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Learning Style Needs and Effectiveness of Adult Health Literacy Education

Leah A. Grebner
Walden University

Walden University

College of Health Sciences

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Leah Grebner

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Dr. Amany Refaat, University Reviewer, Health Services Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2014

Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Low health literacy impacts an individual's ability to comprehend communication from healthcare providers, reduces access to healthcare, and contributes to increased mortality. The purpose of this study was to evaluate the impact of learning style on adult health literacy education. The health belief model, protection motivation theory, the transtheoretical model, and social cognitive theory were used to analyze the data in this study, and to further develop effective health literacy education. The research questions addressed the effectiveness of educational intervention adjusted to their appropriate learning style in comparison to a standardized health literacy intervention and potential difference, according to type of learning style, in the amount of changed performance between pretest and posttest. A sample of 80 adults in an urban community was recruited through organizations serving low-income individuals. The participants were assessed for baseline health literacy level, followed by identification of learning style, educational intervention, and posttest assessment, which led to determination by *t* test that changes between pretest and posttest scores were statistically significant between the control group and the study groups. This finding suggests that health education should be delivered to patients according to individual learning style in order for patients to comprehend and retain information provided. Social change implications include healthcare professionals appropriately addressing health literacy so that patients may participate more actively in their personal healthcare decisions to improve healthcare quality outcomes, decrease long-term costs of delivering healthcare services, and improve the general health of the community.

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ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

Dedication

As I present this dissertation, I feel that it is important to recognize the importance of those in my life, who have provided influence and inspiration for me during my pursuit of a doctoral degree, and dedicate my work to them. My children have hopefully not only witnessed the amount of time and energy invested into pursuit of higher education, but also have hopefully gained recognition of the importance of their own education as they grow. My husband has been one of my greatest supporters over the past eight years while I have been working toward a doctoral degree. He has not only shared the joy of success at the end of each quarter during the coursework, but he has also been there to provide hugs and a shoulder to cry on during the struggles experienced during the dissertation process.

During the writing of this dissertation, I was involved in caring for, and eventually saying "goodbye" to my grandmother in February 2012. She suffered from Alzheimer's disease, and while she didn't always recognize me or comprehend her surroundings toward the end, I continued to share with her about the work I was doing. In addition, during the final weeks of preparation to defend this dissertation, I also lost my father. Grandma and dad won't be here physically to see me finish my PhD, but I know that they both will be very proud of me from their eternal home.

Finally, I dedicate this work to those working in health information management, who recognize the importance of the subject matter, and also to my students, who are future health information management professionals. I pray that my work will be useful

and meaningful to healthcare professionals and healthcare consumers seeking ways to improve health literacy.

Acknowledgements

I would like to take a moment to extend a sincere thank you to all who have helped make this degree possible for me. This is certainly not something I could have accomplished on my own. Thank you so much to my husband and children, who have been incredibly patient and supportive through this process. My employer, Midstate College, provided both financial and moral support through my educational journey.

Thank you to Thembi Conner-Garcia, MD, MPH, Julie Wolter, and David R. Kaufman, Ph.D. for their assistance in providing peer review for the tools developed for the delivery of this study. Thank you to Phil Newton, Connie Voss, and Catherine Agallo for facilitating my data collection processes through the South Side Mission and Common Place. Thank you to Elsa Vasquez for translating necessary documents into Spanish. Finally, a big thank you to all who were willing to participate in the study.

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Chapter 1: Introduction to the Study

Introduction

Low health literacy is a widespread problem that has social and economic consequences related to healthcare. An individual's level of literaty impacts his or her ability to comprehend communication from healthcare providers, reduces access to healthcare, and contributes to increased mortality. Health literacy is not just being able to read or comprehend medical information, but it is also the ability to react appropriately to prescribed instructions for accessing healthcare services as directed by healthcare providers (Bryan, 2008). The Institute of Medicine has reported that there are approximately 90 million adults in the United States, who experience difficulty understanding and reacting to medical information (Schwartzbert, Cowett, VanGeest, & Wolf, 2007). The purpose of this study was to determine whether participants who received an educational intervention, adjusted to their appropriate learning style, performed differently on pretest and posttest than the comparison group of participants who received a standardized health literacy intervention.

In this chapter, I will briefly outline the impact of low health literacy in the context of healthcare outcomes, quality of healthcare services, and financial implications. Consumer participation in healthcare decisions and healthcare provider involvement will also be explored as they pertain to social change associated with increasing health literacy levels in healthcare consumers.

I begin this chapter with a presentation of background information and some of the specifics of the problem that will be addressed in the proposed study. Research

questions will be examined, the purpose will be explained, terms will be defined, and the significance of the study in terms of social change will be identified. I will also provide a synopsis of the comprehensive literature review from Chapter 2. Likewise, in Chapter 3, I will expand details of the scope of the study.

Background

Low health literacy is a multifaceted issue that not only impacts personal healthcare management, but also has financial implications. Baker, Wolf, Feinglass, & Thompson, (2008) determined that marginal and inadequate levels of health literacy had a correlation with higher potential to contribute to death during a period of follow-up from medical care. Low levels of health literacy are associated with an approximately doubled mortality rate in comparison to individuals having satisfactory health literacy (Sudore, et al., 2006). Low levels of health literacy have also been associated with greater stress levels for individuals with chronic medical conditions, poor health status, difficulties with access to healthcare services, and decreased psychosocial status (Sudore et al., 2006).

A significant element of effectively addressing the situation is healthcare providers becoming competent in the assessment of patient health literacy needs, followed by personalizing educational intervention means for meeting unique needs of each healthcare consumer (Bryan, 2008). Appropriately addressing health literacy does not only provide potential for improving outcomes of healthcare, but also to decrease long-term healthcare delivery costs by improving the overall health status of the target population (Downey & Zun, 2008). By increasing the awareness of health literacy

obstacles to the patient, it will assist the communication process and increase access to healthcare information for patients (Shipman, Kurtz-Rossi, & Funk, 2009).

Problem Statement

For this study, my area of inquiry was the incorporation of learning style into the development of health literacy educational interventions in an effort to impact the effectiveness of the interventions. A 1999 study by the American Medical Association identified a need for additional research in the areas of screening for health literacy, improvement of communication with patients having lower levels of health literacy, financial and outcome-based aspects of low health literacy levels, and impact of low health literacy on health (McCray, 2005). The Institute of Medicine (IOM) has performed additional research on the topic and made recommendations for promotion of health literacy in society (McCray, 2005). Additionally, the IOM suggested that it is necessary to match health literacy educational information to the background and needs of individuals (McCray, 2005). Williams et al. (1995) performed a study that indicated 42% of patients were not able to convey understanding of medication instructions, instructing that a medication should be taken on an empty stomach; 26% of the patients were not able to understand information about appointments; and 60% of patients were not able to comprehend forms for consent to medical treatment. Patients with decreased levels of literacy seldom ask questions regarding materials presented to them fearing embarrassment.

While health literacy is widespread in the United States, it is also present in Peoria, Illinois, especially with those living in low-income areas of the community (P.

Burnette, personal communication, April 9, 2010). Results of the 2009 County Health Rankings program in the state of Illinois placed Peoria County as first in the state for clinical care, in terms of quality and accessibility of care; however from 101 counties, ranked 86th in health behaviors, 71st in health outcomes, and 69th in socioeconomic factors (County Health Rankings, 2010).

The Peoria City/County Health Department used the Action through Planning and Partnerships (MAPP) model for the 2011-2016 strategic planning cycle (Peoria County Health Planning Committee, 2011). Health and behavioral health education/awareness was one of the 12 health and social problems selected as part of the plan (Peoria County Health Planning Committee, 2011). The plan cited a need to provide health literacy and other health information to those in areas deemed difficult to reach (Peoria County Health Planning Committee, 2011).

The goal of this study was to determine whether study participants who reccieved an educational intervention adjusted to their appropriate learning style performed differently on pretest and posttests than the comparison group of participants receiving a standardized health literacy intervention. I also examined and whether there was a difference, according to type of learning style, in the amount of changed performance between pretest and posttest for different learning styles.

Research Questions and Hypotheses

There were two research questions that I evaluated in this study. I based these questions on my review of literature. The questions were as follows:

Research Question 1: Will participants who receivie an educational intervention adjusted to their appropriate learning style perform differently on pretest and posttest than the comparison group of participants who receive a standardized health literacy intervention?

In this research, I evaluated the outcomes of health literacy educational interventions that have been determined to be most appropriate based on learning style in order to establish whether the difference in change between pretest and posttest was significantly different than outcomes for a control group. The details of the design of the study will be presented in Chapter 3.

Research Question 2: Will there be a difference, according to type of learning style, in the amount of changed performance between pretest and posttest for participants with different learning styles?

I compared the outcomes of health literacy educational interventions that have been determined to be most appropriate based on learning style in order to establish if the difference in change between pretest and posttest is significantly different according to learning style. The details of the design of the study will be presented in Chapter 3.

The independent variable for this study was the educational intervention, and the dependent variables were the outcomes observed following the intervention.The dependent variables were specifically defined as outcomes for a study group as a whole, outcomes for each learning style group, and outcomes for the control group. Hypothesis statements for the associated research questions are presented in Table 1.

Table 1

Research Questions and Hypotheses

Research questions	Null and alternative hypotheses
1. Will participants receiving educational intervention adjusted to appropriate learning style perform differently on pretest and posttest than the comparison group of participants receiving a standardized health literacy intervention?	Null Hypothesis ($H_0$1) = Participants receiving an educational intervention that is adjusted to appropriate learning style will perform differently on posttest than the comparison group of participants, who will receive a standardized health literacy educational intervention Alternate Hypothesis ($H_1$1) = Participants who receive educational intervention that is not adjusted to appropriate learning style will not perform differently on posttest than the comparison group of participants, who will receive a standardized health literacy educational intervention
2. Will there be a difference, according to type of learning style, in theamount of changed performance between pretest and posttest for different learning styles?	Null Hypothesis ($H_0$2) = There will be a statistically significant difference in change in performance between pretest and posttest according to learning style for participants receiving an educational intervention that is adjusted to appropriate learning style. Alternate Hypothesis ($H_1$2) = There will not be a statistically significant difference in change in performance between pretest and posttest according to learning style for participants receiving an educational intervention that is adjusted to appropriate learning style.

Purpose

The purpose of this study was to test a model of determining readiness for health literacy learning. I accomplished this by means of identifying learning style, followed by tailoring a health literacy educational intervention to most appropriately address these needs in order to assess potential impact on health literacy scores. The research may contribute to further development of health literacy education to better meet the needs of society, addressing learning style. This may increase knowledge that may be applied to development of health literacy educational intervention materials, which may appropriately address the needs of the intended audiences.

The objectives developed for this study were:

1. Following intervention, the individual will be able to explain details about preparation directions that patients might receive prior to a radiological upper gastrointestinal examination and information that may appear on a form used by patients applying for Medicaid.
2. Following intervention, the individual will achieve higher score on health literacy assessment posttest than pretest score.

Both of the objectives that were written are process evaluation measures, as they were focused on smaller activities in the program intervention (see McKenzie, Neiger, & Thackeray, 2009). This type of evaluative measure is helpful for assessment of immediate response to the intervention (Novick, Morrow, & Mays, 2008). Outcome evaluative measures have a broader, long-term focus (Novick, Morrow, & Mays, 2008). An example of an outcome evaluative measure might be stated as, *health literacy scores for the*

poverty-level community in Peoria County will demonstrate an increase of 10% by the year 2011.

I performed the study in an effort to bridge a gap in previous research, which has not fully addressed learning styles, as they related to health literacy educational interventions. I designed this study in a manner that future researchers may add or change the components being evaluated to further investigate additional methods to improve health literacy educational options to best fit the needs of the target population in a truly effective manner.

Definition of Terms and Variables

Aural learning style: A learning style in which the preferred method of teaching intervention delivery is in spoken format (Ramayah, Sivanandan, Nasrijal, Letchumanan, & Leong, 2009).

Health literacy: Health literacy involves a complex set of skills, which not only includes reading, but also the ability to apply listening, analytical skills, and decision-making to healthcare situations. It also includes aptitude for comprehension of medication instructions, appointment information, informational pamphlets for patient education, instructions from physicians, medical consents, and simply navigating the healthcare system (NNLM, 2010).

Kinesthetic learning style: A learning style which involves hands-on practice and simulations as the preferred method of provision of teaching interventions (Ramaya et al., 2009).

Learning style: The method of delivery for a teaching intervention, which incorporates

cognitive, physiological, and affective characteristics with individual perceptions, preferred methods, and means of processing and retaining information in order to enable the maximal effectiveness for learning (Ramaya et al., 2009).

Read-write learning style: A learning style in which the preferred teaching intervention is provision of written text to be read (Ramaya et al., 2009).

Visual learning style: A learning style in which the preferred method of delivering a teaching intervention involves graphical displays, pictures, and symbolic images (Ramaya et al., 2009).

Assumptions, Scope, and Limitations

I based the research in this study on the assumption that there was a correlation between the outcome of health literacy education and exposure to an educational intervention that addresses learning style, according to assessment prior to administration of the intervention. I assumed that individuals in the community would be willing to participate in the study. I assumed that cultural aspects and translation of the intervention tools would have minimal to no impact on the outcome. I also assumed that the participants would cooperate with the preintervention questionnaire and postintervention test, responding to all questions honestly and accurately. The final assumption that I made was that community organizations would be supportive in administration of the study.

I defined the scope of the study as individuals living in areas of Peoria, Illinois, which have been identified as being populated by those with lower levels of income. I limited the study to the populations served by organizations that served lower income individuals, so the findings may not be truly reflective of typical results in the rest of the Peoria, Illinois community. I identified an additional limitation that the study only provided the opportunity to participate to those visiting the organizations on days that the study was being administered, which further limited the study and may not have provided an accurate picture of the population served by the organizations. My interpretation presented another limitation, as other researchers may have identified differing aspects of significance.

Conceptual Framework

In this study, I incorporated assessments of general literacy level, learning style, and language. I based the conceptual framework of this study on four major theories. These were the health belief model, protection motivation theory, the transtheoretical model, and social cognitive theory.

The health belief model addresses cultural factors and motivating factors as they relate to development of beliefs about various aspects of health. Cultural factors play a significant role in the health belief model, as some cultures have specific religious-based beliefs regarding healthcare practices (Deavenport, Modeste, Marshak, & Meish, 2010). Similarly, some of these beliefs may also serve as motivating factors for adoption of healthcare behavior (Payne et al., 2009).

I used the protection motivation theory, transtheoretical model, and social cognitive theory as guidance for development of both the assessment tool and the educational intervention. The protection motivation theory also addresses personal beliefs in the context of aspects that may be perceived as threats or areas of vulnerability (Prentice-Dunn, Mcmath, & Cramer, 2009). When developing health behavioral interventions, areas of perceived threats and vulnerability should be appropriately incorporated into the intervention delivery method to frame the message (Bartholomew, Parcel, Kok, & Gottlieb, 2006). Social cognitive theorists also address individual attitudes and beliefs, but these are specific to the individual's ability to fulfill all aspects of the behavior in order for the intervention to be truly effective (Wood, 2008). Similar to the health belief model, the social cognitive theory is based on the impact of the environment on the individual (Bandura, 1969). These environmental factors may be positive or negative in the nature of the influence on the ability of the individual to adopt a behavior (Bandura, 1977).

Significance

In this study, I provided a unique approach by evaluating the variable of learning styles, as potentially having an impact on health literacy education in a manner that had not been found in previous published research. This research is significant, as it promotes social change by addressing the Healthy People 2020 objective to improve the health literacy of the population (DHHS, 2011).

Through the administration of this study, I also identified the potential to gain a greater understanding of the community and associated needs related to health literacy

education. By doing so, the research findings may be able to be applied in a manner that the intervention may be shared with the public health providers serving the target community so that the entire community may be able to benefit from the study. On a larger scale, I planned to publish study findings in order to allow public health providers in other communities to provide the intervention, so that their communities may also benefit.

Social Change Implications

The significance of this research, as it relates to social change, is that I addressed the Healthy People 2020 objective to improve the health literacy of the population. By improving health literacy for this population, these individuals will be able to take a more active role in their personal healthcare decisions, which should facilitate improvement of healthcare outcomes and translate to a reduction in healthcare costs.

Aside from the direct benefits of contributing to a general understanding of how tailoring messages to learning style impacts health literacy, I identified a variety of indirect benefits that may also be appreciated through the intervention presented in this study, not just for the individuals in community, but also by the healthcare delivery system and economic impact. Healthcare providers have the potential, through improved patient health literacy, to communicate more effectively and efficiently, as the patients with improved health literacy will have developed the ability to better understand instructions and perhaps be able to better identify areas where clarification is necessary. Patients having a greater ability to comprehend medical instructions from healthcare providers will also have improved self-care, which has potential to improve health status.

Society may be able to translate improved health status into reduced healthcare costs. I proposed that if I could demonstrate effectiveness of the intervention, that public health providers in other communities could adopt the intervention, which could present the ability to appreciate indirect benefits to improve health status for society as a whole, in turn contributing to a reduction in healthcare spending.

Summary

This dissertation proposal was comprised of three chapters. In the first chapter, I provided an introduction to the problem statement, justified by background information. I also presented theoretical framework for the study, the research question, hypotheses, and a brief description of the study, along with associated assumptions, scope of the study, and recognized limitations. Finally, I provided an initial statement of potential implication on social change.

In Chapter 2, I present the strategy for literature review, along with a review of recent pertinent literature regarding general literacy, learning styles, cultural competence, motivating factors, and the health belief model. Chapter 3 includes a detailed description of the study design and methodology that was applied to the research study. I included specific information regarding the sample population selection, sample size, method of inquiry, educational intervention, data collection procedures, variables, data analysis, role of the researcher, reliability and validity considerations, reporting and dissemination of findings, ethical considerations, limitations, and plausible rival explanations. I presented the data analysis from my findings in Chapter 4, followed by a discussion of how those findings could be used to impact positive social change.

Chapter 2: Literature Review

Introduction

The Healthy People 2020 objectives were recently developed. The U.S. Department of Health and Human Services has revised the objectives every decade in order to update public health priorities for consistency with health preparedness and prevention issues that have arisen in the 10 years since the previous version (DHHS, 2011). The objective, HC/HIT HP2020–3: (Developmental) Improve the health literacy of the population, will be the Healthy People 2020 objective, which is the modification of the Healthy People 2010 objective 11-2 (Developmental), Improve the health literacy of persons with inadequate or marginal literacy skills (DHHS, 2011).

Research Strategy

For this study, I performed the literature review through searches of peer-reviewed journals in databases including EBSCOhost, Pro Quest, and Ovid databases. Academic Search Premier, PsycARTICLES, PsycINFO, MEDLINE, Cinahl, and SOCindex databases were used. Search terms that I used included *health literacy, health belief model, personal health records,* and *cultural competence*. I also obtained additional information from government and other medically-related organizations, including the American Health Information Management Association (AHIMA), U.S. Department of Health and Human Services (DHHS), Illinois Department of Public Health (IDPH), and National Institutes of Health (NIH).

General Literacy

Approximately 90 million individuals in the United States lack the ability to read beyond a fifth grade level (Mayer & Villaire, 2009). Health information for laypersons should be composed at a reading level of no greater than third to fifth grade when creating educational materials for distribution to patients (Mayer & Villaire, 2009). When healthcare professionals select the level of writing, it is best to be conservative and keep the information as simple as possible (Mayer & Villaire, 2009). Writing in the active voice is much easier to read than passive voice (Mayer & Villaire, 2009). It is also easier for patients to follow if the materials are written in a conversational manner (Mayer & Villaire, 2009). Short sentences should be used, so that the reader does not lose focus, and small words that are commonly used in conversation are most effective (Mayer & Villaire, 2009).

Unfortunately, most of the published information provided to patients has been created at the eighth to twelfth grade level (Mayer & Villaire, 2009). The Flesch-Kincaid test is a tool used to determine the grade level for an instrument that has been written (Mayer & Villaire, 2009). It is composed of the Flesch-Kincaid Grade Level Formula and the Flesch-Kincaid Reading Ease test (Mayer & Villaire, 2009).

There is an option in Microsoft Word to calculate the Flesch-Kincaid Grade Level, which has been validated to score a document up to grade level 17 (Mayer & Villaire, 2009). The Flesch-Kincaid Reading Ease test is used to rate a written document from 0-100, with higher scores reflecting the document being easier to read (Mayer & Villaire, 2009). Other tools used to determine literacy and readability include the

McLaughlin Simplified Measure of Gobbledygook (SMOG) readability formula, the Fry Formula, and the Suitability Assessment of Materials (SAM) (Mayer & Villaire, 2009).

Along with addressing the audience in a manner that addresses the lowest possible of literacy, health materials should be created to also assume that the reader knows absolutely nothing about the topic and ensure that the basic necessary information is included (Mayer & Villaire, 2009). Another assumption that should be made is that the target audience does not know any medical terminology or jargon (Mayer & Villaire, 2009). Medical terms and technical jargon should be avoided as much as possible (Mayer & Villaire, 2009). If it is absolutely necessary to include a medical or technical term, it should be clearly and simply defined using common vocabulary (Mayer & Villaire, 2009). Another method of promoting understanding of medical or technical terms is to provide a simple example with the definition (Mayer & Villaire, 2009).

Another aspect of creating educational materials that needs to be considered is the number of objectives to be addressed (Mayer & Villaire, 2009). The topic should be evaluated and the two or three most important objectives should be selected for the educational communication tool (Mayer & Villaire, 2009). If the topic is complex, it is advantageous to break it down into smaller modules, so that the audience is not overwhelmed with more information than they are able to process at one time (Mayer & Villaire, 2009).

Written patient educational materials may be enhanced with the use of illustrations, which may help reinforce the narrative content (Mayer & Villaire, 2009). When selecting illustrations, like the written content, they should be as simple as possible

without non-pertinent or distracting items included (Mayer & Villaire, 2009). Another consideration regarding appearance of the educational materials is font (Mayer & Villaire, 2009). A serif font, for instance Times New Roman, in a size 13 or 14 is easier to read (Mayer & Villaire, 2009). Italicizing and use of all capital letters should be avoided; however, if a word or phrase must be highlighted in some way, then occasional use of boldface is appropriate (Mayer & Villaire, 2009). It is important to consider who the audience is for health information communication and tailor the materials to not only meet literacy needs, but also factors that include gender, age, and cultural considerations (Mayer & Villaire, 2009).

Health Literacy

Individuals derive health literacy skills from a combination of contributing factors, including social, cognitive, and demographic aspects (Osborn, Paasche-Orlow, Bailey, & Wolf, 2011). The elderly, individuals living in poverty, minorities, and those with low educational levels generally have lower health literacy levels (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). There are a variety of points along the continuum of care at which health literacy skills are necessary (Osborn et al., 2011). These include, but are not limited to, navigation of the healthcare delivery system, accessing healthcare services, interacting with healthcare providers, participating in healthcare decisions, and self-care activities (Osborn et al., 2011). In order to effectively address health literacy needs, interventions need to be integrated at points along the healthcare continuum (Osborn et al., 2011). There are two main obstacles to this

integrative process, as providers lack time and resources and patients have competing views and priorities (Osborn et al., 2011).

There are three areas by which functional health literacy is determined: reading written materials, such as consent forms or labels; comprehending information given by healthcare providers; and acting in response to directions given by healthcare providers (Lanning & Doyle, 2010). Healthcare professionals need to provide health information to patients in a manner that will facilitate these three areas of functional health literacy (Lanning & Doyle, 2010). Lanning and Doyle (2010) took a closer look at how this might be accomplished by examining the components of the communication process: the sender, the message, the medium, and the receiver. The sender is the original source of information in the health literacy message (Lanning & Doyle, 2010). The sender should develop the message in a manner that is clear, concise, and appropriate for the intended audience (Lanning & Doyle, 2010).

Healthcare professionals should exercise care when selecting the appropriate medium for the client and the aspect of functional health literacy being addressed, as written or verbal communication methods may be more effective in different situations (Lanning & Doyle, 2010). It is critical that the sender of the message identify the needs of the receiver and selects the most appropriate medium for delivering the message in a manner that best meets all of the pertinent needs of that receiver, including cultural aspects, educational level, and learning style (Lanning & Doyle, 2010). Rather than viewing the communication model as a line that starts with the sender and ends with the receiver, it is best to consider it as a continuous circular process that also involves a

process for incorporation of cultural and other factors into message development and medium selection, and also a process for feedback from the receiver and follow-up to reinforce the message (Lanning & Doyle, 2010).

There are other types of literacy that also contribute to health literacy and addressing health literacy. Cultural literacy involves an aptitude for integration of cultural practices and beliefs with the message being conveyed in a manner that is relevant with cultural values and traditions (Mancuso, 2011). When addressing Asian American communities, healthcare professionals should not only identify risks associated with medications, but also focus on dangers of drug-herb interactions that may occur with complimentary alternative medicine (Mancuso, 2011). Another type of literacy that healthcare should be aware of as it is associated with health literacy is civic literacy, for which healthcare professionals must possess knowledge necessary to comprehend laws and make decisions regarding healthcare regulatory choices that are presented through the media and may be voted on during elections (Mancuso, 2011).

Individuals who possess lower health literacy levels often have difficulty understanding health-related information (Berkman et al., 2011). When a patient has trouble comprehending health-related information, it often results in an inability to comply with instructions from healthcare providers, which may lead to unfavorable outcomes of healthcare services (Berkman et al., 2011). Individuals with low health literacy are generally not comfortable interacting with healthcare providers, are hesitant to ask questions about their medical conditions or treatment plans, and do not actively participate in planning or decision-making regarding their own healthcare needs

(Peterson, Shetterly, Clarke, Bekelman, Chan, Allen, & Masoudi, 2011). Patients possessing low health literacy levels may skip medical tests, have increased numbers of emergency room visits, and poorly manage chronic diseases if patients lack a basic comprehension of preventative care and self-management of medical conditions (DHHS Office of Disease Prevention and Health Promotion, 2010; Peterson et al., 2011). Individuals with lower health literacy avoid accessing healthcare services and rely on family caregivers instead (Peterson et al., 2011). Patients who avoid healthcare services experience a delay in diagnosis of medical conditions, which translates to greater cost of care, increase in hospital utilization, and less than optimal outcomes (Welch, VanGeest, & Caskey, 2011).

Over 30% of patients who speak English are unable to understand basic healthcare information and cannot comprehend basic health materials (Miller, 2010). Schwartzbert, et al. (2007) estimated that approximately 43% of adults possess basic or below basic reading proficiency. Approximately 25% of English-speaking patients are unable to accurately read appointment slips, and 40% are unable to understand prescription labels (Miller, 2010). Similarly, approximately 66 million patients are impacted by language barriers (Miller, 2010). Because of these combined issues, there are concerns that average patients lack the aptitude to fully understand publications for patient education, medication label directions, medical consent forms, physicians' verbal instructions, and instructions following medical treatment (Schwartzbert et al., 2007).

Patients possessing decreased levels of health literacy are hospitalized more frequently, plus they also have increased costs associated with their care (Downey &

Zun, 2008). Another concern is that there is a lowered effectiveness and efficiency with treatment and diagnosis associated with lowered health literacy levels (Downey & Zun, 2008). Downey and Zun (2008) found a correlation between ineffective care and subpar healthcare outcomes, chronic health condition control, and patient satisfaction rates for encounters with healthcare providers.

Osborn et al. (2011) correlated lower health literacy levels with poor medication compliance and delayed refilling of prescriptions. Another problem experienced by those with lower levels of health literacy is interpreting labels on medications (Berkman et al., 2011). Individuals with low health literacy encounter additional obstacles, including provision of health history on forms, reading and complying with printed materials from providers, and understanding preprocedural directions (Freedman, Miner, Echt, Parker, & Cooper, 2011).

Patients with low health literacy are generally less motivated with self-care activities, have difficulty troubleshooting healthcare problems, and have lower self-efficacy (Osborn et al., 2011). Patients who have developed chronic health conditions, such as hypertension, have experienced an indirect effect of low health literacy, as healthy lifestyles may not be practiced on a regular basis (Osborn et al., 2011). Patients with low health literacyare impacted by problems with access to preventative healthcare services, as this is another area that is frequently misunderstood (Berkman et al., 2011).

There are also economic ramifications associated with health literacy. Bryan (2008) estimated that costs of 73 billion dollars are incurred in serving low health literacy patients. For example, if a patient does not comprehend instructions from a healthcare

provider, it could potentially result in readmission or a complication of care that requires additional treatment. If healthcare providers fail to address the concern of health literacy, it may result in an increase in this amount, especially for the Hispanic population, which has been found to possess the highest risk of low health literacy (Bryan, 2008). The Hispanic population is increasing significantly, with estimates that this sector of the population will account for nearly 25% of the U.S. population by 2050 (Bryan, 2008). However, healthcare providers hesitate in developing programs in their practices to address health literacy, regardless of the potential long-term economic benefits mainly because of the financial implications of implementing a health literacy educational programto (Downey & Zun, 2008). Patients may improve compliance with medical instructions, through implementation of a health literacy program, which provides potential for better end results (Downey & Zun, 2008).

Because of the difficulty and awkwardness related to communication with healthcare providers that is experienced by individuals with low health literacy, it is necessary for providers to become competent in effective communication with these individuals (Peterson et al., 2011). Healthcare workers need to prepare for the impact of decreasing literacy rates that are anticipated to occur over the coming decade (Freedman et al., 2011). However, some providers may find that the expenses and time investments required for implementation of health literacy screening that may be prohibitive for (Welch et al., 2011).

When healthcare providers give information to patients, it is often done in a very brief period of time, which is not ideal for learning, especially for low-literacy level

patients (Freedman et al., 2011). Healthcare providers often make the assumption that patients have a basic level of health literacy, and they communicate with their patients using terminology that they perceive to be easily understood medical terms (Bryan, 2008). Patients are often uncomfortable posing questions to their healthcare providers for the purpose of clarifying instructions, because they feel threatened by medical terms used (Bryan, 2008). In addition, healthcare providers are medically trained and well-versed in the technical jargon they use on a daily basis, but their training often lacks development of skills to communicate by translating to lay terminology (Freedman et al., 2011).

A correlation has been determined between low health literacy and preventable hospitalizations, medication errors due to misunderstood instructions, lack of understanding of nutritional information on labels, and even death (DHHS Office of Disease Prevention and Health Promotion, 2010). Individuals with lower health literacy levels have been found to have inefficient utilization practices (DHHS Office of Disease Prevention and Health Promotion, 2010). The financial impact of low health literacy in the United States has been estimated to be approximately $106-$236 billion annually (DHHS Office of Disease Prevention and Health Promotion, 2010). If complete and appropriate patient education occurs when a patient is discharged from the hospital, there is a decreased likelihood that the patient will be readmitted (Demarco, Nystrom, Salvatore, 2011).

It has been determined that current practices of presenting health information are useless for most American adults (DHHS Office of Disease Prevention and Health Promotion, 2010). Approximately 90% of adults experience difficulty with

comprehending routine health information, such as that provided in healthcare institutions, through the media, and other places in the community (DHHS Office of Disease Prevention and Health Promotion, 2010). Findings from the 2003 National Assessment of Adult Literacy (NAAL) included that 12%of adults in the survey had proficient levels of health literacy (DHHS Office of Disease Prevention and Health Promotion, 2010). The NAAL survey only assessed adults speaking English, so their statistics don't address health literacy issues in limited or non-English-speaking U.S. population (DHHS Office of Disease Prevention and Health Promotion, 2010). Health literacy assessment tools that are used most commonly provide basic measurements of reading fluency or recognition of medical terms (Griffin et al., 2010).

Three commonly used tools for measurement of health literacy are the Wide Range Achievement Test (WRAT) reading subtest, Rapid Estimate of Adult Literacy in Medicine (REALM), and the Test of Functional Health Literacy in Adults (TOFHLA) (AHRQ, 2004). The Short Test of Functional Health Literacy in Adults STOFHLA is an abbreviated version of the TOFHLA, which has a high correlation to the TOFHLA and includes two sections of reading comprehension (AHRQ, 2004). The two most frequently used health literacy assessment tools are the REALM and the S-TOFHLA (Griffin et al., 2010). The REALM assesses ability to pronounce medical terms, while the S-TOFHLA assesses reading comprehension and numeracy skills that relate to health literacy (Griffin et al., 2010).

The correlation between communication of health information to compliance with instructions and outcomes of care is not the only impact of health literacy intervention on

quality of care (Wynia & Osborn, 2010). Quality of communication has also been determined to be correlated with patient satisfaction (Wynia & Osborn, 2010). Because of this, communication should be patient-centered with attention to information and communication needs of the patient (Wynia & Osborn, 2010). Wynia and Osborn (2010) established that health information communication was less likely to be centered on the needs of the patient for patients with lower levels of health literacy. These findings reinforce the importance of healthcare providers being alert to the health literacy level and communication needs of patients (Wynia & Osborn, 2010).

Due to the number of sources of health information messages that are communicated to healthcare consumers, it is necessary for all who communicate the messages to reduce and overcome obstacles and help increase health literacy in U.S. society (DHHS Office of Disease Prevention and Health Promotion, 2010). One proposed method of addressing the issue is provision of adult health literacy education courses (Freedman et al., 2011). Provision of functional knowledge of health information over a longer period of time with application to realistic scenarios could help develop the ability to analyze healthcare situations and identify pertinent questions for the purpose of acquiring additional information that may facilitate improvement of healthcare decision-making (Freedman et al., 2011). If such a course were to be developed by and instructed by a professional, who is trained to provide adult education, the instructor would be aware of methods to best address the needs of adult learners, making it more effective (Freedman et al., 2011). Health literacy education should be skill-focused with materials

at the appropriate reading level for which the students are equipped (Freedman et al., 2011).

Approximately 80% of adults who use the Internet in the United States research health information online (Demarco et al., 2011). Healthcare consumers seeking information online have been found to be more compliant with healthcare instructions and more willing to participate in discussions regarding healthcare decisions, as they have a greater awareness of information (Demarco et al., 2011). Healthcare providers need to be more accepting of patients who have acquired knowledge via online resources and encourage patients to become more involved in healthcare decision-making processes (Demarco et al., 2011). Healthcare professionals must develop an awareness of the methods that patients prefer for accessing information, so that they may provide guidance to enable the patients to find accurate information (Demarco et al., 2011). Inaccurate health information found online has potential to be harmful to healthcare consumers (Demarco et al., 2011). In addition, studies have indicated that patients, who are more active participants in discussions with their healthcare providers regarding healthcare needs, provide physicians with a better ability to make an assessment of the needs of the patient along with how well those needs are being met (Michalopoulou et al., 2010).

Healthcare consumers receive health-related information from many venues, including conversations with others, television, newspaper, radio, Internet, social media, public health messages, pamphlets, and healthcare providers (DHHS Office of Disease Prevention and Health Promotion, 2010). Some of the messages related to healthcare that consumers are exposed to may be incomplete, biased, or inaccurate (DHHS Office of

Disease Prevention and Health Promotion, 2010). In addition, the amount of health information to which health consumers are exposed may seem overwhelming and too complex to interpret (DHHS Office of Disease Prevention and Health Promotion, 2010). In 2010, a National Action Plan to Improve Health Literacy was released by the federal government (DHHS Office of Disease Prevention and Health Promotion, 2010). This action plan is based on seven goals, which include development and dissemination of accurate, accessible, and actionable health and safety information; promotion of healthcare system changes for the purpose of improving health-related information, communication of this information, facilitation of decision making in an informed manner, and accessibility of healthcare services; incorporation of accurate health-related and scientific information in curricula at all levels of education from preschool settings through university, based on standards appropriate for each developmental stage; increased support of adult education efforts that include instruction in language and health information that is appropriate to culture and linguistics of the community; building of partnerships for the purpose of guidance development and policy change; increasing research and development efforts for developing, implementing, and evaluating activities focused on health literacy improvement; and enhance distribution of information and utilization of practices and interventions based on evidence-based practices in health literacy. (DHHS Office of Disease Prevention and Health Promotion, 2010).

Many healthcare consumers seek health information from their public libraries as a first resort (Zoints, Apter, Kuchta, & Greenhouse, 2010). Because of this, librarians

play a critical role in the health literacy education process (Zoints et al., 2010). Consumers have access to Internet-based health information at the library, yet they lack the ability to determine accuracy and reliability of information that may be located on various websites (Zoints et al., 2010). Librarians ay attain a Consumer Health Information Specialist (CHIS) certification from the Medical Library Association through the Health Information Fellowship initiative (Zoints et al., 2010). This initiative has provided the ability for librarians to acquire the knowledge and tools necessary to assist healthcare consumers who are seeking reliable health information via library resources (Zoints et al., 2010).

Berkman, Sheridan, Donahue, Halpern, & Crotty (2011) performed a systematic literature review of research performed on health literacy between the years of 2003 and 2011 in order to determine what research findings have been added since a similar review in 2004. Previous studies have focused on correlations between health outcomes and literacy of printed materials; however, there is a lack of studies for correlation between outcomes and other literacy methods (Berkman et al., 2011). It is recommended that printed healthcare information should be written at or below a sixth-grade reading level (Demarco et al., 2011). This usually involves use of lay terms, rather than medical terms (Demarco et al., 2011). The U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion (2010) suggests combating health literacy deficiencies through use of innovative methods of delivering education, including simplification of written information, use of illustrations, computerized participatory

interventions, and use of video materials. Video is being used to provide healthcare information in an effort to address variation in learning style (Demarco et al., 2011).

When developing related policy, public health officials should advocate for sharing of healthcare educational materials in a format that is focused on the patient (Murphy-Knoll, 2007). The Joint Commission Health Literacy Roundtable developed resolutions that address the consequences of communication gaps that result from decreased health literacy levels, for the purpose of incorporation in creation of action plans, prioritizing issues with communication issues impacting patient safety, and spanning the entire healthcare delivery system for the purpose of meeting deficits in communication (Murphy-Knoll, 2007). Establishment of additional programs to promote health literacy presents the possibility of addressing the capacity of laypersons to access healthcare information , as demonstrated by conclusions from the Institute of Medicine *Health Literacy: A Prescription to End Confusion* report in 2004, which identified barriers that laypersons often experience when accessing healthcare information, as a contributing factor to improvement of health literacy by presenting information in more appropriate formats (Shipman, Kurtz-Rossi, & Funk, 2009).

Routes of communication that meet the varied needs of individuals must be assessed and identified in order for this plan to be truly effective (Gordon & Wolf, 2007). This shall be accomplished through development of cultural competence programs, accompanied by information regarding the health belief model theory, to develop a knowledge foundation related to cultural beliefs and practices in healthcare professionals, for consideration when assessing health literacy, then incorporating the information

when developing plans of treatment and communicating with patients in the most appropriate manner according to individual needs (Shaw, Huebner, Armin, Orzech, & Vivian, 2009; Stonecypher, 2009).

One reaction to the problem of decreased health literacy is for healthcare providers to adopt an approach with universal precautions to provide all individuals with standard health literacy information to ensure that everybody is receiving the same information, which is not effective or efficient, as the needs and abilities of patients are not identical (Gordon & Wolf, 2007). Provision of printed information has been determined to be the least effective method of communication between providers and patients; however, this is often the most common, and frequently the only, form of communication tool used by healthcare providers (Bryan, 2008). One method to facilitate patient comprehension is supplementing printed materials with pictures to demonstrate the message being conveyed (Bryan, 2008).

A study involving a survey of clinicians, who attended educational seminars about improving patient safety and quality of care for the purpose of addressing communication technique improvement with patients having decreased levels of health literacy, was performed using a questionnaire developed by the American Medical Association (AMA) to query providers regarding techniques for provision of patient education (Schwartzbert, Cowett, VanGeest, & Wolf, 2007). A determination was made that the majority of providers focused on simplification of language, slowing spoken communication, and provision of written instructions, but less than 40% of providers in the study used teach-back, which is a method that requires the patient to restate the instructions as if they were

explaining them to the provider (Schwartzbert et al., 2007). Analysis of this study suggested that significant contributors to the findings included lack of provider training and hectic office routines (Schwartzbert et al., 2007). Conclusions from this study offered several suggestions to investigate various new strategies for the purpose of addressing communication barriers that exist related to provisions of effective patient education (Schwartzbert et al., 2007).

Another method of addressing health literacy, suggested by the U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion (2010), is provision of educational interventions earlier in life. This may be accomplished by incorporating health literacy into the curriculum at least from kindergarten through high school, but some professionals even suggest continuing health literacy education into the university levels as well (DHHS Office of Disease Prevention and Health Promotion, 2010). Health literacy education should also be built into programs teaching English as a second language (DHHS Office of Disease Prevention and Health Promotion, 2010). Healthcare providers must take a more proactive approach to addressing health literacy (DHHS Office of Disease Prevention and Health Promotion, 2010). This approach extends beyond simply educating healthcare consumers, but rather involves providers changing processes, decreasing the literacy level of forms, and training healthcare professionals about methods to address health literacy (DHHS Office of Disease Prevention and Health Promotion, 2010).

Learning Styles

Some individuals have a preference of one method of learning over another (Ramayah, Sivanandan, Nasrijal, Letchumanan, & Leong, 2009). Identification of the learning style of each unique individual facilitates planning for those in a position to teach. (Ramaya et al., 2009). The learning style has been defined in a variety of contexts, with definitions incorporating learning conditions and the personal qualities of an individual (Ramaya et al., 2009). Learning styles combine cognitive, physiological, and affective characteristics with individual perceptions, preferred methods, and means of processing and retaining information (Ramaya et al., 2009). Identification of learning style by the learner has been found through research to contribute to increased effectiveness with learning (Ramaya et al., 2009).

If an educator is aware of the learning styles of students, then the learning experience may be designed in a manner that matches the learning styles of the students (Ramaya et al., 2009). By teaching in a way that allows the student to use the identified learning style that is preferred, the student has the ability to concentrate more effectively on the tasks assigned (Ramaya et al., 2009). Studies of educational institutions have demonstrated that failure to appropriately and adequately meet the learning style needs of students correlates to increased rates of students dropping out of the institutions (Bernardes & Hanna, 2009).

Ramaya et al. (2009) presented six models of learning styles, which included Gregorc, Kolb, Felder-Silverman, Dunn and Dunn, VARK, and RASI. VARK is an acronym that represents the four learning styles of visual, aural, read-write, and

kinesthetic (Ramaya et al., 2009). The VARK tool is composed of 16 multiple choice questions, with each of the options corresponding with the learning styles being assessed (Bernardes & Hanna, 2009). It is also easy to score and financially accessible (Bernardes & Hanna, 2009). Questions on the VARK questionnaire are easy for study participants to relate to, as they are based on real-life situations (Rogers, 2009). It is helpful for learners to comprehend the psychology involved in learning prior to attempting to identify individual learning styles (Rogers, 2009). Awareness of learning styles enables the teacher to develop a learning environment that is able to address the needs of as many of the learners as possible (Rogers, 2009).

Visual learners prefer graphical display of information, photographs, diagrams, and use of gestures by instructors (Ramaya et al., 2009). Symbolic representations of concepts are also useful for visual learners (Ramaya et al., 2009). This is the category in which most learners are classified (Ramaya et al., 2009).

Aural learners prefer to hear spoken information, including discussions oral sharing of examples (Ramaya et al., 2009). They have found to have improved outcomes if they are able to discuss the material with the individual doing the teaching, being able to hear their own voices repeating the information (Ramaya et al., 2009). Taped tutorials are an effective method for teaching aural learners (Ramaya et al., 2009).

Read-write learners have been found to prefer reading written text (Ramaya et al., 2009). Their learning is enhanced by re-writing information that is presented (Ramaya et al., 2009). Read-write is the second largest area of classification for learners (Ramaya et

al., 2009). PowerPoint and written text work well for teaching read-write learners (Ramaya et al., 2009).

Kinesthetic learners incorporate the use of all senses when they learn (Ramaya et al., 2009). They learn well through applications and hands-on practice (Ramaya et al., 2009). Simulated practice and videos are preferred methods for kinesthetic learners (Ramaya et al., 2009).

Koonce, Giuse, & Storrow (2011) completed a study to determine effectiveness of providing hypertension education to emergency room patients tailored to meet identified learning styles. The Visual, Aural, Read/Write, Kinesthetic (VARK) tool was used for assessing learning style in this study (Koonce, Giuse, & Storrow, 2011). Visual learners received education using handouts with graphic images that enhanced the text in the intervention (Koonce, Giuse, & Storrow, 2011). Read/write learners received handouts with printed information that had key information in boldface or colored text (Koonce, Giuse, & Storrow, 2011). Aural learners received information from a prerecorded mp3 audio file (Koonce, Giuse, & Storrow, 2011). Kinesthetic learners used an interactive online application to receive the information (Koonce, Giuse, & Storrow, 2011). While patients in the study indicated greater satisfaction with the learning style appropriate interventions in comparison with those receiving standard interventions, the educational outcomes from the study were inconclusive (Koonce, Giuse, & Storrow, 2011). The researchers attributed this to patients having preexisting knowledge about their medical condition (Koonce, Giuse, & Storrow, 2011).

Health Belief Model

Rosenstock (1966) initially introduced the health belief model by with five perceived factors influencing health behavior, which are perception of barriers or obstacles to performing behavior, perception of benefits associated with the behavior, perception of health threat susceptibility, perception of health threat severity, and action cues (NNLM, 2007). The health belief model is considered to be one of the most frequently utilized models for health preservation activities (Payne, Davis, Feldstein-Ewing, & Flanigan, 2009). The Health Belief Model (Becker et al, 1974) explores perceptions that may lead individuals to certain attitudes related to personal healthcare behaviors. This model explores several elements, which act interdependently to shape the beliefs and behaviors of individuals related to healthcare (Kline & Huff, 2007). There are four concepts that make up the health belief model, which are personal perception of susceptibility to a health issue, personal perception of severity of the health issue, personal perception of the potential benefits of acting against the health issue, and personal perception of obstacles to the ability to take action against the health issue (Kline & Huff, 2007).

Deavenport, Modeste, Marshak, & Neish (2010) presented findings of health beliefs in Hispanic women in low-income communities related to mammography. Financial barriers and lack of transportation were noted as tangible obstacles to obtaining mammograms (Deavenport et al., 2010). Fear of findings and fear of pain were also cited as reasons for not pursuing the tests (Deavenport et al., 2010). However, when focusing on health beliefs, this study of low-income Hispanic women found that some women,

who perceived their susceptibility to breast cancer to be low, cited that prayer and belief in God was their method of preventing cancer (Deavenport et al., 2010). Other women in the study, with risk factors, such as family history, stated that they believed their fate was already determined by God, so mammography or any treatment of cancer were to be diagnosed would not make any difference (Deavenport et al., 2010).

The components of the health belief model are considered to act as motivational factors for individuals to either increase or decrease selected behaviors associated with health (Payne et al., 2009). As a motivating factor, the health belief model allows the individual to develop a perception of personal capability to adopt an identified behavior change related to personal health (Payne et al., 2009). The health belief model is not impacted by influence of peers and socially accepted norms that may have influence on decisions to adopt a behavior (Payne et al., 2009).

Evaluation of social system theories and previous research may be applied in the development of a more comprehensive model. The inspiration for development of the proposed study was a patient education tool based on previously printed educational materials published by the National Stroke Association (Stonecypher, 2009). The patient education tool was based on a model designed using a combination of Adult Learning Theory, the Health Belief Model, Self-Efficacy Theory, and Social Cognitive Theory (Stonecypher, 2009). Theory was presented as an important component of the educational process, essential for those developing and utilizing educational tools to comprehend effectively (Stonecypher, 2009). The tool was evaluated by a multidisciplinary team, which resulted in identification of areas that were improved (Stonecypher, 2009).

Protection Motivation Theory

Another theory, which has been applied to over 20 areas in the health field for the purpose of examining the reasoning of healthcare behaviors, is the protection motivation theory (Grindley, Zizzi, Nasypany, & Grindley, 2008). According to this theory, there are two rational considerations involved when individuals evaluate health information (Prentice-Dunn, Mcmath, & Cramer, 2009). One consideration is the individual level of threat perception for the specific issue, and the other is individual perception of personal level of vulnerability related to the issue (Prentice-Dunn, Mcmath, & Cramer, 2009).

The perceived vulnerability may be addressed by a cognitive intervention, of which potential effectiveness may be determined greatly by perceived efficacy (Grindley, Zizzi, Nasypany, & Grindley, 2008). Response efficacy is the aspect of protection motivation theory that addresses the individual's perception of the potential impact of the behavioral change being promoted, while self-efficacy is focused on the individual's belief of personal ability to competently perform the proposed behavioral change (Prentice-Dunn, Mcmath, & Cramer, 2009).

The Protection Motivation Theory incorporates many of the same attitudes and elements as the health belief model, only from a slightly different perspective (Bartholomew et al., 2006). Similar to the health belief model, perceived risk is also incorporated in the protection motivation theory (Bartholomew et al., 2006). Because of this, arousal of fear and strategic framing of health messages may be considered effective to promote behavioral change (Bartholomew et al., 2006). The protection motivation

theory also identifies the necessity to evaluate individual perception of susceptibility, obstacles to promoted change, and self-efficacy (Bartholomew et al., 2006). Once these assessments have been made, the message may be adjusted accordingly to address concerns, environmental obstacles, and individual perceptions (Bartholomew et al., 2006).

Transtheoretical Model

The transtheoretical model, also known as the stages of change model, is often used to analyze failed attempts at behavior change (Sim, Wain, & Khong, 2009). The transtheoretical model has proven to be useful in a variety of applications for promoting health behavior changes, including diabetes, substance abuse, exercise, and weight control (Andres, Saldana, & Gomez-Benito, 2009). This model takes individual readiness for change into consideration (Prentice-Dunn, Mcmath, & Cramer, 2009). Readiness to change in SCM is outlined through five stages of precontemplation, contemplation, preparation, action, and maintenance (Prentice-Dunn, Mcmath, & Cramer, 2009).

In the precontemplation stage, the client does not recognize or acknowledge risk associated with the behavior (Maibach & Parrott, 1995). This phase assumes that the individual does not plan to pursue behavioral change for at least six months, often due to the fact that the individual lacks awareness that a problem even exists (Andres, Saldana, & Gomez-Benito, 2009). In the contemplation stage, the client has identified that there is a risk associated with the behavior and recognize that there is a need to change, but consider the change as something that they may do at some point in the future, rather than immediately (Maibach & Parrott, 1995). In the preparation stage, the client makes the

decision that behavioral change is necessary and starts to plan how the change will be made (Maibach & Parrott, 1995). Individuals in the preparation phase generally plan to pursue behavioral change within a month of entering this phase (Andres, Saldana, & Gomez-Benito, 2009). In the action stage, the client actively follows through with plans made in the preparation stage (Maibach & Parrott, 1995). The action stage usually lasts for approximately six months or less (Andres, Saldana, & Gomez-Benito, 2009). In the maintenance stage, the client takes steps to ensure continued success in the behavior change (Maibach & Parrott, 1995). The maintenance phase also includes relapse prevention (Andres, Saldana, & Gomez-Benito, 2009). The transtheoretical model contributes to how an intervention message is framed, as it requires assessment of the stage of change in which the individual is currently in as related to the health behavior being addressed (Prentice-Dun, Mcmath, & Cramer, 2009).

Social Cognitive Theory

Social cognitive theory, also known as social learning theory, addresses individual attitudes regarding self-efficacy and personal abilities to perform behaviors to achieve desired outcomes (Wood, 2008). When evaluating effectiveness of interventions, it must be acknowledged that the intervention may not be completely responsible for changes or outcomes, but rather human interaction (Bandura, 1977). This concept is expanded in social learning theory to recognize that change is elicited as a result of the combination of human interaction and environmental changes in a reciprocal relationship (Bandura, 1977). Our society includes subcultures, whose behavior is not consistent with accepted behavioral norms (Bandura, 1969). Social learning theory suggests that these behaviors

are the results of learning in response to environmental factors (Bandura, 1969). In addition, it is virtually impossible to isolate human influence and introduction of environmental interventions in research to determine the true reason for changes that occur as a result (Bandura, 1977).

Human learning is often reinforced through positive and negative responses, which serve the functions of informing, motivating, and reinforcing (Bandura, 1977). The informing function of responses of learned actions provides the individual with feedback about the effects of performing the action, so they may utilize knowledge of the effects to make decisions regarding performing the action again in the future (Bandura, 1977). Provision of clearly defined goals and objectives for desired learning outcomes is a critical component in communication of overall teaching interventions (Bandura, 1969). Information about positive effects of the learned activity leads to the responses serving as motivation to perform the activity again (Bandura, 1977). Motivation, based on need, incentive, or reinforcement must exist to promote a behavioral changed (Bandura, 1969). Eventually, the individual will accumulate sufficient positive feedback from repeating the activity over time, reinforcing the knowledge about the positive effects of performing the learned activity (Bandura, 1977).

Bandura's (1977) social learning theory outlines four process components that govern observational learning of modeling, which are, attentional, retention, motor reproduction, and motivational (1977). The attentional process identifies qualities of the observed behavior that engage the individual observing in the learning process (Bandura, 1977). Observation of a behavior to be learned must also be accompanied by retention in

the memory of the observer (Bandura, 1977). The retained memory of the learned behavior then must be demonstrated through the motor reproduction process to practice and refine the behavior (Bandura, 1977). Finally, in order for the learned behavior to be performed on a regular basis, motivational processes must be present through reinforcement and anticipation of value associated with positive outcomes as a result of performing the learned behavior (Bandura, 1977). Reinforcement, however, does not require external reinforcement following performance of a learned behavior, but rather it may be presented prior to demonstrating the behavior as a potential positive outcome (Bandura, 1977). In addition, Bandura's (1977) social learning theory identifies reinforcement as not being a required element, as it may exist solely promotional in nature relative to the desired behavior.

Television, videos, and visual aids have been identified as effective methods of transmitting information about behavior modification that gains attention of the audience in a method that can influence behavioral changes (Bandura, 1977). When presenting information to an audience of those with lower cognition levels, demonstration of the behavior is more accommodating of their communication needs than simple verbal explanation (Bandura, 1977). Dissemination of descriptive modeling to a large-scale community may utilize television, radio, and printed media to gain initial attention to the intended behavior change, followed by more focused modeling of behaviors to small groups or individuals in the community to reinforce learning in a manner that may result in community members learning the new behavior from each other (Bandura, 1977).

Assessment of the observer's intellectual level is critical to determining learning requirements necessary prior to modeling a behavior, as additional teaching of information required for comprehension of the new behavior may need to occur first (Bandura, 1977). Another helpful assessment prior to modeling behavior is the moral principles of the observer, as moral reasoning and values may impact acceptance of the new behavior (Bandura, 1977). Attribution theory alludes that internal motivation for future behavioral changes are impacted by personal interpretations and opinions formed regarding elements that influence behavior (Bandura, 1977). Modification in the belief system in a society has been determined to be a key factor in successful attitude change about adoption of a behavioral change in a social system (Bandura, 1969). Modification of a social behavior of greater complexity occurs gradually through sequential learning until the desired outcome is achieved (Bandura, 1969). Concentrated influence on the target audience provides the greatest opportunity for successful behavioral modification to occur (Bandura, 1969). In addition, the effectiveness of elements as external motivating factors is based on the observer's perception of value of the elements introduced, which is subjective in nature (Bandura 1977).

Positive reinforcement of learned behavioral changes must focus on the value and advantages of the behavior related to the learning participant, rather than how society or others may benefit from the behavioral change (Bandura, 1977). Aspects of the learned behavior, which are not perceived by the learning participant to be of personal value, will likely not be retained, especially if the behavioral aspects are perceived as an inconvenience (Bandura, 1977). Incentives to reinforce learned behaviors should be

tailored to incorporate the individual's values and beliefs with those of the larger group in order for them to be truly effective, since each person or subgroup possesses unique attributes from common group ideology (Bandura, 1977).

Priorities within a culture should be identified in order to design a plan to change the environment of the social system (Bandura, 1969). Systems thinking should be incorporated into planning, based on cultural priorities, in order to ensure participation and engagement in learning activities (Bandura, 1969). Introduction of social system change will ensure greater success if presented in a manner that combines cultural norms and priorities with the desired behavioral change along with a focus on outcomes that promote improved living conditions and partnering with the community in development of a systemic change to fit the culture (Bandura, 1969).

Bandura's (1977) social learning theory incorporates components of self-regulated reinforcement based on elements of performance, judgmental process, and self-response. Individuals are often inclined to increase indicators of personal achievement in response to positive outcomes and likewise, decrease personal expectations following poor outcomes (Bandura, 1977). Distinct features of the individuals within a community should be assessed in order to appropriately model desired behaviors for observational learning purposes. These features should include, but are not limited to, level of dependence, self-esteem, competence, socioeconomic status, gender, ethnicity (Bandura, 1969). Self-satisfaction and pride may be realized as a result of successfully performing a task independently that elicits positive outcomes, although responses will vary among individuals due to disparities among self-assessment standards (Bandura, 1977). Often, a

behavior change may result in an outcome that presents itself in the form of a built-in self-reward for the individual as a form of reinforcement, such as improved health status following smoking cessation (Bandura, 1977). Another self-regulated reinforcement of behavior modification is presented through the prospect of subsequent performances producing positive outcomes (Bandura, 1977).

The assumed practical benefits of the ability to impact their circumstances serve as motivation to achieve competence in learned behaviors (Bandura, 1977). In order for this motivation to develop, the individual must first recognize a consistently repeated correlation between performing the learned behavioral change and the associated outcomes (Bandura, 1977). Reinforcement of a behavioral change by repeated outcomes does not have a prescribed frequency for repetition in order to successfully confirm the causal relationship, but rather there is variation according to conditions, individual beliefs, and the behavior involved (Bandura, 1977).

Social learning theory incorporates perpetual interdependence among factors originating from the surroundings, behavioral influencers, and individual aspects (Bandura, 1977). It is imperative that interactions among all of these factors be taken into consideration when analyzing changes following modeled behavior, as behavioral changes in the individuals may not be completely dependent upon the modeled behavior (Bandura, 1977). Also, environmental aspects may need to be influenced in the process to truly provoke a desired behavioral change (Bandura, 1977). Evaluation of these interactions on a larger scale, beyond just the individual's interactions, combining social and functional groups into the system, enhanced reciprocal influences of all factors can

be realized (Bandura, 1977). However, even though this seemingly complex infrastructure exists, individuals maintain varied degrees of independence when making decisions about adopting modeled behaviors, which may be amplified by increasing the quantity of alternatives available (Bandura, 1977).

Identification of the social conditions related to existing behaviors provides insight for planning behavioral modification interventions (Bandura, 1969). When addressing behavioral modification of a defined group, it is important that the planned intervention be developed in a manner that addresses the group as a whole, rather than attempting to only promote change for individuals within the group (Bandura, 1969). Incentives for change must also be directed at the group as a whole, rather than selected individuals (Bandura, 1969).

Societal situations requiring widespread behavioral change must be treated at the level of the social system, rather than addressing at a personal level (Bandura, 1969). Planning for social learning intervention must take into consideration the impact which outcomes of individuals within a group have on the others in that group, because subsequent learning of others in the group may be partially based on observations of experiences of peers within the group environment (Bandura, 1969). In addition, changing the behavior of an individual is not effective if behavioral change is not accomplished for the entire social system (Bandura, 1969). It is common for individuals to hesitate in adoption of behavioral change until another individual is witnessed appreciating positive outcomes related to performing the desired behavioral change (Bandura, 1969).

Methodology

A pilot study will be performed for the purpose of determining the amount of time required for each individual in the study (McKenzie, Neiger, & Thackeray, 2009). The pilot study will also allow for identification of potential problems with the questionnaire, VARK tool, pretest/posttest, educational tools, or any other process issues with the study delivery (McKenzie, Neiger, & Thackeray, 2009). A nonprobability sample will be used, as inclusion of participants will be by convenience of individuals visiting the facilities on the dates and times that the study is being administered (McKenzie, Neiger, & Thackeray, 2009). Within this sample, a systemic sample approach will be used by selecting odd-numbered persons to be in the study and even-numbered persons to be in the control group (McKenzie, Neiger, & Thackeray, 2009). A baseline is established for both groups by administration of a pretest prior to delivery of the intervention (McKenzie, Neiger, & Thackeray, 2009). The nature of this study would not be appropriate to use a non-experimental design, due to the lack of ability to compare with a control group for the purpose of determining if the application of the model to the intervention is what impacts the participant, along with lessened validity of non-experimental in comparison to experimental design (Novick, Morrow, & Mays, 2008).

Greater affirmation of effectiveness and validity assurance would be provided by experimental design evaluation, as well as increased probability of equal participant distribution with reduced risk of clustering variables (Novick, Morrow, & Mays, 2008). However, due to logistics associated with time and financial constraints, quasi-

experimental design has been selected, despite potential bias in the selection of participants by not using a random sample (Novick, Morrow, & Mays, 2008).

One disadvantage of using quasi-experimental design evaluation for this type of study is that, even though there may be some type of arrangement built into the study to allow all participants to receive the intervention, those in the control group will not be provided with the intervention tailored to meet specific learning needs according to the model that is being tested (Novick, Morrow, & Mays, 2008). This presents an ethical dilemma, as some may perceive random selection of those to receive the intervention, either first or not at all, to be unfair to those in the control group (Issel, 2009). The amount of time required to perform experimental design evaluation is generally higher, due to the need for a sufficient number of participants to achieve results that are statistically significant (Issel, 2009).

Summary

The educational intervention tool for this study shall be created at a general literacy level, which is less than sixth grade, due to the identification of the significant population in the United States unable to read beyond a fifth grade level and the recommendation that informational materials for patients not be written beyond a fifth grade reading level (Mayer & Villaire, 2009). The tool shall be written using short sentences with small words in a passive voice and avoidance of medical jargon, as those are deemed to be most effective (Mayer & Villaire, 2009). Mayer & Villaire (2009) identified the importance of other factors in communication of health information,

besides general literacy, which supports the inclusion of the other variables being researched in this study.

The preferred style of learning for study participants is significant to this study, as research has identified a correlation with effective learning and application of the appropriate learning style (Ramaya et al., 2009). Following review of literature regarding types of tools for assessment of learning style, the VARK tool was selected for use in this study, which identifies the four learning styles of visual, aural, read-write, and kinesthetic (Ramaya et al., 2009). Ease of scoring and financial aspects were significant factors in this decision (Bernardes & Hanna, 2009).

Development of the study materials for research must incorporate principals of cultural competence, ensuring that the research is performed in a manner that includes assessments, followed by performing the study with respect to the patient's age, gender, sexual orientation, ethnicity, cultural background, and religious beliefs (Smith, 2007). Cultural consideration in selection of the study sample will address the AHRQ identification of worsening disparity of healthcare quality for the African American, Asian, Hispanic, and populations living in poverty (Armada & Hubbard, 2010). In addition, the language descriptive variable in this study shall address the concerns associated with the fact that 20% of Americans speak a language other than English at home (Armada & Hubbard, 2010).

Miller (2010) recognized that ability to understand information should not be considered a sole limiting factor in comprehension of health information, but the eagerness of the individual to sharpen their skills is another critical variable.

Development of the assessment tool for this study should also consider if the study participants are motivated by intrinsic or extrinsic factors (Tan, 2009). Additionally, delivery of the intervention should avoid demotivating factors (ur Rahman, Jumani, & Basit, 2010). One demotivating factor has been identified as utilization of an inappropriate teaching technique (ur Rahman, Jumani, & Basit, 2010). Focus on the learner and use of appropriate teaching techniques further supports inclusion of learning style as an important variable in this research (ur Rahman, Jumani, & Basit, 2010).

Miller's (2010) research related to motivating factors for learning health information was also rooted in Bandura's model, which was identified previously in the conceptual structure for this study. The behavioral capability component of social cognitive theory involves teaching the individuals about how to perform the desired behavior (McKenzie, Neiger, & Thackeray, 2009). This study, along with the associated intervention, accomplishes this through dissemination of information about health literacy. A critical component of learning requirements that is necessary to address prior to modeling a behavior is assessment of the observer's intellectual level, as there may be a need for additional teaching of information in order for the individual to comprehend the new behavior (Bandura, 1977).

Use of the health belief model reinforces the inclusion of motivation as a variable, as components of the health belief model have been identified as motivational factors for increasing or decreasing selected behaviors associated with health (Payne et al., 2009). The health belief model was selected as a means of bringing together all of the variables identified for this study, as it explores the interdependence of various elements that shape

the beliefs and behaviors of individuals related to healthcare (Kline & Huff, 2007). Chapter three will present the application of all of these variables to the research methodology, along with development of the assessment and intervention tools for the study.

Chapter 3: Research Method

Introduction

In this chapter, I will provide details of the study design, sample population, sample size, method of inquiry, data collection procedures, variables, data analysis, researcher, reliability, validity, dissemination of findings, ethical considerations, limitations, and plausible rival explanations.

Study Design

I evaluated the independent variable of the educational intervention for each of the dependent variables, which were different learning styles. I explained these in greater detail later in this chapter. I examined the variables to determine if participants receiving the educational intervention adjusted to the appropriate learning style perform differently on the pretest and posttest than the comparison group of participants receiving the standardized health literacy intervention. Additionally, I determined if a statistically significant difference existed in the amount of changed performance between pretest and posttest for individuals with different learning styles.

I encountered two main obstacles when I completed my study, which were the time constraint of my full-time work schedule and difficulty recruiting the required number of participants, who were willing to give 20-30 minutes of their time to participate in the study. I owned the equipment necessary to administer the study and my employer allowed me to administer the study at my workplace as a means of supporting my ability to complete the study. I based my study choice on a need for additional research that was identified in the literature review. I provided an overview of the process

that was followed for the study in Figure 1, which I will explain in greater detail in the sections to follow. In addition, the contact individuals at each of the host sites posted promotional materials (see appendix B) in publicly visible areas at each of the host sites to solicit participants, and appointments were scheduled to administer the study with participants at each site. The contact individuals at each facility provided a private place for me to administer the study at scheduled dates and times in an area with a table, seating, adequate lighting, and freedom from background noise.

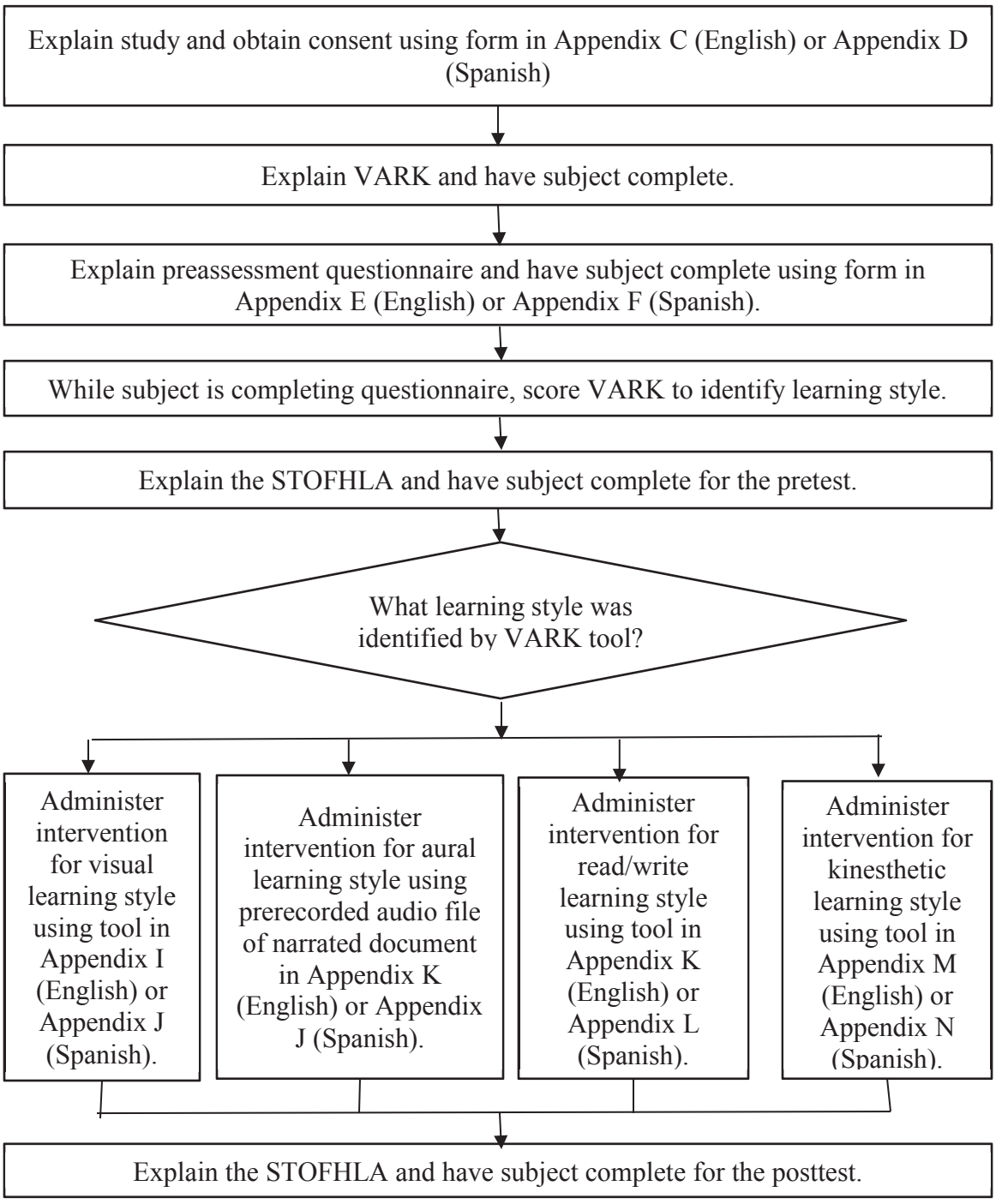

Figure 1. Process flow chart for study

Sample Population Selection and Size

It is often difficult and controversial to approach identification of patients with lower health literacy levels, as it is an issue that may be embarrassing for patients (Powers, Trinh, & Bosworth, 2010). Healthcare providers are already extremely busy in their practices and performance of routine health literacy screening for patients would be time-consuming and the value of the assessment is not yet widely recognized by providers in the absence of developed interventions (Powers, Trinh, & Bosworth, 2010). Davies, Finlay, & Bullman (2000) found that the keys of effective collaboration are found in the ability and willingness to identify unique attributes of participants, demonstrating an interest in those unique aspects that are important to participants, and ensuring that participants recognize that their perspective is valuable. If a researcher collaborates with participants, it allows the participants to incorporate their personal experiences and knowledge into the experience to personalize the situation (Travers, 1997).

Participants who have been ensured that they are allowed to dispute perceptions of the researcher, as well as others participating will also help participants to create a sense of ownership to their role (Travers, 1997). Researchers must recognize the importance of collaboration for a team, especially when the team members are from multidisciplinary backgrounds (Davies, Finlay, & Bullman, 2000). Researcher should consider consequences of collaborative decisions for all involved (Whitley, 2009).

If a researcher communicates information with inclusion of a framework that is well-developed and expectations that are comprehensive in nature, it will provide

guidance for community-partnered participatory research (CPPR; Minkler & Wallerstein, 2003). While I did not perform my study as a true CPPR, relationships with organizations serving the target community were critical to completion of the study, so it was important for me to focus on CPPR principles as I developed my study. In order to develop effective CPPR, it is critical that researchers must focus on relationship development, required time and resource investment (Minkler & Wallerstein, 2003). Researchers may find that an increased time commitment may be necessary for some communities, as situations may determine, and should not result in reduction in time, because gaining information by means of collaborative interactions may impact the research program success (Minkler & Wallerstein, 2003). Members of the community should be active participants and provide input for incorporation in project planning processes (Minkler & Wallerstein, 2003).

I selected participants by using a nonprobability sample based on convenience with individuals in the target population (McKenzie, Neiger, & Thackeray, 2009). McKenzie, Neiger, & Thackeray (2009) found that nonexperimental with time series evaluation design is often most appropriately for public health communication programs, especially if it will not be possible to assign participants to a control group. However, I used a systemic sample approach by selecting every fifth participant to be in the control group (McKenzie, Neiger, & Thackeray, 2009). Researchers using time series evaluation involving measurements over a period of time allow comparison between the times before and after program implementation to determine program effectiveness (McKenzie,

Neiger, & Thackeray, 2009). I was enabled by this evaluation to identify change from the time of pretest to the time of posttest.

I used G*Power 3.1.3 to perform an a priori power analysis for the purpose of calculating sample size for the proposed study (Faul, Erdfelder, Buchner, & Lang, 2009). I based my power analysis on 1 variable with 4 predictors, which include the four different learning styles. I determined that the minimum sample size required for rejection of the null hypothesis, using analysis of variance (ANOVA) was determined to be 179 in order to achieve a power (1 – β) of .80 with a medium effect size f^2=0.25 with α error probability of .05 (Cohen, 1992). I selected deviation from zero, rather than increase, as the hypothesis is simply focused on the intervention invoking a change, rather than change in a single direction. Note that β represents the chance of Type II error, in which there is acceptance of the null hypothesis when in actuality, it is false. Using a power of .80, the assumption is that there is an 80% chance that the statistical significance is not due to chance. Since there were four study groups and one control group, the power analysis result of 179 was rounded up to 180 in order to have five equal size groups of participants.

I used G*Power 3.1.3 to perform a power analysis, which provided the following results:

F tests – ANOVA: Fixed effects, special, main effects and interactions

Analysis Type: A priori: Compute required sample size – given α, power, and effect size

Input: Effect size f = 0.25 (medium effect)

α err prob = 0.05

Power (1-β err prop) = 0.8

Numerator df = 3

Number of groups = 5

Output: Noncentrality parameter λ = 11.1875

Critical F = 2.6562

Denominator df = 173

Total sample size = 179

Actual power = 0.8014

Due to the inability to obtain this required number of participants, I used G*Power 3.1.3 to perform an compromise analysis for the purpose of calculating implied α and power (Faul, Erdfelder, Buchner, & Lang, 2009). I based the compromise analysis on a total sample size of 80, using 1 variable with 5 predictors, which include the four different learning styles and a control group. Rejection of the null hypothesis, using analysis of variance (ANOVA), based on β/α ratio of 1 and a power (1 – β) of 0.7494461 with a medium effect size f^2=0.25 with α error probability of = 0.2505539 and β error probability of 0.2505539 (Cohen, 1992). Note that β represents the chance of Type II error, in which there is acceptance of the null hypothesis when in actuality, it is false. A power of 0.7494461 indicated that there was a 74.94% chance that the statistical significance is not due to chance. There were also 80 participants, 16 of whom were randomly assigned to a control group.

I used G*Power 3.1.3 to perform a power analysis, which provided the following results:

F tests – ANOVA: Fixed effects, special, main effects and interactions

Analysis Type: A priori: Compromise: Compute implied α & power – given β/α ratio, sample size, and effect size

Input: Effect size f = 0.25 (medium effect)

β/α ratio = 1

Total sample size

Numerator df = 3

Number of groups = 5

Output: Noncentrality parameter λ = 5.0000000

Critical F = 1.3963013

Denominator df = 75

α err prob= 0.2505539

β err prob= 0.2505539

Power (1-β err prob) = 0.7494461

Instruments

Participants completed a questionnaire for collection of descriptive data. I used the VARK tool to assess if the participant's learning styles were visual, aural, read-write, or kinesthetic (Ramaya et al., 2009). Participants completed a printed VARK questionnaire, which I used to collect learning style data. The VARK tool is available in a variety of different languages and it may be administered verbally (Fleming, 2011) Following completion of the VARK questionnaire, the participant completed a pretest, while I determined the most appropriate educational intervention method, based on VARK questionnaire responses.

Hamilton (2005) considered the VARK tool to have face validity, which is an indication that measurements are considered to be reasonable (Babbie, 2007). Nuzhat, Salem, Quadri, & Al-Hamdan (2011) determined that the validity and reliability of VARK are satisfactory via factor analysis techniques. For the purpose of this study, I analyzed the content of these references and determined that they supported the concept that the content being measured by the VARK tool is reasonable in the sense that the factors being assessed are aligned with the content or subject of the measured outcome.

I used the Short Test of Functional Health Literacy in Adults (S-TOFHLA) for the pretest and posttest. Upon completion of the pretest, I selected and delivered the appropriate method of intervention, with administration of the posttest immediately following. The S-TOFHLA is a condensed version of the Test of Functional Health Literacy (TOFHLA) (Peppercorn Books & Press, Inc., 2004). The TOFHLA is an instrument that was created for the purpose of assessing the level of functional health

literacy by healthcare professionals and for research purposes (Peppercorn Books & Press, Inc., 2004). Testing and validation have been performed on both versions of this instrument, as well as the Spanish translations, following development (Peppercorn Books & Press, Inc., 2004).

Reliability, or consistency of program measurement, may be determined according to internal consistency, test-retest reliability, rater reliability, or parallel forms reliability methods (McKenzie, Neiger, & Thackeray, 2009). Validity, or accuracy of measurement, is evaluated according to face, content, criterion-related, construct, sensitivity, and specificity types (McKenzie, Neiger, & Thackeray, 2009). While the program focuses on a specific population, internal selection validity threat may occur since there is little randomization in location of program service delivery (McKenzie, Neiger, & Thackeray, 2009). External social desirability threat may occur, if participants respond according to perceived "right" answers about health literacy (McKenzie, Neiger, & Thackeray, 2009). Since this program serves low-income individuals, external expectancy effect could occur if individuals providing services project prejudiced attitudes, potentially leading participants to believe that they are expected to respond in a particular manner (McKenzie, Neiger, & Thackeray, 2009). While there is a section in the STOFHLA that assesses ability to comprehend instructions for a Medicaid application, it does not have any questions that are qualitative in nature.

It has been determined that the reading comprehension component of the STOFHLA has a reliability of $\alpha = 0.97$ (Mancuso, 2009). However, the numeracy component is rather low at $\alpha = 0.68$ (Mancuso, 2009). Reliability of the STOFHLA has

been determined to be good and considered to provide valid measurement of health literacy (Baker, Williams, Gazmararian, & Nurss, 1999). A correlation of 0.80 has been determined between the REALM and STOFHLA, which was very near the 0.84 correlation with the REALM and TOFHLA when the TOFHLA was developed (Baker et al., 1999).

Educational Intervention

All study participants were provided with the identical educational material content in the intervention; however, differing versions of the intervention in both Spanish and English were developed for provision of basic health literacy education to participants. I based my selection of the appropriate version for those in the study group on information provided in the VARK questionnaire administered prior to the pretest. I did not use the Spanish version, as there was not a need by any of the participants in the study. I developed the intervention tools and tested them as the basis of this study. I provided brief descriptions of the intervention tools in Table 2.

Table 2

Educational Intervention Tools

Learning style	Brief description of intervention	Appendix location of tools
Visual	Examples of diagnostic test instructions and Medicaid instructions with written explanation of pertinent components at fifth grade reading level	Appendix I –English Appendix J –Spanish
Aural	Recorded audio file read from script	Appendix K –English Appendix L – Spanish
Read/write	Printed educational intervention written at fifth grade reading level	Appendix K –English Appendix L – Spanish
Kinesthetic	Video with hands-on exercise to follow explanation of examples of diagnostic test instructions and Medicaid instructions	Appendix M –English Appendix N –Spanish
Control group	Examples of diagnostic test instructions and Medicaid instructions without simplified terminology or additional explanation	Appendix G –English Appendix H –Spanish

I focused my educational intervention on instructions for a patient to prepare for a radiologic exam and information related to rights and responsibilities for Medicaid, since these two topics were the focus of the STOFHLA test. I created an initial draft of the intervention tool to include all pertinent information and avoiding non-pertinent information that may be a distraction from the objectives. Once I created the tool, I revised it, so that it is written below a sixth grade reading level. I eliminated medical jargon and used terms that were clearly defined in simple terminology. I used the Flesch-Kincaid Grade Level Formula as found in Microsoft Word as my method for evaluation of grade level of the educational tool used for the intervention in this study (Mayer & Villaire, 2009). I validated the intervention tool through peer review.

Thembi Conner-Garcia, MD, MPH, Assistant Professor of Medicine at the University Of Illinois College Of Medicine in Peoria performed initial peer review of the intervention materials. Dr. Conner-Garcia stated that the intervention looked fine and no changes were necessary. I performed an extensive search for additional peer reviewers through e-mail and phone contacts. Due to the timing of the search, most of the professionals contacted were unable to assist, as they were getting ready to take the summer term off or were involved with other research projects that did not allow time to assist with the review. Julie Wolter, Associate Professor at Doisy College of Health Sciences at Saint Louis University reviewed the data collection and intervention tools and posed questions regarding the age divisions and language classifications on the data collection tool. However, I had designed the age divisions and language classifications to match that of U.S. Census data collection in response to a suggestion from a committee

member, so no change was made. This peer reviewer also made a suggestion regarding the intervention tool, which was followed for a minor addition. The final reviewer to respond was David R. Kaufman, Ph.D. from the Department of Biomedical Informatics at Columbia University.

I assigned every fifth participant to the control group, receiving the version that was not adjusted to address learning style (Appendices L & M). The rest of the participants received the test intervention that was most appropriate to the learning style identified in the VARK tool. In order to ensure that there will be an equal number of participants in each group, I maintained a tally to keep track of how many are in each group. I provided the control group members with the printed version of the intervention without adjustment to the fifth grade reading level during the study, although they were also provided with the opportunity to receive the learning style appropriate intervention following completion of the posttest in order to allow equal opportunity for all participants to receive full benefits of participation. I delivered the posttest immediately following the intervention. If the participant was in the control group, I provided the intervention that is most appropriate to the learning style identified in the VARK tool, so that all participants had equal access to the test intervention.

Read-write learners were provided with a printed educational intervention (Appendices P & Q). This differed from the control intervention, as it was delivered at a fifth grade reading level. The printed version of the tool used a Times New Roman font in size 14, which is easy to read (Mayer & Villaire, 2009).

I used a tool for the participants identified as visual learners (Appendices N & O) that was in the form of images that display examples of both topics presented in the STOFHLA. I developed the tool to include an example of a physician order for a diagnostic test with instructions to the patient was provided with the pertinent components labeled in terms used in the printed version at the fifth grade reading level. I developed the second half of the educational intervention as an example of Medicaid instructions similarly labeled.

Participants identified as aural learners were provided with the intervention through a recorded audio file. I provided a recording of the read/write intervention (Appendices N & O) read aloud for the aural learners. I played the audio file for the participant using an iPod with speakers, in order to avoid potential for lice and other parasites that may be spread by headphones. Participants were asked to verify that they were able to hear and volume was adjusted accordingly. I provided consistency in delivery of the intervention by using a recorded message. Kinesthetic learners were also provided with an educational intervention that had been recorded. However, I created this version in the form of a video with images that demonstrated examples of how the information was applied, rather than just audio. The participants viewed the on an iPad that researcher provided. I also provided the participants with a hands-on exercise that required identification of the elements presented in the video (Appendices R & S). Participants performed the hands-on exercise using two laminated documents that were color-coded to identify specific areas. I created the first document as a sample of the type of information found on a Temporary Assistance for Needy Families (TANF) application

form that correlated with the topics in the STOFHLA assessment, and the second document as a sample of instructions for diagnostic testing. Participants were provided with the laminated documents, then shown a brief video, which provided a visual tour of the laminated documents with explanations of each colored section.

Data Collection Procedures

Following obtaining consent to participate, I administered the VARK assessment, followed by the questionnaire and pretest. While the participant was completing the questionnaire and pretest, I scored the VARK in order to determine the appropriate intervention, then I administered the intervention. Following the intervention, I delivered the posttest. Dr. Elsa Vasquez was available serve in the capacity of a Spanish interpreter as needed, but was not utilized, as no needs were identified. Dr. Vasquez was selected to assist as a medical professional speaking Spanish as a primary language and English as a secondary language in order to meet the needs of the Hispanic study population that might have required communication in Spanish.

I performed impact evaluation measurement through posttest immediately after the teaching intervention. I compared pretest and posttest scores, and analyzed the scores for the purpose of evaluation of intervention effectiveness. The participants completed the STOFHLA assessment as a pretest prior to the intervention and as a posttest immediately following the intervention.

It is necessary to note that I established a control group by providing the intervention in the form of a document written in English without adjustment to a fifth grade reading level and inclusion of medical jargon, rather than being delivered

according to the method determined most appropriate according to the VARK questionnaire. However, in order to allow equal access to the most appropriate form of educational intervention, following the posttest, the participants in the control group were offered the opportunity for exposure to the appropriate version.

Variables

The outcome (dependent) variables are those while are being studied and are influenced by independent variables (McKenzie, Neiger, & Thackeray, 2009). The independent variable for this study was the educational intervention, which was selected based on the preintervention VARK questionnaire. Coding of dependent variables is presented in Table 3.

Data Analysis

Following data collection, I performed analysis of the data, starting with description of the overall nature of the data collected in the study. This included a tally of participants involved, along with a count of those who were approached, but opted out of the study (Creswell, 2009). The next step in data analysis that I performed was identification of potential bias relative to participation in the study (Creswell, 2009). I performed statistical analysis, based on previously outlined coding of the data elements in order to provide a descriptive analysis of both dependent and independent variables, (Creswell, 2009). I assessed objectives to evaluate the program effectiveness and improvements were suggested in chapter 5, based on findings (NCHM, 2010).

I recorded all data that was collected in a Microsoft Excel spreadsheet on a laptop, only identifying participants by a number. I did not collect names, addresses, phone

numbers, or other individually identifiable health information defined by the Health Insurance Portability and Accountability Act (HIPAA) of 1996. I performed quantitative data analysis utilizing SPSS to perform an ANOVA and I codified data elements, as shown in Table 3.

Table 3

Coding of Variables

Learning style	Code
Aural	1
Kinesthetic	2
Read/Write	3
Visual	4
Control	5

I performed statistical analysis of the hypotheses based on data collected from the preintervention VARK questionnaire, along with pretest and posttest scores obtained using the Short Test of Functional Health Literacy in Adults (S-TOFHLA). I determined descriptive statistical presentation, including the mean, range, and standard deviation (Creswell, 2009). I performed a t-test because the intervention design addressed groups of data according to independent variables with continuous data on the dependent variable of health literacy level (Creswell, 2009). I used ANOVA to evaluate impact as it related to aural, kinesthetic, visual, and written styles of learning (Ramayah, Sivanandan, Nasrijal, Letchumanan, Leong, & Ramayah, 2009).

I performed ANOVA, based on the independent variable for this study being the educational intervention and the dependent variable was the outcome observed following the intervention. I presented the research questions with the associated hypotheses in Table 1.

I displayed results of the study by means of figures and tables in chapter 4 to facilitate discussion of results and establishment of conclusions (Creswell, 2009). I included identification of statistical significance of results using multiple regression analysis and relation of the results to the hypothesis statement and research question (Creswell, 2009). Following statistical analysis, I performed comparison with existing literature for previous research, discussed in chapter two, in order to establish any conclusions that were consistent with previously performed studies or published theories to verify logic and further support findings for this study (Creswell, 2009).

Reporting and Dissemination of Findings

The key contact individuals representing the organizations for collaboration in the study had expressed interest in the results, following completion of research, so shared will shared my findings with those stakeholders in a summarized format following analysis of data and successful dissertation defense. I will submit my study for publication in peer-reviewed professional journals. I will perform additional dissemination of findings via presentations for professional organizations. I have made tentative plans to present for the Central Illinois Health Information Management Association at a quarterly educational meeting, the Illinois Health Information

Management Association at the annual meeting, and at the American Health Information Management Association convention or Assembly on Education.

Ethical Considerations

I submitted my proposed study to the Walden University Institutional Review Board (IRB) immediately following proposal defense and approval. Walden University IRB assigned approval number 06-27-13-0037872 for the study. I did not conduct any data collection or official research activities until IRB approval was granted. I used three components for data collection for my. I designed a questionnaire, illustrated in Appendix E (English) and Appendix F (Spanish), for the purpose of collecting data regarding age, gender, race, and level of education. I achieved validation for the questionnaire through a peer review process. I obtained copyright permission for the the VARK tool, which will be used to identify learning style, from Neil D. Fleming via e-mail on May 21, 2011. I have included a copy of this e-mail communication in Appendix O. The Short Test of Functional Health Literacy in Adults (STOFHLA), which was used to assess the health literacy level for each participant, is published by Peppercorn Books & Press, Inc. In order to use the STOFHLA, I purchased it as part of a package, which included the short and long versions of the TOFHLA, which were written in both Spanish and English (Peppercorn Books & Press, Inc., 2004). I found that the package provided administration instructions, guidelines to score the tests, and licensing information (Peppercorn Books & Press, Inc., 2004). The license specified that the purchaser may make copies of the documents in order to perform private research and testing (Peppercorn Books & Press,

Inc., 2004). My research for this dissertation utilized the STOFHLA in a manner that complied with the terms of legal use allowed by the licensing documentation.

I obtained consent from participants through use of a consent form, which is provided in Appendix C. I provided the letters of cooperation, in Appendix A, which provided documentation of thecollaboration agreement for each of the community partners. The collaborating agency representatives signed these letters prior to application for IRB approval for this study.

I provided participants with information regarding the study and I explained the consent form. I did not identify any language barriers at this point, so there was no need for the materials to be provided in appropriate different language and an interpreter was not necessary. I asked participants if they required an interpreter or needed to have materials read aloud.

All participants in the study were over the age of 18. I did not include prisoners in the study. I identified aspects of the target population, as being potentially vulnerable, including individuals living in low-income communities, lacking fluency in the English language. I also identified possible indirect areas of vulnerability of participants in the target population, including women who are pregnant, those who may be suffering from disabilities, and elderly individuals.

I administered the study and determined the most appropriate version of the educational intervention based onresponses to the VARK tool completed prior to the pretest. However, I provided the control group a brochure that was not adjusted to meet identified needs as part of the study. I identified that it would have been unethical

research practice not to provide all participants with the benefit of the most appropriate version of the intervention, so members of the control group were provided with the version deemed most appropriate for their needs following the posttest in order to provide them with the full benefit of participation.

I did not collect any protected health information, as defined by the Health Insurance Portability and Accountability Act (HIPAA) of 1996, which could have been used to identify individuals. This prevented possible unintentional disclosure of information that is confidential in nature related to research participants. I constructed the research materials with care and consideration of cultural competence in the method of performance of the study. I developed my delivery method in a manner that intended to reduce the possibility of generating physiological stress for participants. I limited data collection to information that is required for the study.

Limitations/Plausible Rival Explanations

I identified limitations of this study, starting with the sampling method and identification of the target population. It is possible that bias may have existed related to health beliefs, as participants were either already presenting for healthcare services or were voluntarily participating as part of a group to obtain educational intervention from this study. I also limited my study to a small component of the overall population of Peoria County, so the findings were not representative of the county as a whole.

I recognized that one plausible rival explanation may be that other variables may have been responsible for results. Validity threats may have existed related to selection of

participants. Of course, the possibility of rounding error or inappropriate statistical evaluation could also be considered.

Summary

Community organizations providing public health programs to clients in medically underserved areas of Peoria, Illinois were identified as a means to solicit potential participants for this study. Once participants consented to the study, they were randomly be assigned to either the study group or control group in this experimental study. I administered my study through participant completion of a questionnaire and VARK tool to collect data that was used to identify the appropriate intervention for those in the study group, based on language and learning style. All participants completed the STOFHLA as a pretest. Following completion of the pretest and selection of the appropriate intervention, participants in the study group were provided with the intervention to meet identified needs while those in the control group were provided with a standard printed intervention that was not adjusted to a fifth grade reading level, appropriate language, or identified learning style. Participants completed the STOFHLA as a posttest following the intervention.

I performed all data collection and provided all of the study interventions. I used multivariate regression analysis of variance to analyze the data collected and evaluate the research questions. Ethical considerations for the study were appropriately addressed, including IRB processes, permissions for data collection and testing tools, consent, and confidentiality of data collected. Following completion of the study and successful

defense of the dissertation, I will disseminate my findings through publication and presentation to stakeholders.

Chapter 4: Results

Introduction

I developed this study for the purpose of exploring the impact of application of learning style to health literacy education. I accomplished this through examination of two main research questions that addressed whether or not a difference would be realized as a result of adjusting an educational intervention to appropriate learning style, and further, if a difference existed among the different learning styles. I established the independent variable of the study asthe educational intervention and the dependent variables were aural, kinesthetic, read/write, and visual learning styles. In Chapter 4, I present my results and analysis of how these variables related to the hypotheses and research questions. Tables are used to present data in a descriptive format.

Response of Target Population

The target population for the study was individuals over the age of 18 in central Illinois. All data collection was performed in the city of Peoria. Initially, the study was publicized by posting the flyer (Appendix B) at the three sites where the study was to be performed. I received absolutely no response within two weeks using this method. Individuals working at the sites were enlisted to assist in recruiting potential participants from the population of visitors to the organizations. Additionally, the flyer was more widely distributed via personal and professional networks in Peoria via e-mail

Research Design and Data Collection Procedures

I used a quantitative research design to examine the impact of application of learning style to health literacy education. A systemic sample approach was used for this

study by selecting every fifth participant to be in the control group (McKenzie, Neiger, & Thackeray, 2009).

I started the study delivery process by providing the consent form, which included the basic background information, a concise description of the study, notice of the voluntary nature of the study, risks and benefits, statement of confidentiality, and information about who to contact for questions. The consent form I also included the Walden University IRB approval number, 06-27-13-0037872, on the consent form. Since no identifiable information was collected for the study, no signatures were collected for consent. Because of this, participants demonstrated implied consent by completing the study following review of the consent document.

I used several tools in my research. Participants completed the VARK tool for identification of learning style, followed by a questionnaire to collect data for descriptive statistics about the population. I administered the Short Test of Functional Health Literacy in Adults (S-TOFHLA) for the pretest. Following the pretest, the participants received the study intervention that most appropriately matched the learning style identified by the VARK results. Every fifth participant received the control group intervention that was not adjusted to address learning style needs. The S-TOFHLA posttest was delivered immediately following the intervention and control group participants were offered the learning style appropriate intervention following the posttest in order to provide all participants equal access to the test intervention.

The research questions for this study, along with the associated hypotheses are presented in Table 1

Population and Demographic Analysis

A total of 80 adults, age 18 and over, participated in this study. There were 86 initial participants, but 6 opted out after starting the study. Two of the participants opted out due to a feeling of being overwhelmed by the amount of information being assessed, and four opted out due to the amount of time the study was taking. The range of ages for participants started with an age group of 18-19 years of age, extending through an age grouping of 75-84 years of age. The age range of 45.54 represented the largest proportion of the sample of the study, and there were no participants in the 85 and over age range. Females represented 68% of the participants. The white racial group was the largest represented in the study as 63.8% of the sample, followed by the black, African American, or Negro group, which was 32.5%. The Spanish version of the tools created for this study was not used, as 100% of the study sample spoke English as the primary language. The study sample demonstrated diverse educational history with all categories represented.

Table 4

Frequency Distribution of Gender

Gender	Frequency	Percentage
Male	25	31.3%
Female	55	68.8%
Total	80	100.0%

Table 5

Frequency Distribution of Age

Age Group	Frequency	Percentage
15-24	10	12.50%
25-34	15	18.75%
35-44	10	12.50%
45-54	25	31.25%
55-64	10	12.50%
65-74	5	6.25%
75-84	4	5.0%
85 and over	0	0.0%
Undisclosed	1	1.25%
Total	80	100.00%

Table 6

Frequency Distribution of Race

Race	Frequency	Percentage
White	51	63.8%
Black, African American, or Negro	26	32.5%
Asian Indian	0	0.0%
Japanese	0	0.0%
Native Hawaiian	0	0.0%
Chinese	0	0.0%
Korean	0	0.0%
Guamanian or Chamorro	0	0.0%
Filipino	0	0.0%
Viatnamese	0	0.0%
Samoan	0	0.0%
Other Asian	0	0.0%
Other Pacific Islander	0	0.0%
Other Race	3	3.8%
Total	80	100%

Table 7

Frequency Distribution of Origin

Hispanic Origin	Frequency	Percentage
Yes	0	0.0%
Yes, Puerto Rican	1	1.3%
Yes, Cuban	0	0.0%
Yes, Mexican, Mexican American, Chicano	0	0.0%
No, not of Hispanic, Latino, or Spanish origin	79	98.8%
Total	80	100%

Table 8

Frequency Distribution of Language

Spoken language	Frequency	Percentage
English only	78	97.5%
English secondary	0	0.0%
Spanish	0	0.0%
Indo-European languages	0	0.0%
Asian and Pacific Island languages	0	0.0%
Other	2	2.5%
Total	80	100%

Table 9

Frequency Distribution of Education Level

Education level	Frequency	Percentage
Less than 9th grade	7	8.8%
9th to 12th grade, no diploma	20	25.0%
High school graduate or GED	14	17.5%
Some college, no degree	21	26.3%
Associate degree	2	2.5%
Bachelor's degree	9	11.3%
Graduate degree	6	7.5%
Undisclosed	1	1.3%
Total	80	100.0%

I determined frequency distributions for comparison of the study group versus the control group with 64 participants in the study group and 16 in the control group. I did not perform statistical analysis to compare statistical significance of intervention between these groups, as this data was only collected for descriptive statistical purposes. The age range for the study group started with an age group of 18-19 years of age, extending through an age grouping of 75-84 years of age, while the control group started with the 20-24 age group and extended to the 75-84 age group. The 45-54 age group represented the largest proportion in both the study group and the control group. There were more females than males in both groups with 67% of the study group and 75.0% of the control group being female. The white racial group was the largest represented in both groups with 60.9% in the study group and 75.0% of the control group. This was followed by the black, African American, or Negro group, which was 34.4% of the study group and 25.0% of the control group. Both groups demonstrated diverse educational history with all categories represented.

Table 10

Frequency Distribution of Descriptive Data for Study Group and Control Group Gender

	Study group (n = 64)		Control group (n = 16)	
Gender	Frequency	Percentage	Frequency	Percentage
Male	21	32.8%	4	25.0%
Female	43	67.2%	12	75.0%
Total	64	100.0%	16	100.00%

Table 11

Frequency Distribution of Descriptive Data for Study Group and Control Group Age

	Study group (n = 64)		Control group (n = 16)	
Age group	Frequency	Percentage	Frequency	Percentage
15-24	8	12.50%	2	12.50%
25-34	14	21.88%	1	6.25%
35-44	10	15.63%	0	0.00%
45-54	19	29.69%	6	37.50%
55-64	6	9.38%	4	25.00%
65-74	3	4.69%	2	12.50%
75-84	3	4.69%	1	6.25%
85 and over	0	0.00%	0	0.00%
Undisclosed	1	1.56%	0	0.00%
Total	64	100.00%	16	100.00%

Table 12

Frequency Distribution of Descriptive Data for All Data Race

Race	Study group (n = 64)		Control group (n = 16)	
	Frequency	Percentage	Frequency	Percentage
White	39	60.9%	12	75.0%
Black, African American, or Negro	22	34.4%	4	25.0%
American Indian or Alaska Native	0	0.0%	0	0.0%
Asian Indian	0	0.0%	0	0.0%
Japanese	0	0.0%	0	0.0%
Native Hawaiian	0	0.0%	0	0.0%
Chinese	0	0.0%	0	0.0%
Korean	0	0.0%	0	0.0%
Guamanian or Chamorro	0	0.0%	0	0.0%
Filipino	0	0.0%	0	0.0%
Viatnamese	0	0.0%	0	0.0%
Samoan	0	0.0%	0	0.0%
Other Asian	0	0.0%	0	0.0%
Other Pacific Islander	0	0.0%	0	0.0%
Other Race	3	4.7%	0	0.0%

Table 13

Frequency Distribution of Descriptive Data for All Data Origin

	Study group (n = 64)		Control group (n = 16)	
Hispanic origin	Frequency	Percentage	Frequency	Percentage
Yes	0	0.0%	0	0.0%
Yes, Puerto Rican	1	1.6%	0	0.0%
Yes, Cuban	0	0.0%	0	0.0%
Yes, Mexican, Mexican American, Chicano	0	0.0%	0	0.0%
No, not of Hispanic, Latino, or Spanish origin	63	98.4%	16	100.0%

Table 14

Frequency Distribution of Descriptive Data for Study Group and Control Group Language

	Study group (n = 64)		Control group (n = 16)	
Spoken language	Frequency	Percentage	Frequency	Percentage
English only	63	98.4%	15	93.8%
English secondary	0	0.0%	0	0.0%
Spanish	0	0.0%	0	0.0%
Indo-European languages	0	0.0%	0	0.0%
Asian and Pacific Island languages	0	0.0%	0	0.0%
Other	1	1.6%	1	6.3%

Table 15

Frequency Distribution of Descriptive Data for Study Group and Control Group Education Level

	Study group (n = 64)		Control group (n = 16)	
Educational level	Frequency	Percentage	Frequency	Percentage
Less than 9th grade	5	7.8%	2	12.5%
9th to 12th grade, no diploma	19	29.7%	1	6.3%
High school graduate or GED	10	15.6%	4	25.0%
Some college, no degree	16	25.0%	5	31.3%
Associate degree	1	1.6%	1	6.3%
Bachelor's degree	7	10.9%	2	12.5%
Graduate degree	5	7.8%	1	6.3%
Undisclosed	1	1.6%	0	0.0%

Learning Style Analysis

While I had planned for an equal distribution of learning styles in the study sample, as was proposed in Chapter 3, the actual distribution was not equal. The read/write learning style represented the largest proportion of 31.3%, followed by the aural learning style with 28.8%, kinesthetic learning style with 21.3%, and visual learners with only 5% of the participants. I identified 11 participants as being multimodal learners, which represented a proportion of 13.75% of the participants.

Table 16

Frequency Distribution of Learning Style

Learning style assessed	Frequency	Percentage
Visual	4	5.0%
Aural	23	28.8%
Read/Write	25	31.3%
Kinesthetic	17	21.3%
Multimodal-Visual/Aural	0	0.0%
Multimodal-Visual/Read/Write	3	3.8%
Multimodal-Visual/Kinesthetic	1	1.3%
Multimodal-Aural/Read/Write	2	2.5%
Multimodal-Aural/Kinesthetic	2	2.5%
Multimodal-Read/Write/Kinesthetic	2	2.5%
Multimodal-Aural/Read/Write/Kinesthetic	1	1.3%
Multimodal-Visual/Aural/Read/Write	0	0.0%
Multimodal-Visual/Aural/Kinesthetic	0	0.0%
Multimodal-Visual/Read/Write/Kinesthetic	0	0.0%
Multimodal-Visual/Aural/Read/Write/Kinesthetic	0	0.0%
Total	80	100%

The distribution of the learning styles for the interventions also had the greatest proportion in the read/write intervention group with 26.3%. This was followed by the aural intervention group with 25.0%, the kinesthetic and control intervention groups each representing 20.0%, and the visual intervention provided to only 8.8% of the participants. The multimodal learners only received one of their identified learning styles, so these were absorbed into the groups specific to the interventions administered.

Table 17

Frequency Distribution of Intervention Learning Style

Learning style assessed	Frequency	Percentage
Visual	7	8.8%
Aural	20	25.0%
Read/Write	21	26.3%
Kinesthetic	16	20.0%
Control	16	20.0%
Total	80	100%

Functional Health Literacy Level Analysis

I assessed study participants to determine a baseline functional health literacy level using the Short Test of Functional Health Literacy in Adults (STOFHLA). The scores for the study ranged from 1 to 36. Adequate functional health literacy is reflected by scores of 23-36. Individuals with adequate functional health literacy are able to read, as well as interpret, most text related to health. Individuals with marginal functional

health literacy, who have difficulty reading and interpreting health-related text, are reflected by scores in the 17-22 range. Scores in the 0-16 range reflect an inadequate functional health literacy level with an inability to read and interpret health-related texts. There were 21 participants with a perfect pretest score of 36, which meant that only 59 of the 80 participants had an opportunity to improve on the posttest.

Table 18

Frequency Distribution of Baseline Functional Health Literacy Levels

STOFHLA score level	Frequency	Percentage
Inadequate functional health literacy (0-16)	5	6.3%
Marginal functional health literacy (17-22)	6	7.5%
Adequate functional health literacy (23-36)	69	86.3%
Total	80	100%

Table 19

Frequency Distribution of Baseline Functional Health Literacy Levels for Study Group and Control Group

	Study group (n = 64)		Control group (n = 16)	
STOFHLA score level	Frequency	Percentage	Frequency	Percentage
Inadequate Functional Health Literacy (0-16)	4	6.3%	1	6.3%
Marginal Functional Health Literacy (17-22)	6	9.4%	0	0.0%
Adequate Functional Health Literacy (23-36)	54	84.4%	15	93.8%

Following the intervention, the STOFHLA was administered as a posttest to assess the impact, if any, of the intervention. The frequency distribution of the posttest reflected a decrease in the proportions of participants with inadequate and marginal health literacy levels, while an increase was noted in proportion of the category of adequate functional health literacy. When separated into study group and control group, no proportional changes were noted among the categories for the control group.

Table 20

Frequency Distribution of Posttest Functional Health Literacy Levels

STOFHLA score level	Frequency	Percentage
Inadequate functional health literacy (0-16)	3	3.8%
Marginal functional health literacy (17-22)	2	2.5%
Adequate functional health literacy (23-36)	75	93.8%
Total	80	100%

Table 21

Frequency Distribution of Posttest Functional Health Literacy Levels for Study Group and Control Group

	Study group (n = 64)		Control group (n = 16)	
STOFHLA Score Level	Frequency	Percentage	Frequency	Percentage
Inadequate functional health literacy (0-16)	2	3.1%	1	6.3%
Marginal functional health literacy (17-22)	2	3.1%	0	0.0%
Adequate functional health literacy (23-36)	60	93.8%	15	93.8%

Table 22

STOFHLA Change from Pretest to Posttest According to Learning Style

	Average pretest score	Average posttest score	Average change
Visual	33.57	33.86	0.29
Aural	30.47	32.76	2.29
Read/Write	32.24	34.05	1.81
Kinesthetic	33.60	35.00	1.40
Control	33.86	34.57	0.71

Statistical analysis was also performed after removal of the 21 participants with the perfect score of 36, as only 59 of the 80 total participants had an opportunity to improve on the posttest.

Table 23

Frequency Distribution of Gender Descriptive Data for Study Group and Control Group without Perfect Pretest Scores

	Study group (n = 48)		Control group (n = 11)	
Gender	Frequency	Percentage	Frequency	Percentage
Male	17	35.4%	3	27.3%
Female	31	64.6%	8	72.7%

Table 24

Frequency Distribution of Age Descriptive Data for Study Group and Control Group without Perfect Pretest Scores

	Study group (n = 48)		Control group (n = 11)	
Age group	Frequency	Percentage	Frequency	Percentage
15-24	5	10.4%	1	9.1%
25-34	13	27.1%	1	9.1%
35-44	5	10.4%	0	0.0%
45-54	14	29.2%	4	36.4%
55-64	4	8.3%	3	27.3%
65-74	3	6.3%	2	18.2%
75-84	3	6.3%	0	0.0%
85 and over	0	0.0%	0	0.0%
Undisclosed	1	2.1%	0	0.0%

Table 25

Frequency Distribution of Race Descriptive Data for Study Group and Control Group without Perfect Pretest Scores

Race	Study group (n = 48)		Control group (n = 11)	
	Frequency	Percentage	Frequency	Percentage
White	26	54.2%	7	63.6%
Black, African American, or Negro	19	39.6%	4	36.4%
American Indian or Alaska Native	0	0.0%	0	0.0%
Asian Indian	0	0.0%	0	0.0%
Japanese	0	0.0%	0	0.0%
Native Hawaiian	0	0.0%	0	0.0%
Chinese	0	0.0%	0	0.0%
Korean	0	0.0%	0	0.0%
Guamanian or Chamorro	0	0.0%	0	0.0%
Filipino	0	0.0%	0	0.0%
Viatamese	0	0.0%	0	0.0%
Samoan	0	0.0%	0	0.0%
Other Asian	0	0.0%	0	0.0%
Other Pacific Islander	0	0.0%	0	0.0%
Other Race	3	6.3%	0	0.0%

Table 26

Frequency Distribution of Origin Descriptive Data for Study Group and Control Group without Perfect Pretest Scores

Hispanic origin	Study group (n = 48)		Control group (n = 11)	
	Frequency	Percentage	Frequency	Percentage
Yes	0	0.0%	0	0.0%
Yes, Puerto Rican	0	0.0%	0	0.0%
Yes, Cuban	0	0.0%	0	0.0%
Yes, Mexican, Mexican American, Chicano	0	0.0%	0	0.0%
No, not of Hispanic, Latino, or Spanish origin	48	100.0%	11	100.0%

Table 27

Frequency Distribution of Language for Study Group and Control Group without Perfect Pretest Scores

Spoken language	Study group (n = 48)		Control group (n = 11)	
	Frequency	Percentage	Frequency	Percentage
English only	48	100.0%	10	90.9%
English secondary	0	0.0%	0	0.0%
Spanish	0	0.0%	0	0.0%
Indo-European languages	0	0.0%	0	0.0%
Asian and Pacific Island languages	0	0.0%	0	0.0%
Other	0	0.0%	1	9.1%

Table 28

Frequency Distribution of Education for Study Group and Control Group without Perfect Pretest Scores

	Study group (n = 48)		Control group (n = 11)	
Education level	Frequency	Percentage	Frequency	Percentage
Less than 9th grade	5	10.4%	2	18.2%
9th to 12th grade, no diploma	16	33.3%	1	9.1%
High school graduate or GED	8	16.7%	3	27.3%
Some college, no degree	11	22.9%	3	27.3%
Associate degree	1	2.1%	0	0.0%
Bachelor's degree	3	6.3%	2	18.2%
Graduate degree	3	6.3%	0	0.0%
Undisclosed	1	2.1%	0	0.0%

Following exclusion of the participants with perfect pretest scores, the distribution of learning styles in the study sample remained unequal. The aural learning style represented the largest proportion of 30.5%, followed by the read/write learning style with 28.8%, kinesthetic learning style with 20.3%, and visual learners with only 5.1% of the participants. There were also 9 participants identified as being multimodal learners, which represented a proportion of 15.3% of the participants.

Table 29

Frequency Distribution of Learning Style for Participants without Perfect Pretest Scores

Learning style assessed	Frequency	Percentage
Visual	3	5.1%
Aural	18	30.5%
Read/Write	17	28.8%
Kinesthetic	12	20.3%
Multimodal-Visual/Aural	0	0.0%
Multimodal-Visual/Read/Write	2	3.4%
Multimodal-Visual/Kinesthetic	1	1.7%
Multimodal-Aural/Read/Write	2	3.4%
Multimodal-Aural/Kinesthetic	2	3.4%
Multimodal-Read/Write/Kinesthetic	1	1.7%
Multimodal-Aural/Read/Write/Kinesthetic	1	1.7%
Multimodal-Visual/Aural/Read/Write	0	0.0%
Multimodal-Visual/Aural/Kinesthetic	0	0.0%
Multimodal-Visual/Read/Write/Kinesthetic	0	0.0%
Multimodal-Visual/Aural/Read/Write/Kinesthetic	0	0.0%

The distribution of the learning styles for the interventions also had the greater proportion in the aural intervention group with 30.5%, followed by the read/write intervention group with 22.0%, the kinesthetic intervention group representing 20.3%, the control group with 18.6% the visual intervention provided to only 8.5% of the participants. The multimodal learners only received one of their identified learning styles, so these were absorbed into the groups specific to the interventions administered.

Table 30

Frequency Distribution of Intervention Learning Style

Learning style assessed	Frequency	Percentage
Visual	5	8.5%
Aural	18	30.5%
Read/Write	13	22.0%
Kinesthetic	12	20.3%
Control	11	18.6%
Total		

Functional Health Literacy Level Analysis

When the participants having perfect pretest scores were removed, the frequency of the sample with adequate functional health literacy dropped to 48, with the inadequate and marginal categories remaining the same. This resulted in a slight change in the proportions for all three categories, raising the inadequate to 8.5% of the sample and the

marginal category to 10.2% of the sample, while lowering the adequate category to 81.4%

Table 31

Frequency Distribution of Baseline Functional Health Literacy Levels following removal of perfect pretest scores

STOFHLA score level	Frequency	Percentage
Inadequate functional health literacy (0-16)	5	8.5%
Marginal functional health literacy (17-22)	6	10.2%
Adequate functional health literacy (23-36)	48	81.4%
Total		

Removal of the participants with perfect pretest scores also impacted the frequency distribution of the baseline functional health literacy levels when divided into study group and control group. The proportion of participants with inadequate health literacy increased to 8.3% of the study group and 9.1% of the control group and the increase in the marginal category increased to 12.5% for the study group. Decreased proportions were recognized for the adequate functional health literacy category for the study group with 79.2% and the control group with 90.9%.

Table 32

Frequency Distribution of Baseline Functional Health Literacy Levels for Study Group and Control Group following removal of perfect pretest scores

	Study group (n = 48)		Control group (n = 11)	
STOFHLA score level	Frequency	Percentage	Frequency	Percentage
Inadequate functional health literacy (0-16)	4	8.3%	1	9.1%
Marginal functional health literacy (17-22)	6	12.5%	0	0.0%
Adequate functional health literacy (23-36)	38	79.2%	10	90.9%

The posttest for the sample without perfect pretest scores reflected a reduction in the number of participants in the inadequate and marginal categories and an increase in the adequate category. The proportion of participants with an adequate functional health literacy level increased to 91.5%.

Table 33

Frequency Distribution of Posttest Functional Health Literacy Levels following removal of perfect pretest scores

STOFHLA score level	Frequency	Percentage
Inadequate functional health literacy (0-16)	3	5.1%
Marginal functional health literacy (17-22)	2	3.4%
Adequate functional health literacy (23-36)	54	91.5%
Total		

There were no changes in the categories for the control group for the posttest, which was consistent with the sample including the perfect pretest scores.

Table 34

Frequency Distribution of Posttest Functional Health Literacy Levels for Study Group and Control Group following removal of perfect pretest scores

	Study group (n = 48)		Control group (n = 11)	
STOFHLA score level	Frequency	Percentage	Frequency	Percentage
Inadequate functional health literacy (0-16)	2	4.2%	1	9.1%
Marginal functional health literacy (17-22)	2	4.2%	0	0.0%
Adequate functional health literacy (23-36)	44	91.7%	10	90.9%

Table 35

STOFHLA Change from Pretest to Posttest According to Learning Style following removal of perfect pretest scores

	Average pretest score	Average posttest score	Average change
Visual	32.60	33.00	0.40
Aural	27.06	29.50	2.44
Read/Write	29.92	33.00	3.08
Kinesthetic	31.08	33.50	2.42
Control	29.55	31.00	1.45

Inferential Statistical Analysis

Data collected from the preintervention questionnaire, along with pretest and posttest scores obtained using the Short Test of Functional Health Literacy in Adults (S-TOFHLA) was maintained in a Microsoft Excel file. Following completion of the data collection phase of the study, data was entered into IBM SPSS Statistics 21. Descriptive statistical presentation will include the mean, range, and standard deviation (Creswell, 2009). ANOVA was used to evaluate impact as it relates to aural, kinesthetic, visual, and written styles of learning (Ramayah, Sivanandan, Nasrijal, Letchumanan, Leong, & Ramayah, 2009). ANOVA was performed using the independent variable for this study as the educational intervention and the dependent variable as the outcome observed following the intervention. A paired t-test was performed to determine statistical significance of pretest and posttest differences between learning styles because the intervention design addresses groups of data according to independent variables with continuous data on the dependent variable of health literacy level (Creswell, 2009). Bonferroni's correction was applied to the calculations, as multiple tests were performed to compare the groups of data (Walker & Almond, 2010). This was accomplished by dividing the significance level of 0.05 by 20, which was the number of tests performed on the groups of data. The result was a new significance level of 0.0025 (Walker & Almond, 2010).

T-test performed on the full data set demonstrated that there was a statistically significant difference between pretest and posttest for all participants of the combined study and control groups. Statistically significant differences were noted between pretest

and posttest for the full data set, as is demonstrated in Table 27. A statistically significant difference was also found to exist between pretest and posttest for the study group, as is demonstrated in Table 28. Paired t-test between pretest and posttest for the control group, the visual study group, and the read/write study group did not reflect any statistically significant difference, as found in Table 29, Table 30, and Table 31. Borderline significance was also determined for the aural and kinesthetic study groups (see Table 32 and Table 33), which is consistent with the results that included the perfect scores. Tables 34, 35, and 36 provide evidence that ANOVA demonstrated that there was no statistical significance of difference between the learning styles, between the study group and control group, or between the learning style study groups without the control group.

Table 36

Paired t-test for all data

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.600	2.871	.321	-2.239	-.961	-4.984	79	.000

Table 37

Paired t-test of pretest and posttest for study groups without the control group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.750	3.065	.383	-2.516	-.984	-4.567	63	.000

Table 38

Paired t-test for control group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.000	1.862	.465	-1.992	-.008	-2.148	15	.048

Table 39

Paired t-test for the visual study group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-.286	2.690	1.017	-2.774	2.202	-.281	6	.788

Table 40

Paired t-test for the read/write study group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.810	3.586	.783	-3.442	-.177	-2.312	20	.032

Table 41

Paired t-test for the aural study group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-2.200	3.156	.706	-3.677	-.723	-3.118	19	.006

Table 42

Paired t-test for the kinesthetic study group

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.750	2.352	.588	-3.003	-.497	-2.976	15	.009

Table 43

ANOVA for all learning styles and control group data

	Sum of squares	df	Mean square	F	Significance
Between groups	26.333	4	6.583	.790	.535
Within groups	624.867	75	8.332		
Total	651.200	79			

Table 44

ANOVA for study and control group

	Sum of squares	df	Mean square	F	Significance
Between groups (Combined)	7.200	1	7.200	.872	.353
Within groups	644.000	78	8.256		
Total	651.200	79			

Table 45

ANOVA for study groups without the control group

	Sum of squares	df	Mean square	F	Significance
Between groups (Combined)	19.133	3	6.378	.668	.575
Within groups	572.867	60	9.548		
Total	592.000	63			

Following analysis of the full data set collected, the participants with the pretest score of 36 were removed, as their scores were not able to be improved and they all reflected 0 change. Similar to the data analysis that included the perfect scores, statistically significant differences were noted between pretest and posttest for the full data set with the exclusion of the perfect scores, as is demonstrated in Table 37, and a statistically significant difference was also found to exist between pretest and posttest for the study group with the exclusion of the perfect scores, as is demonstrated in Table 38.

Paired t-test between pretest and posttest for the control group, the visual study group, and the read/write study group did not reflect any statistically significant difference, as found in Table 39, Table 40, and Table 41. Borderline significance was also determined for the aural and kinesthetic study groups (see Table 42 and Table 43), which is consistent with the results that included the perfect scores. Tables 44, 45, and 46 provide evidence that ANOVA demonstrated that there was no statistical significance of difference between the learning styles, between the study group and control group, or between the learning style study groups without the control group.

Table 46

Paired t-test of pretest and posttest for all data without perfect pretest scores

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-2.220	3.113	.405	-3.032	-1.409	-5.478	58	.000

Table 47

Paired t-test of pretest and posttest for study groups without the control group without perfect pretest scores

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-2.396	3.292	.475	-3.352	-1.440	-5.042	47	.000

Table 48

Paired t-test for control group without perfect pretest scores

	Paired differences							
				95% Confidence Interval of the Difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-1.455	2.115	.638	-2.875	-.034	-2.281	10	.046

Table 49

Paired t-test for the visual study group without perfect pretest scores

	Paired differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-.400	3.286	1.470	-4.481	3.681	-.272	4	.799

Table 50

Paired t-test for the read/write study group without perfect pretest scores

	Paired Differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-3.077	4.092	1.135	-5.550	-.604	-2.711	12	.019

Table 51

Paired t-test for the aural study group without perfect pretest scores

	Paired Differences							
				95% Confidence interval of the difference				
	Mean	Standard deviation	Standard error mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-posttest	-2.444	3.240	.764	-4.056	-.833	-3.201	17	.005

Table 52

Paired t-test for the kinesthetic study group without perfect pretest scores

	Paired differences							
				95% Confidence Interval of the Difference				
	Mean	Standard Deviation	Standard Error Mean	Lower	Upper	t	df	Significance (2-tailed)
Pretest-Posttest	-2.417	2.353	.679	-3.912	-.921	-3.557	11	.004

Table 53

ANOVA for all learning styles and control group data without perfect pretest ***scores***

	Sum of squares	df	Mean square	F	Significance
Between groups	33.924	4	8.481	.867	.490
Within groups	528.211	54	9.782		
Total	562.136	58			

Table 54

ANOVA for study and control group without perfect pretest scores

	Sum of squares	df	Mean square	F	Significance
Between groups	7.929	1	7.929	.816	.370
Within groups	554.206	57	9.723		
Total	562.136	58			

Table 55

ANOVA for study groups without control group without perfect pretest scores

	Sum of squares	df	Mean square	F	Significance
Between groups	25.995	3	8.665	.789	.507
Within groups	483.484	44	10.988		
Total	509.479	47			

Findings

Based on paired t-tests, the data analysis results verifies the null hypothesis for research question number 1 that participants receiving an educational intervention that is adjusted to appropriate learning style will perform differently, either better or worse, on posttest than the comparison group of participants, who will receive a standardized health literacy educational intervention. The findings indicated that there was a statistically significant difference between pre and posttest scores for participants in the study group in comparison to the control group.

Additionally, according to results of ANOVA, , the null hypothesis for research question number 2 was rejected that there was a statistically significant difference in change in performance between pretest and posttest according to learning style for participants receiving an educational intervention that is adjusted to appropriate learning style. There was no statistically significant difference among different learning styles.

T-tests on the full data set did not reflect any significant differences among learning styles. However, when the participants with perfect pretest scores were removed, the kinesthetic learning style was found to have a statistically significant difference, the aural group had a P value of 0.005, which may be considered to be borderline statistically significant, and the other two groups were not found to have statistically significant differences.

Summary

I started this chapter with an overview of the study administration, followed by presentation and analysis of data. The results were consistent with the research question

number one, but research question number two was not found to be true based on this study sample. In Chapter 5, I will provide further analysis of the significance of the study results, along with recommendations for potential applications to promote positive social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Overview

I focused my study on the impact of learning style needs on the effectiveness of health literacy education in order to identify whether or not health literacy education would be more effective if learning style needs were addressed. I designed this study to explore health literacy education with incorporation of the education concept of learning styles as a method of increasing the effectiveness of the education provided. Chapter 5 includes discussion of the study, interpretation of findings, implications for social change, recommendations for action, and future study recommendations.

Healthcare professionals commonly provide patient education in terms that are not consistent with literacy levels and without regard to health literacy levels (Parker, 2000).The combination of healthcare professionals providing information to patients in terms not well-comprehended by the patients and limited healthcare-related vocabulary possessed by patients, communication of instructions and educational information may be miscommunicated (Parker, 2000). Coleman, Chugh, Williams, Grigsby, Glasheen, McKenzie, and Min (2013) found that healthcare professionals have a greater ability impact the patient's ability to comprehend and follow hospital discharge instructions if they are insightful regarding health literacy level, cognitive ability, and self-efficacy of the patient. Selic, Svab, Repolusk, and Gucek, (2011) determined that patient education is more effective if patients are provided with a small amount of new information and instructions by healthcare providers. Stromberg (2005) introduced the concept of applying educational models to provision of patient education. Findings of the Stromberg

(2005) study indicated that patient education was more effective if barriers to learning were removed. Through this study, I provided further contributions to the ability to develop effective patient education by incorporating the health literacy needs and education-focused learning style needs.

Bryan, Kreuter, and Brownson (2009) performed a study that established five principles related to adult learning in public health education. These principles state that adults require a reason why learning must occur, motivation based on need for problem-solving, building on previous experience, active involvement in learning, and an approach that is appropriate for individual background and diverse uniqueness (Bryan, Kreuter, & Brownson, 2009). Individual learning style and other personal learning needs should be considered as a component of the adult learner's individual background and diverse qualities.

Discussion and Interpretation of Findings

While I focused my study on the target population of Central Illinois, it is important to recognize the fact that this study only reflected a small representative sample of 80 individuals in Central Illinois. I found through analysis of my study data that there is a statistically significant difference between pretest and posttest scores for participants in the study group, while no statistically significant difference was identified between pretest and posttest scores for participants in the control group. Additionally, while I determined through ANOVA that no statistically significant difference existed among different learning styles, I did determine through t test that a borderline significance for the aural and kinesthetic study groups existed. These findings indicate that health literacy

education will likely be more effective if they are provided in a manner that corresponds to the learning style of the individual receiving the information. The study findings also reflect that this may be more important for individuals with aural and kinesthetic learning styles.

There is a possibility that gender may have an impact on learning style preference. Wehrwein, Lujan, & DiCarlo (2007) performed a study and determined that males had a tendency toward multimodal learning styles, while females were mostly unimodal learners. Slater, Lujan, & DiCarlo (2007) found that multimodal learning was preferred by the majority of both males and females; however, the females in the study were more diverse in the learning style combination preferences. The distribution of learning styles for both genders were relatively equal in this study and multimodal learners only represented 8% of males and 16% of female participants in this study.

Level of education may also have an impact on the learning style preference. Murphy, Gray, Straja, and Borgert (2004) found that learning styles had a tendency to change as the type of teaching changed in the higher levels of education. Most of the research articles regarding learning styles that were found in the literature review for Chapter 3 and Chapter 5 were focused on formal education provided in educational institutions (Bernardes. & Hanna, 2009; Bryan, Kreuter, & Brownson, 2009; Chepesiuk, 2007; Hawk & Shah, 2007; Nuzhat, Salem, Quadri, & Al-Hamdan, 2011;Ramayah, Sivanandan, Nasrijal, Letchumanan, Leong, & Ramayah, 2009;Rogers, 2009; Slater, Lujan, &DiCarlo, 2007; Tan, 2009; ur Rahman, Jumani, & Basit, 2010; & Wehrwein, Lujan, & DiCarlo, 2007). There seems to be a gap in the learning style research that has

not adequately addressed the aspect of learning styles in community education for those possessing lower levels of formal education and lower general literacy levels. This is an area which may benefit from further research in the future, not just focused on health literacy education, but rather general community education application.

Another aspect of this study that may have impacted results is the use of the VARK tool for assessment of learning style for the participants. The self-assessment approach of the VARK tool, may have also been a limiting factor in this study, as it provides an assessment of the individual's preferred methods of learning and not necessarily the actual strongest methods of learning for the individual. The main reasons for selection of the VARK tool for this study were ease of delivery and cost, as this was free to use with permission from the developer in comparison to others that required fees to use. Hawk and Shah (2007) performed a comparison of six of the most commonly used learning style assessment tools that included the Kolb, Gregorc, Felder and Silverman, VARK, Dunn and Dunn, and RASI models. Each of these models take slightly different approaches to evaluation of learning style, so I suggest that future studies may use each of these different models for learning style assessment.

Further interpretation of these statistical findings to the research questions generate additional questions, which may be explored through future research. Will participants receiving educational intervention adjusted to appropriate learning style perform differently on pretest and posttest than the comparison group of participants receiving a standardized health literacy intervention? There was a significant difference between pretest and posttest when the full data set was evaluated. However, when

evaluated separately, the difference between pretest and posttest for the study group was found to be statistically significant, while the control group was not found to have a statistically significant difference between pretest and posttest scores.

While the overall results of this study verified that participants receiving educational intervention adjusted to appropriate learning style do perform differently on pretest and posttest than the comparison troup of participants receiving a standardized health literacy intervention, it is important to realize that I limited this study to the geographic region of Central Illinois, so regional cultures may have been a contributing factor that was not measured and different communities may have different results. Another potential contributing factor was the immediate delivery of the posttest. It is possible that the participants were able to recall the material from the intervention tools for a short term, but long-term recall was not able to be assessed due to the nature of this study. This is something that future studies may evaluate.

Will there be a difference, according to type of learning style, in theamount of changed performance between pretest and posttest for different learning styles? Statistical analysis demonstrated that there was not a significant difference between pretest and posttest for different learning styles. It is important to note that the four different learning styles were not equally represented in the sample that was able to be obtained in the geographic region and time frame of the study. A larger sample size may have been able to acquire more equal data for each of the learning styles. Considering the information above regarding the lack of equal distribution of learning styles for each gender, it may be difficult to gain equal distribution of learning styles for study unless specific quotas

are able to be set for each category and the amount of time for the study is not as limited. A broader geographic focus and resources to recruit more participants may also facilitate a study that has better representation of different learning styles.

While no significant difference existed between the different learning styles, it is noteworthy that borderline significance was determined for the aural and kinesthetic categories. This finding reflects that it is possible that aural and kinesthetic learners may benefit from receiving health literacy educational materials that are provided to meet their specific learning style needs, while visual and read/write learners may not. However, this finding may be simply due to chance with the low number of total participants and only 8% of the full data set representing the visual learning style.

Implications for Social Change

One of the Healthy People 2020 objectives was to improve the health literacy of the population (DHHS, 2011). If individuals are able to be impacted by improved effectiveness of health literacy education, then social change has potential to be significant when considered in terms of the population. The study was initially approached on a basis of health information management, but the findings may be applied by providers in a variety of settings, including physician offices, hospitals, urgent care centers, community clinics, and public health providers. Since I identified through my study analysis that there is a need to adjust health literacy education to meet learning style needs, healthcare providers and public health educators may experience more effective patient and community education if educational materials are developed in a manner that they may be delivered to individuals according to learning style. While this

may not be easy and cost-effective in the beginning, the overall potential to impact social change in the health education arena may have potential to improve healthcare behaviors of healthcare consumers, which could lead to improved overall health of the population, contributing to reduction in healthcare spending.

Recommendations for Action

The findings from this study may be applied by healthcare professionals in diverse settings. Public health educators may play an active role in development of educational materials that address specific learning styles. This may be accomplished by using existing educational materials and creating versions that meet the needs of visual, aural, read/write, and kinesthetic learners. If written materials are currently being used, audio, video, and interactive hands-on activities may be developed. Once developed, the materials may be distributed to healthcare providers in physician practice, hospital, long-term care, and other healthcare settings where patient care is provided.

Healthcare providers have limited contact time with the patients to perform medical assessments and treatments, so it may not be a realistic goal to have healthcare providers also take time to assess the learning style needs of the patients in order to tailor their communications during that same time frame. However, it may be feasible to suggest incorporation of self-assessment activities for patients prior to contact with the healthcare provider. This may be accomplished through a written questionnaire, such as the VARK took, as part of the paperwork to be completed prior to the visit. Another option could be use of an online assessment using a kiosk or computer in the waiting area. Determination of learning style prior to the contact time with the healthcare

provider will allow for the provider to communicate with the patient in the most effective manner according to individual learning style without taking time away from the actual visit to make the assessment of learning style. This has potential to improve patient comprehension of information provided and compliance with instructions from healthcare providers.

Dissemination of findings from this study will be performed through a variety of venues. The American Health Information Management Association (AHIMA) consumer engagement initiatives may greatly benefit from information about application of learning style to educational materials. AHIMA currently provides health literacy-related materials in written format and some videos. However, the needs of aural and kinesthetic learners could be better addressed in the efforts of this organization. I currently serve on the AHIMA Consumer Engagement Practice Council, so the information will easily be communicated to this group and the researcher will be able to play an active role in development of new materials that meet the healthcare consumer learning style needs.

As an increasing amount of work is being performed on development of online educational tools for health literacy, it is important to adequately address the learning style needs of the online learners. Zapalska and Brozik (2006) suggest provision of a variety of learning activities that accommodate the diversity of learning styles in the audience accessing the educational materials.

During the process of obtaining community partners to collaborate for delivery of the study, individuals associated with the organizations serving as host sites for the study had expressed interest not only in the results of the study, but also any suggestions

regarding how the findings may be applied to development of health literacy education in the Central Illinois community. Because of this, the findings published in this dissertation will be shared with community stakeholders in the format of a summarized analysis of data. In addition, one of the community organizations supporting this research has expressed an interest in exploring the possibility of developing a health literacy program to complement their existing adult literacy program. This organization was located in South Peoria, which serves a population of individuals with lower socioeconomic status, lower literacy, and limited access to healthcare services. Introduction of a health literacy program in this neighborhood, along with other similar areas in other communities, has potential for social change in the community due to the limited accesses to healthcare providers who may provide educational information. If individuals in this area were able to learn basic health literacy information, they may have had the potential to improve their personal healthcare practices and improve the overall health of the community as a whole.

I will submit my study results for publication in Perspectives in Health Information Management, which is a peer-reviewed online professional journal that is published by the American Health Information Management Association. Professional organization presentations will also be used for dissemination of findings, including the Central Illinois Health Information Management Association quarterly educational meeting, the Illinois Health Information Management Association annual meeting, and at the American Health Information Management Association convention or Assembly on Education.

Future Study Recommendations

As stated, I limited my study to Central Illinois, so additional studies in other geographic locations are recommended for the purpose of evaluating a broader population. In addition, I recommend that future studies should include larger sample sizes that may reflect findings unable to be assessed due to the limited sample size of this study. Future studies are also recommended to explore the topic in greater depth, perhaps examining each learning style individually to determine if one learning style is more responsive to tailored interventions than others.

Although the Short Test of Functional Health Literacy in Adults (S-TOFHLA), a condensed version of the Test of Functional Health Literacy (TOFHLA), used for this study was tested and validated following development (Peppercorn Books & Press, Inc., 2004), the tool is limited in nature, a study using the TOFHLA could provide a broader assessment of functional health literacy level in the participants. However, as the 20-30 minute time frame required for the study was identified as a limiting factor, the TOFHLA would have increased the amount of time, which may have caused an even lower number of participants. Future research could also use the TOFHLA instead of S-TOFHLA to determine if the outcome will be consistent with this study. Future research may also utilize other methods of assessing health literacy levels. The Rapid Estimate of Adult Literacy in Medicine (REALM) and the Medical Achievement Reading Test (MART) may be used to assess the medical word recognition facet of health literacy, and the Newest Vital Sign (NVS) may be used for a different approach that requires less of a time commitment than the S-TOFHLA used in this study (Mancuso, 2009).

Conclusion

Health literacy is an important part of personal healthcare management. As the healthcare community pursues methods to address lower health literacy levels, the effectiveness of materials being developed may be increased if versions are created to meet the needs of differing learning styles. Healthcare professionals generally recognize the fact that all patients do not have the same needs for delivery of healthcare services. The same is true for delivery of healthcare information.

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Appendix A: Letter of Cooperation

Community Research Partner Name
Contact Information

Date

Dear Ms. Researcher,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Addressing Learning Style Needs to Increase Effectiveness of Health Literacy Educational Intervention within the Insert Name of Community Partner. As part of this study, I authorize you to administer your study, which includes having participants:

- Complete a brief questionnaire. No personal identification information will be collected.
- Complete a learning style assessment.
- Complete a brief pretest.
- Receive brief educational information.
- Complete a brief posttest.

Individuals' participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,
Authorization Official
Contact Information

[redacted]

September 11, 2012

Dear Ms. Grebner,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Addressing Learning Style Needs to Increase Effectiveness of Health Literacy Educational Intervention within [redacted] As part of this study, I authorize you to administer your study, which includes having participants:

- Complete a brief questionnaire. No personal identification information will be collected.
- Complete a learning style assessment.
- Complete a brief pretest.
- Receive brief educational information.
- Complete a brief posttest.

Individuals' participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

[redacted]

[redacted]

[redacted]

November 12, 2012

Dear Ms. Grebner,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Addressing Learning Style Needs to Increase Effectiveness of Health Literacy Educational Intervention within the [redacted]. As part of this study, I authorize you to administer your study, which includes having participants:

- Complete a brief questionnaire. No personal identification information will be collected.
- Complete a learning style assessment.
- Complete a brief pretest.
- Receive brief educational information.
- Complete a brief posttest.

Individuals' participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

[redacted]

ECFA

P.O. Box 3579, Peoria, IL 61930 *Mailing Address* | *Street Address* 1127 S. Laramie Street, Peoria, IL 61605
(309) 676-4604 *Phone* | *Fax* (309) 676-6834
info@ScottishChristianMission.org *Email* | *Website* www.ScottishChristian.org

[redacted]

January 31, 2013

Dear Ms. Grebner,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Addressing Learning Style Needs to Increase Effectiveness of Health Literacy Educational Intervention within [redacted]. As part of this study, I authorize you to administer your study, which includes having participants:

- Complete a brief questionnaire. No personal identification information will be collected.
- Complete a learning style assessment.
- Complete a brief pretest.
- Receive brief educational information.
- Complete a brief posttest.

Individuals' participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

[redacted]

Appendix B: Publicity Materials

How well are you able to manage your own healthcare? Are you able to manage your family's healthcare? Do you know what your health literacy level is?

If you are interested in finding out more, consider participating in this study about health literacy and ways to learn more based on your learning needs.
Leah Grebner, PhD student with Walden University is seeking volunteers to participate in a study for the purpose of data collection for completion of doctoral dissertation.

The study involves responding to a brief questionnaire, completion of a pretest, receiving brief education about health literacy, and completion of a posttest. The study will be administered at the following locations by appointment only:

****
****
****

****
****
****

****
****
****

- Adults age 18 and over are eligible to participate in the study.
- Participants will benefit by identification of personal learning style and receiving brief health literacy education. Health literacy is the ability to understand medication instructions, appointment information, informational pamphlets for patient education, instructions from physicians, medical consents, and simply navigating the healthcare system.
- Participation in the study can be expected to take approximately 20-30 minutes.
- Spanish translation will be available, if necessary.

Contact Leah Grebner via e-mail at ********* or by phone at ***-***-**** to set up an appointment to participate in the study or for additional information.

Appendix C: Consent Form

You are invited to take part in a research study of health literacy education based on identification of learning style. You are eligible for the study because you are an adult age 18 or greater. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Leah Grebner, who is a doctoral student at Walden University.

Background Information:
The purpose of this study is to identify individual learning styles, then provide brief education about health literacy based on your personal learning style, in order to help you better understand the health literacy information.

Procedures:
If you agree to be in this study, you will be asked to:

- Complete a brief questionnaire. No personal identification information will be collected.
- Complete a learning style assessment.
- Complete a brief pretest.
- Receive brief educational information.
- Complete a brief posttest.

The anticipated amount of time required is approximately 20-30 minutes.

Voluntary Nature of the Study:
Your participation in this study is voluntary. This means that everyone will respect your decision of whether or not you want to be in the study. No one at any of the cooperating community partners will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. If you feel stressed during the study you may stop at any time. You may skip any questions that you feel are too personal.

Risks and Benefits of Being in the Study:
No inherent risks have been identified associated with participation in this study. Participation in the study will allow you to find out more about your learning style and your functional health literacy level. There will no compensation provided for participation in the study.

Confidentiality:

Any information you provide will be kept anonymous. The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in any reports of the study.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone at ***-***-**** or e-mail *****@waldenu.edu. If you want to talk privately about your rights as a participant, you can call **********. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-***-****, extension ******. Walden University's approval number for this study is IRB will enter approval number here and it expires on IRB will enter expiration date.

You may keep this form for future reference regarding this study.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. In order to protect your privacy, no signatures are being collected. Completion of the questionnaire will indicate your consent, if you choose to participate.

Appendix D: Spanish Consent Form

Formulario de Consentimiento

Usted está siendo invitado a participar en un estudio de investigación de alfabetización de salud basado en la identificación del estilo de aprendizaje. Usted es elegible para el estudio porque eres edad adulta 18 o superior. Este tipo forma parte de un proceso llamado "consentimiento" para que pueda entender este estudio antes de decidir si tomar parte.

Este estudio se está realizando por un investigador llamado Leah Grebner, quien es estudiante de doctorado en la Universidad de Walden.

Antecedentes:

El propósito de este estudio es identificar los estilos de aprendizaje individuales, proporciona educación breve sobre alfabetización de salud basado en su estilo de aprendizaje personal, con el fin de ayudarle a entender mejor la información de alfabetización de la salud.

Procedimientos:

Si acepta participar en este estudio, se le pedirá a:

- completar un breve cuestionario. No se recogerá ninguna información de identificación personal.
- Completar un aprendizaje evaluación del estilo.
- Completar un breve antes de la prueba.
- Recibir información educativa breve.
- Completar un breve examen de seguimiento.

La cantidad esperada de tiempo requerido es aproximadamente 20-30 minutos.

El carácter voluntario del estudio:
Su participación en este estudio es voluntaria. Esto significa que cada uno respete su decisión de si desea participar en el estudio. Nadie en cualquiera de los socios de la comunidad de cooperantes le atenderá diferentemente si usted decide no participar en el estudio. Si usted decide unirse al estudio ahora, todavía puede cambiar su mente durante el estudio. Si usted se siente estresado durante el estudio puede detener en cualquier momento. Usted puede omitir cualquier preguntas que sientes que son demasiado personales.

Riesgos y beneficios de estar en el estudio:

Se han identificado sin riesgos inherentes asociados con la participación en este estudio. Participación en el estudio le permitirá saber más sobre su estilo de aprendizaje y su nivel de alfabetización funcional de la salud. No habrá ningún pago para participar en el estudio.

Confidencialidad:
Cualquier información que usted proporcione se mantendrá anónimo. El investigador no utilizaremos su información para ningún propósito fuera de este proyecto de investigación. Además, el investigador no incluirá su nombre o cualquier otra cosa que podría identificar en los informes del estudio.

Contactos y preguntas:
Usted puede pedir cualquier duda que tienes ahora. O si usted tiene preguntas más adelante, puede comunicarse con el investigador teléfono ***-***-**** o al correo electrónico **********. Si desea hablar en privado sobre sus derechos como participante, usted puede llamar a **********. Ella es la representante de Walden University que puede discutir esto con usted. Su número de teléfono es 1-800-***-****, extensión *******. Número de autorización de Walden University para este estudio es IRB entrará aquí el número de aprobación y vence el IRB entrará en fecha de vencimiento.

Puede mantener esta forma para futuras consultas con respecto a este estudio.
Declaración de consentimiento: he leído la información anterior y me siento que yo entiendo el estudio lo suficientemente bien para tomar una decisión sobre mi participación. Para proteger su privacidad, no se van a recopilar las firmas. Realización de las encuestas le indicará su consentimiento, si decide participar.

Appendix E: Preassessment Questionnaire - English

Health Literacy Preassessment Questionnaire

What is your age?

- ☐ 18-19
- ☐ 20-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65-74
- ☐ 75-84
- ☐ 85 and over

What is your sex?

- ☐ Male
- ☐ Female

What is your race (select all that apply)?

- ☐ White
- ☐ Black, African American, or Negro
- ☐ American Indian or Alaska Native (please specify principal tribe)_____
- ☐ Asian Indian
- ☐ Japanese
- ☐ Native Hawaiian
- ☐ Chinese
- ☐ Korean
- ☐ Guamanian or Chamorro
- ☐ Filipino
- ☐ Vietnamese
- ☐ Samoan
- ☐ Other Asian (please specify race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on) _____
- ☐ Other Pacific Islander (please specify, for example, Fijian, Tongan, and so on) _____
- ☐ Other race (please specify)_____

Are you of Hispanic origin?

- ☐ Yes
- ☐ Yes, Puerto Rican
- ☐ No, not of Hispanic, Latino, or Spanish origin
- ☐ Yes, Cuban
- ☐ Yes, Mexican, Mexican American, Chicano

What language do you speak (select all that apply)?

- ☐ English only
- ☐ English (secondary)
- ☐ Spanish
- ☐ Indo-European languages
- ☐ Asian and Pacific Island languages
- ☐ Other

What is the highest level of education that you have completed?

- ☐ Less than 9th grade
- ☐ 9th to 12th grade, no diploma
- ☐ High School Graduate or GED
- ☐ Some College, no degree
- ☐ Associate Degree
- ☐ Bachelor's degree
- ☐ Graduate degree

Appendix F: Preassessment Questionnaire - Spanish

Precuestionario para Evaluar el Nivel de Educación en la Salud

¿Que edad tiene?

- ☐ 18-19
- ☐ 20-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65-74
- ☐ 75-84
- ☐ Mayor de 85

¿Cual es su genero?

- ☐ Masculino
- ☐ Femenino

¿Cual es su raza? (Escoja todas las que apliquen)

- ☐ Blanco
- ☐ Negro o Americano africano
- ☐ Americano-Indio o Nativo de Alaska (por favor especifique la principal tribu)_____
- ☐ Asiático indio
- ☐ Japonés
- ☐ Nativo de Hawai
- ☐ Chino
- ☐ Koreano
- ☐ Guam o Chamorro
- ☐ Filipino
- ☐ Vietnamita
- ☐ Samoan
- ☐ Otros asiáticos (por favor especificar raza, por ejemplo, Hmong, laosiano, tailandés, paquistaní, Camboya y así sucesivamente)
- ☐ las Islas del Pacifico (por favor especifique, por ejemplo, Fiji, Tonga y así sucesivamente) _____
- ☐ Otra raza (por favor especificar) _____

¿Eres de origen hispano?

- ☐ No, no de origen hispano, Latino o español
- ☐ Si, Puerto Rico
- ☐ Sí, mexicano, mexicano americano, Chicano
- ☐ Si, Cubano
- ☐ No, no de origen hispano, Latino o español

¿Que idiomas habla? (Escoja todas las que apliquen)

- ☐ Solo Ingles
- ☐ Ingles secundario
- ☐ Español
- ☐ Idiomas Indo-Europeos
- ☐ Idiomas asiáticos o de las Islas del Pacifico
- ☐ Otro

¿Cual es su nivel de educación más alta alcanzada?

- ☐ Menos de noveno grado
- ☐ Noveno(9) - duodécimo (12), no diploma
- ☐ Graduado de Escuela Superior o certificado
- ☐ Algunas clases de Universidad, no grado
- ☐ Grado Asociado
- ☐ Bachillerato
- ☐ Escuela Graduada

Appendix G: Control Group Intervention - English

The intervention tool in this appendix will be provided to English speaking participants in the control group. The first four participants will receive the intervention matched to the participant's learning style. The fifth participant will receive the control group intervention. This pattern will continue to include every fifth participant in the control group. The document will be provided to the participant with instructions to read the document.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Appendix H: Control Group Intervention - Spanish

The intervention tool in this appendix will be provided to English speaking participants in the control group. The first four participants will receive the intervention matched to the participant's learning style. The fifth participant will receive the control group intervention. This pattern will continue to include every fifth participant in the control group. The document will be provided to the participant with instructions to read the document.

Instrucciones para Pruebas Diagnósticas

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion
Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Appendix I: Visual Learning Style Intervention - English

This educational intervention tool in this appendix will be provided for English speaking participants identified as visual learners. The participant will be instructed to read the documents and pay attention to the explanations for the areas labeled.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:

Appointment Time:

Your doctor might tell you that you need to have a diagnostic test. This means that you need to have a test to see if there is something wrong and what it is. The test might be an x-ray, lab work, or other simple test. You should know what kind of test you will have and if it is on a certain part of your body. The radiology department is where x-rays are taken and the upper GI is the body system where the stomach is located.

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

The instructions or order will also include information about the date and time of the test. You might be told how long a test might take. It might only take a few minutes, or it might take a few hours.

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:___

Appointment Time:___

When the doctor orders the test, you might have some things that you need to do to get ready for it. Some tests require you to have an empty stomach. This may be called, "fasting." If this is the case, you will be told how long you should go without eating. If your test is ordered to be done in the morning, you may be told not to eat or drink after ten o'clock at night or after midnight.

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

You may be told that there are foods or drinks that you should not have before your test. If you have medicine that you always take in the morning, you might be told if you can take it with a sip of water or if you should wait until after the test.

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

The order for the test might also include a phone number of who to call if you have questions about the test. Any time you have questions about how to get ready for a test, you should ask.

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

Temporary Assistance for Needy Families (TANF) Application

The Temporary Assistance for Needy Families (TANF) program helps help pay for food, shelter, utilities, and non-medical expenses. You may be able to get money through this program if you are pregnant or have at least one child that you support.

About the

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If you have any changes, you must report it within 10 days of the change.

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

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Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of t

If you want TANF for a family member, you must apply in writing. The effective date will be adjusted to the first day of the month that the addition is found to be eligible.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible.

If you do not like the decision about your eligibility, you have a right to a fair hearing. You can ask for a hearing by writing or calling the Medicaid office in the same county.

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

When you apply for Medicaid, you must agree to give true facts to see if you can get it. You must state that you understand that the county Medicaid office must be able to prove all facts you give them

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Appendix J: Visual Learning Style Intervention – Spanish

The educational intervention tool in this appendix will be provided for Spanish speaking participants identified as visual learners. The participant will be instructed to read the documents and pay attention to the explanations for the areas labeled.

City General Hospital

Departamento de Radiología
Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:

Hora de la cita:

Su doctor podría decirle que usted necesita prueba diagnóstica. Esto significa que usted necesita una prueba para ver si hay algo mal y lo que es. La prueba podría ser una radiografía, análisis de laboratorio u otro examen simple. Usted debe saber qué tipo de prueba le haran y a que parte de su cuerpo. En el area marcada en color en la parte superior indica que la prueba es en el Departamento de Radiología, en donde se toman las radiografías o pruebas de rayos-X.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

Las instrucciones o la orden de la prueba también incluirá información sobre la fecha y la hora a realizarse la prueba. Le podría decir cuánto tiempo podría tardar la prueba. Podría tardar solo unos minutos, o un par de horas.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:__

Hora de la cita:__

Cuando el médico ordena una prueba, es posible que usted necesite hacer algunas cosas para prepararse para él. Algunas pruebas requieren que tenga el estómago vacío. Esto puede llamarse, 'ayuno'. En esta caso, se le indicará cuánto tiempo tiene que estar sin comer. Si la prueba es ordenada para realizarse en la mañana, le pueden recomendar no coma ni beba nada después de las 10 o las 12 de la noche.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

Es posible que le digan que hay alimentos o bebidas que usted no debe tener antes de la prueba. Si tiene alguna medicina que usted toma siempre por la mañana, puede que se le pida si puede tomarla con un sorbo de agua o si debe esperar hasta después de la prueba.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

La orden de la prueba también puede incluir el número de teléfono para llamar si tiene preguntas sobre la prueba. En cualquier momento usted tenga dudas acerca de cómo prepararse para una prueba, usted debe preguntar.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Solicitud de Asistencia Temporera para Familias Necesitadas

La asistencia temporal para el programa de ayuda a familias necesitadas (TANF ayuda a pagar alimentos, refugio, utilidades y gastos no médicos. Puede obtener dinero a través de este programa, si está embarazada o tiene al menos un hijo que apoyar.

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion

Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si tienes cualquier cambio, usted deberá informar dentro de 10 días del cambio.

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion
Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a p

Si usted desea TANF para un miembro de la familia, debe aplicar por escrito. La fecha de vigencia se ajustará al primer día del mes en que la adición se determina elegible.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion

Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud. la elegibilidad médica pue
en elegible

Si no le gusta la decisión sobre su elegibilidad, tiene derecho a una audiencia imparcial. Puede pedir una audiencia escribiendo o llamando a la oficina del Medicaid del mismo condado.

Derecho de apelacion
Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion
Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peti
llamando 1-800-555-111

Cuando solicite para el Medicaid, usted debe estar de acuerdo en dar información correcta, si la tiene disponible. Usted también tiene que afirmar que entiende que la oficina del Medicad del condado verifique la información dada.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Appendix K: Read/Write and Aural Learning Style Intervention – English

The educational intervention tool in this appendix will be provided for English-speaking participants identified as read-write learners and aural learners. Read-write learners will be provided with the written document and instructed to read the documents. Aural learners will be provided with instructions to listen to an audio recording of this document read aloud as a script.

Tool #1

Your doctor might tell you that you need to have a diagnostic test. This means that you need to have a test to see if there is something wrong and what it is. The test might be an x-ray, lab work, or other simple test. You should know what kind of test you will have and if it is on a certain part of your body. Any time you have questions about what your doctor orders, or why it is ordered, you should ask.

When the doctor orders the test, you might have some things that you need to do to get ready for it. Some tests require you to have an empty stomach. This may be called, "fasting." If this is the case, you will be told how long you should go without eating. If your test is ordered to be done in the morning, you may be told not to eat or drink after ten o'clock at night or after midnight.

You may be told that there are foods or drinks that you should not have before your test. If you have medicine that you always take in the morning, you might be told if you can take it with a sip of water or if you should wait until after the test.

You might be told how long a test might take. It might only take a few minutes, or it might take a few hours. The order for the test might also include a phone number of who to call if you have questions about the test. Any time you have questions about how to get ready for a test, you should ask.

Tool #2

When you apply for Medicaid, you must agree to give true facts to see if you can get it. You must state that you understand that the county Medicaid office must be able to prove all facts you give them. If you have any changes, you must report it within 10 days of the change.

If you do not like the decision, you have a right to a fair hearing. You can ask for a hearing by writing or calling the Medicaid office in the same county.

The Temporary Assistance for Needy Families (TANF) program helps help pay for food, shelter, utilities, and non-medical expenses. You may be able to get it if you are pregnant and have at least one child that you support. If you want TANF for a family member, you must sign a new form. However, the date on the first form will be used to see if you are eligible.

Appendix L: Read/Write and Aural Learning Style Intervention – Spanish

The educational intervention tool in this appendix will be provided for Spanish-speaking participants identified as read-write learners and aural learners. Read-write learners will be provided with the written document and instructed to read the documents. Aural learners will be provided with instructions to listen to an audio recording of this document read aloud as a script.

Herramienta #1

Su doctor le podría decir que necesita hacerle una prueba diagnóstica. Esto significa que tienen que hacerle una prueba para ver si tiene algo malo y que es lo que esta pasando. Esta prueba puede ser una radiografía, una prueba de laboratorio o cualquier otra prueba. Usted debe saber que clase de prueba le van a realizar y en que parte de su cuerpo. Cada vez que tenga dudas sobre las pruebas que su doctor ordena o porque las ordena, debe preguntar.

En algunas ocasiones, cuando su doctor ordene pruebas, usted tendrá que estar preparado para ellas. Algunas pruebas requieren que tenga el estomago vacío. Esto se llama "ayunar". En este caso, le dirán cuando tiempo tiene que estar sin comer. Si el doctor ordena la prueba en la mañana, le podrían decir que no coma o beba nada después de las diez de la noche o medianoche.

También le pueden decir que hay comidas o bebidas que no debe consumir antes de una prueba. Si tiene un medicina que toma todas las mañanas, tal vez le pedirán que se las tome con un vaso de agua o que espere hasta después de las prueba.

Puede que le digan cuanto tiempo la prueba podría tomar. Una prueba podría tomar unos cuantos minutos o varias horas. La orden de la prueba puede incluir un número de teléfono para llamar en caso de tener preguntas. Si en cualquier momento tiene dudaspreguntas sobre como preparase para una prueba, debe preguntar.

Herramienta #2

Cuando solicite para el Medicaid, usted debe estar de acuerdo en dar información correcta, si la tiene disponible. Usted también tiene que afirmar que esta de acuerdo con que el oficina del Medicad del condado verifique la información dada. Si usted tiene cambios en la información, tiene que reportarlo dentro de 10 días del cambio.

Si a usted no le gusta la decisión tiene el derecho a una vista justa. Usted puede preguntar por una vista escribiendo o llamando a la oficina de Medicaid del mismo condado.

El Programa de Asistencia Temporera a Familias Necesitadas ayuda a pagar comidas, techo, utilidades y gastos no-médicos. Usted puede recibirlo si esta embarazada o tiene al menos un niño que mantener. Si usted quiere TANF para algún otro miembro de la familia, debe firmar otra forma adicional. De cualquier manera, la fecha de su primera forma será utilizada para la ayuda, de ser elegible.

Appendix M: Kinesthetic Learning Style Intervention – English

The educational intervention tool in this appendix will be used for the English speaking participants identified as kinesthetic learners. The first two pages will be given to the participants with instructions to follow the explanations in the video that explains the documents, focusing on each of the color-coded sections. The following pages in this appendix are the PowerPoint slides that are narrated with the script that appears below each one for the video.

City General Hospital

Radiology Department
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

Temporary Assistance for Needy Families (TANF) Application
State of XXXX

About the Program

The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.

Changes

If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.

Adding a Person

If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible

Right to Appeal

If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.

Applicant Signature

Applicant: _____ Date: _____

By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

Instructions for Diagnostic Test

This short video was created for you to follow along with the sample forms that you have been given. Please start on the side of the form that has “City General Hospital” at the top.

City General Hospital

Radiology Department

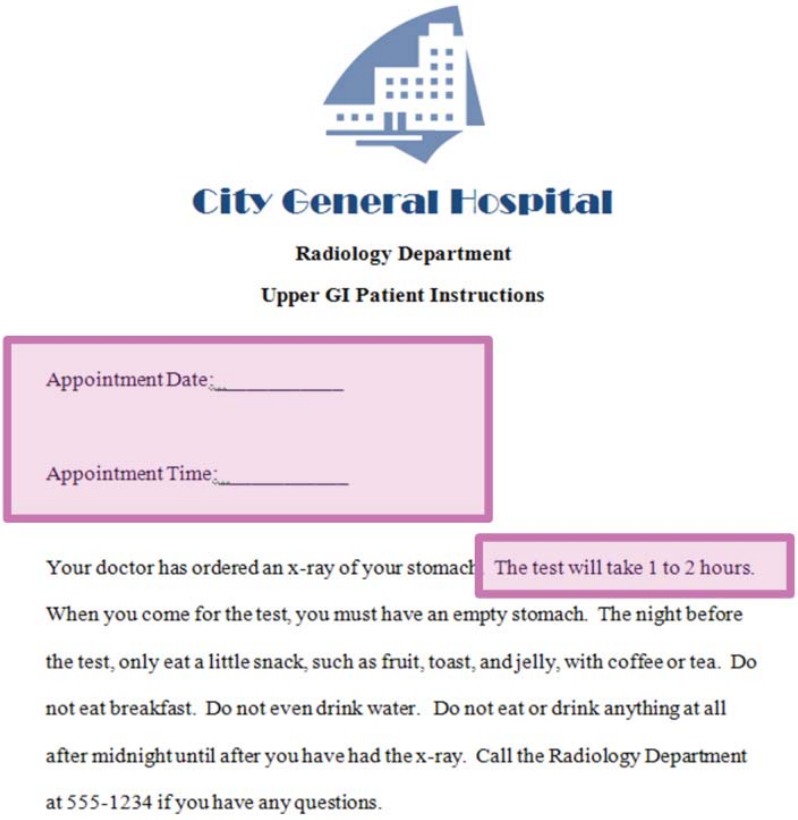
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

Your doctor might tell you that you need to have a diagnostic test. This means that you need to have a test to see if there is something wrong and what it is. The test might be an x-ray, lab work, or other simple test. You should know what kind of test you will have and if it is on a certain part of your body. The red highlighted area at the top states that the test is in the radiology department, which is where x-rays are taken, and the instructions are for an upper GI test, which is where the stomach is located. If you look at the body of the sample document, this information is outlined in red, stating “your doctor has ordered an x-ray of your stomach.”



City General Hospital

Radiology Department

Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

The instructions or order will also include information about the date and time of the test. The first pink area in the sample shows this. You might be told how long a test might take. It might only take a few minutes, or it might take a few hours. In the body of the sample instructions, you will find an area highlighted in pink that states that the test will take 1 to 2 hours.

City General Hospital

Radiology Department

Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

When the doctor orders the test, you might have some things that you need to do to get ready for it. Some tests require you to have an empty stomach, as is highlighted in green in the sample. This may be called, "fasting." If this is the case, you will be told how long you should go without eating. If your test is ordered to be done in the morning, you may be told not to eat or drink after ten o'clock at night or after midnight.

City General Hospital

Radiology Department

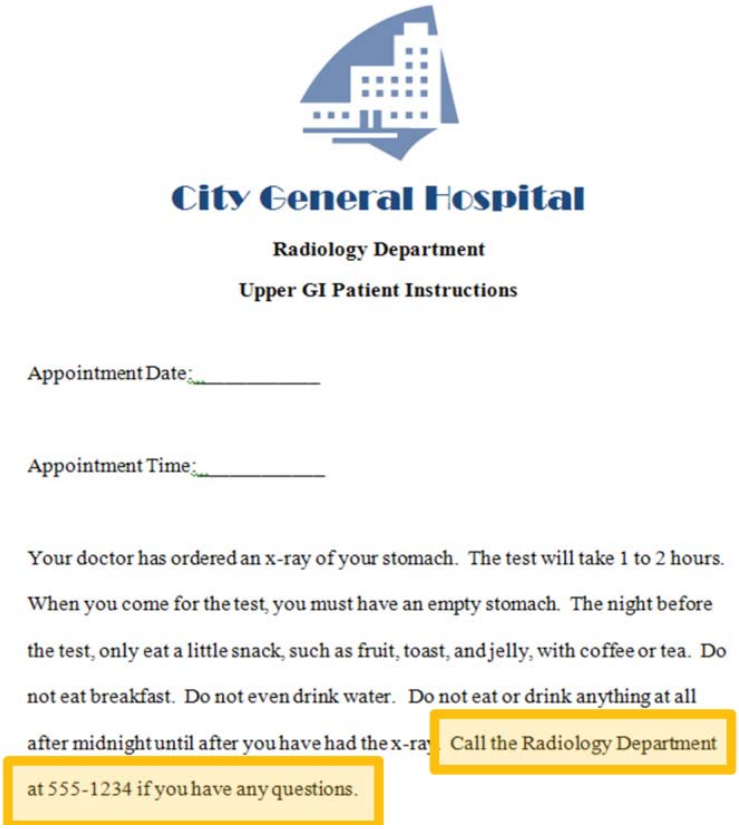
Upper GI Patient Instructions

Appointment Date:_____

Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

You may be told that there are foods or drinks that you should not have before your test. If you have medicine that you always take in the morning, you might be told if you can take it with a sip of water or if you should wait until after the test. The sample document provides specific instructions in the blue highlighted area, stating, “The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray.”



City General Hospital

Radiology Department

Upper GI Patient Instructions

Appointment Date:_____

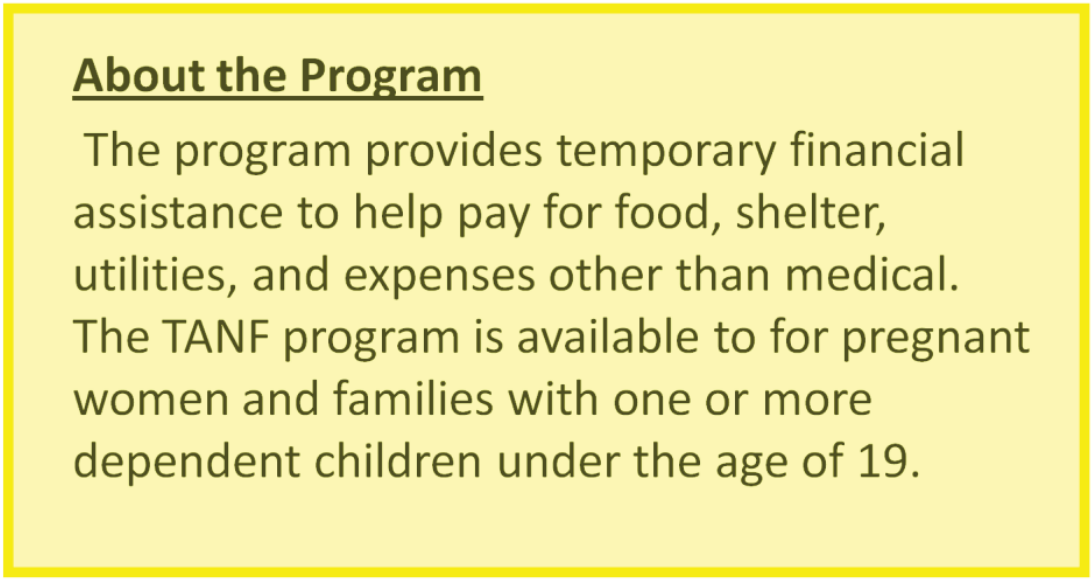
Appointment Time:_____

Your doctor has ordered an x-ray of your stomach. The test will take 1 to 2 hours. When you come for the test, you must have an empty stomach. The night before the test, only eat a little snack, such as fruit, toast, and jelly, with coffee or tea. Do not eat breakfast. Do not even drink water. Do not eat or drink anything at all after midnight until after you have had the x-ray. Call the Radiology Department at 555-1234 if you have any questions.

The order for the test might also include a phone number of who to call if you have questions about the test. The sample document has this information outlined in orange, instructing the patient to call the radiology department, along providing the phone number to call. Any time you have questions about how to get ready for a test, you should ask.

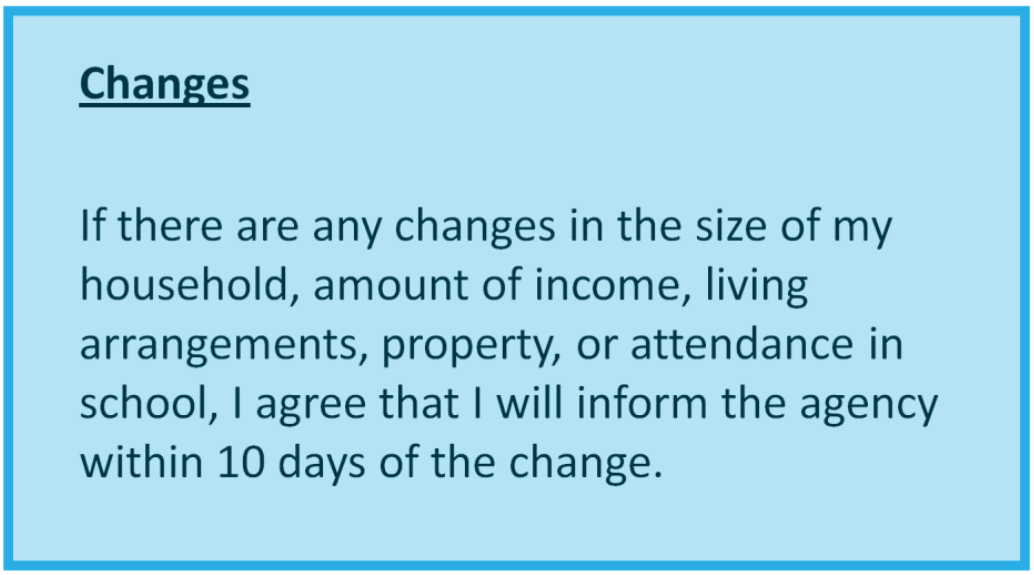
Temporary Assistance for Needy Families (TANF) Application Instructions

At this point in the video, please turn the sample form over to the other side.

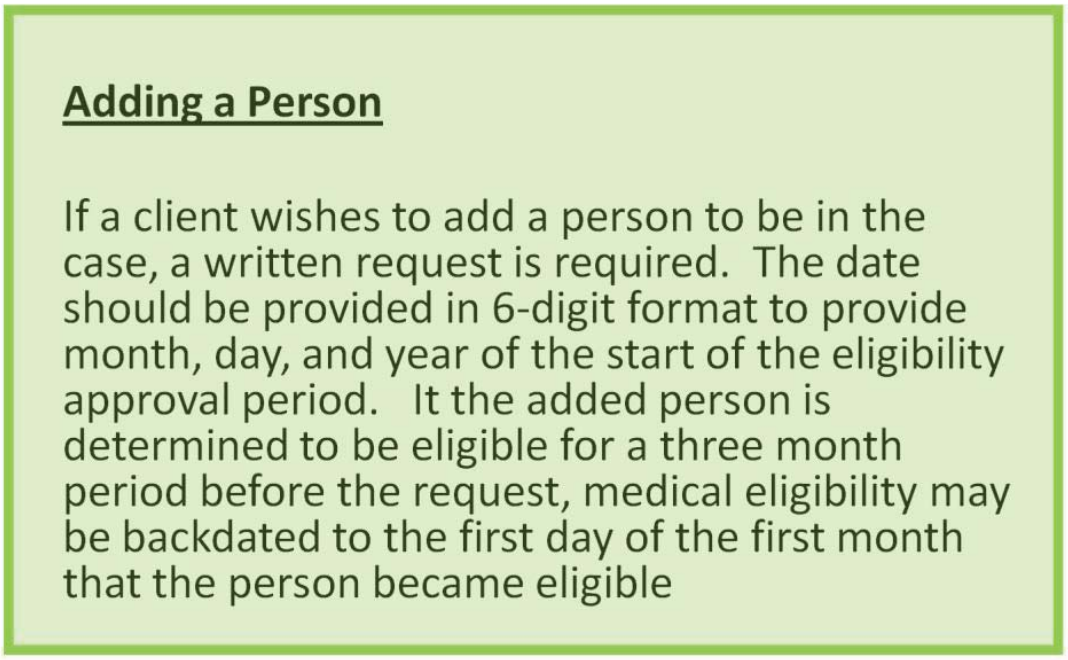


Forms used to apply for Medicaid are long and often very confusing. This sample will explain a few of the parts.

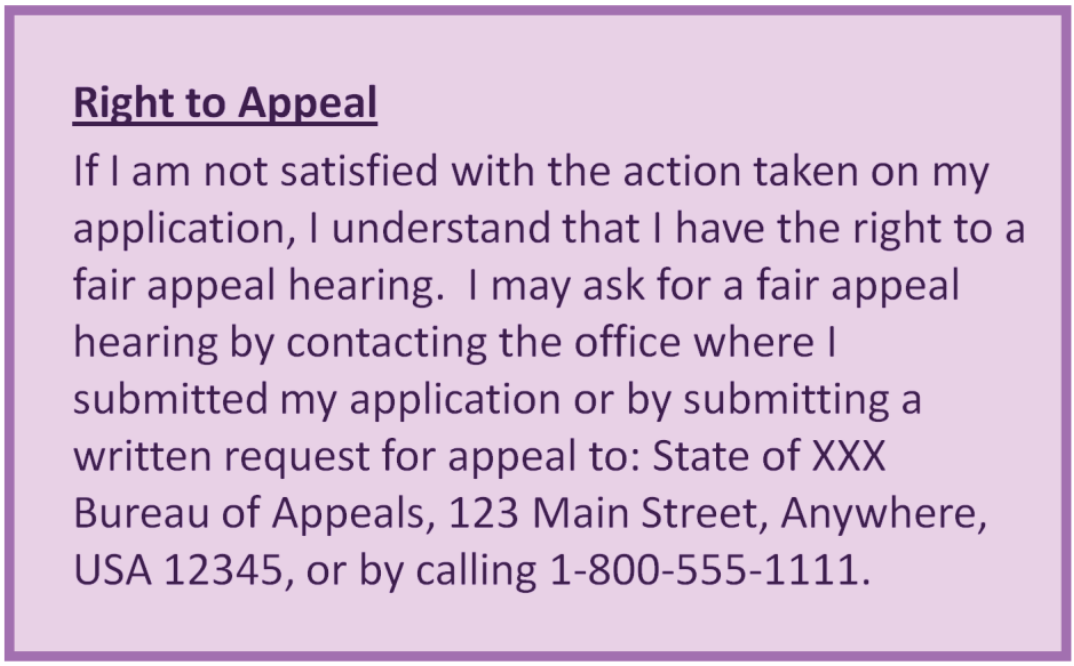
The Temporary Assistance for Needy Families (TANF) program helps help pay for food, shelter, utilities, and non-medical expenses. You may be able to get money through this program if you are pregnant or have at least one child that you support. This information is in the yellow highlighted area, which states, “The program provides temporary financial assistance to help pay for food, shelter, utilities, and expenses other than medical. The TANF program is available to for pregnant women and families with one or more dependent children under the age of 19.”



If you have any changes, you must report it within 10 days of the change. This is indicated in the blue highlighted area of the sample, which states, “If there are any changes in the size of my household, amount of income, living arrangements, property, or attendance in school, I agree that I will inform the agency within 10 days of the change.”



If you want TANF for a family member, you must apply in writing. The effective date will be adjusted to the first day of the month that the addition is found to be eligible. This is addressed in the green area of the form, which states, “If a client wishes to add a person to be in the case, a written request is required. The date should be provided in 6-digit format to provide month, day, and year of the start of the eligibility approval period. It the added person is determined to be eligible for a three month period before the request, medical eligibility may be backdated to the first day of the first month that the person became eligible.”



If you do not like the decision about your eligibility, you have a right to a fair hearing. You can ask for a hearing by writing or calling the Medicaid office in the same county. This is in the purple highlighted area in the sample, which states, “If I am not satisfied with the action taken on my application, I understand that I have the right to a fair appeal hearing. I may ask for a fair appeal hearing by contacting the office where I submitted my application or by submitting a written request for appeal to: State of XXX Bureau of Appeals, 123 Main Street, Anywhere, USA 12345, or by calling 1-800-555-1111.”

Applicant Signature

Applicant: _____ Date: _____
By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury.

When you apply for Medicaid, you must agree to give true facts to see if you can get it. You must state that you understand that the county Medicaid office must be able to prove all facts you give them. One area of the application form may state this in legal terms, such as in the red highlighted applicant signature area on the sample, which states, "By providing my signature on this form, I am indicating my understanding that I may be subject to criminal and/or civil prosecution if I have provided false information or intentionally failed to disclose information. I understand that I am providing consent for investigation to confirm and verify information I have provided related to my request for public assistance. I further understand the requirement for my cooperation in efforts for verification of my information by Federal, State, and Local officials. I certify that I have provided truthful information on this application form to the best of my knowledge and understand that failure to do so may be considered under the penalty of perjury."

End

This is the end of the educational video. Please return the sample form document and complete the posttest at this time.

Appendix N: Kinesthetic Learning Style Intervention – Spanish

The educational intervention tool in this appendix will be used for the Spanish speaking participants identified as kinesthetic learners. The first two pages will be given to the participants with instructions to follow the explanations in the video that explains the documents, focusing on each of the color-coded sections. The following pages in this appendix are the PowerPoint slides that are narrated with the script that appears below each one for the video.

City General Hospital

Departamento de Radiología
Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:__

Hora de la cita:__

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Solicitud de Asistencia Temporera para Familias Necesitadas
Estado de _____

Sobre el programa

El programa de Asistencia Temporera Para Familias Necesitadas provee ayuda financiera temporera para ayudar con gastos de comida, refugio, utilidades y otros gastos que no sean gastos médicos. Este programa está disponible para mujeres embarazadas y familias con uno o más dependientes menores de 19 años.

Cambios

Si hay algún cambio en el tamaño de la familia, en la cantidad de ingresos, disposiciones para vivir, en la vivienda o, con la asistencia a la escuela, estoy de acuerdo de que notificare a la agencia dentro de 10 días a partir del cambio.

Para añadir a un persona.

Si un cliente desea añadir a una persona adicional al caso, se requiere un consentimiento escrito. La fecha debe ser proveída en 6 números La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior del primer día del primer mes que la persona se convirtió en elegible

Derecho de apelacion

Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a la direccion: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____

Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Instructions for Diagnostic Test

Este video fue creado para que usted siga junto con los formularios que se le han dado. Por favor, comienze con el formulario que "City General Hospital" en la parte superior.

City General Hospital

Departamento de Radiología
Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:__

Hora de la cita:__

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Su doctor podría decirle que usted necesita prueba diagnóstica. Esto significa que usted necesita una prueba para ver si hay algo mal y lo que es. La prueba podría ser una radiografía, análisis de laboratorio u otro examen simple. Usted debe saber qué tipo de prueba le haran y a que parte de su cuerpo. En el area marcada en color en la parte superior indica que la prueba es en el Departamento de Radiología, en donde se toman las radiografias o pruebas de rayos-X. Las instrucciones son para una prueba del sistema digestivo superior, que es donde se encuentra el estómago. Si nos fijamos en el ejemplo, esta información está marcada en color, indicando que "el médico le recetó una radiografía del estómago"

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Las instrucciones o la orden de la prueba también incluirá información sobre la fecha y la hora a realizarse la prueba. En este ejemplo se muestra en el area marcada en color rosa. Le podría decir cuánto tiempo podría tardar la prueba. Podría tardar solo unos minutos, o un par de horas. En la parte marcado en color rosa de este ejemplo, le dice que la prueba llevará 1 a 2 horas.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:__

Hora de la cita:__

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Cuando el médico ordena una prueba, es posible que usted necesite hacer algunas cosas para prepararse para él. Algunas pruebas requieren que tenga el estómago vacío, como esta marcado en color verde en la muestra. Esto puede llamarse, 'ayuno'. En esta caso, se le indicará cuánto tiempo tiene que estar sin comer. Si la prueba es ordenada para realizarse en la mañana, le pueden recomendar no coma ni beba nada después de las 10 o las 12 de la noche.

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

Es posible que le digan que hay alimentos o bebidas que usted no debe tener antes de la prueba. Si tiene alguna medicina que usted toma siempre por la mañana, puede que se le pida si puede tomarla con un sorbo de agua o si debe esperar hasta después de la prueba.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

Es posible que le digan que hay alimentos o bebidas que usted no debe tener antes de la prueba. Si tiene alguna medicina que usted toma siempre por la mañana, puede que se le pida si puede tomarla con un sorbo de agua o si debe esperar hasta después de la prueba. El documento de muestra proporciona instrucciones específicas en el área marcada en azul, declarando que: "La noche antes de la prueba, sólo coma un bocadillo, como frutas, tostadas con mermelada, con café o té. No comal desayuno. Ni siquiera beber agua. No se debe comer ni beber nada después de la medianoche hasta después de que usted haya tenido la radiografía."

City General Hospital

Departamento de Radiología

Instrucciones para pacientes – Radiografía del sistema digestivo superior

Día de la cita:_____

Hora de la cita:_____

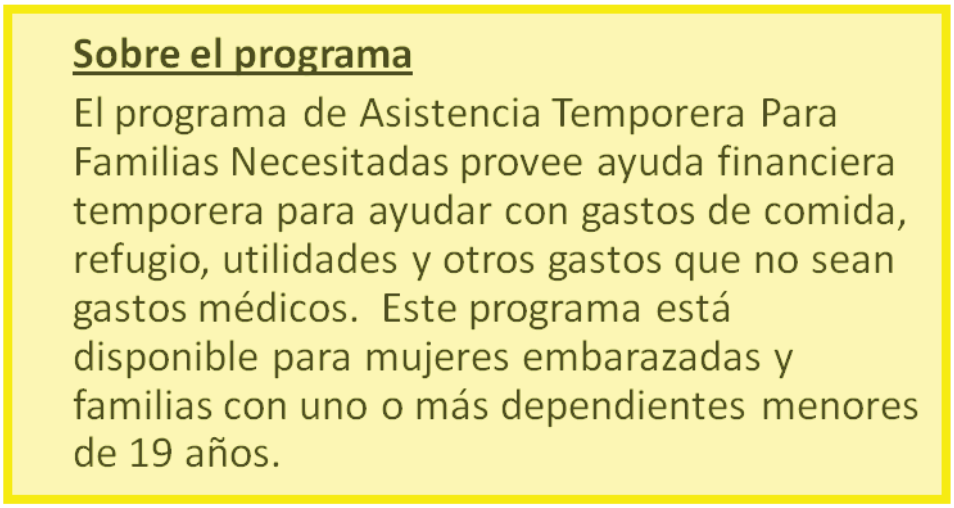
La orden de la prueba también puede incluir el número de teléfono para llamar si tiene preguntas sobre la prueba. En cualquier momento usted tenga dudas acerca de cómo prepararse para una prueba, usted debe preguntar.

Su doctor le ha ordenado una radiografía del sistema digestivo superior. La prueba tomara de 1 a 2 horas. Cuando usted se presente a su cita debe tener el estómago vacío. La noche antes de la prueba solo debe de comer algo liviano, como una fruta, un pedazo de pan tostado con mermelada, con una taza de café o té. No coma nada de desayuno. Tampoco tome agua. No coma o beba nada después de la medianoche hasta que le realicen la radiografía de su estómago. Por favor, llame al departamento de radiografía al número de teléfono, 555-1234 si tiene alguna pregunta.

La orden de la prueba también puede incluir el número de teléfono para llamar si tiene preguntas sobre la prueba. El documento de ejemploe tiene esta información en color anaranjado, enseñando al paciente a que llame al Departamento de radiología y prove el número de teléfono para llamar. En cualquier momento usted tenga dudas acerca de cómo prepararse para una prueba, usted debe preguntar.

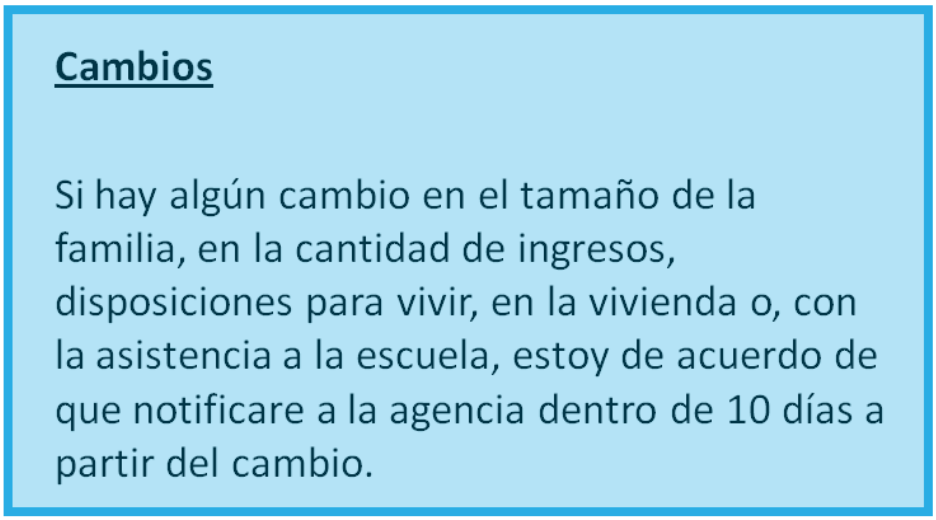
Temporary Assistance for Needy Families (TANF) Application Instructions

En este momento en el video, por favor, gire el formulario de muestra de un lado hacia al otro

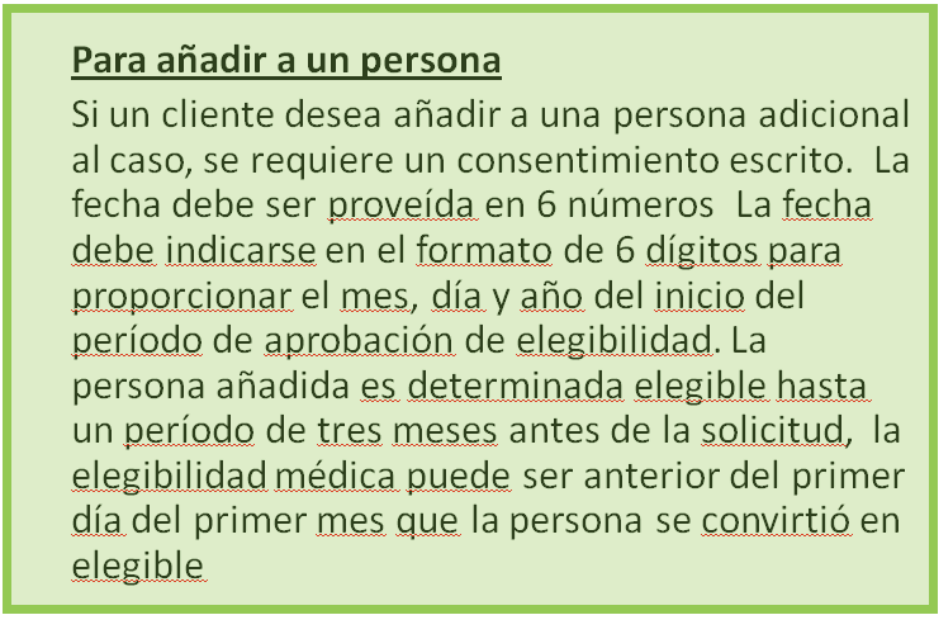


Los formularios utilizados para solicitar Medicaid son largas y a menudo muy confusos. Este ejemplo explica algunas de las partes.

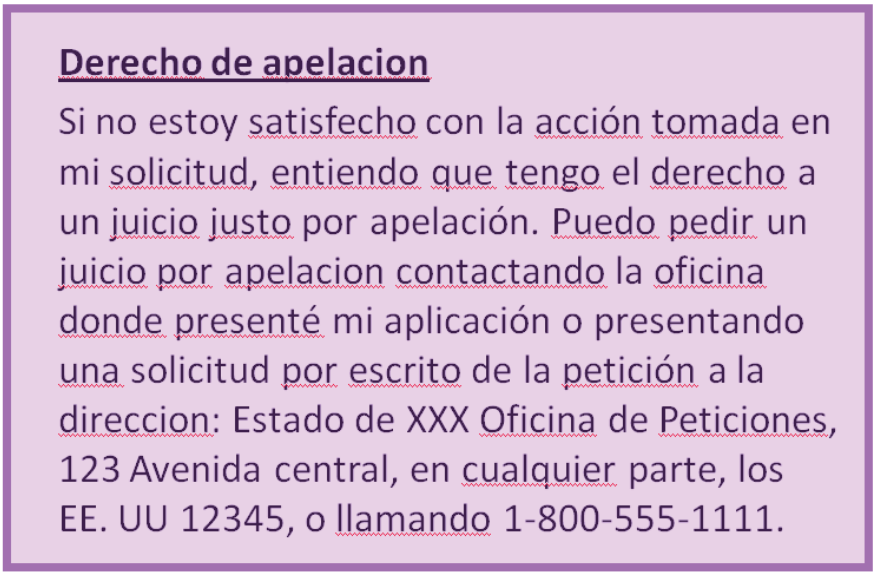
La asistencia temporal para el programa de ayuda a familias necesitadas (TANF ayuda a pagar alimentos, refugio, utilidades y gastos no médicos. Puede obtener dinero a través de este programa, si está embarazada o tiene al menos un hijo que apoyar. Esta información está en el área resaltada en color amarillo, que indica, "Este programa provee asistencia financiera temporal para ayudar a pagar alimentos, refugio, utilidades y gastos que no sean médicos. El programa TANF está disponible para las mujeres embarazadas y familias con uno o más hijos dependientes menores de 19".



Si tienes cualquier cambio, usted deberá informar dentro de 10 días del cambio. Esto se indica en la zona resaltada azul, que dice, "Si hay algún cambio en el tamaño de mi casa, la cantidad de ingresos, medios de subsistencia, propiedad o asistencia en la escuela, estoy de acuerdo que informare la agencia dentro de 10 días del cambio".



Si usted desea TANF para un miembro de la familia, debe aplicar por escrito. La fecha de vigencia se ajustará al primer día del mes en que la adición se determina elegible. Esto se encuentra en el area marcado en color verde, que dice: "si un cliente desea agregar a una persona en el caso, se requires una solicitud por escrito. La fecha debe indicarse en el formato de 6 dígitos para proporcionar el mes, día y año del inicio del período de aprobación de elegibilidad. La persona añadida es determinada elegible hasta un período de tres meses antes de la solicitud, la elegibilidad médica puede ser anterior al primer día del primer mes que la persona se convirtió en elegible"



Si no le gusta la decisión sobre su elegibilidad, tiene derecho a una audiencia imparcial. Puede pedir una audiencia escribiendo o llamando a la oficina del Medicaid del mismo condado. Esto se encuentra en el area marcada violeta. que declara, “Si no estoy satisfecho con la acción tomada en mi solicitud, entiendo que tengo el derecho a un juicio justo por apelación. Puedo pedir un juicio por apelacion contactando la oficina donde presenté mi aplicación o presentando una solicitud por escrito de la petición a: Estado de XXX Oficina de Peticiones, 123 Avenida central, en cualquier parte, los EE. UU 12345, o llamando 1-800-555-1111.

Firma del solicitante

Solicitante: _____ Fecha: _____
Con mi firma en este formulario, estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para una possible investigacion para confirmar y verificar la información que he proporcionado relacionada con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

Cuando solicite para el Medicaid, usted debe estar de acuerdo en dar información correcta, si la tiene disponible. Usted también tiene que afirmar que entiende que la oficina del Medicad del condado verifique la información dada. Si usted tiene cambios en la información, tiene que reportarlo dentro de 10 días del cambio Una parte de la aplicación puede usar términos legales, como el área marcada en rojo. Aquí dice que, “Con mi firma en este formulario, que estoy indicando de que yo entiendo que podría ser sometido a procedimientos penales y/o enjuiciamiento civil si he proporcionado información falsa o intencionalmente no revelo la información. Entiendo que estoy dando consentimiento para la investigacion para confirmar y verificar la información que he proporcionado relacionadas con mi solicitud de asistencia pública. Además, entiendo la necesidad de mi colaboración en los esfuerzos para la verificación de la información por los funcionarios federales, estatales y locales. Yo certifico que he proporcionado información verdadera sobre este formulario de solicitud al mejor de mi conocimiento y entiendo que el no hacerlo puede ser considerado bajo la pena de perjurio.

End

Este el final del video educacional. Por favor devuelva este documente y conteste las preguntas del examen.

Appendix O: VARK Permission

Thank you for seeking permission to use VARK. We rely on the honesty of people to act in a professional way when using our materials. Many don't know that trainers, businesses, government agencies and professional sports groups must be licensed to use the VARK copyright materials. VARK is free only for use in universities, colleges and high schools. You may not place VARK copyright materials on any website or intranet. You are welcome to use the VARK materials by linking to our online website, or in paper format, for your Ph.D research, providing suitable acknowledgement is made. This is the acknowledgement I prefer:© Copyright Version 7.1 (2011) held by Neil D. Fleming, Christchurch, New Zealand.

Education Users: We can gather your data for you. Our VARK Subscription Service does not need any installation on your system. We capture the VARK scores for your class or classes or your whole institution. You manage the site and have access to the analyzed results that can be downloaded for your use. The Subscription Service is demonstrated on our website. Also available is a "pinged" profile accessed at the end of the questionnaire. You will receive on your browser an instant pdf file customized to your VARK scores with study strategies as well (Helpsheets).If you are using VARK for research please note that we have two scoring systems and one is designed for those doing research. A Research spreadsheet based on Standard Deviations is available on application with an explanation of your research and an undertaking to provide a copy of your paper. This spreadsheet uses a different algorithm from the online version. You should also read our research page for advice about using VARK for research to

avoid some of the common errors that researchers make. The advice is at these addresses:http://www.vark-learn.com/english/page.asp?p=whatsnewwww.vark-learn.com/english/page.asp?p=advice.

Business Users: To comply with copyright laws, you should apply for VARK Membership where we set up a dedicated site. Clients can go to your site, complete the online VARK questionnaire and get their results. The membership fee covers an initial 100 of your clients and can be extended. You have access to those results for your own database of clients' preferences. The membership also gives you access to a cache of free resources including a VARK PowerPoint presentation, a VARK calculator for scoring questionnaire results and new Business Helpsheets. Also available is a "pinged" profile accessed at the end of the questionnaire. You will receive on your browser an instant pdf file customized to your VARK scores and outlining the use of preferences in business (Helpsheets).

Downloads: You may find the VARK books helpful for your work and they are all available as downloads. There is a book that teachers and trainers use for widening their repertoire of strategies. It is titled - "55 Strategies for Teaching" and has 55 practical ideas to use in your next training session. VARK principles are being applied to coaching elite athletes in our book titled "Sports Coaching and Learning" available as a download or as a print book on our site. To purchase any of these resources (above) you can use a personal check/cheque, a Purchase Order or buy from our secure website with a credit card.

Best wishes for your work.

****

Designer of the VARK Questionnaire

****

www.vark-learn.com

phone: **********

fax: **********

Appendix P: TOFHLA Permission

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Appendix Q: Human Research Protections Training Completion Certificate

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Leah Grebner** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/19/2012

Certification Number: 958208

Curriculum Vitae

LEAH GREBNER

EDUCATION

Walden University, Minneapolis, MN 2014
Ph.D. in Health Services
Concentration in Community Health Promotion and Education
Dissertation: "Learning Style Needs and Effectiveness of Health Literacy Education"
4.00/4.00 GPA

AHIMA ICD-10-CM/PCS Academy, Las Vegas, NV 2009
AHIMA Approved ICD-10-CM/PCS Trainer

University of St. Francis, Joliet, IL 2005
M.S. Health Service Administration
4.00/4.00 GPA

Midstate College, Peoria, IL 2003
Bachelor of Business Administration
Concentration: Healthcare Management
4.00/4.00 GPA

Illinois Central College, East Peoria, IL 2000
A.A.S. Medical Records Technology
4.00 GPA

American Health Information Management Association, Chicago, IL 1995
Certificate in Medical Record Technology

Methodist Medical Center School of Nursing 1989-1990
Nursing Major

Bradley University Peoria, IL 1987-1988
Chemistry/Biology major, music minor
Classes included: Chemistry, Biology, Calculus, Nutrition, Literature, Art, and Music

CERTIFICATION

Fellow of American Health Information Management Association
2008
Registered Health Information Administrator (No. 26180)
2003
Registered Health Information Technician (No. 40753)
1996
Certified Coding Specialist (No. C09047)
1996

AWARDS

AHIMA Literary Legacy Triumph Award 2012
The Literary Legacy Award honors a significant contribution to the knowledge base of the HIM field through an insightful recent publication, building on the enduring tradition of the Edna K. Huffman Literary Award. The award presentations were made during AHIMA's 84th Annual Convention and Exhibit in Chicago. Triumph Awards were presented to 12 AHIMA members in eight categories.

TEACHING EXPERIENCE

Midstate College, Peoria, IL
Director of Health Information Technology 2005 – 2013

Developed the following course and serve as instructor varied by term:
HI 100 – Medical Terminology for Health Information
HI 140 – Principles of Health Information I
HI 161 – Computers in Health Information
HI 190 – Medical Coding Professional Practice
HI 215 – ICD-9-CM Coding
HI 220 – Health Information Law and Ethics
HI 230 – Principles of Health Information II
HI 235 – CPT and HCPCS Coding
HI 240 – Statistics for Health Information
HI 250 – Management for Health Information
HI 260 – Alternate Healthcare Settings
HI 290 – HIT Professional Practice
AH 135, Medical Terminology II (retired course)
AH 141, Health Data and Content (retired course)
AH 161, Computers in Health Information (retired course)
AH 190, Medical Coding Practicum (retired course)
AH 195, Medical Transcription Practicum (retired course)

AH 215, Hospital Coding (retired course)
AH 230, Medical Transcription III (retired course)
AH 235, Advanced Medical Coding (retired course)
AH 240, Health Information Practicum (retired course)
AH 249, Medical Office Procedures Review (retired course)

Illinois Central College, East Peoria, IL
Adjunct Instructor 2000 – 2005
HEOCC 040, Introduction to CPT Coding

Midstate College, Peoria, IL
Adjunct Instructor 2002 – 2005
AH 200, Medical Office Procedures III
AH 220, Medical Office Procedures IV

RELATED EXPERIENCE

Maxim Coding Solutions, Gardena, CA
Coder 2004 – 2005
Remote coder utilizing VPN access to records, worked primarily on VA ambulatory care accounts

YPRO Corporation, Corydon, IN
Manager of Remote Coding and Development 2000 – 2004
Full-time Remote Coder 2002 - 2004
Subcontractor 2000 – 2002
Managed remote coders, developed of educational material for internal and external use, performed quality and compliance audits for work done by coders and auditors, tracked regulatory changes for clients and internal staff, marketing services to healthcare facilities, and presented educational seminars, and performed remote coding for clients, including VA ambulatory care accounts.

Proctor Hospital, Peoria, IL
Coder 1994 – 2001
Assigned ICD-9-CM, CPT, and HCPCS codes for inpatient, outpatient, skilled nursing, and addiction recovery accounts

Methodist Medical Center of Illinois, Peoria, IL
PRN Coder 1997 – 1998
Assigned ICD-9-CM, CPT, and HCPCS codes for inpatient, outpatient, and rehabilitation accounts

Proctor Hospital, Peoria, IL
Various Clerical Positions 1989 – 1994

Outpatient diagnostic clerk, outpatient surgery clerk, abstractor, and quality assurance abstractor

Peoria Family Medicine, Peoria, IL
Transcriptionist 1991 – 1992
Typed physician's daily dictation and some letters, answering phones, and filing

PROFESSIONAL MEMBERSHIPS

International
International Federation of Health Information Management Associations 2006-2014

National

American Health Information Management Association (AHIMA) 1995 – 2014
Association for Healthcare Documentation Integrity (AHDI) 2008 - 2014
American Medical Informatics Association AMIA) 2006 – 2008

State
Illinois Health Information Management Association (ILHIIMA) 1995 – 2014

Regional
Central Illinois Health Information Management Association (CIHIMA) 1995 – 2014

OFFICES HELD AND COMMITTEE APPOINTMENTS

National
AHIMA Consumer Engagement Practice Council 2013 - 2014
AHIMA Council on Excellence in Education Curriculum Committee 2013
AHIMA Associate Educator Coalition 2013
AHIMA Consumer Health Practice Council 2012 - 2013
AHIMA Council on Excellence in Education 2012
AHIMA ICD-10-CM/PCS in the Classroom Workgroup 2012
AHIMA Educational Strategies Committee 2009 – 2011
AHIMA Co-chair of ICD-10 Academic Transition Workgroup 2008 – 2009
AHIMA AHIMA Multinational Curriculum Committee 2008
AHIMA FORE Research Committee 2006 – 2008
AHIMA HIM Principles in eHIM Workgroup 2006 – 2007

State

Regional Director, ILHIMA 2010 – 2011
Director of Communication, ILHIMA 2004 – 2006
Chairman, Speaker subcommittee for ILHIMA Annual Meeting 2005
Co-Chairman, Speaker subcommittee for ILHIMA Annual Meeting 2004
Regional Director, ILHIMA 2002 – 2003

Regional
Past-President, CIHIMA 2011 – 2012
President, CIHIMA 2010 – 2011
President-Elect, CIHIMA 2009 – 2010
Past-President, CIHIMA 2003 – 2004
President, CIHIMA 2002 – 2003
President-Elect, CIHIMA 2001 – 2002

POSTER PRESENTATIONS

"Blue Button Initiative" Contributor for poster presentation as part of the AHIMA Consumer Engagement Practice Council for the 2013 American Health Information Management Association Annual Meeting, Atlanta, GA

"Proposed Curricula Revisions for All Educational Levels" Contributor to poster presentation as part of the AHIMA Council for Excellence in Education Curriculum Workgroup for July 2013 AHIMA Assembly on Education in Baltimore, MD

"HIM Careers Evolving With E-HIM and Other New Technology" 2006
Poster Presentation at American Health Information Management Association Annual Meeting, Denver, CO

INVITED PRESENTATIONS

International

"Promoting Student Success and Engagement Through Mentoring, Professional Association Involvement, and Networking" 2013
Co-presented with Donna Schnepp
International Federation of Health Information Management Associations
17th Congress
Montreal, Quebec, Canada

National

"Fundamentals of Good Syllabus Construction" 2013
Co-presented with Cindy Glewwe

American Health Information Management Association Audio seminar

"The World of Imagination: Dreaming of Ways to Introduce ICD-10-PCS into the Classroom" 2012
American Health Information Management Association Assembly on Education
Orlando, FL

"Fundamentals of Good Syllabus Construction" 2012
Co-presented with Cindy Glewwe
American Health Information Management Association Assembly on Education,
Orlando, FL

"Integrating ICD-10 Into the Curriculum: The Hybrid Phase" 2010
American Health Information Management Association Assembly on Education,
New Orleans, LA

"ICD-10 Panel: Open Questions on ICD-10" 2010
American Health Information Management Association Assembly on Education,
New Orleans, LA

"Transitional Instructional Design to Accommodate ICD-10-CM/PCS" 2009
American Health Information Management Association Audio seminar
Chicago, IL

"Curriculum Impact/Practice Brief Panel" 2009
American Health Information Management Association Assembly on Education
Las Vegas, NV

"ICD-10: Ready or Not, Here it Comes!" 2008
American Association of Medical Assistants Annual Conference
Rosemont, IL

"Addition of Online Component to Professional Practice Experience" 2008
American Health Information Management Association Assembly on Education
Louisville, KY

"How to Address Practice Problems Through Applied Research" 2007
American Health Information Management Association Annual Meeting
Philadelphia, PA

"Introduction to Research" 2007
American Health Information Management Association Assembly on Education
Chicago, IL

"Coding with Operative Notes" 2005
American Health Information Management Association, Audio seminar
Chicago, IL

"Hospital Outpatient Reporting – Modifiers" 2005
American Health Information Management Association, Audio seminar
Chicago, IL

"ICD-9-CM Coding Guidelines" 2004
American Health Information Management Association, Audio seminar
Chicago, IL

"ICD-10 is Coming. Are You Ready?" 2004
Brim Healthcare Annual Convention
Nashville, TN

State

"Does Your Career Need an Extreme Makeover?" 2005
Illinois Health Information Management Association Annual Meeting
Lincolnshire, IL

"Medicaid ER Coding Changes In Illinois" 2004
Illinois Health Information Management Association Hot Topic Meeting
Melrose Park, IL

"Medicaid ER Coding Changes In Illinois" 2004
Illinois Health Information Management Association Hot Topic Meeting
East Peoria, IL

Regional

"HIM Promotion of Consumer Engagement in Healthcare" 2014
Central Illinois Health Information Management Association Quarterly
Educational Meeting
Midstate College
Peoria, IL

"Non-Traditional Options for HIM Career Growth" 2013
Central Illinois Health Information Management Association Quarterly
Educational Meeting
Midstate College
Peoria, IL

"Health Literacy" 2012
Central Illinois Health Information Management Association Quarterly Educational Meeting
Midstate College
Peoria, IL

"Coding Roundtable" 2012
Panel member for Central Illinois Health Information Management Association Quarterly Educational Meeting
Midstate College
Peoria, IL

"Transition from Practitioner to Teacher" 2011
Panel member for Central Illinois Health Information Management Association Quarterly Educational Meeting
Midstate College
Peoria, IL

"Academic Transition to ICD-10-CM/PCS" 2010
Central Illinois Health Information Management Association Quarterly Educational Meeting
Midstate College
Peoria, IL

"Electronic Health Records" 2007
McClean County Medical Assisting Association Education Day
Peoria, IL

"Consulting Careers in Health Information Management" 2005
Presentation to Senior class Health Information Management majors
Illinois State University
Normal, IL

"Master Your Chargemaster" 2004
Central Illinois Quarterly Educational Meeting
Peoria, IL

"Alternative Career Settings in Health Information Management" 2004
Presentation to Senior class Health Information Management majors
Illinois State University
Normal, IL

"Coding Roundtable" 2003
Central Illinois Quarterly Educational Meeting

Morton, IL,

"ICD-9-CM Coding Changes for 2004" 2003
Central Illinois Quarterly Educational Meeting
Morton, IL,

PUBLICATIONS

"Professional Practice Experience: Evolving to Meet the Needs of the Changing HIM Workforce"
Contributing author for PPE Workgroup for the Journal of AHIMA 84, no.12 (January 2014): 58-62

"How Can I Help You? Top 10 Customer Service Tips for HIM Professionals"
Primary author for Journal of AHIMA 84, no.5 (May 2013): 32-36.

"Consumer-Facing Health Information Practices"
Contributing author for Journal of AHIMA 83, no.9 (September 2012): 60-63.

"Transitioning to ICD-10-CM/PCS in the Classroom: Countdown to 2014"
Contributing author for Journal of AHIMA 83, no.6 (June 2012): 68-73.

Medical Coding: Understanding ICD-10-CM and ICD-10-PCS
Textbook published by McGraw-Hill; ISBN 0073402214 (2012)

"Teaching the Future: An Educational Response to the AHIMA Core Model"
Contributing author for AHIMA Educational Strategies Committee, Journal of AHIMA 82, no.10 (October 2011): 34-38.

"Advancing the Academic Transition to ICD-10-CM/PCS"
Contributing author for AHIMA ICD-10-CM/PCS Academic Transition Workgroup, Journal of AHIMA 81, no.6 (June 2010): 62-66

"Transitioning to ICD-10-CM/PCS— An Academic Timeline"
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Member of Peoria Chamber of Commerce Education and Workforce Development Committee 2011-2013

Presentation about creating and maintaining personal health records at Peoria Women in Leadership luncheon, October 10, 2013

Member of Peoria Jaycees 2006-2010

Coordinated and hosted Professional Development Seminar for Peoria Jaycees at Midstate College; included presentation of "Professional Portfolio Development" – October 5, 2010