

THE DEMOGRAPHICS, HEALTH RELATED CHARACTERISTICS, AND
PRIMARY CARE UTILIZATION OF ASSISTED LIVING
FACILITY RESIDENTS IN MONTANA

by

Wade Robert King

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master

of

Nursing

MONTANA STATE UNIVERSITY
Bozeman, Montana

April 2006

©COPYRIGHT

by

Wade Robert King

2006

All Rights Reserved

APPROVAL

Of a thesis submitted by

Wade Robert King

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the Division of Graduate Education.

Carolyn Hamlin Wenger, MSN, RN

Approved for the Department of Nursing

Elizabeth Nichols, DNS, RN, FAAN

Approved for the Division of Graduate Education

Joseph J. Fedock, PhD.

STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master's degree at Montana State University, I agree that the library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with "fair use" as prescribed in the U. S. Copyright Law. Requests for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Wade Robert King

April, 2006

ACKNOWLEDGEMENTS

I want to thank my thesis chair, Carolyn Wenger, MSN, RN, and committee members, Dr. Jean Ballantyne, and Jane Scharff, MN, RN. Their support, mentorship, and encouragement have been greatly appreciated. I would also like to thank the graduate faculty and my classmates for their efforts and support on my behalf.

To my parents, Bob and Bunny King, a special thanks for your lifelong support and love, even when my life was in disarray. To my wife and best friend, Marlene, for her patience, love, and support. To you, I am forever grateful. I could not have completed this journey without you.

TABLE OF CONTENTS

1. INTRODUCTION	1
Purpose.....	3
Specific Aims.....	3
2. BACKGROUND AND SIGNIFICANCE.....	4
Chronic Care Model.....	7
Community Resource: Assisted Living Facilities.....	10
ALF Characteristics	10
Health Care System.....	14
Self Management Support.....	14
Delivery System Design	15
Decision Support for Providers.....	15
Clinical Information Systems	16
Study Aims.....	16
Study Aim One: Demographics of ALF Residents in Montana	16
Study Aim Two: Health Related Characteristics	17
Study Aim Three: Primary Care Utilization	18
Demographic Variables	19
Age.....	19
Gender.....	20
Education	20
Length of Stay.....	21
Environmental Variables	21
Previous Residence/Rural-Urban.....	21
Health related Variables.....	21
Functional Ability	21
Cognitive Function.....	22
Depression.....	22
Comorbidities.....	23
Number of Medications	23
Primary Care Utilization	24
Summary	24
Research Questions.....	25
3. METHODS	26
Methodology	26
Design	27
Setting and Sample	27
Inclusion Criteria	28
Exclusion Criteria	28

TABLE OF CONTENTS-CONTINUED

The Interview and Testing Procedures	29
Demographics	30
Environmental Variables	30
Previous Residence/Rural-Urban.....	30
Health Related Variables	30
Mini-Mental Status Examination.....	30
Physical Self-Maintenance Scale.....	31
Geriatric Depression Scale Short-Form	33
Number of Medications	33
Primary Care Utilization.....	34
Comorbidities.....	34
Human Subjects Protection.....	34
Assumptions.....	35
Data Analysis	35
Demographics/Health Related Variables/Primary Care Utilization	35
Potential Problems and Limitations	36
Summary	36
4. RESULTS	38
Study Aim One	38
Demographics	38
Study Aim Two.....	39
Health Related Variables	39
Study Aim Three.....	41
Primary Care Utilization.....	41
Summary	42
5. DISCUSSION	43
Conclusions.....	43
Study Aim One	43
Study Aim Two.....	47
Study Aim Three.....	49
Correlational Post Hoc Analysis.....	51
Implications.....	51
Practice.....	51
Education	54
Research.....	55
Summary	56
REFERENCES	58

TABLE OF CONTENTS-CONTINUED

APPENDICES62

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL.....63

APPENDIX B: INFORMED CONSENT.....65

APPENDIX C: FACILITY AGREEMENT70

APPENDIX D: RESIDENT/FAMILY LETTER72

APPENDIX E: GERIATRIC DEPRESSIONSCALE (GDS) SHORT FORM.....74

APPENDIX F: PHYSICAL SELF-MAINTENANCE SCALE (PSMS)77

APPENDIX G: THE MINI-MENTAL STATUS EXAMINATION (MMSE).....80

APPENDIX H: DATA COLLECTION FORM83

APPENDIX I: DIALOUGE GUIDE85

LIST OF TABLES

Table	Page
1. Demographics	39
2. Health Related Characteristics	40
3. MMSE/PSMS/GDSSF	41
4. Physical Self Maintenance Scale	41
5. Geriatric Depression Scale-Short Form	41
6. Primary Care Utilization	42

LIST OF FIGURES

Figure	Page
1. Chronic Care Model.....	9

ABSTRACT

Despite the accelerated growth of assisted living facilities (ALF) as a housing option for elders, most research to date has focused on structural and organizational components of ALF and only a small number of studies related to health issues have been conducted. There is little information specific to the demographics and health related characteristics of ALF residents in Montana and no information regarding primary care utilization was found. This study provides information that is specific to the demographics and health related characteristics of ALF residents in Montana while delivering the first data on primary care utilization for this population.

Information was collected through face-to-face interviews and medical chart reviews of a convenience sample of twenty-six ALF residents. The Mini-Mental Status Exam, Physical Self-Maintenance Scale, and Geriatric Depression Scale-Short Form were utilized.

ALF residents in this study were less physically disabled but depression and number of comorbid conditions was similar to other findings. Subjects of this study had higher incomes and more education, while males represented a higher percentage than was found when compared to other study findings. This study found that not all ALF residents employ the services of a primary care provider (PCP). Most ALF residents utilize a physician as a PCP and over 40 percent found traveling to the PCP office inconvenient. Results of this study found that the number of medications used and number of comorbidities were similar to other study findings.

While additional research is needed, results of this study provides policy makers, community organizations, and health care providers with information that may assist in developing primary care delivery models that best meet the specific needs of ALF residents in Montana.

CHAPTER ONE

INTRODUCTION

The elderly population is expected to continue to grow well into the next century. According to U.S. Census Bureau (2004) estimates placed the population of persons sixty-five or older at just over thirty-four million persons. By the year 2030 estimates place this population at almost seventy-one million (U.S. Census Bureau, 2004). This growing population will need a variety of housing arrangements to meet their specific care needs.

Assisted living facilities (ALF) are the fastest growing type of residential care in the United States, growing at a rate of 15 to 20 percent per year, with an estimated 800,000 to one million elderly people living in these facilities (Assisted Living Federation of America [ALF], 2005; Cummings, 2002; National Center for Assisted Living [NCAL], 2001). The rise of ALF is due, in part, to a philosophy with the goal of allowing elderly people to remain as independent as possible, for as long as possible, in a home like environment and to age in place (Cummings, 2002; Quinn, Johnson, Andress, McGinnis, & Ramesh, 1999). Residents of ALF may choose this living environment because they need housing that provides some protection and oversight. However, there is great variation in services offered by ALF because there is no universal definition of the setting and no federal standards of care (Mitty, 2003). Many ALF residents may have physical or mental health problems, a lack of family support, and financial difficulties, as well as advancing age (Quinn, et al., 1999). ALF placement is less costly in comparison

to nursing homes (Cummings, 2002). The ALF population is primarily composed of women (about 75%) and ALF residents tend to have higher levels of education. Many ALF residents have chronic health conditions which contributed to ALF placement because of their inability to provide self care. The average ALF resident requires assistance with three or more activities of daily living and about three-fourths of the residents require assistance with medications (Ballantyne, 2003). Depression has been found to be common in the ALF population (Ballantyne, 2003; Watson, Garrett, Sloane, Gruber-Baldini, & Zimmerman, 2003). Furthermore, depression in older adults is associated with increased disability, morbidity and mortality in elderly persons (Cummings, 2002).

Despite the accelerated growth in this industry there has been little research regarding this population, with most research focusing on structural and organizational components of ALF and only a small number of studies related to health issues have been conducted (Cummings, 2002). While it is generally accepted that ALF residents are primarily elderly, little information on the characteristics of ALF residents is available.

A major concern about ALF is whether residents are getting their health needs met in this setting (U.S. Congress, General Accounting Office, 1999). The ability to provide care that addresses the specific care needs of ALF residents, and to develop effective interventions to meet those care needs, is dependent on a sound understanding of the characteristics of the ALF population. No information on the characteristics of ALF residents in Montana could be found.

If effective care strategies are to be developed to provide optimal care to ALF residents, in Montana and nationwide, then research is needed to identify the demographics, health related characteristics, and primary care utilization of ALF residents. The information collected in this study will assist facility and health care providers in developing interventions for provision of optimal care to ALF residents. Thus, identification of the makeup and characteristics of ALF residents in Montana is a logical first step in meeting their needs and how their health care needs are met.

Purpose

The purpose of this study is to describe the demographic and health related characteristics and patterns for utilization of primary care providers among ALF residents in Montana. This information can be used to assess the quality of care for ALF residents and increase the potential for aging in place.

Specific Aims

The specific aims of this study were to: 1. Describe demographics of ALF residents in Montana; 2. Describe health related characteristics of ALF residents in Montana; 3. Describe the utilization of primary care providers by ALF residents in Montana.

CHAPTER TWO

BACKGROUND AND SIGNIFICANCE

The number of elderly persons residing in assisted living facilities (ALF) continues to increase annually with 800,000 to one-million persons currently residing in ALF (Assisted Living Federation of America [ALFA], 2005; Cummings, 2002; National Center for Assisted Living [NCAL], 2001). There is, however, a great deal of confusion among health care providers, consumers and ALF providers regarding the role of ALF in providing care to ALF residents. There is also no consensus of the definition of ALF. Definitions of ALF vary from state to state and thus the characteristics of the individuals who reside in ALF are also quite variable. There have been a small number of studies that have explored the demographics and health related characteristics of ALF residents (Cummings, 2002; Hawes, Phillips, & Rose, 2000; Quinn, et al., 1999; Schroeder, Nau, Osness, & Potteinger, 1998; Zimmerman, Sloane, & Eckert, 2001). No studies describing these demographics and health related characteristics of ALF residents in Montana were found.

ALF began to appear in the 1980s and the number of facilities expanded greatly in the 1990s. By the mid 1990s ALF were the fastest growing type of residential care in the United States (Public Policy Institute [PPI], 2004). ALF have been developed to meet the needs of elderly adults who can no longer live independently but do not require around the clock skilled nursing that is typical of the care provided in nursing homes (Kissam, S., Gifford, D.R., Mor, V., & Gail, P., 2003; Mitty, 2003). This contention is supported by a study that compared the functional ability, strength and life satisfaction of nursing home,

ALF residents, and those living independently. This study found that ALF residents were more independent, had higher functional ability and were more satisfied than nursing home residents but less so than elders living independently (Schroeder, et al., 1998).

There is no specific and well defined definition of assisted living. There is, however, a general consensus among most provider and advocacy groups that ALF meet certain basic criteria. These criteria include: (a) services/oversight is available 24 hours a day; (b) meeting scheduled and unscheduled needs that facilitate aging in place; (c) services and care promote independence; (d) dignity, autonomy and choice are emphasized; and (e) a homelike environment is supported (Hawes, Phillips, Rose, Holan & Sherman, 2003; Kissam, S., et al., 2003; Mitty, 2003). Twenty-eight states include an ALF philosophy of care in their regulations or statutes (Ball, M.M., Perkins, M.M., Whittington, F.J., Connell, B.R., Hollingsworth, C., King, S.V., et al., 2004). While there appears to be agreement as to the philosophy of care there is less agreement as to the application of this philosophy to practice (Hawes, et al., 2003).

Aging in place is a basic tenet of ALF philosophy (Ball, et al., 2004; Hawes, et al., 2003; PPI, 2004). Elders moving to ALF may have the expectation that they will be able to remain in the ALF as their health declines and that additional services will be provided as needed to facilitate remaining in the facility. The reality is that this may not be possible (Kissam, et al., 1998). With an average length of stay of only 18 months, it is questionable if ALF actually support the concept of aging in place and many providers feel that ALF are a temporary site for living before eventual placement in a long-term care facility (Ball, et al., 2004). This may be due, in part, to a lack of consistency in state

regulations regarding the prioritization of maintaining resident autonomy and provision of adequate health care to avert relocation from the ALF. Many state regulations are used to ensure the safety and health of elders in care facilities. It is important that regulations differentiate the needs of ALF residents and develop regulations that support admission and continued stay in ALF. These statutes should also provide a mechanism to obtain needed services for increased acuity needs to residents of ALF that allow residents to stay in ALF as long as possible. (Kissam, et al., 2003).

Families play a significant role in assisting relocation to an ALF and provide continued support to ALF residents after the move to an ALF. The support of families was often the key determinant as to whether an ALF resident was able to remain in the ALF or transfer to a location that provided more care (Ball, et al., 2004; Krothe, 1997; Wood & Stephens, 2003). Many elders regard nursing home placement as the last option. Community-based long term-care which provides preventive and supportive services provided by health care professionals and other formal and informal care providers may be revenue neutral and increase autonomy and quality-of-life for elders (Krothe, 1997). Community programs could delay the need for nursing home placement and collaborative endeavors with formal and informal community service providers would be beneficial.

Many elders consider placement in an ALF when a chronic health condition prevents them from living independently (Quinn, et al., 1999). ALF residents will continue to need medical care to manage their chronic illness. Problems related to

transportation and access to health care is common for ALF residents (Wink & Holcomb, 2002). Polypharmacy, the use of over-the-counter medications, and the use of inappropriate medications may complicate medication effectiveness and/or have adverse effects for the ALF resident (Sloane, Zimmerman, Brown, Ives, & Walsh, 2002).

Adequate on site primary care may decrease the need for relocation to more expensive levels of care (Wink & Holcomb, 2002). Collaboration between ALF residents, families, primary care providers and the community may serve to improve psychosocial and health related outcomes for ALF residents (VonKorff, Gruman, Schaefer, Curry, & Wagner, 1997).

The Chronic Care Model (CCM) provides a systems model that helps demonstrate collaborative efforts between the ALF resident, the community, and the health care system. This system may improve psychosocial and health related outcomes for ALF residents. In addition, the CCM will be useful in this study to: 1. To understand the demographics and health related characteristics of ALF residents in Montana. 2. To understand how ALF residents access primary care. 3. To help determine which components of the system need to be aware of the findings of this study.

Chronic Care Model

The Chronic Care Model (CCM) is an organizational system that promotes improvement in quality chronic care through collaborative efforts between the health care system and the community (Wagner, Austin, Davis, Hindmarsh, Schaefer, & Bonomi,

2004). The CCM is synthesized from the best available evidence-based information and makes the assumption that improved clinical outcomes are dependent on individuals and a health care team who are proactive in managing the patient's chronic illness (Wagner, et al., 2004). Providing effective treatment of ALF residents from the perspective of the CCM is dependent upon direct interaction between primary care providers and ALF residents. ALF provide a unique challenge to primary care providers. ALF are a community resource and on-site provision of health care to residents of ALF may not be available. It is suspected that most ALF residents receive care from a primary care provider but no evidence to support this assumption has been found.

The CCM is comprised of two major systems, the community and its resources and the health care system as part of the larger community. Variables of the study are superimposed on the figure for visualization as how they fit into the model. There are five components of the CCM which promote productive interactions between ALF residents and their families, the health care system, and the community. Four of these components relate to the health care system. They are: 1. Self-management support for individuals; 2. A health care delivery system that utilizes evidence-based information to provide culturally appropriate care with the goal of maintenance and prevention of health problems; 3. Healthcare systems support providers with evidence-based information and decision making assistance; 4. Health care systems provide clinical information systems that assist in efficient delivery of care and collect data that can be used to assist in policy decision making.

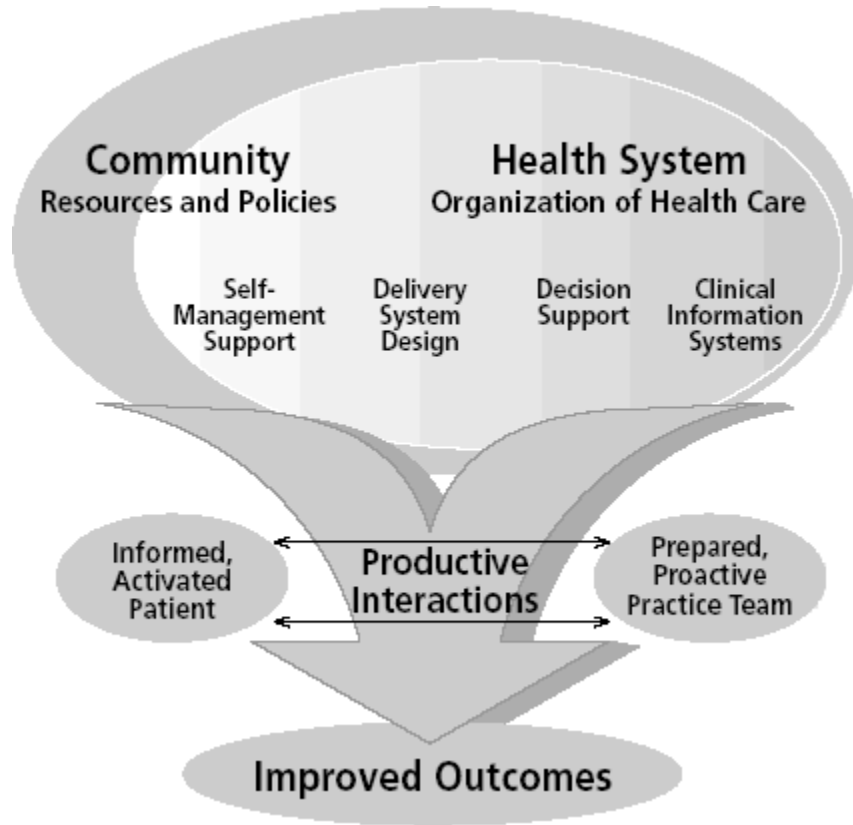


Figure 1. Chronic Care Model (Wagner, 1999). The Demographics, Health Related Characteristics, and Primary Care Utilization of Assisted Living Facility Residents in Montana.

The community component mobilizes resources within the community to meet the needs of elders. ALF residents are community dwellers and not residents of a health care facility. This is an important consideration when exploring health care utilization by ALF residents.

Because the CCM can be applied to a variety of chronic illnesses, health care settings and target populations (ICIC Website, 2005) it will be a useful model in

exploring the relationships between ALF residents and their interaction with the health care system and the community at-large. The five components of the CCM will be used to discuss the demographic, health related characteristics, and primary care utilization by ALF residents.

Community Resources: Assisted Living Facility

The CCM identifies that improved care of community dwelling elders is dependent upon the interaction and mutual support between community resources and health care systems. ALF, which provide a home-like residence and assistance with some personal care needs, are becoming an important residence for elders no longer able to live independently in the community (Hawes, Phillips, & Rose, 2000). Identifying and fostering collaborative efforts between community and health care resources that support the care of ALF residents will likely produce improved care for this population.

ALF Characteristics

Identification of the characteristics of an ALF is essential to understand the role of ALF as a community resource. Discussion will address the definition, philosophy, services and regulation of ALF.

There is no one definition of ALF that is universally accepted. In 1998, the Assisted Living Quality Coalition, a group consisting of consumer groups and provider associations described ALF as:

A congregate residential setting that provides or coordinates personal services, 24-hour supervision and assistance (scheduled and unscheduled),

activities, and health related services; designed to minimize the need to move; designed to accommodate individual residents' needs and preferences; designed to maximize residents' dignity, autonomy, privacy, independence, and safety; and designed to encourage family and community involvement (Assisted Living Quality Coalition, 1998).

The definition provided by the Assisted Living Federation is, “a combination of housing, personalized supportive services, and health care designed to meet the needs—both scheduled and unscheduled—of those who need help with activities of daily living” (ALFA, 2005). The National Center for Assisted Living describes assisted living as, “a long term care alternative for seniors who need more assistance than is available in a retirement community, but who do not require the heavy medical and nursing care provided in a nursing facility” (National Center for Assisted Living [NCAL]), 2001.

The state of Montana describes assisted living as a variation of a personal care home, however ALF are licensed as an ALF in the state and minimum requirements are required by law (Administrative Rules of Montana, 2004). Montana recognizes that ALF differ from personal care homes in two areas. First, ALF provide greater privacy by providing individual living areas with bathroom and kitchen facilities and second, that residents are more involved in determining the level of care that is needed (Residential Care Options, 2004). ALF tend to serve individuals who require more assistance than those living independently and need less care than is provided in nursing home facilities (Personal Care Homes in Montana: A Consumer Guide, 2004). Thus, identifying the

philosophy and services provided by ALF may be more useful in identifying and differentiating ALF from personal care homes in Montana.

The philosophy of ALF is to offer elders an environment that is cost effective, promotes independence and autonomy, and provides safety and privacy in a community-based residential environment that promotes aging in place (ALFA, 2005; Hawes et al, 2003). ALF philosophy also encourages family and community participation and ALF promote efforts to minimize the need for residents to relocate due to changes in health and ability to perform ADLs (Hawes, 2003; NCAL, 2001). ALF philosophy also promotes integrating the ALF into the fabric of the community. In Billings, Montana, one ALF writes a weekly column in the local newspaper that provides information and education on aging as a way to integrate itself into the community and promote use of their facility.

Within this philosophy there are wide variations in the physical makeup and services provided. ALF facilities may vary from small converted homes to large independent complexes, some are free standing and others may be part of a larger campus that provides multiple levels of care (ALFA, 2005; NCAL 2001).

Services provided also vary widely from facility to facility. Services provided may include three meals per day, housekeeping, transportation, assistance with activities of daily living (ADLs), access to health care, 24 hour staff and security, exercise and health promotion programs, medication assistance, and social and recreational activities (ALFA, 2005; Hawes & Phillips, 2000; NCAL, 2001). It is important to note that not all of these services may be available at a given facility.

The wide variation in physical layouts and services may be related to the regulatory oversight of ALF. There is no federal regulation of ALF and regulation is provided by states and local governments (ALFA, 2005; NCAL, 2001; National Center for Assisted Living [NCAL], 2005; PPI, 2004). The lack of federal oversight and the wide variance in state regulations has created a myriad of models of care. Most states specify what services are mandatory but individual ALF may provide services beyond specified services. Some states may prohibit certain services, such as 24 hour skilled nursing services and may even require transferring residents who require services not provided by the facility (PPI, 2004). A daunting task for states will be to address reimbursement issues, ensure safety of residents, and provide oversight that allows ALF to provide affordable care. Compounding the problem for states will be the challenge of blending traditional forms of elder care with ALF regulations and satisfying the multiple providers in the elder care industry (Zimmerman et al., 2001). States must also develop definitions of ALF that clearly differentiate ALF from other forms of long-term care. Thirty seven states, including Montana, currently use the terminology “assisted living” in their licensure regulations (Administrative Rules of Montana, 2004; NCAL, 2005). Varying regulations and increased competition between ALF providers has the potential to increase regulatory activity to more tightly regulate the ALF industry (NCAL, 2005).

Health Care System

Self Management Support

The philosophy of ALF to provide residents with a living environment that promotes independence and autonomy places the need to access primary health care upon the resident. It has been demonstrated that persons actively involved in self care have less complications and disabilities from chronic disease and illness (Wagner, 1999). It has also been noted that even with medical care interventions outcomes may be less desirable in the absence of adequate self management practices (Von Korff et al, 1997). The level of basic care provided in ALF varies from state-to-state and from facility-to-facility and staffing of nursing staff also varies. Nursing staffing in ALF is inconsistent and only 40% of ALF have a full-time registered nurse available (Wink & Holcomb, 2002). Nursing care may be limited to medication assistance with little or no assessment of health care needs provided (Sloane, et.al., 2002). Many ALF residents have physical and/or cognitive impairments that make accessing a primary care provider difficult and these residents may depend on others to provide support in accessing primary care (Wink & Holcomb, 2002). If nursing and family support members fail to recognize primary health care needs access to needed primary care may not be provided. Thus, the need to develop interventions that promote education and access to health care with an emphasis on self management is needed (Wagner,et al., 2004).

Delivery System Design

The delivery of quality care for chronic illness requires planning and coordination from facility, health care, and community members (Wagner et al., 2004). The ALF philosophy with movement away from the medical model of care has the potential to result in increased morbidity and mortality (Pruncho & Rose, 2000). Thus, the development of delivery systems that provide access to primary health care for ALF residents is required to ensure the best outcomes possible. Health care delivery systems need to be sensitive to the needs and limitations of ALF residents. Results of a national survey demonstrated that when ALF increase the level of health care services provided that there is a decreased need to move ALF residents to a higher level of care, such as a nursing home. The same survey found that ALF with a full-time registered nurse decreased the need to move to a higher level of care about half (Phillips & Hawes, 2000). The need for development of delivery care systems that provide quality health care is clear. Development of such strategies will be a challenging and lengthy process and will require cooperation between communities, the health care system, ALF providers, patient advocacy groups, HMOs and insurance companies, and government agencies.

Decision Support for Providers

Because of the confusion of the services of ALF in terms of level and intensity of care, health care providers may not realize the non-medical nature of ALF. Consequently, they may assume caregivers in the ALF are providing care more at the level of a skilled nursing facility. In the CCM, it is pointed out that decision support is

essential in helping providers understand the housing and living situation for each elderly client.

Clinical Information Systems

No nationwide comprehensive clinical information exists which allows multiple providers access to health information. Given the protected nature of health information, such a system may never come to fruition. For the ALF resident, The CCM points out that the fragmented information system is problematic in providing continuity of care. However, it is beyond the scope of this study to explore this.

Study Aims

The following discussions address a review of the literature for the specific aims of this study.

Study Aim One: Demographics of ALF Residents in Montana

Studies that identify the demographics of ALF residents are available, but no information was found regarding demographics of the ALF population in Montana. One was a study of ALF residents in Florida, Maryland, New Jersey, and North Carolina (Watson, L.C., et al., (2003) and another on ALF residents in Oregon (Ballantyne, 2003). Both of these studies identified the characteristics of ALF residents in studies addressing depression.

The Assisted Living Federation of America states that residents are both young and old, have varying degrees of income, and may be frail or disabled and describes the

typical resident as a woman, either single or widowed who is in her eighties (ALFA, 2005). A similar profile from The National Center for Assisted Living sees the average ALF resident as an eighty year-old woman who requires assistance with two ADLS and who has few mobility difficulties (NCAL, 2001). Three studies, one in Georgia and two in the southeast, of residential care and assisted living ALF residents, found similar comparisons with the majority of residents being women more than 85 years-old, white, widowed, and coming from a community setting prior to admission (Cummings, 2002; Quinn, et al., 1999; Zimmerman, et al., 2001).

More research of information regarding the demographics of ALF residents is needed, especially in states not yet surveyed. Given the absence of information regarding the demographics of ALF residents in Montana, this study will provide initial information in this area.

Study Aim Two: Health Related Characteristics

Few studies and surveys regarding the health related characteristics of ALF are available but no information on Montana ALF residents was found (Ballantyne, 2003; Cummings, 2002; NCAL, 2001; Quinn, et al., 1999; Zimmerman, et al., 2001). Functional ability and ADLs, cognitive impairment, comorbid conditions, and number of medications used were addressed and found that few residents were totally independent and most required some level of assistance with ADLs (Ballantyne, 2003; Cummings, 2002; Quinn, et al., 1999; Zimmerman, et al., 2001).

Medication use indicated that polypharmacy is a potential problem and one study of 49 persons treated for depression in ALF in Oregon found 61.2 percent of persons in

this group used 9-17 medications (Ballantyne, 2003). Another study of 80 residents in personal care homes in Georgia found that 71 percent used 3-7 medications and 15 percent used 8-13 medications (Quinn, et al., 1999). Medication use is important because of the numerous side effects and drug interactions of medications. A study of 2,078 ALF residents found that the majority used five or more medications and that 16 percent were taking medications that were inappropriately prescribed. The potential for adverse events is of concern in this population because of the number of comorbid conditions that increase the number of medications used and because there is less oversight by pharmacists and medical professionals than in nursing homes (Sloane, et al., 2002). Careful monitoring of medication use by primary care professionals is needed to provide the best therapeutic value of medication use.

Study Aim Three: Primary Care Utilization

No studies were found that addressed the utilization of primary care providers in ALF. Von Korff, et al. (1997) note that medical care is enhanced by patient involvement in their own care but does not address access to medical care. Problems with medication prescribing and use of inappropriate medications are identified; however no information regarding access to primary care is provided (Sloane, et al., 2002). Wagner, et al. (2001) stated that the assumption is made that every patient has a primary care provider and that interaction between the patient and health care provider is needed to optimize patient care and outcomes. Making this assumption may or may not be correct.

Some problems that ALF residents face regarding access to a primary care provider include transportation to offices, transportation, parking, and mobility issues

(Wink & Holcomb, 2002). Knowing how, and if, ALF residents access a primary care provider may allow for the development of care delivery models that meet the needs of the ALF residents rather than needs of office providers. Ann Conley, an administrator of an ALF in Montana, stated that it was often difficult and unsafe to have to transport residents to physician's offices and that in another state primary care was provided on the premises (Conley, personal communication, September 8, 2005). This study will provide information regarding the primary care utilization by ALF residents in Montana. Although research is needed for many variables, this study will look at selected variables as described in the following discussion.

Demographic Variables

Age

As individuals age a decline in functional ability occurs and the number of co-morbid conditions, including hypertension, congestive heart failure, and diabetes, increases (Schroeder, et al., 1998; Wagner et al., 2001). Advances in medical care have allowed persons to live longer even with disability. As disability increases many individuals can no longer live independently and must find alternative housing and support for everyday needs (Wagner, et al., 2001). With only 10.9 percent of ALF residents under 75 years-old (Hawes, et al., 2000) this older population group is less active, has a greater risk of functional decline, has many co-morbid diseases (Schroeder et al., 1998). ALF offer an alternative to other long-term care facilities for older elders who are able to and choose to live in a more home-like and community like environment.

Gender

Gender has been a common variable described in multiple studies (Ballantyne, 2003; Hawes et al., 2000; Zimmerman et al., 2001) and surveys (ALFA 2005; NCAL 2001). Gender is important primarily for two reasons. First, women account for the vast majority, between 75.8 percent and 80.9 percent, of ALF residents (Ballantyne, 2003; Zimmerman et al., 2001). Second, women live longer than men, with the average age for women and men of all races in the United States at 79.9 percent and 74.5 percent, respectively (Arias, 2002). These statistics are important in the development of strategies for providing care and development of care models for ALF residents.

Education

Educational levels attained have been quantified in several studies (Ballantyne, 2003; Hawes, et al., 2000; Zimmerman et al., 2001). In a study of 184,558 ALF residents it was found that 24.6 percent of ALF residents had some college and 20.3 percent had graduated from college (Hawes, et al., 2000) and in the Collaborative Studies for Long Term Care almost 40 percent of residents had 13 years or more of education (Zimmerman, et al., 2001). In a study of 277 ALF residents in Oregon 73.6 percent of residents had twelve or more years of education (Ballantyne, 2003). Education was included in this study because the ALF population has a higher level of education and this may impact the ability of ALF residents to afford ALF care and to access primary health care.

Length of Stay

The average length of stay (LOS) in ALF demonstrated that only 19.4 percent of ALF residents had resided in an ALF for more than three years and because this information came from a cross-sectional survey this number may be higher than would be expected in a prospective study (Hawes, et al., 2000). LOS is included in this study to allow for comparison with national statistics and because LOS may impact the delivery of primary care to ALF residents.

Environmental Variables

Previous Residence/Rural-Urban

Rural elders are twice as likely to live in poverty as are urban elders and have more co-morbid conditions and less access to health care services. As a result rural elders may rely more heavily on family support (Goins & Mitchell, 1999). Scant information regarding the use of ALF and access to primary care by rural residents residing in ALF is available and this study will provide information in this area.

Health-Related Variables

Functional Ability

Functional ability, to a great extent, determines how a person can function within the community and impacts the perceived quality of life of ALF residents. Decreasing

functional ability may necessitate a move to a higher level of medical care which is inconsistent with the philosophy of ALF to promote the concept of aging in place (Ball, et al., 2004). Only 19 percent of ALF residents were independent with ADLs (NCAL, 2001). A loss of functional ability may impact the ability of ALF residents to access primary care and remain in their current residence. Information from this study will be useful for comparison with other findings to provide baseline data on ALF residents in Montana.

Cognitive Function

It has been demonstrated that decreased cognitive function may affect functional ability and be linked to higher levels of depression in the elderly population (Mehta, Yaffe, & Covinsky, 2002). If declining cognitive function is related to declines in functional ability then the same problems with access to primary care and ability to remain in the ALF are present.

Depression

Depression has been found to be lower in ALF residents than in nursing home residents and ALF residents who were depressed at admission were 1.5 times more likely to later need nursing home placement (Watson, et al., 2003). There is a relationship between functional decline, cognitive status and depression that demonstrates declines in one area may negatively contribute to declines in other areas. (Mehta, et al., 2002). Depression is common in the elderly population and affects about 20 percent of those more than 65 years-old and individuals residing in long-term care facilities are at higher

risk than community dwellers. Additionally, depression can exacerbate already existing medical conditions and may increase the risk of developing a new illness (Cummings, 2002). Compounding the problem with depression is that depression is undertreated in the ALF population. In a study of 277 ALF residents where 95 residents were found to be depressed only 49 residents (51.2 percent) were receiving an anti-depressant. In this same study the percentage of depressed ALF residents was 95 of 277 residents (34.3 percent) (Ballantyne, 2003). In a study of 2,078 ALF residents in the southeast United States only 18 percent of residents identified as depressed received an anti-depressant in the previous week (Watson, et al., 2003). These statistics underscore the need for access to primary care which is essential for ongoing treatment of depression and promotion of aging in place.

Comorbidities

The number of comorbid conditions of a person increases as they age and this complicates their health care and medication needs (Wooten & Galavis, 2005). Timely primary health care is needed to effectively manage the medical needs of ALF residents.

Number of Medications

Elderly persons are more likely to take medications that have been inappropriately prescribed, may be ineffective, cause potentially life threatening adverse reactions, and are unnecessary (Sloane et al., 2002; Wooten & Galavis, 2005). Elders are also at higher risk for polypharmacy related problems because they metabolize medications differently and take more medications than younger adults (Wooten & Galavis, 2005). Thus,

identification of the number of medications is a first step in developing interventions that promote optimal care for ALF residents.

Primary Care Utilization

No information on the utilization of primary care providers was found. One of the goals of ALF is to promote aging in place and to promote patient independence and autonomy (NCAL, 2005). Many ALF have some level of nursing services provided but ALF residents are expected to access primary care services. The complex medical and pharmaceutical needs of ALF residents require ongoing treatment to effectively treat their medical conditions and prevent the need for relocation and to promote aging in place (Wink & Holcomb, 2002). To develop models of care that best meet the needs of ALF residents in Montana information is needed to understand the utilization of primary care.

Summary

As the elderly population continues to increase, so will the number of ALF residents. ALF with their philosophy of providing a homelike environment that supports resident autonomy and independence will be an appealing option for many elders. While there has been research that explores the demographics and health related characteristics of ALF residents (ALFA, 2005, Ballantyne, 2003; Hawes, et al., 2000; NCAL, 2001; Schroeder, et al., 1998; Wagner et al., 2001; Zimmerman et al.), no information exists for ALF residents in Montana. Scant information regarding the utilization of primary care by ALF residents is available and none was found for ALF residents in Montana. The complex health care needs of ALF residents requires ready access to primary care

providers, and knowledge of their use of primary care providers is essential to the development of care models that meet the needs of ALF residents. This study will add to the data regarding demographics and health related characteristics of ALF residents and will provide baseline information of the demographics, health related characteristics, and primary care utilization of ALF residents in Montana.

Research Questions

Based on the current information available on the demographics, health related characteristics, and primary care utilization by ALF residents, the following questions provided guidance for this study.

Aim One: Describe the demographics of ALF residents in Montana

Question: What are the selected demographics of ALF residents in Montana?

Aim Two: Describe health related characteristics of ALF residents in Montana.

Question: What are the selected health related characteristics of ALF residents in Montana?

Aim Three: Describe the utilization of primary care providers by ALF residents in Montana.

Question: What are the primary care utilization patterns of ALF residents in Montana?

CHAPTER THREE

METHODS

This chapter describes the research methods used to accomplish the aims of this study. Provided are the research design, setting and sample, study participants, protection of human subjects, measures, data collection, and data analysis procedures.

Methodology

The purpose of this study was to describe the demographics, health related characteristics, and primary care utilization of ALF residents in Montana. Three aims were addressed in this study. The specific aims of this study were to: 1. Describe demographics of ALF residents in Montana; 2. Describe health related characteristics of ALF residents in Montana; 3. Describe the utilization of primary care providers by ALF residents in Montana. Information will be collected from resident medical records, interviews with residents, and by administering the Mini-Mental Status Examination (MMSE), the Physical Self-Maintenance Scale (PSMS), and the Geriatric Depression Scale Short Form (GDS-SF). The MMSE was used to assess resident's mental status impairment. Data collected from residents who scored 23 or less were not included in the study.

Design

This was a descriptive study designed to examine data collected for demographic, health related, and environmental variables for ALF residents. Descriptive studies are designed to examine data collected from a single sample and to identify and quantify the variables of interest. The described variables can be interpreted and /or compared with similar data and provides information that can be used to develop research needs (Burns & Grove, 2001). Data were collected during interviews and from resident's medical records.

Setting and Sample

Assisted living facilities (ALF) with a philosophy that support aging-in place are the fastest growing type of residential care in the United States (Assisted Living Federation of America [ALF], 2005; Cummings, 2002; National Center for Assisted Living [NCAL], 2001). Despite the accelerated growth in the ALF industry there has been little research regarding this population and only a small number of studies examining the health related characteristic and primary care utilization by ALF residents have been conducted. Highgate Senior Living was chosen as the setting for this research after the administrator responded to a written request asking if Highgate Senior Living was interested in being involved in this research. After meeting with the administrator and discussing the research project the administrator agreed to allow access to residents for development of a sample.

Subjects were selected as a convenience sample of residents from an assisted living facility in an urban center in southern Montana. A convenience sample of 25-30 ALF residents was chosen for this research. The facility administrator identified facility residents who met the inclusion criteria. The administrator and the principal investigator then developed a letter which described the background, testing parameters, voluntary nature, purpose, and inclusion criteria for the study. This letter (Appendix D) was mailed to residents who met the inclusion criteria and to the family member or person designated as power of attorney. The principal investigator then met with the resident council at the facility and made a presentation to the resident council and residents interested in volunteering to become subjects for the study. After the meeting the principal investigator met individually with interested residents and made arrangements for conducting the interviews.

Inclusion Criteria

Age 65 or older.

Resident of an assisted living facility in Montana.

Subject is mentally and physically able to complete the testing.

The subject is able to provide informed consent.

The subject is able to read and understand English.

Exclusion Criteria

A diagnosis of dementia by report, or presumptive diagnosis with a MMSE score of 24 or less.

Unable to provide informed consent.

Stress and fatigue become unbearable for subject.

The Interview and Testing Procedures

A review of the interview procedure and tests was followed by obtaining informed consent (Appendix B). Any questions were answered before data collection and testing began. A general dialogue was developed to guide this component of the interview (Appendix I).

The MMSE, PSMS, and GDS-SF were administered to each subject in this order. During the process of recruiting subjects all potential subjects were told they would complete three tests during the interview. A score of 23 or less on the MMSE would exclude the use of data gather from that subject. However, all tests were completed to ensure no deception occurred. Interviews took place in a private and quiet area that was as convenient for the subject as possible. Test scores were recorded on the three coded test forms and on the coded data collection form for later analysis. The aim of the analysis was to describe the demographics, health related characteristics, and primary care utilization of ALF residents in Montana. The information collected mirrors information that has been collected in other studies of ALF(Ballantyne, 2003; Cummings, 2002; Hawes et al., 2000; Schroeder, et al., 1998; Watson, et al., 2003, & Zimmerman, 2001) and serves to establish baseline information regarding ALF residents in Montana. No identifying information accompanied the demographic or tests forms and scores.

The demographic sheets and MMSE, PSMS, and GDS-SF forms were coded with a number assigned to that subject.

Demographics

Demographic data were collected from resident responses and from the medical records. Ethnicity, age, education, and previous residence (rural/urban) were addressed through an interview. Gender is a dichotomous variable. Information on length of stay in the facility was collected from the subject's charts. For descriptive purposes age is divided into two categories, 65-84 and 85 or older. Education was divided into four categories: did not finish high school; high school graduate; some college; and college graduate.

Environmental Variables

Previous Residence/Rural-Urban

Information regarding residence prior to admission to the ALF was collected from subject interview. For purposes of this study rural was defined as a community of less than 2,500.

Health Related Variables

Mini-Mental Status Examination

The MMSE is a tool frequently used by clinicians to evaluate elders cognitive functional status (Barrie, 2002). The MMSE assesses orientation, attention, immediate

and short term recall, language, and the ability to respond to simple verbal and written commands (Barrie, 2002; Folstein, M., Folstein, S., & McHugh, P., 1975; Kurlowicz & Wallace, 1999). The reliability and validity of the MMSE has been well established and has been extensively used in research and clinical practice since its introduction in 1975 (Barrie, 2002; Farrell, 2004; Kurlowicz & Wallace, 1999).

The maximum score on the MMSE is 30 and a score of 23 or less is indicative of the presence of some level of cognitive impairment (Barrie, 2002). The test can be completed in about ten minutes (Farrell, 2004). When utilized in the general population the MMSE has a sensitivity and specificity of .82 and .87, respectively, for dementia. When performed on highly or lowly educated persons studies have demonstrated sensitivities of .93 to .98 (Murden & Galbraith, 1997). For stable demented elders and non demented elders, test –retest reliability for 24 hours has been reported as $r = .85-.99$. One month test-retest was .89 and one year test-retest was .50 (Mitrushina & Satx, 1991).

The MMSE is very useful in identifying cognitive impairment in the frail elder population (Farrell, 2004). The ease of administration, short completion time, and well established reliability and validity make the MMSE an excellent tool for identifying cognitive impairment in elders (Farrell, 2004; Kurlowicz & Wallace, 1999).

Physical Self-Maintenance Scale

The Physical Self Maintenance Scale (PSMS) (Lawton & Brody, 1969) (Appendix F) was used to measure functional ability. Functional ability is defined as the individuals ability to perform activities of daily living (ADL). The PSMS assesses the

ability to perform ADL by measuring the subjects ability to toilet, feed, dress, groom, ambulate, and bathe (Lawton & Brody, 1969).

Lawton & Brody (1969) examined the PSMS for validity and reliability. A high reproducibility coefficient of .96 was established. The selected criterion was a physical examination by a physician. Comparisons of ratings by two research assistants established inter-rater reliability with a correlation of .91 (Lawton & Brody, 1969).

The PSMS was used to measure the functional ability of ALF residents. Self reports by subjects evaluated residents ability to toilet, feed, dress, groom, ambulate, and bathe. The PSMS consists of six single answer questions and one double answer question. Subjects were asked if they performed a specified ADL 1) without help; 2) with some help; 3) or without help. The single answer questions are scored one, two, or three, with the larger number indicating higher functioning. The first question on the double answer question is scored one or two with two demonstrating higher functioning. The second part of the double answer questions is scored from one to four with a higher number indicating a higher level of functioning. For descriptive purposes three categories of functional ability were utilized in this study. A score of 21-24 indicates low impairment, a score of 17-20 indicates moderate impairment, and a score of eight to 16 indicates high impairment. Some level of physical impairment is expected in ALF residents by virtue of their placement in an ALF. The PSMS is a useful tool for measuring physical impairment in ALF by virtue of measuring ability to perform ADL.

Geriatric Depression Scale-Short Form

The Geriatric Depression Scale Short Form (GDS-SF) (Appendix E) was used to measure depression in this study. The GDS-SF has been shown to be a reliable and valid tool for measuring depression in elders (Sheikh & Yesavage, 1986). One study demonstrated a sensitivity of 91% and a specificity of 81% for identifying major depression in elders 60 years or older when utilizing the GDS-SF (Farrell, 2004). The fifteen question short form was developed primarily to reduce the administration time. The GDS-SF was derived from the Geriatric Depression Scale Long Form (GDS-LF) which contains 30 questions (Sheikh & Yesavage, 1986).

The GDS-SF contains 15 questions. Each questions earns a score of one or zero. To remain consistent with recommended cut-off scores minor depression was defined as a score of 5-9 and major depression will be defined as a score of 10-15 (Sheikh & Yesavage, 1986).

Number of Medications

The number of medications was defined as all prescription and non-prescription medications taken by the subject. This information was obtained from the subjects medical record for residents who have the facility dispense their medications and from resident report for those who manage their own medications. Scores for number of medications used are 0-8, 9-17, and 18-23. The actual number of medications used was recorded. Scores were collapsed into three categories to be consistent with past research (Ballantyne, 2003; Center for Health Systems Research & Analysis [CHSRA], 2001).

Primary Care Utilization

Primary care was defined as primary care medical services provided by a nurse practitioner, physician, or physician assistant. Problems related to primary care utilization by ALF residents include polypharmacy and medication issues, transportation difficulties, functional and cognitive problems, and financial concerns.

Comorbidities

Comorbidities were defined as the current number of medical illnesses. The number of comorbidities was determined by the medical chart review and interview with the subject. For descriptive purposes three levels, zero- four, five to eight, and nine or more, indicate low, high, and very high comorbidity levels, respectively.

Human Subjects Protection

This study was approved by the Montana State Institutional Review Board (Appendix A). Each subject signed an informed consent (Appendix B). The principal investigator conducted all the interviews and administered all tests. All information data sheets were coded and participant names and identifying information were kept separated from the data sheets. Information was entered into SPSS 13.0 statistical software. All information was kept in a locked file cabinet when not in the possession of the principal investigator. Signed informed consent forms were kept in a locked file cabinet at the Montana State University-Bozeman College of Nursing campus in Billings, Montana.

Assumptions

Several philosophical assumptions underlie both the purpose and approach of this study. All persons have a right to health care, and access to primary health care services. Advancing age or unforeseen circumstances should not be a basis for denial of this right. The delivery of consistent and comprehensive primary health care that addresses the medical and social needs of elders is necessary to develop primary care delivery models to support the health and quality-of-life of ALF residents and to promote the ALF philosophy of aging-in-place.

Data Analysis

Demographics/Health Related Variables/Primary Care Utilization

Descriptive statistics were used to examine age, gender, ethnicity, education level, previous residence (rural/urban), length of stay in facility, cognitive status, physical status, depressive status, number of medications used, and comorbidities. Access issues for securing primary care services were also examined. This information was compared to current data to ascertain the homogeneity, or lack of, for ALF residents in Montana. Additionally, correlations using the MMSE, PSMS, GDS-SF, number of medications used, number of comorbidities, and age were examined.

Study Aim 1

Describe demographics of ALF residents in Montana.

Study Aim 2

Describe health related characteristics of ALF residents in Montana.

Study Aim 3

Describe the utilization of primary care providers by ALF residents in Montana.

Potential Problems and Limitations

It was known that a convenience sample would create some limitations. This sample was not expected to fully represent the ALF population in Montana, however it was believed that convenience sampling would strongly contribute to study feasibility. The particular ALF utilized in this research may not be representative of ALF in Montana, given the urban location and size of the facility. The small sample size makes generalizing the results of this study to ALF residents difficult. There was also the possibility that self reported information may be incorrect. Knowing that they were part of a study may have altered the responses of the subjects. Subjects may not have understood the test questions and instructions. Potential errors may have been made in the testing, scoring, and recording of the data. Nevertheless, it was determined that the data would provide a starting point for understanding the ALF population in Montana.

Summary

The purpose of this study was to describe the demographics, health related characteristics, and primary care utilization of ALF residents in Montana. This study

used a descriptive design. Subjects were a convenience sample from a single urban ALF in southern Montana. The Montana State University-Bozeman Institutional Review Board approved the study. Participation in the study was voluntary and informed consent was obtained from each subject.

CHAPTER 4

RESULTS

Descriptive statistics were used to describe the demographics, health related characteristics, primary care utilization, and scores of the Mini-Mental Status Examination (MMSE), Physical Self-Maintenance Scale (PSMS), and the Geriatric Depression Scale-Short Form (GDS-SF) for the subjects (n=26).

Study Aim OneDemographics

Study aim one was to describe the demographics of ALF residents in Montana. The sample consisted of 26 subjects from a single urban assisted living facility (ALF) in southern Montana. The average age for subjects in this study was 81.4 years. All subjects described themselves as Caucasian, which is not unusual in Montana where the vast majority of persons are white. The percentage of women in this study was less than would have been expected for this population. Subjects were highly educated with over three-fourths having some college or a college degree and also had annual incomes that were higher than what might be expected for this population.

These findings are not unusual for ALF residents who privately pay to reside in ALF. It is also reasonable to assume that higher incomes are associated with higher education. Previous residence to relocation to an ALF was primarily from urban areas. Length of stay at the ALF was evenly distributed but only about ten percent had resided in the facility more than 24 months. Data are presented in Table 1.

Table 1. Demographics

	(%)	n
<u>Ethnicity</u>		
Caucasian	100	26
<u>Gender</u>		
Female	57.7	15
Male	42.3	11
<u>Education</u>		
High school	30.8	8
Some College	53.8	14
College Graduate or higher	15.4	4
<u>Annual Income</u>		
\$20,000 to \$29,999	11.5	3
> \$30,000	61.5	16
Unknown	26.9	7
<u>Previous Residence</u>		
Rural	15.4	4
Urban	84.6	22
<u>Length of Stay in ALF</u>		
< six months	30.8	8
6-12 months	30.8	8
12-24 months	26.9	7
> 24 months	11.5	3

Study Aim Two

Health Related Characteristics

Study aim two was to describe the health related characteristics of ALF residents in Montana. The number of medications used was similar to the results of other studies. The average number of medications used was 9.23. There is concern for inappropriate medication use and adverse effects from polypharmacy.

The average number of comorbidities was 5.96. This information is useful to help understand the complex nature of the primary care needs of this population. The high number of medications used and high number of comorbidities complicate the delivery of care to ALF residents. Data are presented in Table 2.

Table 2. Health Related Characteristics

	%	n
<u>Number of Medications Used</u>		
0-8	53.8	14
9-17	42.3	11
18-23	3.8	1
<u>Number of Comorbidities</u>		
0-4	11.5	3
5-8	76.9	20
9 or more	11.5	3

The MMSE was utilized as an inclusion test. A minimum score of 24 was required to have the subjects data included in the study. The MMSE was administered to 27 subjects and 26 subjects scored 24 or more. This provided the sample of 26 subjects. The mean was higher than what would be expected for this population. This was not an unexpected finding given that ALF residents that were likely to not meet the inclusion criteria were not considered for participation in this study.

The PSMS found that this sample was higher functioning than what would be expected for this population. The number of persons screened for likely depression was similar to the findings in other studies. Data are provided in Table 3, Table 4, and Table 5.

Table 3. MMSE/PSMS/GDSSF

	n	Mean	Standard Deviation	Range
MMSE	26	27.58	2.04	24-30
PSMS	26	22.15	1.74	16-24
GDSSF	26	3.12	2.27	0-11

Table 4. Physical Self-Maintenance Scale

	%	n
21-24 (Low impairment)	88.5	23
17-20 (Moderate impairment)	7.7	2
8-16 (High impairment)	3.8	1

Table 5. Geriatric Depression Scale-Short Form

	%	n
0-4 (None)	80.8	21
5-9 (Minor)	15.4	4
10-15 (Major)	3.8	1

Study Aim Three

Primary Care Utilization

Study aim three was to describe the primary care utilization of ALF residents in Montana. Almost all subjects who utilized the services of a primary care provider (PCP) saw a physician. One subject saw a nurse practitioner. One finding that may be significant is that three subjects stated they had no PCP. The lack of any primary care for these residents could have profound implications for their health. Over 80% of those who utilized a PCP traveled to the PCP office for care and over 40 % found traveling to the PCP office inconvenient. With only four subjects receiving primary care services

on-site and over 40% finding traveling inconvenient the implications are clear. Many ALF residents might find onsite care a viable option for receiving health care. It is possible that those with no PCP would find this useful and might access onsite services.

Data are provided in Table 6.

Table 6. Primary Care Utilization

	%	n
<u>Primary Care Provider (n=26)</u>		
Yes	88.5	23
No	11.5	3
<u>Primary Care Provider Type (n=23)</u>		
Physician	95.7	22
Nurse Practitioner	4.3	1
<u>Primary Care Provider Site (n=23)</u>		
Primary Care Provider Office	82.6	19
On site at ALF	17.4	4
<u>Transportation to Office (n=19)</u>		
Drove Self	15.8	3
Family provided transportation	21.1	4
ALF Provided Transportation	63.1	12
<u>Found Travel to Office Inconvenient (n=21)</u>		
Yes	42.9	9
No	57.1	12

Summary

Descriptive statistics were used to describe the demographics, health related characteristics, and primary care utilization of ALF residents in Montana. The data collected provides some of the first data that is specific to ALF residents in Montana.

CHAPTER 5

DISCUSSION

The purpose of this study was to describe the demographics, health related characteristics, and primary care utilization of assisted living facility (ALF) residents in Montana. This study addressed three questions: 1) What are the selected demographics of ALF residents in Montana? 2) What are the selected health related characteristics of ALF residents in Montana? 3) What are the primary care utilization patterns of ALF residents in Montana? This information will provide a baseline of data that can be expanded upon in further studies to assist health care providers and policy makers in establishing programs to provide quality primary care services to ALF residents in Montana.

The minimum score of 24 on the MMSE was used as a basis for inclusion in the study. The administrator and activity director of the ALF utilized the inclusion criteria to exclude individuals who would be unable to meet the MMSE criteria. Thus, only one of the subjects interviewed was excluded from the study. The mean score of 27.6 on the MMSE is likely higher than would be expected for a random sample of residents in the ALF.

ConclusionsStudy Aim One.

Demographic information was collected for ethnicity, age, gender, annual income, education level attained, length of stay in the current ALF, and previous residence

(rural/urban) prior to admission to the ALF.

All of the subjects in this study (n=26) identified themselves as Caucasian. This finding is not consistent with the general population in Montana. However, the percentage of Caucasians in the county where the ALF is located is almost 93 percent (US Census Bureau, 2000). The PPI (2004) report found that 99 percent of ALF residents were Caucasian. In a study conducted in Georgia, which has a higher percentage of non-whites, the percentage of Caucasian residents of ALF was 86 percent (Quinn, et al., 1999). A study in the southeastern United States found that 90.1 percent (n=1857) of residents were Caucasian and 9.1 percent (n=185) were Non-White. ALF may be ethnically less diverse than other long-term care facilities due to cultural differences and socioeconomic factors (PPI, 2004). Thus, the very high percentages of Caucasians living in ALF in Montana appear to be consistent with both state and national norms.

The mean age of the study participants was 81.4 years. This average age is consistent with findings of other studies and sources. A typical resident of an ALF is listed as between 75 and 85 years old (NCAL, 2001) and defined as in their eighties (ALFA, 2005). One study of 57 ALF residents found the mean age to be 83.7 years (Cummings, 2002) and another study of 23 ALF residents listed the mean age as 81.0 years (Schroeder, et al., 1998). The findings of this study regarding age are consistent with the findings of other studies.

In this study 57.7 percent (n=15) of the residents were female and 42.3 percent (n=11) were male. The percentage of women is lower and the percentage of men is higher than information found in other sources and studies. A typical ALF resident is identified as a woman in her mid seventies to eighties (ALF, 2005; NCAL, 2001). In one study of 23 ALF, 21 of twenty-three subjects were women (Schroeder, et al., 1998) and in another study of 57 ALF residents 78.6 percent were female (Cummings, 2002). Watson, et al. (2003) in a four state study found that 24.5 percent (n=501) of ALF residents were men and 75.5 percent (n=1542) were women. Ballantyne (2003) in an Oregon study demonstrated that women represented 80.9 percent (n= 224) of ALF residents and men 19.1 percent (n=53). Given the longer life expectancy of women and an average age in the eighties, it is not surprising that about three-quarters of the residents of ALF are women. The results of this study are inconsistent with the higher percentage but still demonstrate a majority of residents as female. Reasons for this disparity might be a reluctance of females to participate in the study or that there is a disproportionate number of male residents at this particular ALF. Nevertheless, findings of this study demonstrate that females represent the majority of ALF residents.

The level of education attained by ALF residents was quite high. All of the subjects (n=26) had graduated from high school and 69.2 percent (n=18) had attended some college or were college graduates. These numbers are much higher than the Georgia study of 80 ALF residents which found that only 11 of eighty persons had some college or were college graduates (Quinn, et al., 1999). Another study conducted in Oregon

found that 26.4 percent (n=73) had less than 12 years of education and 73.6 percent (n=204) had more than 12 years of education. A four state study found that 68.2 percent (n=1117) of ALF residents had 12 or more years of education and that 31.8 percent (n=522) had less than twelve years of education. It is likely that cultural and socioeconomic factors are responsible for this disparity. It may appear unusual that all of this study's participants had graduated from high school given that many had grown up during the depression. However, given that this ALF requires private payment it is not difficult to understand that these ALF residents are highly educated and have earned enough money over their lives to support themselves and to afford the 25,000 dollar a year cost of residing in this ALF. This is reflected in the results that demonstrate 61.5 percent of the subjects stated they earned more than 30,000 dollars a year. Only three subjects listed incomes less than 30,000 dollars. Little information was found regarding the income levels of ALF residents nationwide. However, from information collected in this study we can state that ALF residents in this study are well educated and have higher incomes than cohorts in the general community.

Only four of the 26 subjects identified that they had relocated to this ALF from a rural community or area. Given the urban location of this ALF this is likely not unusual. Research is needed to identify admission patterns in rural and urban areas to allow for better identification of admission patterns and establishment of primary care delivery programs to meet rural elder needs.

Length of stay information from this study may be less useful for evaluation because the facility has only been open for two and one-half years. Only 11.5 percent

(n=3) of study subjects have lived in this ALF for more than two years. In one cross-sectional study only 19.4 percent of ALF residents had resided in these facilities for more than three years (Hawes, et al., 2000). Given this information and the advanced age of ALF residents it is reasonable to assume that length of stay for ALF residents is likely to be relatively short. Ongoing research and follow up studies to better identify length of stay in ALF would be useful to help design models for delivery of primary care to ALF residents.

Demographic information collected in this study will be useful in establishing baseline information of ALF residents in Montana. Further studies are needed to provide a more complete set of data that can be used to identify the specific needs of ALF residents and help establish primary care delivery models that meet the specific needs of this population.

Study Aim Two.

It is clear that the number of comorbid conditions complicates the delivery of health care to elderly individuals. With increasing numbers of comorbid conditions it is likely that more medications will be prescribed. This scenario puts elders at risk for significant adverse reactions and questionable effectiveness of their medication treatment regimen (Wooten & Galavis, 2005). Mixed results were found regarding the number of medications used. In one study it was found that 71 percent (n=57) of ALF residents used 3-7 medications and 15 (n=12) percent used 8-13 medications daily (Quinn, et al., 1999). This is considerably higher than that found in another study (N=23) of ALF residents that stated only 1.4 medications were used daily (Schroeder, et al., 1998). In a

doctoral dissertation addressing depression in ALF residents in Oregon it was found that 68.2 percent of 277 ALF residents used nine or more medications every day. This study also found that 50.9 percent (n=141) of ALF residents had four or fewer comorbid conditions and that 49.1 percent (n=136) had five or more (Ballantyne, 2003). Another study found similar findings. This study found that 52.2 percent (n=1064) of residents had five or more comorbid conditions and 47.8 percent (n=976) had less than five (Watson, et al., 2003). The results of this study found that the mean number of medications was just over nine per day. These results are consistent with many of the findings and with anecdotal information provided by care providers working with elders. With an average of six comorbid conditions and use of nine medications daily these ALF residents are at risk for adverse reactions and ineffective treatment without good primary care oversight. The information described in this study establishes baseline information for further study and points to the possible problems related to polypharmacy with a high number of comorbid conditions that ALF residents face.

Results of the PSMS revealed that there was much less disability than would be expected in this population of elders. The National Center for Assisted Living (2001) states that only 19 percent of ALF residents are independent with activities of daily living (ADLs). Results of this study found that 88.5 percent (n=23) of the subjects were rated as mildly impaired. Mild impairment is indicative of a relatively high level of independence.

Results for identifying potential depression were mixed when compared to the findings of this study. A large study of 2,078 ALF residents that found 13 percent of the

screened persons were depressed utilizing a score of greater than seven for the Cornell Scale for Depression. This study also found that one-third of the residents had symptoms of depression and found that the prevalence of depression in their study falls between community dwelling elders and nursing home residents (Watson et al., 2003). Potential depression was screened in 19.2 percent (n=5) of the subjects in this study. Another study (n=277) that utilized the GDSSF found that 34.3 percent (n=95) of ALF residents met the criteria for depression (Ballantyne, 2003). These results demonstrate a higher level of depression than the results of this study. Overall, results of this study regarding depression in ALF residents are similar to other studies (Ballantyne, 2003; Watson et al., 2003). Further studies are needed to better verify the results of this study.

The scores on the MMSE were much higher than expected for the general ALF population. The MMSE was utilized as an inclusion test and only individuals scoring 24 or more were included in the sample. Thus, this information would only be of value for inclusion purposes and would not be representative of the ALF population in general.

No information regarding the health related characteristics of ALF residents in Montana is available. The information collected in this study is useful in providing initial baseline information and serving as a springboard to stimulate further study.

Study Aim Three.

Provision of primary care services that meet the specific needs of ALF residents in Montana is necessary to meet the assisted living goal of allowing these elders to age in place. However, no information regarding the utilization of primary care services for ALF residents in Montana is available. This study provides the first information

regarding the utilization of primary care by ALF residents in Montana. It was expected that all subjects would have a primary care provider. It was interesting to find that 11.5 percent (n=3) subjects stated they had no primary care provider. This has strong implications for their ability to have their primary care needs met. Of the 23 subjects who have a primary care provider, all but one utilized the services of a physician. The other subject used a nurse practitioner for primary care provision. The physician or nurse practitioner office was the site for delivery of care for 82.6 percent (n=19) and 17.4 percent (n=4) were seen onsite at the ALF. For those who made office visits only 15.8 percent (n=3) drove themselves, the other 84.2 percent (n=16) used family or facility transportation to travel to office visits. It was noted that 42.9 percent (n=9) found that traveling to the office inconvenient while 57.1 percent (n=12) stated it was not inconvenient. Many who did state it was not inconvenient to travel stated they saw this as an opportunity to get out for a while. This may present an opportunity for ALF residents to receive better primary care. While it is unclear why three ALF residents had no provider, onsite delivery of primary care would provide an opportunity for them to receive primary care services. Onsite delivery of care could offer health care providers a unique chance to expand their practice into a community setting.

The results of this study provide the initial information regarding primary care utilization by ALF residents. Further studies are needed to support or refute the results of this study the data collected here provide a starting point for discussions that could support the development of primary care delivery models that meet the special needs of the ALF population.

Correlational Post Hoc Analysis

Although it was not an aim of this study, data allowed for examination of correlations between age, number of medications, number of comorbidities, and the MMSE, PSMS, and the GDS-SF. The data were analyzed utilizing Pearson's Bivariate Correlation.

Two correlations of significance at this level were found. First, a positive correlation ($r=.726$, $p=.01$) was found between the number of comorbidities and the number of medications. This was not an unexpected finding given the expectation that the number of medications would rise with the number of comorbid conditions. It is important because the complexity of care increases and the risk for polypharmacy related problems also increases. These may negatively impact the health and quality of life of the ALF resident. Second, an inverse correlation ($r= -.634$, $p=.01$) was found between the PSMS and the GDSSF. This was an expected finding indicating that higher levels of depression are associated with lower levels of physical functioning. Providers can use this information to support development of interventions that improve ALF residents quality of life. No significant correlations were found between other variables.

Implications

Practice

The aging of the baby boomers will double the population of persons over sixty-five in the next twenty-five years (U.S. Census Bureau, 2004). This will have political, social, and economic impacts upon our nation. Almost daily arguments and concerns

regarding the long-term health of the Medicare system are presented. As a nation we will need to explore ways to finance and deliver health care to this burgeoning population. The growing population of elders will also test our ability to house and care for the elder population. ALF are the fastest growing form of elder housing in the United States and there is no reason to feel that this population will not continue to grow into the future. With a philosophy of providing a care environment that allows elders to age in place, ALF are an attractive option for those who do not require the twenty-four hour skilled nursing needs provided in nursing homes. What is unclear is how best to meet the primary needs of the ALF population care. This study has sought to generate information to better understand the demographic, health related characteristics, and primary care utilization by ALF residents in Montana. In doing so we can explore ways that will best meet the primary care needs of ALF residents.

The Chronic Care Model (CCM) provides a systems model that helps demonstrate the integration of collaborative efforts between the community, the healthcare system, and the ALF resident. The CCM also promotes improvement in the quality of care to elders through this collaboration. This study provides information that could be used to support these collaborative efforts. Improved primary care for ALF residents is dependent upon interaction and mutual support between the health care system and community resources. ALF are a community resource. If ALF recognize the need for improved primary care services and healthcare providers recognize the opportunity to provide this care the table is set for the collaboration that the CCM promotes.

A model for delivery of onsite primary care services would support self management support for ALF residents by utilizing evidence based to promote health and improved quality of life. Health care systems could provide technological assistance in the development of systems to collect and store information that is easily accessible to primary care providers and to develop tools to measures outcomes of care. Community resources could assist healthcare providers in developing a model of care by identifying needs from the community perspective. Positive and productive collaboration between the health care system and community resources could result in the development of an onsite delivery of primary care to ALF that produces improvement in ALF residents health and quality of life.

The growth of ALF provides an opportunity for nurse practitioners to expand their practice into this community setting. Nurse practitioners (NP) have an obligation to become leaders in shaping the future of the health care environment. NP, with an educational background that emphasizes treatment of the person, rather than disease processes, are particularly well suited to provide holistic care that emphasizes the promotion of quality-of-life for ALF residents. NP can manage the medical and medication needs of ALF residents and provide support for their psychosocial and emotional needs. The NP can also support the families of ALF residents and address end-of-life and advanced directive issues. NP can act as educators for ALF staff which could positively impact the daily care of ALF residents. ALF, in turn, may see an economic benefit by attracting potential residents because on-site delivery of primary care is attractive to elders and their families. As we move into the 21st century new models for

delivery of primary care to ALF residents are needed. Given that a notable percentage of ALF residents in this study found traveling to PCP offices inconvenient consideration for the development of models for on-site delivery of primary care to ALF residents needs to be explored. Many ALF residents may find this to be a favorable option. Providing age appropriate care to ALF residents can be instrumental in meeting the goals of providing the highest quality of life possible and to support the ALF philosophy of aging-in place.

Expanding nurse practitioner practice into ALF can provide the community with an enhanced understanding regarding the vital role that NP now play in delivering primary care to ALF residents. Whether the NP is working with a primary care practice or as an autonomous practice, the exposure in the community will increase the knowledge of NP practice and allow for collaborative efforts with community physicians and civic organizations. By developing a model of care for on-site delivery of care NP can demonstrate the effectiveness of NP practice in a community setting and demonstrate to the medical establishment and the community at-large the value of NP practice.

Education

If NP are to be able to successfully practice in an ALF environment, graduate nursing programs may need to provide educational experiences that expose NP students to ALF. Training that allows NP to assess, diagnose and treat with limited technological support would be helpful for NP moving into ALF practice. Current educational programs regarding budget and finance could be expanded to include the development of collaborative agreements with other health care entities. If NP practice is established in

ALF then graduate programs will need to find ways to employ these NP providers as mentors and preceptors for NP students.

Research

Significant barriers for the utilization of primary care face ALF residents. The provision of on-site delivery of primary care to ALF residents by NP may be a feasible alternative for this population. However, until these models can be implemented into practice the usefulness and impact of these models is unknown. Additional research that addresses the primary care needs and utilization of primary care is needed to help change or modify this model of care to best meet the needs of ALF residents. Additional data that supports or refutes the findings of this study, at state and national levels, is needed to clearly establish the demographic profile, health related characteristics, and primary care utilization patterns of ALF residents. Collection of current available data regarding ALF residents should be consolidated and could provide a more comprehensive picture of ALF residents and their specific health care needs. When ALF utilize an on-site model for delivery of primary care research is needed to evaluate the effectiveness, strengths and weaknesses, and to explore ways to improve the delivery of primary care to ALF residents. Nursing involvement in the development of proposals for pilot studies to investigate the usefulness of primary care provision models in ALF would be beneficial. Nursing, in general, and nurse practitioners in particular have an opportunity have to have a direct impact on the health and quality of life of millions of ALF residents. The research needs outlined have the potential to promote the development of primary care

delivery models that meet the specific health care needs of ALF residents. Further studies are needed to support or refute the results of this study. The data collected in this study provides a starting point for discussion that could support the development of primary care delivery models that meet the special needs of the ALF population.

Summary

As baby boomers reach retirement age the number of persons over 65 years old is expected to double to 71 million by the year 2030 (U.S. Census Bureau, 2004). To accommodate the growing population of elders new forms of housing are evolving to meet the long-term care housing needs of elders. The fastest growing alternative for elder housing is ALF. Despite the growth of ALF there is little information regarding the demographics, health related characteristics, and primary care utilization of ALF residents. The majority of information that is available is from other areas of the United States and no information regarding these variables are available for ALF residents in Montana. This study provides the first information regarding these variables for ALF residents in Montana. This study was performed on a small sample (n=26) of ALF residents in Montana. All of the subjects in this study were Caucasian. Given that the vast majority of residents in Montana are Caucasian this finding is not unexpected. Findings of this study were generally consistent with available information. ALF residents in this study were less physically disabled but depression and number of comorbid conditions is similar to other findings. Subjects of this study had higher incomes and more education, while males represented a higher percentage than was

found when compared to other study findings. The information collected on primary care utilization by ALF residents is the first of its kind for ALF residents in Montana and found that not all ALF residents employ the services of a primary care provider (PCP), most utilize a physician as a PCP, and over 40 percent find traveling to the PCP office inconvenient. Results of this study found that the number of medications used and number of comorbidities is similar to other study findings.

Results of this study provide insight into the possibility of onsite provision of primary care to ALF residents. Nurse practitioners in particular may be well suited to provide this level of care. Additional research is needed to provide information that will allow policy makers, community organizations, and health care providers to develop primary care delivery models that best meet the specific primary care needs of ALF residents in Montana.

REFERENCES

- Administrative Rules of Montana, 37.106.Subchapter28. Montana Department of Public Health & Human Services.
- Arias, E. (2004). National vital statistics report. Retrieved September 12, 2005 from: http://www.cdc.gov/nchs/data/nvsr53_06.pdf.
- Assisted Living Federation of America, 2005. Assisted living- What is it? Facts, and definitions. Retrieved September 6, 2005 from: <http://www.alfa.org/public/articles/details.cfm?id=126>.
- Assisted Living Quality Coalition (1998). Assisted living quality initiative: Building a structure that promotes quality. Washington, DC: Author
- Ball, M.M., Perkins, M.M., Whittington, F.J., Connell, B.R., Hollingsworth, C., King, S.V., et al., (2004). Managing decline in assisted living: The key to aging in place. *Journal of Gerontology*, 59B(4), S202-S212.
- Ballantyne, J. E. (2003). Antidepressant treatment among depressed residents in assisted living (Doctoral dissertation, Oregon Health & Science University, 2003).
- Barrie, M.A. (2002). Objective screening tools to assess cognitive impairment and depression. *Topics in Geriatric Rehabilitation* 18(2), 28-46.
- Burns, N. & Grove, S.K. (Eds.).(2001). *The practice of nursing research: Conduct, critique, & utilization*. Philadelphia: W.B. Saunders Company.
- Center for Health Systems Research & Analysis (CHSRA) (2001). *Facility Guide for the nursing home quality indicators*. University of Wisconsin, Madison.
- Conley, A. Personal communication, September 8, 2005. Highgate Senior Living, Billings, MT.
- Cummings, S.M. (2002). Predictors of psychological well-being among assisted living residents. *Health and Social Work*, 27(4), 293-302.
- Farrell, M.K. (2004). Using functional assessment and screening tools with frail older adults. *Topics in Geriatric Rehabilitation*, 20(1), 14-20.
- Folstein, M., Folstein, S., & McHugh, P. (1975). "Mini-Mental State." A practical method for grading cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12, 189-198.

- Goins, R.T. & Mitchell, J. (1999). Health related quality of life: Does rurality matter? *The Journal of Rural Health, 15*(2), 147-156.
- Hawes, C., Phillips, C.D., & Rose, M. (2000). *High service or high privacy assisted living facilities, their residents and staff: Results from a national survey* (Report) Beachwood, Ohio: Myers Research Institute.
- Hawes, C., Phillips, C.D., Rose, M., Holan, S., & Sherman, M. (2003). A national survey of assisted living facilities. *The Gerontologist, 43*(6), 875-882.
- ICIC website. Overview of the chronic care model. Retrieved May 16, 2005, from <http://www.improvingchroniccare.org/change/model/components.html>.
- Kissam, S., Gifford, D.R., Mor, V., & Patry, G. (2003). Admission and continued-stay criteria for assisted living facilities. *Journal of the American Geriatrics Society, 51*(11), 1651-1654.
- Krothe, J.S. (1997). Giving voice to elderly people: Community-based long-term care. *Public Health Nursing, 14*(4), 217-226.
- Kurlowicz, L. & Wallace, M. (1999). The mini-mental status examination (MMSE). *The Hartford Institute for Geriatric Nursing, Division of Nursing, New York University*. Retrieved October 2, 2005 from: <http://www.hartfordign.org/publications/trythis/issue03.pdf>.
- Lawton, M.P. & Brody, E.M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *Gerontologist, 9*, 179-188.
- Mehta, K.M., Yaffe, K., & Covinsky, K.E. (2002). Cognitive impairment, depressive symptoms, and functional decline in older people. *The Journal of the American Geriatrics Society, 50*(6), 1045-1050.
- Mirushina, M., & Satz, P. (1991). Reliability and validity of the Mini-Mental State Exam in neurologically intact elderly. *Journal of Clinical Psychology, 47*(4), 537-543.
- Mitty, E.L. (2003). Policy perspectives: Assisted living and the role of nursing: As many as half a million people reside in assisted living facilities, the regulations vary from state to state. Nurses have an opportunity-and an obligation-to develop policies. *American Journal of Nursing, 103*(8), 32-43.
- Murden, R.A., & Galbraith, J. (1997). A modified mini-mental state exam for the use in the poorly educated. *Clinical Gerontologist, 17*(4), 23-33.

- National Center for Assisted Living (2001). Assisted living: Independence, choice and dignity. Retrieved September 7, 2005 from <http://www.ncal.org/about/alcid.pdf>.
- National Center for Assisted Living (March, 2005). *Assisted living state regulatory review 2005*. Retrieved September 7, 2005 from <http://www.ncal.org/about/statsum.htm>.
- Personal Care Homes In Montana: A Consumer's Guide (2004). Retrieved September 7, 2005 from: <http://www.dphhs.state.mt>.
- Phillips, C.D. & Hawes, C. (2000). Residents leaving assisted living facilities: Descriptive and analytic results from a national survey. Executive summary. Retrieved September 9, 2005 from <http://aspe.hhs.gov/daltpc/reports/alresdes.htm>.
- Pruncho, R.A. & Rose, M.S. (2000). The effect of long-term environments on health outcomes. *The Gerontologist*, 40(4), 422-428.
- Public Policy Institute (2004). *An overview of assisted living: 2004*. AARP.
- Quinn, M.E., Johnson, M.A., Andress, E.L., McGinnis, P., & Remesh, M. (1999). Health characteristics of elderly personal care home residents. *Journal of Advanced Nursing*, 30, 410-417.
- Residential Care Options (2004). Retrieved September 3, 2004 from: <http://www.dphhs.state.mt>.
- Schroeder, J.M., Nau, K.L., Osness, W.H., & Potteiger, J.A. (1998). A comparison of life satisfaction, functional ability, physical characteristics, and activity level among older adults in various living settings. *Journal of Aging and Physical Activity*, 6, 340-349.
- Sheikh, J. I. & Yesavage, J. A.(1986). Geriatric depression scale (GDS): Recent evidence and development of a shorter version. *Clinical Gerontology*. Haworth Press.
- Sloane, P.D., Zimmerman, S., Brown, L.C., Ives, T.J., & Walsh, J.F. (2002). Inappropriate medication prescribing in residential care/assisted living facilities. *Journal of the American Geriatrics Society*, 50, 1001-1011.
- U.S. Census Bureau (2004). *U.S. Interim Projections by age, sex, race, and Hispanic Origin*. Washington, DC. Retrieved October 27, 2004 from: <http://www.census.gov/ipc/www/usinterimproj>.

- U.S. Congress, General Accounting Office (1999). *Assisted Living: Quality-of-care and consumer protection issues in four states*. Washington, DC: General Accounting Office. Report GAO/HEHS-99-2.
- VonKorff, M., Gruman, J., Schaefer, J., Curry, S.J., & Wagner, E.H. (1997). Collaborative management of chronic illness. *Annals of Internal Medicine*, 127(12), 1097-1102.
- Wagner, E.H. (1999). Care of older people with chronic illness. In E.Calkins, C. Boulton, E.H. Wagner & J.T. Pacala (Eds.), *New ways to care for older people* (pp.39-64). New York: Springer.
- Wagner, E.H., Austin, B.T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2004). Improving chronic illness care: Translating evidence into action. *Health Affairs*, 20(6), 64-78.
- Watson, L.C., Garrett, J.M., Sloane, P.D., Gruber-Baldini, A.L., & Zimmerman, S. (2003). Depression in assisted living: Results from a four state study. *American Journal of Geriatric Psychiatry*, 11(5), 534-542.
- Wink, D.M. & Holcomb, L.O. (2002). Assisted living facilities as a site for np practice. *Journal of the American Academy of Nurse Practitioners*, 14(6), 251-256.
- Wood, S. & Stephens, M. (2003). Vulnerability to elder abuse and neglect in assisted living facilities. *The Gerontologist*, 43(5), 753-757.
- Wooten, J. & Galavis, J. (2005). Polypharmacy: Keeping the elderly safe. *RN*, 68(8), 44-51.
- Zimmerman, S., Sloane, P., & Eckert, J. (2001). *Assisted living: Needs, practices and policies in residential care*. Baltimore: John Hopkins University Press.

APPENDICES

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

INSTITUTIONAL REVIEW BOARD APPROVAL


INSTITUTIONAL REVIEW BOARD
For the Protection of Human Subjects

960 Technology Blvd. Room 127
 c/o Veterinary Molecular Biology
 Montana State University
 Bozeman, MT 59718
 Telephone: 406-994-6783
 FAX: 406-994-4303
 E-mail: cherylj@montana.edu

Chair: Mark Quinn
 406-994-5721
 mquinn@montana.edu
Administrator:
 Cheryl Johnson
 406-994-6783
 cherylj@montana.edu

MEMORANDUM

TO: Wade King

FROM: Mark Quinn, Ph.D. *Mark Quinn Ph.D.*
 Chair, Institutional Review Board for the Protection of Human Subjects

DATE: October 27, 2005

SUBJECT: *The demographics, health related characteristics, and primary care utilization of assisted living facility residents in Montana [WK102705]*

Thank you for submitting the revisions and clarifications requested by the Institutional Review Board. This proposal is now approved for a period of one-year.

Please keep track of the number of subjects who participate in the study and of any unexpected or adverse consequences of the research. If there are any adverse consequences, please report them to the committee as soon as possible. If there are serious adverse consequences, please suspend the research until the situation has been reviewed by the Institutional Review Board.

Any changes in the human subjects aspects of the research should be approved by the committee before they are implemented.

It is the investigator's responsibility to inform subjects about the risks and benefits of the research. Although the subject's signing of the consent form, documents this process, you, as the investigator should be sure that the subject understands it. Please remember that subjects should receive a copy of the consent form and that you should keep a signed copy for your records.

In one year, you will be sent a questionnaire asking for information about the progress of the research. The information that you provide will be used to determine whether the committee will give continuing approval for another year. If the research is still in progress in 5 years, a complete new application will be required.

APPENDIX B

INFORMED CONSENT

IRB CONSENT FORM
SUBJECT CONSENT FORM
FOR
PARTICIPATION IN HUMAN RESEARCH AT
MONTANA STATE UNIVERSITY

Project Title:

The Demographics, Health Related Characteristics, and Primary Care Utilization of Assisted living Facility Residents in Montana

Participation:

You are being asked to participate in a study that will collect information that describes the characteristics of assisted living facility residents in Montana and how they use health care services.

Purpose:

This study is being done because there is little information that identifies the characteristics of assisted living facility residents in Montana or how they receive their health care. By collecting this information the best ways to provide health care services to assisted living facility residents can be found. You are being considered as a participant in this study because you are an assisted living facility resident who lives in Montana who is 65 years or older. The first thirty persons who agree to participate in the study will be selected to participate in the study.

Procedures:

If you agree to participate in this study you will be asked to participate in an interview and be asked to answer a number of questions about your health and how you use health care services of a physician, nurse practitioner, or physicians assistant. The interviews will take about an hour and will be completed at Highgate Senior Living in an area that protects your privacy. Interviews will be conducted from November 2005 through January 2006.

Risks:

Participation is completely voluntary and there are no penalties for you choosing not to participate. While none of the questions is intended to cause any stress or fatigue it is possible that completion of the tools may cause stress and you may become fatigued during the interview. If at any time you desire to take a break from the interview or wish to complete the interview at a later time your wishes will be honored.

Benefits:

The study is of no direct benefit to you. However, the information obtained by this study will help facilitate the development of interventions and models of care that address the specific primary care needs of AFL residents that will increase the overall quality of life for ALF residents and promote aging-in-place.

Source of Funding:

All funding for this project is being provided by the Principal Investigator from Montana State University.

Costs and Participation:

There is no cost to participate in this study and you will not receive any payment for participating in this study. You are encouraged to ask questions or request information at any time during the study.

Confidentiality of Records:

Every effort will be made to maintain the confidentiality of your personal information. We cannot guarantee absolute confidentiality, and your personal information may be disclosed if required by law. The signed consent forms may be reviewed by qualified representatives of Highgate Senior Living, Billings, Montana, and by agencies that oversee the rights and welfare of human subjects in research, such as the Institutional Review Board (IRB) of Billings or the Institutional Review Board at Montana State University-Bozeman, Montana. These agencies might review your records to check the information collected in this study, to check how the study was conducted, or for other uses allowed by law. The information collected in this study may be published in nursing journals, but your identity will not be revealed. Signed consent forms will be kept in a locked file cabinet at the Montana State University-Bozeman College of Nursing for five years and destroyed after that time.

Injury and Compensation:

While it is unlikely that your participation in this research will result in injury, stress, or fatigue to you, referral to Highgate Senior Living staff will be available for support related to stress. In the unlikely event that you require medical treatment Highgate Senior Living protocol for accessing emergency care will be utilized. However, there is no compensation for such injury available. Montana State University cannot be held responsible for injury, accidents, or expenses that may occur as a result of traveling to and from your appointments at the site of data collection.

Authorization to Share Personal Health Information in Research:

We are asking you to take part in the research described in this consent form. To do this research, we need to collect health information that identifies you. We may collect the results of tests, questionnaires and interviews. We may also collect information from your medical record. Information that may be collected from your medical record includes the medical diagnoses and the number of medications used. We will only collect information that is needed for the research. We are asking you to take part in the research described in this consent form. For you to be in this research, we need your permission to collect and share this information. Further information about this study may be obtained by calling Wade King , Principal Investigator, at (406) 245-9327 or Carolyn Wenger, Committee Chairperson at (406) 657-1735.

To protect your health information once data is received it will be coded and your name will appear only on a master list that will be kept separate from the data in a locked file cabinet at the Montana State University-Bozeman College of Nursing on the Billings, Montana campus. Upon completion of the study this master list will be destroyed and no connection of your name will be associated with the research results. The information collected in this study will be combined into aggregate data and presented as combined information only. We cannot guarantee absolute confidentiality and there is a potential for loss of confidentiality. However, we will make every effort to keep your health information private and confidential. It is possible that other researchers may use the combined information for further research. The information may also be shared with the Montana State University Institutional Review Board and/or the Billings Institutional Review Board if requested. These review boards ensure that research is conducted properly.

If you sign this form, we will collect health information until the end of the research. Medical diagnoses and the number of medications used will be obtained from the medical record. No other information will be obtained from your medical record. We will keep all the information indefinitely, in case we need to look at it again. We will protect the information and keep it confidential.

Your information may also be useful for other studies. We can only use your information again if the Institutional Review Board gives us permission. This committee may ask us to talk to you again before doing the research; however, the committee may also let us do the research without talking to you again if we keep your health information private.

If you sign this form, you are giving us permission to collect, use and share your health information. You do not need to sign this form. If you do decide not to

sign this form, you cannot be in the research study. We cannot do the research if we cannot collect, use, and share your health information.

If you change your mind later and do not want us to collect or share your health information, you need to send a letter to the researcher listed on the attached form. The letter needs to say that you have changed your mind and do not want the researcher to collect and share your health information. You may also need to leave the research study if we cannot collect any more health information. We will still use the information we have already collected. We need to know what happens to everyone who starts a research study, not just those people who stay in the study.

Additional questions about the study can be answered by the principal investigator, Wade King (406) 245-9327, or the committee chair, Carolyn Wenger (406) 657-1735. If you have any additional questions about the rights of human subjects please contact the chairman of the Institutional Review Board, Mark Quinn, at (406) 994-5721.

“AUTHORIZATION: I have read the above and understand the discomforts, inconvenience and risk of this study. I _____, agree to participate in this research. I also agree that my health information can be collected and used by the researchers and staff for the research study described in this consent form. I understand that I may later refuse to participate, and that I may withdraw from the study at any time. I have received a copy of this consent form for my own records.

Signed: _____

Witness: _____

Investigator: _____

Date: _____

APPENDIX C

FACILITY AGREEMENT

FACILITY AGREEMENT



October 7, 2005

Wade King, BSN, RN
Graduate Student, Montana State University-Bozeman, College of Nursing
45 Shamrock Court
Billings, MT 59105

Dear Wade:

This letter serves as confirmation that Highgate Senior Living will assist you in securing in house volunteers who meet the criteria of your research. We will forward your letter of introduction to our residents and families on October 28, 2005. You will attend the Resident Council Meeting on November 7, 2005 to provide further information as necessary and to meet your volunteers. After you have selected your participants, we will continue to support you by reminding our residents when you will be meeting with them.

If you require further assistance I will personally be available to you.

We are pleased to support your research.

Sincerely,


Anne Conley
Community Manager



APPENDIX D

RESIDENT/FAMILY LETTER

RESIDENT/FAMILY LETTER

Dear Residents and Families,

Highgate would like to support the study outlined below by Mr. Wade King and the Montana State University-Bozeman College of Nursing. It is very important that more research be completed on the service needs of Assisted Living Residents in the state of Montana. We are honored to have been approached to participate in the study. I know from experience that most of our residents will enjoy the interview period and the review of the thesis when completed. I asked Mr. King to outline the project for your review and consideration. Please feel free to stop by my office if you would like further information or if wish not to be approached for the purposes of volunteering.

Sincerely,

 Anne Conley
 Community Manager

Greetings. My name is Wade King and I am a graduate student in the Family Nurse Practitioner track at Montana State University-Bozeman. I am looking to identify residents of Highgate Senior Living who would be interested in volunteering to participate in a study I am conducting to complete my thesis entitled *The Demographics, Health Related Characteristics, and Primary Care Utilization of Assisted Living Facility Residents in Montana*. Assisted Living Facilities (ALF) is the fastest growing type of residential care for elders in the United States. Despite this there is little information regarding the characteristics of ALF residents and use of primary care providers (physicians, nurse practitioners) available. No information is available regarding ALF residents in Montana. Information gathered in this study will provide the initial information available in Montana. It is hoped that information gathered in this study will encourage others to conduct additional research that will allow development of models of care that best meet the specific medical care needs of ALF residents.

A sample of 25-30 residents is being sought. Participation in this study is voluntary and there is no payment for participation in the study. All information collected in this study will be kept confidential. If you choose to participate in this study you always have the option of withdrawing from the study at any time. To participate in the study the person needs to be 65 or older, reside at Highgate Senior Living, be able to provide informed consent, and be able to read and/or understand English. Informed consent can be provided only by those who are responsible for themselves and only those persons will be approached.

Information will be collected from the resident's medical record and from an interview. The interview is expected to last about one hour. If at any time during the interview you feel tired or wish to stop, your wishes will be honored and the interview can be completed at a different time. Three tests that measure your thinking and memory, your physical condition, and whether you feel depressed will be conducted. Information about age, education, how long you have lived at Highgate, where you lived prior to moving to Highgate, your income, your ethnicity, medical conditions, number of medications used, and who you see for your medical care will be collected during the interview and from your medical record. I hope to begin the interviews near the middle of November and finish by the middle of January. All interviews will be conducted at Highgate in a location that provides privacy and comfort. All information that is gathered will be presented as group information only and nothing that could identify you as an individual will be provided.

Highgate Senior Living is sending a copy of this letter to your family with your November invoice to inform them of the study. If any family member has concerns about anyone participating in the study they can contact Ann Conley, Community Manager. I will present this information at the Resident Council meeting on November 7, 2005.

I am very excited to be able to conduct my study at Highgate and I look forward to meeting all of you. If you have questions about the study you can contact me at 406-245-9327.

Sincerely,

 Wade King, BSN, RN, Family Nurse Practitioner Student
 Montana State University-Bozeman College of Nursing

APPENDIX E

GERIATRIC DEPRESSION SCALE (GDS) SHORT FORM

APPENDIX E
GERIATRIC DEPRESSION SCALE (GDS) SHORT FORM

Geriatric Depression Scale (GDS) Short Form

Choose the best answer for how you have felt over the last week.

- | | |
|---|------------------|
| Are you basically satisfied with your life? | Yes
NO |
| Have you dropped many of your activities and interests? | YES
No |
| Do you feel that your life is empty? | YES
No |
| Are you in good spirits most of the time? | Yes
NO |
| Are you afraid that something bad is going to happen to you? | YES
No |
| Do you feel happy most of the time? | Yes
NO |
| Do you often feel helpless? | YES
No |
| Do you prefer to stay at home rather than going out and doing new things? | YES
No |
| Do you feel you have more problem with memory than most people? | YES
No |
| Do you feel it is wonderful to be alive now? | Yes
NO |
| Do you feel pretty worthless the way you are now? | YES
No |
| Do you feel full of energy? | Yes
NO |

Geriatric Depression Scale (GDS) Short Form
(Page 2)

Do you feel that your situation is hopeless?	YES No
Do you think that most people are better off than you?	YES No

TOTAL:

Answers **BOLDED AND CAPITALIZED** indicate depression. Count one point for each answer indicating depression. A score of 5 or greater is suggestive of depression and should warrant a follow-up. Scores over 10 almost always indicate depression.

APPENDIX F

PHYSICAL SELF-MAINTENANCE SCALE (PSMS)

Physical Self-Maintenance Scale (PSMS)
Self-Rated Version Extracted From the Multilevel Assessment Instrument (MAI)

Do you eat:

- without any help, 3
- with some help (cutting food, identifying for blind, etc.), or 2
- does someone feed you? 1

Do you dress and undress yourself:

- without any help (pick out clothes, dress and undress yourself) 3
- with some help (dressing or undressing), or 2
- does someone dress and undress you? 1

Do you take care of your own appearance, things like
combing your hair (for men: shaving):

- without help, 3
- with some help, or 2
- does someone do all this type of thing for you 1

Do you get around your (house/apartment/room):

- without help of any kind 3
- with some help (from a person or using a walker,
crutches, chair), or 2
- don't you get around your house at all unless
someone moves you? 1

Physical Self-Maintenance Scale (PSMS)
(Page 2)

Do you get in and out of bed:

- | | |
|--|----------|
| <u>without any help or aid,</u> | <u>3</u> |
| <u>only with some help (from a person or device),</u> | <u>2</u> |
| <u>don't you get in and out of bed unless someone lifts you?</u> | <u>1</u> |

Do you bathe – that is, take a bath, shower, or sponge bath:

- | | |
|--|----------|
| <u>without any help,</u> | <u>3</u> |
| <u>with some help (from a person or device), or</u> | <u>2</u> |
| <u>only when someone bathes you (lifts in and out or bathes)</u> | <u>1</u> |

7a. Do you ever have trouble getting to the bathroom on time?

- | | |
|------------|----------|
| <u>Yes</u> | <u>1</u> |
| <u>No</u> | <u>2</u> |

7b. About how often do you wet or soil yourself during the day or night?

- | | |
|------------------------------|----------|
| <u>Never</u> | <u>4</u> |
| <u>Less than once a week</u> | <u>3</u> |
| <u>Once or twice a week</u> | <u>2</u> |
| <u>Three times a week</u> | <u>1</u> |

Total Score

APPENDIX G

THE MINI-MENTAL STATE EXAMINATION (MMSE)

The Mini-Mental State Examination (MMSE)
Folstein, Folstein & McHugh (1975)

Please record the subject's response verbatim. Score one point for each correct item.

1. What year is it? _____
2. What season is it? _____
3. What month is it? _____
4. What day of the month is it? _____
5. What day of the week is it? _____
6. What state are we in? _____
7. What country are we in? _____
8. What town are we in? _____
9. What building, home, office, or hospital are we in? _____
10. What floor are we on? _____

“I shall say three words for you to remember. Repeat them after I have said all three words...Shirt...Brown...Honesty.” (If the subject does not repeat all three words on the first presentation, repeat the words again until the subject is able to repeat all three. However, the subject only gets credit for the words that were repeated after the first presentation.)

Number of presentations required:

Circle the words repeated at the first presentation only:

11. Shirt _____
12. Brown _____
13. Honesty _____

Ask **“Can you spell the word “world” for me?”** (coach subject if needed). If the subject is able to spell “world” correctly, with or without any help, then ask **“Now can you spell the word “world” backward?”** Do not give any assistance.

Verbatim response to backward trial:

14. D _____
15. L _____
16. R _____
17. O _____
18. W _____

Ask the subject to recall the three memory words:

The Mini-Mental State Examination (MMSE)
(Page 2)

16. Shirt _____
17. Brown _____
18. Honesty _____

For each of the following ask **“What is this?”** as you hold up a pencil, and point to your watch. It may be necessary to repeat the question as, “What am I pointing to?” , Record subject’s response verbatim.

22. Pencil:

23. Watch:

Ask subject to follow three instructions: “Take this paper in your right hand, fold it in half, and put it on the floor.”

24. Uses right hand _____
25. Folds in half _____
26. Places on floor _____

27. Ask the subject to repeat the phrase “No if, ands, or buts.”

Repeats correctly _____ (Verbatim response:
(listen very carefully for omission of “s” at the end of “ifs”, “ands” and “buts”)

28. Hold up a piece of paper that says “Close your eyes” and say **“Please do this.”** If the subject does not close his or her eyes within five seconds, prompt him or her by pointing to the sentence and saying, **“Read and do what this says.”** If the subject has already read the sentence aloud spontaneously, simply say **“Do what this says.”**

Allow five seconds for the response.

Circle one:

- Obeys without prompting
Obeys after prompting
Reads aloud only (spontaneously or by request)

29. Give the subject a piece of paper and a pencil with an eraser and ask, **“Please write a sentence.”** (any sentence of their choice).

30. Provide copy of polygon and ask subject to trace these onto the same sheet of paper and ask **“Please copy this drawing”**. *Allow one minute for copying.*

Total Score:

APPENDIX H

DATA COLLECTION FORM

Data Collection Form

Date: _____
Code #: _____

Age: _____
Gender: _____
Annual Income (0- \$9999) (\$10000-\$19999) (\$20000-\$29999) (>\$30000)
Ethnicity: _____
Educational Level: _____
Length of Stay at Highgate Senior Living: _____
Previous Residence (prior to moving to Highgate Senior Living): _____
Number of Co-morbidities: _____
Numbers of Medications _____

Primary Care Utilization

1. Do you have a primary care provider?
Yes No

2. If yes, do you see a:
Physician, Nurse Practitioner, or Physicians Assistant

3. Where do you see your primary care provider?
Office In this facility or other _____

4. If seen outside of this facility, how do you get to your appointment?:
Drive self to appointment
Family takes to appointment
Facility provides transportation
Use public transportation
Other _____

5. Do you find traveling to the primary care provider's office inconvenient?
Yes No

APPENDIX I
DIALOUGE GUIDE

APPENDIX I
Dialogue Guide

1. “Hello, my name is Wade King. I am a registered nurse who is earning a Master’s degree in nursing. When my schooling is completed I will become a Family Nurse Practitioner. Each Master’s degree candidate must develop a study as part of the requirement to obtain a Master’s degree. My study involves collecting information on assisted living facility residents through a review of your medical record and from an interview. You have been identified as a person who would qualify to be in the study. Would you be willing to learn more about the study and consider participation in the study?”

If no: Thank the person for their time. If yes: proceed to 2.

2. “This study is confidential. No one else accesses your information or medical record. To participate in the study you will need to sign a consent form, but these forms are locked in a secure place. The consent forms are kept separate from the information collected for the study. The interview consists of three standardized tests to measure memory, risk for depression, and your physical abilities. The three tests will take about an hour to complete. Would you be interested in participating in the study? If you have any other questions I would be happy to answer them for you.”

- If the subject declines thank them for their time.

- When a subject agrees to participate in the study proceed with a discussion regarding informed consent, emphasizing confidentiality:

“after you sign the consent form I will separate it from the tests. This ensures I will not know which test results are yours or someone else’s.”

Continue discussion reviewing the risks, benefits, purpose, contact persons and their phone numbers. Explain that they can withdraw from the study at any time. Ask if the subject has any questions and answer any questions. Give the information section of the informed consent to the subject, have them sign the consent. Separate informed consent from tests and place signed consent form in the appropriate folder.

3. “Let’s proceed. Remember you can ask questions at any time or stop if you need to take a break. We can always finish at a later time if you get tired. First, I need to get some information about you. If you don’t feel like answering a question, that is alright. Just let me know that you don’t want to answer that question.”
 - Record demographic and health related information provided by the subject.
4. “We’ll complete the tests now. Try to relax and have fun with the testing. It is not meant to be stressful and you are not being judged in any way. Some of the questions may seem quite simple and others more difficult. Remember to ask questions if you have any. We can rest and take a break at any time, so just let me know you’d like to take break.”
 - Complete tests, taking breaks and answering questions as needed.
5. -After the tests are completed.

“We are all done. Thank you very much for your time and participation. Do you have any questions or comments?”

- Answer questions. Thank subject again and assist the subject as needed with mobility or other issues.