Administration of Community Living (ACL) Return on Investment (ROI) Grant: Impact of Aging and Disability Resource Center (ADRC) Visit on Utilization of Institutional Care

August 17, 2021

Report by MetaStar, Inc. for the Department of Health Services

No Wrong Door System Business Case Development Grant #90NWBC0003-01-00

Table of Contents

Executive Summary

This study is part of a larger grant issued by the Administration of Community Living (ACL) to assess the impact of the No Wrong Door (NWD) systems and develop a return on investment (ROI) calculator. The study measures four outcomes using Medicare and Medicaid claims data: 30-day readmissions at hospitals, emergency department (ED) visits, skilled nursing facility (SNF) length of stay, and community tenure. The first two measures focus on the impact of aging and disability resource centers (ADRCs) on acute care while the other two include long-term care. The study compared the change in these four outcomes over a two-year period for ADRC visitors with an equivalent group of people who did not visit an ADRC in Wisconsin.

We found that the ADRC group saw a larger drop in both 30-day readmissions and ED visits post-ADRC visit than the equivalent group that did not visit an ADRC. The long-term care measures showed a larger drop in stays for the non-ADRC group. We believe some of the services provided by the NWD system and ADRCs led to an increase in long-term care institutional stays.

Introduction

Navigating through the complex world of long-term services and supports (LTSS) can be a daunting prospect. These services are usually provided and funded by a mix of personal resources, federal, state, and local agencies. In addition, each one of these myriad programs have their own requirements and processes to determine eligibility. These can include steps such as filling out forms, screenings, and conducting needs assessments (*Administration of Community Living, 2015*). These challenges can lead to people making decisions based on incomplete information or even completely deter individuals from seeking support. This can further lead to individuals utilizing the most expensive forms of care, including institutional care such as nursing home care, hospitalizations, or potentially even more frequent visits to the ED *(Administration for Community Living, 2017)*.

The No Wrong Door (NWD) system is a collaborative initiative of the Centers of Medicare & Medicaid Services (CMS), Administration for Community Living (ACL) and the Veterans Health Administration (VHA) to develop a system that can serve as a single point of contact to provide customers with information and one-on-one counseling about the options available across all the agencies (federal, state, local, and private) and in their communities. In 2003, grants to several states established ADRCs. These were expanded in the following years to many other states. Over the years through many grants, these centers have evolved to include several initiatives like veteran-directed home and community-based services; transition support from hospitals and nursing homes to community living; and person-centered counseling, also known as options counseling, to create an effective NWD system.
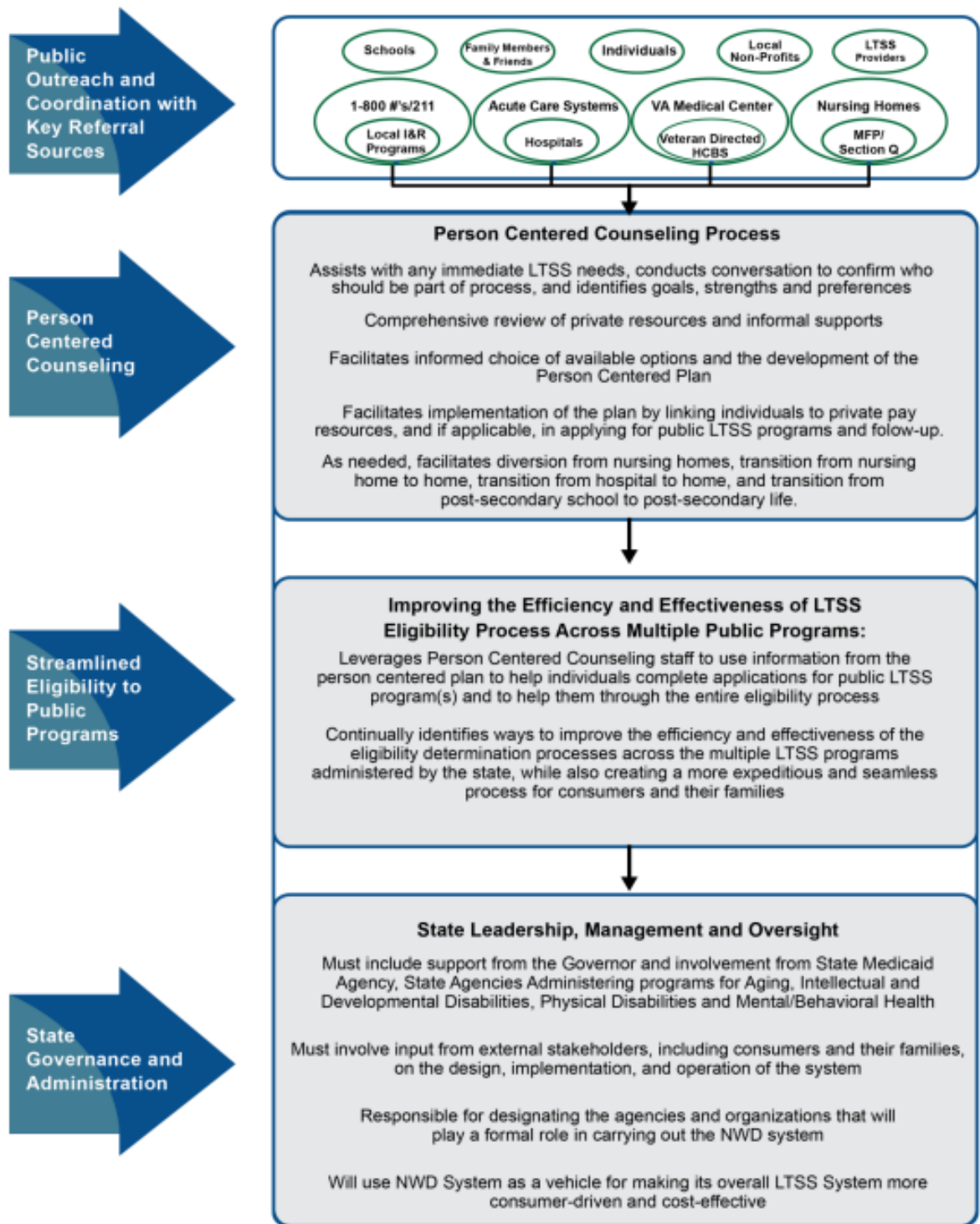
No Wrong Door Schematic

Public Outreach and Coordination with Key Referral Sources

- Schools
- Family Members & Friends
- Individuals
- Local Non-Profits
- LTSS Providers
- 1-800 #'s/211
- Local I&R Programs
- Acute Care Systems
- Hospitals
- VA Medical Center
- Veteran Directed HCBS
- Nursing Homes
- MFP/ Section Q

Person Centered Counseling

Person Centered Counseling Process

Assists with any immediate LTSS needs, conducts conversation to confirm who should be part of process, and identifies goals, strengths and preferences

Comprehensive review of private resources and informal supports

Facilitates informed choice of available options and the development of the Person Centered Plan

Facilitates implementation of the plan by linking individuals to private pay resources, and if applicable, in applying for public LTSS programs and follow-up.

As needed, facilitates diversion from nursing homes, transition from nursing home to home, transition from hospital to home, and transition from post-secondary school to post-secondary life.

Streamlined Eligibility to Public Programs

Improving the Efficiency and Effectiveness of LTSS Eligibility Process Across Multiple Public Programs:

Leverages Person Centered Counseling staff to use information from the person centered plan to help individuals complete applications for public LTSS program(s) and to help them through the entire eligibility process

Continually identifies ways to improve the efficiency and effectiveness of the eligibility determination processes across the multiple LTSS programs administered by the state, while also creating a more expeditious and seamless process for consumers and their families

State Governance and Administration

State Leadership, Management and Oversight

Must include support from the Governor and involvement from State Medicaid Agency, State Agencies Administering programs for Aging, Intellectual and Developmental Disabilities, Physical Disabilities and Mental/Behavioral Health

Must involve input from external stakeholders, including consumers and their families, on the design, implementation, and operation of the system

Responsible for designating the agencies and organizations that will play a formal role in carrying out the NWD system

Will use NWD System as a vehicle for making its overall LTSS System more consumer-driven and cost-effective

Figure 1: Four Elements of a NWD System (Administration of Community Living)

The primary and key agencies in Wisconsin's NWD system are the ADRCs. Wisconsin's ADRCs were implemented prior to the development and availability of federal funding for ADRCs. Because of this, Wisconsin invests a substantial amount of general purpose revenue (GPR) funds to support this critical component of the long-term care system. Planning for ADRCs began in 1995, with eight pilot resource centers beginning their operations in 1999. By 2013, Wisconsin had ADRCs operating statewide. Wisconsin's ADRCs serve all 72 counties and 11 federally recognized tribes by providing a local place for older adults and adults with disabilities to seek unbiased information on a variety of services and supports.

This study is part of a larger grant issued by the ACL to assess the impact of NWD systems and develop an ROI calculator. The calculator will help decision-makers more effectively estimate the impact of interventions and changes in the NWD system, measure and monitor the impact of interventions, and drive business case development and sustainability strategies.

Current Research on NWD and Outcomes

There has been mounting evidence supporting the ability of NWD systems to help coordinate services across multiple agencies and thereby improve the access to and the quality of the services provided. Three case studies published by Ethan Evans demonstrated the effectiveness of these systems in facilitating coordination between different agencies. The NWD systems implemented were effective in diverse areas including assisting with health insurance enrollment, coordinating services for intimate partner violence (IPV) victims, and improving educational programming for vulnerable youth (*Evans, 2019*).

Several states have published stories of individuals who have benefited from contact with their state NWD systems *(No Wrong Door: Virginias Key Strategic Initiative for Long-Term Care, 2008)*. A study done by Mathematica Policy Research found that receiving early LTSS in the community setting provided several benefits. They found that people who initiated LTSS in community settings experienced reduced institutional stays, reduced rates of re-institutionalization for older adults, and a higher likelihood to transition to community setting with LTSS (*Stewart & Irvin, 2019*).

Our study seeks to understand how Wisconsin's system of providing NWD services through ADRCs impacts utilization by comparing a group that received services with a control group that did not. The measures we used were the change in 30-day all cause readmissions, ED visits, length of stay at a SNF, and overall community tenure.

We hypothesize that an effective NWD system should reduce the utilization of these services by delivering more effective home and community-based services.

Methodology

Datasets

To measure utilization we used the following datasets:

1. Long-Term Care Encounter database:

This database stored the information on ADRC services provided. This data included information on the date of service, type of service, and customer demographic information, among other fields.

2. Medicare Datasets:
   We used the Medicare Fee-for-Service (FFS) Inpatient claims, FFS outpatient claims, FFS carrier files (physician services), and enrollment files to determine utilization for Medicare beneficiaries who received ADRC services.

3. Medicaid Datasets:
   We used the Medicare FFS and Encounter Datasets provided to us by the Wisconsin Department of Health Services (DHS).

Matching

To connect people who received ADRC services to their claims in Medicaid and Medicare, a strict match algorithm was used, matching on last name, date of birth, gender, and state of residence. Only individuals with a single match were included in the study. Furthermore, any individual with a Medicare or Medicaid claim had to be enrolled as a beneficiary for the duration of the study with at most one month of allowed gap. The initial list of ADRC customers was restricted to customers who visited a Wisconsin ADRC in 2017. This was done to ensure we had at least 12 months of claims data before and after 2017 for a pre-post comparison of utilization. Our outcome measures for utilization are defined as follows:

1. **30-Day All-Cause Readmissions**

   Unplanned readmissions. Based on CMS/Yale measure. Not risk adjusted *(Centers for Medicare & Medicaid Services, 2015)*. Possibly limit to people who have received service after hospital discharge. Denominator: Eligible (index) admissions include acute care hospitalizations for Medicare FFS beneficiaries aged 65 or older at non-federal, short-stay, and acute-care or critical access hospitals that occurred during the performance period and are not excluded for the reasons listed in the next section. Admissions for all principal diagnoses are included unless identified as having an exclusion. A hospital stay that counts as a readmission for a prior stay also counts as a new index stay if it meets the criteria for an index stay.

   Exclusions: Beneficiaries are excluded from the population measured if they:
   - Were enrolled in Medicare Part A only or Medicare Part B only for any month during the performance period.
   - Were enrolled in a private Medicare health plan (for example, a Medicare Advantage Health Maintenance Organization (HMO)/Preferred Provider Organization (PPO), or a Medicare private FFS plan) for any month during the performance period.
   - Resided outside of the United States, its territories, and its possessions during the performance period.

   In addition, hospitalizations are excluded from the denominator if the beneficiary:
   - Died during the admission.

- Was not continuously enrolled in Medicare Part A FFS for at least 30 days following discharge from the index admission.
- Lacked complete Medicare Part A and Part B FFS enrollment history for the 12 months prior to the index admission.
- Was discharged against medical advice.
- Was transferred from the admission to another acute care hospital.
- Was hospitalized in a prospective payment system-exempt cancer hospital.
- Was hospitalized for medical treatment of cancer.
- Was hospitalized for a primary psychiatric disease.

Numerator: Any unplanned readmission to a non-federal, short-stay, acute-care, or critical access hospital within 30 days of discharge from an index admission. Readmissions during the 30-day period that follow a planned readmission are not counted in the outcome. In the case of multiple readmissions during the 30-day period, the measure counts only one outcome. Readmissions to the same hospital on the same day for the same principal diagnosis are not counted in the outcome.

2. **ED Visits**

There are many methods available to identify ED visits using administrative claims including those published by Yale (*Venkatesh, et al., 2017*), ResDAC (*Research Data Assistance Center (ResDAC), 2015*), Facility-based, and provider-based (Venkatesh, et al., 2017). We found that the Yale definition was comprehensive (used both facility-based and provider claims) and was developed after extensive clinical review of codes for exclusion and inclusion. The definition is as follows:

a. We use three sources of data: carrier, outpatient, and inpatient claims.
b. Carrier Claims:
   i. We identify physician service claims in the ED setting using Healthcare Common Procedure Coding System (HCPCS) codes: 99281-99285 and 99291.
   ii. To ensure claims were for ED services and to remove any services that use similar codes in other settings like physician offices or urgent care, we remove any claims that do not have a "Place of Service" code of 23.
   iii. Carrier claim lines with the same BENE_ID, LINE_1ST_EXPNS_DT, PRF_PHYSN_NPI, and TAX_NUM are considered duplicates from coding.
c. Outpatient Claims:
   i. Identify outpatient facility claims using Revenue Center Codes: 0450–0549, 0981.
   ii. Remove duplicates from coding: Outpatient claim lines with the same BENE_ID, REV_CNTR, and PRVDR_NUM, and both HCPCS_1ST_MDFR_CD and HCPCS_2ND_MDFR_CD not equal to 25 or 27 are considered duplicates from coding.
   iii. Remove claims that overlap with provider claims already identified in step b. Any hospital inpatient or outpatient claim for an ED visit on the same day, previous day, or following calendar day is an overlapping visit that should not be counted as a unique ED encounter.

    d. Inpatient Claims:
        i. Identify inpatient facility claims using Revenue Center Codes: 0450–0549, 0981.
       ii. Remove duplicates from coding: Only the first line in each inpatient claim is considered a real ED visit. The rest in the same claim are considered duplicates within hospitalization.
      iii. Remove claims that overlap with provider claims already identified in step b. Any hospital inpatient or outpatient claim for an ED visit on the same day, previous day, or following calendar day is an overlapping visit that should not be counted as a unique ED encounter.
    e. Other Exclusions and Inclusions:
        i. Observation admissions: Any visit resulting in hospital observation service use (outpatient revenue c enter 0762 or out-patient revenue center 0760 and HCPCS G0378) in which a hospital revenue center code for ED services is also present (0450–0459, 0981) is evidence of an ED visit.

3. Nursing Home Length of Stay

Number of days spent at a skilled nursing facility post-ADRC contact

    a. Exclude people coming to ADRC to get into Medicaid long-term care or stratify them into separate groups.
    b. In institutional setting for ≥ 90 days before, and active transition from setting to home/community setting service provided.

4. Community Tenure

Community Tenure is the number of days that FFS Medicare beneficiaries/Medicaid beneficiaries spent at home (that is, not in an institution that bills). Only eligible FFS beneficiaries with at least one overnight stay in a Part A institutional setting (Table 1) are included in this metric.

$$Community\ Tenure = \frac{Total\ Eligible\ Days - Total\ Institutional\ Days}{Total\ Eligible\ Days}$$

Total Eligible Days: Number of days in which eligible beneficiaries are enrolled in FFS Medicare based on monthly enrollment data from the CMS Denominator Files or Medicaid Enrollment Files.

Inclusions:

- Days of Medicare/Medicaid FFS eligibility for all beneficiaries with at least one overnight stay in an institutional setting.

Exclusions:

- Days beneficiaries were enrolled in HMO.
- Days after death.

Total Institutional Care Days: Number of days Medicare FFS beneficiaries spent in institutional care. The use of "day" actually refers to a midnight as the admission and discharge dates are used to determine the length of stay (for example, a patient admitted on January 1, 2010 and discharged on January 2, 2010 is said to have spent one day in an institution). In cases where a beneficiary has multiple claims in different settings covering the same day, the day will only be counted once. A hierarchy will be applied to the overlapping stays to determine which setting will be assigned to shared days (Table 1).

Inclusions:

- Days covered by Medicare Part A stays.
- Days covered by inpatient stays where the claim is denied or benefits exhausted (referred to here-forward as "outpatient," as these claims are billing for outpatient services rendered in an inpatient stay).
- Days covered by outpatient ED and Observation (OBS) stays.

Exclusions:

- Claims where admit date is the same as discharge date (that is, claims where the beneficiary did not spend the night).

Hierarchy Priority	Claim Type
1	Inpatient-Prospective Payment System (PPS) hospitals and Critical Access Hospitals (CAHs)
2	Outpatient (including ED and observation stays) at PPS hospitals and CAHs
3	Inpatient at Long-Term Care Hospitals (LTCH)
4	Outpatient at LTCH
5	Inpatient at psychiatric hospitals/units
6	Inpatient at rehabilitation hospitals/units
7	Outpatient at rehabilitation hospitals/units
8	Inpatient at 'Other' facility
9	Inpatient at Skilled Nursing Facilities (SNFs)
10	Outpatient at SNFs

Table 1: Institutional Claim Hierarchy

This is a typical observational study and lacks the randomization necessary for a robust analysis. To remove confounding due to selection bias, we used propensity scores to match people in the intervention group (ADRC visitors) to an equivalent control group (people who did not visit ADRC).

Propensity Score Matching

In their seminal article in 1983, Rosenbaum and Rubin defined the propensity score as the "Conditional probability of assignment to a particular treatment given a vector of observed covariates." In randomized studies, the control and treatment group are assigned randomly,

which usually eliminates any bias. In an observational study such as ours, the assignment to the treatment group is not random. The selection bias that arises from non-random assignment to the treatment group can be eliminated by either pair matching, sub classification, or covariate adjustment using propensity scores (*Rosenbaum & Rubin, 1983*).

In our study, the propensity score is the probability of receiving ADRC services and assistance given their demographics like age, gender, race, comorbidities represented by chronic condition groups, and frailty status. We match pairs of subjects with similar propensity scores to create a balanced set of intervention and control groups for comparison. These groups will be similar in demographics, comorbidities, and frailty, allowing for an unbiased estimate of the average treatment effect (*Rosenbaum & Rubin, 1983*).

To estimate the propensity scores, the following steps are usually required (Yuan, Yung, & Stokes, 2017):

1. Identify the covariates and the treatment effect to be estimated. We use the following as covariates to estimate the probability of receiving service at an ADRC.
2. Estimate the scores by using logistic regression.
3. Choose the propensity method to balance the groups. We use matching to balance the members of the control and treatment group.
4. Assess the balance of variables by comparing the distributions.
5. Repeat to improve balance if needed.
6. Save output data for subsequent outcome analysis.

We use the built-in PSMATCH SAS procedure to create the logistic model, match using optimal matching, and assess the balance of the covariate variables in the two groups.

1. **Demographics:**
   Age group, gender, race, and dual-eligible status were the demographic variables used in the propensity score matching. The subjects were assigned to one of three age groups: under 65, 65–84, and 85 and over. We also forced an exact match on gender, essentially ensuring a female in the treatment group is always matched to another female in the control group and a male is always matched to a male.

2. **Comorbidities:**
   To model the disease burden for each subject, we used the chronic condition flags assigned by the chronic conditions warehouse and grouped them into 13 chronic condition groups. This was represented as a participant either having a disease that belonged within a group or not. These chronic condition group flags were then included in the propensity score model. The chronic condition groups and the constituent chronic conditions are listed in the table below.

Chronic Condition Group	Individual Conditions Included
Alzheimer's and Dementia	Alzheimer's disease, related disorders, or senile dementia
Arthritis, Osteoporosis, and Other Joint-Related	Osteoporosis, rheumatoid arthritis/osteoarthritis, fibromyalgia
Asthma and COPD	Asthma, chronic obstructive pulmonary disease
Cancer	Breast cancer, colorectal cancer, prostate cancer, lung cancer, endometrial cancer, leukemia, and lymphomas
Diabetes, ESRD, and Other Endocrine/Renal	Chronic kidney disease, diabetes
Hearing and Visual Impairment	Cataract, glaucoma, sensory—blindness and visual impairment, sensory—deafness and hearing impairment
Heart Disease/Failure and Other Cardiovascular	Ischemic heart disease, congestive heart failure, stroke, peripheral vascular disease
Intellectual/Developmental Disability	Autism spectrum disorder, intellectual disabilities and related conditions, other developmental delays, learning disabilities
Conditions of the Liver	Liver disease
Obesity	Obesity
Health Conditions Associated with Physical Disabilities	Cystic fibrosis, spinal cord injury, cerebral palsy, mobility impairment, muscular dystrophy, multiple sclerosis, spina bifida, pressure ulcers, epilepsy, traumatic brain injury and non-psychotic mental disorders due to brain damage
Psychiatric/Mental Health/SUD	Depression, anxiety disorder and post-traumatic stress disorder, bipolar disorder, personality disorder, schizophrenia and other psychotic disorders, alcohol use disorder, drug use disorder
Viral Health Conditions	Viral hepatitis, HIV/AIDS

Table 2: Chronic Condition Groups

3. **Frailty**

   We adopted the claims-based frailty index (CFI) proposed by Kim et. al. to determine the frailty status of the participants in the two groups. The index estimates the deficit accumulation frailty index from a clinical assessment using International Classification of Diseases (ICD) diagnosis codes, Current Procedural Terminology (CPT) codes, and HCPCS codes in the prior 12 months in administrative claims data. The CFI is a continuous measure ranging from 0 to 1, subjects with a score greater than or equal to 0.20 on CFI were classified as frail for this study.
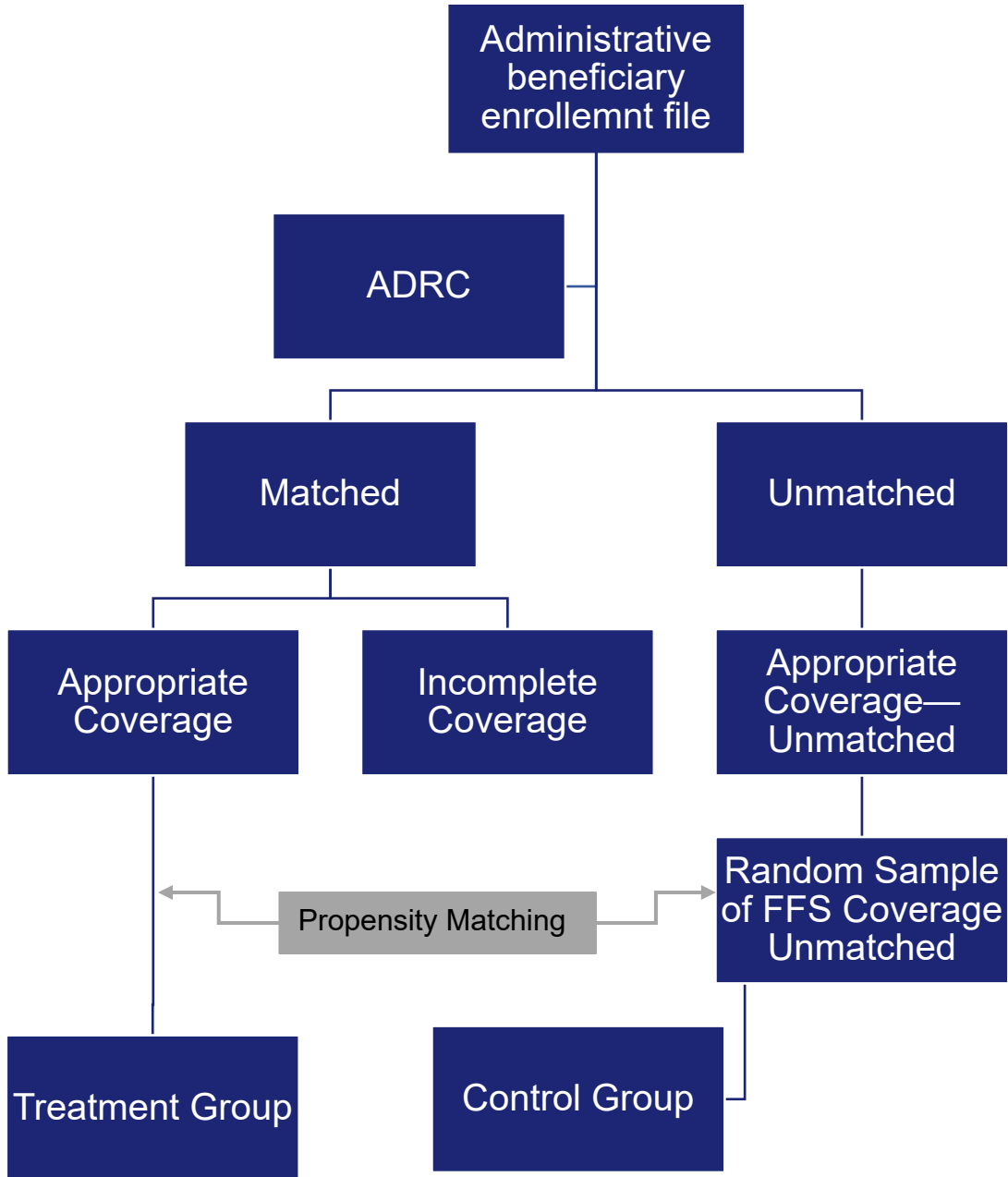

Figure 2: Study Methodology

Results

Medicare Data Set:

The match rate for Wisconsin was 66.36%. We had submitted a list of 91,301 unique individuals to General Dynamics Information Technology (GDIT). To generate this list we used the ADRC encounter database and identified all the unique individuals with at least one encounter at an ADRC location in 2017. The unique identifier field is the ADRC ID, and last name, gender, date of birth (DOB), and state were the key fields GDIT used to match to Medicare. There were some issues identified while generating this list:

- Missing values for Key fields: These were excluded from the file sent to GDIT. In the absence of one of the key fields a match would not be possible. Only 68 records had this issue, since this was a small percentage of the total number we decided to exclude these. We anticipate this will have minimal impact on the analysis.
- Test, dummy, or invalid values for key fields: These either indicated an organization or an invalid data entry. This also led to assigning a new ADRC ID to some individuals. These accounted for 19.01% (26,270) of the total records (137,815). Specific ADRC IDs and last name values known to be organizations, test, or invalid, and DOB of 12/31/9999 were excluded from the list. Individuals with multiple ADRC IDs and how they were handled is presented in the next section.
- Multiple values for key variables (gender, race, and DOB): Individuals with multiple gender values, race, or multiple DOB values were assigned multiple ADRC IDs. This group formed 16.12% (17,985) of the total cohort (93,560).
- Duplicates: In some cases Multiple ADRC IDs that had the same values on key fields (last name, DOB, gender, and state) were removed from the list. These accounted for 2.5% (2,259) of the cohort (91,301).

GDIT was able to match 65,934 ADRC visitors to a unique beneficiary ID.

We had a few ADRC IDs match multiple beneficiary IDs. The frequency table below shows those:

Matches	Count	Percent
0	25,174	27.64
1	65,904	72.34
2	15	0.02
Total	91,104	100.00

Table 3: Matching Counts

Of the 15, only one was matched up to two different beneficiary IDs. All the rest had a different last name but were matched to the same beneficiary IDs for the same instances.

A further 50 people had multiple ADRC IDs but the same beneficiary ID. Most of these had a mismatch on the last name due to either a potential difference in spelling or a change in name. We examined the encounter data for these 50 individuals in an effort to confirm that they are the same person. We were unable to do it for one out of the 50 beneficiary IDs with multiple ADRC

IDs. For the other 49 we were fairly confident that the two ADRC IDs were indeed assigned to a single person. After removal of the duplicates we had 65,883. 21,465 of those had at least 11 months of coverage in each of the three years of 2016, 2017, and 2018.

The control group was created from the 20% sample of the remaining Medicare beneficiaries in Wisconsin with appropriate FFS coverage in 2016, 2017, and 2018. The demographics of the two groups are presented in Table 4 before matching and in Table 5 after propensity score matching. In addition, the prevalence of comorbidities in the two matched groups is presented in Table 6.

	Medicare Random Sample FFS Population			
	ADRC Visit = N		ADRC Visit = Y	
	90,000	100.00%	21,465	100.00%
Age Group				
< 65	30,523	33.91%	7,831	36.48%
65 to 84	48,293	53.66%	9,466	44.10%
85 or more	11,184	12.43%	4,168	19.42%
Gender				
M	41,019	45.58%	7,882	36.72%
F	48,981	54.42%	13583	63.28%
Race				
Black	2,835	3.15%	1,119	5.21%
Hispanic/Asian/Other	4,373	4.86%	1028	4.79%
White	82,792	91.99%	19,318	90.00%

Table 4: Medicare FFS Random Sample Demographics

The group that visited the ADRC seemed to have a higher proportion of 85 plus beneficiaries and females when compared to the 20% sample of the population not visiting the ADRC. The race composition seems more or less similar, with the ADRC group showing slightly higher percentage of black beneficiaries.

	Medicare FFS Matched Population			
	ADRC Visit = N		ADRC Visit = Y	
	21,465	23.85%	21,465	100.00%
Age Group				
< 65	7,908	36.84%	7,831	36.48%
65 to 84	9,129	42.53%	9,466	44.10%
85 or more	4,428	20.63%	4,168	19.42%
Gender				
M	7,882	36.72%	7,882	36.72%
F	13,583	63.28%	13,583	63.28%
Race				
Black	1,323	6.16%	1,119	5.21%
Hispanic/Asian/Other	1,046	4.87%	1,028	4.79%
White	19,096	88.96%	19,318	90.00%
Frail				
Not Frail	8,655	40.32%	8,655	40.32%
Frail	12,810	59.68%	12,810	59.68%

Table 5: Medicare FFS Matched Demographics

After the propensity score matching process, the two groups are fairly similar across all demographic categories and chronic conditions groups.

Chronic Condition Group	Control Group ADRC Visit = N		Treatment Group ADRC Visit = Y	
Alzheimer's and Dementia	3,896	18.15%	4,181	19.48%
Arthritis, Osteoporosis, and Other Joint-Related	11,294	52.62%	11,383	53.03%
Asthma and COPD	4,428	20.63%	4,724	22.01%
Cancer	1,797	8.37%	1,898	8.84%
Diabetes, ESRD, and Other Endocrine/Renal	9,562	44.55%	9,715	45.26%
Hearing and Visual Impairment	5,934	27.65%	6,240	29.07%

Heart Disease/Failure and Other Cardiovascular	9,022	42.03%	9,130	42.53%
Intellectual/Developmental Disability	1,036	4.83%	1,247	5.81%
Conditions of the Liver	1,033	4.81%	1,139	5.31%
Obesity—Excluded				
Health Conditions Associated with Physical Disabilities	4,490	20.92%	4,909	22.87%
Psychiatric/Mental Health/SUD	11,167	52.02%	11,269	52.50%
Viral Health Conditions	353	1.64%	375	1.75%
Total	21,465	100.00%	21,465	100.00%

Table 6: Chronic Condition Groups

Outcomes

We measured the change in the average number of 30-day readmissions from the 12-month pre-ADRC visit period to the 12-month post-ADRC visit period for the two groups where they had at least one claim in either the pre period or post period. The number of visits went down for the ADRC group from 620 readmissions in the pre-ADRC visit period to 486 readmissions in the post-ADRC visit period. During the same time the number of readmissions increased for the control group from 435 in the pre period to 481 in the post period. This represents a drop of 22% in the number of readmissions for the ADRC group versus an increase of 11% for the non-ADRC (or control) group.

ADRC	Bene_Count	Pre_Readm_30	Post_Readm30	Diff_Readm30	% Change
Y	2961	620	486	-134	-22%
N	2961	435	481	46	11%
Diff		185	5	-180	

Table 7: Medicare FFS 30-Day Readmissions

The number of readmissions were examined for different strata and are presented in the appendix.

A similar measurement was done for ED visits, and we found that the number of ED visits went down by 210 visits (2%) from the group that visited the ADRC, while it went up by 362 visits (4%) for the group that did not visit the ADRC.

Page 15 of 37

ADRC	Bene_Count	Pre_Visits	Post_Visits	Diff_Visits	% Change
Y	5644	9698	9488	-210	-2%
N	5644	8315	8677	362	4%
Diff		1383	811	-572	

Table 8: Medicare FFS 30-Day Readmissions Total Count

The SNF length of stay measure showed an increase in the number of days spent at a long-term stay institution for the ADRC group post-ADRC visit. The ADRC group saw a 50% increase in the number of days at an SNF compared to 12% for the non-ADRC group. We see a similar increase in the number of days spent in an institution with our community tenure measure for the ADRC group. This increase is typically sharper for ADRC visitors (36%) when compared to the non-ADRC group (10%). However, the increase in the number of days spent at an institution for the ADRC group was similar to the non-ADRC groups for beneficiaries receiving enrollment counseling or long-term care functional screen services.

Medicaid Dataset:

Medicaid data was obtained as a data extract from DHS. We followed a similar matching criteria to GDIT to match ADRC visitors to the Medicaid beneficiary file. The ADRC visitor group had a slightly higher proportion of older individuals and had more females when compared to the group that did not have an ADRC visit in 2017. The coverage criteria required the individuals to have at most a one month gap in coverage in each year of 2016, 2017, and 2018. The demographics of the two groups before matching are shown in Table 9.

	Medicaid Total Population				
	ADRC Visit = N			ADRC Visit = Y	
	135,031	100.00%		19,098	100.00%
Age Group					
18 to 59	79,014	58.52%		10,514	55.05%
60 to 74	37,440	27.73%		5,828	30.52%
75 to 84	11,223	8.31%		1,702	8.91%
85 or more	7,354	5.45%		1,054	5.52%
Gender					

M	57,779	42.79%		7,621	39.90%
F	77,252	57.21%		11,477	60.10%
Dual Eligible					
No	2,064	1.53%		304	1.59%
Yes	132,967	98.47%		18,795	98.41%

Table 9: Medicaid Total Population

After matching, the two groups had fairly similar demographics as shown in the table below.

	Medicaid Matched Population				
	ADRC Visit = N			ADRC Visit = Y	
	19,097	14.14%		19,097	99.99%
Age Group					
18 to 59	10,513	55.05%		10,513	55.05%
60 to 74	5,359	28.06%		5,828	30.52%
75 to 84	1,874	9.81%		1,702	8.91%
85 or more	1,051	5.50%		1,054	5.52%
Gender					
M	7,620	39.90%		7,620	39.90%
F	11,477	60.10%		11,477	60.10%
Dual Eligible					
No	304	1.59%		304	1.59%
Yes	18,794	98.41%		18,794	98.41%

Table 10: Medicaid Matched Population

The prevalence of comorbidities among the two groups after propensity score matching is displayed below:

Chronic Condition Group	Control Group ADRC Visit = N		Treatment Group ADRC Visit = Y	
Alzheimer's and Dementia	1,984	10.39%	2,680	14.03%
Arthritis, Osteoporosis, and Other Joint-Related	11,998	62.83%	12,697	66.49%
Asthma and COPD	7,365	38.57%	8,473	44.37%
Cancer	1,214	6.36%	1,577	8.26%
Diabetes, ESRD, and Other Endocrine/Renal	8,346	43.70%	9,112	47.71%
Hearing and Visual Impairment	8,098	42.40%	8,812	46.14%
Heart Disease/Failure and Other Cardiovascular	7,763	40.65%	7,831	41.01%
Intellectual/Developmental Disability	2,994	15.68%	3,677	19.25%
Conditions of the Liver	2,177	11.40%	2,659	13.92%
Obesity—Excluded				
Health Conditions Associated with Physical Disabilities	6,182	32.37%	6,917	36.22%
Psychiatric/Mental Health/SUD	11,197	58.63%	14,280	74.78%
Viral Health Conditions	595	3.12%	943	4.94%
Total	19,097	100.00%	19,097	100.00%

Table 11: Medicaid Chronic Condition Groups

Outcomes:

Using Medicaid data, the 30-day readmissions measure showed a reduction in utilization for both groups. The reduction was larger for the non-ADRC group when compared to the ADRC group; however the number of readmissions were too small to reliably estimate an effect.

ADRC	Bene_Count	Pre	Post	Diff	% Change
Y	167	24	23	-1	-4%
N	167	27	18	-9	-33%

Table 12: Medicaid 30-Day Readmissions

ED visits had a large sample size, and we observed a larger reduction in ED visits for the ADRC group (11%) compared to the non-ADRC group (7%). While the difference in the change in utilization between the two groups is not as large as in the Medicare dataset, it is still statistically significant.

ADRC	Bene_Count	Pre_Visits	Post_Visits	Diff_Visits	% Change
Y	4741	12556	11121	-1435	-11%
N	4741	10264	9545	-719	-7%

Table 13: Medicaid ED Visits

The number of days at an SNF saw a larger increase for the ADRC group (59%) compared to the non-ADRC group (2%). This is similar to the results from the Medicare data analysis. Beneficiaries receiving enrollment counseling services saw a drop of 52% in the number of days spent at an SNF compared to an increase of 9% for the non-ADRC group; however, the number of beneficiaries with relevant services and claims was only 54. Similarly, beneficiaries receiving long-term care functional screen saw a drop of 29% in the number of days at an SNF compared to an increase of 3% for the non-ADRC group.

Community tenure measured the total number of institutional stays and showed a large increase for the ADRC group (41%) versus a much more modest increase (2%) for the non-ADRC group. Again, visitors receiving enrollment counseling services saw a drop of 40% in the number of days in an institution compared to an increase of 4% for the non-ADRC group. Similarly, we saw a drop in the institutional stays for visitors receiving long-term care functional screen services.

Conclusion and Limitations

We found evidence for reduction in acute care utilization for beneficiaries who visit an ADRC. The study demonstrated that the group visiting an ADRC showed reduction in both 30-day readmissions and ED visits post-visit when compared to a similar group that did not visit an ADRC.

While we observed a sharp increase in the number of days spent at an SNF and overall days spent in an institution post-ADRC visit, we found that groups receiving certain ADRC services either did not see a large increase or experienced a reduction in the number of days in an institution. We observed this anomaly for the services of enrollment counseling and long-term care functional screen in the Medicaid dataset and to some extent in the Medicare analysis. This result lends support to the theory that ADRC's provide a wide-range of services to beneficiaries, some of which may lead to an increase in long-term stays at an institution while others help reduce utilization.

The study uses administrative claims data to measure utilization; this restricts our analysis to people who are Medicare or Medicaid beneficiaries and have at least one claim. In addition, the study provides a snapshot of utilization in time. Examining several 12-month periods both before and after an ADRC visit may provide more information on the underlying trends for the two groups. In addition, due to limitations imposed by the individual systems, we were unable to combine the claims from Medicare and Medicaid systems. This resulted in two separate analyses using the two datasets. A combined analysis may reveal further insights into utilization for the two groups.

Future studies could focus on particular services provided by an ADRC and its impact on utilization. Using data from commercial sources or primary data collection through follow-ups could help confirm our findings and potentially reveal more insight into the impact of ADRC services.

References

Administration for Community Living. (2017, 08 30). *Aging and Disability Resource Centers Program/No Wrong Door System*. Retrieved from Administration for Community Living: https://acl.gov/programs/connecting-people-services/aging-and-disability-resource-centers-programno-wrong-door

Administration of Community Living. (2015, 10 08). *ACL "No Wrong Door" System Grants Help streamline access to Services and Supports*. Retrieved from Administration of Community Living: https://acl.gov/news-and-events/announcements-latest-news/acl-no-wrong-door-system-grants-help-streamline-access

Administration of Community Living. (n.d.). *Key Elements of a NWD System of Access to LTSS for All Populations and Payers*. Retrieved from Administration for Community Living: https://nwd.acl.gov/pdf/NWD-National-Elements.pdf

Centers for Medicare & Medicaid Services. (2015). *2015 Measure Information About The 30-Day All-Cause Hospital Readmission Measure, Calculated For The Value-Based Payment Modifier Program*. Retrieved from Centers for Medicare & Medicaid Services: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Downloads/2015-ACR-MIF.pdf

Evans, E. J. (2019, February). The No-Wrong-Door Approach: Antidote to Boundaries within the American Welfare State. *Health & Social Work*, 8-11.

No Wrong Door: Virginias Key Strategic Initiative for Long-Term Care. (2008). *Age in Action, 23*(1), 1-4.

Research Data Assistance Center (ResDAC). (2015, 07 30). *How to Identify Hospital Claims for Emergency Room Visits in the Medicare Claims Data*. Retrieved from Research Data Assistance Center (ResDAC): https://www.resdac.org/articles/how-identify-hospital-claims-emergency-room-visits-medicare-claims-data

Rosenbaum, P. R., & Rubin, D. B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika, 70*(1), 41-55.

Stewart, K., & Irvin, C. V. (2019, 12). *Does Early Use Of Community-Based Long-Term Services And Supports Lead To Less Use Of Institutional Care?* Retrieved from www.Medicaid.gov: https://www.medicaid.gov/sites/default/files/2019-12/hcbsasadiversiontoiltc.pdf

Venkatesh, A. K., Mei, H., Kocher, K. E., Granovsky, M., Obermeyer, Z., Spatz, E. S., . . . Zhenqui, L. (2017, April). Identification of Emergency Department Visits in Medicare Administrative Claims: Approaches and Implications. *Academic Emergency Medicine, 24*(4), 422-431.

Yuan, Y., Yung, Y.-F., & Stokes, M. (2017). Propensity Score Methods for Causal Inference with the PSMATCH Procedure. *SAS Global Forum*. Orlando: SAS Institute Inc. Retrieved from SAS: https://support.sas.com/resources/papers/proceedings17/SAS0332-2017.pdf

Appendix

Medicare Demographics

	Medicare FFS Matched Population					Medicare Random Sample FFS Population			
	ADRC Visit = N		ADRC Visit = Y			ADRC Visit = N		ADRC Visit = Y	
	21,465	23.85%	21,465	100.00%		90,000	20.92%	21,465	100.00%
Age Group									
< 65	7,908	36.84%	7,831	36.48%		30,523	33.91%	7,831	36.48%
65 to 84	9,129	42.53%	9,466	44.10%		48,293	53.66%	9,466	44.10%
85 or more	4,428	20.63%	4,168	19.42%		11,184	12.43%	4,168	19.42%
Gender									
M	7,882	36.72%	7,882	36.72%		41,019	45.58%	7,882	36.72%
F	13,583	63.28%	13,583	63.28%		48,981	54.42%	13583	63.28%
Race									
Black	1,323	6.16%	1,119	5.21%		2,835	3.15%	1,119	5.21%
Hispanic/Asian/Other	1,046	4.87%	1,028	4.79%		4,373	4.86%	1028	4.79%
White	19,096	88.96%	19,318	90.00%		82,792	91.99%	19,318	90.00%
Frail									
Not Frail	8,655	40.32%	8,655	40.32%			0.00%	8,655	40.32%
Frail	12,810	59.68%	12,810	59.68%			0.00%	12,810	59.68%

Medicare Chronic Condition Categories

Chronic Condition Group	Control Group ADRC Visit = N		Treatment Group ADRC Visit = Y	
Alzheimer's and Dementia	3,896	18.15%	4,181	19.48%
Arthritis, Osteoporosis, and Other Joint-Related	11,294	52.62%	11,383	53.03%
Asthma and COPD	4,428	20.63%	4,724	22.01%
Cancer	1,797	8.37%	1,898	8.84%
Diabetes, ESRD, and Other Endocrine/Renal	9,562	44.55%	9,715	45.26%
Hearing and Visual Impairment	5,934	27.65%	6,240	29.07%
Heart Disease/Failure and Other Cardiovascular	9,022	42.03%	9,130	42.53%
Intellectual/Developmental Disability	1,036	4.83%	1,247	5.81%
Conditions of the Liver	1,033	4.81%	1,139	5.31%
Obesity—Excluded				
Health Conditions Associated with Physical Disabilities	4,490	20.92%	4,909	22.87%
Psychiatric/Mental Health/SUD	11,167	52.02%	11,269	52.50%
Viral Health Conditions	353	1.64%	375	1.75%
Total	21,465	100.00%	21,465	100.00%

Medicaid Population

| | Medicaid Matched Population | | | | | Medicaid Total Population | | | | |
	ADRC Visit = N		ADRC Visit = Y			ADRC Visit = N		ADRC Visit = Y		
	19,097	14.14%	19,097	99.99%		135,031	100.00%	19,098	100.00%	
Age Group										
18 to 59	10,513	55.05%	10,513	55.05%		79,014	58.52%	10,514	55.05%	
60 to 74	5,359	28.06%	5,828	30.52%		37,440	27.73%	5,828	30.52%	
75 to 84	1,874	9.81%	1,702	8.91%		11,223	8.31%	1,702	8.91%	
85 or more	1,051	5.50%	1,054	5.52%		7,354	5.45%	1,054	5.52%	
Gender										
M	7,620	39.90%	7,620	39.90%		57,779	42.79%	7,621	39.90%	
F	11,477	60.10%	11,477	60.10%		77,252	57.21%	11,477	60.10%	
Frail										
Not Frail	16,444	86.11%	16,444	86.11%			0.00%		0.00%	
Frail	2,653	13.89%	2,653	13.89%			0.00%		0.00%	
Dual Eligible										
No	304	1.59%	304	1.59%		2,064	1.53%	304	1.59%	
Yes	18,794	98.41%	18,794	98.41%		132,967	98.47%	18,795	98.41%	

Medicaid Chronic Condition Categories

Chronic Condition Group	Control Group ADRC Visit = N		Treatment Group ADRC Visit = Y	
Alzheimer's and Dementia	1,984	10.39%	2,680	14.03%
Arthritis, Osteoporosis, and Other Joint-Related	11,998	62.83%	12,697	66.49%
Asthma and COPD	7,365	38.57%	8,473	44.37%
Cancer	1,214	6.36%	1,577	8.26%
Diabetes, ESRD, and Other Endocrine/Renal	8,346	43.70%	9,112	47.71%
Hearing and Visual Impairment	8,098	42.40%	8,812	46.14%
Heart Disease/Failure and Other Cardiovascular	7,763	40.65%	7,831	41.01%
Intellectual/Developmental Disability	2,994	15.68%	3,677	19.25%
Conditions of the Liver	2,177	11.40%	2,659	13.92%
Obesity—Excluded				
Health Conditions Associated with Physical Disabilities	6,182	32.37%	6,917	36.22%
Psychiatric/Mental Health/SUD	11,197	58.63%	14,280	74.78%
Viral Health Conditions	595	3.12%	943	4.94%
Total	19,097	100.00%	19,097	100.00%

Medicare Results

1. SNF Length of Stay

ADRC Service	Overall												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	1276	31.4	47.016	15.616	**50%**	1.098	1.539	0.441	**40%**	11.602	19.629	0.339	0.543
N	1276	46.365	52.15	5.785	**12%**	1.295	1.456	0.161	**12%**	1.547	10.024	0.064	0.257
Diff		-14.965	-5.134	9.831		-0.197	0.083	0.28		10.055	9.605	0.275	0.286
P-Value		<.0001	0.0802	0.001		<.0001	0.1561	<.0001					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	1276	40067	59993	**19926**	**50%**	1401	1964	**563**	**40%**				
N	1276	59162	66544	**7382**	**12%**	1653	1858	**205**	**12%**				
Diff		-19095	-6551	12544		-252	106	358					

ADRC Service	Enrollment Counseling												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	162	32.099	38.728	6.63	21%	1.241	1.309	0.068	5%	-3.119	16.379	-0.233	0.369
N	162	58.45	64.556	6.105	10%	1.586	1.617	0.031	2%	-6.205	18.415	-0.259	0.32
Diff		-26.351	-25.828	0.525		-0.345	-0.308	0.037		3.086	-2.036	0.026	0.049
P-Value		0.0008	0.0018	0.9491		0.0276	0.0528	0.8488					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	162	5200	6274	1074	21%	201	212	11	5%				
N	162	9469	10458	989	10%	257	262	5	2%				
Diff		-4269	-4184	85		-56	-50	6					

ADRC Service		Long-Term Care Functional Screen												
Mean:											95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	148	35.324	51.547	16.223	46%	1.257	1.493	0.236	19%	4.16	28.286	-0.073	0.0546
N	148	49.473	55.899	6.426	13%	1.412	1.669	0.257	18%	-6.834	19.686	-0.049	0.563
Diff		-14.149	-4.352	9.797		-0.155	-0.176	-0.021		10.994	8.6	-0.024	-0.5084
P-Value		0.0856	0.6267	0.294		0.3271	0.3034	0.9241					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	148	5228	7629	2401	46%	186	221	35	19%				
N	148	7322	8273	951	13%	209	247	38	18%				
Diff		-2094	-644	1450		-23	-26	-3					

2. **Community Tenure**

ADRC Service		Overall											95% CI Los Diff		95% CI Stays Diff	
Mean:																
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper			Lower	Upper	
Y	5385	23.512	32.004	8.488	36%	1.773	1.952	0.179	10%	6.871	10.105			0.11	0.248	
N	5385	23.617	25.992	2.375	10%	1.491	1.613	0.122	8%	0.985	3.766			0.059	0.185	
Diff		-0.105	6.012	6.113		0.282	0.339	0.057		3.972	8.252			-0.036	0.15	
P-Value		0.9171	<0.0001	<0.0001		<0.0001	<0.0001	0.2273								
Totals:																
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change							
Y	5385	126634	172341	45707	36%	9547	10513	966	10%							
N	5385	127177	139969	12792	10%	8029	8687	658	8%							
Diff		-543	32372	32915		1518	1826	308								

ADRC Service	Enrollment Counseling												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	635	29.212	32.033	2.82	10%	1.849	1.969	0.119	6%	-2.029	7.669	-0.087	0.326
N	635	31.126	34.082	2.956	9%	1.739	1.735	-0.003	0%	-1.304	7.216	-0.187	0.18
Diff		-1.914	-2.049	-0.136		0.11	0.234	0.122		-6.6616	6.3907	-0.1462	0.3919
P-Value		0.5753	0.5663	0.9675		0.2988	0.0398	0.3703					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	635	18550	20341	1791	10%	1174	1250	76	6%				
N	635	19765	21642	1877	9%	1104	1102	-2	0%				
Diff		-1215	-1301	-86		70	148	78					

| ADRC Service | Long-Term Care Functional Screen | | | | | | | | | | | | |

Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	584	29.106	33.339	4.233	15%	1.954	2.01	0.056	3%	-0.606	9.071	-0.155	0.268
N	584	24.531	27.784	3.253	13%	1.572	1.676	0.104	7%	-1.066	7.573	-0.076	0.285
Diff		4.575	5.555	0.98		0.382	0.334	-0.048		-5.571	7.53	-0.6872	0.4861
P-Value		0.1485	0.0957	0.7691		0.0004	0.004	0.7337					

Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	584	16998	19470	2472	15%	1141	1174	33	3%				
N	584	14326	16226	1900	13%	918	979	61	7%				
Diff		2672	3244	572		223	195	-28					

Medicaid Results

1. **SNF Length of Stay**

ADRC Service	Overall												

Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	209	122.158	194.321	72.163	59%	0.78	0.876	0.096	12%	46.56	97.765	-0.028	-0.22
N	209	274.531	280.343	5.842	2%	1.005	1.014	0.01	1%	-5.69	17.375	-0.084	0.103
Diff		-152.37	-86.022	66.321		-0.225	-0.138	0.086		38.077	94.565	-0.074	0.246
P-Value		<.0001	<.0001	<.0001		<.0001	0.0142	0.2899					

Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	209	25531	40613	15082	59%	163	183	20	12%				
N	209	57377	58598	1221	2%	210	212	2	1%				
Diff		-31846	-17985	13861		-47	-29	18					

ADRC Service		Enrollment Counseling									95% CI Los Diff		95% CI Stays Diff	
Mean:														
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper	
Y	54	123.222	59.722	-63.5	-52%	0.963	0.537	-0.426	-44%	-109.971	-17.029	-0.629	-0.223
N	54	266.778	293.704	26.926	10%	1.037	1.13	0.093	9%	1.875	51.977	-0.101	0.286
Diff		-143.56	-233.982	-90.426		-0.074	-0.593	-0.519		-279.5	-118.5	-0.8077	-0.2294
P-Value		<.0001	<.0001	0.0011		0.4193	<.0001	0.0007					
Totals:														
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	54	6654	3225	-3429	-52%	52	29	-23	-44%				
N	54	14406	15860	1454	10%	56	61	5	9%				
Diff		-7752	-12635	-4883		-4	-32	-28					

ADRC Service	Long-Term Care Functional Screen												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	53	112.717	79.925	-32.792	-29%	0.925	0.585	0.34	37%	-81.59	16.005	-0.562	-0.117
N	53	280.736	289.302	8.566	3%	1.019	1.113	0.094	9%	-11.467	28.599	0.095	0.284
Diff		-168.02	-209.377	-41.358		-0.094	-0.528	0.246		-95.227	12.51	-0.7325	-0.1354
P-Value		<.0001	<.0001	0.1295		0.3407	<.0001	0.0052					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	53	5974	4236	-1738	-29%	49	31	-18	-37%				
N	53	14879	15333	454	3%	54	59	5	9%				
Diff		-8905	-11097	-2192		-5	-28	-23					

2. Community Tenure

ADRC Service	Overall									95% CI Los Diff		95% CI Stays Diff	
Mean:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	2946	29.926	42.342	12.416	41%	1.163	1.027	-0.136	-12%	9.184	15.648	-0.19	-0.082
N	2946	62.269	63.301	1.031	2%	1.074	1.005	-0.07	-7%	-0.513	2.575	-0.123	-0.016
Diff		-32.343	-20.959	11.385		0.089	0.022	-0.066		7.7966	14.973	-0.142	0.009
P-Value		<.0001	<.0001	<.0001		0.0055	0.4512	0.083					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	2946	88163	124740	36577	41%	3426	3025	-401	-12%				
N	2946	183447	186485	3038	2%	3165	2960	-205	-6%				
Diff		-95284	-61745	33539		261	65	-196					

ADRC Service	Enrollment Counseling												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	787	30.731	18.539	-12.192	-40%	1.272	0.956	-0.316	-25%	-17.691	-6.692	-0.425	-0.208
N	787	62.01	64.324	2.314	4%	1.081	0.952	-0.13	-12%	-0.892	5.52	-0.225	-0.034
Diff		-31.279	-45.785	-14.506		0.191	0.004	-0.186		-55.821	-35.75	-0.3311	0.043
P-Value		<.0001	<.0001	<.0001		0.0015	0.9407	0.0112					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	787	24185	14590	-9595	-40%	1001	752	-249	-25%				
N	787	48802	50623	1821	4%	851	749	-102	-12%				
Diff		-24617	-36033	-11416		150	3	-147					

ADRC Service	Long-Term Care Functional Screen												
Mean:										95% CI Los Diff		95% CI Stays Diff	
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change	Lower	Upper	Lower	Upper
Y	557	40.079	29.946	-10.133	-25%	1.438	1.023	-0.415	-29%	-17.364	-2.902	-0.553	-0.276
N	557	58.329	60.49	2.162	4%	1.025	0.969	-0.056	-5%	-1.157	5.481	-0.171	0.06
Diff		-18.25	-30.544	-12.295		0.413	0.054	-0.359		-20.2445	-4.344	-0.3591	-0.187
P-Value		0.0029	<0.001	0.0025		<.0001	0.3985	<.0001					
Totals:													
ADRC	Bene_Count	Pre_Los	Post_Los	Diff_Los	% Change	Pre_Stays	Post_Stays	Diff_Stays	%Change				
Y	557	22324	16680	-5644	-25%	801	570	-231	-29%				
N	557	32489	33693	1204	4%	571	540	-31	-5%				
Diff		-10165	-17013	-6848		230	30	-200					