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Rural-Urban Variations in Meals on Wheels Programs

Lea C. Florence
East Tennessee State University

Rural-Urban Variations in Meals on Wheels Programs

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Lea Carter Florence

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Deborah Slawson, Chair

Roger Blackwell

Judy McCook

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ABSTRACT

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Older adults are living longer than ever before. By 2060, the U.S. population aged 65 or older is projected to reach 98 million. As adults age, the prevalence of chronic diseases and disabilities increases. The need for Meals on Wheels (MOW) services is growing alongside the aging population. Yet, little is known about the geographic variation of services. Little is documented about the organizational capacity of MOW organizations in terms of geography. The current policies supporting home-and community-based services, including MOW, may be insufficient to support all older adults in all types of communities.

An analysis of the *More Than a Meal*® Comprehensive Network Study was conducted to determine geographic variation in services delivered through MOW programs and to document organizational capacity by geography. Chi-squared analyses were performed to identify relationships between twenty services offered through MOW organizations and categorical offerings within nutrition, in-home safety, socialization, and community connections categories. Spidergrams were created to document organizational capacity holistically and for three individual organizations for each of the geographic areas: Rural Only, Partial Rural, and Non-rural Service Areas. Using these findings, a policy analysis was conducted to determine policy recommendations to inclusively support rural older adults.

Older adults living in rural areas access the full complement of services provided by MOW programs differently than do their non-rural counterparts. Specifically, a statistically significant relationship was found between the stratified component of in-home safety for rural, partial rural and non-rural service areas. When evaluated on the individual service offering level, statistically significant relationships between rurality and congregate meals, nutrition education, nutrition assessment, coordination of USDA food assistance programs, and telephone reassurance were seen. Spidergram documentation of capacity created visual representations of geographic similarities and differences. The policy analysis produced three potentially viable policy additions for the Older Americans Act around a provision for innovation programs, a report on in-home safety, and business acumen provisions.

This work lays the foundation for further analysis of existing data with a lens of geographic specificity, as well as articulates the importance of looking at organizational capacity as a part of policy recommendations for understanding rural community-based organizations.

DEDICATION

This work is dedicated to two groups of individuals that this work would not be possible without. First to my family and friends, thank you for your support along this journey. A special thanks to Adam and Ellie who have been consistent motivators throughout this time. Secondly to all the local Meals on Wheels organizations, your commitment to older adults, your communities, and your organizational health and well-being is an inspiration. Thank you for your commitment to one of the greatest examples of grassroots organizing.

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Statement of the Problem

Older adults are living longer than ever before. By 2060, the U.S. population of individuals aged 65 or older is projected to reach 98 million (Colby & Ortman, 2014). As adults age, the prevalence of chronic diseases and disabilities increases. Thirty-nine percent of Americans 65 and older experience some type of disability (He & Larsen, 2014). In 2012, three in five older adults managed two or more chronic conditions (Ward, Schiller, & Goodman, 2014). The rise of disabilities and need for support, both medical and community-based, for older adults creates a unique and growing challenge to our current healthcare and community-based social systems.

Meals on Wheels (MOW) programs, a component of Senior Nutrition Programs (SNP), provide a necessary service for older adults in support of their ability to age in place. Since the early 1950s, MOW has been providing nutritious meals and friendly visits to older adults in the United States. While MOW programs are seen as a vital community-based service and are supported in part by federal legislation through the Older Americans Act of 1965 (OAA), the full complement of services delivered by MOW programs and their associated impact to clients is not well understood (Colello, 2012; Thomas & Mor, 2013; United States Congress, 1965). MOW programs have been shown to provide services that adequately address nutrition, safety, social isolation and that connect clients to other community-based services (Thomas, Smego, Akobundu, & Dosa, 2017). While MOW programs are in nearly every community in the U.S., the breadth and depth of services and the number and demographics of the clients being served is not fully known. Publicly available data are limited to MOW programs that receive federal funding through the OAA. These data, while useful for beginning to understand what types of

services are being delivered, do not take into account individual clients and/or organizations not receiving federal funding (i.e., private pay clients or programs). Additionally, the specific scope of MOW programs delivery in rural communities in the U.S. has not been well evaluated outside this publicly available data.

The older adult population is rapidly growing. Currently, twenty percent of Americans are 60 years or older (U.S. Census Bureau, 2019) and 12,000 more Americans turn 60 each day (Meals on Wheels America, 2019c). The OAA funding only contributes 39% of the total amount spent to support seniors through MOW programs (Meals on Wheels America, 2019a). Furthermore, funding through the OAA is not growing to meet the increasing population in need (Meals on Wheels America, 2019a).

The growing older adult population is creating strains on all support services. But the increasing older adult population affects rural communities more than urban areas. Fifteen percent of all Americans live in rural communities (Centers for Disease Control and Prevention, 2017). On average, the older adult population is 19.5% in rural, non-core communities and 17.2% in rural, micropolitan communities, compared with an older adult population of 14.9% nationwide (U.S. Census Bureau, 2019). Furthermore, rural Americans are more likely to die from the five leading causes of death (e.g., heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke) than are urban-dwelling individuals (Garcia et al., 2017). Rural Americans also have less access to healthcare and community-based social services than their urban counterparts (Crosby, Wendel, Vanderpool, Casey, & Milles, 2012).

Specific Aims

The purpose of this study is to examine the structure and delivery methods of Meals on Wheels programs in rural America. Stronger rural-based senior nutrition programs offering a variety of services holds promise to create a healthier, age-friendly community.

Specific Aim 1. To characterize variation in services of Meals on Wheels providers based on geographic rural/non-rural differences. (i.e., programs serving only rural communities, programs serving rural and non-rural communities, and programs serving non-rural communities)

Specific Aim 2. To assess the capacity of rural senior nutrition programs in order to determine ability to grow the number of senior clients served.

Specific Aim 3. To develop policy recommendations to support strengthening the senior nutrition network.

Background of the Study

The MOW network has long understood anecdotally and through research that what is being delivered by local programs is more than just a meal (Thomas & Dosa, 2015). As part of the national efforts to codify the depth and breadth of what programs can deliver, a research effort funded by Aetna, a CVS Health business, was undertaken during 2018 and concluded in 2019. The *More Than a Meal*® Comprehensive Network Study (CNS) was the first national profile of senior nutrition programs that are members of the MOW network. One major aspect of the CNS research was to identify and quantify the scope of programming offered by MOW organizations across the nation. This research endeavor provides the basis for the inquiry into rural Meals on Wheels (Ely & Florence, 2019; Ely, Kenkel, & Florence, 2018).

Consistent Service Conceptual Model

Through a randomized control trial funded by AARP Foundation and conducted by Brown University, MOW programs were found to deliver programming that addressed the nutritional, safety, and social connectedness needs of their clients (Berkowitz et al., 2018; Thomas & Dosa, 2015). Figure 1. shows the Consistent Service Model being delivered by MOW programs across the United States (Choi, Lee, & Goldstein, 2011; Florence, 2019; Lloyd & Wellman, 2015; Thomas, Parikh, Zullo, & Dosa, 2018). This model includes four constructs: nutrition, safety, socialization and community connections. Nutrition is the anchor of what is being provided by MOW programs through the meal. However, safety is being addressed through routine, formal or in-formal checks at point of meal delivery. Socialization is provided during the brief interaction during the meal delivery. The final construct, community connections, includes maintaining connections to the community through the delivery and beyond by accessing additional services and/or community resources through the MOW program. While research has been pointing to this consistent, multi-pronged approach, the interconnected nature of this model has only recently been discussed (Akobundu & Florence, 2019; Akobundu & Hernandez, 2019). The definition of these constructs as well as the consistency of dose of the four elements of service has not been fully articulated. However, threshold levels of services associated with addressing these constructs has been introduced (Akobundu & Florence, 2019). Furthermore, there is a paucity of literature specific to rural populations and MOW programs in terms of health impact and clients served. The Government Accountability Office (GAO) recently conducted a review of the OAA specific to rural areas. Only eleven studies comparing access to home- and community-based services in rural and urban areas were identified (GAO-19-330, 2019). Of these eleven studies, only one focused

exclusively on the Title III-C Nutrition Services Program (Mabli et al., 2015). The additional ten studies looked at other provisions within the OAA.

Figure 1. Consistent Service Model (Meals on Wheels America 2019)

Significance of the Study

Given the growing rural, older adult population (Colby & Ortman, 2014) as well as the shifting federal funding supports for community-based services (Ujvari, Fox-Grage, & Houser, 2019), the scope of this inquiry addresses a known gap in literature. There is a critical need to more fully understand how MOW programs and the Consistent Service Model affects rural communities. This is in an effort to better serve the needs of a vulnerable and growing population, as well as to provide a case of support for advocacy efforts.

Chapter 2. Literature Review

Older Adult Health

In Healthy People 2020, a new topic and objective on older adults was identified with the goal to "improve the heath, function, and quality of life of older adults" (Office of Disease Prevention & Health Promotion, 2019b). By adding this topic and objective, which was not identified in 2010, it raises awareness of the challenges associated with aging in America. Local communities and the federal government have long recognized the need to support older adults.

A Growing Population

The older adult population (65+) is a fast-growing sub-set of the population with unique health needs. Between 2006 and 2016, the population aged 65 and up increased by 33%. Additionally, this population is predicted to double to 98 million by 2060. Older adults are living longer as well. It is projected that older adults aged 85 and older will increase by 129% by 2040 (Administration on Aging (AoA), 2018).

A growing population affects the current infrastructure of supports in place to serve their needs. Older adults face managing multiple chronic conditions and newly presenting disabilities. The current supports, both healthcare and home- and community-based services, to address the evolving needs of the older adult population must increase to meet the increased need and population (Bartels, Gill, & Naslund, 2015; Dall et al., 2013).

Aging Infrastructure

The Aging Network is comprised of state units on aging (SUA), area agencies on aging (AAA), tribal organizations, and home- and community-based service providers (HCBS) with the purpose of supporting older adults to remain independent and in community for as long as possible (Akobundu & Netterville, 2015). The Older Americans Act (OAA) partially funds and

shapes services provided by the Aging Network. Introduced in 1965, the OAA authorizes a range of support services offered in communities and homes. These services include but are not limited to transportation, legal services, congregate and home delivered meals (HDM). Home delivered meals (HDM) programs are also referred to as Meals on Wheels programs. The OAA created the Administration for Community Living (ACL) now housed within the Administration on Aging (AoA) at the Department of Health and Human Services (DHHS) (United States Congress, 1965).

Meals on Wheels Programs

Meals on Wheels programs are an integral strategy to support older adults aging in place (Thomas, Akobundu, & Dosa, 2016; Thomas & Mor, 2013). According to the Centers for Disease Control and Prevention, the concept of aging in place is "the ability to live in one's own home and community safely, independently and comfortably, regardless of age, income, or ability level" (Centers for Disease Control and Prevention, 2009). The general concept of the Meals on Wheels program includes the delivery of a nutritious meal with a safety check and a brief, friendly visit by the deliverer of the meal (Thomas & Dosa, 2015). Since their inception, Meals on Wheels programs have helped to support older adult's ability to age in place.

Meals on Wheels (MOW) programs may be independent not-for-profits, imbedded within the local city or county government, and/or be directly provided by AAAs. MOW programs may or may not be funded in part by OAA dollars. States have different mechanisms to meet the provisions laid out in the OAA. MOW programs predate the OAA, beginning as a grassroots, community-led initiative. The concept was first seen in Great Britain following World War II. MOW in the U.S. began in the 1950s in Pennsylvania, but over time has expanded in some form or fashion to nearly every community in the U.S. (Campbell et al., 2015). One key component to

how MOW programs operationalize their delivery of services is through the use of volunteers. Most MOW programs use some level of volunteers to support their operations (Mye & Moracco, 2015). The widespread dissemination and community adoption of MOW is due, in part, to the OAA and subsequent reauthorizations. (How Stuff Works, 2018)

However, OAA funding increasingly is insufficient to meet the needs of the aging population (McKillop & Ilakkuvan, 2019; Ujvari et al., 2019). Furthermore, funding to Title IV of OAA, which is the program innovation provision and has resulted in numerous permanently funded programs (i.e., congregate dining), has been inconsistently funded and since fiscal year 2012 been defunded (Firman, Bedlin, Phillips, & Hodges, 2019). The process of reauthorization allows for considerations to modernize the OAA (National Council on Aging, 2019). The last reauthorization of the OAA was in 2016 (S.192, 2016). Currently, the OAA reauthorization expired in FY 2019. Reauthorization legislation has passed the House in 2019 and in February of 2020 the Senate introduced an amendment to reauthorize the OAA (H.R. 4334, 2020). Currently, the OAA requires that services be prioritized for those most in need, including older adults who are low-income persons, minorities, at-risk for institutionalization, have limited English proficiency, and finally those living in rural areas (United States Congress, 1965).

Rural Health in the United States

People living in rural areas are more likely to die prematurely and have poorer health than their urban counterparts (Garcia et al., 2017; Meit et al., 2014). Calls for continued research to build the rural public health evidence base have been long stated (Meit & Knudson, 2009; Smith, Adimu, Martinez, & Minyard, 2016). Advocacy for and specific to rural health and communities is also called for within the professional and research community (“Advocacy,” 2019; Snider & Bellamy, 2002). The Centers for Disease Control and Prevention (CDC) recently

began evaluating health disparities by geographic location (2017). This commitment to understanding rural/urban differences in health outcomes will strengthen the ability of researchers to tailor and adapt interventions for rural communities. By categorizing these models by rurality, communities will better be able to determine what has been used and found effective in locations similar to theirs. Additionally, this rural-specific lens will help advocates to construct supportive rural legislation.

The CDC's Policy Analytical Framework outlines a five step Policy Process with a context of evaluation and stakeholder engagement and education undergirding the linear, yet overlapping, process. The five steps include 1. Problem identification, 2. Policy analysis, 3. Strategy and policy development, 4. Policy enactment, and 5. Policy implementation. This framework creates a systematic approach that can help to focus advocates, stakeholders, and practitioners to create evidence-informed, stakeholder driven policies (Office of the Associate Director for Policy and Strategy, 2019).

The first step of problem identification in the CDC framework calls for framing the problem or issue in the context of the effected population. Crosby et al. (2012) outline an asset-based approach to contextualizing rural America in an effort to understand the public health and systems of support for rural America. In their work, they identify eight key factors to understanding public health in the rural United States: 1. Geography, 2. Occupation, 3. Infrastructure, 4. Demographics, 5. Digital Divide, 6. Access to care, 7. Social capital, and 8. Political voice. Their work illustrates that health disparities are often a result of contextual issues. Additionally, work by the NORC Walsh Center for Rural Health Analysis conducted in 2017 and 2018 builds on the asset-based approach to understand strengths, key change agents, and opportunities to build better health and equity throughout rural communities. This work

specifically identifies small businesses, community-based organizations and non-profits as important assets to and in rural communities (NORC Walsh Center for Rural Health Analysis, 2018). Understanding rural community-based organizations is critical to developing and expanding on models to combat the widening rural/urban health disparities continuum, as well as creating rural-inclusive policies.

Health Disparities in Rural Areas

A CDC Morbidity and Mortality Weekly Report showed worse outcomes associated with the five leading causes of death for rural populations compared to their urban counterparts (Moy et al., 2017). Factors that contribute to these health outcomes include the fact that rural residences have less access to healthy foods, less access to healthcare, and higher rates of unhealthy behaviors like tobacco use (Garcia et al., 2017). People who live in rural areas are at greatest risk of undernutrition, that is, not consuming enough calories, protein, or nutrients (Tilly, 2017). Additionally, rural-dwelling older adults are at greater risk for falls than their urban counterparts (Coben, Tiesman, Bossarte, & Furbee, 2009). While falls are multifactorial in their etiology, one compounding risk for rural older adults is an older, less age-friendly housing stock (Housing Assistance Council, 2014). Additionally, rural residents face variation in the availability of both primary and specialty healthcare (Goins, Williams, Carter, Spencer, & Solovieva, 2005)

According to Healthy People 2020, access to health services is a leading health indicator topic that supports the overall well-being of individuals (Office of Disease Prevention & Health Promotion, 2019a). Access to health services is multi-component with a large emphasis placed on health insurance coverage in the United States. However, rural individuals have less health insurance coverage that urban individuals, 9.1% of the population outside a Metropolitan

Statistical Area (MSA) and 8.4% within the MSA (Berchick, Barnett, & Upton, 2019). Furthermore, transportation in rural areas is a compounding factor for health access (Syed, Gerber, & Sharp, 2013). Aging creates additional challenges for accessing healthcare and compounding health disparities, especially in rural areas.

Older Adults in Rural Areas

Rural communities' aging population varies from their urban counterpart. According to the U.S. Department of Agriculture, the majority (85%) of "older-age counties," that is, counties with 20% or more of their population aged 65 and older are rural (Cromartie, 2018). Rural communities tend to be older for two primary reasons: 1. older adults move to rural communities to retire and 2. outmigration of younger adults leaves a disproportionately older population (Cromartie, 2018). Rural communities with retiree inmigration tend to be closer to large cities as opposed to those counties experiencing persistent outmigration and population loss. Many support systems for older adults (i.e., transportation and healthcare) are generally harder to access and maintain in counties experiencing persistent out migration compared to those rural communities with retiree inmigration (Cromartie, 2018).

Definitions of Rural

There are many varying definitions of rurality. In practice, a dichotomous rural and urban designation would be ideal and ultimately is what is developed to determine federal government uses. However, rural and urban are not stand alone, clearly defined entities. Instead, they exist on a continuum. Furthermore, many contextual approaches are used to determine what is rural (Minore, Hill, Pugliese, & Gauld, 2008). The federal government uses geographic taxonomies to allocate resources and determine eligibility criteria for various programs. While rurality is much

more complex than geography alone, it is commonly used in defining rurality. The following federal classifications of rurality all rely on geography for their varying definitions of rurality:

1. Office of Management and Budget Metropolitan Taxonomy Core-Based Statistical Areas (CBSAs),
2. U.S. Census Bureau Urbanized Area (UA) and Urban Clusters (UC),
3. U.S. Department of Agriculture Economic Research Service Rural-Urban Continuum codes (RUCCs),
4. U.S. Department of Agriculture Economic Research Service Urban Influence Codes (UICs), and
5. U.S. Department of Agriculture Economic Research Service Rural-Urban Commuting Areas (RUCAs).

This list is not exhaustive. Furthermore, there are additional indices and taxonomies of rurality that take into account additional components beyond geography. The Index of Relative Rurality (IRR) for example uses population, population density, extent of urbanized area, and distance to the nearest metro area in its classification (Minore et al., 2008). There is quite a bit of variation within the federal definitions of rurality. Under the Office of Management and Budget definition of CBSAs, which designate counties as metropolitan (core urban area of 50,000 or more population), micropolitan (core urban area of at least 10,000, but less than 50,000 population), or neither (everything else), approximately 15% of the total population and covering 72% of the land area for the U.S. were considered rural. This contrasts with the U.S. Census Bureau Urbanized Area and Urban Clusters definitions. Urbanized Areas (UA) contains 50,000 or more people, while an Urban Cluster (UC) contains at least 2,500 and less than 50,000 people. Whatever is not classified as either an UA or UC is considered rural. Using this definition,

following the 2010 Census, 19.3% of the population and more than 95% of the land area for the U.S. were considered rural (Federal Office of Rural Health Policy, 2018).

Another approach to defining rurality is to examine its shortage designations, which are also used for qualifying funding and resources. These include classifications on health professional shortage areas and medically underserved areas and/or populations (Health Resources & Services Administration, 2019). The health professional shortage areas are additionally delineated to primary care, dental care, and mental health areas (HRSA Health Workforce, 2019). Additional to the technical and federal classifications of rurality, much work has been done by other fields to codify rurality. There is robust gray literature from the philanthropy sector that promotes rurality as self-defined, meaning if a person or population identifies as rural, they should be considered rural regardless of how they may fall within other classifications (Easterling & Mcduffee, 2018; Louison & Fleming, 2016; Smart, 2019).

Additionally, practical efforts to produce a simple, dichotomous classification of rural and non-rural using the federal Census-tract information does exist. The WWAMI Rural Health Research Center, in partnership with the Federal Office of Rural Health Policy (HRSA) and the Economic Research Service (USDA), developed a zip code approximation for rural and non-rural communities based on RUCA codes. Converting zip codes to RUCA designations is a valid methodology for rural approximation (Blackburn et al., 2019). Table 1 shows a condensed version of which RUCA codes are included in the rural and non-rural parts of zip code based rural/urban taxonomy, as developed by WWAMI Rural Health Research Center. Given that RUCA codes are based on area, primary flow and secondary flow of commuting patterns, some rural areas are considered urban given their commuting patterns. This designation is based on 2000 Census data. A newer version of RUCA codes has been developed from the 2010 Census.

However, the zip code approximator has not yet been updated to the 2010 RUCA code designations.

Table 2.

WWAMI Rural Health Research Center Rural/Urban RUCA-Zip Code Approximator Definitions

Rural RUCA codes			Urban RUCA codes		
Area	**Primary Flow**	**Secondary Flow**	**Area**	**Primary Flow**	**Secondary Flow**
Micropolitan area core	within an urban cluster of 10,000 to 49,999		Metropolitan area core	within an urbanized area	
Micropolitan area core	within an urban cluster of 10,000 to 49,999	10% to 29% to a large urban area	Metropolitan area core	within an urbanized area	Secondary flow 30% to 50% to a larger urbanized area
Micropolitan high commuting	30% or more to a large urban cluster		Metropolitan area high commuting	30% or more to an urbanized area	
Micropolitan high commuting	30% or more to a large urban cluster	10% to 29% to a large urban area	Metropolitan area high commuting	30% or more to an urbanized area	30% to 50% to a larger urbanized area
Micropolitan low commuting	10% to 30% to a large urban cluster		Metropolitan area low commuting	10% to 30% to an urbanized area	
Micropolitan low commuting	10% to 30% to a large urban cluster	10% to 29% to a large urban area	Micropolitan area core	within an urban cluster of 10,000 to 49,999	30% to 50% to an urban area
Small town core	within an urban cluster of 2,500 to 9,999 (small urban cluster)		Micropolitan high commuting	30% or more to a large urban cluster	30% to 50% to an urban area
Small town core	within an urban cluster of 2,500 to 9,999 (small urban cluster)	30% to 50% to a large urban cluster	Small town core	within an urban cluster of 2,500 to 9,999 (small urban cluster)	30% to 50% to an urban area
Small town core	within an urban cluster of 2,500 to 9,999 (small urban cluster)	10% to 29% to a large urban area	Small town high commuting	30% or more to a small urban cluster	30% to 50% to an urban area
Small town core	within an urban cluster of 2,500 to	10% to 29% to a large urban cluster	Rural areas	to a tract outside an urban area or urban cluster	30% to 50% to an urban area

	9,999 (small urban cluster)				
Small town high commuting	30% or more to a small urban cluster				
Small town high commuting	30% or more to a small urban cluster	30% to 50% to a large urban cluster			
Small town high commuting	30% or more to a small urban cluster	10% to 29% to an urban area			
Small town high commuting	30% or more to a small urban cluster	10% to 29% to a large urban cluster			
Small town low commuting	10% to 30% to a small urban cluster				
Small town low commuting	10% to 30% to a small urban cluster	10% to 29% to an urban area			
Small town low commuting	10% to 30% to a small urban cluster	10% to 29% to a large urban cluster			
Rural areas	to a tract outside an urbanized area or urban cluster				
Rural areas	to a tract outside an urbanized area or urban cluster	30% to 50% to a large urban cluster			
Rural areas	to a tract outside an urbanized area or urban cluster	30% to 50% to a small urban cluster			
Rural areas	to a tract outside an urbanized area or urban cluster	10% to 29% to an urban area			
Rural areas	to a tract outside an urbanized area or urban cluster	10% to 29% to a large urban cluster			

Rural areas	to a tract outside an urbanized area or urban cluster	10% to 29% to a small urban cluster	

Furthermore, and as Table 1 illustrates, there is significant variability even within the continuum that is rural. Aside from RUCA designations, there is also the USDA designation of Frontier and Remote (FAR). This is a further delineation of RUCC, like RUCA. The FAR designation is used to capture the sparsely inhabited regions, taking into account not only population and distance, but also access to goods and services. FAR regions tend to be in the western United States, as well as Hawaii and Alaska (Economic Research Service, 2019).

Regardless of the definition of rural, understanding the landscape and the individuals being served is critical to improve the health of any community. Home- and community-based services vary based on geography (GAO-19-330, 2019). But little is documented about Meals on Wheels programs in rural geographies broadly. Examples of individual organizations programs and projects, some in rural Meals on Wheels programs, are documented (Choi et al., 2011; Houston et al., 2015; Wright, Vance, Sudduth, & Epps, 2015).

Rural Meals on Wheels Programs

The OAA requires that nutrition provisions be prioritized for those most in need, including older adults who are low-income persons, minorities, at-risk for institutionalization, have limited English proficiency, and finally those living in rural areas. However, there are allowances within the service delivery requirements that call for less frequency of meal delivery in rural areas than in non-rural areas (Colello, 2012). Typically, Meals on Wheels programs deliver at least one meal, 5 days a week (Thomas et al., 2016). Colello (2012) notes that in rural areas, once weekly, frozen meals are allowed.

Meals on Wheels America

Meals on Wheels America is the largest national leadership organization supporting community-based organizations focused on addressing senior hunger and isolation. It is a membership-based organization with the current mission statement: “To empower local community programs to improve the health and quality of life of the seniors they serve so that no one is left hungry or isolated.” (Meals on Wheels America, 2019b) Figure 2 depicts the four main entities of the aging network, along with their association around nutritional services. It also shows those organizational entities that are eligible for membership in Meals on Wheels as well as those that may directly offer Meals on Wheels.

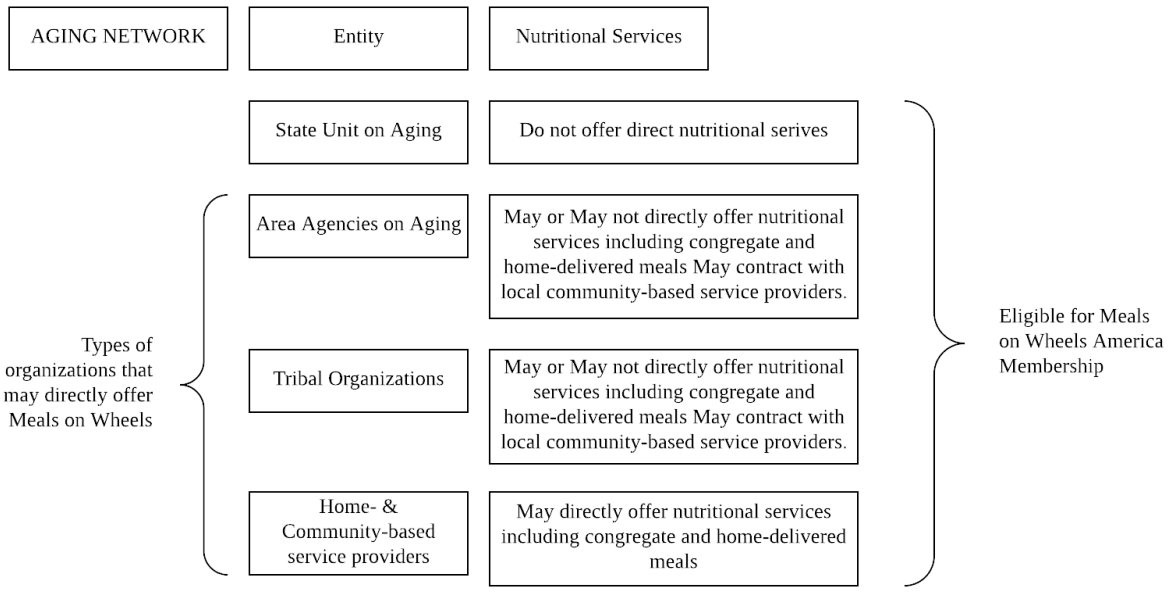

Figure 2. Depiction of the Entities Associated with Meals on Wheels Programs and Meals on Wheels America Membership

What Meals on Wheels Programs Address – Health

Nutrition

Malnutrition. Malnutrition is defined as low body weight (<90% of ideal body weight, using the Hamwi formula) and/or low serum albumin (<3.5g/dL) (Snider et al., 2014). In older adults, malnutrition presents due to a combination of physiological changes, social circumstances and/or certain pharmacological interactions (Esquivel, 2018). Malnutrition is a growing concern for both hospitalized and community-dwelling older adults. In hospital, malnutrition has been linked to poor outcomes such as high cost of hospitalization (Corkins et al., 2014), increased complication and death rates (Correia & Waitzberg, 2003), and increased length of stay (Corkins et al., 2014). In the community setting, malnutrition is linked with poor quality of life and increased complications with managing chronic illnesses (Guigoz, 2006).

Snider et al.'s work documented a $51.3 billion burden to older adults (65+) associated with malnutrition (2014). This model included direct medical costs and financial value of lost quality-adjusted life years for both morbidity and mortality (Snider et al., 2014). There are ways to effectively prevent and treat malnutrition in older adults. In general, accessing proper nutrition and a healthy, appropriately balanced diet will help to combat malnutrition. However, special considerations for setting and chronic conditions of the older adult need to be taken into consideration (Evans, 2005). Food insecurity can be a contributing factor to malnutrition (Gundersen & Ziliak, 2018).

Food Insecurity. In 2016, 12.9% of all individuals living in the United States were in food-insecure households that is to say household-level economic and social conditions of having limited access to food (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017; Gundersen & Ziliak, 2018). In 2017, 13.4% of seniors experienced marginal food insecurity and 7.7% of

seniors were food insecure (Ziliak & Gundersen, 2019). Interestingly, the "young" old – those 60-65 years of age – experience greater rates of food insecurity than the older seniors do. This has been seen consistently across several years (Ziliak & Gundersen, 2014, 2017, 2018).

According to the Household Food Security in the United States in 2018, a report published by the U.S. Department of Agriculture (USDA) – Economic Research Service, the rate of food insecurity in rural areas is on the decline, from 13.3% in 2017 to 12.7% in 2018 (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2019). However, rural residents still must travel longer distances than their urban counterparts to access food. Food access is a compounded issue with transportation, which is a key determinant of health.

Food insecurity encompasses more than distance to a grocery store. Food insecurity also incorporates decisions and behaviors around food. In Feeding America's 2014 Hunger in America study, it was reported that people served by Feeding America made difficult decisions on how to spend their limited income, with 66% choosing between food and healthcare, 57% between food and housing, 67% between food and transportation, and 69% between food and utilities (Weinfield et al., 2014). The Meals on Wheels network sees similar challenges faced by the clients served by local Meals on Wheels programs. The Older Americans Act has not been funded to keep up with the growing need of older American's food security (Lloyd & Wellman, 2015; Ujvari et al., 2019). Other federal programs that may benefit older adults like the USDA's Supplemental Nutrition Assistance Program (SNAP) or the Senior Farmers' Market Nutrition Program also suffer from insufficient funding to meet the need (Gundersen & Ziliak, 2018). Furthermore, the challenges faced by older adults are much more complex than distance to a grocery store and farmers markets. The challenges for older adults include complex issues such as isolation and loneliness.

Social Isolation in Older Adults

In recent years, the impacts to health and quality of life associated with social isolation have become a growing focal point, especially in regards to older adult health (Frist, Parekh, & Tramuto, 2018; Nilsen et al., 2018). Biordi and Nicholson describe social isolation as "the distancing of an individually, psychologically or physically, or both, from his or her network of desired or needed relationships with other persons" (Biordi & Nicholson, 2009, p. 85). The construct of social isolation is particularly important when considering Meals on Wheels programs. One risk factor of social isolation is living alone (Elder & Retrum, 2012). According to the most recent estimates from the Census Bureau 2017 American Community Survey (ACS), one in four seniors aged 60 and older lives alone (U.S. Census Bureau, 2017). However, a recent evaluation of the Older Americans Act Title III-C Nutrition Services Program found that 59% of clients receiving federally funded Meals on Wheels lived alone (Mabli et al., 2017). It should be noted that not all people who live alone are socially isolated. Human interaction is a key component in combating social isolation. Human interaction is integral to the delivery model for Meals on Wheels (Akobundu & Florence, 2019). Secondly, the Older Americans Act explicitly names social isolation as a key construct to be addressed through this legislation (United States Congress, 1965).

There are many strategies being introduced to combat social isolation and "social isolation is not unique to rural areas, but rurality creates additional barriers to addressing the issue" (Weirich & Benson, 2019, p. 41). Recently, Henning-Smith et al. evaluated rural/urban differences in social isolation. Her team's work shows that rural residents report less social isolation and more social relationships than their urban counterparts (Henning-Smith, Moscovice, & Kozhimannil, 2019). Health and social factors are critical predictors of both social isolation and loneliness regardless of rural/urban status (Havens, Hall, Sylvestre, & Jivan, 2004).

Loneliness. A related concept to social isolation is that of loneliness. Loneliness is a feeling of lacking closeness to friends, family, or intimately connected individuals (Ong, Uchino, & Wethington, 2016). The two related concepts of loneliness and social isolation are presented as the subjective and objective state of social contact with others, respectively (Ong et al., 2016). Several validated methods exist to measure loneliness in older adults. One prevalent one is the 3-item UCLA Loneliness Scale (Perissinotto, Stijacic Cenzer, & Covinsky, 2012). Using this scale, the American Association of Retired Persons found from a national representative sample that 25% of community-dwelling older Americans aged 70+ were lonely (Wilson & Moulton, 2010). As for rural loneliness, there are racial and ethnic differences for rural older adults in perceived loneliness (Henning-Smith et al., 2019).

For combatting both loneliness and social isolation, increasing the human connection and quality of interactions with others can be highly beneficial (Nicholson, 2012). Additionally, research by the Human Animal Bond Research Institute has found that interactions with pets can reduce loneliness and address social isolation (Wood et al., 2015), indicating that connection can extend beyond humans. Meals on Wheels programs provide daily interaction with drivers which for some isolated MOW clients may be the only human interaction that day (Morris et al., 2019). This interaction not only combats social isolation and loneliness, but also helps to ensure the safety of that client.

In-Home Safety

Broadly, in-home safety in the context of Meals on Wheels programs is both the environmental and individual risk factors that hinder aging in place and with a particular emphasis in falls prevention (Florence, 2018). While there are other important safety measures

(i.e., intimate partner violence, elder abuse, gun safety, etc), they are outside the scope of what the Consistent Service Model indicates by in-home safety.

Falls in Older Adults. The etiology of falls in older adults is multifactorial with a component contributed to both the environment and the individual (Rubenstein & Josephson, 2002). The impact of falls in older adults is severe. In 2015, falls resulted in $50 billion in healthcare costs (Florence et al., 2018). According to the Centers for Disease Control and Prevention, one in five falls cause a serious injury (i.e., fracture or head injury) (Sterling, O'Connor, & Bonadies, 2001) and over 800,000 patients are hospitalized from falls annually (National Center for Injury Prevention and Control, 2016). Risk factors for falls in older adults are both individual: weakness, vision problems, poor balance, medicine use, and environmental: home hazards (Bergen, Stevens, & Burns, 2016). Prevention for falls is best when it addresses both individual and environmental components associated with fall risk factors. Evidence-based falls prevention programs include proven programs that improve the strength and balance of older adults as well as identify and modify home hazards.

Rural older adults are at greater risk than their urban counterparts for falls (Coben et al., 2009). A study in rural Canada illustrated differences in environment and behaviors resulting in greater risk for rural community-dwelling older adults (Yiannakoulias et al., 2003). Similar with accessing healthcare for treatment of other conditions, access to both treatment and prevention of falls differs in rural areas compared to urban areas (Bolin, Bellamy, Ferdinand, Kash, & Helduser, 2015).

Community Connections – Referrals to Other Community Resources

Connecting to social support services and community resources to address health and socioeconomic needs is increasingly important. Social determinants of health (SDOHs), or the conditions in which people live, learn, work, and play, have a critical role in the health and well-being of all people (Bambra et al., 2010). However, social support services designed to address inequalities and other variants in the SDOHs are not always easily accessed by those most in need. Meals on Wheels programs, like many other community-based organizations (CBOs), provide a much-needed supporting role in identifying and addressing SDOHs for older adults. Specifically, MOW programs may utilize a care coordinator to respond to client concerns and refer clients to additional services either within or external to the MOW program (Morris et al., 2019). In a recent study, Morris et al. worked with two MOW programs – one urban and one rural – to have drivers use technology to systematically monitor for "changes of conditions" in clients. If a change was noted, a MOW staff member would then connect with the client and refer for additional services. In this study across a 12-month study period, 429 "changes of conditions" were noted for 189 clients, resulting in 132 referrals to other community resources (Morris et al., 2019). The technology used to monitor "changes of conditions" is currently being adopted by more than 20 additional MOW sites nationwide. One adoptee noted that the technology only gave them a way to systematically monitor and codify what they were already doing (J. Pelot, personal communication, April 12, 2019) – indicating that referrals to additional supports within the community is a common place occurrence within Meals on Wheels programs.

Aging Support Systems in Rural Areas

Rural communities, while consistently rich in certain assets and environmental benefits, are challenged by fragmented and inconsistent support systems (Coburn et al., 2017). As discussed above, Cromartie's work indicates shifting populations, which may lead to familial caregiver strains and for those retirees a need to access a potentially underserving or distant aging support system (2018). A recent GAO report shows that older adults may have less access to certain home and community-based services (GAO-19-330, 2019). Statistical differences between rural and urban participants of selected Title III Services of the Older Americans Act included fewer rural residents receiving case management (within the last month), home-delivered meals (within the last week), respite care (for caregivers), and information/referrals to additional services (GAO-19-330, 2019). A 2017 study conducted by the Rural Policy Research Institute documented shifts in rural long-term support services (LTSS). *Figure 3. Long-term Services & Supports* illustrates the services and locations for home- and community-based services (HCBS) as defined by Centers for Medicare & Medicaid Services.

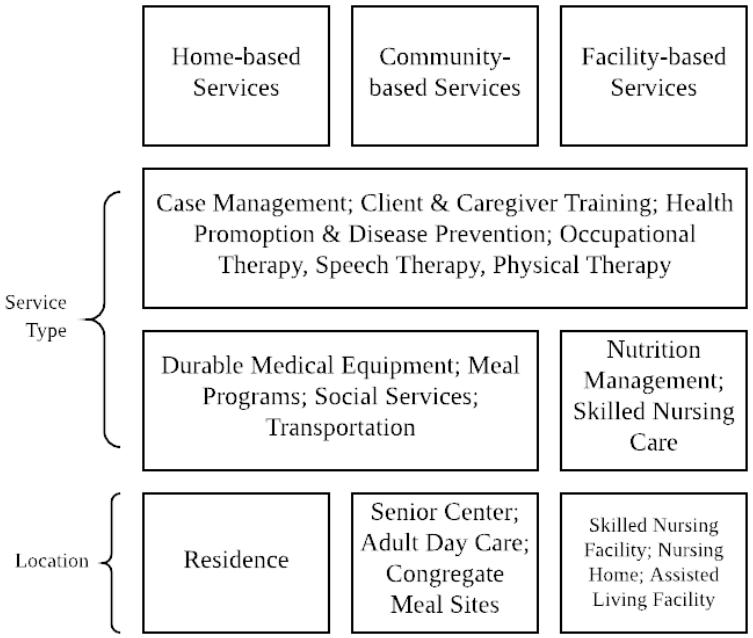

Figure 3. Long-term Services and Supports (Adapted from Coburn et al., 2017)

Furthermore, Coburn et al showed that rural older adults were less likely to utilize HCBS and more likely to access nursing homes (2016). These higher skill-level, more clinical services are more expensive than HCBS services (Coburn, Griffin, Thayer, Croll, & Ziller, 2016). This is particularly concerning given the growing healthcare cost and burden to Medicaid and Medicare. Additionally, there are increasing closures of nursing facilities and hospitals in rural areas resulting in economic shifts and less favorable living arrangements for seniors who want to stay in their long-term community. In 2014, Medicaid LTSS expenditures were greater than institutional expenditures for the first time ever (Coburn et al., 2016).

Innovation and rural-specific models for delivery of LTSS do exist and are being refined. Within every level and setting, innovation and considerations for how to fund and increase access to rural areas are being considered. Several lessons from these models can be used to understand promising practices and bolster policies to fund and support their scale and uptake in

rural and non-rural communities. In particular, a recent rural-specific endeavor in growing a Program of All-Inclusive Care for the Elderly (PACE). This model is to provide community-based supports to those in need of nursing home care in order to keep them in their homes as long as possible (Hirth, Baskins, & Dever-Bumba, 2009).

Community-based Organizations and Volunteer's Role in the Health of Older Adults

Community-based organizations (CBOs) have a critical role in the health of all people. Awareness of the role CBOs play in health is rising, through the study and understanding of the impact of the social determinants of health (SDOHs) on the health and well-being of individuals and communities. Increasingly, healthcare is looking to deliver care outside the walls of the hospital and in the communities where people live. However, CBOs and social support services have been delivering care in the community for decades. The new involvement of healthcare moving into the community creates both an opportunity and a barrier to supporting population-level health improvements, especially for community-based and volunteer-engaged organizations.

U.S. Meals on Wheels programs have been leveraging volunteers and paid staff to deliver services in community since the 1950s. The use of volunteers creates a unique and challenging model for how the Consistent Service Model is delivered. Mye and Moracco's process evaluation of one MOW program led to a conceptual model that outlined three key factors to volunteer satisfaction and quality of implementation or delivery of services. These three factors were leadership (organizationally), social connection (to clients, other volunteers, and staff), and fulfillment (volunteer-level satisfaction) (Mye & Moracco, 2015). Volunteerism has been noted as an often neglected component of rural community-based organizations, including MOW programs (Skinner & Joseph, 2011; Winterton, Warburton, & Oppenheimer, 2013). Despite a

growing need for volunteers in both rural and urban settings, MOW programs have seen a consistent drop in volunteers to support the delivery model (Timonen & O'Dwyer, 2010). Winterton, Warburton, & Oppenheimer explored ways MOW programs have adapted to social and economic trends, including innovation in volunteer delivery models in an effort for MOW programs to remain relevant and meet the growing needs of their older adults as well as the volunteers (2013). Volunteer-engaged CBOs, like MOW, play a critical and unique role in supporting older adult's ability to age in place.

Specifically for older adults, the aging network, as outlined above, plays an anchor organization role in communities in terms of the health of older adults. An anchor organization is an entity that plays a critical role in the development, and therefore, health of a specific place (Taylor & Luter, 2013). The strength of the aging network to deliver care in the home- and community-based setting is dependent upon the capacity and strength of individual organizations. In general, Flaspohler et al. define capacity as the knowledge, skills, motivation and attitudes required for overall functioning and achievement (2008). Importantly, capacity can be observed on differing levels including individual, organizational, and community (Flaspohler et al., 2008).

Organizational Capacity

Organizational capacity, as defined by Grantmakers for Effective Organizations, is the ability of an organization to achieve its mission through strong governance, rededication to assessing and achieving results, and good management (Grantmakers for Effective Organizations, 2014). This concept is not new, but has been gaining interest through philanthropy, government, and other entities in terms of evaluating the investments made into organizations. Philanthropy has been moving into more long-term sustainable and place-based

grantmaking in an effort to cultivate and grow strong organizational capacity and build community capacity. Organizational capacity is critical to the systems change work being promoted as the gold standard for public health change (Meyer, Davis, & Mays, 2012). Strong organizations with good capacity are more easily able to respond to the "wicked" problems (Buono & Kerber, 2008). Additionally, strong organizational capacity is needed for dissemination and implementation of evidence-based programs (Fixsen et al., 2005). Organizational capacity is often discussed as a necessary component of a positive and productive community-academic based partnership (Darling et al., 2015) and critical to CBOs partnering with healthcare delivery systems. Community capacity is seen as integral to resilience in community and supports the growth and innovation of healthy communities (Laverack, 2005; Lavizzo-Mourey, 2017). Strong organizational capacity is necessary for building equity and participation, two major principles in health and healthcare (Rifkin, Muller, & Bichmann, 1988) Yet, despite the understanding of the importance of organizational capacity, there is no consensus on defining, measuring, and evaluating organizational capacity (Meyer et al., 2012). Many models exist to document and evaluate organizational capacity. Some are incorporated into a larger frame within implementation science as seen in Louison and Fleming's work (2016). In the case of public health services and systems research, Meyer et al synthesized a model with eight fundamental constructs – 1. Fiscal and economic resources, 2. Workforce and human resources, 3. Physical infrastructure, 4. Interorganizational relationships, 5. Data and informational resources, 6. System boundaries and size, 7. Governance and decision-making structure, and 8. Organizational culture (2012). This work was influenced by Hall et al's work on understanding organizational capacities of non-profits (2003). In this work, organizational

capacity was looked at as being made up of financial, human resources, and structural capacity (i.e., relationship/network, infrastructure, and planning) (Hall et al., 2003).

Documenting Organizational Capacity. Rifkin introduced the use of spidergrams as a mechanism for visually depicting community participation in health programs using a set, pre-defined group of indicators that could be defined on a continuum. Rifkin's work on measuring participation has been leveraged by researchers to visually depict the role of CBOs in engagement in community health (Draper, Hewitt, & Rifkin, 2010). Draper, building off this model, developed a practical evaluation tool for health programs (2010). This visual model provides a unique and needed perspective to organizational capacity. The visualization provides a tool for showing various, pre-defined constructs that can be useful to monitor and detect changes over time. While Draper's work focuses on community participation it is a potentially useful tool for documenting organizational capacity because of the similarly "elusive and contentious" definition. Ultimately, the purpose of documenting organizational capacity in this way is to provide a visual tool to provide useful insight into an organization's ability to implement its mission.

Scope of this Work

The purpose of this study is to examine the structure and delivery methods of Meals on Wheels programs in rural America with a lens of documenting their organizational capacity. Stronger rural-based senior nutrition programs offering a variety of services holds promise to create a healthier, age-friendly community. However, in order to understand how best to work with rural communities to create stronger rural-based MOW programs we must first understand the services being delivered. To that end, Aim 1 of this dissertation is to characterize variation in services of Meals on Wheels providers based on geographic rural/non-rural differences (i.e.,

programs serving only rural communities, programs serving rural and non-rural communities, and programs serving non-rural communities).

From understanding the services being delivered, then a documentation of the organizational capacity using Rifkin's spidergrams will be done in order to fulfil Aim 2. To assess the capacity of rural senior nutrition programs in order to determine ability to grow the number of senior clients served.

Finally, using the information uncovered in Aims 1 and 2, policy recommendations will be developed to support strengthening the senior nutrition network with an emphasis on rural-inclusive policies for Aim 3 of this work.

Chapter 3. Methods

More Than a Meal® Comprehensive Network Study

Tool Development. Trailblazer Research, a woman-owned and run Research Company, was contracted to develop the survey tool and conduct fieldwork. Trailblazer Research (TBR) is a historical partner of Meals on Wheels America having conducted numerous projects with Meals on Wheels programs ranging from Member satisfaction to understanding client experience and need. Trailblazer was approached for their expertise in iterative survey development, experience working with the survey population of interest, and their strong record of accomplishment with strategic data for healthcare.

In the spring and summer of 2018, an iterative development process was used to determine the various constructs to be assessed, draft and refine the items for the survey, and field test items. Key stakeholders from across Meals on Wheels America were identified. Stakeholders including individuals in various leadership roles, such as development, communications, and advocacy, and individuals involved in the programmatic work of the organization. The researcher had a lead role in convening this on-site workshop. These stakeholders, including the researcher, participated in a workshop led by Trailblazer Research to determine the various data points to be assessed. From this workshop, initial items were drafted. A sample of the priority population, Meals on Wheels America dues-paying Members, was identified to test the initial items. Twelve (12) study participants representing small Meals on Wheels programs were identified. Small MOW programs are defined as a Meals on Wheels America dues-paying Member who reports a senior nutrition program budget of less than $500,000. The assumption made by TBR was that if questions made sense and were feasible to answer by the smallest programs then they would hold true for all programs.

An additional step in testing the content assessed with the study participants was taken by hosting an interactive session at the 2018 Meals on Wheels Annual Conference and Expo in Charlotte, NC, in which the researcher was a co-facilitator (Ely et al., 2018). This session was used to field test a portion of the survey items, specifically the services offered section, with a larger group of study participants, including programs representing non-small programs. Input from this specific session as well as conversation with other study participants in attendance at the conference were used to inform the tool refinement. A final tool with 182 items was developed. The tool was designed with a responsive pathway, meaning that additional questions would or would not be asked if a respondent answered a certain way. This method helped to reduce respondent burden and create a meaningful experience for the survey participants. Survey items fell into six major areas: 1. Organizational demographics, 2. Services offered, 3. Member program capacity, 4. Data and Infrastructure, 5. Client data, and 6. Financials.

Organizational demographics. In this section, respondents were asked to provide insight into their organization. Information assessed included basic demographics that could be used to segment organizations by type (i.e., non-profit, government, or other) and basic budget information. The budget information included insights into senior nutrition program budget for FY 2018. This section was also used to gauge interest in key initiatives and better understand individual organization's mission and priorities. Lastly, geographic service boundaries were assessed including obtaining zip codes for which local programs serve.

Services offered. Meals on Wheels programs provide multiple services to meet the needs of their clients. Through field testing numerous services offered by MOW programs were identified. However, a core twenty unique service offerings were identified. Each of these services is associated with a construct in the Consistent Service Model. Members were asked to

report if the service was offered directly, indirectly via contract, referral (internal or external), under consideration, and/or not offered or contracted. A summary of the twenty services assessed by Consistent Service Model construct can be found in Table 2.

Table 2.

List of Services Assessed by Consistent Service Model Construct

Nutrition	**Safety**	**Socialization**	**Community Connections**
Home-delivered meals	In-home assessments	Senior companion services	Care coordination
Congregate meals	In-home safety programs	Telephone reassurance	Transportation
Medical meals	Evidence-based programs	Pet assistance and/or pet food delivery	
Nutrition education	Home repair/ modification programs		
Nutrition counseling	Medication management		
Nutrition assessments			
SNAP Application assistance			
Coordination of USDA Food Assistance programs			
Meals packs upon hospital discharge			
Grocery assistance/delivery			

Member program capacity. The survey assessed Member capacity through perceptions for being able to serve those in need within the community and the status, if any, of a waiting list. Additionally, the section garnered the staff and volunteer person-power of the organization. Lastly, this section asked about facilities and some operational insights into how food is procured and delivered.

Data and infrastructure. This section was used to gain insight into the hardware, software, and other technical systems being utilized by Meals on Wheels programs. This section was used to better understand not only how technology is being used, but the organizational perception of their technology and data acumen. This section paired with the client data section to show how MOW programs use and collect client-level data.

Client data. This section captured information on what client demographic, home situation, medical, socioeconomic, and potential outcome data is being obtained by programs. This section was not exhaustive, but provides a snapshot into how programs collect and use data to inform decision-making.

Financials. The last section purpose was to understand how programs calculate costs and gather details on the cost of producing and delivering meals. In this section, the budget information gathered was more detailed than within the organizational demographics section. Here, the budget information included types of funding sources (i.e., federal, private donation, grants, etc…).

Data collection. The survey was programmed into Focus Vision Decipher Survey Platform. This survey platform was chosen for its user-friendly interface for survey participants, flexible programming, and analytic capabilities. Meals on Wheels America Members with active membership as of July 2018 were invited to participate in the study (n=1078). Numerous efforts to drive participation were used including: direct email, direct mail, general Member communications and promotion on website, robocalls, direct phone calls, tailored emails, and personal appeals. Data collection began on October 15, 2018 and concluded April 30, 2019.

Meals on Wheels America Members were contacted through a single individual as identified by the organization; typically, this person was in a position of leadership within the organization. A rolling invitation method was used to invite the identified individual or primary contact to participate. Initially, a group of 25 organizations through the primary contact was invited to the survey with a unique, organizational-specific survey link. This allowed for TBR to ensure the survey responded appropriately and that the data fidelity was intact. Once TBR determined the survey logic was responding correctly, additional MOW programs through their primary contact were invited to participate in the survey. Each day, a wave of 100 organizations were invited, again via their primary contact. This was done until all Member organizations had received a unique survey link.

TBR managed a segmented engagement strategy to ensure that organizations received tailored email reminders to ensure optimal completion rates from Member organizations. Initially, organizations fell into two main categories: partial completes and not yet started. Organizations in the partial complete category were sent a reminder email two weeks following the initial invitation. Then, three weeks following this reminder email, partial completes were contacted via phone. Parallel to partial completes, those who had not yet started were sent a reminder email five weeks following the completion of the initial waves of invitations. Additional marketing and promotion, including newsletters, email signatures, and generic all Member emails were sent throughout this time and independent to the targeted emails and phone calls that TBR was managing. Additionally, thank you notes were mailed to each organization that completed the survey. The decision was made by both TBR and MOWA staff to not sent a tremendous number of emails and reminders during the holiday period between Thanksgiving

and New Year to ensure participation by Member organizations and with the recognition that these are busy times for community-based organizations.

Early in January 2019, a marketing strategy to engage all Member programs in participating in the survey was launched. This included tailored messaging appeals to segmented groups: not yet started and partial completes. Reminders and general appeals now included a due date and information by geographic and Member size representation of completes to build a sense of competition within the Network. Additionally, a robocall was conducted in mid-February to all in-progress and non-start programs followed by a reminder email in an effort to drive participation. From February to March, emails were sent to non-completes every week. Final recruitment efforts entailed adding personal phone calls to the weekly emails starting in late March and running through the end of April. In the final recruitment efforts, a philosophy of no more than two emails per week and one voicemail was adopted by TBR.

Throughout the tailored messaging and promotion to engage Members to participate, TBR also had an on-call help desk that organizations could use to help ensure they completed the survey. In some instances, TBR trained staff would work with local programs over the phone to complete their survey responses. These trained staff would prioritize key data elements of interest as determined by leadership from Meals on Wheels America and included information on service area and healthcare initiatives. These short form surveys were used to ensure a minimum dataset from organizations. Information on mechanism of completion (i.e., phone v. online) and short form versus survey were captured in the database.

Analysis. Written permission from Meals on Wheels America was obtained to use the data collected in the *More Than a Meal* Comprehensive Network Study for this dissertation study. A copy of this permission can be found in the Appendix B. This permission allows for

access to the dataset and subsequent data and analysis to support this dissertation work. The full dataset is not needed to support the specific aims of this dissertation; as such, a subset of data with relevant survey items was created to support the work. This dataset includes items for defining rurality (i.e., zip codes of areas served by each participating organization), documenting organizational capacity, and determining program offerings. A full description of the items used for analysis can be found in Appendix C. This analysis is limited to organizations that provide direct nutrition services and that completed the *More Than a Meal* Comprehensive Network Study online through the primary collection mechanism. The Meals on Wheels America membership allows for organizations that support the provision of nutrition services, such as state units on aging. However, since the specific aims of this research are to determine variation in services offered, limiting the sample size in this way is justified. Similarly, by limiting the dataset to those organizations who participated via the online survey and not over the phone or through the short complete survey option, a more complete dataset, ensuring all key items of interest are contained, is used for analysis.

Identifying Rural Meals on Wheels America Member Programs

Assigning Rurality. The publicly available, technical documentation provided by the Administration for Community Living was used to assign RUCA designations for all zip codes provided by organizations (Administration for Community Living, n.d.). Using the technical documentation, the numeric zip code (ZIPCODEN) contained a list of each of the residential and point zip codes. Additionally, each of the individual zip codes had the corresponding RUCA 3.0 code based on the 2019 Census data. Zip codes were classified as Rural or Non-rural according to the RUCA codes listed in Table 3. Converting zip codes to RUCA designations is a process developed by the WWAMI Rural Health Research Center and continues to be a valid

methodology for rural approximation (Blackburn et al., 2019). That being said, it should be noted that the ZIP RUCA Code files accessed from WWAMI Rural Health Research Center do use an older version of the USDA ERS's RUCA designation. Interestingly, ACL also offers the technical documentation from this older version. This is a limitation of this work, but this was the most current version of this methodology available. A summary of the RUCA codes and their definitions can be found in Table 3. This definition of rural was chosen because of the ability to use zip codes to approximate rurality. Additionally, this definition is supported as a resource of the Administration for Community Living (Administration for Community Living, n.d.).

Table 3.

Rural-Urban Commuting Area (RUCA) Codes: ZIP RUCA 3.10 from the Administration for Community Living with Descriptions from the Economic Research Service and WWAMI Rural Health Research Center

Rural RUCA codes		Non-Rural RUCA codes	
4.0	Micropolitan area core: primary flow within an urban cluster of 10,000 to 49,999 – no additional code	1.0	Metropolitan area core: primary flow within an urbanized area – no additional code
4.2	Micropolitan area core: primary flow within an urban cluster of 10,000 to 49,999 – Secondary flow 10% to 29% to a large urban area	1.1	Metropolitan area core: primary flow within an urbanized area – Secondary flow 30% to 50% to a larger urbanized area
5.0	Micropolitan high commuting: primary flow 30% or more to a large urban cluster – no additional code	2.0	Metropolitan area high commuting: primary flow 30% or more to an urbanized area – no additional code
5.2	Micropolitan high commuting: primary flow 30% or more to a large urban cluster – Secondary flow 10% to 29% to a large urban area	2.1	Metropolitan area high commuting: primary flow 30% or more to an urbanized area – Secondary flow 30% to 50% to a larger urbanized area
6.0	Micropolitan low commuting: primary flow 10% to 30% to a large urban cluster – no additional code	3.0	Metropolitan area low commuting: primary flow 10% to 30% to an urbanized area – no additional code
6.1	Micropolitan low commuting: primary flow 10% to 30% to a large urban	4.1	Micropolitan area core: primary flow within an urban cluster of 10,000 to

	cluster – Secondary flow 10% to 29% to a large urban area		49,999 – Secondary flow 30% to 50% to an urban area
7.0	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small urban cluster) – no additional code	5.1	Micropolitan high commuting: primary flow 30% or more to a large urban cluster – Secondary flow 30% to 50% to an urban area
7.2	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small urban cluster) – Secondary flow 30% to 50% to a large urban cluster	7.1	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small urban cluster) – Secondary flow 30% to 50% to an urban area
7.3	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small urban cluster) – Secondary flow 10% to 29% to a large urban area	8.1	Small town high commuting: primary flow 30% or more to a small urban cluster – Secondary flow 30% to 50% to an urban area
7.4	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small urban cluster) – Secondary flow 10% to 29% to a large urban cluster	10.1	Rural areas: primary flow to a tract outside an urban area or urban cluster – Secondary flow 30% to 50% to an urban area
8.0	Small town high commuting: primary flow 30% or more to a small urban cluster – no additional code		
8.2	Small town high commuting: primary flow 30% or more to a small urban cluster – Secondary flow 30% to 50% to a large urban cluster		
8.3	Small town high commuting: primary flow 30% or more to a small urban cluster – Secondary flow 10% to 29% to an urban area		
8.4	Small town high commuting: primary flow 30% or more to a small urban cluster – Secondary flow 10% to 29% to a large urban cluster		
9.0	Small town low commuting: primary flow 10% to 30% to a small urban cluster – no additional code		
9.1	Small town low commuting: primary flow 10% to 30% to a small urban cluster – Secondary flow 10% to 29% to an urban area		

9.2	Small town low commuting: primary flow 10% to 30% to a small urban cluster – Secondary flow 10% to 29% to a large urban cluster	
10.0	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – no additional code	
10.2	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – Secondary flow 30% to 50% to a large urban cluster	
10.3	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – Secondary flow 30% to 50% to a small urban cluster	
10.4	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – Secondary flow 10% to 29% to an urban area	
10.5	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – Secondary flow 10% to 29% to a large urban cluster	
10.6	Rural areas: primary flow to a tract outside an urbanized area or urban cluster – Secondary flow 10% to 29% to a small urban cluster	

Using the RUCA codes provided a new variable entitled RURAL was created. This variable converted the RUCA codes found in Table 3 to a dichotomous rural or non-rural designation. Next, zip codes provided by the respondents of the *More Than a Meal* Comprehensive Network Study were converted into the dichotomous rural or non-rural designation. This left a dataset that indicated whether or not an organization served in a rural area. An additional classification of rural programs was then made by creating a new variable

RURALITY. The organizations in the dataset were categorized in three ways: 1. Rural Only Service Area, 2. Partial Rural Service Area, and 3. Non-rural Service Area. Programs assigned "Rural Only Service Area" status had provided zip codes that all classify into the rural RUCA codes as defined by the Administration for Community Living (See Table 3). Programs assigned "Partial Rural Service Area" served at least one rural zip code. Lastly, "Non-rural Service Area" designated programs that served only non-rural RUCA areas. Figure 4 depicts the assigning rural data conversion flowchart.

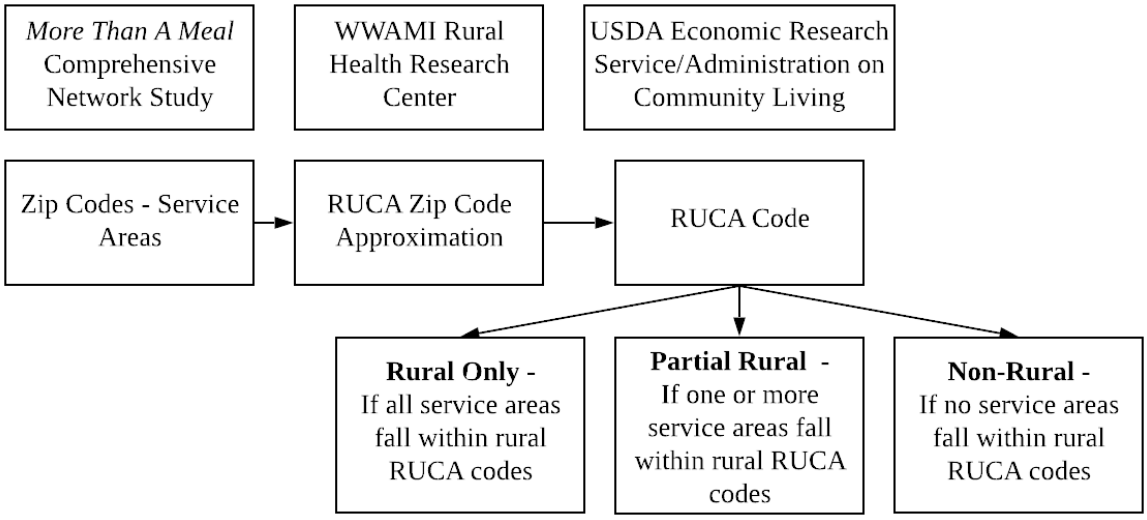

Figure 4. Assigning Rurality Flowchart

Determining Program Variation by Rurality in Meals on Wheels Providers. IBM SPSS Subscription 64-bit edition was used for this portion of the analysis. Using the aforementioned classification, Pearson's Chi-Square tests were run on each of the twenty program offerings assessed in the dataset by each classification of rurality. A list of the program offerings can be found in Table 2. The tests were run twice. The first test looked at the relationship between each classification of rurality and whether or not the service is being directly offered by the organization. The second test looked at the relationship between each

classification of rurality and whether or not the service is being indirectly offered via contract. The first variable provides insights into variations of direct service offerings by rurality. The second variable provides insights into the context in which the organization operates.

Stratifying Program Variation by Rurality in Meals on Wheels Providers. An additional stratification analysis was run using the four categorical constructs within the Consistent Service Model. Four new variables were created to illustrate whether or not any service under the umbrella of 1. Nutrition, 2. In-home Safety, 3. Socialization, and 4. Community Connections were offered, respectively. Initially, any organization that either directly and/or indirectly offered any of the services listed in Table 2 under the nutrition construct was coded into a new dichotomous variable – nutrition. This process was repeated for in-home safety, socialization, and community connections. Using the aforementioned classification, Pearson's Chi-Square tests were run on each of the four service offerings by each classification of rurality. This analysis provides additional insights into variations of categorical service offerings by rurality.

Documenting and Understanding Capacity

Building off Flashpoler's work to define capacity, Rifkin et al.'s work on evaluation and Draper et al.'s and Laverack's application of Rifkin's work, a framework for documenting capacity was developed specific to senior nutrition programs (Draper et al., 2010; Flaspohler et al., 2008; Laverack, 2005; Rifkin et al., 1988). A template for a spidergram was made using the components outlined in Table 4. These components align with many of the current models for evaluating organizational capacity. Specifically, building from Meyer et al's work with measures for workforce and human resources, data and informational resources, organizational culture, system boundaries and size (2012).

Spidergram Components. Growth orientation is incorporated into the spidergram as a way of understanding system boundaries and scope for Meals on Wheels programs. This construct is important for understanding capacity as it points towards organizational attitudes for transformation and adaptation. The other component to address system boundaries and size relates to the perception of how well the organization is meeting the need within their community service area. Meeting the Need is a separate measure within the spidergram. Mission Orientation is important to capture within the spidergrams as it helps to frame and understand organizational culture. Volunteer capacity spans both organizational culture and workforce and human resources components found in Meyer's work. Volunteers are critical for many Meals on Wheels programs. Staffing capacity is the additional component to workforce and human resources. Lastly, for documenting aspects of organizational capacity, the perception of technology orientation which maps to Meyer's data and informational resources construct is included. The specific item and scale used to assess each of these components is summarized in Table 4. These aligned constructs have been incorporated into a template spidergram, see Figure 5, for use in documenting individual organization's organizational capacity.

Table 4.

Component, Item, and Values for Documenting Organizational Capacity

Component	**Survey Item(s)**	**Values**
Growth orientation	Thinking about your organization over the next few years, how would you categorize your overall approach to programs/services? Are you looking to….	1. Largely stay the course/ keep on keepin' on 2. Decrease or better focus our offerings/services/programs -- either in breadth or depth 3. Extend offerings/services/programs - either in breadth or depth 4. Transform offering -- in terms of breadth/depth/approach
Mission orientation	At the highest level, which of the following BEST aligns with your organization's purpose? Would you say ...	1. Is primarily FOOD oriented. As in your mission is to feed. 2. Is primarily SENIOR oriented. As in your mission is to serve seniors. 3. Is primarily COMMUNITY oriented. Our mission is to promote community health and wellness 4. OTHER (please explain briefly)
Technology orientation	Which of the following best describes your program: When it comes to collecting information at our program...	1. We're old school. We have computers but we also use a lot of pens and paper. We work from paper, memory and routine. 2. We're fairly middle of the road. We collect a lot of information on paper but then transfer it to spreadsheets and databases. 3. We're pretty tech savvy as a program. Most of our paperwork and processes are now digital, and often automated. We actively seek out new digital tools/software to advance our operations when we can.
Staffing Capacity	Overall, our program is…	7-point scale – 1. Short-staffed to 7. Well-staffed.
Volunteer Capacity	Overall, our program is…	7-point scale – 1. In dire need of volunteers to 7. Flush with volunteers.
Meeting the Need	Overall, our program is…	7-point scale – 1. Leaving a lot of people that need HOME DELIVERED meals unserved to 7. Serving HOME DELIVERED meals to just about everyone in our community that needs one.

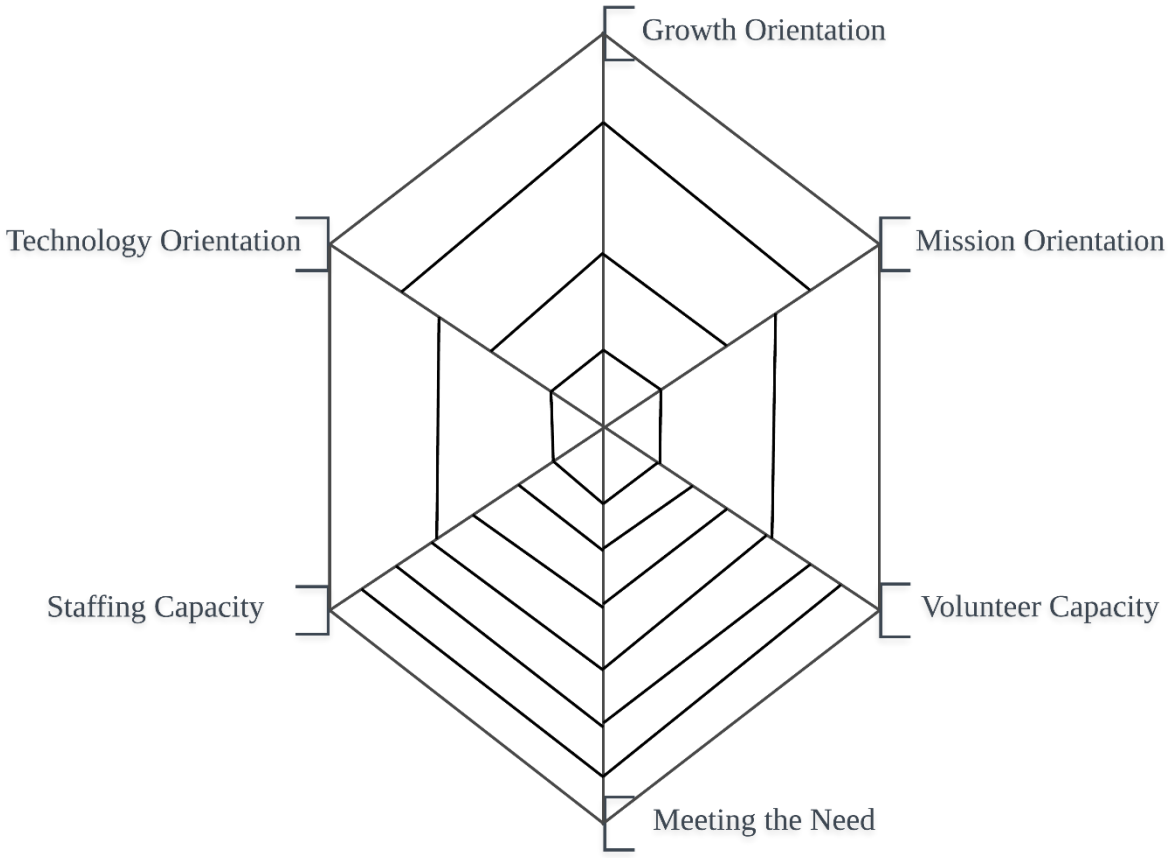

Figure 5. Template Spidergram for Documenting Organizational Capacity

The purpose of documenting capacity in this way allows for a visual representation of differences and similarities. It does not inherently assign positive or negative values to the various components identified. A total of twelve programmatic spidergrams have been created using an even representation of rural only service area, partial rural service area, and non-rural service area programs. For each service area, three individual organization spidergrams were created. First the pool of individual service area respondents was identified (rural only service area, partial rural service area, and non-rural service area). Individual organizations were identified using a random number generator to identify the organization within the unique pool. The number generated was based on the total number of organizations represented in the pool.

The number generated was matched with the corresponding organization's survey. If all the variables of interest were recorded, a spidergram was created. If any of the six variables of interest were missing, the survey was removed from the pool and the random number generator was used to select the next organization to be depicted via a spidergram. The process was repeated reducing the pool by one each time a spidergram was created or the survey was removed from the pool for incomplete data. A fourth spidergram per service area was created to understand general trends across geographic areas. The fourth spidergram was based on the highest percentage of responses from the individual pools. A descriptive analysis was run of each of the six variables of interest by service area. The highest percentage was used to denote the location on the spidergram.

The different spidergrams allow for visual representation of the variation in organizational capacity across rural, partial rural, and non-rural senior nutrition programs to be seen. This product becomes a useful tool for programs to use in understanding their organizational capacity and potentially monitoring changes over time. This tool can also be used to inform the development of policy recommendations that are inherently rural inclusive. By viewing the various Rural Only, Partial Rural, and Non-rural Service Area Spidergrams, contextual understanding of the programs can be gained, which can inform the recommendations to policy makers. A more holistic picture of organizational capacity is obtained by looking at both an overarching pool response as well as individual organizational representations.

Problem Identification and Policy Analysis

Leveraging the Center for Disease Control and Prevention's portal for policy-relevant tools and resources, POLARIS (Office of the Associate Director for Policy and Strategy, 2019), a systematic approach to problem identification and policy analysis – the first two steps in the

CDC's Policy Process – was conducted. Using the above literature review and results from the program variation and stratified program variation across Rural Only, Partial Rural, and Non-rural Service Areas and the analysis of the above spidergrams, a problem statement was developed. This problem statement focuses on rural populations and aims to identify gaps in rural service areas and the constructs associated with the Consistent Service Model – nutrition, in-home safety, socialization, and community connections.

Following the development of the problem statement a policy analysis was conducted, looking at the current work to reauthorize the Older Americans Act. CDC's Policy Analysis Criteria and Key Questions (see Appendix D) was the guide for assessing the criteria of: a. public health impact, b. feasibility, and c. economic and budgetary impacts. Since the tenet of stakeholder engagement is critical to the CDC's Policy Process, two subject matter experts were contacted and asked to provide their perspective to support the researcher's findings. Their feedback and perspectives are incorporated into the results and discussion.

These policy recommendations are framed as rural inclusive and can be used to guide advocacy efforts to strengthen the support of the Older Americans Act. Furthermore, East Tennessee State University's Institution Review Board reviewed the protocol via Form 129 to determine whether or not this research is considered human research per the Department of Health and Human Services and/or Food and Drug Administration regulatory definitions.

Chapter 4. Results

The *More Than a Meal* Comprehensive Network Study had partial responses from 1,060 individual organizations, a 98% participation rate. Of those partial responses, 644 were online qualified completes (60.8% of 1,060), indicating responses that were consented and validated through the online survey tool. This group was qualified for use in the analysis outlined in the methods chapter. As discussed earlier in the methods, those surveys conducted over the phone were given a condensed survey focusing on zip code service areas, key healthcare integration questions, and a few financial questions. As such, these responses were not used in the analysis. An additional inclusion of the key metric of service area, rurality, also limited the sample size for analysis. Table 5 shows the frequency and percentage of responses by service area type used in the subsequent analysis.

Table 5.

Service Area Type Frequencies of Sample Size used for Analysis

Service area type	Frequency (Percent)
Rural only	28 (5.10%)
Partial rural	182 (33.50%)
Non-rural only	334 (61.40%)
Missing	100
Total	644

Chi-squared Analysis

Twenty separate chi-square tests of independence were performed to examine the relationship between service areas, as defined as rural, partial rural, and non-rural, and the twenty

unique service offerings directly offered by Meals on Wheels programs. The results of these tests can be found in Table 6. Of the twenty services directly offered by Meals on Wheels programs, the following had services with a statistically significant relationship between rurality category at the 0.05 *p*-level: congregate meals, nutrition education, nutrition assessment, coordination of USDA food assistance programs, and telephone reassurance.

Table 6.

Pearson Chi-squared Analysis of Independence between Rurality and Services Directly Offered by Meals on Wheels Programs within the Study Sample

Component of the Consistent Service Model	**Rurality by services currently directly offered**	N	χ^2	df	*p*
Nutrition	Home-delivered meals	544	4.509	2	0.105
	Congregate meals	544	30.568	2	0.000*
	Medical meals	544	0.977	2	0.614
	Nutrition education	437	8.224	2	0.016*
	Nutrition counseling	544	2.987	2	0.225
	Nutrition assessments	437	13.242	2	0.001*
	SNAP application assistance	437	5.336	2	0.069
	Coordination of USDA food assistance programs	437	8.597	2	0.014*
	Meal packs upon hospital discharge	437	3.425	2	0.18
	Grocery assistance/delivery	544	0.603	2	0.74
Socialization	Senior companion	444	1.852	2	0.396
	Telephone reassurance	544	6.646	2	0.036*
	Pet assistance/food delivery	544	2.408	2	0.3
In-home safety	In-home assessments	544	3.052	2	0.217
	Medication management	444	0.781	2	0.677
	In-home safety programs	544	0.103	2	0.985
	Home repair/modification	544	0.245	2	0.885
	Evidence-based programs	544	5.303	2	0.071
Community Connections	Care coordination	544	0.821	2	0.663
	Transportation	544	3.339	2	0.188

* Indicates significance at the $p<0.05$ level

An additional twenty chi-square tests of independence were performed to examine the relationship between service areas, as defined as rural, partial rural, and non-rural, and the twenty

unique service offerings offered via contract by MOW programs who participated in the More Than a Meal Comprehensive Network Study. The results of these tests can be found in Table 7. Of the twenty services offered by MOW programs, none of the contracted services assessed had a statistically significant relationship between rurality category at the 0.05 p-level.

Table 7.

Pearson Chi-squared Analysis of Independence between Rurality and Services Indirectly Offered by Meals on Wheels Programs within the Study Sample

Component of the Consistent Service Model	**Rurality by services currently directly offered**	N	χ^2	df	*p*
Nutrition	Home-delivered meals	438	0.04	2	0.98
	Congregate meals	438	0.998	2	0.607
	Medical meals	438	1.455	2	0.483
	Nutrition education	438	1.924	2	0.382
	Nutrition counseling	438	4.21	2	0.122
	Nutrition assessments	438	0.226	2	0.893
	SNAP application assistance	438	1.044**	2	0.593
	Coordination of USDA food assistance programs	438	0.051	2	0.975
	Meal packs upon hospital discharge	438	0.346**	2	0.841
	Grocery assistance/delivery	438	1.572**	2	0.456
Socialization	Senior companion	437	1.449	2	0.485
	Telephone reassurance	437	1.287**	2	0.526
	Pet assistance/food delivery	437	2.333**	2	0.311
In-home safety	In-home assessments	437	3.093	2	0.213
	Medication management	437	3.097	2	0.213
	In-home safety programs	437	2.216	2	0.33
	Home repair/modification	437	1.551	2	0.46
	Evidence-based programs	437	1.819	2	0.403
Community Connections	Care coordination	437	0.845	2	0.656
	Transportation	437	5.932	2	0.052

* Indicates significance at the $p<0.05$ level

**Indicates Likelihood Ratio reported due to more than 20% of cells having expected count less than 5

Stratified Analysis. A final Chi-squared analysis was performed using the created category variables depicting the four constructs within the Consistent Service Model. The results

are presented in Table 8. *Pearson Chi-squared Analysis of Independence between Rurality and Stratified Service Offerings by Meals on Wheels Programs within the Study Sample.* The results show a statistically significant relationship between service area type and in-home safety.

Table 8.

Pearson Chi-squared Analysis of Independence between Rurality and Stratified Service Offerings by Meals on Wheels Programs within the Study Sample

Rurality by Construct			
n=544	χ^2	df	*p*
Nutrition	1.034	2	0.596
Socialization	3.759	2	0.153
In-home safety	6.143	2	0.046*
Community connections	3.452	2	0.178

* Indicates significance at the $p < 0.05$ level

Given the results of the chi-squared analysis, the researcher opted to perform an additional multinomial logistic regression looking at the outcome of service offering area and the covariates of the four constructs of the Consistent Service Model – nutrition, socialization, in-home safety, and community connections. There was no statistical significance for the model and as such is not reported on in full here.

Spidergrams

Individual Organizations - Rural Only Service Area. Figures 6, 7, and 8 display three Rural Only Service Area organization's responses for their organizational capacity, using the Spidergram template (Figure 5) presented in the Methods section.

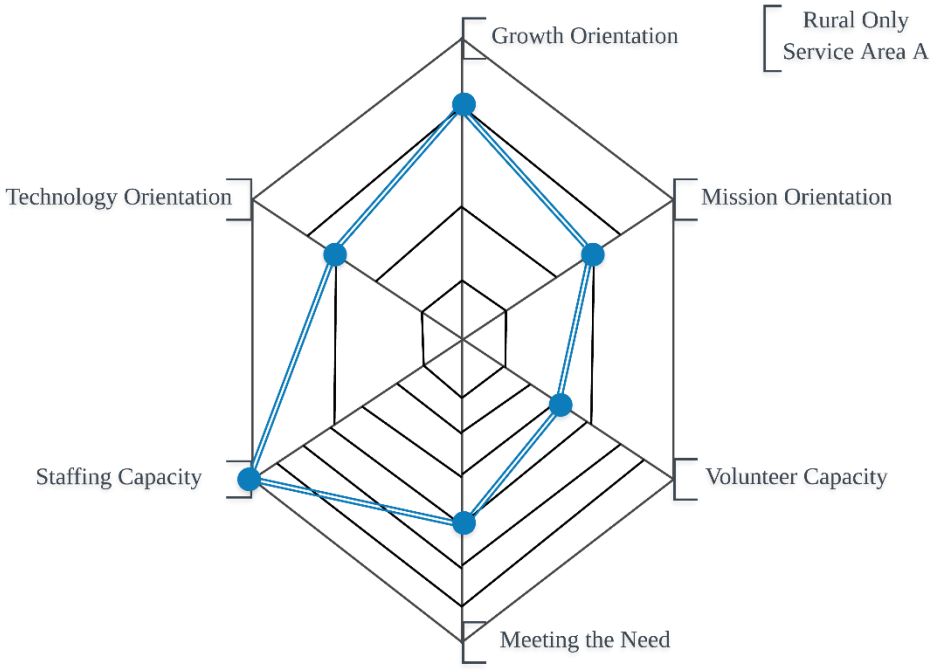

Figure 6. Organizational Capacity Spidergram - Rural Only Service Area A

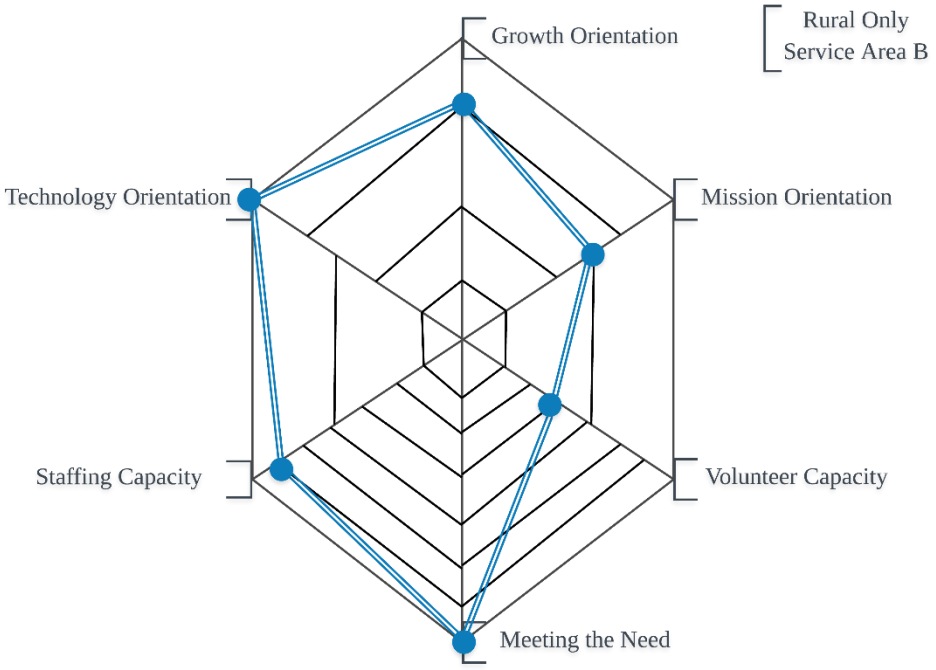

Figure 7. Organizational Capacity Spidergram - Rural Only Service Area B

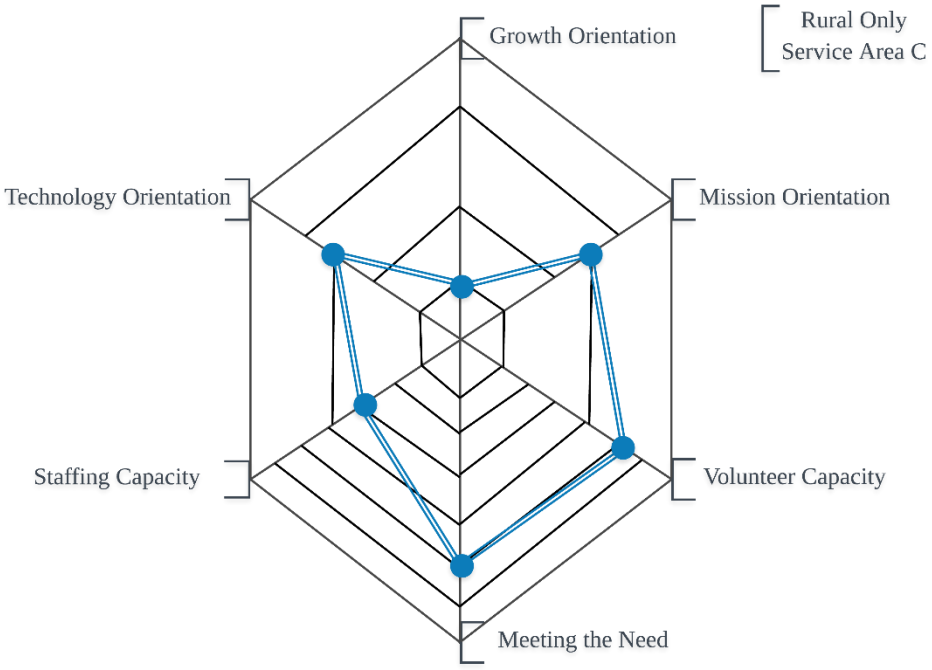

Figure 8. Organizational Capacity Spidergram - Rural Only Service Area C

Individual Organizations - Partial Rural Service Area. Figures 9, 10, and 11 display three Partial Rural Service Area organization's responses for their organizational capacity, using the Spidergram template presented in the Methods section.

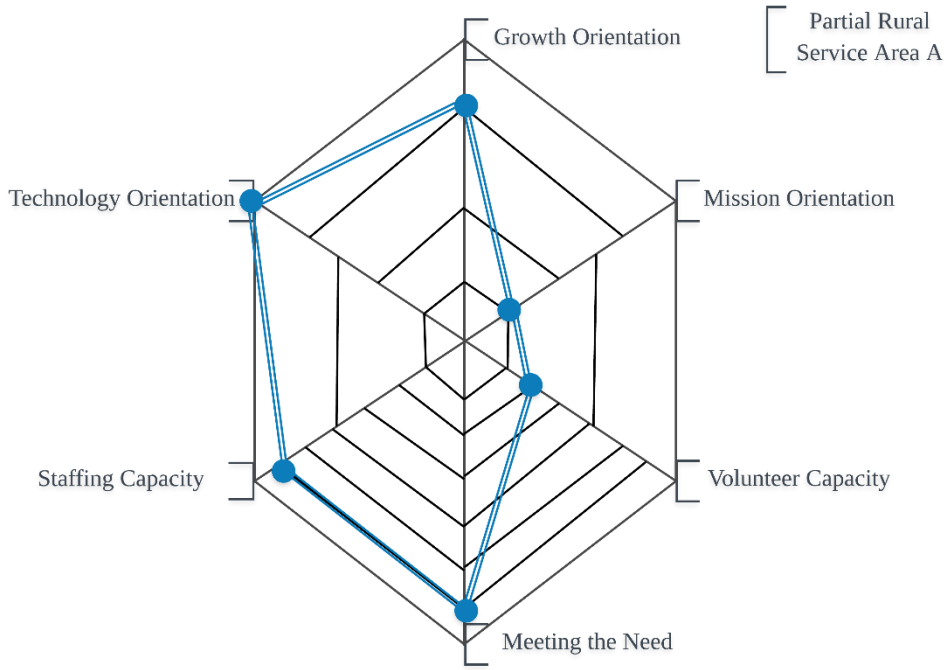

Figure 9. Organizational Capacity Spidergram – Partial Rural Only Service Area A

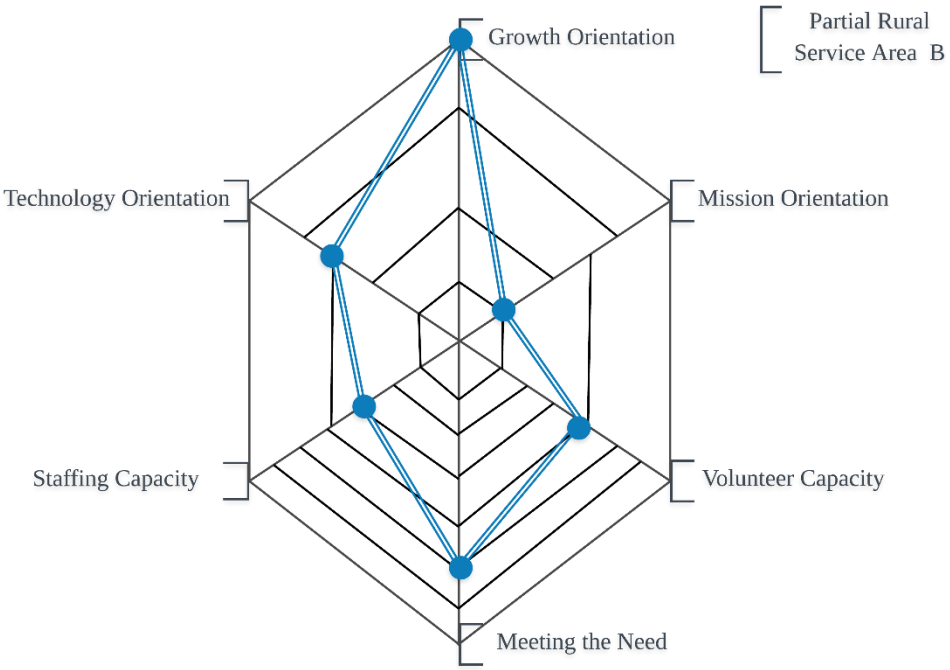

Figure 10. Organizational Capacity Spidergram – Partial Rural Only Service Area B

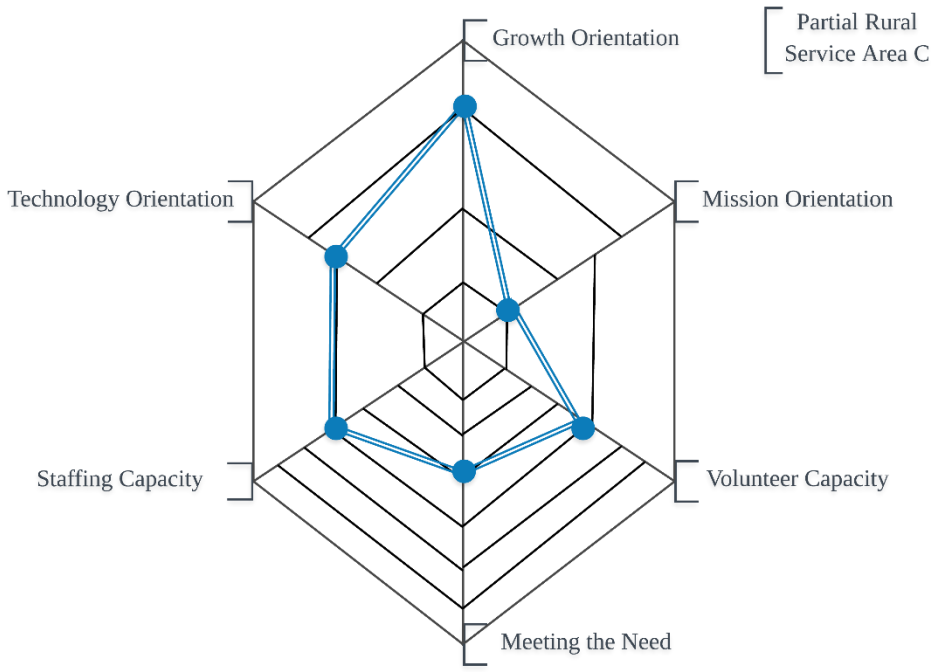

Figure 11. Organizational Capacity Spidergram – Partial Rural Only Service Area C

Individual Organizations - Non-rural Service Area. Figures 12, 13, and 14 display three Non-rural Service Area organization's responses for their organizational capacity, using the Spidergram template presented in the Methods section.

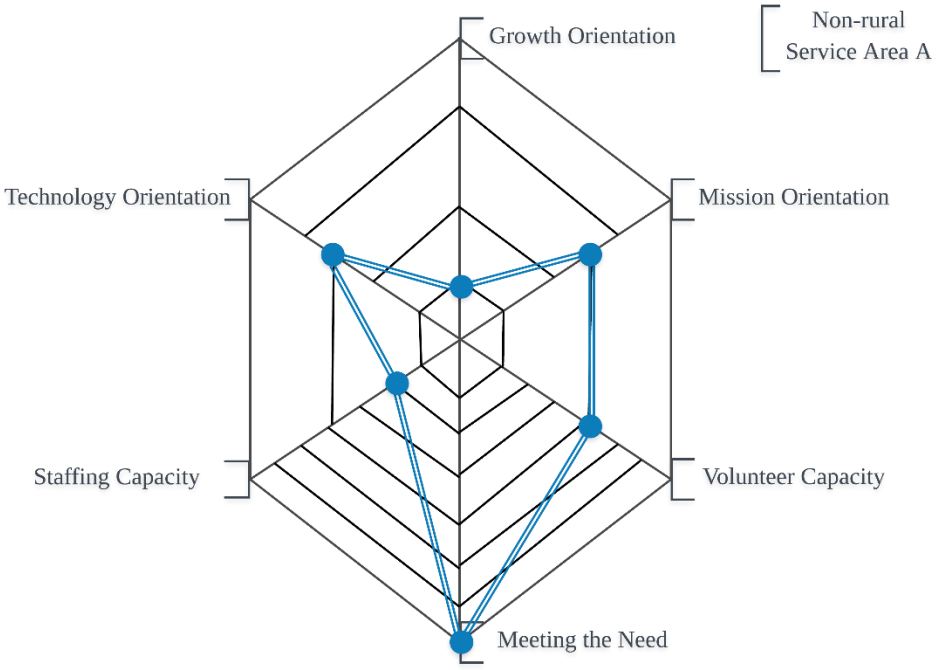

Figure 12. Organizational Capacity Spidergram – Non-rural Only Service Area A

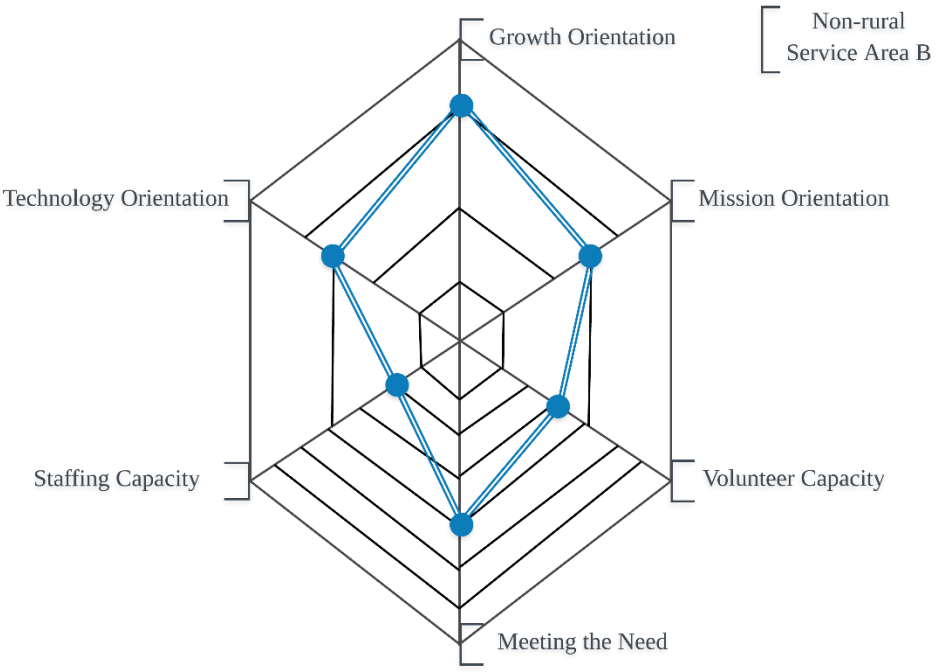

Figure 13. Organizational Capacity Spidergram – Non-rural Only Service Area B

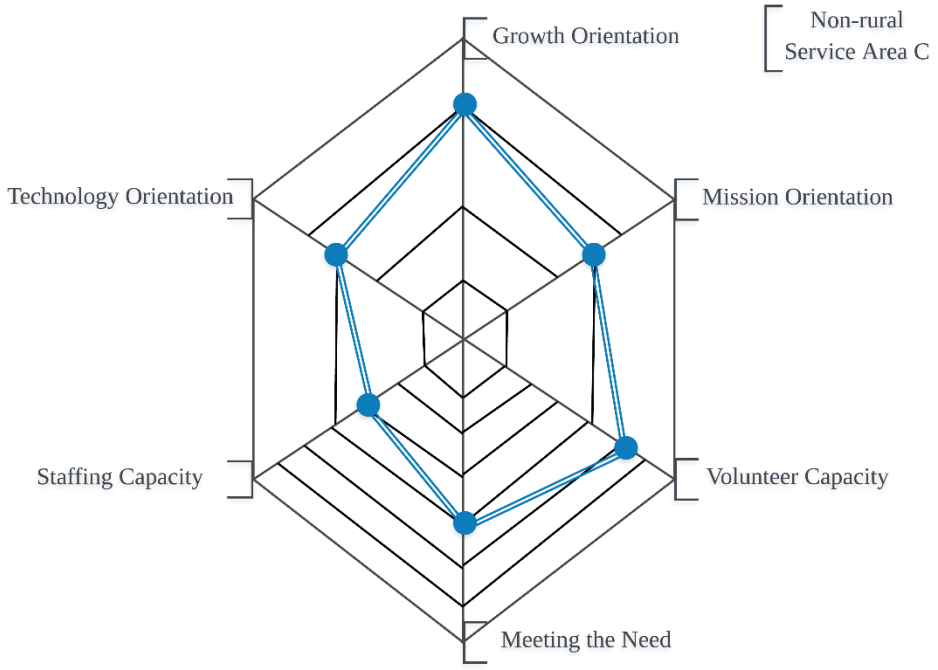

Figure 14. Organizational Capacity Spidergram – Non-rural Only Service Area C

Aggregated Organization's Spidergrams. In order to create an aggregate organizational spidergram, the most common responses for each of the six individual items were identified among the pool of each of the three geographic service areas.

Growth orientation. Table 9 depicts the responses regarding growth orientation by pool of various service areas. Across all service area types, organizations identified with a desire to extend their service offerings. Second to that option was a desire to stay the course within their service offerings. Across the rural only service area, no organizations identified with wanting to reduce the breadth or depth of their current offerings.

Table 9.

Growth Orientation Responses by Service Area

			Growth Orientation				
			1- Largely stay the course/ keep on keepin' on	2 - Decrease or better focus our offerings/services /programs -- either in breadth or depth	3 - Extend offerings/services /programs - either in breadth or depth	4 - Transform offering -- in terms of breadth/depth/ approach	Total
Rurality	Rural	Count	7	0	13	3	23
		% within Rurality	30.4%	0.0%	56.5%	13.0%	100.0%
	Partial Rural	Count	37	5	77	22	141
		% within Rurality	26.2%	3.5%	54.6%	15.6%	100.0%
	Non-rural	Count	64	6	159	30	259
		% within Rurality	24.7%	2.3%	61.4%	11.6%	100.0%

Mission orientation. Table 10 depicts the responses regarding mission orientation by pool of various service areas. Consistently organizations across geographic variation identified as primarily being senior oriented. In rural areas, the next most common, but less reported, is that of being community focused, compared to in non-rural and partial rural areas a second most commonly reported response of food oriented.

Table 10.

Mission Orientation Responses by Service Area

			Misson Orientation				
			1- Is primarily FOOD oriented. As in your mission is to feed.	2- Is primarily SENIOR oriented. As in your mission is to serve seniors.	3- Is primarily COMMUNITY oriented. Our mission is to promote community health and wellness	4- Other (please explain briefly)	Total
Rurality	Rural	Count	3	15	4	0	22
		% within Rurality	13.6%	68.2%	18.2%	0.0%	100.0%
	Partial Rural	Count	27	75	18	3	123
		% within Rurality	22.0%	61.0%	14.6%	2.4%	100.0%
	Non-rural	Count	81	105	34	19	239
		% within Rurality	33.9%	43.9%	14.2%	7.9%	100.0%

Volunteer capacity. Table 11 depicts the responses regarding volunteer capacity by pool of various service areas. Organizations working in a rural only service area identified a moderate low response of three and four when asked about volunteer capacity. For visual representation in Figure 15, a response of three and half was recorded. Partial rural and non-rural service area organizations identified with a moderate response in terms of volunteer capacity, which were consistently coded on Figures 16 and 17, respectively.

Table 11.

Volunteer Capacity Responses by Service Area

			Volunteer Capacity							
			1 - In dire need of volunteers	2	3	4	5	6	7 - Flush with volunteers	Total
Rurality	Rural	Count	1	3	5	5	1	4	2	21
		% within Rurality	4.8%	14.3%	23.8%	23.8%	4.8%	19.0%	9.5%	100.0%
	Partial Rural	Count	3	14	24	27	25	18	10	121
		% within Rurality	2.5%	11.6%	19.8%	22.3%	20.7%	14.9%	8.3%	100.0%
	Non-rural	Count	13	36	51	47	33	32	9	221
		% within Rurality	5.9%	16.3%	23.1%	21.3%	14.9%	14.5%	4.1%	100.0%

Meeting the need. Table 12 depicts the responses regarding meeting the need by pool of various service areas. Rural and non-rural service area organizations identified a middle response to how well their organizations are meeting the need. This compared to a more positive response from partial rural organizations, who fell higher on the continuum at a six out of seven response.

Table 12.

Meeting the Need Responses by Service Area

			Meeting the Need							
			1 - Leaving a lot of people that need HOME DELIVERED meals unserved	2	3	4	5	6	7 - Serving HOME DELIVERED meals to just about everyone in our community that needs one.	Total
Rurality	Rural	Count	0	1	4	5	3	4	4	21
		% within Rurality	0.0%	4.8%	19.0%	23.8%	14.3%	19.0%	19.0%	100.0%
	Partial Rural	Count	6	9	16	22	20	30	18	121
		% within Rurality	5.0%	7.4%	13.2%	18.2%	16.5%	24.8%	14.9%	100.0%
	Non-rural	Count	17	22	32	50	35	28	31	215
		% within Rurality	7.9%	10.2%	14.9%	23.3%	16.3%	13.0%	14.4%	100.0%

Staffing capacity. Table 13 depicts the responses regarding staffing capacity by pool of various service areas. All three service areas identified primarily with being towards the end of the well-staffed continuum.

Table 13.

Staffing Capacity Responses by Service Area

			Staffing Capacity								
			1 - Short Staffed	2	3	4	5	6	7 - Well staffed	Missing	Total
Rurality	Rural	Count	4	0	2	2	1	9	3	0	21
		% within Rurality	19.0%	0.0%	9.5%	9.5%	4.8%	42.9%	14.3%	0.0%	100.0%
	Partial Rural	Count	4	16	19	11	24	36	10	1	121
		% within Rurality	3.3%	13.2%	15.7%	9.1%	19.8%	29.8%	8.3%	0.8%	100.0%
	Non-rural	Count	12	28	31	33	30	60	24	4	222
		% within Rurality	5.4%	12.6%	14.0%	14.9%	13.5%	27.0%	10.8%	1.8%	100.0%

Technology orientation. Table 14 depicts the responses regarding technology orientation by pool of various service areas. All three service areas identified primarily with being in the middle of the road response in regards to technology orientation.

Table 14.

Technology Orientation Responses by Service Area

			Technology Orientation			
			We're old school. Whe have computers but we alsouse a lot of pens and paper. We work from paper, memory and routine	We're fairly middle of the road. We collect a lot of information on paper but then transfer it to spreadsheets and databases.	We're pretty tech savvy as a program. Most of our paperwork and processes are now digital, and often automated. We actively seek out new digital tools/software to advance our operations when we can.	Total
Rurality	Rural	Count	0	15	6	21
		% within Rurality	0.0%	71.4%	28.6%	100.0%
	Partial Rural	Count	5	90	25	120
		% within Rurality	4.2%	75.0%	20.8%	100.0%
	Non-rural	Count	13	135	65	213
		% within Rurality	6.1%	63.4%	30.5%	100.0%

Figure 15 represents a combined organizational capacity picture for all organizations within the dataset who served only in rural areas. This representation depicts the most common responses for the six individual items among the pool of rural only service area.

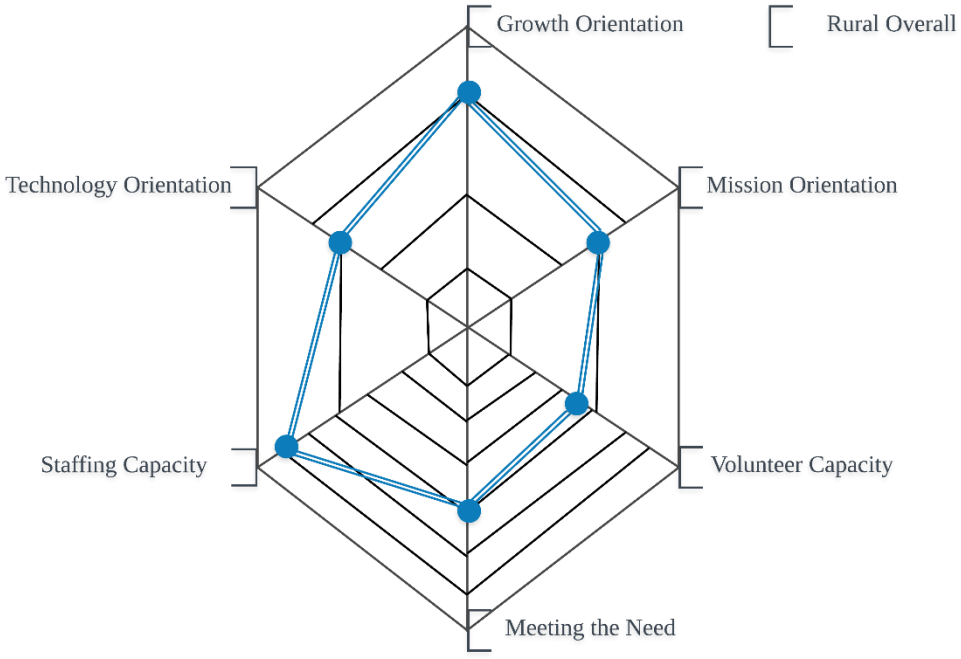

Figure 15. Rural Only Service Area Overall Organizational Capacity Spidergram

Figure 16 represents a combined organizational capacity picture for all organizations within the dataset who served in both rural and non-rural areas. This representation depicts the most common responses for the six individual items among the pool of partial rural service area.

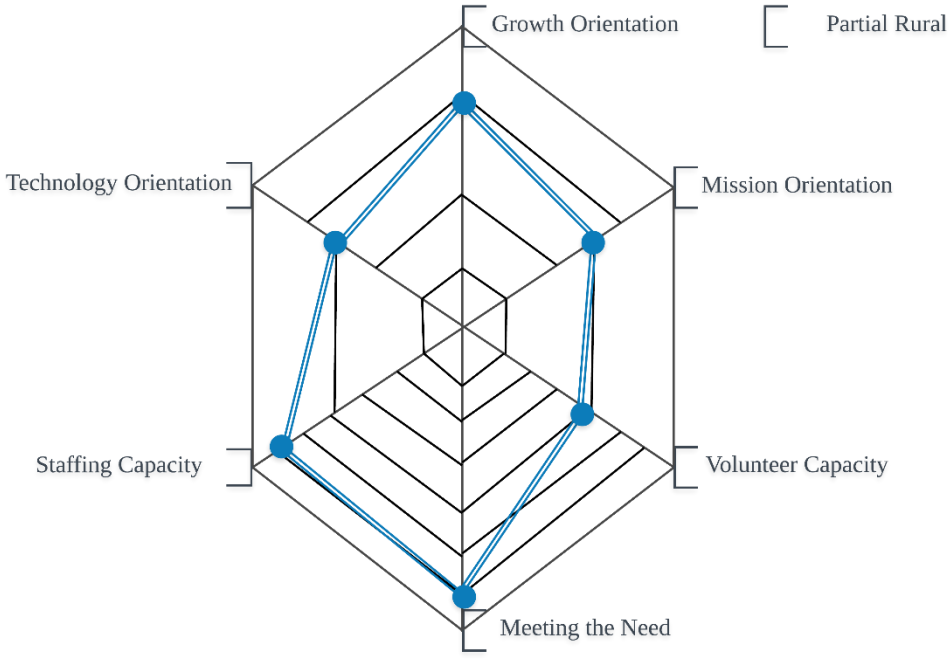

Figure 16. Partial Rural Service Area Overall Organizational Capacity Spidergram

Figure 17 represents a combined organizational capacity picture for all organizations within the dataset who served only in non-rural areas. This representation depicts the most common responses for the six individual items among the pool of non-rural only service area.

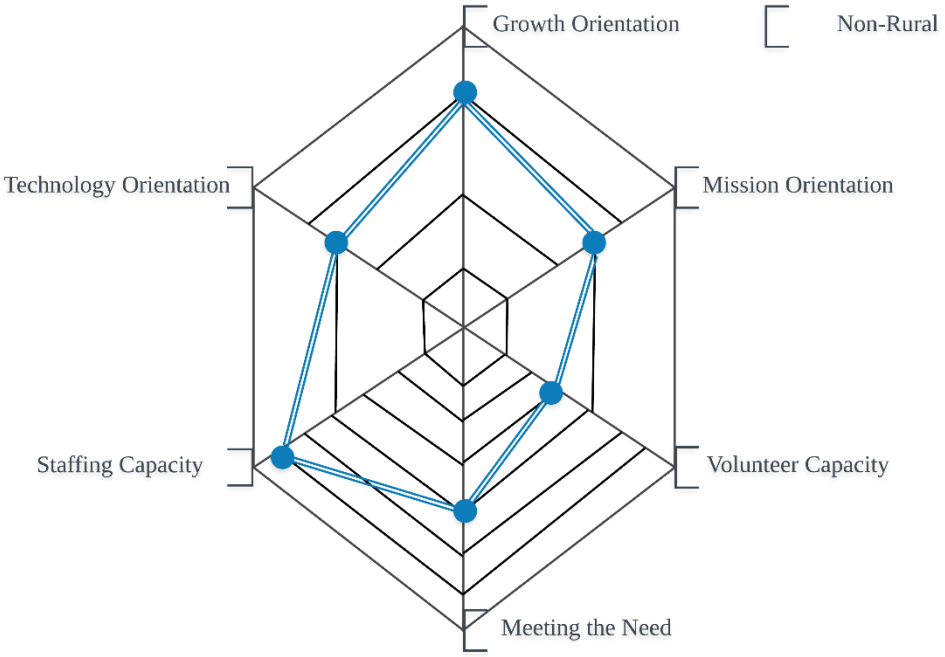

Figure 17. Non-rural Service Area Overall Organizational Capacity Spidergram

Problem Identification & Policy Analysis

The guiding actions from the CDC's POLARIS policy process were used for problem identification, specifically to identify the root cause of the problem through literature review and connection with key stakeholders to develop a problem statement. Using the previous sections of this work, the following problem statement, including root causes, was developed. The problem statement summarizes the population of interest, the scope of the problem, what contributes to the problem and insights into the context of where the problem is more likely to occur.

Problem Statement. The older adult population is on the rise. The older adult population is predicted to double to 98 million by 2060 (Administration on Aging (AoA), 2018). Evidence shows that regardless of geography, only a portion – about a third – of those older adults who have difficulty with activities of daily living are receiving home- and community-based services (Jeszeck, 2015). The work above shows there is some variation across geography for Meals on Wheels providers. The assumption is that homebound older adults in rural areas experience MOW in different ways than in other areas. Specifically, statistically significant differences were found for the in-home safety construct of the Consistent Service Model at a stratified level of analysis. Meals on Wheels organizations recognize the need for more volunteers to meet the growing need in their communities. Additionally, technology capabilities may play a role in the organizational strength necessary to support the full complement of Meals on Wheels services. Contributing factors to this problem include a lack of diverse funding streams to support Meals on Wheels programs. Also, the older adult population in need of Meals on Wheels services is a growing and changing population, which is larger in rural geographies. Community-based organizations have varying levels of organizational capacity including technology acumen and staff make-up needed to meet the changing needs of older adults.

Policy Options. Current policy options that support and strengthen the enabling context of Meals on Wheels programs include a complement of local, state, and federal policies, such as tax levies, millages, and federal legislation. For the purpose of this analysis, policy options have been limited to the federal Older Americans Act (OAA). Limiting the policy analysis and options to this legislation allows for a focused and meaningful product.

The following three policy options were developed using the literature review and results of this work, building off of the policy statement and the current reauthorization for the OAA in the Senate – Supporting Older Americans Act of 2020 (H.R. 4334, 2020).

1. **Policy Option A – Provision for Innovation Programs**: Allows demonstration projects specific to rural communities and/or leveraging technology for aging-in-place to be funded under Title IV of OAA.

2. **Policy Option B – Report on In-home Safety**: Requires the Secretary of Health and Human Services to review existing programs, with particular care to those delivered in rural communities, to determine if and how such programs adequately address in-home safety for older adults.

3. **Policy Option C – Business Acumen Provisions:** Requires the Assistant Secretary for Aging to provide technical assistance on how to deliver skilled training for volunteers and staffs with particular emphasis on building organizational infrastructure to grow alternative revenue streams for services rendered, while understanding different populations in different settings, such as rural communities.

The above policy options along with the problem statement were shared with two key stakeholders. One stakeholder has a focus and expertise on rural health. The other stakeholder has a focus and expertise on senior nutrition policy, including the Older Americans Act. These stakeholders provided their perspectives to the researcher on the potential policy options. The researcher used the CDC's Policy Analysis Key Questions and Policy Analysis Table (Office of the Associate Director for Policy and Strategy, 2019) (and found in Appendix D) to guide the

discussion and frame the type of feedback each of the stakeholders provided. Their individual feedback is summarized below.

Rural Health Expert. In reference to policy one, the rural health expert found the following to be the case. The public health impact potential of the policy for provisions of innovations programs, as well as the feasibility of this policy, was high. Furthermore, the budgetary impacts were to have moderate costs to implement and the economic impacts were such that the potential benefits justified the cost.

As for policy two, a report on in-home safety, public health impacts were felt to be moderate. However, the likelihood of being enacted was high. The expert felt that this policy would have low costs to implement and that the costs are low compared to the possible benefits. However, the stakeholder did have concerns about the amount and quality of data that would be needed to substantiate the policy.

Finally, for policy three, a provision for business acumen, this stakeholder identified that this policy would have a small reach and impact. Yet, there is a moderate likelihood of it being enacted with moderate costs to implement. Lastly, the stakeholder felt that costs would be high relative to the potential benefits.

Senior Nutrition Program Policy Expert. The senior nutrition program policy expert felt that demonstration projects had a moderate potential for public health impact, but that there was little likelihood of it being enacted. Furthermore, the expert indicated that the costs from a budgetary perspective would be high. The stakeholder felt that the benefits did justify the costs.

For policy two, public health impacts associated with a report on in-home safety were felt to be moderate with a high likelihood of being implemented. The expert felt that this report on

in-home safety would have high costs to implement with relatively low benefits compared to the cost, meaning the return on investment is not favorable.

Lastly, for the third policy related to a business acumen provision, the senior nutrition policy expert felt that there would be a moderate public health benefit associated with this policy option. Additionally, there is little to no likelihood of it being enacted. The stakeholder identified that there would be high costs to implement and that the costs are high relative to the potential benefits associated with this potential policy provision.

Chapter 5. Discussion

Geographic Variation in Services Provided by Meals on Wheels Programs

Older adults living in rural areas access the full complement of services provided by MOW programs differently than do their non-rural counterparts. Specifically, a statistically significant relationship was found between geographic service area and the stratified component of in-home safety. Additionally, when evaluated on the individual service offering level, statistically significant relationships between rurality and congregate meals, nutrition education, nutrition assessment, coordination of USDA food assistance programs, and telephone reassurance were seen. However, the multinomial logistic regression was unable to predict geographic variation based on the components of the Consistent Service Model. As such, future recommendations for strengthening the dataset and limitations of the dataset are discussed in the subsequent sections.

As previously stated, rural older adults experience in-home safety differently from their non-rural counterparts. They are at greater risk for falls (Coben et al., 2009; Yiannakoulias et al., 2003) and the access to both treatment and prevention of falls differs in rural areas (Bolin et al., 2015). In addition to falls, housing types, quality of housing, and age of both older adults and housing stock differ by geography. Rural communities have higher rates of substandard housing (Housing Assistance Council, 2012). Furthermore, rural stakeholders working in and with rural communities identify quality housing as a barrier to improving health and equity (NORC Walsh Center for Rural Health Analysis, 2018).

Looking at the four nutrition services that had statistically significant relationships by geography, the context in how these services are delivered may shed additional light onto this relationship. Congregate meals are meals served in a social setting to individuals who travel to a

central location. Given the distances that rural residents must travel to access any service, may play into this relationship. Mabli et al. showed geographic access to congregate sites varied between rural and urban participants with distances being greater for rural participants (2017).

Currently, Section 214 of the Older Americans Act calls for nutrition education and nutrition assessment as part of an integrated health promotion and disease prevention program in accordance with Sec. 339(2)(J) and which is overseen by the Assistant Secretary for Aging, along with consulting the Secretary of Agriculture [42 U.S.C. 3020d]. Yet in Section 339, it allows for the nutrition project to "provide for nutrition screening and nutrition education, and nutrition assessment and counseling if appropriate" [42 U.S.C. 3030g-21 Sec. 339(2)(J)] This variation in the legislation may influence the geographic relationship found in the chi-squared analysis. Furthermore, the trained staff needed to conduct nutrition screening and assessment may vary geographically as well.

The USDA Food and Nutrition Service (FNS) has four types of food access assistance for older adults: Supplemental Nutrition Assistance Program (SNAP), Commodity Supplemental Food Program (CSFP), Child and Adult Care Food Program (CACFP), and Senior Farmers' Market Nutrition Program (SFMNP) (GAO-20-19, 2019). However, whether or not a MOW provider is also coordinating USDA food assistance programs will be dependent upon how the state agencies implement the guidance from the USDA FNS and the Administration for Community Living (Gergerich, Shobe, & Christy, 2015). Variation by geography is not surprising as it is allowed for within the policy provisions supporting operationalizing these programs.

Lastly, telephone reassurance is a mechanism used by some MOW programs to stay connected to their older adult clients. Anecdotally, this service is provided to clients as a

touchpoint. In some cases, it is used to supplement human contact when meal delivery is not daily. This type of delivery is allowed for when geography is a barrier to daily delivery (i.e., in rural communities). In other instances, it is used as a formal program to address social isolation and loneliness experienced by MOW clients (S. Heinz, personal communication, October 17, 2018).

Spidergrams

The documenting of organizational capacity via spidergrams created a unique way to assess and understand organizational capacity for senior nutrition programs. First, the three individual organization's representations withing each classification of rurality create snapshots of individual staff's interpretations of where the organization falls along the continuum of the six identified components for this definition of organizational capacity. This allows for a visual representation of differences and similarities. Each of the three individual representations by service area types provides insight into that individual organization. However, by adding the fourth spidergram based on aggregated responses, a new dimension of how to use spidergrams was created. Historically, spidergrams have not been used in this way. However, the researcher opted to include this type of analysis in order to have a benchmark to understand organizational capacity across the full sample of respondents. This representation continues to highlight similarities and differences. It is important to also look at the responses found in Tables 9-14, as given the sample size, in some cases very few responses would have altered, rather dramatically, the makeup of the spidergram. These variations and nuances are outlined in the individual component sections within the results. The individual spidergrams provide a novel, practical approach for documenting and visually depicting organizational capacity. In general, the aggregated spidegrams produced for non-rural and rural looked almost identical with one slight

variation in volunteer capacity. Additionally, the only variation for the partial rural service area was seen in the meeting the need component. The aggregated spidergrams provided a unique lens that was useful in informing the policy options developed.

The goal of documenting organizational capacity in this way was to understand organization's ability to grow the number of seniors served. Among this sample, the majority of organizations, regardless of geography, were interested in growing their services either in breadth or depth. This positive attitude is one step towards being able to serve more seniors through MOWs. However, also understanding the mission, community need, and technology orientation of the organizations is critical to the success of MOW programs to be able to serve more seniors. Finally, having a fully equipped staff and volunteer base, of which many organizations did not identify, is necessary for growing the reach of MOW.

Policy Analysis

The policy analysis conducted within this work were the first two steps of the five-step process outlined by the CDC (Office of the Associate Director for Policy and Strategy, 2019). The recommendations outlined present three separate opportunities for strengthening the senior nutrition network. The recommendations are framed within the current recommendations to reauthorize the Older Americans Act. The first recommendation would be an addition to Title IV, which historically has been defunded. Funding to support this provision, if supported and enacted, would need to be earmarked. The second recommendation around a report for in-home safety similarly would need a funding stream. Currently, a report on social isolation is under consideration in the reauthorization of the Older Americans Act (H.R. 4334, 2020). The third recommendation calls for building organizational infrastructure with an emphasis on rural communities. This policy while positively framed for rural communities presents some

challenges associated with understanding how success would be measured if this policy was enacted.

The CDC's policy analysis calls for three additional steps of strategy and policy development, policy enactment, and policy implementation. The three options, while viable additions to the OAA and mostly supported with moderate to high public health impact, feasibility, and budgetary and economic considerations by key stakeholders, may not all be appropriate to carry on into the strategy and policy development phase. Given the input of the two key stakeholders, prioritizing the first two policy options – a provision for innovation programs and a report on in-home safety – for strategy and policy development is recommended. During this next stage of work, it will be critical to understand funding mechanisms for these two suggested policy options for strengthening the senior nutrition network.

Limitations

The *More Than a Meal* Comprehensive Network Study was inclusive of the Meals on Wheels America membership. While this sample was more inclusive than the publicly available data found through the Administration for Community Living, which only reports on clients and programs that benefit from OAA dollars, the sample was limited in the fact that it did not include non-member MOW programs. Furthermore, differences between members and non-member MOW programs are not known, including geographic location. Additionally, the sample size of rural programs included in analysis was small (n=28) compared to non-rural (n=334) and partial rural (n=182) programs. Chi-squared analysis was an appropriate first step in understanding if relationships exist between services offered and geography. However, further analysis is needed to understand the relationship between and among the components of interest. Due to the

variation in sample size of rural and non-rural programs, further analysis, such as a binomial logistic regression, was not appropriate.

The varying definitions of rurality create an additional limitation to this work. While the zip code approximator for RUCA codes is a valid methodology, it is based on U.S. Census data from 2000. Ideally, the use of 2010 U.S. Census data would be used. Yet, at the time of this work, a 2010 U.S. Census based zip code approximator for RUCA codes was not available. Furthermore, because of this, and older version of RUCA codes was used than currently exists. While the most current compatible version of each was used, this is an additional limitation to this work. It is unclear if an updated zip code approximator would have generated a larger rural sample size. The more current RUCA codes collapsed many of the secondary codes used for this analysis (J. Cromartie, personal communication, September 9, 2019).

The *More Than a Meal* Comprehensive Network Study creates some limitations and potential bias to this study. The survey itself while thoughtfully designed was quite long. Survey fatigue may have occurred with those completing the survey. Additionally, the items used to document organizational capacity were the perceptions of one individual working within the organization. Historically, spidergrams have been created with multiple viewpoints accounted for and a consensus gathered around where along the continuum the program is located. Additionally, the definition of organizational capacity as illustrated by the spidergrams excludes governance, which is seen by many as an important component of organizational capacity. Lastly, presenting an aggregate spidergram of a pool of organizations reduces the unique individual characteristics. While it proved useful for this type of analysis, it may not always be appropriate to use spidergrams in this way.

The policy analysis was only conducted on the OAA level. A limitation of this study is excluding options such as federal policy for USDA FNS as well as other policy avenues. The POLARIS guide encouraged looking both at federal, state, and local policy levers as well as organizational policy levers to support system-level change for health improvement. A mechanism to strengthen this work would be to look at other policy levers that should be considered to strengthen organizations and sustain the delivery of MOW in communities across the U.S. Additionally, the number of individuals and the position of those individuals providing feedback and guidance on the policy recommendations is small. One additional consideration would be to include the individual clients who would benefit from the policies to provide feedback. However, appropriate approval would need to be obtained to ensure the protection of a vulnerable population.

Future Work and Recommendations

This work was a first step to understanding regional variation of services delivered through Meals on Wheels programs. Future studies should use a larger sample size to tease out additional relationships and potentially predictive indicators. Furthermore, looking at changes to this data over time as well as across different regional boundaries could be useful for crafting inclusive policies on the state and local levels.

Understanding organizational capacity and the services provided data from the *More Than a Meal* Comprehensive Network Study provided insight into indirect contributing factors for older adult health. However, future work should incorporate an evaluation of the impacts to older adults' health and wellbeing to any potential differences identified through the data. Recommendations include obtaining a larger sample size including participants' health and wellbeing data to understand the clients being served. Care should be paid to race, age, gender

and sexual orientation with the goal of creating equitable policies to support aging-in-place for clients.

Parallel to future studies requiring additional data, additional analysis of the current dataset from the *More Than a Meal* Comprehensive Network Study should be evaluated. Detailing how home-delivered meals are delivered by geography would be a valuable asset to understanding how the current OAA guidelines are operationalized. The full dataset includes details on length of delivery, length of time spent with client, types of meals delivered, and quantities of meals delivered.

This work began the five-step process of the POLARIS policy process. Continuing onto steps three and beyond would be an appropriate next step. Additionally, if this was undertaken, more stakeholders including better representation of MOW programs and older adults benefiting or eligible to benefit from home- and community-based services should be engaged in the subsequent steps.

Finally, taking steps to better understand the differences and similarities of in-home safety services by geography is recommended as future work. Whether or not a full HHS supported report would be mandated, additional research can and should be undertaken. This effort would be appropriate of a Rural Health Research Center.

Conclusion

This work started to articulate the importance of looking at organizational capacity as a part of policy recommendations for understanding rural-based entities. Additionally, leveraging existing creative, innovative solutions to increase the number of older adults who receive the

needed home- and community-based services will be critical to the success of the aging network and other infrastructures in the U.S. with the growing population changes.

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APPENDICES

Appendix A: List of Definitions

Aging Network – The system of supports to older adults comprised of state units on aging (SUA), area agencies on aging (AAA), tribal organizations, and home and community-based service providers (HCBS)

Aging in Place - The ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level. (https://www.cdc.gov/healthyplaces/terminology.htm)

Age-friendly communities - policies, services and structures related to the physical and social environment designed to support and enable older people to live in security, enjoy good health and continue to participate fully in society (https://www.who.int/ageing/projects/age_friendly_cities/en/)

Congregate Dining/Meals – meals served in a social setting to individuals who travel to a central location.

General capacity - knowledge, skills, motivation and attitudes required for overall functioning and achievement (Flaspohler et al., 2008). This construct can be observed on differing levels including individual, organizational, and community.

Healthy community - A community that is continuously creating and improving those physical and social environments and expanding those community resources that enable people to mutually support each other in performing all the functions of life and in developing to their maximum potential. (https://www.cdc.gov/healthyplaces/terminology.htm)

Home Delivered Meals (HDM) – meals delivered, often by volunteers, to individuals in their residence.

Senior Nutrition Programs – federally supported programing to increase access of nutrition for older adults, includes congregate, home delivered meals, senior farmers' market nutrition, commodity supplemental food and other programs. These programs are typically administered via home and community-based services locally (including MOW programs) and are federally administered out of the Department of Health and Human Service's Administration on Aging and the United States Department of Agriculture, respectively.

Social Capital – sense of cooperation, reciprocity, and trust among community members (Putnam, 2000)

Social determinants of health are the conditions in which people live, learn, work and play that effect their health risk. (Office of Disease Prevention & Health Promotion, 2019c)

Meals on Wheels programs/senior nutrition programs – organizations that provide nutritionally-balanced meals to older adults either in their home or at a senior center (see also congregate meals and home delivered meals)

Organizational capacity – ability of an organization to achieve its mission through strong governance, rededication to assessing and achieving results, and good management (Grantmakers for Effective Organizations, 2014)

Older adult – any adult aged 65 and older

Older Americans Act (OAA) – federal legislation that provides funding support to senior nutrition programs

Appendix B. Written Permission from Meals on Wheels America

MEALS on WHEELS AMERICA
TOGETHER, WE CAN DELIVER.

July 20, 2019

Dr. Deborah Slawson
College of Public Health
East Tennessee State University
Johnson City, TN 37614

Support for Carter Florence Dissertation

Dear Dr. Slawson:

I am writing to ensure that your doctoral candidate, L. Carter Florence, has permission to use the data collected in the *More Than A Meal* Comprehensive Network Study as part of her dissertation work. She is given the right to access the data in aggregate and use her findings from the data set to support her overarching dissertation. Any journal articles or subsequent publications to the dissertation manuscript would need additional consent from our organization.

Sincerely,

Lucy Theilheimer
Chief Strategy & Impact Officer
Meals on Wheels America

1550 Crystal Drive, Suite 1004, Arlington, VA 22202 • 888.998.6325
www.mealsonwheelsamerica.org

Appendix C. Full Description of the Items from the *More Than a Meal* Comprehensive Network Study Used for Analysis

[record]: Record number
Open numeric response

[uuid]: Respondent identifier
Open text response

[status]: Respondent status
Values: 1-4

Terminated
2 Overquota
3 Qualified
4 Partial

[hType]: Hidden question for type of respondent:
Values: 1-4

1 Online
2 Telephone
3 Net forum
4 Short Survey

[S1]: Hi, Thank you for helping us complete the newest piece of our More than a Meal research endeavor. This Comprehensive Network Study is integral to our ongoing efforts to better serve you. Specifically, the learnings and quantifiable data from this effort will drive our advocacy work, funding efforts, and overall strategic planning. We are aiming to have each and every member represented and need your help to make this a reality. The data you report will be securely stored and then compiled into a robust profile of the Meals on Wheels America membership and the clients you serve. The profile report will be yours as well. While we'll be using it to better represent you and match you to funding opportunities, it is also your resource to learn from and leverage in your local planning, communications and fundraising efforts. To complete this, you will likely need to reference your program files and databases. If you need to skip a question, you can. If the answer options do not seem relevant to you, please add notes when you can and simply leave blank and click CONTINUE when you need to. We're here to help. For any questions or concerns please reach out to cns@MealsonWheelsAmerica.org or call Shannon Ely, our research partner, at (774) 462-0385.
Values: 1-2

1 COUNT US IN
2 WE'D LIKE TO OPT OUT OF THIS STUDY

[Q113]: At the highest level, which of the following BEST aligns with your organization's purpose? Would you say ...
Values: 1-4

Is primarily FOOD oriented. As in your mission
1 is to feed.

Is primarily SENIOR oriented. As in your mission
2 is to serve seniors.

Is primarily COMMUNITY oriented. Our mission
3 it to promote community health and wellness
4 OTHER (please explain briefly)

[Q113r4oe]: At the highest level, which of the following BEST aligns with your organization's purpose? Would you say ... - OTHER (please explain briefly)
Open text response

Q119: What zip codes does currently cover? (Bonus points if you have zip+four!)
Open text response

[Q121]: Thinking about your organization over the next few years, how would you categorize your overall approach to programs/services?Are you looking to….
Values: 1-4

1 Largely stay the course/ keep on keepin' on
Decrease or better focus our
offerings/services/programs -- either in
2 breadth or depth
Extend offerings/services/programs - either in
3 breadth or depth
Transform offering -- in terms of
4 breadth/depth/approach

Q201ar1: Home-delivered meals - As of 2018, what meals services or supports does provide? Please select any combination that describes your offering most accurately. For example, if your program serves home delivered meals to clients directly, AND you contract with others to provide home delivered meals, AND you sometimes refer clients to other programs for home delivered meals informally, select "Offer", "Contract" and "Refer."
Values: 0-1

0 Unchecked
1 Checked

[Q201ar1c4] We currently offer this service directly
[Q201ar1c3] We formally contract with others to provide this service
[Q201ar1c5] We internally refer these services
[Q201ar1c6] We refer these services to outside programs
[Q201ar1c1] We are considering our options for this
[Q201ar1c0] We do NOT offer/contract no plans to do so

Q201ar2: Congregate meals - As of 2018, what meals services or supports does provide? Please select any combination that describes your offering most accurately. For example, if your program serves home delivered meals to clients directly, AND you contract with others to provide home delivered meals, AND you sometimes refer clients to other programs for home delivered meals informally, select “Offer”, “Contract” and “Refer.”
Values: 0-1

0	Unchecked
1	Checked
[Q201ar2c4]	We currently offer this service directly
[Q201ar2c3]	We formally contract with others to provide this service
[Q201ar2c5]	We internally refer these services
[Q201ar2c6]	We refer these services to outside programs
[Q201ar2c1]	We are considering our options for this
[Q201ar2c0]	We do NOT offer/contract no plans to do so

Q201ar3: Medical meals (Meals tailored to an individual's medical condition, in consultation with a registered dietitian or a qualified nutrition professional; e.g. diabetic or renal meals) - As of 2018, what meals services or supports does provide? Please select any combination that describes your offering most accurately. For example, if your program serves home delivered meals to clients directly, AND you contract with others to provide home delivered meals, AND you sometimes refer clients to other programs for home delivered meals informally, select “Offer”, “Contract” and “Refer.”
Values: 0-1

0	Unchecked
1	Checked
[Q201ar3c4]	We currently offer this service directly
[Q201ar3c3]	We formally contract with others to provide this service
[Q201ar3c5]	We internally refer these services
[Q201ar3c6]	We refer these services to outside programs
[Q201ar3c1]	We are considering our options for this
[Q201ar3c0]	We do NOT offer/contract no plans to do so

Q201br4: Nutrition education - What other nutrition services does provide?
Values: 0-1

0	Unchecked
1	Checked
	We currently offer this service directly
	We formally contract with others to provide this service
[Q201br4c5]	We internally refer these services
[Q201br4c6]	We refer these services to outside programs
[Q201br4c1]	We are considering our options for this
[Q201br4c0]	We do NOT offer/contract no plans to do so

Q201br5: Nutrition counseling - What other nutrition services does provide?
Values: 0-1

0	Unchecked
1	Checked
[Q201br5c4]	We currently offer this service directly
[Q201br5c3]	We formally contract with others to provide this service
[Q201br5c5]	We internally refer these services
[Q201br5c6]	We refer these services to outside programs
[Q201br5c1]	We are considering our options for this
[Q201br5c0]	We do NOT offer/contract no plans to do so

Q201br6: Nutrition assessments - What other nutrition services does provide?
Values: 0-1

0	Unchecked
1	Checked
[Q201br6c4]	We currently offer this service directly
[Q201br6c3]	We formally contract with others to provide this service
[Q201br6c5]	We internally refer these services
[Q201br6c6]	We refer these services to outside programs
[Q201br6c1]	We are considering our options for this
[Q201br6c0]	We do NOT offer/contract no plans to do so

Q201br7: SNAP Application assistance - What other nutrition services does provide?
Values: 0-1

0	Unchecked
1	Checked
[Q201br7c4]	We currently offer this service directly
[Q201br7c3]	We formally contract with others to provide this service
[Q201br7c5]	We internally refer these services
[Q201br7c6]	We refer these services to outside programs
[Q201br7c1]	We are considering our options for this
[Q201br7c0]	We do NOT offer/contract no plans to do so

Q201br8: Coordination of USDA Food Assistance programs(E.g. Senior Farmer's Market, CSFP) - What other nutrition services does provide?
Values: 0-1

0	Unchecked
1	Checked
[Q201br8c4]	We currently offer this service directly
[Q201br8c3]	We formally contract with others to provide this service
[Q201br8c5]	We internally refer these services
[Q201br8c6]	We refer these services to outside programs
[Q201br8c1]	We are considering our options for this
[Q201br8c0]	We do NOT offer/contract no plans to do so

Q201br9: Meal packs upon hospital discharge - What other nutrition services does provide?

Values: 0-1

	0	Unchecked
	1	Checked
[Q201br9c4]		We currently offer this service directly
[Q201br9c3]		We formally contract with others to provide this service
[Q201br9c5]		We internally refer these services
[Q201br9c6]		We refer these services to outside programs
[Q201br9c1]		We are considering our options for this
[Q201br9c0]		We do NOT offer/contract no plans to do so

Q201br10: Grocery assistance/delivery - What other nutrition services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201br10c4]		We currently offer this service directly
[Q201br10c3]		We formally contract with others to provide this service
[Q201br10c5]		We internally refer these services
[Q201br10c6]		We refer these services to outside programs
[Q201br10c1]		We are considering our options for this
[Q201br10c0]		We do NOT offer/contract no plans to do so

Q201cr11: Senior companion (aka Friendly visit)(Companionship beyond the meal delivery) - What social support services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201cr11c4]		We currently offer this service directly
[Q201cr11c3]		We formally contract with others to provide this service
[Q201cr11c5]		We internally refer these services
[Q201cr11c6]		We refer these services to outside programs
[Q201cr11c1]		We are considering our options for this
[Q201cr11c0]		We do NOT offer/contract no plans to do so

Q201cr12: Telephone reassurance - What social support services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201cr12c4]		We currently offer this service directly
[Q201cr12c3]		We formally contract with others to provide this service
[Q201cr12c5]		We internally refer these services
[Q201cr12c6]		We refer these services to outside programs
[Q201cr12c1]		We are considering our options for this
[Q201cr12c0]		We do NOT offer/contract no plans to do so

Q201cr13: Pet assistance/food delivery - What social support services does provide?
Values: 0-1

	0	Unchecked

	1	Checked
[Q201cr13c4]		We currently offer this service directly
[Q201cr13c3]		We formally contract with others to provide this service
[Q201cr13c5]		We internally refer these services
[Q201cr13c6]		We refer these services to outside programs
[Q201cr13c1]		We are considering our options for this
[Q201cr13c0]		We do NOT offer/contract no plans to do so

Q201dr14: In-home assessments (By this we mean: systematic, detailed assessment of the the client and their living situation. Used to provide information to guide the scope of services they may receive) - What other supportive services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201dr14c4]		We currently offer this service directly
[Q201dr14c3]		We formally contract with others to provide this service
[Q201dr14c5]		We internally refer these services
[Q201dr14c6]		We refer these services to outside programs
[Q201dr14c1]		We are considering our options for this
[Q201dr14c0]		We do NOT offer/contract no plans to do so

Q201dr15: Care coordination (Either formally or informally connecting clients to health and other supportive services .....either directly or through referrals to other organizations) - What other supportive services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201dr15c4]		We currently offer this service directly
[Q201dr15c3]		We formally contract with others to provide this service
[Q201dr15c5]		We internally refer these services
[Q201dr15c6]		We refer these services to outside programs
[Q201dr15c1]		We are considering our options for this
[Q201dr15c0]		We do NOT offer/contract no plans to do so

Q201dr16: Transportation - What other supportive services does provide?
Values: 0-1

	0	Unchecked
	1	Checked
[Q201dr16c4]		We currently offer this service directly
[Q201dr16c3]		We formally contract with others to provide this service
[Q201dr16c5]		We internally refer these services
[Q201dr16c6]		We refer these services to outside programs
[Q201dr16c1]		We are considering our options for this
[Q201dr16c0]		We do NOT offer/contract no plans to do so

Q201dr17: Medication management - What other supportive services does provide?
Values: 0-1

	0 Unchecked
	1 Checked
[Q201dr17c4]	We currently offer this service directly
[Q201dr17c3]	We formally contract with others to provide this service
[Q201dr17c5]	We internally refer these services
[Q201dr17c6]	We refer these services to outside programs
[Q201dr17c1]	We are considering our options for this
[Q201dr17c0]	We do NOT offer/contract no plans to do so

Q201dr18: In-home safety programs - What other supportive services does provide?
Values: 0-1

	0 Unchecked
	1 Checked
[Q201dr18c4]	We currently offer this service directly
[Q201dr18c3]	We formally contract with others to provide this service
[Q201dr18c5]	We internally refer these services
[Q201dr18c6]	We refer these services to outside programs
[Q201dr18c1]	We are considering our options for this
[Q201dr18c0]	We do NOT offer/contract no plans to do so

Q201dr19: Home repair/ modifications - What other supportive services does provide?
Values: 0-1

	0 Unchecked
	1 Checked
[Q201dr19c4]	We currently offer this service directly
[Q201dr19c3]	We formally contract with others to provide this service
[Q201dr19c5]	We internally refer these services
[Q201dr19c6]	We refer these services to outside programs
[Q201dr19c1]	We are considering our options for this
[Q201dr19c0]	We do NOT offer/contract no plans to do so

Q201dr20: Evidence-based programs This could be programs for things like Chronic Disease Self-Management, A Matter of Balance, Otago, etc...) - What other supportive services does provide?
Values: 0-1

	0 Unchecked
	1 Checked
[Q201dr20c4]	We currently offer this service directly
[Q201dr20c3]	We formally contract with others to provide this service
[Q201dr20c5]	We internally refer these services
[Q201dr20c6]	We refer these services to outside programs
[Q201dr20c1]	We are considering our options for this
[Q201dr20c0]	We do NOT offer/contract no plans to do so

[Q301]: For the following questions, please toggle the dial closest to the answer with with your program would most identify. Assume directly in the middle means "somewhere in between".Overall, our program is...
Values: 1-99

7	Well-staffed
6	
5	
4	
3	
2	
1	Short Staffed
99	"No" staffed (we're an entirely volunteer-run organization)

[Q302]: Overall, our program is...
Values: 1-99

7	In dire need of volunteers
6	
5	
4	
3	
2	
1	Flush with volunteers
99	We do not use volunteers

[Q303]: Overall, our program is...
Values: 1-7

7	Serving HOME DELIVERED meals to just about everyone in our community that needs one
6	
5	
4	
3	
2	
1	Leaving a lot of people that need HOME DELIVERED meals unserved

[Q304]:
Values: 1-7

7	Could take on more HOME DELIVERED clients today
6	
5	
4	
3	
2	
1	Are at max capacity for HOME DELIVERED clients with current set-up

[Q701]: Which of the following best describes your program: When it comes to collecting information at our program...
Values: 1-3

1 We're old school. We have computers but we also use a lot of pens and paper. We work from paper, memory and routine.

2 We're fairly middle of the road. We collect a lot of information on paper but then transfer it to spreadsheets and databases.

3 We're pretty tech savvy as a program. Most of our paperwork and processes are now digital, and often automated. We actively seek out new digital tools/software to advance our operations when we can.

Appendix D. Center for Disease Control and Prevention POLARIS Key Policy Questions and Analysis Table

Table 1: Policy Analysis: Key Questions	
Framing Questions	
• What is the policy lever—is it legislative, administrative, regulatory, other? • What level of government or institution will implement? • How does the policy work/operate? (e.g., is it mandatory? Will enforcement be necessary? How is it funded? Who is responsible for administering the policy?) • What are the objectives of the policy? • What is the legal landscape surrounding the policy (e.g., court rulings, constitutionality)? • What is the historical context (e.g., has the policy been debated previously)? • What are the experiences of other jurisdictions? • What is the value-added of the policy? • What are the expected short, intermediate, and long-term outcomes? • What might be the unintended positive and negative consequences of the policy?	
Criteria	**Questions**

Public Health Impact: Potential for the policy to impact risk factors, quality of life, disparities, morbidity and mortality	• How does the policy address the problem or issue (e.g., increase access, protect from exposure)?
	• What are the magnitude, reach, and distribution of benefit and burden (including impact on risk factor, quality of life, morbidity and mortality)?
	  ○ What population(s) will benefit? How much? When?
	  ○ What population(s) will be negatively impacted? How much? When?
	• Will the policy impact health disparities / health equity? How?
	• Are there gaps in the data/evidence-base?

Feasibility* : Likelihood that the policy can be successfully adopted and implemented	*Political* • What are the current political forces, including political history, environment, and policy debate? • Who are the stakeholders, including supporters and opponents? What are their interests and values? • What are the potential social, educational, and cultural perspectives associated with the policy option (e.g., lack of knowledge, fear of change, force of habit)? • What are the potential impacts of the policy on other sectors and high priority issues (e.g., sustainability, economic impact)? *Operational* • What are the resource, capacity, and technical needs developing, enacting, and implementing the policy? • How much time is needed for the policy to be enacted, implemented, and enforced? • How scalable, flexible, and transferable is the policy?

Economic and budgetary impacts: Comparison of the costs to enact, implement, and enforce the policy with the value of the benefits	*Budget*
	• What are the costs and benefits associated with the policy, from a budgetary perspective?
	  ○ e.g., for public (federal, state, local) and private entities to enact, implement, and enforce the policy?
	Economic
	• How do costs compare to benefits (e.g., cost-savings, costs averted, ROI, cost-effectiveness, cost-benefit analysis, etc.)?
	  ○ How are costs and benefits distributed (e.g., for individuals, businesses, government)?
	  ○ What is the timeline for costs and benefits?
	• Where are there gaps in the data/evidence-base?

*In assessing feasibility, it is important to identify critical barriers that will prevent the policy from being developed or adopted at the current time. For such policies, it may not be worthwhile to spend much time analyzing other factors (e.g., budget and economic impact). However, by identifying these critical barriers, you can be more readily able to identify when they shift and how to act quickly when there is a window of opportunity.

Table 2. Policy Analysis Table				
Criteria	**Public Health Impact**	**Feasibility**	**Economic and Budgetary Impact**	
Scoring Definitions	***Low:*** *small reach, effect size, and impact on disparate populations* ***Medium:*** *small reach with large effect size or large reach with small effect size* ***High:*** *large reach, effect size, and impact on disparate populations*	***Low:*** *No/small likelihood of being enacted* ***Medium:*** *Moderate likelihood of being enacted* ***High****: High likelihood of being enacted*	**Less favorable***: High costs to implement* **Favorable***: Moderate costs to implement* **More favorable***: Low costs to implement*	**Less favorable***: costs are high relative to benefits* **Favorable***: costs are moderate relative to benefits (benefits justify costs)* **More favorable***: costs are low relative to benefits*
Policy 1 _____	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	**Budget** ☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)	**Economic** ☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)
Policy 2 _____	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)	☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)
Policy 3 _____	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	☐ Low ☐ Medium ☐ High Concerns about the amount or quality of data? (Yes / No)	☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)	☐ Less favorable ☐ Favorable ☐ More favorable Concerns about the amount or quality of data? (Yes / No)

NOTE: Scoring is subjective and this table is intended to be used as an organizational guide.

VITA

LEA CARTER FLORENCE

Education: DrPH Community Health, East Tennessee State University, Johnson City, Tennessee, 2020

M.P.H. Community & Behavioral Health, East Tennessee State University, Johnson City, Tennessee, 2013

B.S. Chemistry, Centre College, Danville, Kentucky, 2008

Public Schools, Johnson City, Tennessee

Professional Experience: Teacher – Chemistry & Physics, Academy of the Sacred Heart; New Orleans, LA, 2008 – 2010

Baker, CakeFlour on Market; Louisville, KY, 2011

Office Manager, Governor's Scholars Program, Centre College; Danville, KY, Summers 2006 – 2012

Graduate Assistant, East Tennessee State University, College of Nursing; Johnson City, TN, 2011 – 2012

Research Assistant, East Tennessee State University, College of Public Health; Johnson City, TN, 2013 - 2016

Director of Community Initiatives, Rural Support Partners; Asheville, NC, 2016 – 2017

Director, Strategy & Impact, Meals on Wheels America; Arlington, VA, 2018 – 2019

Senior Director, Strategy & Impact, Meals on Wheels America; Arlington, VA, 2019 – present

Publications: Hillhouse J, Turrisi R, Scaglione N, Cleveland M, Baker K, &

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