

## ABSTRACT

Title of Dissertation: COMMUNITY LIVING AND HEALTH SERVICES UTILIZATION AMONG THE AGING SERVICES NETWORK POPULATION

Raphael Devon Gaeta, Doctor of Philosophy, 2017

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By 2050, the number of older adults will increase from 67 million to 111 million, or roughly 28 percent of the total U.S. population. Age is a principal predictor of physical health status as well as functional and cognitive limitation. As the aging population grows, so too will the demand for long-term services and supports (LTSS) and healthcare services. Despite this intersection, LTSS and healthcare systems are highly disconnected. The Aging Services Network, authorized and partially financed by the Older Americans Act (OAA), may play an important role in an emerging trend toward integrating services. Yet, OAA research is lacking.

Existing OAA research faces several obstacles, including handling program variation resulting from a decentralized Aging Services Network, identifying non-user comparison groups for OAA study samples, and limited utility of national datasets. Studies often rely on highly descriptive methods, indirect comparisons to the general population of older adults, or state-restricted analysis. This dissertation addresses several gaps in the research.

The first study aims to identify factors associated with community tenure and participation among low-income elderly living in subsidized housing. The research is grounded in conceptual frameworks from the World Health Organization. In-depth interviews and focus groups are used to explore these associations among elderly HUD building residents in Prince George's County, Maryland. The second study aims to identify multilevel predictors of OAA Title III services participation. This study develops a conceptual framework based on the Andersen Behavioral Model of Health Services Use, and uses a merged data set from the nationally representative Health and Retirement Study with geographic data and relevant state policies. The third study further examines the relationship between OAA Title III services participation and patterns of healthcare utilization.

This dissertation research provides evidence for the importance of OAA Title III services, including for elderly HUD beneficiaries. Findings from multivariate regression analyses provide evidence for (1) county level targeting criteria used to measure LTSS need and direct OAA Title III funding, (2) substantial influence of Medicaid on access to OAA Title III services, and (3) changes in mix of health care services use among OAA Title III services participants over time.



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AGING SERVICES NETWORK POPULATION

by

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Dissertation submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
2017

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## Dedication

To my grandparents, Frances and Philip Feltman.

## Acknowledgements

I want to thank community partners, Christal Batey, Sharon Johnson, and Daniel Richardson for contributing their expertise and providing their ongoing support, including coordinating study activities and recruiting participants. I also want to thank all the stakeholders and building residents who contributed their time and perspectives to this research. Secondly, I'd like to thank Catherine Liebowitz, Lekisha Maxwell, and Janet Keller at the University of Michigan, Institute for Social Research, Survey Research Center for their assistance gaining approval to access Health and Retirement Study (HRS) restricted data and for providing technical support using the Michigan Center on the Demography of Aging (MiCDA) Enclave Virtual Desktop Infrastructure (VDI).

Funding for this dissertation:

The first study was funded by the National Science Foundation, through the University of Maryland (UMD) ADVANCE Program for Inclusive Excellence, Interdisciplinary and Engaged Research Seed Grants (2013-2014).

The second and third studies received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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## List of Abbreviations

AAA	Area Agency on Aging
ACL	Administration for Community Living
ACO	Accountable Care Organization
ACS	American Community Survey
ADL	Activities of Daily Living
ADRC	Aging and Disability Resource Center
AGID	AGing Integrated Database
AHC	Accountable Health Community
AoA	Administration on Aging
AOR	Adjusted Odds Ratio
ASN	Aging Services Network
BALC	Business Acumen Learning Collaborative
CBO	Community Based Organization
CCTP	Community-based Care Transitions Program
CMMI	Center for Medicare & Medicaid Innovation
FFS	Fee for Service
FY	Fiscal Year
HRS	Health and Retirement Study
HCBS	Home and Community Based Services
HUD	United States Department of Housing and Urban Development
IADL	Instrumental Activities of Daily Living
IRB	Institutional Review Board
LSP	Local Service Provider
LTSS	Long Term Services and Supports
MiCDA	Michigan Center on the Demography of Aging
n4a	National Association of Area Agencies on Aging
OAA	Older Americans Act
PMPM	Per Member Per Month
PPACA	Patient Protection and Affordable Care Act
SAH	Staying at Home
SASH	Support and Services at Home
SUA	State and Territorial Units on Aging
VDI	Virtual Desktop Infrastructure
WHO	World Health Organization
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

# Chapter 1: Community Living and Health Services Utilization among the Aging Services Network Population

## **Introduction**

Non-means-tested long-term services and supports (LTSS) provided under the Older Americans Act (OAA) are an important safety net for older adults who may lack sufficient care from family and friends, lack the finances to pay for care out-of-pocket, or do not meet Medicaid eligibility criteria (Thomas & Mor, 2013; Thomas, 2014; Kitchener et al., 2007; Thomas & Applebaum, 2015). Additionally, OAA programs and services are often the primary point of access into the formal LTSS system for older adults and their caregivers (U.S. Government Accountability Office, 2015; U.S. Department of Health and Human Services, 2013; Rabiner et al., 2007; Zhu & An, 2014; Thomas & Mor, 2013; Lloyd & Wellman, 2015). However, OAA policy research is lacking due to a disposition for Medicaid research, given its majority share of national LTSS expenditures (Thomas & Mor, 2013). Additionally, existing OAA studies encounter several obstacles, including handling program variation resulting from a decentralized Aging Services Network (ASN), identifying non-user comparison groups for OAA study samples, and limited utility of national datasets (Lee et al., 2015; Sahyoun & Vaudin, 2014; Buys et al., 2012; Brock et al., 2011). Wellman (2010) concluded that the dearth of OAA policy research has been a main cause of stagnant federal funding that is increasingly jeopardizing the future of the ASN.

This dissertation addresses several gaps in the literature. The introductory chapter provides an overview of aging demographics and LTSS in the United States. Particular attention is given to the Older Americans Act and current considerations for the Aging Services Network (ASN). It concludes with a summary of each of the three dissertation studies. Chapter two explores barriers and facilitating factors associated with aging in the community, among diverse elderly residents living in low-income housing properties in Prince George's County, Maryland. This research is grounded in the Determinants of Active Ageing and the Age-Friendly Cities conceptual frameworks from the World Health Organization. Chapter three examines access to OAA Title III services. It describes multilevel predictors of OAA Title III services participation. Chapter four examines patterns of healthcare utilization among OAA Title III services participants. The research described in chapter three and chapter four uses a unique dataset merged with a nationally representative sample of older adults from the Health and Retirement Study, and draws on the Andersen Behavioral Model of Health Services Use. Chapter five summarizes and discusses the findings, including recommendations for LTSS policy and ASN provider organizations.

### **Aging and Health in the United States**

The risk of infectious disease, chronic conditions, cognitive impairment, and functional limitation significantly increase with age (CDC, 2011). In particular, chronic conditions are among the most prevalent and costly diseases among older adults, as well as the leading causes of elderly deaths (Federal Interagency Forum on Aging-Related Statistics, 2016). Roughly two-thirds of older adults live with two or

more chronic conditions, such as heart disease, stroke, cancer, diabetes, and hypertension (Lehnert et al., 2012; CDC, 2013). Healthcare utilization and cost studies of older adults have found chronic conditions to be significantly associated with greater physician visits, hospitalizations, and prescription drug use along with out of pocket and total healthcare expenditures (Lehnert et al., 2011). In 2012, older adults represented only 14 percent of the U.S. population, but about one-third of total personal healthcare spending (CMS, 2016).

The next several decades will mark rapid growth of the aging population. In 2015 there were 67 million adults ages 60 and older, representing about 21 percent of the U.S. population. By 2050, the number of older adults is projected to be 111 million, or roughly 28 percent of the U.S. population. Those ages 85 and older, who tend to be most frail and experience the greatest health and social service needs, will roughly triple to about 19 million, or 5 percent of the U.S. population (U.S. Census Bureau, 2014). The demographic shift will mean greater demand for healthcare services as well as long-term services and supports (LTSS).

### *Long Term Services and Supports*

Older adults overwhelmingly prefer to age in their own homes and communities. In 2010, a national survey found that 88 percent of adults ages 65 and older prefer to remain in their current residence for as long as possible and 92 percent preferred to remain in their local community for as long as possible (Keenan 2010). This preference persists with age (AARP, 2012), despite the increased likelihood of functional impairment resulting in the need for help performing instrumental activities of daily living (IADLs) (e.g. using a telephone, housekeeping,



transportation, taking medication, handling finances, shopping, preparing meals) (Lawton & Brody, 1969) and/or activities of daily living (ADLs) (e.g. bathing, eating, dressing, using the toilet, continence, and transferring) (Katz et al., 1963). For those turning 65 between 2015 and 2019, Favreault & Dey (2015) project that about half will need at least some level of LTSS in their lifetime. Some estimates of lifetime LTSS need are as high as 70 percent of all adults who reach 65 years old (U.S. Department of Health and Human Services).

LTSS covers a broad classification of services comprising formal and informal care delivered in home, community, and institutional settings to assist older adults and persons with disabilities in performing IADLs and ADLs. As much as 90 percent of all LTSS are provided informally by unpaid family and friends (Institute of Medicine, 2008). Chari et al. (2015) estimate the opportunity costs of informal caregiving for older adults to be roughly \$522 billion per year. Reinhard et al. (2015) estimate the value of unpaid care to be roughly \$470 billion annually. There is also a complex system of formal LTSS to complement and substitute for informal care. In 2013, national expenditures for formal LTSS totaled \$310 billion. Medicaid, the joint federal-state public health insurance program for low-income individuals, accounted for 51 percent of spending. Payer sources for the remaining half of formal LTSS spending include other public programs (21 percent), out-of-pocket spending (19 percent), and private insurance (8 percent) (Reaves & Musumeci, 2015). Medicare does not cover LTSS.

*Older Americans Act and the Aging Services Network*

The Older Americans Act of 1965 (as amended through P.L. 114-144, enacted April 19, 2016) represents a small fraction of national spending on formal LTSS. However, the OAA establishes important LTSS infrastructure through the Aging Services Network (ASN). These organizations serve as a primary access point and safety net provider of formal LTSS to support adults ages 60 and older to live independently in their homes and communities.

The ASN includes 56 State and Territorial Units on Aging (SUA), 618 Area Agencies on Aging (AAA), 264 Indian tribal and Native Hawaiian organizations, and roughly 20,000 Local Service Providers (LSP) across the US (U.S. Department of Health and Human Services, 2013). A federal funding formula is used to allocate grant funds to each state based on their proportion of residents ages 60 and older. SUA's and AAA's distribute funds to LSPs according to federally approved intrastate funding formulas, designed to target dollars to individuals with the greatest physical and socioeconomic needs. Most formulas include factors for at least age, income, and minority status (U.S. Government Accountability Office, 2012; O'Shaughnessy, 2011).

In Fiscal Year (FY) 2013, \$1.81 billion was appropriated for OAA programs and services (U.S. Department of Health and Human Services, 2013). Roughly 62 percent of total OAA funding was directed for OAA Title III-B home and community-based supportive services (e.g., homemaker, case management, transportation services) and OAA Title III-C nutrition services (e.g., congregate

meals, home-delivered meals) (Napili & Colello, 2015). Brief definitions of these services are provided below:

- *Homemaker*: Assistance with IADLs such as meal preparation, shopping, managing money, and light housework.
- *Case Management*: Assessing needs, developing care plans, authorizing services, coordinating services, conducting follow-up, and reassessing needs.
- *Transportation*: Assisted and unassisted rides to doctor's offices, grocery stores, pharmacies, senior centers, meal sites, and other critical daily activities.
- *Congregate Meals*: Single meals that provide a minimum one-third of daily nutrition, served at community venues (e.g., senior centers, religious facilities, schools, public/ low-income housing) with opportunities for social interaction and engagement.
- *Home Delivered Meals*: Single meals that provide a minimum one-third of daily nutrition, prepared by congregate meal sites, affiliated central kitchens, or nonaffiliated food service organizations and delivered to individuals that have difficulty leaving their homes.

*Older Americans Act Title III Services Population and Health Services Use*

In Fiscal Year (FY) 2013, OAA programs and services were delivered to 11.5 million participants (U.S. Department of Health and Human Services, 2013). Relative to older adults nationally, OAA Title III services participants are more likely to be older, female, unmarried, live alone, live in poverty, have less than a high school

education, have functional impairments, and have chronic conditions (Altshuler & Schimmel, 2010; Barrett & Schimmel, 2010a). Additionally, OAA Title III services participants tend to differ by the services they use. For example, center-based services attract a generally healthier, more mobile and well-resourced pool of participants than in-home services (Barrett & Schimmel, 2010a). In particular, congregate meals participants are more likely to be younger, white, married, and less likely to have functional impairments, comorbidities, and live in poverty compared to other OAA Title III services groups (Altshuler & Schimmel, 2010; Kleinman & Foster, 2011). Congregate meals participants also use fewer total OAA Title III services, on average, and are less likely to participate in non-OAA Title III, federally funded services, including Medicaid, energy assistance, food stamps, and housing assistance programs (Kowlessar et al., 2015; Barrett & Schimmel, 2010b).

Evidence of the association between hospital use and OAA participation is inconclusive. Compared to the general population of older adults, OAA Title III services participants are almost two and half times as likely to report an overnight hospital stay in the past year (Altshuler & Schimmel, 2010). Hospital services utilization patterns also vary across OAA Title III services group. In particular, home delivered meals services participants are more likely to report overnight hospital stays and higher level inpatient hospital services than congregate meals services participants (Ponza et al., 1996; Sattler et al., 2015). However, some evidence suggests that receiving home delivered meal services is associated with a reduced risk of hospitalization, after adjusting for group differences (Thomas et al., 2015).

Across OAA Title III services groups, nursing home stays ranged from a low of 5 percent (congregate meals) to a high of 16 percent (case management) in the past year (Altshuler & Schimmel, 2010). Evidence from state-level analyses suggests that using multiple OAA Title III services may be associated with delayed nursing home entry and increased community tenure (Brock et al., 2011). Policy studies have found evidence of OAA state spending and service delivery as contributing to favorable nursing home outcomes, including fewer nursing home residents with low-care needs, and thus, Medicaid savings for nursing home services (Thomas & Mor, 2013a; Thomas & Mor, 2013b; Thomas 2014). Research on physician care and home health care utilization among OAA Title III services participants is very limited.

#### *Housing Plus Services*

Co-located health and LTSS in aging communities is a growing area of research, particularly among residents of low-income housing properties. Rising concern for this high need group has contributed to an emerging literature and set of initiatives around livable communities and housing plus services models.

Evidence suggests favorable effects of housing plus services on cost, access and utilization of care as well as health and social factors. For example, an evaluation of the Support And Services at Home (SASH) model which combines coordinator and wellness nursing care in HUD subsidized properties, found that growth in annual total Medicare expenditures was \$1,756 to \$2,197 lower among SASH participants relative to comparisons (DHHS, 2014). A similar intervention, the Staying at Home (SAH) program, found that SAH participants were less likely than comparisons to experience unscheduled hospital stays, nursing home transfers, and emergency room

use and more likely to have doctor visits, receive preventive services, and be referred to community services (Castle & Resnick, 2014). A nationally representative survey of randomly sampled HUD properties and managers, conducted in 2008, found a statistically significant increase of about six months in the average length of occupancy among residents in HUD properties with a service coordinator compared to those without a service coordinator (Levine & Johns, 2008). In a comprehensive review of the literature on care delivered in affordable housing arrangements, Golant et al. (2010) reported benefits of service coordinators including greater perceived safety, reduced tenant turnover, and stronger social support.

### **Conceptual Framework**

This dissertation research draws on several conceptual frameworks, including the Andersen Behavioral Model of Health Services use, Determinants of Active Ageing (World Health Organization, 2002), and Age-Friendly Cities (World Health Organization, 2007).

The Andersen Behavioral Model of Health Services Use (Andersen Model), posits that health services utilization behavior follows from predisposing, enabling, and need factors (Andersen, 1995). Predisposing factors include biological imperatives, such as age and gender, as well as other demographic correlates of health service use. Enabling factors include resources and contextual conditions that facilitate or impede health services use, such as income and insurance status. Need factors consist of both self-reported and evaluated need for healthcare. The Andersen Model has been widely used in studies of OAA participants, services, and policy (Weddle, Wilson, Berkshire, & Heuberger, 2012; Sharkey, Ory, & Browne, 2005;

Sattler, Lee, & Young, 2015; Choi, 2008; Kitchener et al. 2007), and has been proposed as the most suitable theoretical framework for evaluating OAA programs and services on a national level (The Lewin Group, 2013). However, the Andersen Model is predominantly focused on individual level predictors. Drawing on two conceptual frameworks from the World Health Organization, this dissertation research extends the Andersen Model to LTSS with county level and state level enabling factors.

The Determinants of Active Ageing uses an ecological systems approach to explain active aging, or “the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.” According to the framework, active aging is influenced by multiple levels including (1) individual level factors such as personal, behavioral, and economic determinants, (2) intrapersonal level factors such as social determinants, (3) organizational/institutional factors such as health and social services, and (4) environmental factors such as the physical environment (WHO, 2002). The Age-Friendly City conceptual framework lists eight specific domains that influence aging in the community. The eight domains are transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, community support and health services, and outdoor spaces and buildings (WHO, 2007). Both frameworks suggest the importance of including policy variables and services supply variables for studies of healthy aging and community tenure.

## **Dissertation Summary**

### *Study 1: Aging in Community among Low-Income Elders in Affordable Housing: An Exploratory Study in Prince George's County, Maryland*

In 2015, the U.S. Department of Housing and Urban Development (HUD) provided assistance to roughly 5 million low-income households in the US, of which 33 percent were elderly households and 65 percent were minority households. Maryland HUD beneficiaries are among the most racially/ethnically diverse in the US. In 2015, 76 percent of Maryland's HUD subsidized households were minority households, roughly 1.17 times the national percentage. In Prince George's County, 94 percent of HUD subsidized households were minority households. With projected growth of the aging population, roughly 730,000 additional units of affordable housing will be needed by 2020 to meet the demands of older Americans. In preparation for future demand, studies should explore key factors associated with successful aging in community among low-income elderly residents of HUD properties in racially/ethnically diverse communities.

The purpose of this study was to understand the needs and preferences of low-income and elderly minorities who age in the community in HUD subsidized buildings. The study uses primary data collection and secondary data analysis. Primary data were collected through interviews and focus groups with key stakeholders and elderly minorities living in HUD subsidized Section 202/8 apartment buildings in Prince George's County, Maryland. Secondary data sources including the American Community Survey and HUD Picture of Subsidized Households datasets were used to capture the contextual factors associated with aging



in the community. Underlying conceptual frameworks included the Determinants of Active Ageing and Age-Friendly Cities from the World Health Organization.

Findings emphasized individual and organizational/institutional level factors of active aging. Functional and cognitive limitation, financial needs, informational needs, and informal support were noted among the most important individual level dimensions of successful aging in community within this population. Access to transportation services, health care, and long-term services and supports (LTSS) were emphasized at the organizational/institutional level. The demand for frequent, reliable, responsive, accommodated, and far reaching transportation services was the most salient finding of the study. Further public support for aging in community among this population can be addressed through prioritization, action, and monitoring as part of the Maryland State Health Improvement Process and Prince George's County Local Health Improvement Coalition. Private support could be garnered through sources such as non-profit hospital community benefit activities as required under the Patient Protection and Affordable Care Act. Additional recommendations are provided for leveraging federally-sponsored HUD, Medicaid, and OAA programs and services to promote successful aging in community among low-income elderly residents of HUD properties in Maryland and Prince George's County.

*Study 2: Multilevel Predictors of Older Americans Act (OAA) Title III*

*Services Use*

The Aging Services Network, created under the Older Americans Act (OAA), provides an important safety net for millions of older adults who need long term services and supports (LTSS) but lack sufficient informal support, lack the finances to

pay for care out-of-pocket, or do not meet Medicaid eligibility criteria. However, with growing demographic pressures and years of stagnant OAA federal appropriations, some experts project the Aging Services Network has only a decade to adapt its business model. Current efforts for innovation leverage new initiatives to demonstrate integrated health and LTSS models, expand Medicaid managed care arrangements, and cultivate business acumen for contracting LTSS to a variety of payers and providers. To support these efforts, there is a need to better understand the OAA population, including predictors of services use the individual, county, and state level.

The purpose of this study is to examine multilevel predictors of OAA Title III services participation according to a modified Andersen Behavioral Model of Health Services Use. The study is the first to use 2012 experimental module data from the Health and Retirement Study (HRS) to directly compare users and non-users of OAA Title III services, in a nationally representative sample of older adults. Multivariate logistic regression analyzes provide new evidence for predictors of OAA Title III service use, adjusting for potential confounding at the individual level, county level, and state level.

A total of 691,931 adults ages 60 and older participated in at least one of five OAA Title III services from 2011 to 2012. Consistent with existing descriptive studies, OAA Title III service users and non-users differed significantly in terms of predisposing, enabling, and need factors. However, many of these effects did not persist in the regression models. Individual level factors, including non-Hispanic black [AOR=2.16, p=0.008], living alone [AOR=2.08, p=0.014], dually enrolled in Medicare and Medicaid [AOR=2.61, p=0.043], number of IADLs [AOR=1.38,

p=0.024], and number of chronic conditions [AOR=1.17, p=0.033] significantly and positively predicted use of any OAA Title III services. At the state level, the percentage of Medicaid LTSS spending on home and community based services (HCBS) [AOR=1.02, p=0.045] significantly predicted use of any OAA Title III services.

The findings seem to corroborate Medicaid's substantial influence on individual access to formal LTSS. Growing partnerships between the Aging Services Network and Medicaid, as well as other payers and providers, may be vital to fulfilling the OAA in the future. Demonstrating the value of the Aging Services Network may involve showing favorable impact of services on health care utilization and community tenure. Further research should examine the relationship between OAA Title III services participation and utilization of nursing home, hospital, home health, and physician care, using the multilevel dataset from this study.

*Study 3: Healthcare utilization among OAA Title III services participants*

Older adults are among the highest users of both LTSS and health services. Roughly two-thirds of older adults have multiple chronic conditions (Lehnert et al., 2012; CDC, 2013), and as many as 70 percent of all adults who reach 65 years old are expected to require some level of LTSS in their lifetime (U.S. Department of Health and Human Services, 2016). OAA Title III services users experience particularly complex and high health needs. Over 90 percent of OAA Title III services participants have two or more chronic conditions (Kleinman & Foster, 2011). Summary statistics from existing studies of health services utilization among OAA

Title III services participants do not account for complex individual, county, and state level variation associated with health services utilization.

The purpose of this study is to examine health care utilization among a cohort of OAA Title III services participants. Multivariate regression models are constructed using a unique, multilevel dataset from the Health and Retirement Study. We hypothesize that OAA Title III services participation is associated with more timely access and use of healthcare services, after adjusting for covariates. We further hypothesize that participation in OAA Title III services is associated with sustained access to home health care over time, given complex health needs of participants and shared purpose of OAA Title III services and home health care on maximizing independence and community tenure.

OAA Title III services participants were significantly more likely than comparisons to report any overnight hospital stays, overnight nursing home stays, and home health care. They also tended to report less hospital and home health care utilization, relative to comparisons, from the 2012 HRS to the 2014 HRS. Most of these associations did not persist in the regression analysis. However, OAA Title III services participants had 1.90 times the odds of non-users to report any overnight hospital stays (AOR=1.90, p=0.034) and 5.14 times the odds of reporting any home health care (AOR=5.14, p=0.001). Additionally, adjusted estimates indicate a marginally significant association between OAA Title III services participation and a lower likelihood of using any home health care over time ( $\beta=-0.422$ , p=0.057). Post hoc regression analyses of the interaction of OAA Title III services participation and health shock, seem to suggest that OAA Title III services participation and home

health care utilization may occur around major health events, but decrease over time as individuals require different health services mix.

### **Conclusion**

This dissertation research addresses the intersection of health care and long-term services and supports (LTSS) among community-dwelling older adults. The Older Americans Act (OAA) provides an important LTSS safety net and the Aging Services Network plays an important role in integrated models of health care and LTSS. Furthering such approaches should leverage the substantial influence of Medicaid on access to OAA Title III services and address changes in the mix of health care needs among OAA Title III services participants over time.

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## Chapter 2: Aging in Community among Low-Income Elders in Affordable Housing: An Exploratory Study in Prince George's County, Maryland

### **Introduction**

The vast majority of older adults prefer to age in their own homes and communities, for as long as they are able (Barrett, 2014). Housing assistance and supportive services provided by the US Department of Housing and Urban Development (HUD) are an important resource for aging in community among low-income elderly, particularly racial/ethnic minorities who are disproportionately represented in the HUD population. In 2015, HUD provided assistance to roughly 5 million low-income households in the US, of which 33% were elderly households and 65% were minority households (HUD, 2015). HUD assistance to the elderly (i.e., households with at least one individual age 62 or older) consists of rent and mortgage subsidies as well as supportive services such as meals/nutrition assistance, assistance with activities of daily living, and service coordination (Perl, 2010).

As the US elderly population grows, so too will demand for HUD housing and supportive services. In fact, the number of Americans age 65 and older is estimated to increase from 46 million, or 15 percent of the total US population in 2014, to 98 million, or 24 percent of the total US population in 2050 (Federal Interagency Forum on Aging Related Statistics, 2016). And by 2060, an estimated 45% of all elderly will identify as some race/ethnicity other than non-Hispanic white (Federal Interagency Forum on Aging Related Statistics, 2016). Given these projections, roughly 730,000

additional units of affordable housing will be needed by 2020 to meet the demands of older Americans nationwide (Perl, 2010). In preparation for future demand, studies should explore key factors associated with successful aging in community among low-income elderly residents of HUD properties in racially/ethnically diverse neighborhoods.

Such research is especially important given the complex health needs and high cost of health care and long term services and supports (LTSS) for HUD elderly beneficiaries. In a seminal study of Medicare and Medicaid dually enrolled individuals from twelve geographic regions in the U.S, using a linked HUD and CMS dataset, roughly 55% of elderly HUD beneficiaries had five or more chronic conditions. Only 43% of non-HUD beneficiary comparisons had five or more chronic conditions. Additionally, average Medicare, fee for service (FFS), per member per month (PMPM) costs among elderly HUD beneficiaries were 16% higher than comparisons. Average Medicaid FFS PMPM costs among elderly HUD beneficiaries were 32% higher than comparisons. Elderly HUD beneficiaries used over 100% more personal care services, 80% more other home and community based services (HCBS), and over 67% more durable medical equipment services relative to utilization rates for Medicaid LTSS covered services in the comparison group (HHS ASPE, 2014).

Rising concern for this high need group has contributed to the growing literature and emerging set of initiatives around livable communities and housing plus services models for the elderly. A leading example, the Support And Services at Home (SASH) model, combines service coordination and wellness nursing care in elderly HUD subsidized properties to promote healthy aging and community tenure.

An evaluation of the SASH model found that growth in annual total Medicare expenditures was \$1,756 to \$2,197 lower among SASH participants relative to comparisons (DHHS, 2014). A similar intervention, the Staying at Home (SAH) program, found that SAH participants were less likely than comparisons to experience unscheduled hospital stays, nursing home transfers, and emergency room use and more likely to have doctors visits, receive preventive services, and be referred to community services (Castle & Resnick, 2014). In a comprehensive review of the literature on care delivered in affordable housing arrangements, Golant et al. (2010) report benefits of living in properties with service coordinators include greater perceived safety, reduced tenant turnover, and stronger social support.

### **Objective**

Maryland has one of the most racially/ethnically diverse populations of HUD beneficiaries in the US. In 2015, 76% of Maryland's HUD subsidized households were minority households, roughly 1.17 times the national percentage. Additionally, HUD beneficiaries within specific communities of the state of Maryland identify, almost exclusively, as racial/ethnic minorities. In 2015, approximately 94% of HUD subsidized households in Prince George's County, Maryland were minority households (HUD, 2015).

The purpose of this study is to understand the needs and preferences of low-income and racially/ethnically diverse, older adults living in HUD subsidized, Section 202/8 apartment buildings in Prince George's County, Maryland. The study uses primary data collected through interviews and focus groups, as well as summary statistics from secondary data sources.

Findings from this study have implications for HUD and related programs and services in Maryland, particularly LTSS funded under Medicaid and the Older Americans Act (OAA). Findings are further applicable to state policy initiatives, such as the Maryland Communities for a Lifetime Act of 2011. Although currently unfunded, the act authorizes grants for developing and testing aging in community models, towards a set of criteria for certifying Maryland communities as “communities for a lifetime.” It provides a framework for considering key aging in community factors, including specific mention of affordable transportation, housing, and other LTSS highly relevant to elderly residents of HUD subsidized housing (Maryland Communities for a Lifetime Act; Simon-Rusinowitz & Ruben, 2013). As part of state efforts toward this vision for communities for a lifetime, aging in community models should address the needs and preferences of HUD beneficiaries. Effective models should integrate HUD programs and services with other areas of the state LTSS system, including Medicaid and OAA programs.

### **Research Questions**

The study addresses six research questions: (1) What needs or challenges do older adults face as they age in the community and participate in community life?; (2) What factors help older adults to age in the community and participate in community life?; (3) What public policies, programs, services help older adults to age in the community and participate in community life?; (4) How do older adults feel about the help they receive to age in the community and participate in community life?; (5) What additional help do older adults believe they will need in the future?; (6) What

current trends may affect services to older adults as they age in the community and participate in community life?

### **Conceptual Framework**

This study draws on the Determinants of Active Ageing and Age-Friendly Cities conceptual frameworks developed by the World Health Organization. The Determinants of Active Ageing conceptual framework uses an ecological systems approach to explain active aging, or “the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.” According to the conceptual framework, active aging is influenced by multiple levels including (1) individual level factors such as personal, behavioral, and economic determinants, (2) intrapersonal level factors such as social determinants, (3) organizational/institutional factors such as health and social services, and (4) environmental factors such as the physical environment (WHO, 2002). The Age-Friendly City conceptual framework lists eight specific domains that influence aging in community. The eight domains are transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, community support and health services, and outdoor spaces and buildings (WHO, 2007).

### **Methods**

This study uses multiple methods to assess the needs and preferences of low-income elderly in Prince George’s County, Maryland, as they age in the community. Specifically, the research team conducted in-depth interviews and focus groups and triangulated findings with existing descriptive data.

### *Interviews and Focus Groups*

*Sample.* The study followed purposive and convenience sampling techniques. There is considerable variation across HUD Section 202/8 buildings in Prince George's County, Maryland including the type and amount of support services (e.g., service coordination) offered to residents. Two HUD Section 202/8 apartment buildings in the county were purposively selected due to contrasting levels of available support services. Within each building, a convenience sample of building residents was enrolled in the study. Administrative staff members in each building followed University of Maryland Institutional Review Board (IRB)-approved recruitment scripts to promote focus group opportunities through print material (e.g., newsletters and flyers), announcements at group events, and by individual request. The final sample included 20 building residents who participated in one of two focus groups. Overall, building residents were mostly female (94 percent) and identified as African American (46 percent) or Caucasian (38 percent). Only one building resident identified as Hispanic.

In a separate effort, key stakeholders were purposively sampled in order to collect highly relevant information stemming from their unique insights and expertise from current and past professional experience related to aging issues. Key stakeholders were identified and recruited through professional networks and referrals. The final sample included 16 key stakeholders who participated in either one focus group or one individual interview. They included HUD building staff members, healthcare providers, and representatives of state and county agencies, county health department, and health systems.



*Procedures.* All focus groups and interviews were conducted by a trained moderator using a semi-structured interview guide including questions and probes that were developed based on the research questions and conceptual frameworks. Each focus group was conducted for approximately 90 minutes and each interview was conducted for approximately 30 minutes. Field note taking strategies were used to capture preliminary themes, salient points, and contextual information. Additionally, all focus groups and interviews were audio recorded and transcribed. A total of 10 transcripts were produced. Each participant provided written informed consent prior to audio recording, consistent with the IRB-approved protocol. All focus groups and interviews were conducted from January 2014 to June 2014.

*Analysis.* Transcripts were analyzed following a grounded theory approach to identify emergent themes and salient points regarding the needs and preferences of low-income elderly as they age in the community. Primary codes were developed a priori based on the research questions and WHO framework. Secondary codes were developed based on emergent themes that surfaced during the analysis. All codes were combined into a comprehensive coding framework. MAXQDA version 11, was used to apply codes to the transcripts and add analytic memos. A random sample of coded and uncoded segments from all transcripts was extracted for review. Consensus discussions were conducted by members of the research team to verify the appropriate application of the coding framework. Points of disagreement about code definitions and their application were discussed, resolved, and appropriately reapplied in all transcripts. Emergent themes were identified predominantly on the basis of the number of times a particular idea was discussed and the number of respondents who

discussed the idea. This was indicated by the frequency with which a code was applied and the number of different transcripts where the code appeared at least once. A weight of evidence scale was used to distinguish between the strength of the themes in the qualitative data. General guidelines for each weight are as follows. “Moderate” themes generally had a code frequency of less than five across two transcripts. “Strong” themes generally had a code frequency of between five and ten across three to four transcripts. “Very Strong” themes generally had a code frequency of ten to fifteen across four or more transcripts.

### *Survey Data*

This study used quantitative data sources to accomplish three goals: to describe the population of HUD-beneficiaries in Prince George’s County, to describe the population of community-dwelling older adults in Prince George’s County, and to supplement qualitative themes with relevant statistics. Specifically, two quantitative data sources were used. The first was the American Community Survey (ACS), produced by the U.S. Census Bureau, which provides county level information based on a representative sample of housing units and residents of group quarters facilities. Key variables of interest included demographics, household characteristics, and economic information for individuals ages 65 and older. The ACS produces one-year estimates for these and other variables using monthly samples. Data from 2011, 2013, and 2015 were included in the study. The second data source used was the HUD Picture of Subsidized Households dataset which provides summary characteristics of HUD assisted households and beneficiaries at various geographic levels. Key variables of interest included demographics, housing assistance, and

economic characteristics. County level data, also from 2011, 2013, and 2015, were included in the study.

## **Results**

The findings below are presented first as descriptive data on the county elderly population extracted from the American Community Survey and Picture of Subsidized Households datasets. Then, key themes for each of the five research questions are presented. Table 2.1 lists each theme and sub-theme, by research question, with a definition, example quote, and weight of evidence rating. Figure 2.1 provides a visual summary of the themes and weight of evidence ratings, by research question.

### *Survey Data*

#### *Descriptive data on community-dwelling older adults in Prince George's County*

In 2015, there were an estimated 106,677 individuals age 65 and older living in Prince George's County, Maryland. Since 2011, this population has increased roughly 25 percent. Older adults in Prince George's County are mostly female with a median age of about 72 years. The racial/ethnic composition of older adults in the county is changing. From 2011 to 2015, the proportion of Whites decreased by 6.3 percentage points to roughly a quarter of all older adults. There were increases in the proportions of foreign born residents and speakers of a language other than English. Low social support may be a concern for the roughly half of the county's older adults who are not married and nearly one in five who live alone. Notably, about 9 percent live with grandchildren less than 18 years old. Residence among this population was

mostly stable with nearly all older adults living in the same house as the previous year. As expected, functional limitations were common with about one-third of older adults having at least one disability. Work force participation rates were high, with about 22 percent of older adults in the workforce. Household incomes were also generally high and poverty levels were generally low, with only about 12 percent living below 150% of the federal poverty level. Further details are provided in Table 2.2.

*Descriptive data on HUD beneficiaries in Prince George's County*

In 2015, there were roughly 2,966 HUD subsidized units in Prince George's County, Maryland with a head of household or spouse who was 62 years old or older. Nearly one-third of these households had an elderly resident with a disability. Although, the Picture of Subsidized Households dataset does not provide additional information specific to elderly HUD beneficiaries, there are several notable summary statistics about the total population of HUD beneficiaries in Prince George's County. The occupancy rate for HUD subsidized units was 90 percent in 2015. In 2015, new beneficiaries spent an average of 59 months on a waitlist for HUD assistance following a decision by the county housing authority to reopen the waitlist for the first time in seven years (Hernandez, 2015). The sharp increase illustrates a strong demand for access to HUD assistance not shown in the measure in prior years. HUD beneficiaries reported an average of 9 years and 9 months since moving into HUD assisted housing, about a year and a half longer than the county average in 2011. Nearly all heads of HUD households were Black and non-Hispanic in 2015 (91 percent). This was generally consistent with racial/ethnic composition of the

surrounding community, since 91 percent of the total population in census tracts where HUD beneficiaries lived, also identified as racial/ethnic minorities. However, there was a substantial contrast in income among HUD beneficiaries compared to their surrounding community. Approximately 83 percent of HUD subsidized households were below 30% of the local area median family income in 2015. However, only 12 percent of the population residing in census tracts where HUD beneficiaries lived was below the poverty level. Further details are provided in Table 2.3.

#### *Interviews and Focus Groups*

*Needs and Challenges.* Barriers to successfully aging in community were the most commonly discussed ideas and themes across interviews and focus groups. High financial costs, difficulties with transportation, physical health problems and mobility limitations, as well as lack of informal support and lack of planning emerged as the key needs and challenges that older adults face as they age. Transportation, long-term services and supports, health care services, and housing were noted as increasingly unaffordable for low-income older adults. Regarding promotion of senior health services and LTSS, one key stakeholder reported, “*What I found as we’ve gone out to present at different senior centers or even senior living communities, that a lot of the seniors are very excited to hear about the services we provide but when we sit down to talk about how much the service will cost, a lot of them cannot afford the service.*”

In addition to the cost of transportation, unreliable, infrequent, and limited geography of public bus service often reduced access to full participation in community life. As

one key stakeholder reported, *“I would echo the transportation is a huge barrier for people to remain in their homes. If they can’t get there to the grocery store, stay active at their community centers or recreation centers, I find transportation being a huge barrier for folks.”*

Diminished physical mobility and muscle loss were cited as barriers to walking in the community, especially getting to bus stops. Health and disability issues also created difficulty climbing stairs, using the shower/bathtub, and increased the risk of falls and injuries. Cognitive impairments were cited as, perhaps, even more predictive of the ability to age in the community, given substantial loss of independence associated with the effects of Alzheimer’s and dementia.

Building residents and key stakeholders also stated that the lack of family member willingness/availability to provide informal care, especially among adult children, made it difficult to age in the community. As one building resident explained, *“...I think my biggest challenge has been in the last five years, is that when I was seriously ill, I had limited family members to take care of me, to help me out.”*

Key stakeholders emphasized the challenges associated with lack of awareness of available health and long-term care service and supports, as it relates to planning for aging in community. One key stakeholder explained, *“...not knowing how to access information to assist them and making that decision whether or not they’re going to turn to a daughter, a son, or an outside agency they truly find it hard to know where to start. So I find that a huge stumbling block.”* Lack of informal support, low health literacy, lack of a single aging information resource center,

incorrect understanding of insurance plan/coverage, and low computer use/skills were suggested as underlying this issue.

*Facilitating Factors.* Several key facilitating factors to aging in community emerged in interviews and focus groups, including specific reference to aspects of public programs and services for older adults in Prince George's County. Most notably, benefits and services navigation resources as well as transportation services were very strongly endorsed as supporting aging in community and participating in community life. The Greenbelt Assistance in Living Program, Prince Georges Senior Provider Network, Aging and Disability Resource Center (ADRC), and HUD Service Coordinator Program were cited as navigation resources that assist older adults and their caregivers in the county by providing information and referrals to access services. Despite the limitations of public transportation programs and services, building residents and key stakeholders noted certain beneficial features including 24-hour reservations and door to door bus service as well as a taxi fare voucher program. As one building resident described "*...we have one of the county's "call a bus" vans that our Public Works Department runs. It's the same thing as a metro access, or the county "call a bus." You call in 24 hours in advance, you get it. There's door to door. And it does have a wheelchair lift, but it's limited to [service within] the city...*" This service was not available to residents of the other building in the study.

Although less commonly discussed, building residents and stakeholders listed informal support from family, friends, and neighbors as important for successful aging in community. These individuals provided help around the home/property, with transportation, and shopping/making purchases.

*Perceptions of Services.* Building residents shared positive perceptions about the help they receive as well as suggestions for improvement. Mainly, improving transportation services would assist with aging in community and community participation. Specifically, more reliable public bus service, provided more frequently (i.e., more days of the week and hours during the day), requiring less time in advance for reservations, and expanded service to locations outside of city/county borders. Other suggestions included quicker and more complete repairs/improvements to housing units. Positive perceptions of the help they receive were also shared, including feeling safe at home, in the community, and confident with building security.

*Future Needs.* Building residents anticipated needing future help with transportation, light chores and repairs, personal care/assistant services, and benefits/services navigation. Consistent with previous descriptions of transportation needs, older adults discussed greater public/private transportation support to help with traveling to doctor appointments, picking up prescriptions, grocery shopping, and attending entertainment/social activities in the community. Light chores and repairs included support with home maintenance and activities around the home such as flipping mattresses, laundry, and cooking. Personal care/assistant services dealt with one-to-one support with activities in the home and community, such as attending doctor's visits, shopping, attending church, and other social activities. As with previous explanations, benefits/services navigation included anticipated future need for support with completing applications for health and social services. In particular,



building residents cited needing this help if and when they transitioned to higher levels of care, such as nursing home care.

*Emerging Trends.* Many different trends that may potentially affect services to older adults in the future were identified by building residents and key stakeholders, including themes for healthcare reform, telemedicine/telemonitoring, and life expectancy/preparedness. Reforms to healthcare delivery and payment such as hospital global budgeting, medical homes, Accountable Care Organizations (ACO), and potential cuts to health services/coverage associated increased demands for care by newly insured individuals were all noted. Key stakeholders also discussed advancement in technologies for providing health care and LTSS, including web-based clinical interactions, smart homes, medication monitoring, and remote check-ins with caregivers. One key stakeholder described the potential value of telemedicine/telemonitoring in aging care, “...*nationally there is a tremendous move underfoot to involve technology and home delivered care more, vis-à-vis having technology in the home so that the doctor and the client can speak together over internet service so the [patient] does not have to go in to see the doctor. There are systems being set up where medications can be monitored via the internet, where the elder can check in several times a day with a caregiver who is not there maybe 50 miles away...*”

Participants described several trends that could adversely affect aging in community. These include increased life expectancy coupled with a lack of publicly-funded LTSS programs and a lack of individual planning and saving for future health and LTSS needs.

## **Discussion**

Findings from this study are consistent with the domains proposed in the Determinants of Active Ageing and Age-Friendly Cities conceptual frameworks (WHO, 2002; WHO, 2007). Building residents and key stakeholders particularly emphasized individual and organizational/institutional level factors of active aging. Functional and cognitive limitations, financial needs, informational needs, and informal support were noted among the most important individual level dimensions of successful aging in community within this population. Access to transportation services, health care, and LTSS were emphasized at the organizational/institutional level. In fact, the demand for frequent, reliable, responsive, accommodated, and far reaching transportation services was perhaps the most salient finding of the study. This seems to underscore that elderly HUD beneficiaries need an effective means to access local stores and businesses, health services, and opportunities for social engagement in the community, but lack the functional ability, resources, and informal support to do so. The finding is likely to reflect transportation needs in the broader community of suburban Prince George's county as well as the specific needs of elderly HUD beneficiaries. Aspects of transportation service needs that were specific to older adults included: ability to access services for seniors in other areas (e.g., senior centers), wheel chair lifts and door to door service, and the ability to arrange for transportation services within 24 hours in order to attend same day scheduled doctors' appointments. Accordingly, transportation is a key domain for communities, similar to those in Prince George's County, that support HUD elderly properties. Based on the evidence, other key domains for this population include housing, social

participation, communication and information, and community support and health services.

The findings also reveal opportunities for further promoting age-friendly design within Maryland communities. The Maryland Communities for a Lifetime Act of 2011 would serve as an appropriate mechanism for applying findings from this research for the development and demonstration of age-friendly community models that address needs and preferences of racially/ethnically diverse residents of HUD subsidized housing in Prince George's County. To do so, funds for competitive grants to design and test such models should be appropriated, using authorization under the law. Further public support for aging in community among this population can be addressed through prioritization, action, and monitoring as part of the Maryland State Health Improvement Process and Prince George's County Local Health Improvement Coalition. Private support might be garnered through non-profit hospital community benefit activities as required under the Patient Protection and Affordable Care Act (PPACA).

Additionally, state and county leaders can use federally-sponsored HUD, Medicaid, and OAA programs and services to promote successful aging in community among low-income elderly residents of HUD properties in Maryland and Prince George's County. All three programs fund home and community based services (HCBS) to the elderly. However, a recent GAO study found that these programs tend to operate independently, even though the Older Americans Act of 1965 requires federal collaboration toward a comprehensive system of HCBS (GAO, 2015). State and county leaders should explore strategies for blending resources and

integrating programs and services to support aging in community among low-income elders. The following sections describe and discuss key features from each program that can further support this target population.

### *HUD*

The HUD Service Coordinator Program authorizes grant funds to property owners and management companies to employ service coordinators in Section 202 buildings. Service coordinators work with elderly HUD beneficiaries and their families to assess LTSS needs, identify community resources, link residents to services, and monitor and evaluate service delivery. The central aim of the program is to delay institutionalization and promote maximum independence in the home and community. A nationally representative survey of randomly sampled HUD properties and managers, conducted in 2008, found a statistically significant increase of about six months in the average length of occupancy among residents in HUD properties with a service coordinator compared those without a service coordinator. The effect suggests that service coordinators may, in fact, help delay institutionalization. Further analyses found that HUD property managers at sites with a service coordinator perceived significantly greater likelihood that their residents completed applications for benefits programs, obtained needed services, and experienced a high quality of life compared to those at sites with no service coordinator (Levine & Johns, 2008).

Although the evidence tends to support service coordination in HUD-assisted housing, only about half of properties offer service coordination funded by HUD or otherwise. Additional research may help make the case for greater adoption of service coordination. In particular, the HUD Supportive Services Demonstration for Elderly

Households in HUD-Assisted Multifamily Housing Program will provide \$15 million in funds to test a housing plus services model, including enhanced service coordination and wellness nursing care, among HUD subsidized properties for the elderly. The demonstration design uses randomization of HUD subsidized properties, both with and without current service coordinator programs, to treatment or control groups. This will allow for valid comparison of outcomes (e.g., community tenure, housing stability, health and well-being, healthcare utilization and cost) across four study conditions to better understand the effect of service coordination in a variety of HUD subsidized settings serving the elderly (HUD, 2015). Drawing on findings from this study, the demonstration should incorporate measures for the frequency, reliability, responsiveness, accommodation, and geographic range of transportation services, and examine their effect on key outcomes.

### *Medicaid*

Medicaid is the primary payer for LTSS in the U.S. Although there is substantial variation in state Medicaid programs, historically, Medicaid spending has favored institutional LTSS. Incremental reforms by the federal government and states, including provisions of the PPACA, have helped rebalance Medicaid LTSS systems toward HCBS. Maryland Medicaid reforms to rebalance LTSS spending and reorient services toward HCBS can support HUD communities. In 2014, spending on HCBS represented roughly 55.5% of total Maryland Medicaid LTSS spending, slightly higher than the national average. Most of Maryland's rebalancing occurred from 2009 to 2010 when the proportion of Medicaid LTSS spending on HCBS increased from 37.0% to 52.0%. This shift was driven largely by increases in spending on 1915(c)

waivers, private duty nursing, rehabilitative services, and the Money Follows the Person demonstration, coupled with a reduction in spending on intermediate care facilities and mental health facilities. However, historically Maryland has had no expenditures on state plan options including the 1915(i), 1915(j), and 1915(k) authorities (Eiken et al. 2016). Given enrollment caps under waiver authorities, HCBS waitlists for the elderly in Maryland are substantial. In 2011, a total of 18,369 older adults were on a waitlist for 1915(c) waiver services, representing roughly 70.1% of all those waitlisted across enrollment groups in the state. This was approximately 2.5 times the proportion of aged and aged/disabled on waitlists for 1915(c) waiver services in the US (Ng et al. 2014). Maryland leaders have leveraged LTSS funding under Money Follows the Person grant dollars and the Balancing Incentives Program to increase access to Medicaid HCBS. Continuing the trend, the state should further increase capacity for Medicaid HCBS under state plan options that incorporate flexible and consumer-directed approaches, including the cash and counseling model. Medicaid HCBS delivery models could include among covered services, HUD delivered assistance including service coordination and direct care for those who qualify.

#### *Older Americans Act*

The Older Americans Act (OAA) authorizes formula grants to states for delivering LTSS information services and direct services through coordinated networks of aging agencies to individuals ages 60 and older, and their caregivers, in order to promote successful aging in community. State formulas must account for several factors in the distribution of funds to area agencies, such that resources target

frail, low-income, and minority elderly (Older Americans Act Amendments of 2006). As such, OAA programs and services can also support HUD communities. In particular, OAA Title III programs and services include transportation, case management, homemaker and meals services delivered in community focal point locations. Informational support and service navigation are provided by Maryland Access Point, the state network of twenty Aging and Disability Resource Centers (ADRCs), assist older adults and caregivers with LTSS planning, education, and benefits/services navigation (Maryland Access Point, 2016).

Given the intersection of the two programs, HUD and OAA service integration could focus on blending Title III and HUD assistance services for HUD beneficiaries, with dedicated resource materials and informational support services provided by ADRCs. For example, OAA programming could give special designation to HUD elderly properties as focal points for resource information and direct service delivery. Current OAA Title III regulations define focal points as facilities, such as senior centers, established to encourage the maximum collocation and coordination of services for older individuals (45 C.F.R. § 1321.53 1988). This definition focuses on centralizing information sharing and service delivery in community locations established for this purpose, but does not seem to include diffuse locations in the community where vulnerable elderly populations naturally congregate, such as designated elderly HUD properties. Given the complex and high-needs of elderly HUD beneficiaries, elderly HUD properties could be designated as focal points for regular outreach and information sharing, assessment and enrollment in services, and

efficient delivery of OAA Title III services such as regular delivery of nutrition services and homemaker services to OAA Title III participants building-wide.

### **Strengths and Limitations**

The study has several strengths and limitations. As with all qualitative studies, the opinions shared by interviewees may not be representative of the broader target population. However, key stakeholders and building residents shared personal and professional experience that was highly relevant to answering the research questions. Furthermore, interviews and focus groups provided rich data that could not be captured through typical quantitative methods alone.

The study team was unable to incorporate the views of family members even after several recruitment attempts for participation in focus groups and interviews. Family members are a key source of informal care to older adults and their important contributions to successful aging in community were evident in the study findings. Future research should identify approaches to reach this population.

The datasets referenced in this study were not restricted to elderly HUD building residents. Therefore, summary statistics are applicable to either adults ages 65 and older or HUD beneficiaries in Prince George's County, but may not accurately represent elderly HUD beneficiaries in the county. Nevertheless, these data provide important contextual information for the study's target population and identifies data gaps for future analyses of elderly HUD beneficiaries at the county level.

### **Conclusion**

In 2015, there were roughly 2,966 HUD subsidized units in Prince George's County, Maryland with a head of household or spouse who was 62 years old or older.



These elderly HUD beneficiaries experience many challenges to successfully aging in their homes and communities, especially related to access to affordable and appropriate transportation, declining health and functional limitations, as well as access to health care and LTSS. In order to maximize aging in community, HUD building services should be designed to address such factors through models that leverage intersections with Medicaid, OAA, and other LTSS programs and services. The timing for such efforts is particularly appropriate given a growing literature as well as state and national initiatives to develop and promote livable communities and housing plus services models. Future studies should build on this research to identify key features of such models, especially as they relate to considerations of racially and ethnically diverse communities like Prince George's County, Maryland. The HUD Supportive Services Demonstration for Elderly Households in HUD-Assisted Multifamily Housing Program will be a principal source of evidence on the value of one such feature, service coordination and wellness nursing care.

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**Table 2.1: Themes from the Resident and Stakeholder Focus Groups and Interview**

Abbreviations for the weight of evidence scale include: VS=Very Strong; S=Strong; M=Moderate. Abbreviations for the source of quotation include: KS=Key Stakeholder; BR=Building Resident; FGF=Focus Group Facilitator

What needs or challenges do older adults face as they age in the community and participate in community life?	
Theme/Sub-Theme(s)/Example Quote	Weight of Evidence
<p style="text-align: center;"><b>Financial/Costs</b></p> <p>High cost of transportation, long-term care and health services (e.g. in-home assistance), affordable housing, recreation and leisure activities, medications, and healthy food.</p> <ul style="list-style-type: none"> <li>○ <i>“And what I found as we’ve gone out to present you know at different senior centers or even senior living communities, that a lot of the seniors are very excited to hear about the services we provide but when we sit down to talk about how much the service will cost, a lot of them cannot afford the service.” – KS</i></li> </ul>	VS
<p style="text-align: center;"><b>Transportation</b></p> <p>Lack of private transportation, unreliable public bus service, restrictive public transportation policies (e.g. reserving bus service many hours in advance, service only within county/city borders, service only during certain days and times in the week), and difficulty getting to a bus stop.</p> <ul style="list-style-type: none"> <li>○ <i>“I would echo the transportation is a huge barrier for people to remain in their homes. If they can’t get there to the grocery store, stay active at their community centers or recreation centers, I find transportation being a huge barrier for folks.” - KS</i></li> </ul>	VS
<p style="text-align: center;"><b>Health and Disability</b></p> <ul style="list-style-type: none"> <li>• <b>Physical Health/Limitations</b> Diminished mobility and muscle loss associated with falls and difficulty climbing stairs. Difficulty standing from a seated position, getting in and out of the bathtub, meal preparation, and home maintenance/repair. Physical challenges such as locked or painful joints, arthritis and difficulty chewing/eating.</li> <li>○ <i>“...depending on their level of mobility - what they are physically able to do, a lot of them like to go out maybe dance or bowling or just different things that require you know a little more strength than they may have - a little more mobility than where they might be...” - KS</i></li> <li>• <b>Cognitive Health/ Limitations</b> Dementia, Alzheimer’s disease, and losing ability to make basic life decisions or care for self, especially taking medications.</li> <li>○ <i>“...most of the people that transition, begin to transition out of their homes initially it’s...cognitive that makes you leave - that makes people unable before I think the physical frailty. I’ve seen people who are extremely in pain physically remain in their home for extended period of time with their</i></li> </ul>	VS
	S

<p><i>adaptations but when the problem is cognitively they are unable to make basic life decisions, that prohibits your ability to stay much quicker than the physical - that takes some time.” - KS</i></p>	
<p style="text-align: center;"><b>Lack of Informal Support</b></p> <p>Not having family members, especially adult children, or their lack of willingness/availability to provide informal care (e.g. helping with in-home needs, transportation, recovery from illness, and navigating benefits system and locating services).</p> <ul style="list-style-type: none"> <li>○ <i>“...I think my biggest challenge has been in the last five years, is that when I was seriously ill, I had limited family members to take care of me, to help me out.” – BR</i></li> </ul>	VS
<p style="text-align: center;"><b>Lack of Planning Due to Lack of Awareness/Education</b></p> <p>Lack of awareness of available health and long-term care service and supports for older adults. Low health literacy, lack of single information resource center, incorrect understanding of insurance plan/coverage, and low computer use/skills may be underlying this issue.</p> <ul style="list-style-type: none"> <li>○ <i>“And also not knowing how to access information to assist them and making that decision whether or not they’re going to turn to a daughter, a son, or an outside agency they truly find it hard to know where to start. So I find that a huge stumbling block.” - KS</i></li> </ul>	VS
<p style="text-align: center;"><b>Access to Health and Long-Term Care Services</b></p> <ul style="list-style-type: none"> <li>• <b>Waiting Lists/ Underfunding</b> Long wait times on waiting lists for long-term care services such as the Medicaid HCBS waiver for personal care. <ul style="list-style-type: none"> <li>○ <i>“...for Department of Family Services, I think for the, not the Medicaid waiver, but the in home care, I think it’s about 23,000 residents on the [waiting] list.” - KS</i></li> </ul> </li> <li>• <b>Income Eligibility Criteria</b> Difficulty meeting income criteria in order to qualify for means-tested programs like Medicaid and subsidized HUD housing. <ul style="list-style-type: none"> <li>○ <i>“One of the biggest challenges for us I think is going to be for people that need a little bit of help but don’t qualify for nursing homes and because their income is so low, they can’t afford private care...that’s probably one of the biggest challenges.” - KS</i></li> </ul> </li> <li>• <b>Enrollment Processes</b> Large amounts of paperwork and long wait times for application processing and actually receiving services. <ul style="list-style-type: none"> <li>○ <i>“...one of the barriers I think that we could probably overcome without spending a whole lot of money is just to streamline the paperwork so that care can get to elderly people faster. Like in these programs the paperwork and the communication between agencies needs to be a lot better and a lot better streamlined so that when an elderly person signs up for services than they should be able to- within a very short period of time- get those services...” - KS</i></li> </ul> </li> <li>• <b>Fragmentation of Services</b> Receiving medical care from multiple providers that don’t coordinate care, no single application process for multiple public programs, and no single resource center for assisting older adults to locate services. <ul style="list-style-type: none"> <li>○ <i>“Patients get confused on their drugs and what to take, and when to take it. And they go from one doctor to another or an inpatient setting and then home. And they don’t know the drug has been changed.” - KS</i></li> </ul> </li> <li>• <b>Healthcare Delivery</b> Lack of community and home-based delivery of care as well as care coordination. <ul style="list-style-type: none"> <li>○ <i>“...we’ve got buildings of hospitals and you expect everybody to get to the hospital, we’ve got to bring the healthcare into the homes at times called</i></li> </ul> </li> </ul>	<p>S</p> <hr/> <p>M</p> <hr/> <p>M</p> <hr/> <p>M</p>

<p><i>Medical Homes, we've got to bring healthcare closer to the population..." - KS</i></p> <ul style="list-style-type: none"> <li> <b>Lack of Providers</b>  Lack of mental health professionals, physicians and dentists that practice in the community/outpatient settings, geriatric and other specialists (e.g. geriatric psychiatry). <ul style="list-style-type: none"> <li> <i>"People are really not going into geriatrics even though they keep telling them that that's the next wave. I don't see you know people running towards geriatrics or anything as far as the field or a specialty..." - KS</i> </li> </ul> </li> </ul>	M
	M
<p><b>Lack of Social Engagement/Connectedness</b></p> Loneliness and isolation resulting from a lack of a social network, older adults placing limitation what they can do, lack of awareness of social opportunities, and from low computer/internet use. <ul style="list-style-type: none"> <li> <i>"I think sometimes isolation, being alone and therefore not having a support network or being able to remain active and engaged. I would just tag onto that a little bit of older people not being internet-connected." - KS</i> </li> </ul>	S
<p><b>Structural/Physical Accessibility</b></p> Design features of home and community settings that interfere with older adult's ability to fully and safely participate in life activities (e.g. stairs/steps, bathtub walls, no seats in showers/bathtubs, and poorly functioning heating/cooling systems). <ul style="list-style-type: none"> <li> <i>"...their restroom is not on the correct floor, they have stairs and every other physical impediment within their home. So, if they're aging in place in a lot of cases their homes are not adequately set up for them to safely live without additional supports, or modifications in their homes..." - KS</i> </li> </ul>	S
<b>What factors help older adults to age in the community and participate in community life?</b>	
<b>Theme/Sub-Theme(s)/Example Quote</b>	<b>Weight of Evidence</b>
<p><b>Benefits/Services Navigation</b></p> Information and referral services to aging in community resources (e.g. Greenbelt Assistance in Living Program, Prince Georges Senior Network Providers, Aging and Disability Resource Center, HUD Service Coordinator Program). Other examples include elder law attorney services and caseworker services through the Veterans Administration. <ul style="list-style-type: none"> <li> <i>"...[the role of the ADRCs is to] help them navigate a system to get a plan of support and so forth...That's really what you know that whole ADRC thing-Aging and Disability Research Center is for, to help people pull that all together- whether they can buy their own [services] or what do they need to subsidize..." - KS</i> </li> </ul>	VS
<p><b>Transportation</b></p> <ul style="list-style-type: none"> <li> <b>Public</b>  (See "Transportation" in next section on public policies, programs, and services) </li> <li> <b>Private</b>  Personal vehicles used by older adults themselves, their friends, or family members in order to engage in community life. <ul style="list-style-type: none"> <li> <i>"Well I'm still fortunate enough that I can drive...So, I'm able to go out in the community, I'm able to drive to [Name of City] to the recreation center. Course that's newer and it's more contemporary...the facility itself is much nicer. Our community center is much older..." - BR</i> </li> </ul> </li> </ul>	VS
	M
<p><b>Informal Support</b></p> Help from family, friends, and neighbors in the home/property, with transportation, and shopping/making purchases. <ul style="list-style-type: none"> <li> <i>"I have a son that's real faithful. I have a daughter, she's pretty good and they come and get me and take me and bring me back, take me to the doctor." - BR</i> </li> </ul>	S
<p><b>Health and Long-Term Care Services Delivered in the Home</b></p> Health and long-term care services delivered in the home including physician, therapy, and case management services.	M





























<p style="text-align: center;"><b>Walking Community/ Proximity to Businesses and Services</b></p> <p>Central location of businesses and services (e.g. library, bank, restaurants, and movie theatre) within walking distance of home.</p> <ul style="list-style-type: none"> <li>○ <i>“They created a community where there is a library and a bank and a movie theatre, restaurant. If you’re able to walk it’s great you can walk you don’t have to drive and you don’t have to depend on a bus if you’re able to walk. And they’re quite a few people that walk every day down to the community center. So, and we do have the co-op which is a grocery store. Some of the prices are good, others are little bit high. But if you think of the convenience that that makes quite a difference. But it is a community-oriented place to live.” – BR</i></li> </ul>	M
<p>What public policies, programs, services help older adults to age in the community and participate in community life?</p>	
<p><b>Theme/Sub-Theme(s)/Example Quote</b></p>	<p><b>Weight of Evidence</b></p>
<p><b>Transportation</b></p>	
<ul style="list-style-type: none"> <li>• <b>County/City Bus Service</b> Low-cost bus service, by reservation, providing older adults with door to door transportation within city/county limits. <ul style="list-style-type: none"> <li>○ <i>“Greenbelt does have one of the counties “call a bus” vans that our Public Works Department runs. It’s the same thing as a metro access, or the county “call a bus.” You call in 24 hours in advance, you get it. There’s door to door. And it does have a wheelchair lift, but it’s limited to the city of Greenbelt.” – BR</i></li> </ul> </li> </ul>	VS
<ul style="list-style-type: none"> <li>• <b>MetroAccess</b> Door-to-door paratransit service, by reservation, for older adults that have a disability that prevents them from using bus or rail.</li> <li>• <b>Reduced Taxi Fare Program</b> Taxi voucher program that allows older adults to pre-pay taxi service for half the cost. Not usable with all taxis.</li> </ul>	M
<ul style="list-style-type: none"> <li>○ <i>“The other thing the county offers is a half price tick- taxi voucher program, where for 30 dollars you can get 60 dollars worth of taxi vouchers. You then have to make sure you get a cab that will take those vouchers but that allows the person to have more freedom if they have a visit that’s very difficult to get to and from.” – KS</i></li> </ul>	M
<p><b>Health Care and Formal Long-Term Care Programs/Services</b></p>	
<ul style="list-style-type: none"> <li>• <b>Case Management/Service Coordination</b> Assistance with identifying health and social services/supports, assessing for eligibility, and enrolling/coordinating service delivery to older adults to help them age in the community and participate in community life to the greatest extent possible. <ul style="list-style-type: none"> <li>○ <i>“Case management of course and counseling services and those things being mobile, we will come to you, to your home. We have a program partnership called HAS, Help Assessment and Services. It’s an interdisciplinary team approach to aging in place where we use various disciplines to do home visits. It sort of mirrors what you see in a nursing or assisted living but we used social workers, nursing, therapeutic recreation and sometimes physicians...” – KS</i></li> </ul> </li> <li>• <b>Nutritional</b> Free, reduced-cost, and home-delivered meals programs for older adults including city/county hot lunch program and Meals on Wheels.</li> </ul>	M
<ul style="list-style-type: none"> <li>○ <i>“And the county service that is linked with the hot lunch program, there’s county buses that will pick folks up to come to the senior activity centers because of the hot lunch program. It’s through a federally funded program.” – KS</i></li> </ul>	M
<p><b>Social Participation</b></p>	



<ul style="list-style-type: none"> <li>• <b>Senior Centers</b> Facilities located throughout the county that provide programs and services specifically for older adults (e.g. hot meals, recreation and leisure, educational classes, and civic engagement opportunities). <ul style="list-style-type: none"> <li>○ <i>“We have a lot of community centers, senior activity centers, parks, trails, golf course, lots of things to keep people busy and active and staying healthy. And at our senior activity centers we bring people in to do some of the wellness talks all the time and educational sessions for free. And if you’re in the county it it’s free if you’re 60 and older...” – KS</i></li> </ul> </li> </ul>	M
<b>How do older adults feel about the help they receive to age in the community and participate in community life?</b>	
<b>Theme/Sub-Theme(s)/Example Quote</b>	<b>Weight of Evidence</b>
<p align="center"><b>Positive Perceptions of Services</b></p> <ul style="list-style-type: none"> <li>• <b>Safety</b> Features of the home/community that make older adults feel safe, such as HUD building security and a general sense that the surrounding neighborhood is safe. <ul style="list-style-type: none"> <li>○ <i>“I will say I think favorably for [name of HUD building], thinking of what I’ve heard from other places. We have a very secure building and its safe here and that means a great deal to older people.” – BR</i></li> </ul> </li> </ul>	M
<p align="center"><b>Suggestions for Improving Services</b></p> <ul style="list-style-type: none"> <li>• <b>Improving Transportation Services</b> More reliable public bus service, provided more frequently (i.e. more days of the week and hours during the day) and requiring less time in advance for reservations to locations outside of city/county borders. <ul style="list-style-type: none"> <li>○ <i>“And this whole thing about you have to call a day ahead of time. A lot of times you’ll find out your doctor’s appointment till the same day.” – BR</i></li> </ul> </li> <li>• <b>Responsiveness of Landlord</b> Quicker and more complete repairs/improvements to housing units (e.g. painting, carpeting, sealing windows) and common areas (e.g. exercise equipment). <ul style="list-style-type: none"> <li>○ <i>“I’ve been asking for new carpet...it’s not filthy but it needs to be changed...they [landlord] have not done anything about that...” – BR</i></li> </ul> </li> </ul>	VS
	S
<b>What additional help do older adults believe they will need in the future?</b>	
<b>Theme/Sub-Theme(s)/Example Quote</b>	<b>Weight of Evidence</b>
<p><b>Transportation</b> Anticipated future need for public/private transportation to help with traveling to doctor appointments, picking up prescriptions, grocery shopping, and attending entertainment/social activities in the community. <ul style="list-style-type: none"> <li>○ <i>“...issues again around transportation, needs to be able to get out to do things in the community. How to get it [transportation services].” - FGF</i></li> </ul> </p>	VS
<p><b>Light Chores and Repairs</b> Anticipated future need for support with home maintenance and household chores (e.g. flipping mattresses, laundry, cooking). <ul style="list-style-type: none"> <li>○ <i>“Concerns about all the different things with what we call home maintenance or chores. Being able to maintain your apartment as best as possible.” – FGF</i></li> </ul> </p>	VS
<p><b>Personal Care/Assistant Services</b> Anticipated future need for personal support services to help with doctor’s visits, shopping, attending church and other social activities. <ul style="list-style-type: none"> <li>○ <i>“...help shopping sometimes, they get help at the doctor’s office, they get help at church, and they often get help at restaurants, but they just want to, I think they just wanted to say they’re going to need that [in the future]...” – FGF</i></li> </ul> </p>	VS
<p><b>Benefits/Services Navigation</b> Anticipated future need for support with completing applications for health and social services as well as transitioning to higher levels of care (i.e. nursing home).</p>	S

What current trends may affect services to older adults as they age in the community and participate in community life?	
Theme/Sub-Theme(s)/Example Quote	Weight of Evidence
<p><b>Healthcare Reform</b> Healthcare delivery and payment reforms such as hospital global budgeting, medical homes, Accountable Care Organizations, and potential cuts to health services/coverage associated increased demands for care by newly insured individuals.</p> <ul style="list-style-type: none"> <li>“...there are accountable care organizations which are typically tied in with a hospital and its community and all the different resources to keep a person thriving in the community and the idea of an accountable care organization is that the hospital system is working with the local physicians that are participating and the local skilled nursing centers that are participating, and the local home care providers and home health providers and that you’re all working to minimize risk of that person readmitting. And maximize their expectancy of thriving in the community.” – KS</li> </ul>	S
<p><b>Telemedicine/telemonitoring</b> Advances in technology for providing health and long-term care services/supports (e.g. web-based clinical interactions, smart homes, medication monitoring, and remote check-ins with caregivers).</p> <ul style="list-style-type: none"> <li>“...nationally there is a tremendous move underfoot to involve technology and home delivered care more, vis-à-vis having technology in the home so that the doctor and the client can speak together over internet service so the [patient] does not have to go in to see the doctor. There are systems being set up where medications can be monitored via the internet, where the elder can check in several times a day with a caregiver who is not there maybe 50 miles away...” – KS</li> </ul>	S
<p><b>Life Expectancy/Preparedness</b> Increased life expectancy coupled with a lack of long-term care entitlement programs/services and a lack of individual planning/saving for future health and long-term care needs.</p> <ul style="list-style-type: none"> <li>“Yeah, we are not saving money. We are living longer, we will have more needs. We should be prepared for that now rather than waiting on that.” – KS</li> </ul>	M
<p><b>Weight of Evidence Scale:</b> VS=Very Strong; S=Strong; M=Moderate  <b>Source for Quotation:</b> KS=Key Stakeholder; BR=Building Resident; FGF=Focus Group Facilitator</p>	

**Figure 2.1: Summary Table of Qualitative Themes**

Theme VS=  S=  M= 	1.	2.	3.	4.	5.	6.
	Challenges	Facilitators (all)	Facilitators (public)	Feelings about Services	Future Help Needed	Trends
Transportation						
Access to Healthcare/LTSS						
Informal Support						
Benefits/Services Navigation						
Planning/Education/Awareness						
Social Connectedness/Participation						
Financial/Costs						
Health and Disability						
Life Expectancy						
Structural/Physical Accessibility						
Responsiveness of Landlord						
Healthcare Reform						
Telemedicine/Telemonitoring						
Walking Community/Proximity						
Safety						

**Notes:** (1) What needs or challenges do older adults face as they age in the community and participate in community life?; (2) What factors help older adults to age in the community and participate in community life?; (3) What public policies, programs, services help older adults to age in the community and participate in community life?; (4) How do older adults feel about the help they receive to age in the community and participate in community life?; (5) What additional help do older adults believe they will need in the future?; (6) What current trends may affect services to older adults as they age in the community and participate in community life?

**Table 2.2: Adults Ages 65 and Older in Prince George’s County, MD  
(Source: American Community Survey, US Census)**

	2011 ACS 1-Year Est.	2013 ACS 1-Year Est.	2015 ACS 1-Year Est.	Change 2011-2015
Total Population 65 years and over	85,627	96,449	106,677	+21,050
SEX				
Male	41.8%	41.8%	41.6%	-0.2%
Female	58.2%	58.2%	58.4%	+0.2%
Median age (years)	72.2	72.3	72.2	-----
RACE/ETHNICITY				
One race	98.3%	98.8%	98.0%	-0.3%
Two or more races	1.7%	1.2%	2.0%	+0.3%
White only	32.0%	28.3%	25.7%	-6.3%
African American only	60.7%	63.0%	64.5%	+3.8%
Asian only	4.2%	4.7%	4.7%	+0.5%
Hispanic/Latino (of any race)	4.0%	4.3%	4.9%	+0.9%
NATIVITY				
Native	83.9%	83.9%	81.9%	-2.0%
Foreign born	16.1%	16.1%	18.1%	+2.0%
Not a U.S. citizen	5.2%	5.2%	7.2%	+2.0%
LANGUAGE SPOKEN AT HOME/ ABILITY TO SPEAK ENGLISH				
English only	88.2%	87.3%	85.3%	-2.9%
Language other than English	11.8%	12.7%	14.7%	+2.9%
Speak English less than very well	0.7%	0.9%	1.4%	+0.7%
MARITAL STATUS				
Married	47.2%	48.3%	51.1%	+3.9%
Not Married	52.8%	52.7%	48.9%	-3.9%
HOUSEHOLDS BY TYPE				
Family Households	57.5%	58.3%	57.2%	-0.3%
Nonfamily Households	42.5%	41.7%	42.8%	+0.3%
Householders Living Alone	16.9%	16.3%	17.2%	+0.3%
HOUSING TENURE				
Owner-occupied housing units	81.8%	79.8%	80.2%	-1.6%
Average household size	2.24	2.30	2.34	+0.14
Renter-occupied housing units	18.2%	20.2%	19.8%	+1.6%
Average household size	1.75	1.86	1.76	+0.01
GROSS RENT				
Median gross rent	\$1,187	\$1,261	\$1,196	+\$9
GROSS RENT IN DOLLARS AS A % OF HOUSEHOLD INCOME (PAST 12 MONTHS)				
Less than 30%	36.7%	41.8%	40.5%	+3.8%
30% or more	63.3%	58.2%	59.5%	-3.8%
RESIDENCE 1 YEAR AGO				
Same house	93.9%	95.1%	94.6%	+4.7%

Different house in the U.S.	5.2%	4.6%	4.6%	-0.6%
<b>RESPONSIBILITY FOR GRANDCHILDREN (&lt;18 YEARS)</b>				
Living with grandchild(ren)	9.7%	9.7%	9.1%	-0.6%
Responsible for grandchild(ren)	0.2%	0.2%	0.2%	-----
<b>DISABILITY STATUS</b>				
With any disability	30.1%	30.9%	32.0%	+1.9%
No disability	69.9%	69.1%	68.0%	-1.9%
<b>EMPLOYMENT STATUS</b>				
In labor force	24.4%	24.0%	21.6%	-2.8%
Employed	22.7%	23.3%	20.8%	-1.9%
Unemployed	1.7%	0.7%	0.7%	-1.0%
<b>HOUSEHOLDS - INCOME IN DOLLARS (PAST 12 MONTHS)</b>				
w/ earnings	49.6%	51.4%	50.7%	+1.1%
Mean earnings	\$63,925	\$61,068	\$64,884	+\$959
w/ retirement income	64.4%	62.7%	63.5%	-0.9%
Mean retirement income	\$34,506	\$36,354	\$43,147	+\$8,641
w/ Social Security income	78.6%	81.3%	77.9%	-0.7%
Mean Social Security income	\$15,165	\$16,483	\$18,066	+\$2,901
w/ Supplemental Security income	4.7%	5.2%	3.8%	-0.9%
Mean Suppl. Security income	\$6,882	\$8,295	\$9,561	+\$2,679
w/ cash public assistance income	2.0%	2.0%	1.5%	-0.5%
Mean cash public ass. income	\$2,052	\$4,044	\$2,723	+\$671
w/ Food Stamp/SNAP benefits	9.5%	7.4%	8.8%	-0.7%
<b>POVERTY STATUS (PAST 12 MONTHS)</b>				
<100% of the poverty level	7.1%	7.2%	6.6%	-0.5%
100-149% of the poverty level	6.6%	6.5%	5.1%	-1.5%
≥150% of the poverty level	86.3%	86.4%	88.2%	+1.9%

**Table 2.3: Characteristics of All HUD Programs and Beneficiaries in Prince George’s County, MD**  
**(Source: Picture of Subsidized Households, HUD)**

	2011	2013	2015	Change 2011-2015
Total HUD Subsidized Units	9,986	10,872	9,267	-719
Total HUD Subsidized Tenants	20,470	20,607	18,965	-1,505
Average Size of Household	2.4	2.3	2.3	-0.1
Percent Occupied	92%	91%	90%	-2%
Average Total Household Income Per Year	\$15,377	\$16,218	\$16,835	+\$1,458
Average Household Contribution Towards Rent Per Month	\$380	\$436	\$498	+\$118
Average Federal Spending Per Unit Per Month	\$1,001	\$997	\$946	-\$55
Percent of HUD Subsidized Households with Income Below 50% of the Local Area Median Family Income	98%	98%	98%	-----
Percent of HUD Subsidized Households with Income Below 30% of the Local Area Median Family Income	85%	83%	83%	-2%
Percent of Households Where Head or Spouse (Whoever) is Older is 62 Years Old or Older	30%	31%	32%	+2%
Percent of Households Where Head or Spouse (Whoever) is Older is 85 Years Old or Older	3%	3%	3%	-----
Percent of All HUD Subsidized Residents with a Disability	16%	17%	18%	+2%
Percent of Households with Resident Age 62 or Older Where Either Household Head or Spouse (Cohead) Has a Disability	24%	29%	31%	+7%
Percent of Households designated as Minority	94%	95%	94%	-----
Percent of Households who are Black and Non-Hispanic	91%	92%	91%	-----
Percent of Reported Households who are Asian and Non-Hispanic	2%	2%	2%	-----
Percent of Reported Households who are Hispanic	1%	1%	1%	-----
Average Months on Waiting List Among New Admissions	14	15	59	+45
Average Number of Months Since Moved In	99	108	117	+18
Percent of Population Below Poverty Level in the Census Tract where HUD Assisted Families Reside	11%	11%	12%	+1%
Minorities as a Percentage of the Total Population in the Census Tract where HUD Assisted Families Reside	86%	91%	91%	+5%

## Chapter 3: Multilevel Predictors of Older Americans Act Title

### III Services Use

#### **Introduction**

There are roughly 67 million adults ages 60 and older in the U.S., representing about one in five Americans. By 2050, the number of older adults will nearly double to 111 million, or 28 percent of the total U.S. population (U.S. Census Bureau, 2014). As the aging population grows, so too will the demand for long-term services and supports (LTSS). LTSS covers a broad classification of services comprising formal and informal care delivered in home, community, and institutional settings to assist older adults and persons with disabilities in performing instrumental activities of daily living (e.g., shopping, cooking, housekeeping) and/or activities of daily living (e.g., eating, bathing, toileting, dressing). Recent projections by Favreault & Dey (2015) suggest that about half of all adults turning 65 between 2015 and 2019 will need some level of LTSS, at an average lifetime cost of \$138,100 per person. One in four older adults will need more than two years of LTSS.

Non-means-tested LTSS provided under the Older Americans Act (OAA) are an important safety net for adults ages 60 and older who may lack sufficient informal support, lack the finances to pay for care out-of-pocket, or do not meet Medicaid eligibility criteria (Thomas & Mor, 2013; Thomas, 2014; Kitchener, Ng, Carillo, Miller, & Harrington, 2007; Thomas & Applebaum, 2015). Additionally, for many older adults and their caregivers OAA programs and services act as the primary access point into the formal LTSS system (U.S. Government Accountability Office,

2015; U.S. Department of Health and Human Services, 2013; Rabiner, Wiener, Khatutsky, Brown, & Osber, 2007; Zhu & An, 2014; Thomas & Mor, 2013; Lloyd & Wellman, 2015). However, policy studies on OAA are lacking.

There is an urgent need for further OAA research, especially in light of funding challenges that threaten the sustainability of the Aging Services Network and new efforts to innovate on the traditional Aging Services Network business model by leveraging health reform initiatives. As Medicaid dominates formal LTSS spending, federal funding for the OAA has remained flat, diminishing the capacity of the Aging Services Network to fulfill its vision (Montgomery & Blair, 2016; Parikh, Montgomery, & Lynn, 2015). With growing demographic pressures and years of stagnant OAA appropriations, some experts project the Aging Services Network has only a decade to adapt its business model (Montgomery & Blair, 2016). Current efforts for innovation leverage health reform initiatives to demonstrate integrated healthcare and LTSS models, expand Medicaid managed care arrangements, and cultivate business acumen for contracting LTSS to a variety of payers and providers. To support these efforts, there is a need to better understand the OAA population, including predictors of services use at multiple levels of influence, since the passage of the Patient Protection and Affordable Care Act (PPACA).

### **New Contribution**

Existing OAA studies have encountered some common limitations, including difficulties comparing OAA services users and non-users in national level data. Many of these studies rely on indirect comparisons of services participants to the general population of older adults, where level of OAA participation is unknown (Brock,



Rabinovich, Severynse, & Ficke, 2011; Barrett & Schimmel, 2010a; Altshuler & Schimmel, 2010). Researchers also face marked difficulties handling program variation associated with the decentralized nature of the Aging Services Network (Lee et al., 2015; Sahyoun & Vaudin, 2014).

The objective of this study is to examine multilevel predictors of OAA Title III services participation. It is the first study to use recent, nationally representative, experimental module data from the 2012 Health and Retirement Study (HRS) to directly compare users and non-users of OAA Title III services, with individual level, county level, and state level covariates from HRS and other datasets. The study follows a modified Andersen Behavioral Model of Health Services Use as a conceptual framework, and uses a unique multilevel dataset that links individual, county, and state level factors to capture predictors of OAA Title III services participation at different levels of influence. Multivariate logistic regression models offer new evidence for overall and service-specific predictors of OAA Title III services use, adjusted for confounding, since the passage of the PPACA.

## **Background**

### *Long Term Services and Supports*

The LTSS system in the U.S. depends largely on informal (unpaid) care. As much as ninety percent of all LTSS are provided by unpaid caregivers (Institute of Medicine, 2008). Chari, Engberg, Ray, and Mehrotra (2015) estimate the opportunity costs of informal caregiving for older adults to be roughly \$522 billion per year. Medicaid, the joint federal-state public health insurance program for low-income individuals, is

the primary payer of formal LTSS. In 2013, Medicaid expenditures accounted for 51 percent of all \$310 billion spent on LTSS in the U.S. (Reaves & Musumeci, 2015). However, Medicaid is intended to be the payer of last resort for those who meet income and functional impairment criteria to qualify for assistance. Medicare does not cover LTSS. Private insurance coverage is uncommon, representing only 8 percent of total LTSS expenditures in the U.S (Reaves & Musumeci, 2015). Out-of-pocket spending represents 19 percent of total LTSS expenditures, but the high cost of care can be prohibitive over time (Reaves & Musumeci, 2015). Those who pay out-of-pocket often deplete their assets to poverty levels that qualify for Medicaid coverage. In a twelve-year cohort study, Wiener, Anderson, Khatutsky, Kaganova, and O’Keeffe (2013) found that among older adults who were not eligible for Medicaid at baseline, 21.2 percent of personal care users, 23.4 percent of nursing home care users, and 31.7 percent of personal care and nursing home care users spent down their assets to Medicaid eligibility levels.

#### *Older Americans Act*

The Older Americans Act of 1965 (as amended through P.L. 114-144, enacted April 19, 2016) authorizes, in part, State grants to fund the Aging Services Network, a system of public and private organizations that administer a range of services to assist adults ages 60 and older to live independently in their homes and communities (Older Americans Act Reauthorization Act of 2016). In Fiscal Year (FY) 2013, OAA programs and services were delivered to 11.5 million participants. These programs offer a broad mix of services, such as in-home services (e.g., home-delivered meals, homemaker services), access services (e.g., case management, transportation), and

center-based services (e.g., congregate meals) (Colello & Napili, 2016). The U.S. Department of Health and Human Services Administration on Aging (AoA)/Administration on Community Living (ACL) oversees the implementation of the OAA.

The Aging Services Network includes 56 State and Territorial Units on Aging (SUA), 618 Area Agencies on Aging (AAA), 264 Indian tribal and Native Hawaiian organizations, and roughly 20,000 Local Service Providers (LSP) across the U.S. (U.S. Department of Health and Human Services, 2013). A federal funding formula is used to allocate grant funds to each state based on their proportion of residents ages 60 and older, with certain criteria for minimum allocations. SUA and AAA distribute funds to LSP according to federally approved intrastate funding formulas designed to target OAA dollars to individuals with the greatest physical and socioeconomic needs. Specific criteria vary by state, but most formulas include need factors for at least age, income, and minority status (U.S. Government Accountability Office, 2012; O'Shaughnessy, 2011). LSP use OAA funds to deliver a variety of services, including OAA Title III-B home and community-based supportive services (e.g., homemaker, case management, transportation services) and OAA Title III-C nutrition services (e.g., congregate meals, home-delivered meals). Table 3.1 provides select service definitions and national totals of individuals served in FY 2013 (Thomas, 2014; Rabiner et al., 2007; U.S. Department of Health and Human Services, 2013; Mabli, Redel, Cohen, Panzarella, Hu, & Carlson, 2015).

### *Current Evidence on OAA Services Use*

National studies suggest that certain factors are associated with OAA Title III services participation. Most studies have used descriptive data from the National Survey of OAA Participants to compare respondents by service type and with the general population of adults ages 60 and older. Relative to older adults nationally, OAA Title III services participants are more likely to be older and female. They are more often unmarried and live alone, which indicate a greater need for social support. OAA Title III services participants are also more likely to live in poverty and have less than a high school education, which indicate lesser financial resources to pay for private care and perhaps, lesser knowledge and preparation for aging needs. They are also more likely to report greater levels of health and functional need for LTSS, including more functional impairments, chronic conditions, and overnight hospital stays (Altshuler & Schimmel, 2010; Barrett & Schimmel, 2010a). Barrett and Schimmel (2010a) found that case management, home delivered meals, and homemaker services participants reported worse health status, greater proportions of chronic conditions, and greater functional limitations than expected in the general population of older adults within matched categories for age, gender, race, education level, and poverty status.

Additionally, OAA Title III services participants tend to differ by the services they use. For example, center-based services attract a generally healthier, more mobile and well-resourced pool of participants than in-home services (Barrett & Schimmel, 2010a). In particular, congregate meals participants are more likely to be younger, white, married, and less likely to have functional impairments,

comorbidities, live in poverty, and use nursing home services compared to other OAA Title III services groups (Altshuler & Schimmel, 2010; Kleinman & Foster, 2011). Congregate meals participants also use fewer total OAA Title III services, on average, and are less likely to participate in non-OAA Title III, federally funded services, including Medicaid, energy assistance, food stamps, and housing assistance programs (Kowlessar, Robinson, & Schur, 2015; Barrett & Schimmel, 2010b).

### **Conceptual Framework**

This study uses a modified Andersen Behavioral Model of Health Services Use which incorporates county and state level variables. Andersen's Behavioral Model of Health Services Use posits that predisposing, enabling, and need factors underlie health services utilization behavior (Andersen, 1995). Predisposing factors include biological imperatives, such as age and gender, as well as other demographic correlates of health service use. Enabling factors comprise individual, family/household, community resources and conditions that facilitate or impede health services use. Need factors consist of both perceived and professionally evaluated need for health services. Andersen's theory has been used in studies of OAA participants and services (Weddle, Wilson, Berkshire, & Heuberger, 2012; Sharkey, Ory, & Browne, 2005; Sattler, Lee, & Young, 2015; Choi, 2008) as well as OAA policy research (Kitchener et al. 2007). Furthermore, The Lewin Group (2013) performed a comprehensive literature review and exploratory study on OAA evaluation design, and proposed the Andersen Behavioral Model of Health Services Use as the most suitable theoretical framework for nationally evaluating OAA programs and services.

In addition to individual level factors, the modified conceptual framework includes county and state level enabling variables. The supply of home health agencies and nursing home beds in the county is used to account for the availability of LTSS alternatives to services delivered under the OAA. As the supply of alternative LTSS increases, the likelihood of using OAA Title III services is expected to decrease. These variables have been used in previous OAA policy studies (Thomas & Mor, 2013; Thomas, 2014; Kitchener et al., 2007) and related LTSS research (Rice, Kasper, & Pezzin, 2009; Muramatsu, Yin, Campbell, Hoyem, Jacob, & Ross, 2007; Walsh, Wiener, Haber, Bragg, Freiman, & Ouslander, 2012). Common socioeconomic targeting criteria for distributing OAA funds are also included (O'Shaughnessy, 2011) to account for available OAA resources. As the proportion of older adults in the county increases, especially poor and racial/ethnic minority subgroups, the likelihood of using OAA Title III services is expected to increase. This study is the first to test these targeting variables. State policy variables were also used to account for system level orientation to home and community based services (HCBS), as opposed to institutional LTSS. As states participate in any Medicaid state plan options for HCBS, spend a greater proportion of Medicaid LTSS dollars on HCBS, and are distributed larger grant awards for funding OAA Title III services, the likelihood of using OAA Title III services is expected to increase. In particular, payments from Medicaid, typically through HCBS waiver authorities, represent a growing proportion of AAA budgets. Roughly 52 percent of AAA have formal contracts or memorandums of understanding with Medicaid to provide LTSS. In 2013, Medicaid funding represented roughly 27 percent of total budgets for AAA that

received any Medicaid dollars (n4a Survey). Given the growth in Medicaid payments to the Aging Services Network, state Medicaid program orientation to HCBS is expected to have a strong influence on OAA Title III services use. These state level variables have also been used in previous OAA policy studies (Thomas & Mor, 2013; Buys, Borch, Kilgore, Zizza, & Locher, 2012) and related LTSS research (Blackburn, Locher, Morrissey, Becker, & Kilgore, 2016; Rice et al., 2009; Muramatsu et al., 2007; Walsh et al., 2012).

### **Data**

We used and merged multiple data sets: HRS, Area Health Resource Files, County Intercensal Population Estimates, American Community Survey (ACS), and the AGing Integrated Database (AGID).

The HRS is a longitudinal panel study used to track the economics, family characteristics, and health of older Americans since 1992. A core questionnaire is administered every two years to a representative sample of approximately 20,000 Americans age 50 and older. The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan.

Embedded in each wave of the HRS is a series of unique experimental modules designed to explore new topics and test new survey ideas. Each module is administered to a randomly selected sub-sample of respondents (Hodes & Suzman, 2007). The HRS 2012 included the “Utilization of Home-and Community-Based Service, and Life Space” experimental module, which measured self-reported use of LTSS over the past two years. LTSS were specifically defined as being arranged or

provided by a senior center or other community organization. Participation in these services was not mutually exclusive. The 2,097 respondents randomly selected to complete the module represent the study sample for this research. A total of 1,782 respondents completed the module, for a response rate of 85.0 percent. Inclusion in the analytic sample was restricted to respondents ages 60 and older, to capture the eligible population for OAA Title III services. A total of 981 respondents, ages 60 and older with complete information on all study variables, were included in the final analytic sample.

Selected covariates are consistent with those identified by The Lewin Group (2013) as fitting the Andersen Behavioral Model of Health Services Use and being associated with key outcome measures for evaluating OAA programs and services.

#### *Outcome Variables*

The study uses six, dichotomous outcome variables. These include any use of the following services from 2011 to 2012: (1) home-delivered meals services, (2) homemaker services, (3) case management services, (4) transportation services, (5) congregate meals services, and (6) any of the five services (constructed).

#### *Covariates*

As stated in our conceptual framework, individual-, county-, and state-level factors were included as covariates. Specifically, we controlled for the following (1) individual-level covariates: age, gender, race/ethnicity, education level, marital status, living alone, number of living children, informal caregiving as measured by the total number of caregiving hours provided by all children in the past month (2010), total



household income as a percentage of the federal poverty level, public and private health insurance coverage, number of chronic medical conditions, cognitive disability indicted by a diagnosis of Alzheimer's disease, number of IADL difficulties, number of ADL difficulties, and self-reported health status; (2) county-level covariates: two-year average number of home health agencies per 1,000 adults ages 60 and older, two-year average number of nursing home beds per 1,000 adults ages 60 and older, two-year average number of adults ages 60 and older per 1,000, two-year average number of minority adults ages 60 and older per 1,000, and number of poor adults ages 60 and older per 1,000; (3) state-level covariates: two-year percentage of Medicaid LTSS spending on HCBS, any expenditures on Medicaid state plan options for HCBS, using data from Eiken, Sredl, Burwell, and Saucier (2016), two-year average total OAA Title III expenditures for homemaker services, home delivered meals, case management, congregate meals, assisted transportation, and transportation.

## **Methods**

Respondent, household, and family level HRS data were merged across files using a unique identifier, which combines the survey household identification and person numbers. State and county level variables were merged with respondent-level data using Federal Information Processing Standard codes provided in the HRS Cross-Wave Geographic Information (Detail) [1992-2012] restricted file. The use of restricted HRS data for the purposes of this study was approved by the University of Michigan Institute for Social Research (HRS Restricted Data Access Number 2015-047) and by the University of Maryland College Park, Institutional Review Board

(Approval Number 839862-1). All analyses were performed using Stata 14 (StataCorp., 2015) in the Michigan Center on the Demography of Aging (MiCDA), Enclave Virtual Data Infrastructure (VDI), a secure remote computing environment.

We first present national population estimates of OAA Title III services groups, calculated using respondent level weights. Weighted tests were conducted to compare characteristics of respondents indicating use of any OAA Title III services with respondents indicating no use. Multivariate regression analysis was used to estimate the relationship between predictor variables and OAA Title III services use, adjusting for confounding at multiple levels of influence.

#### *Sensitivity Analysis*

Different model specifications were tested. Specifically, unweighted, individual and state level, mixed-effects logistic regression models were fit for any OAA Title III service use, and for each service type. Respondent county was treated as a fixed-effect due to the large number of counties and limited within county variability in the dataset. In total, there were 323 counties represented in the dataset, with roughly half of the counties including fewer than five observations.

This approach is generally consistent with existing LTSS research applying multilevel methods with HRS data (Muramatsu & Campbell, 2002; Muramatsu et al., 2007). An overall Wald chi-squared test of all fixed-effects being equal to zero was performed for each model, as well as a likelihood-ratio test comparing each mixed-effects model to fixed-effects logistic regression. Likelihood ratio tests indicated no significant difference between the mixed-effects and fixed-effects logistic regression

models. Therefore, results of the fixed-effects logistic regression analysis are presented and discussed.

## **Results**

An estimated 691,931 adults ages 60 and older participated in at least one of five OAA Title III services from 2011 to 2012. Congregate meals participants represented the largest population among the five groups, totaling an estimated 440,502, at least three times the size of any access or in-home service populations. An estimated 143,869 received transportation services and 117,130 received home-delivered meals. Homemaker and case management services represented the smallest populations among the five groups, totaling an estimated 76,767 and 55,542, respectively.

A total of 146 respondents, about 15 percent of the final analytic sample, reported using any OAA Title III services. OAA Title III service users and non-users differed significantly in terms of predisposing, enabling, and need factors. Compared with non-users, OAA Title III service participants were older and more likely to be non-Hispanic black, unmarried, and live alone. They were also more likely to live below 200 percent of the federal poverty level, lack employer-sponsored health coverage, and be enrolled in Medicare only or dually enrolled in Medicare and Medicaid. At the county level, OAA Title III service participants lived in counties with fewer adults ages 60 and older per 1,000, on average, than non-users. The two groups did not differ significantly on state level enabling factors. All but one need factor was found to be significant in the group comparisons. OAA Title III participants were more likely to report a greater number of ADL difficulties, IALD

difficulties, and chronic conditions. They were also less likely to report very good or excellent health. See Table 3.2 for detailed information.

Likelihood ratio chi-squared tests of overall model fit were significant for any OAA Title III service use and all service-specific logistic regression models. Several factors were predictive of any OAA Title III service use. Among predisposing factors, race/ethnicity and living alone had a significant and positive effect on the likelihood of participating in any OAA Title III services. Non-Hispanic blacks had 2.16 times the odds of non-Hispanic whites of receiving any services [95% CI=1.23-3.80; p=0.008]. Additionally, those who lived alone had 2.08 times the odds of those not living alone to receive any services [95% CI=1.16-3.74-; p=0.014]. Among enabling factors, Medicaid variables were significant at the individual and state level. Dually enrolled Medicare and Medicaid beneficiaries had 2.61 times the odds of receiving any services [95% CI=1.03-6.61; p=0.043], compared to those with neither form of public health insurance coverage. At the state level, percentage of total Medicaid LTSS spending on HCBS significantly predicted any OAA Title III services use. For every five percentage point increase in spending on HCBS, the odds of receiving any services increased by 10 percent [AOR=1.02; 95% CI=1.00-1.04; p=0.045]. Among the need factors, reported number of IADL difficulties and chronic conditions positively and significantly predicted any service use. For every one additional reported difficulty performing an IADL, the odds of receiving any services increased by 38 percent [AOR=1.38; 95% CI=1.04-1.82; p=0.024]. Similarly, for every one additional reported chronic condition, the odds of receiving any OAA Title III

services increased by a factor of 1.17 [95% CI=1.01-1.35; p=0.033]. See Table 3.3 for detailed information.

Certain factors were significant across multiple service-specific models. Race/ethnicity significantly predicted participation in any OAA Title III service use and home-delivered meals. Non-Hispanic blacks were more likely than non-Hispanic whites to receive any OAA Title III services. Hispanics were less likely than non-Hispanic whites to receive home-delivered meals. Functional limitation measures, especially IADL difficulties, significantly predicted OAA Title III service use in the overall model and home-delivered meals model. Medicaid factors demonstrated a significant and positive effect in the overall model, as well as the home-delivered meals and homemaker services models. County level supply of alternative LTSS and OAA targeting factors were mostly non-significant. Only the county-level number of adults ages 60 and older per 1,000 predicted use of case management services.

## **Discussion**

Evidence from individual level predictors within OAA Title III-C nutrition service models, supports the assertion that those who receive congregate meals are generally healthier, more mobile and well-resourced than those who receive home-delivered meals. In particular, functional limitations significantly predicted participation in home-delivered meals services but not congregate meals services. Having some college or a greater level of education, which may underlie resourcefulness in identifying available services, was the only significant predictor of using congregate meals services. The finding also seems to support a common practice among states to redistribute OAA funds for congregate meals to services that

may more effectively target older adults with the greatest physical and socioeconomic needs. With the appropriate approvals, states may redistribute up to half of their congregate meals funding for home delivered meals services. Additionally, states may transfer up to 30 percent of funds from nutrition services to home and community-based supportive services. In FY 2013, state transfers of congregate meals funding totaled roughly \$74 million, with about half redistributed to home and community-based supportive services and half redistributed to home-delivered meals services (U.S. Department of Health and Human Services, 2013).

County level enabling factors, measured by common OAA targeting criteria, were mostly non-significant. It may be that county geographic boundaries are not appropriate proxies for Service Planning Areas within the Aging Services Network. Variation in targeting criteria may also explain the lack of prediction value for these factors. These findings may be useful in light of considerations for modified targeting criteria that may more effectively direct services to older adults facing the greatest physical and socioeconomic needs, as well as increase the consistency of targeting and prioritization practices across the Aging Services Network (U.S. Government Accountability Office [GAO], 2011).

Limited prediction value of OAA targeting criteria and spending contrasted with the strong effect of Medicaid policy variables. The evidence seems to corroborate Medicaid's substantial influence on individual access to formal LTSS. Given stagnation in OAA funding, coupled with increasing demographic pressures and the expansion of Medicaid LTSS, further partnership between the Aging Services Network and Medicaid, as well as other payers and providers, may be vital to

fulfilling the OAA in the future. Under current circumstances, some experts project the Aging Services Network has less than a decade to depart from its current business model (Montgomery & Blair, 2016). Given new opportunities, many of which are authorized under provisions of the PPACA, the Aging Services Network is positioned for sustainability as a key component of a transformed U.S. healthcare system.

Integrated health and LTSS approaches are being demonstrated under many healthcare reform initiatives designed to achieve triple aim goals by addressing non-medical determinants. According to the 2013 National Aging Network Survey of Area Agencies on Aging, roughly 55 percent of AAAs are involved in at least one integrated care initiative (National Association of Area Agencies on Aging, 2014). These include Accountable Care Organizations, the Financial Alignment Initiative, Health Homes, the State Innovation Models Initiative, the Community-Based Care Transition Program (CCTP), and Accountable Health Communities Model (AHC). In particular, CCTP provides funding to hospital and community based organizations (CBO) for testing care transition models targeting Medicare patients at high risk of readmission. CBOs are paid an all-inclusive rate per eligible discharge (U.S. Department of Health and Human Services, 2012). Roughly 77 percent of the 47 initial CCTP sites are AAAs, or AAAs and ADRCs, providing care coordination and/or direct services (Econometrica, 2014). However, not all initiatives address the need for new revenue sources to sustain the Aging Services Network. For example, AHCs will provide funds for consortiums of clinical delivery sites, social services providers, and others to test the impact of community referral, community service navigation, and community service alignment interventions on cost, utilization, and

quality measures for high-risk Medicare and Medicaid beneficiaries. Direct or indirect payments for any community services are not permitted under AHC (U.S. Department of Health and Human Services, 2016). This raises concerns given screening and informational services may increase detection of LTSS needs and demand on the Aging Services Network, but not necessarily increase funds for services to meet those needs.

Another important trend is the shift from Medicaid waivers to managed care programs. Currently, 21 states operate Medicaid managed LTSS under 1915a, 1915b, and/or 1115 authorities (National Association of States United for Aging and Disabilities, 2016). Capitated payments offer greater financial predictability, risk-sharing, and flexibility in planning and service delivery. The Aging Services Network is well positioned to participate in managed care arrangements. However, in 2013, half of AAAs were in a state with Medicaid managed LTSS but not involved in planning and/or implementation (National Association of Area Agencies on Aging, 2014). Initiatives like the Business Acumen Learning Collaborative (BALC) are an important component of preparing the Aging Services Network for effectively engaging in such arrangements, with Medicaid and other payers, through fostering entrepreneurial competencies. The BALC provides technical assistance to sites within the Aging Services Network on critical areas such effective services pricing, marketing, and contracting as well as enhancing technological infrastructure for administration (e.g., billing, tracking and referring clients), health information exchange, and quality measurement (U.S. Department of Health and Human Services, 2015).



Identifying successful and scalable business models for integrated care, managed care, and other services delivery arrangements in the Aging Services Network will be critical for sustainability. Effectively making the business case for the role of Aging Services Network programs and services in a transformed U.S. healthcare system will involve demonstrating an effect on health services utilization. As such, healthcare utilization is emerging as a key outcome measure for evaluating the OAA. Further research should examine how participation in OAA Title III services impacts utilization of nursing home, hospital, and physician care, using the multilevel dataset from this study.

### **Limitations**

As with any self-reported measure, responses to the HRS are subject to errors in recall. In particular, the potential for few occasions of OAA Title III service use over the long recall period may have contributed to any misclassification by OAA Title III service use, and thus, possible underestimate of the OAA Title III service groups relative to federal reporting. However, the HRS experimental module items were specific to OAA Title III service types and delivery by community-based organizations. Furthermore, the items were comparable to other measures that have been used previously for secondary analysis of survey data to examine the OAA (U.S. GAO, 2011; Brock et al., 2011). Additionally, missing data on the outcome variable among the study sample represents an important limitation of this research. The 240 respondents that did not provide responses to survey items about their use of OAA Title III services were significantly different than those that did provide responses, in terms of predisposing, enabling, and need factors for LTSS. In particular, they were

more likely to be older, racial/ethnic minorities, functionally impaired, and less likely to be enrolled in Medicare only. This subset of those randomly sampled for the experimental module represents a vulnerable group likely to use OAA Title III services. The lack of outcome information for this group limits the generalizability of the study findings. It may also help explain potential underestimates of OAA Title III service groups. Although the study accounts extensively for covariates, some predictors may have been omitted, particularly at the county and state level. For example, other common OAA targeting variables, such as rurality and the prevalence of functional impairment within the community (U.S. GAO, 2012), were not included due to data limitations and a desire for parsimony. Also, there may be unobserved state factors, related to system level orientation to HCBS and use of OAA Title III services, beyond the federal policies that were the focus of this study. For example, Miller & Kirk (2016) found that from 2000 to 2011, the political environment, housing affordability, and racial/ethnic composition of states significantly predicted an increasing share of HCBS expenditures among states with low initial investment.

### **Conclusion**

This is the first study, to our knowledge, that uses data from the HRS experimental module on “Home and Community Based Services, and Life Space.” Although the data may be limited for population estimates, multivariate regression analyses produced some important insights about the association between individual, county, and state level factors and OAA Title III services use. With growing demographic pressures and stagnant OAA funding, the Aging Services Network faces substantial challenges. Sustainability efforts are focused on demonstrating integrated

healthcare and LTSS models, expanding Medicaid managed care arrangements, and cultivating business acumen for contracting LTSS to a variety of payers and providers. Accordingly, OAA policy research should focus on the intersection of health and LTSS. In particular, future research should examine how participation in OAA Title III services impacts utilization of nursing home, hospital, home health, and physician care, using the multilevel dataset from this study. Such studies should also leverage the panel data available on the study sample for longitudinal analyses of health services utilization among the Aging Services Network population.

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**Table 3.1: Select OAA Title III Service Definitions and Total Number of Individuals Served (FY 2013)**

	Service Definition	Total Served (FY 2013)
<b>Title III-B Service Type</b>		
<b>Homemaker</b>	Assistance with IADLs such as meal preparation, shopping, managing money, and light housework.	149,670
<b>Case Management</b>	Assessing needs, developing care plans, authorizing services, coordinating services, conducting follow-up, and reassessing needs.	437,840
<b>Transportation</b>	Assisted and unassisted rides to doctor's offices, grocery stores, pharmacies, senior centers, meal sites, and other critical daily activities.	N/A*
<b>Title III-C Service Type</b>		
<b>Congregate Meals</b>	Single meals that provide a minimum one-third of daily nutrition, served at community venues (e.g., senior centers, religious facilities, schools, public/low-income housing) with opportunities for social interaction and engagement.	1,575,207
<b>Home Delivered Meals</b>	Single meals that provide a minimum one-third of daily nutrition, prepared by congregate meal sites, affiliated central kitchens, or nonaffiliated food service organizations and delivered to individuals that have difficulty leaving their homes.	830,187
Source: U.S. Department of Health and Human Services, Administration for Community Living. (2013). *The total number of individuals that received transportation services in FY 2013 is unknown. An estimated 25,353,861 one-way rides were provided over the course of the year.		

**Table 3.2: Group Differences among OAA Title III Service Users and Non-Users**

**Ages 60 and Older**

	No OAA Title III Service Use (n=835)	Any OAA Title III Service Use (n=146)	Test Statistic	p-value
<b>Individual and Family Characteristics</b>				
Age [mean]	69.91	73.10	$t=3.28$	<0.002**
Gender (%)				
Male	0.47	0.38		
Female	0.53	0.62	$\chi^2=3.74$	0.096
Race/Ethnicity (%)				
Non-Hispanic White	0.83	0.64		
Non-Hispanic Black	0.08	0.22		
Non-Hispanic Other	0.03	0.04		
Hispanic	0.07	0.10	$\chi^2=31.42$	<0.0001***
Education (%)				
Less than HS or GED	0.17	0.25		
HS graduate	0.32	0.28		
Some college or above	0.51	0.47	$\chi^2=4.29$	0.259
Married (%)	0.63	0.38	$\chi^2=29.40$	<0.0001***
Live Alone (%)	0.24	0.47	$\chi^2=30.07$	<0.0001***
Number of Children [mean]	3.19	3.51	$t=1.42$	0.160
Informal Care from Children (2010) [mean]	1.44	4.12	$t=1.63$	0.110
Percent of Federal Poverty Level				
Above 400%	0.37	0.13		
200%-400%	0.29	0.27		
138%-199%	0.14	0.22		
Below 138%	0.21	0.39	$\chi^2=41.66$	<0.0001***
Employer Health Insurance Coverage (%)	0.45	0.23	$\chi^2=24.57$	<0.0001***
Public Health Insurance Coverage (%)				
None	0.32	0.13		
Medicare only	0.63	0.71		
Medicaid only	0.01	0.01		
Dually enrolled	0.04	0.15	$\chi^2=43.55$	<0.0001***
Activities of Daily Living (0-5) [mean]	0.20	0.72	$t=4.09$	<0.0001***
Instrumental Activities of Daily Living (0-5) [mean]	0.15	0.59	$t=4.69$	<0.0001***
Comorbidities (0-8) [mean]	2.31	3.20	$t=5.02$	<0.0001***
Alzheimer's Disease (%)	0.003	0.008	$\chi^2=0.65$	0.431
Self-Reported Health (%)				
Poor	0.05	0.13		
Fair	0.16	0.27		
Good	0.35	0.36		
Very good or excellent	0.44	0.24	$\chi^2=29.53$	0.001**
<b>County Characteristics</b>				
Number of adults ages 60 and older per 1,000 (2011-2012) [mean]	204.35	194.42	$t=-2.35$	0.023*
Number of racial/ethnic minority adults ages 60 and older per 1,000 (2011-2012) [mean]	38.40	46.27	$t=1.94$	0.057
Number of adults ages 60 and older in poverty per 1,000 (2011-2012) [mean]	19.00	20.15	$t=1.42$	0.162

Number of home health agencies per 1,000 adults ages 60 and older (2011-2012) [mean]	0.04	0.04	$t=-0.37$	0.712
Number of nursing home beds per 1,000 adults ages 60 and older (2011-2012) [mean]	5.87	5.44	$t=-1.59$	0.119
<b>State Characteristics</b>				
Expenditures on OAA Title III services (2011-2012) [mean]	\$24,545,818	\$25,274,145	$t=0.58$	0.562
Percentage of total Medicaid LTSS spending on HCBS (2011-2012) [mean]	47.24	48.73	$t=1.29$	0.201
Any spending on Medicaid state plan options for HCBS (2011-2012) (%)	0.38	0.40	$\chi^2=0.06$	0.815
<p>* Indicates significance at the <math>p&lt;0.05</math> level  ** Indicates significance at the <math>p&lt;0.01</math> level  *** Indicates significance at the <math>p&lt;0.001</math> level  For continuous covariates, lincom post-estimation tests for equality of means were performed. Chi-squared tests of independence were used for categorical covariates.</p>				

**Table 3.3: Multivariate Logistic Regression Models for Adults Ages 60 and Older**

	Any OAA Title III Service Use		Congregate Meals		Transportation Services		Home Delivered Meals		Homemaker Services		Case Management Services	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
<b>Individual-Level Covariates</b>												
Age	0.010	0.015	-0.014	0.019	<b>0.058*</b>	0.029	0.009	0.036	0.039	0.039	0.037	0.061
Gender												
Male (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Female	0.163	0.213	0.302	0.256	0.183	0.452	<b>-1.234*</b>	0.594	0.020	0.549	0.750	0.931
Race/Ethnicity												
NH White (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
NH Black	<b>0.770**</b>	0.288	0.592	0.349	0.870	0.551	-0.906	0.822	1.051	0.747	<b>2.818*</b>	1.161
NH Other	0.161	0.669	0.140	0.796	-----	-----	0.572	1.296	2.003	1.267	-----	-----
Hispanic	-0.132	0.427	0.171	0.505	-0.330	0.912	<b>-3.526*</b>	1.435	0.244	1.061	1.059	1.994
Education												
< HS/GED (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
HS graduate	0.313	0.284	0.514	0.350	0.136	0.490	-0.111	0.652	0.957	0.839	1.873	1.273
$\geq$ college or above	0.521	0.290	<b>0.726*</b>	0.355	-0.633	0.578	-1.070	0.736	1.571	0.806	2.079	1.290
Married	0.094	0.310	0.043	0.375	-0.532	0.612	0.386	0.804	1.480	1.064	0.256	1.537
Live Alone	<b>0.735*</b>	0.299	0.701	0.363	0.167	0.540	0.511	0.732	1.548	1.064	2.230	1.357
Number of Children	0.026	0.047	0.062	0.054	0.015	0.095	0.026	0.131	-0.003	0.106	-0.072	0.216
Informal Care from Children	-0.003	0.004	-0.053	0.040	-0.027	0.020	-0.005	0.007	<b>0.013*</b>	0.006	-0.008	0.020
Percent of Federal Poverty Level												
> 400% (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
200%-400%	0.202	0.316	0.522	0.380	0.039	0.902	0.668	1.194	-0.460	0.993	-1.848	1.528
138%-199%	0.304	0.350	0.474	0.430	0.568	0.871	-0.504	1.376	0.850	0.839	-1.378	1.592
< 138%	0.468	0.356	0.675	0.430	0.646	0.894	1.698	1.259	0.485	0.962	-1.341	1.453
Employer Health Insurance Coverage	-0.243	0.240	-0.365	0.289	0.042	0.509	-1.602	1.110	1.050	0.625	-----	-----

Public Health Insurance Coverage												
None (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Medicare only	0.501	0.369	0.604	0.429	0.259	0.911	-0.130	1.029	1.062	1.243	-1.864	1.729
Medicaid only	0.606	0.943	0.504	1.192	1.900	1.623	-----	-----	-----	-----	-----	-----
Dually enrolled	<b>0.959*</b>	0.474	0.722	0.570	0.578	1.030	-0.011	1.205	<b>2.903*</b>	1.334	1.738	1.692
Activities of Daily Living	0.173	0.122	0.089	0.166	0.190	0.197	<b>0.459*</b>	0.230	-0.044	0.262	-0.082	0.400
Instrumental Activities of Daily Living	<b>0.320*</b>	0.142	0.041	0.194	0.271	0.229	<b>0.648*</b>	0.283	0.156	0.292	0.888	0.512
Comorbidities	<b>0.156*</b>	0.073	0.136	0.087	0.141	0.144	0.180	0.188	0.358	0.183	0.317	0.272
Alzheimer's Disease	-0.559	1.252	1.335	1.273	-----	-----	0.546	1.669	-----	-----	-----	-----
Self-Reported Health												
Poor (ref)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fair	0.083	0.391	0.137	0.518	0.045	0.643	1.619	0.839	-0.408	0.796	-1.513	1.438
Good	0.120	0.398	0.305	0.524	-0.536	0.687	1.137	0.950	-0.688	0.874	0.245	1.354
V. good/excellent	-0.175	0.427	0.229	0.549	-0.620	0.751	-0.684	1.360	-1.386	1.031	-0.822	1.639
<b>County-Level Covariates</b>												
Number of adults ages 60 and older (2011-2012)	0.001	0.003	0.000	0.003	0.003	0.006	0.000	0.008	-0.007	0.008	<b>0.023*</b>	0.009
Number of racial/ethnic minority adults ages 60 and older (2011-2012)	0.005	0.005	0.006	0.006	0.004	0.011	0.002	0.017	0.011	0.014	-0.020	0.022
Number of adults ages 60 and older in poverty (2011-2012)	-0.008	0.022	-0.010	0.026	-0.036	0.047	0.017	0.063	0.014	0.061	-0.183	0.096
Number of home health agencies per 1,000 adults ages 60 and older (2011-2012)	0.414	2.229	0.253	2.670	6.772	4.013	5.885	5.698	-5.827	5.283	-3.570	13.370
Number of nursing home beds per 1,000 adults ages 60 and	-0.010	0.043	-0.004	0.051	-0.082	0.094	0.064	0.103	-0.004	0.131	0.024	0.156

older (2011-2012)												
<b>State-Level Covariates</b>												
Percentage of total Medicaid LTSS spending on HCBS (2011-2012)	<b>0.020*</b>	0.010	0.016	0.012	-0.015	0.021	<b>0.058*</b>	0.026	0.015	0.024	-0.021	0.036
Any Medicaid state plan options for HCBS (2011-2012)	0.291	0.253	0.258	0.295	-0.177	0.539	1.074	0.652	<b>1.823**</b>	0.628	0.655	0.889
<p>* Indicates significance at the p&lt;0.05 level  ** Indicates significance at the p&lt;0.01 level  Coefficients are presented as log-odds  Coefficients and standard error estimates for the average expenditures on OAA Title III services (2011-2012) variable were &lt;0.001 across models, and thus not presented in the table.</p>												

## Chapter 4: Healthcare Utilization among OAA Title III Services Participants

### **Introduction**

The next several decades will mark rapid growth of the aging population and increases in life expectancy. By 2050, the number of adults ages 60 and older in the U.S. will nearly double to 111 million. Roughly two-thirds of older adults live with two or more chronic conditions, such as heart disease, stroke, cancer, diabetes, hypertension, and arthritis (Lehnert et al., 2012; CDC, 2013). Those ages 85 and older, who tend to be most frail and experience the greatest health and social service needs, will roughly triple to about 19 million (U.S. Census Bureau, 2014).

The demographic shift will mean greater demand for health services as well as long-term services and supports (LTSS). LTSS comprise formal and informal care delivered in home, community, and institutional settings to older adults and persons with disabilities with functional limitations (functional limitations are indicated by difficulties performing instrumental activities of daily living, e.g., shopping, cooking, housekeeping, and/or activities of daily living, e.g., eating, bathing, toileting, dressing). Approximately 40 percent of community-dwelling, older Medicare beneficiaries report limitations performing IADLs or ADLs (Federal Interagency Forum on Aging-Related Statistics, 2016). Kaye et al. (2010) estimate that roughly half of all individuals needing some level of LTSS in the U.S. are older adults (Kaye et al., 2010). In 2012, national expenditures for formal LTSS totaled roughly \$220 billion (O'Shaughnessy, 2014). This does not include an additional \$522 billion annually in opportunity costs of informal (unpaid) caregiving. For those turning 65 between 2015 and 2019, Favreault & Dey (2015) project that about half will need at least some level of LTSS, at an average lifetime cost of \$138,100 per



person. Some estimates of LTSS need are as high as 70 percent of all adults that reach 65 years old (U.S. Department of Health and Human Services).

Although older adults are principal consumers of both LTSS and health services, the two systems of care are highly disconnected. Locher & Wellman (2011) aptly describe the hospital-based healthcare system and community-based LTSS system as “parallel but non-intersecting,” and caution against the adverse effects of continued fragmentation on older adult health, functioning, patterns of health services use, and healthcare spending. Thomas & Applebaum (2015) highlight the parallels by citing health and healthcare related outcomes as key drivers of the current LTSS system. Moving forward, they suggest that healthcare utilization, community tenure, and health status may be among the most appropriate and attractive LTSS outcome measures for payers and policymakers.

The Older Americans Act of 1965 (as amended through P.L. 114-144, enacted April 19, 2016) authorizes and partially funds the Aging Services Network (ASN), a system of public and private organizations that administer a range of LTSS to assist adults ages 60 and older to live independently in their homes and communities (Older Americans Act Reauthorization Act of 2016). Most OAA funding is directed to Title III-B home and community-based supportive services (e.g., homemaker, case management, transportation services) and Title III-C nutrition services (e.g., congregate meals, home-delivered meals).

The purpose of this study is to examine health care utilization among a nationally-representative cohort of OAA Title III services participants. Summary statistics from existing studies do not account for complex individual, county, and state level variation associated with utilization behavior in this high need population. Therefore, we construct multivariate models, using a unique nationally representative dataset, to adjust for the influence of these factors.

Given the focus of OAA Title III services to coordinate care and extend community tenure, we hypothesize that OAA Title III services participation is associated with more timely access and use of healthcare services, after adjusting for covariates. We further hypothesize that participation in OAA Title III services is associated with sustained access and use of healthcare services over time. In particular, we expect OAA Title III services participants to maintain or increase their use of home health care, given their complex health needs and shared purpose of OAA Title III services and home health care on maximizing independence and community tenure.

### **New Contribution**

This study builds on previous research examining multilevel predictors of OAA Title III services participation (Gaeta et al., forthcoming). Extending the same unique multilevel dataset, this study examines healthcare utilization among a national cohort of respondents to the “Utilization of Home-and Community-Based Service, and Life Space” experimental module of the 2012 HRS. In particular, multivariate regression models offer new evidence for the independent association between OAA Title III services participation and use of hospital, nursing home, physician, and home health care. Additionally, the study examines changes in healthcare utilization among the cohort over time. This research addresses several recommendations for OAA Title III policy research, including use of individual level data (Buys et al., 2012; Campbell et al., 2015), use of a comparison sample of older adults not receiving OAA Title III services (Buys et al., 2012; Brock et al., 2011), and use of national datasets (Buys et al., 2012; Brock et al., 2011).

## **Background**

### *Long Term Services and Supports*

The LTSS system in the U.S. is largely dependent on informal care. As much as ninety percent of all LTSS are delivered by unpaid friends and family members (Institute of Medicine, 2008). There is also a complex system of formal LTSS to complement and substitute for informal care. Medicaid, the joint federal-state public health insurance program for low-income individuals, pays for the majority of formal LTSS. In 2013, Medicaid expenditures accounted for 51 percent of all \$310 billion in national LTSS spending (Reaves & Musumeci, 2015). However, Medicaid is intended to be the payer of last resort, covering only those who qualify on means tested and functional impairment criteria. But with the lack of LTSS coverage under Medicare, low rates of participation in private insurance plans, and high out-of-pocket costs, consumers of formal LTSS are often faced with depleting their assets to qualify for Medicaid coverage. In a longitudinal study of older adults, Wiener, Anderson, Khatutsky, Kaganova, and O’Keeffe (2013) found that among LTSS users who were not eligible for Medicaid at baseline, 21.2 percent of personal care users, 23.4 percent of nursing home care users, and 31.7 percent of personal care and nursing home care users spent down to Medicaid eligibility levels over the twelve-year study period. Non-means-tested LTSS provided under the Older Americans Act (OAA) are an important safety net for older adults who may lack sufficient informal support, can not afford out-of-pocket costs, or do not qualify for Medicaid (Thomas & Mor, 2013; Thomas, 2014; Kitchener, Ng, Carillo, Miller, & Harrington, 2007; Thomas & Applebaum, 2015). Large majorities of OAA Title III participants report that these services allow them to continue living in their homes, including congregate meal services (59 percent), transportation services (86

percent), case management (87 percent), home-delivered meals (91 percent), and homemaker services (99 percent) (Altshuler & Schimmel, 2010).

### *The Older Americans Act and Aging Services Network*

The Older Americans Act authorizes, in part, state grants to fund the Aging Services Network (ASN) (Older Americans Act Reauthorization Act of 2016). The ASN consists of 56 State and Territorial Units on Aging (SUA), 618 Area Agencies on Aging (AAA), 264 Indian tribal and Native Hawaiian organizations, and roughly 20,000 Local Service Providers (LSP) across the U.S. (U.S. Department of Health and Human Services, 2013). In Fiscal Year (FY) 2013, a total of \$1.81 billion was appropriated for OAA programs and services (U.S. Department of Health and Human Services, 2013). Roughly 62 percent of total OAA funding was directed for OAA Title III-B home and community-based supportive services and OAA Title III-C nutrition services (Napili & Colello, 2015). Although the OAA represents a fraction of national spending on LTSS, it has a broad reach. Approximately 11.5 million individuals participated in OAA programs and services in FY 2013 (U.S. Department of Health and Human Services, 2013). For many older adults and their caregivers, the ASN is the primary access point to formal LTSS (U.S. Government Accountability Office, 2015; U.S. Department of Health and Human Services, 2013; Rabiner, Wiener, Khatutsky, Brown, & Osber, 2007; Zhu & An, 2014; Thomas & Mor, 2013; Lloyd & Wellman, 2015).

### *Health Services Utilization and Self-Reported Health among the OAA Title III Population*

Existing studies have examined patterns of healthcare utilization among OAA Title III services participants compared to the general population of older adults (Altshuler & Schimmel, 2010), and by service group (Ponza et al., 1996; Sattler et al., 2015; Brock et al., 2011; Kleinman

& Foster, 2011), total service use (Brock et al., 2011), and intensity of service use (Brock et al., 2011). Major components of the literature include research briefs from the National Survey of OAA Program Participants (Altshuler & Schimmel, 2010; Kleinman & Foster, 2011), state-level analyses from the Performance Outcome Measurement Project (Brock et al., 2011), program evaluations (Ponza et al., 1996), and policy studies (Thomas & Mor, 2013a; Thomas & Mor, 2013b; Thomas, 2014; Buys et al., 2012). However, there are still important gaps in the literature. Nutrition services have been studied more extensively than other OAA Title III services. Nursing home care has been more extensively studied than other healthcare utilization outcomes. In particular, research on physician and home health care utilization among OAA Title III services participants is very limited. Additionally, many existing studies do not use multivariate methods, national level data, or examine healthcare utilization over time.

An estimated 90 percent of OAA Title III services participants have multiple chronic conditions. Kleinman & Foster (2011) found that the greater the number of chronic conditions among the OAA Title III services population, the greater the likelihood of ADL limitations, overnight hospital and nursing home stays, and poor self-reported health status. Compared to the general population of older adults, OAA Title III services participants are almost two and half times as likely to report an overnight hospital stay in the past year (Altshuler & Schimmel, 2010).

Hospital services utilization patterns also vary across OAA Title III services groups. Ponza et al. (1996) report the proportion of Title III participants experiencing one or more overnight hospital stays during the past year to be 25 percent for congregate meal services, and almost double, roughly 43 percent, for home delivered meal services participants. Sattler et al. (2015) found that Georgia residents requesting home delivered meals were 2.3 times as likely to

experience a higher level of inpatient hospital services use as the congregate meal services group. However, some evidence suggests that receiving home delivered meal services is associated with a reduced risk of hospitalization, after adjusting for group differences. A recent randomized control trial of home delivered meal services found that the effect of daily meals on hospitalization was significant at the 0.10 significance level, with 20 percent of the control group hospitalized compared to 14 percent of the daily meals group hospitalized during the study period.

Across OAA Title III services groups, nursing home stays ranged from a low of 5 percent (congregate meals) to a high of 16 percent (case management) in the past year. There is no comparable statistic for the general population of adults ages 60 and older (Altshuler & Schimmel, 2010). Evidence from state-level analyses suggests that using multiple OAA Title III services may be associated with delayed nursing home entry and increased community tenure. Brock et al. (2011) report that the use of more OAA Title III services was associated with significantly less risk of nursing home placement, after controlling for demographics and functional status, in Rhode Island, Georgia, and North Carolina. Models for individual services were non-significant in all three states. Given the findings, Brock et al. (2011) suggest that total service use, rather than individual services, may be most important in reducing risk of nursing home placement. Intensity of OAA Title III services, such as average number of home delivered meals per month and average hours of homemaker services per month, has shown mixed effects across state studies. These variables were significantly associated with reduction in the likelihood of nursing home placement in Georgia but not North Carolina (Brock et al., 2011).

Policy studies have found evidence of OAA state level factors contributing to favorable nursing home outcomes, including fewer nursing home residents with low-care needs, and thus,

Medicaid savings for nursing home services (Thomas & Mor, 2013a; Thomas & Mor, 2013b; Thomas 2014). For every additional \$25 spent on home delivered meal services, annually, states would experience a roughly 1 percentage point decrease in the prevalence of low-care nursing home population (Thomas & Mor, 2013a). Similarly, Thomas and Mor (2013b) estimate that a 1 percent increase in older adults receiving home delivered meals services would result in Medicaid savings of roughly \$109 million annually. An increase of 1 percent in the older adult population receiving personal care services would reduce the low-care nursing home population by an average of 177 individuals per state.

### **Conceptual Framework**

This study uses the Andersen Behavioral Model of Health Services Use (Andersen Model), which posits that health services utilization behavior follows from predisposing, enabling, and need factors (Andersen, 1995). Predisposing factors include biological imperatives and other demographic correlates of health service use. Enabling factors include resources and contextual conditions that facilitate or impede health services use. Need factors consist of both self-reported and evaluated need for health services. The Andersen Model has been widely used in studies of OAA participants, services, and policy (Weddle, Wilson, Berkshire, & Heuberger, 2012; Sharkey, Ory, & Browne, 2005; Sattler, Lee, & Young, 2015; Choi, 2008; Kitchener et al. 2007). Furthermore, the Andersen Model has been proposed as the most suitable theoretical framework for nationally evaluating OAA programs and services (The Lewin Group, 2013).

In addition to individual level factors, this study uses several county and state level factors. County level factors are used to account for the supply of health services relative to the size of the older adult population. These include the supply of physicians, hospital beds, and nursing home beds. State level factors are used in analyses of nursing home services to account

for the state orientation to HCBS, as alternatives to institutional care. Figure 4.1 provides an illustration of the Andersen Model, as used in this study.

## **Data**

The HRS is a longitudinal panel study and principal source of information about the economics, family characteristics, and health of older Americans. Every two years a core questionnaire is administered to a representative sample of approximately 20,000 adults ages 50 and older. The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan.

Each wave of the HRS includes a series of experimental modules, administered to random sub-samples of respondents and designed to explore new topics and test new survey ideas (Hodes & Suzman, 2007). The HRS 2012 includes the “Utilization of Home-and Community-Based Service, and Life Space” experimental module, which measures self-reported use of various LTSS since the previous wave of the HRS. LTSS are defined as being arranged or provided by a senior center or other community organization.

The 2,097 HRS respondents randomly selected to complete the module serve as the sample for this research. A total of 1,782 respondents completed the module, representing an 85 percent response rate. Only respondents ages 60 and older were included in the study, to capture the eligible OAA Title III services population. A total of 930 respondents, ages 60 and older with complete information on all study variables, were included in the final analytic sample for the analysis of health services utilization (HRS 2012 only). A total 854 respondents were included in the final analytic sample for the analysis of change in health services utilization (HRS 2012-HRS 2014). Figure 4.2 provides a data inclusion flowchart.



### *Outcome Variables*

The study uses several outcome variables from the 2012 HRS and 2014 HRS. These data are available from the RAND HRS Data File (v.P). Indicator variables are used for any hospital, nursing home, physician, and home health services use during the two-year reference period. Continuous outcome variables are used for the number of physician visits, number of hospital stays, number of hospital nights, number of nursing home stays, and number of nursing home nights. Data on the amount of home health care use during the two-year reference period is not available in the HRS. Additionally, a set of variables were constructed for the change in health services utilization from the 2012 HRS to the 2014 HRS. Ordinal variables were generated to indicate decrease, no change, or increase in any use of hospital, nursing home, physician, and home health services across the two waves. Continuous outcome variables were generated by taking the difference in the number of physician visits, number of hospital stays, number of hospital nights, number of nursing home stays, and number of nursing home nights across the two waves.

### *Key Independent Variable*

The key independent variable is a dichotomous indicator of any OAA Title III services use. The variable was constructed according to self-reported use of five OAA Title III services over the past two years: (1) home-delivered meals services, (2) homemaker services, (3) case management services, (4) transportation services, and (5) congregate meals services. These data are only available from the 2012 HRS Core Fat Files (Final) RAND (v.A).

### *Individual-Level Covariates*

Individual level predisposing variables include age, gender, race/ethnicity, education level, marital status, and living alone. Individual level enabling variables include total household income as a percentage of the federal poverty level as well as public and private health insurance coverage. Need variables include number of chronic medical conditions, cognitive disability indicted by a diagnosis of Alzheimer's disease, number of IADLs, and number of ADLs, self-reported general health status, and health shock which was defined as spending greater than seven nights in the hospital during the reference period. These data were available from the RAND HRS Data File (v.P).

### *County-Level Covariates*

Four county-level variables were included in the study. Variables for the two-year number of hospital beds per 1,000 adults ages 60 and older, nursing home beds per 1,000 adults ages 60 and older, physicians per 1,000 adults ages 60 and older, and home health agencies per 1,000 adults ages 60 and older were constructed using the Area Health Resource Files and County Intercensal Population Estimates.

### *State-Level Covariates*

Two state level variables were also included in the study. Variables were constructed for the two-year percentage of Medicaid LTSS spending on HCBS, and any expenditures on Medicaid state plan options for HCBS, using data from Eiken et al. (2016).

## **Methods**

Respondent and household level HRS data were merged across files using a unique identifier, combining household identification and person number. State and county level variables were merged with respondent-level data using Federal Information Processing Standard

codes provided in the HRS Cross-Wave Geographic Information (Detail) [1992-2012] restricted file. The use of restricted HRS data for the purposes of this study was approved by the University of Michigan Institute for Social Research (HRS Restricted Data Access Number 2015-047) and by the University of Maryland College Park, Institutional Review Board (Approval Number 839862-1). All analyses were performed using Stata 14 (StataCorp., 2015) in the Michigan Center on the Demography of Aging (MiCDA), Enclave Virtual Data Infrastructure (VDI), a secure remote computing environment.

Predisposing, enabling, and need characteristics of the study sample are provided in Table 4.5, but discussed elsewhere (Gaeta et al., forthcoming). We first present results of the bivariate analyses of OAA Title III services participation and health services utilization as well as change in health services utilization. Weighted tests were conducted to compare characteristics of respondents indicating use of any OAA Title III services with respondents indicating no use. For continuous outcomes, lincom post-estimation tests for equality of means were performed. Chi-squared tests of independence were used for categorical outcomes. All tests used respondent-level weights from the base-year, 2012 HRS.

Multivariate regression analyses were performed to estimate the association between any OAA Title III services participation and health services utilization, adjusting for covariates at multiple levels of influence. Cross-sectional models were fit for hospital, nursing home, physician, and home health care utilization (HRS 2012). Additional cross-sectional models were fit for change in health services utilization (HRS 2012-HRS 2014), in order to address some of the simultaneity between OAA Title III services participation and healthcare utilization. This is of particular concern given that changes in use of LTSS can affect use of health care services, and changes in use of health care services can affect use of LTSS.

Logistic regression was used for analyses of any hospital, nursing home, physician, and home health care services. Linear regression was used for analyses of the amount of health care services use, and changes in the amount of health care services use over time. Ordered probit regression was used for analyses of change in the use of any health services over time. All regression analyses used respondent-level weights from the base-year, 2012 HRS.

All regression analyses controlled for state fixed effects, however, state level Medicaid variables were only included in models for nursing home care. The proportion of total Medicaid LTSS spending on HCBS and HCBS state plan options are indicators of access to alternatives to nursing home care. State orientation to HCBS is not expected to influence utilization of hospital, physician, and home health care services in the same way.

## **Results**

Participation in OAA Title III services is associated with a significantly greater likelihood of using certain health services. Sample comparisons show that OAA Title III services participants were almost twice as likely to report any overnight hospital stays compared to non-users. They also experienced significantly more overnight hospital stays during the reference period, an average of 0.75 compared to 0.40. Few respondents in the sample reported use of any nursing home services and almost none reported more than one nursing home stay. Only about 1 percent of non-users indicated any overnight nursing home stays during the reference period. OAA Title III services participants reported significantly greater likelihood of using nursing home services, with 6 percent having any overnight nursing home stays. Use of any physician services was above 90 percent for both groups, with non-significant differences in the number of physician visits during the reference period. OAA Title III services participants had more than

three times the odds of comparisons to report any home health care during the reference period. Table 4.1 provides detailed results.

The bivariate analysis also illustrates non-significant differences in the change in the amount of health services use, but some marginally significant differences in the change of any health services use. The proportion of respondents that reported any hospital stays in the 2012 HRS but not the 2014 HRS was higher for OAA Title III services participants (22 percent) than comparisons (13 percent). Even greater differences were observed for home health care, where the proportion for OAA Title III services participants (11 percent) was 2.75 times the proportion for comparisons (4 percent). Results for nursing home services show group differences in the proportions that decreased and increased services use. About 4 percent of OAA Title III services participants reported any nursing home stays in the 2012 HRS but not the 2014 HRS, and about 6 percent reported accessing nursing home services that did not previously. Although these proportions are quite small, they are notably larger relative to non-user comparisons. Table 4.1 provides detailed results.

Most of the associations in the group comparisons did not persist in the multivariate regression models (Table 4.2 and Table 4.3). However, adjusted estimates indicate that OAA Title III services participation is significantly associated with a greater likelihood of having any overnight hospital stays and using any home health care. OAA Title III services participants had 1.90 times the odds of non-users to report any overnight hospital stays (AOR=1.90, p=0.034) and 5.14 times the odds of reporting any home health care (AOR=5.14, p=0.001). Table 4.4 provides detailed results, including covariate information for the final multivariate logistic regression models. Additionally, adjusted estimates indicate a marginally significant association between

OAA Title III services participation and a lower likelihood of using any home health care over time ( $\beta=-0.422$ ,  $p=0.057$ ).

### **Sensitivity Analysis**

We fit several alternative models to test the robustness of the results that OAA Title III services participation is associated with a significantly greater likelihood of any hospital and home healthcare utilization. The association between OAA Title III services participation and any home healthcare utilization persisted across these variations, including models with the full study sample unrestricted by age ( $\beta=1.293$ ,  $p=0.001$ ), without survey weights ( $\beta=1.083$ ,  $p=0.005$ ), without adjusting for state fixed effects ( $\beta=1.246$ ,  $p=0.006$ ), and without adjusting for state fixed effects and county supply of home health services ( $\beta=1.248$ ,  $p=0.006$ ). The results were slightly less robust for hospital services. The association did not persist in the unweighted model ( $\beta=0.121$ ,  $p=0.660$ ), but remained significant in the full study sample unrestricted by age ( $\beta=0.767$ ,  $p=0.002$ ), without adjusting for state fixed effects ( $\beta=0.538$ ,  $p=0.045$ ), and without adjusting for state fixed effects and county supply of hospital services ( $\beta=0.533$ ,  $p=0.046$ ). The association of OAA Title III services participation and change in home health care utilization maintained marginal significance only in the models without terms for state fixed effects and without terms for state fixed effects and county supply of home health services.

### **Discussion**

This study provides evidence of a significant relationship between OAA Title III services participation and utilization of hospital services, as well as home health care, in a national sample of older adults. The findings suggest timely access to care across these components of the LTSS and health care system. However, the cross-sectional nature of the data does not allow for inference about the direction of this relationship.

Results from the bivariate analysis show that OAA Title III services participants are more likely to access health care services, and use a greater amount of healthcare services, than comparisons. This was expected given the high health needs of the population. The results also showed that comparisons are more stable than OAA Title III services participants in terms of their health care services use over time. Despite their complex health needs, OAA Title III services participants tended to decrease their use of hospital and home health care services in greater proportions than comparisons. This association remained marginally significant after adjusting for covariates in the home health model. The finding was unexpected and counter to the initial hypothesis that OAA Title III services participants would experience greater health and functional decline than comparisons over time, therefore leading to greater use of health care in home and community settings. Given the unexpected finding, post hoc analyses were conducted to explore this finding further.

Notably, health shock was significantly associated with home health care utilization in the primary analysis. Post hoc tests (not shown) indicate that the interaction of OAA Title III services participation and health shock is significantly associated with a greater likelihood of any home health care in the 2012 HRS ( $\beta=4.968$ ,  $p<0.001$ ) and significantly associated with a decrease in home health care utilization from the 2012 HRS to the 2014 HRS ( $\beta=-1.130$ ,  $p=0.010$ ). This seems to suggest that OAA Title III services participation and home health care utilization may occur around major health events. Home health care services may decrease over time as individuals require different health services mix. For example, health improvement may result in less use of all health care services, while health decline may result in greater nursing home services in place of home health care. Among the subgroup of respondents ages 60 and older that used any home health care in HRS 2012, OAA Title III services participants that

reported health shock and comparisons did not significantly differ in likelihood of mortality or change in health status from HRS 2012 to HRS 2014.

The effect of other covariates was consistent with accepted predictors of health services utilization. Female respondents were more likely than males to use nursing home services, typically due to greater life expectancy and the need for high levels of care late in life. More highly educated respondents, suggesting greater personal health awareness and health literacy, were more likely to use physician services. Medicare coverage and dual enrollment were the only significant enabling covariates. Respondents that reported coverage were more likely to use hospital and home health care services, standard benefits under both programs with additional cost-sharing assistance for dually enrolled. The likelihood of using hospital and physician services increased with each additional chronic disease reported by respondents, a common indicator for greater evaluated need and complex health conditions. Notably, those with poorer self-reported general health status were less likely to use physician services and more likely to use home health care, indicating how the arrangements for delivering care tend to vary by level of need. The non-significant effect of variables for county-level supply of health services and state orientation to HCBS reinforce that health services utilization is largely driven by individual level constructs.

The significant association between OAA Title III services participation and utilization of hospital services and home health care offers some important organizational and policy considerations for coordinated approaches to LTSS and health care. Although Area Agencies on Aging (AAAs) often report healthcare providers as a major referral source, studies have found referrals to be a leading challenge for engaging hospital-discharged older adults in transition care programs (Sahyoun et al., 2009; Locher & Wellman, 2011). Barriers to referral and linkage to



OAA Title III services include limited hospital cooperation, lack of hospital champions, existing demands of hospital case managers and social workers, lack of clarity among hospital workers about referral responsibilities, and lack of community-based organization (CBO) access to hospital patients. Improving on referral processes could include routinized patient education and referral to OAA Title III services as a quality measure linked to hospital financial incentives (Sahyoun et al., 2009; Locher & Wellman, 2011), embedded CBO workers, and improved technology for patient information exchange between hospital and CBO. Furthermore, quality measures for LTSS, especially those demonstrating value to health services providers and payers, would further promote investment in integrated approaches (Lloyd & Wellman, 2015).

The study findings are also relevant in light of demonstrations to test integrated models that blend the organization, delivery, and financing of healthcare and LTSS to more comprehensively address the mix of care needs among older adults. Perhaps most relevant to the ASN, is the Community-Based Care Transition Program (CCTP), which tests financing and delivery arrangements between CBOs and acute care hospitals designed to improve care transitions and reduce readmissions among high-risk Medicare beneficiaries following hospital discharge (CMS, 2012). Roughly 77 percent of the 47 initial CCTP CBOs were AAAs, or AAAs and ADRCs, providing care coordination and/or direct services. Only 19 percent of all sites included partnership arrangements with a home health agency (Econometrica, 2014). Given the association between OAA Title III services participation and home health care utilization, further attention is warranted for the assessment of arrangements that include home health agencies, relative to other CCTP models of care.

## **Limitations**

The major limitation of this study is the cross-sectional design. Although we included analyses of change in health services utilization over time, the dataset did not provide longitudinal information on OAA Title III services use. Given the reciprocal nature of healthcare and LTSS utilization, further research should be designed to determine causal effects of OAA Title III services participation on healthcare utilization. Such studies would support the body of policy research for OAA Title III services which is particularly lacking. Wellman (2010) suggests that this lack of research has contributed to decades of stagnant federal funding, citing that the extensive literature on the Supplemental Food Program for Women, Infants, and Children (WIC) has facilitated a 332-fold increase in federal funding from 1990-2010, whereas minimal outcomes research on OAA Title III nutrition programs led to only a 6-fold increase in federal funding over the same period of time.

Another limitation of this research is loss to follow-up for participants from the 2012 HRS to 2014 HRS. There were a total of 1,024 “Utilization of Home-and Community-Based Service, and Life Space” experimental module respondents, ages 60 and older, with 2014 HRS status information and information on use of OAA Title III services from the 2012 HRS. Roughly 5 percent of the sample were alive but did not respond to the HRS in 2014 and an additional 6 percent died. Although respondents that reported using any OAA Title III services were more likely to die, this difference was not significant ( $\chi^2=3.17$ ,  $p=0.21$ ).

Additionally, the small sample size limited more specific analyses of OAA Title III services as well as participant sub-groups, such as those 85 and older and those living alone. Other limitations of this dataset are described elsewhere (Gaeta et al., forthcoming) including

self-reported measure of OAA Title III services use, significant differences between the final sample and excluded cases, as well as the lack of information on informal care.

### **Conclusion**

The Older Americans Act (OAA) provides an important LTSS safety net for older adults. The findings from this study demonstrate a significant association between OAA Title III services participation and utilization of hospital and home health care. Unexpectedly, OAA Title III services participants tended to decrease their use of home health care over time. Further research is needed to determine causal effects of OAA Title III services participation on healthcare utilization.

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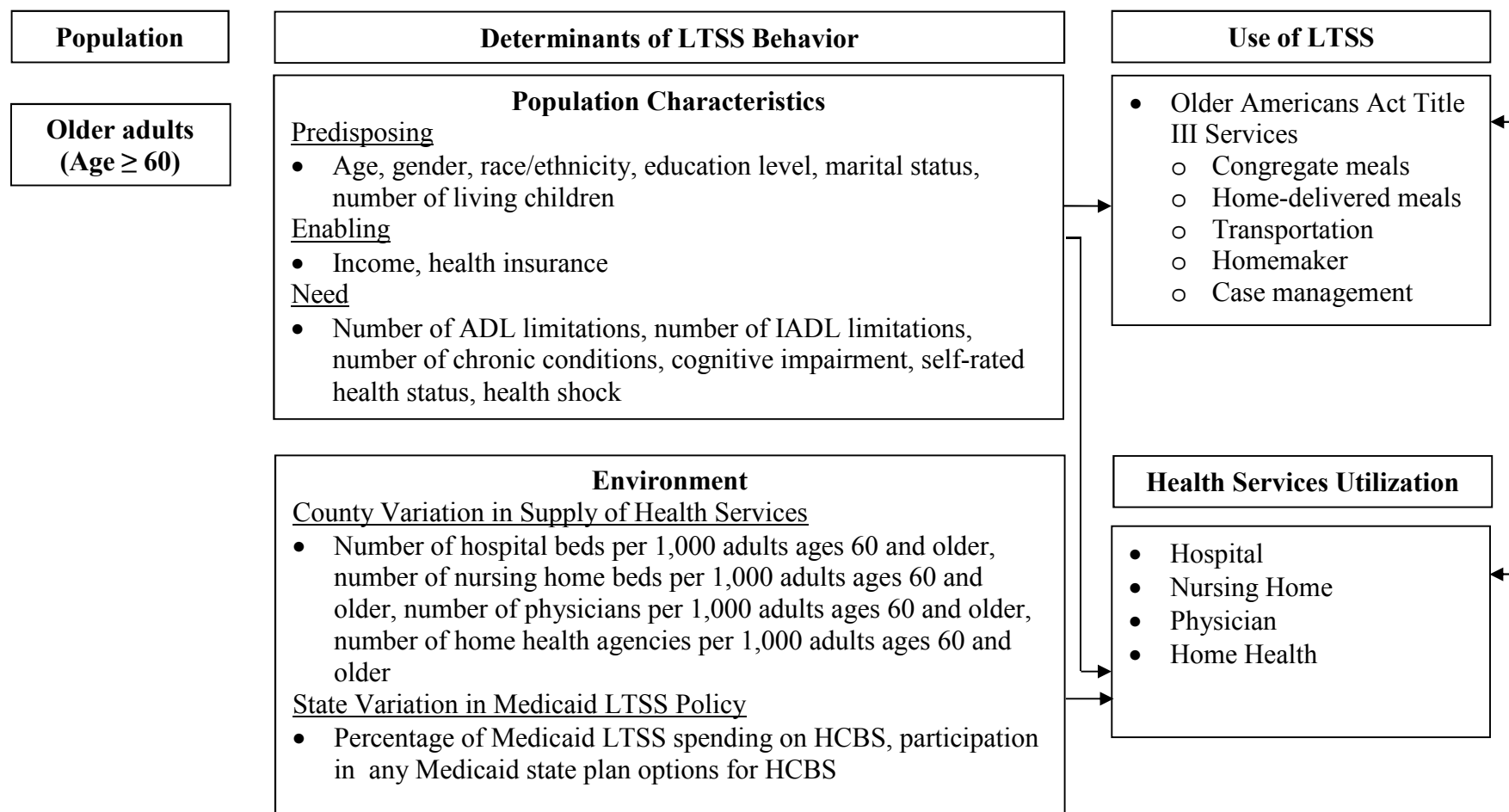
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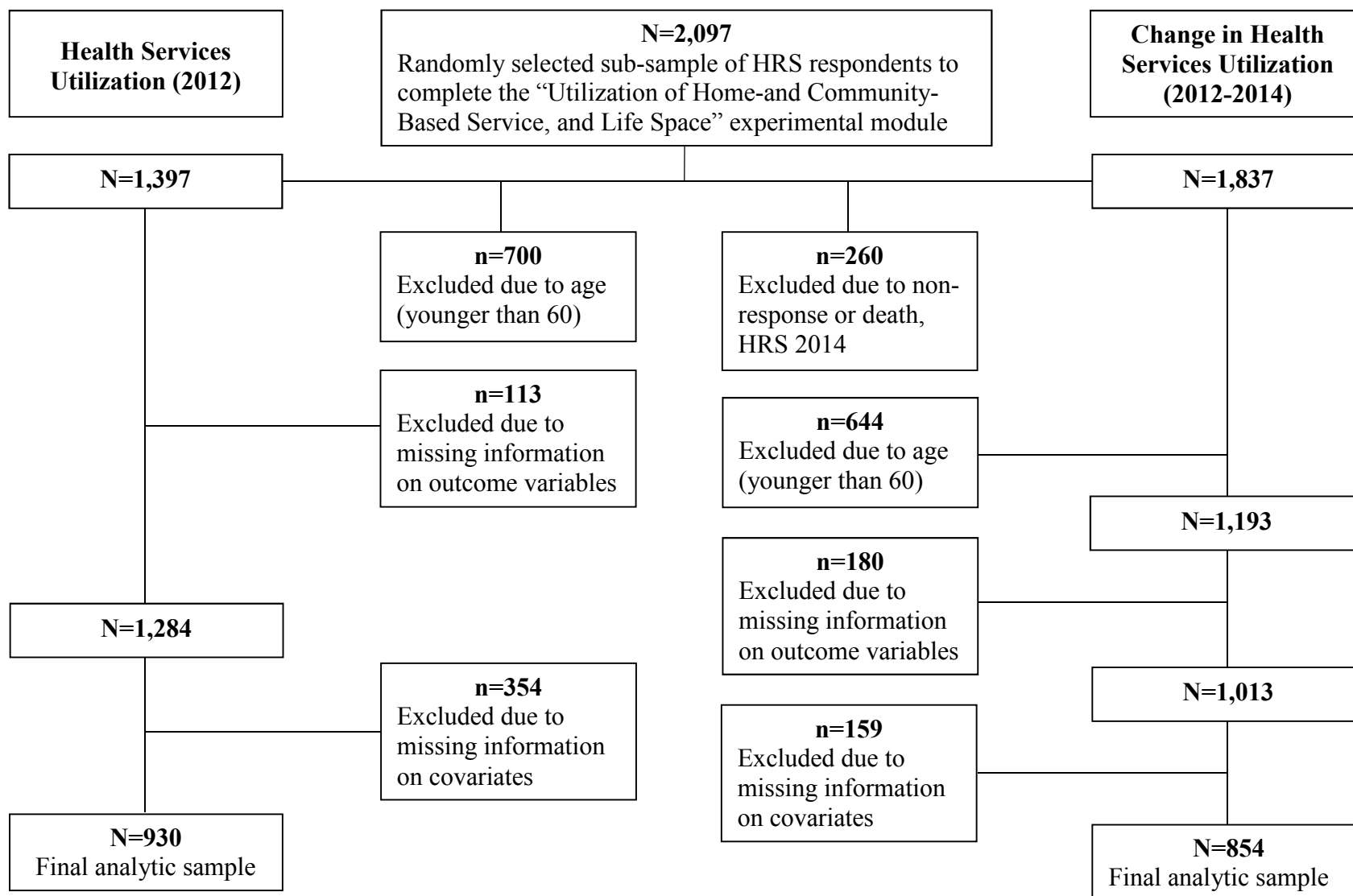
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**Figure 4.1: Conceptual Framework: Modified Andersen Behavioral Model of Health Services Use**



**Figure 4.2: HRS Respondent Inclusion Flowchart**



**Table 4.1: Sample Comparisons between OAA Title III Services Users and Non-Users**

	No OAA Title III Service Use (n=800)	Any OAA Title III Service Use (n=130)	Test Statistic	p-value
<b>Sample Comparisons of Health Services Utilization (2012)</b>				
<b>Hospital</b>				
Any overnight hospital stays	0.25	0.46	$\chi^2=21.16$	<0.0001***
Number of overnight hospital stays	0.40	0.75	$t=3.48$	0.001**
Number of hospital nights	1.32	3.26	$t=1.86$	0.069
<b>Nursing Home</b>				
Any overnight nursing home stays	0.01	0.06	$\chi^2=10.74$	0.001**
Number of overnight nursing home stays	0.02	0.06	$t=2.22$	0.031*
Number of nursing home nights	0.29	2.08	$t=1.62$	0.111
<b>Physician Services</b>				
Any doctor visit	0.92	0.94	$\chi^2=0.77$	0.400
Number of doctor visits	8.59	11.38	$t=1.79$	0.079
<b>Home Health</b>				
Any home health care	0.06	0.19	$\chi^2=26.77$	<0.0001***
<b>Sample Comparisons of Change in Any Health Services Utilization (2012-2014)</b>				
<b>Any overnight hospital stays</b>				
Decrease	0.13	0.22	$\chi^2=7.22$	0.053
No change	0.75	0.66		
Increase	0.13	0.12		
<b>Any overnight nursing home stays</b>				
Decrease	0.01	0.04	$\chi^2=6.57$	0.051
No change	0.96	0.90		
Increase	0.03	0.06		
<b>Any doctor visit</b>				
Decrease	0.04	0.07	$\chi^2=1.96$	0.512
No change	0.92	0.90		
Increase	0.04	0.03		
<b>Any home health care</b>				
Decrease	0.04	0.11	$\chi^2=12.75$	0.052
No change	0.91	0.83		
Increase	0.06	0.06		
<b>Sample Comparisons of Change in Amount of Health Services Utilization (2012-2014)</b>				
<b>Hospital</b>				
Number of overnight hospital stays	0.02	0.42	$t= 0.69$	0.493
Number of hospital nights	0.30	0.66	$t= 0.21$	0.835
<b>Nursing Home</b>				
Number of overnight nursing home stays	0.03	0.04	$t= 0.33$	0.746
Number of nursing home nights	2.88	3.79	$t= -0.23$	0.822
<b>Physician Services</b>				
Number of doctor visits	0.86	-1.36	$t= -1.24$	0.220
* Indicates significance at the p<0.05 level				
** Indicates significance at the p<0.01 level				

\*\*\* Indicates significance at the  $p < 0.001$  level  
Weighted tests using respondent-level weights from the base-year, 2012 HRS.

**Table 4.2: Multivariate Regression Analysis of Access to Health Services and Change in Access to Health Services**

	Logistic Models: Health Services Utilization (2012)			Ordered Probit Models: Change in Health Services Utilization (2012- 2014)		
	$\beta$	SE	95% CI	$\beta$	SE	95% CI
Any overnight hospital stays	<b>0.642*</b>	0.295	(0.050, 1.234)	-0.194	0.141	(-0.477, 0.089)
Any overnight nursing home stays	0.540	0.766	(-1.032, 2.113)	-0.237	0.338	(-0.915, 0.441)
Any doctor visit	0.715	0.686	(-0.663, 20.92)	-0.247	0.188	(-0.623, 0.130)
Any home health care	<b>1.638**</b>	0.457	(0.720, 2.556)	-0.422	0.217	(-0.857, 0.012)
<p>* Indicates significance at the <math>p &lt; 0.05</math> level  ** Indicates significance at the <math>p &lt; 0.01</math> level  *** Indicates significance at the <math>p &lt; 0.001</math> level  -Coefficients and standard errors for “any OAA Title III services use” variable  -Coefficients presented as log odds  -Weighted logistic and ordered probit regression models using respondent-level weights from the base-year, 2012 HRS.</p>						

**Table 4.3: Multivariate Linear Regression Analysis of Health Services Utilization and Change in Health Services Utilization**

	Health Services Utilization (2012)			Change in Health Services Utilization (2012-2014)		
	$\beta$	SE	95% CI	$\beta$	SE	95% CI
Number of overnight hospital stays	0.088	0.077	(-0.661, 0.242)	0.360	0.392	(-0.425, 1.146)
Number of hospital nights	0.212	0.512	(-0.814, 1.238)	1.122	1.434	(-1.754, 3.998)
Number of overnight nursing home stays	0.014	0.021	(-0.028, 0.057)	-0.014	0.047	(-0.109, 0.081)
Number of nursing home nights	1.033	0.596	(-0.162, 2.230)	-4.094	5.038	(-14.199, 6.011)
Number of doctor visits	2.018	1.664	(-1.319, 5.355)	-2.652	2.119	(-6.901, 1.598)
<p>* Indicates significance at the <math>p &lt; 0.05</math> level  ** Indicates significance at the <math>p &lt; 0.01</math> level  *** Indicates significance at the <math>p &lt; 0.001</math> level  -Coefficients and standard errors for “any OAA Title III services use” variable  -Coefficients presented as log odds  -Weighted linear regression models using respondent-level weights from the base-year, 2012 HRS.</p>						

**Table 4.4: Multivariate Logistic Regression Analysis of Health Services Utilization**

	Any Overnight Hospital Stays		Any Overnight Nursing Home Stays		Any Physician Services		Any Home Health Care	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
<b>Individual-Level Covariates</b>								
Any OAA Title III services use	<b>0.642*</b>	0.295	0.540	0.766	0.715	0.686	<b>1.638**</b>	0.457
Age	-0.011	0.016	0.090	0.090	-0.005	0.033	0.022	0.029
Gender								
Male (ref)	-----	-----	-----	-----	-----	-----	-----	-----
Female	0.076	0.231	<b>0.231**</b>	0.504	-0.035	0.403	0.211	0.317
Race/Ethnicity								
NH White (ref)	-----	-----	-----	-----	-----	-----	-----	-----
NH Black	0.060	0.433	2.122	1.333	-0.359	0.528	-1.040	0.927
NH Other	0.288	0.507	-----	-----	-0.234	1.107	1.440	0.884
Hispanic	-0.291	0.493	0.069	0.948	-0.257	0.679	-1.397	0.950
Education								
< HS/GED (ref)	-----	-----	-----	-----	-----	-----	-----	-----
HS graduate	0.390	0.421	1.691	1.141	<b>1.307**</b>	0.431	0.700	0.647
$\geq$ college or above	0.098	0.369	2.186	1.480	<b>1.356**</b>	0.473	-0.199	0.735
Married	-0.165	0.351	1.091	1.080	-0.023	0.592	0.334	0.676
Live Alone	-0.547	0.309	0.355	0.966	-0.735	0.405	0.495	0.593
Percent of Federal Poverty Level								
> 400% (ref)	-----	-----	-----	-----	-----	-----	-----	-----
200%-400%	-0.535	0.301	-1.210	1.358	0.353	0.685	-0.935	0.515
138%-199%	-0.761	0.416	-----	-----	-0.257	0.735	-0.898	0.594
< 138%	-0.490	0.465	0.215	1.342	-0.833	0.564	-0.602	0.728
Employer Health Insurance Coverage	0.241	0.321	-0.458	0.840	0.862	0.538	0.194	0.406
Public Health Insurance Coverage								
None (ref)	-----	-----	-----	-----	-----	-----	-----	-----
Medicare only	<b>0.891*</b>	0.372	0.416	0.916	0.241	0.699	<b>1.397*</b>	0.568
Medicaid only	0.021	1.075	-----	-----	1.428	1.462	-----	-----
Dually enrolled	1.068	0.582	-----	-----	0.387	0.875	<b>1.726*</b>	0.747
Activities of Daily Living	0.117	0.163	-0.530	0.525	0.321	0.331	0.231	0.191
Instrumental Activities of Daily Living	0.145	0.167	0.518	0.416	-0.371	0.313	-0.060	0.304
Comorbidities	<b>0.258*</b>	0.080	-0.071	0.250	<b>1.115***</b>	0.194	0.251	0.144
Alzheimer's Disease	-0.519	0.288	-----	-----	-----	-----	0.057	0.342
Self-Reported Health								
Poor (ref)	-----	-----	-----	-----	-----	-----	-----	-----

Fair	-0.075	0.547	-2.618	1.726	<b>2.076*</b>	0.783	-0.641	0.587
Good	-0.763	0.575	-2.130	1.262	1.192	0.772	<b>-1.928*</b>	0.779
Very good/excellent	-0.937	0.615	-2.652	1.619	<b>2.450**</b>	0.781	<b>-1.691*</b>	0.793
Health shock	-----		<b>2.870**</b>	0.900	0.088	0.673	<b>3.130***</b>	0.554
<b>County-Level Covariates</b>								
Number of hospital beds per 1,000 adults ages 60 and older (2011-2012)	0.089	0.054	-----		-----		-----	
Number of nursing home beds per 1,000 adults ages 60 and older (2011-2012)	-----		-0.341	0.281	-----		-----	
Number of physicians per 1,000 adults ages 60 and older (2011-2012)	-----		-----		0.135	0.144	-----	
Number of home health agencies per 1,000 adults ages 60 and older (2011-2012)	-----		-----		-----		-4.486	5.416
<b>State-Level Covariates</b>								
Percentage of total Medicaid LTSS spending on HCBS (2011-2012)	-----		-21.930	14.179	-----		-----	
Any Medicaid state plan options for HCBS (2011-2012)	-----		-2.835	1.959	-----		-----	
<p>* Indicates significance at the p&lt;0.05 level  ** Indicates significance at the p&lt;0.01 level  -Coefficients presented as log-odds  -All models adjusted for state fixed effects (coefficients not shown)  -Weighted logistic regression models using respondent-level weights from the base-year, 2012 HRS.  -State orientation to HCBS variables are only controlled for in the nursing home model.  -Each county-level supply of health services variable is controlled for only in the model with corresponding health utilization outcome (e.g., supply of hospital beds is only controlled for in the model for overnight hospital stays).  -Missing coefficients are due to empty observations or omitted variables that predict success or failure perfectly in the model.</p>								



**Table 4.5: Group Differences among OAA Title III Service Users and Non-Users Ages 60 and Older**

	No OAA Title III Service Use (n=835)	Any OAA Title III Service Use (n=146)	Test Statistic	p-value
<b>Individual and Family Characteristics</b>				
Age [mean]	69.91	73.10	$t=3.28$	<0.002**
Gender (%)				
Male	0.47	0.38	$\chi^2=3.74$	0.096
Female	0.53	0.62		
Race/Ethnicity (%)				
Non-Hispanic White	0.83	0.64	$\chi^2=31.42$	<0.0001***
Non-Hispanic Black	0.08	0.22		
Non-Hispanic Other	0.03	0.04		
Hispanic	0.07	0.10		
Education (%)				
Less than HS or GED	0.17	0.25	$\chi^2=4.29$	0.259
HS graduate	0.32	0.28		
Some college or above	0.51	0.47		
Married (%)	0.63	0.38	$\chi^2=29.40$	<0.0001***
Live Alone (%)	0.24	0.47	$\chi^2=30.07$	<0.0001***
Number of Children [mean]	3.19	3.51	$t=1.42$	0.160
Informal Care from Children (2010) [mean]	1.44	4.12	$t=1.63$	0.110
Percent of Federal Poverty Level				
Above 400%	0.37	0.13	$\chi^2=41.66$	<0.0001***
200%-400%	0.29	0.27		
138%-199%	0.14	0.22		
Below 138%	0.21	0.39		
Employer Health Insurance Coverage (%)	0.45	0.23	$\chi^2=24.57$	<0.0001***
Public Health Insurance Coverage (%)				
None	0.32	0.13	$\chi^2=43.55$	<0.0001***
Medicare only	0.63	0.71		
Medicaid only	0.01	0.01		
Dually enrolled	0.04	0.15		
Activities of Daily Living (0-5) [mean]	0.20	0.72	$t=4.09$	<0.0001***
Instrumental Activities of Daily Living (0-5) [mean]	0.15	0.59	$t=4.69$	<0.0001***
Comorbidities (0-8) [mean]	2.31	3.20	$t=5.02$	<0.0001***
Alzheimer's Disease (%)	0.003	0.008	$\chi^2=0.65$	0.431
Self-Reported Health (%)				
Poor	0.05	0.13	$\chi^2=29.53$	0.001**
Fair	0.16	0.27		
Good	0.35	0.36		
Very good or excellent	0.44	0.24		
<b>County Characteristics</b>				
Number of adults ages 60 and older per 1,000 (2011-2012) [mean]	204.35	194.42	$t=-2.35$	0.023*
Number of racial/ethnic minority adults ages 60 and older per 1,000 (2011-	38.40	46.27	$t=1.94$	0.057

2012) [mean]				
Number of adults ages 60 and older in poverty per 1,000 (2011-2012) [mean]	19.00	20.15	$t=1.42$	0.162
Number of home health agencies per 1,000 adults ages 60 and older (2011-2012) [mean]	0.04	0.04	$t=-0.37$	0.712
Number of nursing home beds per 1,000 adults ages 60 and older (2011-2012) [mean]	5.87	5.44	$t=-1.59$	0.119
<b>State Characteristics</b>				
Expenditures on OAA Title III services (2011-2012) [mean]	\$24,545,818	\$25,274,145	$t=0.58$	0.562
Percentage of total Medicaid LTSS spending on HCBS (2011-2012) [mean]	0.47	0.49	$t=1.29$	0.201
Any spending on Medicaid state plan options for HCBS (2011-2012) (%)	0.38	0.40	$\chi^2=0.06$	0.815
* Indicates significance at the $p<0.05$ level ** Indicates significance at the $p<0.01$ level *** Indicates significance at the $p<0.001$ level -Lincom post-estimation tests for equality of means were performed for continuous covariates. -Chi-squared tests of independence were used for categorical covariates.				

## Chapter 5: Conclusion: Closing the Gap between Health Care and Long-Term Services and Supports for Older Adults

### Summary

Over the next 30 years, the number of adults ages 60 and older will increase from 67 million to 111 million. By 2050, older adults will represent roughly 28 percent of the U.S. population. Those ages 85 and older will roughly triple to about 19 million, or 5 percent of the U.S. population (U.S. Census Bureau, 2014). These demographic pressures will mean greater demand for healthcare services as well as long-term services and supports (LTSS). Non-means-tested LTSS provided under the Older Americans Act (OAA) are an important safety net for community-dwelling older adults with the complex health and LTSS needs. However, OAA research is particularly lacking due to difficulties handling program variation, lack of non-user comparison groups, and limited utility of national datasets. Existing studies have relied on simple descriptive methods, indirect comparisons to the general population of older adults, and analysis restricted by state or OAA Title III services.

This dissertation addresses several gaps in the research. The first study investigates needs and preferences for aging in the community among elderly residents of HUD subsidized housing properties in Prince George's County, Maryland. The results emphasized the role of transportation services in aging and community engagement. Transportation assistance was among the five OAA Title III services addressed in the later studies. Studies two and three used a unique, merged, multilevel dataset constructed from experimental module data only available from the 2012 Health and Retirement Study (HRS). Multivariate regression analyses provided insights beyond summary statistics often used in OAA research, including adjusted associations

of multilevel predictors, including OAA targeting criteria and Medicaid policy factors, with OAA Title III services participation. Further regression analyses provided new evidence of the association between OAA Title III services participation and patterns of health care utilization over time, including for physician and home health care services which have been understudied among the OAA Title III population.

This final dissertation chapter summarizes the main findings from each of the three studies. The strengths and new contributions of the research, as well as and limitations and gaps to be addressed in future studies, are also described. The chapter concludes with a brief discussion of policy implications, including LTSS improvements for elderly HUD beneficiaries, considerations for integrated models of care, and implications of repealing the Patient Protection and Affordable Care Act (PPACA).

## **Findings**

### *Major Findings of Study One*

The purpose of the first study of this dissertation was to understand the needs and preferences for aging in the community among low-income, older adult residents of HUD subsidized housing properties in Prince George's County, Maryland. Summary statistics from the American Community Survey and Picture of Subsidized Households datasets provide important contextual information for this population. The general population of adults ages 65 and older living in Prince George's County is growing dramatically and becoming increasingly racially/ethnically diverse. From 2011 to 2015, the elderly population grew by 25 percent, to 106,677 residents. During the same period of time, the proportion of elderly Whites decreased by 6.3 percentage points, to 25.7 percent of all adults in the county ages 65 and older. Similarly, the proportion of all HUD subsidized households with an elderly head of household or spouse has

grown from 24 percent to 31 percent. The proportion of HUD Black and Non-Hispanic HUD households has remained very high and stable over time, slightly over 90 percent of all HUD housing in the county. Elderly HUD households were particularly at risk for health and long-term services and supports (LTSS) needs, with 31 percent of these households reporting a household head or spouse with a disability, compared to 18 percent of all HUD subsidized residents reporting a disability. The data also showed the communities around elderly HUD subsidized properties to be much wealthier. In 2015, about 83 percent of HUD subsidized households were below 30 percent of the local area median family income, and only 12 percent of the population residing in census tracts where HUD beneficiaries lived was below the poverty level.

Qualitative interviews and focus groups elicited rich information from elderly HUD building residents and key stakeholders about needs and preferences for aging in the community. Overwhelmingly, building residents cited transportation services as a key construct for successful aging in the community. Characteristics of needed transportation services included frequent, reliable, responsive, accommodated, and servicing a wide geographic area. The dialogue reflected a strong motivation among elderly HUD residents to travel in order to shop, access health care, and engage in social opportunities, even though they faced substantial functional and health needs, lacked financial resources, and often lacked informal support. Key stakeholders emphasized access to health and long-term care services as a key construct for elderly HUD building residents to successfully age in the community. As they described, increasing access to health and LTSS services among this population would require additional funding and reduced waiting lists, providing affordable alternatives to restrictive means-tested services, streamlining application processing to reduce enrollment delays, service and care

coordination, more options for community and home-based care delivery, and more geriatric care providers. Other major themes that emerged around successful aging in the community among this population included functional and cognitive limitations, financial needs, informational needs, benefits and services navigation, and informal support.

### *Major Findings of Study Two*

The objective of the second study in this dissertation was to examine multilevel predictors of Older Americans Act (OAA) Title III services participation using a unique, nationally representative dataset merging experimental module data from the 2012 Health and Retirement Study (HRS) with individual level, county level, and state level covariates from the HRS and other datasets. Weighted estimates of the OAA Title III services population indicate that 691,931 adults ages 60 and older participated in at least one of five OAA Title III services over the two-year reference period. Bivariate analyses comparing OAA Title III service users and non-users found significant differences in predisposing, enabling, and need factors as defined by a modified Andersen Behavioral Model of Health Services Use. OAA Title III service participants were older and more likely to be non-Hispanic black, unmarried, live alone, live below 200 percent of the federal poverty level, lack employer-sponsored health coverage, and be enrolled in Medicare only or dually enrolled. They also reported greater functional limitations and poorer health.

Several predictors of OAA Title III services participation emerged from the multivariate regression analyses. Among predisposing factors, race/ethnicity and living alone independently predicted any OAA Title III services use. Non-Hispanic blacks had 2.16 times the odds of non-Hispanic whites to receive any services and respondents that lived alone had 2.08 times the odds of those not living alone to receive any services. Among enabling factors, Medicaid variables

independently predicted OAA Title III services participation at the individual and state level. Dually enrolled had 2.61 times the odds of those without either public health insurance coverage to receive any services. At the state level, for every five percentage point increase in the proportion of total Medicaid LTSS spending on HCBS, the odds of receiving any services increased by 10 percent. Among the need factors, for every one additional reported difficulty performing an IADL, the odds of receiving any services increased by a factor of 1.38. Similarly, for every one additional reported chronic condition, the odds of receiving any OAA Title III services increased by a factor of 1.17.

Under the OAA, targeting criteria are used in place of formal eligibility criteria to direct funds to those with the greatest physical and socioeconomic needs. The lack of a significant association between county level targeting factors and OAA Title III services use may reflect variation in the selection and use of targeting criteria across the Aging Services Network (ASN). The findings may be useful in light of considerations to re-evaluate definitions and measurement procedures for determining need for OAA services across the ASN (U.S. Government Accountability Office, 2011). Also, the association between state Medicaid program orientation to HCBS and use of any OAA Title III services seems to support Medicaid's substantial influence on access to formal LTSS. Further partnership between the Aging Services Network and Medicaid may be vital to fulfilling the OAA in the future.

### *Major Findings of Study Three*

The purpose of the third study in this dissertation was to examine health care utilization among an HRS cohort of OAA Title III services participants, following the Andersen Behavioral Model of Health Services Use. Bivariate analyses found that OAA Title III services participants were significantly more likely than comparisons to report any overnight hospital stays, overnight

nursing home stays, and home health care. Greater than 90 percent of respondents in both groups reported using any physician services. The difference in the amount of physician services use between groups was non-significant. OAA Title III services participants tended to report less hospital and home health care utilization, relative to comparisons, from the 2012 HRS to the 2014 HRS. About 22 percent of OAA Title III participants reported any hospital stays in the 2012 HRS but not the 2014 HRS, which was notably higher than the proportion for comparisons (13 percent). Even greater differences were observed for home health care, where the proportion for OAA Title III services participants was 11 percent, while the proportion for comparisons was 4 percent.

Most of the associations in the group comparisons did not persist in the regression analysis. OAA Title III services participants had 1.90 times the odds of non-users to report any overnight hospital stays (AOR=1.90,  $p=0.034$ ) and 5.14 times the odds of reporting any home health care (AOR=5.14,  $p=0.001$ ). The associations were similar in the sensitivity analysis, which supports the robustness of the finding for timely access across these components of the LTSS and health care system. Additionally, adjusted estimates indicate a marginally significant association between OAA Title III services participation and a lower likelihood of using any home health care over time ( $\beta=-0.422$ ,  $p=0.057$ ). Post hoc regression analyses were conducted to test the interaction of OAA Title III services participation and health shock. Results for the interaction term indicate a significantly greater likelihood of any home health care ( $\beta=4.968$ ,  $p<0.001$ ) and significantly lower likelihood of using any home health care over time ( $\beta=-1.130$ ,  $p=0.010$ ) for OAA Title III services participants that experience health shock. This seems to suggest that OAA Title III services participation and home health care utilization may occur around major health events, but decrease over time as individuals require different health



services mix. The significant association between OAA Title III services participation and utilization of hospital services and home health care offers some important considerations for integrated models that blend the organization, delivery, and financing of healthcare and LTSS.

### **Research Limitations and Strengths**

Strengths and limitations of the first study stem from the qualitative design, recruitment of family members, and available information from the datasets. Given the purposive sampling strategy, opinions of key stakeholders and building residents do not necessarily reflect the views of the broader groups they represent. However, these participants provided highly relevant and rich information to answer the research questions in ways not possible through common quantitative strategies. Unfortunately, the perspectives of family members were not incorporated in the study following several unsuccessful attempts at recruitment. Additionally, the datasets used to describe the study population did not always provide information specific to elderly HUD building residents. Nevertheless, these data do provide important contextual information about trends among the elderly and HUD beneficiary populations in Prince George's County, Maryland.

The second and third studies offer similar strengths, and encountered similar limitations, given the shared topic area, conceptual framework, and dataset. Both studies use a unique multilevel dataset constructed from recent, nationally representative, experimental module data from the 2012 Health and Retirement Study (HRS), merged with county and state level information. Using the new dataset, the studies were able to overcome some common limitations in OAA research, including the use of individual level data, use of a comparison sample of older adults not receiving OAA Title III services, and use of national datasets. Multivariate regression analyses provided insights beyond summary statistics often used in OAA research, including the

association of targeting criteria and Medicaid policy with OAA Title III services participation as well as the association between OAA Title III services participation and patterns of health care utilization.

There are also several important limitations for the second and third studies. Both studies follow a cross-sectional design, which does not allow for making causal inference about the relationships under study. Also, there were important differences across predisposing, enabling, and need factors between the HRS respondents who completed the experimental module and those that did not. They were more likely to be older, minorities, functionally impaired, and less likely to be enrolled in Medicare only. However, there were non-significant differences in mortality between OAA Title III services users and non-users in the cohort from 2012 to 2014. Additional limitations include the potential for errors in recall due to self-report over the two year reference period, uncontrolled covariates such as informal caregiving, and small sample sizes.

### **Policy Implications and Future Research**

#### *Future Research*

Future research on aging in the community among elderly HUD beneficiaries in Prince George's County, Maryland should focus on developing and demonstrating models of care grounded in the Determinants of Active Ageing and Age-Friendly Cities conceptual frameworks. Such models should emphasize assistance with key individual level factors including functional and cognitive limitations, financial needs, informational needs, and informal support. Models should also address key contextual level factors including access to transportation services, health care, and LTSS.

Future OAA Title III services research should fill gaps not addressed in this dissertation research. In particular, studies should follow designs that permit causal inference about predictors of OAA Title III services participation as well as the effects of OAA Title III services participation on healthcare utilization. These studies should comprehensively account for covariates, especially informal caregiving, and use large enough sample sizes for detecting effects within sub-groups and by individual OAA Title III services. Additionally, future studies should identify and evaluate integrated models of care that blend the organization, delivery, and financing of healthcare and OAA Title III services. Such models are likely to demonstrate favorable effects of ASN services on healthcare utilization, community tenure, and health status that are attractive LTSS outcome measures for payers and policymakers.

#### *Improving LTSS for Elderly HUD Beneficiaries*

Although the Older Americans Act of 1965 requires interagency collaboration toward a comprehensive system of HCBS, federally-sponsored HUD, Medicaid, and OAA tend to operate independently (GAO, 2015). Coordinating LTSS at multiple levels of government may more effectively meet the mix of needs and preferences of low-income elderly who age in the community. Such needs and preferences for HUD building residents in Prince Georges County, Maryland are consistent with key constructs of the Determinants of Active Ageing and Age-Friendly Cities conceptual frameworks. In particular, transportation services are a critical means for elderly HUD building residents to access local stores and businesses, health services, and opportunities for social engagement in the community. Given findings from the first study, LTSS improvements for this population should create more opportunities for frequent, reliable, responsive, accommodated, and far reaching transportation services.

There are several mechanisms available to Prince George's County, Maryland for improving age-friendly design of communities for low-income elderly. Funding for the Maryland Communities for a Lifetime Act of 2011 should be appropriated. Development and testing of age-friendly models under this initiative should include low-income elderly living in HUD subsidized properties. Aging in community indicators should be incorporated into the Maryland State Health Improvement Process and Prince George's County Local Health Improvement Coalition. Continuing the state's investment in HCBS, Maryland Medicaid should pursue state plan options that increase access to flexible and consumer-directed HCBS. Service coordination across HCBS programs could include designating HUD elderly properties as focal points for resource information and direct service delivery under OAA.

#### *Integrated Models of LTSS and Healthcare*

Federal funding for OAA programs and services has been stagnant for several decades. Some experts predict the ASN to be unsustainable beyond a decade under the current business model (Montgomery & Blair, 2016). Effectively making the business case for the Aging Services Network to payers and policymakers will involve demonstrating favorable effects on healthcare utilization, community tenure, and health status. Identifying successful and scalable business models for integrated care may be critical for sustaining the ASN.

Integrated models of care blend the organization, delivery, and financing of healthcare and LTSS to more comprehensively address the complex mix of care needs among older adults. Slightly more than half of all Area Agencies on Aging (AAAs) are involved in at least one integrated care initiative (National Association of Area Agencies on Aging, 2014), many of which are authorized under provisions of the Patient Protection and Affordable Care Act (PPACA). These include Accountable Care Organizations, the Financial Alignment Initiative,

Health Homes, the State Innovation Models Initiative, the Community-Based Care Transition Program (CCTP), and Accountable Health Communities Model (AHC). In particular, CCTP provides funding to hospital and community based organizations (CBO) for testing care transition models targeting Medicare patients at high risk of readmission. Preliminary evaluation reports for the demonstration indicate that only 19 percent of all sites have partnership arrangements with a home health agency (Econometrica, 2014). Given findings from the third study, comparisons are warranted to test the effectiveness of arrangements that include home health agencies, relative to other CCTP models of care.

Another important trend is the shift to Medicaid managed LTSS. The Aging Services Network is well positioned to participate in managed care arrangements and Medicaid funding represents an important source of AAA revenue. However, only about half of AAAs in a state with Medicaid managed LTSS are involved in planning and/or implementation (National Association of Area Agencies on Aging, 2014). Given findings from the second paper, further partnership between the Aging Services Network and Medicaid may be vital to fulfilling the OAA in the future.

#### *Key Considerations of PPACA Repeal*

Under the new Congress and administration, health and LTSS policy appears poised for another major shift. Although the specific approach to roll back reforms of the PPACA is not yet clear, proposals in the recent legislative and political agenda would have substantial ramifications for the Aging Services Network (ASN) and Older Americans Act (OAA) Title III services participants. A full discussion of the potential effects of repealing the PPACA on integrated health and LTSS systems is beyond the scope of this dissertation. However, several key considerations are provided in the following sections.

Eliminating Medicaid expansion, marketplace subsidies, and the individual mandate would result in loss of insurance coverage for 4.5 million adults between 55 and 64 years old, more than doubling the uninsurance rate among this population from 8 percent to 19 percent (Blumberg et al., 2016). Lower access to insurance coverage would expose the pre-Medicare population of OAA Title III participants, ages 60 to 64, to greater out-of-pocket healthcare costs that could reduce personal resources for extending community tenure (National Council on Aging, 2016). It could also lead to delays in health services use and greater unmet health needs, accelerating health and functional decline and resulting in need for LTSS or higher levels of LTSS (Blumberg et al., 2016). Growth in the uninsured OAA Title III population, without increased financing for uncompensated care, could deter health systems from pursuing integrated model arrangements that may lead to greater detection and treatment for patients less likely to pay for services (Blumberg et al., 2016). Additionally, a diminished or eliminated Center for Medicaid and Medicare Innovation (CMMI) could stifle development of integrated models that link the ASN and health systems, including those being demonstrated under the Community-Based Care Transitions Program (CCTP) (National Association for Area Agencies on Aging, 2017).

Structural Medicaid reforms, namely block grant and per capita cap approaches, are projected to reduce the federal contribution to Medicaid by roughly \$1 trillion over ten years (Solomon, 2017a; Solomon, 2017b). Funding losses would force state Medicaid programs to compensate through strategies such as restrictions on enrollment and cuts to benefits, eligibility, and provider payments (Solomon, 2017a; Solomon, 2017b). It would also deter state investment in rebalancing Medicaid LTSS programs and could stall rebalancing efforts under temporary PPACA funding, including the Balancing Incentive Program and Money Follows the Person

(Solomon, 2017a; Solomon, 2017b). This would be coupled with fewer and less robust waiver and state plan options for Medicaid HCBS, including loss of the Community First Choice option. Overall, decreases in funding would result in less access to Medicaid HCBS. This could also mean increased demand for mandatory, and high cost, nursing facility benefits.

Given the sizeable proportion of Area Agency on Aging (AAA) funding from Medicaid, PPACA repeal and structural reforms would squeeze budgets for OAA Title III services provided through the ASN. In response, the ASN would be forced to narrow programs and services using strategies such as more restrictive targeting criteria, longer wait lists, and cuts to benefits.

Perhaps the most significant consequence would be the increased demand on informal caregivers to substitute for the net loss in access across formal LTSS systems. The informal caregiving literature suggests that informal care tends to substitute for formal LTSS and health care services, after adjusting for simultaneity (Lo Sasso & Johnson, 2002; Van Houtven & Norton, 2004). Adverse consequences of informal caregiving on physical health, mental health, and work are well established. This may push the limits of a national LTSS system that already places the vast burden of care on family and friends.

## **Conclusion**

Increasing demographic pressures will mean greater demand for healthcare services as well as long-term services and supports (LTSS) among community-dwelling older adults. The Older Americans Act (OAA) provides an important LTSS safety net and is well positioned to support integrated models of care. Furthering integrated approaches that blend health care and LTSS should leverage the substantial influence of Medicaid on access to OAA Title III services and address changes in the mix of health care needs among OAA Title III services participants over time.





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