

CARDIAC INFORMATION AND TEACHING
FOR RURAL OLDER ADULTS

By

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ABSTRACT

This project is undertaken to educate rural older adults, an underserved population, about cardiac function, dysfunction and specific medications. This intervention was based on Orem's Self-care Deficit Theory. Her Nursing System Sub-Theory is applicable when a patient's therapeutic Self-care Demand is greater than his Self-care Agency. Education is one avenue nursing can use to increase the knowledge deficit of the patient. Increased knowledge about medications has been shown to increase compliance and enhance self-care (Smits & Kee, 1992; Taira, 1991; Weintraub, 1990).

At the completion of this educational intervention, older adults will be able to: 1) discuss heart function and dysfunction related to their specific cardiac medications; 2) describe expected action of specific medications related to their cardiac dysfunction; 3) identify one additional item of interest related to their cardiac medications.

The program was evaluated by administering a pre - post questionnaire (ROAM 1) developed by the investigator. Data analyses found no significant relationships between program objectives and individual items on the ROAM 1. Additional study is needed to validate the questionnaire prior to any future use.

CHAPTER ONE

Introduction

Introduction

The purpose of this educational intervention is to teach rural older adults about selected cardiac medication and the medications' physiologic impact on the heart. Literature demonstrates increased compliance with a medication regimen following additional education regarding the purpose of each medication (Davis and Cohen, 1992; Kuyper, 1993; Pennachio, 2001). Increased compliance helps control cardiac disease (Gray, Mahoney, Blough, 2001).

Background

In 1950, the average life span for an American female was 71.1 years, and for the American male, 65.6 years. Today, those numbers have increased to 79.0 years and 73.0 years, respectively. In the state of Arizona, 13%, or 692,419 residents, are over the age of 65 years (www.aoa.gov/aoa/stats/2001pop). Intuitively, increased life spans can partly be attributed to advances in health care including the development and use of medications.

Older adults frequently have several chronic medical conditions, each requiring medication (Bronson, Costanza, Tufo, 1986; Kane & Kane, 2000). Miller, Wickizer, Meyer, Friedman (2001) found that inappropriate medication use was a problem for community dwelling older adults, age 65 years and older. Specific concerns included under-use of effective medication, inappropriate dosing and inappropriate combination use of drugs. Such errors can result in re-hospitalization for this population (Magilvy & Congdon, 2000).

The average length of stay in the hospital for the older adult is 6.0 days (www.cdc.gov/nchs/fastats/elderly.htm). The crisis of a hospitalization may involve a change in the elderly client's medication regimen. Gray, Mahoney, Blough (2001) cite several studies that document a substantial proportion of older adults who continue to take discontinued medications or fail to start new ones, once discharged home from the hospital. In their own study of one hundred forty-seven older adults, 49% demonstrated difficulty taking medication correctly following hospital discharge, even with home health services following their hospital stay (Gray, Mahoney, Blough, 2001).

Cardiovascular medications are the most frequently prescribed agents for older adults (Gray, Mahoney, Blough, 2001). Heart disease is the number one cause of death for older adult's age 65 years and over (www.cdc.gov/nchs/fastats/elderly.htm). Gray, Mahoney, and Blough, (2001) documented reduction of re-hospitalization following education programs for patients with congestive heart disease. In their program, older adults' compliance increased to ninety five percent following education about their disease and medications. Comparisons were made to a control group and participants' past experiences. Older adults also show significant reduction in length of stay with additional education regarding their medications (Taira, 1991).

Older adults exhibit decreasing acuity of physical senses, greater sensitivity to medications, and a higher propensity for developing adverse effects, related to the aging process (Weintraub, 1990). Kane & Kane (2000) report that as people age, immediate recall memory is often impaired and older adults must be given special consideration when being presented educational information.

Definition of Rural

A “rural” area is defined by exception. According to the Bureau of the Census (2000) rural is an area that is not urbanized, and has a population density of less than 1,000 people per square mile. The United States Department of Agriculture (USDA) defines rural areas as those with a population of less than 2,500 and not adjacent to a metro area (Rural development, 1993). Rural is also divided into farm and non-farm with farm having 1 acre or more of land and at least \$1,000 of agricultural products sold during the previous 12 months (Rural development, 1993). Arizona has many rural areas, some of which are considered frontier areas of 6 or less people per square mile (www.rupri.org/policyres/rnumbers/govt). According to Hewitt (1992) and Slack & McEwen (2001), there is no uniformity in how rural areas are defined for the purpose of federal program administration and distribution of funds.

Rural older adults

Rural communities have a greater representation of adults’ age 65 years and over. Rural adults show a preference for family and community support as well as being more self-reliant (Bushy, 1990). Sijuwade (2001-2002) notes that self-reliance increases rural older adult’s reluctance to admit need or accept help and is sometimes demonstrated in keeping their problems to themselves. Bushy (1990) cites two common fears, “(1) the fear of receiving insensitive treatment by an agency’s employees and (2) the fear that friends, relatives, or neighbors may find out about the family’s request” (page 31).

Complex health issues of multiple diagnoses, poverty, and reluctance to seek care are issues common to older adults living in a rural setting (Bushy, 1990, Magilvy &

Congdon, 2000, Rosswurm, 2001). Historically, rural America has difficulty providing health care to its older adult population (Goins, Kategile, Dudley, 2001). Limited access to care, whether by distance, availability or limited knowledge of resources places this population at a high risk for disease and disability (Rosswurm, 2001; Magilvy & Congdon, 2000). These limitations prevent rural older adults from having the same access to teaching or information programs offered to urban or city residents (Rosswurm, 2001).

Health education is needed for this population to facilitate control of disease processes (Bushy, 1990; Gray, Mahoney, Blough, 2001). As stated, providing information on cardiac medications, increases compliance. According to Orem (1991), teaching needed information is one way nursing has to positively increase therapeutic self-care demand.

Compliance

Successful health outcomes are closely tied with accurate medication compliance (Fitten, Coleman, Siembieda, Yu, Ganzell, 1995). Compliance is defined as: 1) the act or process of complying to a desire, demand, or proposal or to coercion 2) fulfilling official requirements; 3) a disposition to yield to others (Merriam-Webster, 2001). Poor compliance, i.e. not taking medications as prescribed, increases the risk of poor outcomes. Self-administration errors by people taking prescription medications have been found to average about 45 % (Gray, Mahoney, Blough, 2001). Adverse effects, not understanding directions, inconvenience and cost, are all possible reasons for not taking a medication as prescribed (Weintraub, 1990). Multiple medication use and poor cognition are also recognized as impediments to compliance (Gray, Mahoney, Blough, 2001).

Improved comprehension is a major determinant of compliance (Bronson, Costanza, Tufo, 1986). Written information about medication use has been shown to increase comprehension and compliance. Older adults with printed information about their medication were able to correctly answer questions about each medication (Bronson, Costanza, Tufo, 1986; Gabriel, Gagnon, Bryan, 1977).

Older adults are most often experts about their own disease (Weintraub, 1990). Self-care decisions for adults change related to a number of factors including the following: length of time since diagnosis, disease severity; values and culture; daily choices that better suit the individuals needs or desires (Paterson, Russell, Thorne, 2001). Compliance is improved when information is shared from the patients' point of view (Weintraub, 1990).

Summary

The purpose of this intervention is to teach rural older adults, an underserved population, about cardiac responses to selected cardiac medications. Older adults may not understand the correct use of medications. They are at risk for therapeutic self-care deficit because of a knowledge deficit that impairs their capability to take their cardiac medications as prescribed. Additional information about medications has been shown to help older adults use their medications as prescribed (Taira, 1991). Literature has demonstrated increased medication compliance following additional education related to the use of the medications (Bronson, Costanza, Tufo, 1986; Gabriel, Gagnon, Bryan, 1977). Increased compliance has reduced re-hospitalization of older adults with cardiac disease (Gray, Mahoney, Blough, 2001). An educational program such as this one could

have a positive effect on medication compliance and increased self-care for older adults living in a rural setting.

CHAPTER 2

Theoretical Framework

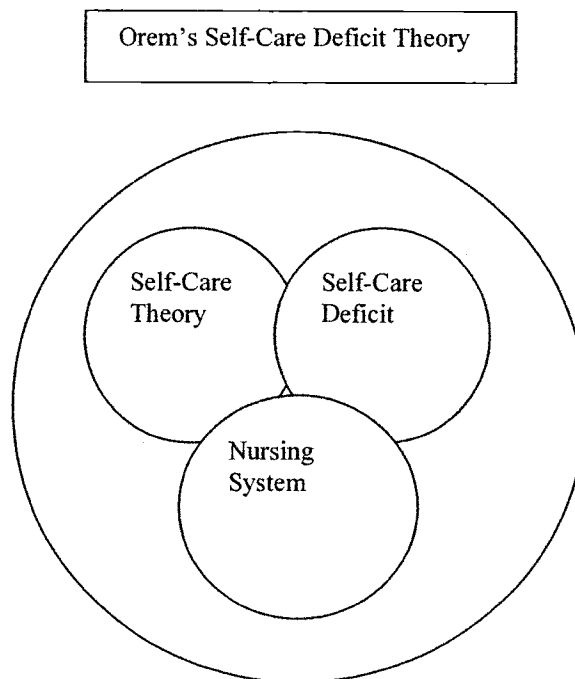
Introduction

This chapter will describe Orem's Self-Care Deficit Theory, which provides the framework for this educational intervention. Older adult learning concepts also will be discussed.

Theoretical Framework

Orem's Self-care Deficit Theory is comprised of three sub-theories. They are: Self-care theory, Self-care deficit, and Nursing system (George, 1995). The theory is represented in Figure 1.

Figure 1. Orem's Theory



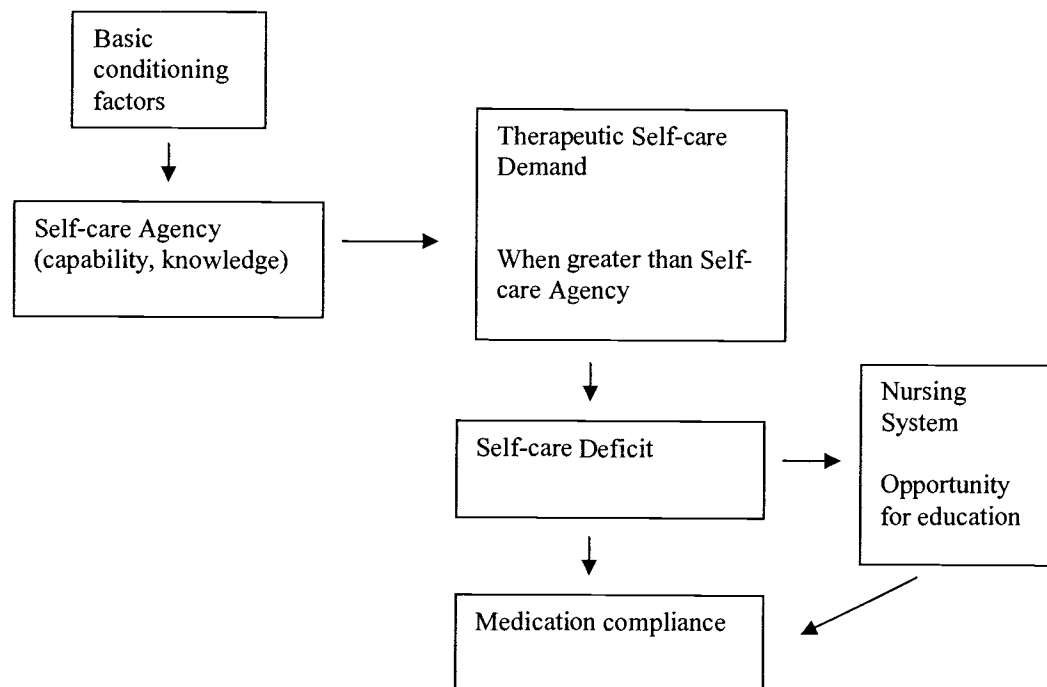
Self-care Deficit Theory

The concept of self-care is widely recognized in the health-care field of today. Individuals are encouraged to assume a greater amount of responsibility by increasing their participation in their own process (Paterson, Russell, Thorne, 2001). Self-care (Figure 1) is defined by Orem (1991) as action directed by individuals to themselves to sustain life and restore functioning to bring about a condition of well being. She acknowledges that this may happen under changing conditions.

For individuals with Self-Care Deficit such as chronic illnesses, learning how to manage the disease and the life changes it brings increases self-care. Taking medication is a life change to improve cardiac disease, a self-care deficit (Orem, 1991).

The Nursing System is designed by the nurse for the patient who has a deficit between self-care and what needs to be done to maintain optimal functioning. Multiple types of interventions are appropriate for enhancing patients' self-care (Orem, 1991).

Figure 2. Theory Cascade



Theory Cascade

Basic conditioning factors describe unique features of individuals (Figure 2). They include factors such as age, gender, and developmental stage, as well as health care system variables and sociocultural orientation. These factors influence self-care and self-care agency (Orem, 1991).

Self-care agency is defined as “(a) an attitude of responsibility for self, (b) motivation to care for self, (c) the application of knowledge to self-care, (d) the valuing of health priorities, and (e) high self-esteem” (George, 1995, p. 27).

Therapeutic self-care demand is action demanded on individuals to maintain integrity of function and structure. So, patients must develop self-care requisites during various life stages and related to any event that may have adverse effects (Orem, 1991). Health

deviation self-care requisites are required when there are defects that occur to humans and for whatever treatment measures are needed (Orem, 1991).

When self-care demand is greater than self-care agency, or capability, there exists a self-care deficit. Self-care deficit is an opportunity for the use of nursing agency (Orem, 1991).

Three types of nursing exist within the Nursing System Model (Figure 1): 1) wholly compensatory nursing when the patient can not do any self-care actions; 2) partly compensatory nursing when the patient can perform some self-care; 3) supportive educative nursing when the patient can perform all self-care actions (Orem, 1991). In supportive/educative care, the patient has primary responsibility for personal health with nursing providing a consultant role (George, 1995).

For the purpose of this project, supportive/educative care is extrapolated from Orem's Nursing System theory to use as a model for providing education to older adults living in a rural setting. Teaching is one method nursing uses to aid the person in returning to well being and maintaining self-care (Orem, 1985; Taira, 1991). Weis (1988) states the primary goal of education is to maximize patient autonomy and increase self-care. Mullin (1980) emphasized the need to change the focus of nursing from an illness outlook, to one that encourages patient's independence and responsibility through patient education.

Older Adult Learning

The basic principle of an adult learner is a motivated, responsible person, directing his or her own care (Knowles, 1984). This coincides with Orem's definition of self-care as a self-directed activity.

Knowles (1984) differentiates child and adult learners, with characteristics unique to adults. They are as follows. As an individual matures; 1) a change in self-concept occurs; 2) past experience becomes a resource for learning; 3) readiness to learn increasingly becomes more focused on social roles; and 4) a problem-centered orientation to learning is developed.

These characteristics are observed when adults experience inadequacies in coping with current life problems. Educational activities to compensate for their lack of skill or knowledge are actively sought out. The applicability of the information to their life situation is of utmost importance (Knowles, 1984). He observes that adults "learn new knowledge, understandings, skills, values, and attitudes most effectively when they are presented in the context of real-life situations" (p. 59). Redman (1988) also holds this importance of applicability of information. Adults are more likely to incorporate information into their lives when they recognize direct benefit. Kane & Kane (2000, page 6) call this "real time" and state it as an important factor when dealing with the older adult.

The lived experience of older adults adds complexity to psychological, medical and social issues experienced by the older adult. Specialty considerations must be addressed for the older adult (Kane & Kane 2000).

For many older adults, it has been many years since they have been involved in formal education. Interviewers need to be aware of potential embarrassment of the older adult if they feel unable to answer specific questions (Kane & Kane, 2000).

Normal aging causes physiologic changes. These changes must be differentiated from physiologic abnormalities. Poor attention span may be due to malnutrition that may be related to lack of money or poorly fitting dentures or loneliness. Sitting for extended periods may cause pain related to skin disorders, arthritis, poor quality sleep, or chronic pain (Kane & Kane, 2000).

In communicating with older adults, it is first necessary to establish that there is acceptable reciprocal communication. Older adults commonly have difficulties with their hearing and vision. When communicating with older adults, speak slowly, enunciate carefully and wait for the response. Older adults need to have their hearing or vision devices on and working. Even with these devices, special allowances, such as speaking up, using large print and allowing more time to complete tasks, are needed (Kane & Kane, 2000). Interactions with older adults must be scheduled keeping in mind the fact that their age and medical conditions may necessitate short presentations or frequent breaks (Kane & Kane, 2000).

Older adults need to have input on what values, expectations and preferences are important to them. While some older adults may show cognitive decline, others demonstrate positive effects of aging. These areas include crystallized knowledge, wisdom, expertise, and creativity (Kane & Kane, 2000). To incorporate the values and preferences of the older adult, health care providers must take time to listen to the

concerns of their patients (Kane & Kane, 2000). This same idea is echoed by Weintraub (1990) who identifies this concept as bidirectional communication and states it is also a means to increasing compliance. If older adults understand and are agreeable to the medication regimen, they are more likely to take their medications as directed.

Summary

Orem's Self-Care Deficit Theory provides the framework for this educational intervention as it relates to older adults taking medications. When therapeutic self-care demand exceeds self-care agency, a health care deficit exists. Education by nursing to increase compliance is one approach to improve self-care agency.

Special requirements for teaching older adults are varied. They must include accommodations for physiologic changes experienced by many older adults, such as decreased short-term memory and vision and hearing deficits. Consideration must be made for additional time to spend on material presented and a time frame to promote physical comfort (Kane & Kane, 2000).

CHAPTER 3

Methodology

Introduction

An educational program was implemented on a group (N=14) of older adults. This chapter describes methodological processes undertaken to complete the proposed program.

Purpose

The purpose of this intervention was to provide older adults living in rural Southern Arizona with information on the physiologic response of the heart to selected cardiac medications. The selected information was presented via a three dimensional model of the heart and simplistic drawings demonstrating cardiac function and dysfunction. Client response was evaluated using a tool, ROAM 1 (Appendix A). This nine item tool was composed of eight True/False questions and one open ended question. It was given as a pretest/posttest at each intervention. Program objectives (Table 1) and evaluation criteria (Table 2) are listed below.

Table 1: Objectives

1. The learner shall demonstrate knowledge of heart function and dysfunction related to their medication use.
 2. The learner shall be able to describe expected effects of specific cardiac medication classes taken for their specific heart dysfunction.
 3. The learner shall be able to identify at least one additional area of interest for further education regarding classes of cardiac medication
-

Table 2: Evaluation

- Objective 1: a. Answer items 1-5 correctly on ROAM 1
b. Will use heart model to describe heart function and specific dysfunction.
- Objective 2: a. Answer items 6 –8 correctly on ROAM 1
b. Describe action of classes of cardiac medications taken for their specific heart dysfunction
- Objective 3: a. List additional area of interest on item 9 of ROAM 1.
b. Discuss additional area of interest regarding classes of cardiac medications.
-

Human Subjects

This project was approved by the College of Nursing at the University of Arizona. Human Subjects Committee approval was not required for this intervention. Documentation is in Appendix B. The Rochester Program was successfully completed on November 13, 2002. The Subjects Disclaimer Form is in Appendix C. Participants pre-registration was permission for the pre and posttest. Participant confidentiality was maintained by having no identification on pre or posttest instruments. Verbal permission was obtained prior to testing. Participants were informed they were under no obligation to take the pre or posttest. All registrations and pre and posttest results were destroyed at the conclusion of this program.

Setting

The education component of this project was presented in two rural areas of southern Arizona. For convenience, the communities chosen were of reasonable proximity to Tucson. Both rural communities selected were located 30 miles from Tucson.

The first presentation was given in the rural unincorporated area of Three Points, Arizona (Table 3). The author is well acquainted with this community, having lived there for nine years. Professional ties were established with the health clinic and community center director.

Table 3: Comparison of Settings

Three Points- First Presentation	Green Valley- Second Presentation
unincorporated	unincorporated
30 miles west of Tucson	30 miles south of Tucson
75% citizens live below poverty level	7% citizens live below poverty level
2000 population of 5273	2000 population of 17,283
15 % over the age of 65	73% over the age of 65
3.0 persons per square mile	1,341 persons per square mile
23.40% population Hispanic	12.90% population Hispanic
2.10% Native American	1.50% Native American
21.80% Young people	2.20% Young people

(2000 Census CDP)

While both communities are considered rural, obvious differences exist on most levels, most notable population per square mile, citizens who live below the poverty level and the number of young people in each community (Table 3).

While the first community was established in the 1800's for traveler's convenience, the second community was built in 1974. It is designed for and centered on active older adults. Prominent businesses in the second community include golf courses,

low maintenance town homes, multiple chain eateries and small shopping centers. The first community displays two independent eateries and two small independent combination store/gas stations.

The first presentation was scheduled for 11:00 a.m. in the dining room of a historic ranch house. The ranch house was recently restored and now serves as a community center. Older adults receive a free lunch at noon in the dining room. Scheduling for the presentation an hour before lunch was a convenience to participants who must have transportation each day to and from the site. The ranch house was not within walking distance for most participants.

The second site was primarily an affluent retirement community. The older adult center was a freestanding building with various private meeting rooms. Presentations and functions for older adults comprise the daily schedule at this site.

Recruitment

Older adults were recruited to participate in the educational intervention by responding to a flyer posted in their respective communities. The flyer offered a free information session about cardiac medications. A copy of each flyer is found in Appendix D. All who attended were asked to pre-register in writing and to bring a list of their current medications, or the medications themselves, to the presentation.

The intervention targeted older adults taking heart medications and living in the respective rural communities. However, no age groups were excluded. Males and females were eligible to attend. The subject matter primarily applied to and was prepared for older adults. Pre and posttests were not given to any attendees under the age of 65 years.

Approach

Teaching approach used was small group discussion. Participants were seated close to the speaker. Those with hearing or vision difficulties were invited to sit closer to the front. Each participant had printed handouts available about specific classes of cardiac medications (Appendix E) and a booklet for keeping a current list of medications (Appendix H).

Content Outline

Presentation was started with the introduction of speaker, definition of Nurse Practitioner, and the importance of medication compliance. ROAM 1 was administered.

Table 4
Presentation, Objective 1

Objective 1	Content	Time Frame	Teaching Methods
Demonstrate heart function & dysfunction (through the use of a model and drawing.)	<ul style="list-style-type: none"> -Heart sits behind sternum -Heart about size of fist -Heart's job to push blood through body -Pumps in sequence for efficiency via valves -Blood carried by arteries, veins -Internal electrical signal to regulate heart beat Dysfunction of heart -Enlarged heart -Blocked vessels reduce or block flow -Hypertension makes vessels smaller -Internal signal malfunction 	20 minutes	<ul style="list-style-type: none"> -Heart model passed around -Guided discussion -Simplistic drawing of heart and vessels -Solicit personal experiences -Draw/discuss enlarged heart -Draw/discuss blocked vessels in body and heart -Draw/discuss hypertension -Discuss heart electrical signal malfunction

Table 5
Presentation, Objective 2

Objective 2	Content	Time Frame	Teaching Methods
Describe expected effects of pertinent classes of cardiac medications:		20 minutes	Guided discussion Solicit personal experiences
Digitalis	-Helps heart muscle beat stronger, improves heart rhythm. Monitor blood level.		
Nitrates	-Helps the heart work with less oxygen, lets more blood flow through it. -Commonly taken for chest pain.		
Anticoagulants	-Reduce risk of heart attack, stroke, blood clots. Commonly prescribed if patients has had heart attack. -Prevent normal blood clotting. Helps prevent blood vessels from blockage. Bleed and bruise more easily.		
Aspirin & antiplatelet drugs	-Work differently but similar effects.		
Ace inhibitors, beta blockers and calcium channel blockers	-Reduce blood pressure letting blood flow more easily. Heart rate, chest pain, force of contraction affected as well. If blood pressure drops too low, patients feel dizzy, tired.		
Diuretics	-Reduce blood volume to reduce stress on heart. Helps reduce any swelling (edema) and increases urine output.		
Cholesterol-lowering drugs	-Lower cholesterol in blood to prevent vessel blockage		
Anti-arrhythmic	-Help prevent odd or extra heartbeats that cause poor heart function		

Table 6
Presentation, Objective 3

Objective 3	Content	Time Frame	Teaching Methods
State one additional item of interest for further education	-Request for participant input	5 minutes	Guided discussion Solicit personal experiences

Common classes of cardiac medications are from

www.hopkinsvascular.com/healthyliving/ccb.cfm. Drawings are found in Appendix F.

The presentation outline is presented in Appendix G. Layman's terms were used when possible to facilitate comprehension by participants. Medical language was explained or not used.

For the first presentation, participants were seated on both sides of three separate tables. All present were in close proximity to the speaker. A plastic model, life-size heart was passed among participants (Table 4). Drawings were done in bold colors on a flip chart next to the speaker. Questions, discussion and personal stories were interwoven throughout the presentation (Table 4, 5, 6).

Information on each class of cardiac medications included, condition the medication is generally prescribed for and the intended effect of the medication. Each handout also included side effects that necessitated patients calling their provider (Table 5). Originals of the handouts were in large print.

Following the presentation and discussion, participants were asked to take the posttest. The presentation was designed to last 50 to 60 minutes for the comfort of participants.

Instrument

The instrument, ROAM 1, was developed specifically for this intervention by the author. It was based on literature that described medication and its' intended affect on compliance (Bronson, Costanza, Tufo, 1986; Taira, 1991, Weintraub, 1990). This instrument was pilot tested with four older adults who all took cardiac medications. Three of the four participants requested information on normal heart function and dysfunction as well as information on classes of cardiac medications. No other tests were done for validity or reliability. Completion of this instrument was voluntary. Large print was used to facilitate easier reading by older adults.

Summary

Two convenience rural areas were selected for this intervention. Presentation invitations were posted in respective free standing family practice clinics. Participants pre-registered in writing to attend the presentation.

Presentation information was listed in chart form. Small group presentation was employed to convey information. Handouts and visual aids were used to help demonstrate material presented. Participants were encouraged to ask questions and take home written information. Pre and posttest data was collected.

CHAPTER FOUR

Evaluation

Introduction

Chapter four describes evaluation criteria. Each learning objective is separately addressed (Tables 7, 8, and 9).

Evaluation

Table 7
Evaluation, Objective 1

Learning Objective 1	Evaluation Criteria ROAM 1 & personal experience	Results
Demonstrate knowledge of heart function and dysfunction	Criteria 1	
	1. My heart is a pump that pushes my blood around by body.	True. All 11 participants answered correctly pre and post test
	2. There is only one kind of heart disease.	False. 10 correct pretest, 9 correct post test
	3. If I have hypertension, it doesn't affect my heart.	False. 10 correct pretest, 11 correct post test
	4. If I have high cholesterol, it doesn't affect my heart.	False. 10 correct pretest, 11 correct post test
	5. A heart attack is caused by a blood clot.	True. 2 correct pretest, 10 correct post test
	Criteria 2: Be able to discuss specific heart dysfunction	Stent placement, MI, Hypertension, Atrial Fibrillation

Table 8
Evaluation, Objective 2

Learning Objective 2	Evaluation Criteria ROAM 1 & personal experience	Results
Describe expected effects of specific classes of cardiac medications	6. Digitalis makes my heart beat stronger.	True. 8 correct pretest, 8 correct post test
	7. An aspirin a day can help prevent a heart attack.	True. 9 correct pretest, 11 correct post test
	8. When I run out of one medicine, it's ok to take whatever heart medicine I can find.	False. 11 correct pretest, 10 correct post test
	Criteria 2: Report effects of selected classes of cardiac medications	<p>"My medicine made me feel worse than my heart condition so I stopped taking it"</p> <p>"I bruise every time I tap my hand on something"</p> <p>"I was so dizzy I couldn't do anything so I stopped taking it"</p>

Table 9
Evaluation, Objective 3

Learning Objective 3	Evaluation Criteria personal experience	Results
State one additional item of interest for further education	9. I would like to learn more about...	None responded pretest, 1 response posttest
	Criteria 2: Discuss one additional area of interest	<p>"I didn't know they could give me something else that would do the same thing"</p> <p>"I always forget to ask my questions when I see the doctor"</p> <p>"I am never sure when I should call the doctor"</p>

Objective one was evaluated by answering items one through five on ROAM 1. This first item stated that the heart is a pump that pushes blood around the body (Table 5). All participants answered item one correctly both pre and posttest. Questions' two through five address cardiac dysfunction. Knowing there is more than one kind of heart

disease, and that hypertension and high cholesterol affect cardiac function, are prerequisites to discussing specific classes of medications. The majority of participants answered these items correctly.

The second evaluation criteria for objective one had five participants who shared their knowledge and experience of specific heart dysfunction (Table 8).

The second objective of identifying expected effects of pertinent classes of cardiac medications was evaluated by items six, seven and eight of the instrument. Correct answers regarding digitalis (item 6) making the heart beat stronger showed no change from pre to posttest. Participants who did not take this medication may have had no interest in remembering what it does. Item seven, stating an aspirin can help prevent a heart attack, was answered correctly by nine participants pretest and eleven participants' posttest. Aspirin therapy is advertised in the media and may be more familiar to participants.

The second criteria for objective two, was that participants report effects of selected classes of cardiac medications. The responses shared were in reference to intolerable side effects of medications taken. Participants were aware of the class of medications involved.

Question nine was an opportunity for participants to specify interest in any additional areas of knowledge (Table 9). As self-directed adult learners who volunteered for this education intervention, it was assumed some questions and concerns would be left unanswered. While only one participant wrote a request, several verbally shared their concerns. Using a different class of medication for symptom control was new information

for several participants. Others had concerns regarding interactions with health care providers. Each concern was addressed as it arose.

Summary

ROAM I was developed by the author to measure the utility of this educational intervention. Even though the instrument had not been tested for reliability or validity, one hundred percent of participants knew that a heart attack was caused by a blood clot, in comparison to twenty percent of participants at pre-intervention. All expressed their satisfaction with the overall program.

CHAPTER FIVE

Discussion

Discussion of findings

Several items from the instrument demonstrate that participants had prior knowledge of the presentation information (Table 6). These include knowing the following: the heart is a pump for pushing blood through the body, there is more than one kind of heart disease, hypertension and high cholesterol affect the heart, and that medications are for specific purposes (Table 6). This group either had a good understanding of the material before coming to the presentation or there was an unknown explanation for the high percent of correct answers.

Positive information was gained from pre to posttest regarding item five (Table 6). While only two participants answered correctly pre test that a heart attack is caused by a blood clot, ten answered correctly posttest, demonstrating an increase in knowledge. As noted by Kane & Kane (2000) and Weintraub (1990), this increase in knowledge can lead to increased compliance.

Participants at this intervention likewise showed good knowledge regarding classes of cardiac medications (Table 10). Eighty to one hundred percent knew the correct action of digitalis and aspirin.

Table 10: *Questionnaire Results*

Question	Pre test	Post test
1. Heart is a pump that pushed blood	11	11
2. Only 1 kind of heart disease	10	9
3. Hypertension doesn't affect heart	10	11
4. High cholesterol doesn't affect heart	10	11
5. Heart attack caused by a blood clot	2	10
6. Digitalis makes heart beat stronger	8	8
7. Aspirin a day can prevent heart attack	9	11
8. OK to take whatever heart medicine	11	10
9. Would like to know more about	11	10
Total responses	11	11

The second evaluation method for the first objective of demonstrating heart function and dysfunction showed that most participants could demonstrate heart function and dysfunction with the plastic heart model. Five different participants shared their specific cardiac condition with the group. These conditions included stent placement, atrial fibrillation, hypertension and two reports of myocardial infarctions. This information was well received by other participants and produced questions between participants regarding the various conditions. Sharing cardiac conditions among older adults may improve resources for other group members.

The second criteria for the second objective, describing effects of classes of cardiac medications, also showed good, if unexpected results. Participants shared how they were affected by side effects of specific classes of cardiac medications. The last objective of noting areas of interest for further education was not primarily related to medications (Table 5c). It involved communication issues with providers. Methods for addressing these concerns included writing down questions so they are not forgotten and calling with questions versus waiting until the next appointment to address concerns.

Evaluation of Teaching Methods

Use of the pipes and plumbing analogy produced a lot of affirmative head nodding during the presentation. All participants were very appreciative of the information regarding medications. Most expressed surprise with the knowledge that medications work in different ways to affect similar actions. Participants spontaneously requested information regarding appropriate reasons for notifying health care providers of difficulty with any medication. Participants were encouraged to communicate with their providers regarding all concerns.

Literature on the special conditions needed by older adults was recognized with the participants at both presentations. Two participants had obvious mobility limitations as evidenced by their wheelchairs. Hearing and vision deficits were observed among fifty percent of participants.

The 50 to 60 minute time frame for the presentation was appropriate. Participants had the opportunity to share personal experiences during the presentation. Questions were

answered as they arose. Sharing was encouraged at both presentations. Comments and questions were concluded at both presentations at 50 minutes.

Limitations of the Program

The program was implemented with a limited number of older adults. The number of participants at the first presentation was larger than expected while the number attending the second presentation was smaller than expected.

The author's lack of personal knowledge regarding the second community was a limitation, possibly impacting participation. Two other events were being held concurrently during the scheduled time for this presentation. Eye tests and free blood pressure checks were being conducted in other rooms. Both of these events had a waiting line of people wanting the service. Had this author been aware of the normal schedule of events, the presentation could have been scheduled at a convenient time to precede or follow these other events. This might have increased participation. Community residents with this knowledge should be consulted for convenient scheduling.

While the pre and posttest instrument was not mandatory, three of fourteen participants did not complete the pre or posttest. Several limitations exist around this issue. It was assumed that all participants could read. This may not have been the case. It is unknown if participants at the first intervention came for the presentation, socialization or lunch. This may have influenced participation.

Instrument development did not follow accepted protocol to assure reliability and validity (DeVellis, 1991). This same author notes that there are multiple steps when developing an instrument such as the one attempted for this project. Correct development

includes clear thinking about the theory being used and whether to pursue specificity versus generality in the construct being measured.

Prior to the replication of this educational intervention, instrumentation concerns should be addressed. For example, items for the instrument should come from a large pool of possibilities, each reflecting the construct of interest. Each item needs to be specifically related to the construct of interest. The type of instrument needs to be compatible with the theory being used. Language, wording, length of sentence are all points to consider when developing an instrument (DeVellis, 1991)

Implications for Nursing

The primary role of the nurse practitioner is to promote health and prevent disease. These professionals are therefore in a position to provide aid to clients as defined by Orem (1991). Rural older adults are a vulnerable population worthy of further investigation.

Recommendations for Future Programs

Future research is needed involving education for vulnerable older adults living in rural communities. Isolation, age and multiple medical conditions are some factors that identify them as vulnerable. Appropriate presentations to provide additional relevant information need to be investigated.

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Appendix A

ROAM 1

Participation in this presentation is voluntary. You may leave at any time.
You are under no obligation to participate

1. My heart is a pump that pushes my blood around my body. True False
2. There is only one kind of heart disease. True False
3. If I have hypertension, it doesn't affect my heart. True False
4. If I have high cholesterol, it doesn't affect my heart True False
5. A heart attack is caused by a blood clot. True False
6. Digitalis makes my heart beat stronger. True False
7. An aspirin a day can help prevent a heart attack. True False
8. When I run out of one medicine, it's ok to take whatever heart medicine I can find. True False
9. I would like to learn more about:

Appendix B
Human Subjects

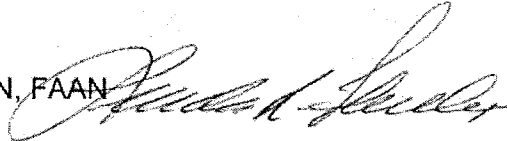
THE UNIVERSITY OF ARIZONA COLLEGE OF NURSING

MEMORANDUM

Date: May 9, 2003

To: Vicki R. Norwood

From: Linda R. Phillips, PhD, RN, FAAN



RE:

Human Subjects

The College of Nursing Departmental Review Committee reviewed the Project Approval Form for your thesis project 'Medication Information and Teaching for Rural Older Adults' on February 3, 2003. It is the determination of this committee that this is an evaluation project; specifically the questionnaire the participants will complete will evaluate the materials presented in the educational presentation. Thus, Human Subjects approval is not required for this project with the understanding you have no intent to publish or present the results.

Appendix C
Subject's Disclaimer Form

SUBJECT'S DISCLAIMER FORM

Title of Project:

Medication Information and Teaching with Printed Handout for Rural Adults

You are being invited to voluntarily participate in the above-titled research study. The purpose of the study is to present medication information to a group of older adults who live in a rural community and then have those adults answer a short questionnaire about the information presented. You are eligible to participate because you are an adult over the age of 60 who takes cardiac medications and lives in a rural community.

If you agree to participate, your participation will involve answering 7 questions about the material presented. You may choose not to answer some or all of the questions. Your name will not appear on these questionnaires.

Any questions you have will be answered and you may withdraw from the study at any time. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time and you will not be compensated for your participation.

Only the principal investigator and her committee will have access to the information that you provide. In order to maintain your confidentiality, your name will not be revealed in any reports that result from this project. Questionnaires will be destroyed following this program.

You can obtain further information from the principal investigator, Vicky R. Norwood, B.S.N., RN, Master's Student, at (520) 742-1752. If you have questions concerning your rights as a research subject, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721.

By answering the questions, you are giving permission for the investigator to use your information for research purposes.

Thank you.

Vicky R. Norwood
Investigator's Name

Appendix D

Flyers

Free Session

Are You Taking Heart Medications?

Are you interested in learning more about your medicines?

*Free Information Session
Enrollment limited to 15 People*

Where: Robles Ranch Community Center
When: 11:00 a.m., Monday, March 17, 2003

**Presented by Vicky Norwood
University of Arizona FNP-S
Bring your questions**

Tear Here

Hand This Form to the Front Desk at the UCHC Clinic to Pre-Register

Name: _____ Date of Birth: _____

Address: _____

Phone Number: _____

List Your Medications On The Back Of This Paper.

Free Session

Are You Taking Heart Medications?

Are you interested in learning more about your medicines?

*Free Information Session
Enrollment limited to 15 People*

Where: Friends In Deed Center, Room C
When: 10:00 a.m., Friday, March 21, 2003

**Presented by Vicky Norwood
University of Arizona FNP-S
Bring your questions**

Tear Here

Hand This Form to the Front Desk at the Continental Clinic to Pre-Register

Name: _____ Date of Birth: _____

Address: _____

Phone Number: _____

List Your Medications On The Back Of This Paper.

Appendix E
Medication Handouts

Healthy Living: ACE Inhibitors: Hopkins Vascular:

WHAT IS AN ACE INHIBITOR?

This drug is used to treat high blood pressure and heart failure.

WHY IS IT NECESSARY?

The ACE Inhibitors decrease the amount of a chemical in your body that causes your blood vessels to get smaller. It lets your blood flow more easily.

WHAT SHOULD I WATCH FOR?

If you have any of these signs, please tell your doctor.

Rash.

Cough that does not go away.

Swelling of hands or feet.

Bruising that is not normal.

Difficulty breathing.

Swelling of face, lips, or tongue.

Healthy Living: Anticoagulant: Hopkins Vascular:

WHAT IS AN ANTICOAGULANT?

This is a drug that keeps your blood from clotting.

WHY IS IT NECESSARY?

This drug is used after some surgeries and to reduce the risk of heart attacks, stroke, and blood clots.

HOW DO I TAKE IT?

If you miss a dose, take it as soon as you can. If it is close to the time for your next dose, take only one dose. Do not take both doses.

If you miss more than two doses, call your doctor at once.

You may wish to carry a card or wear a bracelet stating that you take this drug.

WHAT SHOULD I WATCH FOR?

If you have any of these signs, call your doctor.

Bleeding or bruising, bloody or black stools, blood in the urine.

Fever, sore throat when you do not feel sick.

Skin rash, itching.

Difficulty breathing.

Pain or swelling of lower legs.

Healthy Living: Anti-Arrhythmics: Hopkins Vascular:

WHAT IS AN ANTI-ARRHYTHMIC?

This drug is used to stop odd or extra heartbeats.

WHY IS IT NECESSARY?

Odd or extra heartbeats can cause your heart to function poorly.

HOW DO I TAKE IT?

This drug works best if taken at evenly spaced periods of time.

Ask your doctor or pharmacist if it is OK to chew or crush this drug.

Avoid staying in the sun for long periods of time.

WHAT SHOULD I WATCH FOR?

If you have any of these signs, call your doctor.

Joint pain, sore mouth or gums, fever, or fatigue.

Chest pain or odd heartbeats.

Skin rash. Difficulty breathing.

Stomach pain, nausea, vomiting, dark urine that does not go away.

Fainting.

Bleeding or bruising that is not normal.

Healthy Living: Aspirin or Antiplatelet: Hopkins Vascular:

WHAT IS ASPIRIN OR ANTIPLATELET DRUGS?

Often called blood thinners, these drugs are used after some surgeries to reduce the risk of strokes or heart attacks.

WHY IS IT NECESSARY?

These drugs prevent your blood from clotting as quickly as normal, so they may prevent your vessels from clogging up.

HOW DO I TAKE IT?

Ask your doctor if you may chew or crush this drug. Take with food or milk to prevent an upset stomach.

WHAT SHOULD I WATCH FOR?

Bleeding or bruising that is not normal, black or bloody stools, blood in urine.

Skin rash.

Fever or sore throat when you don't feel sick.

Yellow color to skin or eyes.

Ringing in the ears.

Wheezing or difficulty breathing.

Healthy Living: Beta Blockers: Hopkins Vascular:

WHAT IS A BETA-BLOCKER?

This medication is used to control high blood pressure, treat odd heartbeats, and prevent chest pain. It may be used to prevent another heart attack or to prevent or reduce the pain of migraine headaches.

WHY IS IT NECESSARY?

It is needed to slow your heart rate and make your heart beat less strongly.

HOW DO I TAKE IT?

Ask your doctor or pharmacist if it is OK to chew or crush this drug.

Avoid staying in the sun for long periods of time.

Do not drive or use dangerous machines until you know how you feel while taking this drug.

WHAT SHOULD I WATCH FOR?

Call your doctor if you have any of these signs.

Fatigue, depression, leg pain, nausea or diarrhea, cold hands or feet.

Swelling of feet and lower legs.

Sudden weight gain.

Chest pain.

Change in heart rhythm.

Healthy Living: Calcium Channel Blockers: Hopkins Vascular:

WHAT IS A CALCIUM CHANNEL BLOCKER?

This drug is used to treat chest pain or high blood pressure.

WHY IS IT NECESSARY?

It lets more blood flow to the heart muscle. It also relaxes the blood vessels so that blood flows more easily through your body.

HOW DO I TAKE IT?

Do not drive or use dangerous machines until you know how this drug makes you feel.

Sit and stand up slowly to avoid feeling dizzy or fainting.

WHAT SHOULD I WATCH FOR?

Feeling very dizzy.

Heart beats that feel odd.

Swelling of hands or feet.

Shortness of breath.

Chest pain that get worse, lasts longer, or occurs more often.

Tiredness, nausea, or headache that won't go away.

Unable to move bowels.

Healthy Living: Cholesterol-Lowering Drugs: Hopkins Vascular:

WHAT IS A CHOLESTEROL-LOWERING DRUG?

This drug is used to treat high cholesterol. It lowers the amount of cholesterol and some fats in your blood.

WHY IS IT NECESSARY?

Lowering the amount of cholesterol in your blood may help prevent heart disease, angina, strokes, and heart attacks.

HOW DO I TAKE IT?

Your doctor will tell you when and how many times each day to take this drug.

WHAT SHOULD I WATCH FOR?

If you have any of these signs, call your doctor.

Headaches that are very bad or keep returning.

Diarrhea, constipation, stomach pain, or gas that is severe.

A rash or itching that doesn't go away.

Blurred vision, flushing or turning red.

Tiredness or muscle pain that doesn't go away.

A yellow color to your skin or eyes.

Loss of appetite.

Healthy Living: Digitalis: Hopkins Vascular:

WHAT IS DIGITALIS?

This medication is used in the management of congestive heart failure and to treat types of irregular heart rhythms.

WHY IS IT NECESSARY?

If your heart has been injured or is weak, this drug can help it work better. It makes the heart beat stronger and improves heart rhythm.

HOW DO I TAKE IT?

Your doctor will tell you when and how many times each day to take this drug. If you forget a dose, but remember it within six hours of when you should take it, go ahead and take it. If more than six hours have passed, skip that dose. Take your next dose at the right time. If you miss two or more doses in a row, contact your doctor.

WHAT SHOULD I WATCH FOR?

If you develop an illness that causes diarrhea or vomiting, your body may not be able to take in enough of this drug to reach your heart. Call your doctor.

Loss of appetite, feeling sick to your stomach, throwing up.

Blurred vision, flashes or flickering light, seeing yellow or green.

Seeing halos or borders on objects, feeling that light hurts your eyes.

Headache, feeling sleepy, tired, weak, or confused.

Change in heart rhythm.

Difficulty breathing.

Swelling of your lower legs or ankles.

Healthy Living: Diuretic: Hopkins Vascular:

WHAT IS A DIURETIC?

This drug is used to treat heart failure and high blood pressure.

WHY IS IT NECESSARY?

This drug helps your kidneys flush out water and salt into the urine. It is needed if you are having swelling.

HOW DO I TAKE IT?

Your doctor will tell you when and how many times each day to take this drug.

Take early in the day to avoid getting up during the night to go to the bathroom.

If you take a few doses each day, take the last dose prior to 6 p.m. unless your doctor says otherwise.

Wear a sun block of SPF 15 or greater when outdoors for long periods of time.

Sit and stand slowly to avoid feeling dizzy or faint.

WHAT SHOULD I WATCH FOR? Call your doctor.

A great deal of weight loss or gain in a short period of time.

Muscle cramps or weakness, skin rash.

Feeling very thirsty, bleeding or bruising that is not normal.

Fever or sore throat when you aren't sick.

Healthy Living: Medications: Hopkins Vascular:

Your doctor will tell you when and how many times each day to take your medications. It will also be printed on the label on the pill bottle.

If you forget a dose, but remember it within six hours of when you should take it, go ahead and take it. If more than six hours have passed, skip that dose. Take your next dose at the right time. If you miss two or more doses in a row, contact your doctor.

Do not stop taking your pills or change the way you are taking them without talking to your doctor.

Tell your doctor and pharmacist all the prescription and nonprescription drugs you are taking. Some drugs may change the way your body responds to other drugs.

Food can change the way some drugs act. Ask whether or not you should take your pills with food.

If you can not pay for your pills, please tell your doctor. There may be drugs you can take that cost less.

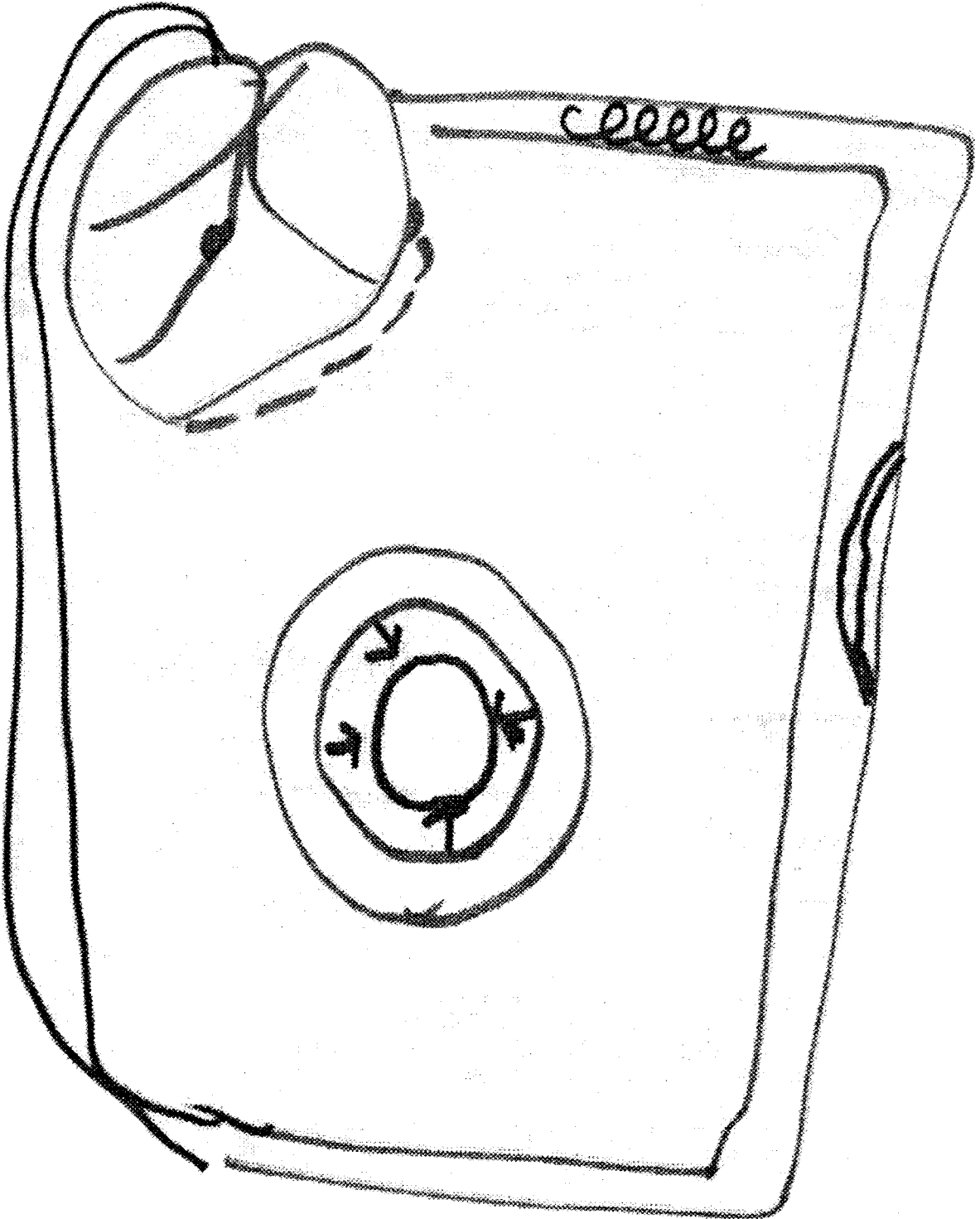
Do not borrow from or lend drugs to your friends or family.

Keep your pills in the bottle they come in. Store them in a cool, dry place. Do not keep them in the bathroom because it is too moist.

When you have three or four days of pills left, get a refill. Do not run out of your pills.

If you develop an illness that causes diarrhea or vomiting, your body may not be able to take in enough of your medication to reach your heart.

Appendix F
Simplistic Drawings



Appendix G
Presentation Outline

PRESENTATION OUTLINE

INTRODUCTION:

Who I am
 Family Nurse Practitioner student with acute care experience
 What is a FNP?
 People aren't sure what medicine they take and why
 I believe it's important they know and have current list
 Important for appropriate, accurate treatment to know what
 medicine a person takes
 Take medications with you if you aren't sure or don't have a
 current list
 Throw away any medications you are no longer taking

MOST COMMON DIAGNOSIS OF PEOPLE OVER AGE OF 65 IS CARDIAC

Heart as pump with models
 Heart is about the size of your fist
 Sits behind your sternum
 Job is to push blood throughout body-pump
 Pumps in sequence for efficiency via valves
 Blood carried to and from heart by arteries and veins, like pipes

PROBLEMS WITH THE PUMP AND PLUMBING

Enlarged heart-weak pump
 Leaky valves-inefficient
 Clogged pipes-reduces flow-clogged at heart or in pipes with
 plaque
 Hypertension-stress on pipes
 Electrical signal malfunction-pump isn't getting clear message
 about when to pump

WHAT MEDICATIONS CAN DO FOR THE PUMP

Make remaining muscle pump better
 Valve medications
 Clean pipes
 Rhythm stabilizers

MEDICATIONS – for Vicky only-participants will receive information on
 handouts.

Diuretics- drugs that increase the output of urine (TX of HTN and helps
 your kidneys flush out water and salt into the urine and needed if you have
 swelling.

Digoxin- helps your heart work better. Makes the heart beat strong and improves heart rhythm.

ACE inhibitors- angiotensin-converting enzyme decrease a chemical in you body that causes your blood vessels to get smaller, so blood flows better. Captopril for HTN and CHF. Take 1 hour before meals. Most common adverse effects are first dose hypotension, hyperkalemia, cough, Calcium channel blockers- lets more blood flow to the heart muscle and relaxes the blood vessel so blood flows more easily through them. TX of HTN and cardiac dysrhythmias. Verapamil for angina pectoris, essential HTN, cardiac dysrhythmias, migraine. Adverse effects constipation, dizzy, facial flushing. Hold drug if BP or pulse low.

Beta Blockers- slows heart rate and makes your heart beat less strongly. propranolol, metoprolol, Don't use if have asthma. Metoprolol maybe. Beta-blockers can mask hypoglycemia, use caution with diabetes.

Nitrates- nitroglycerin, used since 1879, used to treat chest pain and helps the heart work with less oxygen and lets more blood flow through the heart. produces vasodilatation. May cause HA, orthostatic hypotension, reflex tachycardia. Tolerance develops quickly

Aspirin, antiplatelet and oral anticoagulants- keeps your blood from clotting to decrease the risk of heart attacks, stroke, and blood clots.

Cholesterol lowering medication- May help prevent heart disease, chest pain, stokes and heart attacks. The primary way to lower LDL is diet modification, smoking cessation, DM, HTN, obesity, sedentary lifestyle, or family history. clofibrate, probucol, pravastatin, simvastatin, cholestyramine, nicotinic acid (niacin). Primary adverse effect is constipation take other meds 1 hour before or 4 hours after cholesterol meds. Or cause vitamin deficiency.

Rhythm medications- stops odd or extra heartbeats, helps your heart work better. beta-blockers and calcium channel blockers.

QUESTIONS

HANDOUTS

For specific classes of medications

Booklet –“Little Book of Heart Wisdom, Medications”

“Little book of Heart Wisdom, Eating Smart for Healthier Living”

Appendix H

Booklets