing Practice (DNP) provide health care to people of various ages and ethnic backgrounds. The APN/DNP is in a unique position to translate research and provide evidenced based care to female clients. It is incumbent upon the ARPN or DNP to educate clients and staff concerning wellness measures as well as to be involved in community education of these services. It is important to make recommendations to clients and encouraging clients to participate in preventive care screenings. Assisting in grant procurement for clinical facilities to offset the cost of offering discounted or free women’s preventive screenings is another avenue for participation of the APN/DNP.

Dissemination of findings from this clinical project is also important to heightening the awareness of this women’s health CPG issue. The information from this clinical project may be useful for small clinics both in state and out-of-state who have similar patient/provider profiles or similar variables. The project findings were communicated to the participants, the host facility, and to the University of Texas at Arlington College of Nursing project advisor. Potential other avenues of dissemination include podium/poster presentations at conferences and publication.
Studies have demonstrated that most women who have received a recommendation for preventive screenings adhere to it. Primary care is a complex environment and preventive services consume time. Health promotion requires an understanding of CPG and the dissemination of information regarding preventive screenings to patients. The findings of this retrospective review and provider questionnaire were similar to those found by studies reported in the review of the literature. Information from this project will add to the knowledge base concerning guideline adherence in women's health preventive care activities, and will hopefully contribute to future research regarding this important issue. Reducing morbidity and mortality related to both cancers improves the quality of life with early detection – early initiation of treatment leads to a better prognosis.
References


doi:10.1080/07399330701562956


HOW EFFECTIVELY DO HEALTH CARE PROVIDERS


Appendix A

Instructions

Medical Record Review Tool

Purpose

The purpose of the medical record review tool (RRT) is to facilitate the collection of data regarding health care provider adherence to established recommendations for women’s breast and cervical cancer screenings. The chart review will be performed by an employee of the Clifton Medical Clinic where the project will be implemented. The employee will receive training in the use of the tool.

Procedure

1. The billing office will prepare a listing females aged 21 -69 years of age seen at CMC per participating provider for the past 6 months.

2. The reviewer will be instructed on a method to randomly select charts per participating provider for the review period. The reviewer will use an agreed upon system to randomly select charts meeting the criteria such as every 3rd chart on the list. Charts excluded from review are patients with mastectomies, hysterectomies, or obstetrical care patients.

3. Health care providers will not be identified by name but by number such as NP1, NP2, or NP3. Similarly, participating physicians will be identified as P1, P2, or P3. The reviewer assigned to the chart audit will associate a number and a name to each participating nurse practitioner and physician for reference purposes.

The reviewer will prepare a roster of medical records reviewed with cross-referenced coding to avoid duplication of data collection and to assure patient confidentiality.

4. A RRT will be completed for each randomly selected chart between planned project dates from September 2011 and going back for a six month period.

5. The chart will be reviewed for date of last Pap smear and date of last mammogram and those dates, if found, will be documented on the tool.

If no dates are found, the reviewer will evaluate the documentation for the past year for evidence that a recommendation was made or for documentation that currency of Pap smear and mammogram was assessed.

Clinical guidelines from the ACS/ACOG will be used as the index.

Breast screening: For women aged 40 and over, an annual mammogram is recommended.

Cervical screening: For women of average risk, who are 21 – 69 years of age:

(a) age 21-29 years of age, liquid based Pap test every two years or annually using conventional Pap test,
(b) ages 30 years and over, after having three consecutive negative Pap smears (one year apart), those women of average risk, may be screened every 3 years. Annual screening continues to be recommended for women at risk (have a history of cervical cancer or a history of a precancerous lesion).

6. When completed, provide RRT to the investigator for review and data analysis.
# Review of Clinical Practice Guideline Adherence

For Women’s Breast and Cervical Preventive Screenings

Medical Record Review Tool

<table>
<thead>
<tr>
<th>NP#</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Physician #</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>Medical Record Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Visit</td>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Breast Screening** For women aged 40 and over, an annual mammogram is recommended

1. **Date of the most recent mammogram:** Date: Not found
2. **Was a mammogram current?** Yes No
   - If not current, then #3
3. **Was a mammogram recommended?** Yes No
4. **Is a reason for lack of a screening documented?**

**Cervical Screening**

(a) age 21-29 years of age, liquid based Pap test every two years or annually using conventional Pap test,
(b) ages 30 years and over, after having three consecutive negative Pap smears (one year apart), those women of average risk, may be screened every 3 years. Annual screening continues to be recommended for women at risk (have a history of cervical cancer or a history of a precancerous lesion).

1. **Date of most recent Pap smear** Date: Not found
2. **Is Pap smear current?** Yes No
   - If not current, then #3
3. **Was a Pap smear recommended?** Yes No
4. **Is a reason for lack of a screening documented?** Yes No
Appendix B

Health Care Provider Questionnaire

Health Provider Agreement with Statements about Women’s Preventive Health Screening and Guidelines

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I agree that preventive counseling should be done with patients, but the time constraints of a routine visit do not allow it.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Several health organization have established clinical practice guidelines, each with a slightly different recommendation, making it difficult to determine which one to follow.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. If reimbursement for preventive screenings were better, I would spend more time doing them.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. The greatest barrier to preventive screenings is the patient herself.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

What do you see as barriers to preventive breast screenings in your practice?

What do you see as barriers to preventive cervical screenings in your practice?

What resources would facilitate incorporation of breast screenings in your practice?

What resources would facilitate incorporation of cervical screenings in your practice?

(Adapted from “Physician’s Agreement with Statements about CVD Prevention and Guidelines” in Circulation 2005, 111:499-510)
Appendix C

Physician’s Agreement with Statements about CVD Prevention and Guidelines

Although I agree in principle that more primary prevention should be done with patients, the time constraints of a “typical” patient visit simply don’t allow it.

If insurance companies provided better coverage for lifestyle interventions (such as weight loss and smoking cessation), I would spend more time doing it.

The greatest barrier to prevention of heart disease is the patient him/herself.

I am more likely to adopt into my practice treatment guidelines that are published by professionals within my specialty.

The existence of multiple treatment guidelines, each with somewhat different recommendations, makes it difficult to determine which is the best to use with my patients.

More women than men die each year of CVD.

I am willing to seek additional training that will allow me to better engage in preventive health treatments for CVD in women.

By and large, the results of clinical research to determine optimal risk-reducing interventions in men generalize to women.

(Mosca et al., 2005, p.506)
July 18, 2011

RE: Letter of support for the clinical project of
Mary Werlinger – DNP student

To Whom It May Concern:

Mary Werlinger, DNP student from the University of Texas, College of Nursing, has contacted me and expressed an interest in conducting her DNP clinical project in this facility. Ms. Werlinger has reviewed the mechanics of her project with me. She is familiar with the staff and the operations of the Clifton Medical Clinic as well as being familiar with our facility’s mission and vision. This facility would be pleased to support Ms. Werlinger in this endeavor.

Please feel free to contact me if you have any questions.

Sincerely,

Clarence Fields, Jr., FACHE
President/CEO
Appendix E

Protocol Title:

How Effectively Do Health Care Providers Adhere to Established Clinical Guidelines Concerning Breast and Cervical Screenings as Outlined by the American Cancer Society and the American College of Obstetrics and Gynecology?

RE:

Exempt Approval Letter

IRB No.:

2011-0752a

December 12, 2011

Mary Werlinger
Dr. Jacqueline Michael
College of Nursing
Box 19407

The UT Arlington Institutional Review Board (UTA IRB) Chair (or designee) has reviewed the above-referenced study and found that it qualified as exempt from coverage under the federal guidelines for the protection of human subjects as referenced at Title 45 Part 46.101(b)(2)(4)(5). You are therefore authorized to begin the research as of October 27, 2011.

Please be advised that as the principal investigator, you are required to report local adverse (unanticipated) events to this office within 24 hours. In addition, pursuant to Title 45 CFR 46.103(b)(4)(iii), investigators are required to, “promptly report to the IRB any proposed changes in the research activity, and to ensure that such changes in approved research, during the period for which IRB approval has already been given, are not initiated without IRB review and approval except when necessary to eliminate apparent immediate hazards to the subject.”
All investigators and key personnel identified in the protocol must have documented Human Subject Protection (HSP) Training or CITI Training on file with this office. The UT Arlington Office of Research Administration Regulatory Services appreciates your continuing commitment to the protection of human research subjects. Should you have questions or require further assistance, please contact Robin Dickey at robind@uta.edu or you may contact the Office of Regulatory Services at 817-272-3723.

Sincerely,

Patricia G. Turpin, PhD, RN, NEA-BC
Clinical Associate Professor
UT Arlington IRB Chair