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Medicare Post-Acute Care Savings from Medicaid-Paid Long-Term Services and Supports

Findings from Washington State

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THE WASHINGTON STATE LEGISLATURE created the WA Cares Fund in 2019, establishing a time-limited long-term care insurance benefit funded by worker contributions. Beginning in July 2026, each person who is eligible to receive the benefit can access services costing up to **$36,500** over their lifetime.[1] The benefit can be used to pay for in-home, residential, nursing home, and family caregiver services.[2] In order to be eligible to receive benefits an individual must need assistance with at least three activities of daily living.

A recent Milliman report estimates that WA Cares will generate large savings for *Medicaid* (Giese et al., 2021). Savings accrue because the Fund will pay for long-term care services prior to Medicaid for "individuals who are either (1) enrolled in Medicaid at the time of receiving WA Cares Fund benefits, or (2) would have become enrolled in Medicaid absent the WA Cares Fund."

This report examines potential *Medicare* cost offsets arising from WA Cares-funded services. The largest offsets are likely to be for post-acute care. Medicare spending on post-acute care is substantial and growing rapidly. WA Cares benefits could reduce this spending through two channels. First, services purchased by WA Cares beneficiaries may 'substitute' for Medicare post-acute care. For example, WA Cares funded services may allow a person to transition home more quickly following an inpatient stay, and may reduce use of Medicare-paid nursing facility services. Second, need for post-acute services may be reduced due to beneficial health effects of long-term services and supports. For example, emergency department visits may be reduced due to the availability of a WA Cares supported caregiver. Studies that examine the effects of having a caregiver and long-term supports more broadly, discussed below, find evidence for both of these potential savings mechanisms.

Post-Acute Care Cost Savings

We cannot directly estimate the impact of services funded by WA Cares benefits because they will not become available until 2026. However, the effects should be similar to impacts on Medicare spending associated with Medicaid-paid Long Term Services and Supports (LTSS) provided to persons dually eligible for Medicare and Medicaid. In this report, we estimate the Medicare post-acute cost savings from Medicaid LTSS to be substantial. These estimates are based on linked Medicare-Medicaid data for Washington State residents. We identify Medicare beneficiaries who had an acute inpatient stay and calculate post-acute care and LTSS spending over the 365 days following their discharge.

[1] The benefit will be adjusted annually for inflation.

[2] WA Care benefits can be used to pay for a long list of services, including: adult day services, in-home personal care, assisted living services, adult family home services, nursing home services, care transition coordination, dementia supports, home safety evaluation, adaptive equipment, respite for family caregivers, transportation, home-delivered meals, education and consultation, relative care, professional service, and services to assist family members care for eligible individuals.

Our regression analyses:

- Adopt a comprehensive measure of post-acute care costs, including Medicare skilled nursing facility (SNF), inpatient rehabilitation, other inpatient, and home health services;
- Include Medicare LTSS spending on in-home, residential, and nursing home services as treatment variables; and
- Control for other factors determining utilization of post-acute care and LTSS services, including: complex medical conditions, mental and physical impairments, mental illness, substance use disorders, durable medical equipment utilization, frailty indicators, demographics, and socioeconomic status.

We estimate the cost offsets separately for Medicare elders (aged 65 and older) and Medicare adults (under age 65). We find that, after controlling for other factors, for each $1,000 dollars spent on Medicaid-paid long-term services and supports in the year after an acute hospital stay, Medicare expenditures are reduced by:

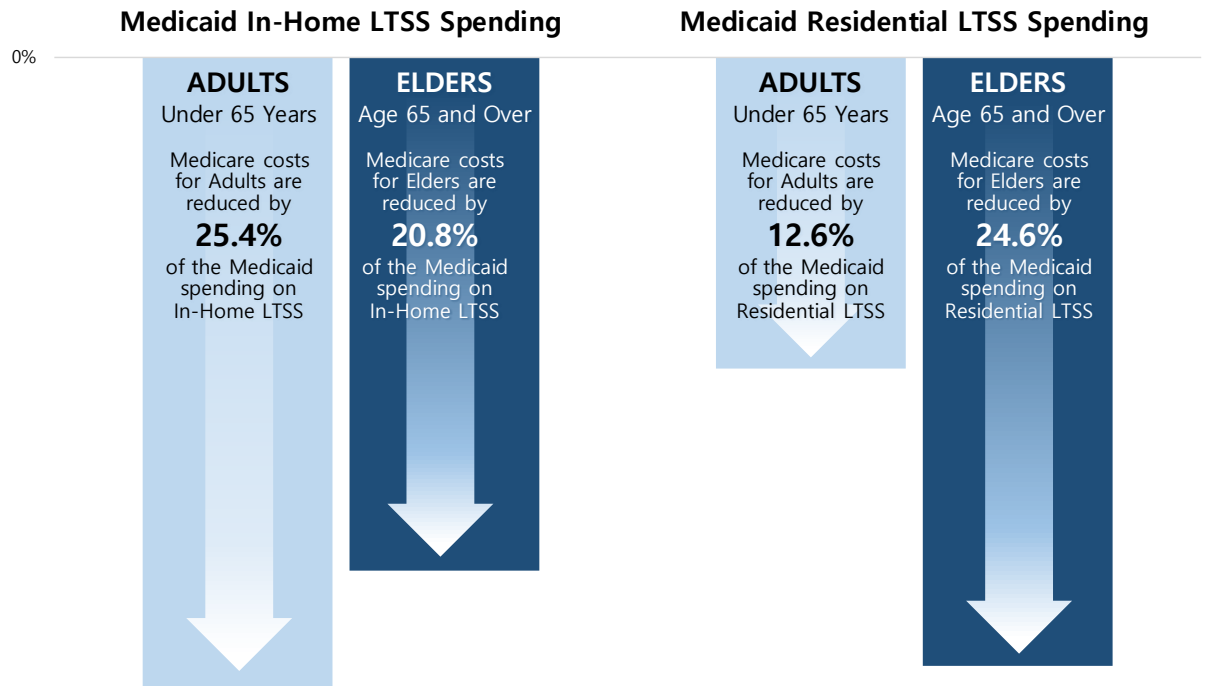
- $208 for elders and $254 for adults receiving in-home personal care services, and
- $246 for elders and $126 for adults receiving community residential services (e.g., services in an adult family home or assisted living facility).

Medicaid-funded nursing home spending has an insignificant or modest, positive association with post-acute care costs. This apparent 'complementarity' is likely due the fact that Medicaid-paid nursing home stays are typically preceded by Medicare-paid SNF stays.

FIGURE 1.

Medicare Post-Acute Care Cost Offsets as a Share of Medicaid Long-Term Services and Supports Expenditures

12-months post-discharge for patients discharged from hospitals in 2017



SOURCE: DSHS Research and Data Analysis Division, Integrated Client Databases, May 2022.

Technical Appendices

APPENDIX 1

Background

Post-Acute Care Spending – Post-acute care expenditures are the fastest-growing component of Medicare spending. These expenditures vary considerably across regions, suggesting a potential for cost savings (Einav et al., 2019; Greysen et al., 2017; Wiener et al., 2017).

Post-acute care costs are substantially higher for beneficiaries with functional impairments (Greysen et al., 2017). Functional impairments affect both post-acute costs and LTSS need. This makes it challenging to estimate the effect of LTSS spending on post-acute care costs.

High-Cost Medicare Beneficiaries – Medicare spends much more on beneficiaries who have LTSS needs (Willink et al., 2019; Windh et al., 2017). For example, Windh and colleagues (2017) report that Medicare spends nearly three times as much per capita on older adults who need LTSS as on those who do not.

Bynum and colleagues (2017) examine spending among high-cost dual eligibles. They find that older dual eligibles tend to use inpatient hospital and post-acute rehabilitation services in response to changes in functional status, and they conclude that "the more frequent use of stable, long-term supportive services for older dual eligibles in the community provided by Medicaid, coupled with a focus on meeting their palliative care needs, could reduce their use of acute inpatient settings and nursing facilities" (Bynum et al., 2017).

Figueroa and colleagues (2017) examined potentially preventable medical spending among high-cost Medicare beneficiaries. Potentially preventable spending was high among frail, older beneficiaries, with most of this spending being for inpatient and skilled-nursing facility services. Potentially preventable spending was also high among nonelderly disabled beneficiaries with serious mental illness.

Caregiver and LTSS Effects – Studies have found that family caregivers and home care services reduce healthcare utilization and cost. Friedman and colleagues (2019) review the literature examining caregiver effects on healthcare utilization.[3] They conclude that family caregivers decrease emergency room use, hospital utilization, home health, inpatient expenditures, and skilled nursing facility stays. Informal care has also been found to reduce or delay nursing home entry.

Van Houtven and Norton (2004, 2008) found informal care by adult children reduced Medicare long-term care expenditures. It significantly reduced the likelihood of having home health and skilled nursing home utilization. Moreover, informal care was also found to be a substitute to inpatient care, reducing Medicare inpatient expenditures.

Costa-Font and colleagues (2018) examined the effects of expanding public subsidization of long-term care on hospital utilization in Spain. A reform effort provided a new caregiving allowance and expanded the availability of publicly funded home care services. These were found to reduce hospital admissions and lengths of stay. Picone and colleagues (2003) also found that receipt of informal care decreased hospital length of stay among Medicare patients in the U.S. following a hip fracture, stroke, or heart attack.

[3] See: Coe et al., 2016; Condelius et al., 2010; Van Houtven & Norton, 2004; Van Houtven & Norton, 2008.

APPENDIX 2

Methodology

Data – The analysis uses linked Medicare and Medicaid data for Washington residents in 2017 and 2018.[4]

Study Population – The study population includes 103,019 Medicare beneficiaries with an acute inpatient stay in 2017 and 6 or more months of Fee-For-Service (FFS) coverage in 2017 and 2018.

Anchor Stay – The anchor (or index) stay is the first acute inpatient stay for a beneficiary with a discharge date in 2017.[5]

Outcome Variable – We calculate for each beneficiary the total Medicare payments for post-acute services during the 365 days following the anchor stay discharge. We include payments for SNF stays, home health, inpatient rehabilitation, long-term care hospitals, inpatient psychiatric stays, and other inpatient stays that occur during the follow-up period. These payments sum to $1.9 billion for the study population. (See Appendix Table 1 for descriptive statistics.)

Treatment Variables – The treatment variables include Medicaid paid amounts for in-home, residential, and nursing home services.[6] Among the 103,000 FFS Medicare beneficiaries with an acute inpatient stay in 2017, approximately 7 percent received in-home Medicaid LTSS services during the 12 month follow-up period, 3% received residential services, and another 3% received nursing home services (Appendix Table 2). Medicaid paid $139 million for in-home, $90 million for residential, and $117 million for nursing home care for these clients during the follow-up period.

Control Variables – We estimate the effects of Medicaid LTSS receipt on Medicare post-acute care costs controlling for other factors. These factors include: beneficiary demographics (age, gender, race, and ethnicity); Medicare coverage characteristics; socio-economic status indicators (Medicare Part D subsidies, ZIP code-based poverty rates); utilization of disability-related durable medical equipment; diagnosed disabling central nervous system conditions (e.g., Alzheimer's, Multiple Sclerosis); developmental (e.g., intellectual disabilities) conditions, sensory and mobility (e.g., hip fractures, falls) impairments; frailty-related diagnoses (e.g., failure to thrive, altered mental status); medical comorbidities (e.g., cardiovascular diseases, diabetes); mental illnesses (e.g., Schizophrenia, bipolar disorder, depression); substance use disorders; and characteristics of the anchor stay. Appendix Table 3 provides a complete list for the risk factors used in the analysis and their sources.

The choice of control variables was informed by separate analyses, which estimated the probability that Medicare beneficiaries would receive Medicaid LTSS services within the next two years. These risk models predicted LTSS entry with a high degree of accuracy.[7] The factors in these LTSS risk models were included in this post-acute care cost analysis.

Findings – We find that Medicaid in-home and residential services are associated with significant reductions in Medicare post-acute costs after controlling for other factors. The cost offsets for in-home LTSS spending are 21% for elders and 25% for adults. The cost offsets for residential LTSS spending are almost 25% for elders and 13% for adults. (See Appendix Tables 4 and 5 for the model estimates.)

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[4] The Medicare data used include: the MEDPAR files, FFS claim files (inpatient, outpatient, SNF, carrier, home health, DME), the MSBF Summary files, and Part D claims. Medicaid data include claims for LTSS services.

[5] Rehabilitation stays, DRGs related to deliveries, and stays with a discharge indicating transfer to another short-term general hospital for inpatient care are excluded from the set of potential anchor stays.

[6] In-home services include ALTSA in-home services (agency provided and individual providers) and DDA personal care (agency provided and individual provider). Residential includes ALTSA adult family home, assisted living and adult residential care; and DDA residential care. Nursing home includes ALTSA nursing facilities.

[7] The model C-statistics were 0.881 for the Medicare elder LTSS model and 0.790 for Medicare adult model.

FIGURE 2.

Estimated Effects of LTSS Spending on Medicare Post-Acute Costs

	ELDERS (65+)	ADULTS (<65)
Medicaid In-Home LTSS Spending	-0.208	-0.254
Medicaid Residential LTSS Spending	-0.246	-0.126
Medicaid Nursing Home Spending	0.044	-0.008 (ns)

(ns) Not statistically significant.

Post-acute care includes skilled nursing facility, other inpatient, and home health services. Estimates control for factors associated with LTSS receipt, other medical and behavioral conditions, demographics, and anchor stay characteristics.

Medicaid nursing home expenditures have an insignificant (for adults) and modest positive (for elders) association with post-acute costs. This apparent complementarity is likely due to the fact that nursing home entry is typically preceded by a long SNF stay. Among beneficiaries in our study population who received Medicaid nursing home services in the follow-up period, 88% had a SNF stay.

The estimated effects for in-home and residential services (Figure 2), given Medicaid spending for these services during the 12-month follow-up period (Appendix Table 2), suggest Medicare cost savings of almost $48 million for the study population. This finding suggests that there will likely be substantial savings to Medicare from similar LTSS services provided by WA Care benefits.

Next Steps – Although we control for a host of observable characteristics in this analysis, there are likely to be unobserved factors which affect both post-acute care and LTSS receipt, resulting in potential endogeneity bias in the cost-offset estimates. We will examine this issue in future work.

The analysis examines Medicare post-acute costs during the 12 months after hospital discharge. A longer-term follow-up may identify additional beneficial effects of LTSS on subsequent inpatient costs.

APPENDIX 3

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APPENDIX 4

Data Tables

APPENDIX TABLE 1.

Medicare Post-Acute Care Spending During the 365 Days after Anchor Stay Discharge for Study Population

	ELDERS (65+)	ADULTS (<65)
Number of Observations	**86,245**	**16,774**
Skilled Nursing Facility		
Percentage with a SNF stay	25.1%	13.2%
Average spending per beneficiary	$6,058	$3,357
Average per beneficiary where spending > 0	$24,175	$25,390
Total Medicare spending	**$522,508,724**	**$56,315,929**
Other Inpatient Stays		
Percentage with inpatient costs	37.2%	48.2%
Average spending per beneficiary	$9,767	$18,037
Average per beneficiary where spending > 0	$26,266	$37,408
Total Medicare spending	**$842,332,371**	**$302,554,772**
Home Health		
Percentage with home health costs	31.8%	17.1%
Average spending per beneficiary	$1,899	$955
Average per beneficiary where spending > 0	$5,979	$5,599
Total Medicare spending	**$163,746,553**	**$16,012,654**
Total Post-Acute Care Costs (SNF, Other Inpatient, Home Health)		
Percentage with any post-acute costs	56.7%	55.9%
Average spending per beneficiary	$17,724	$22,349
Average per beneficiary where spending > 0	$31,284	$39,958
Total Medicare spending	**$1,528,587,557**	**$374,883,329**

APPENDIX TABLE 2.

Medicaid LTSS Costs during 365 Days after Anchor Stay Discharge for Study Population

	ELDERS (65+)	ADULTS (<65)
Number of Observations	**86,245**	**16,774**
In-Home Costs		
Percentage with In-Home services	5.4%	14.5%
Average spending per beneficiary	$1,028	$2,988
Average per beneficiary where spending > 0	$19,037	$20,662
Total Medicare spending	**$88,638,507**	**$50,126,085**
Residential Costs		
Percentage with residential services	2.4%	4.3%
Average spending per beneficiary	$506	$2,736
Average per beneficiary where spending > 0	$20,771	$64,104
Total Medicare spending	**$43,619,793**	**$45,898,264**
Nursing Home Costs		
Percentage with nursing home stays	3.1%	3.5%
Average spending per beneficiary	$1,093	$1,354
Average per beneficiary where spending > 0	$34,993	$38,572
Total Medicare spending	**$94,236,984**	**$22,719,073**
Effect OF Medicaid LTSS on Post-Acute Care Costs for FFS Medicare Beneficiaries		
Estimates based on the cost offset estimates (Figure 2) applied to LTSS spending levels (above).		
In-Home and Residential	-$29,159,105	-$18,535,342
In-Home, Residential, and Nursing Home	-$25,003,254	na(1)

(1) Nursing home spending did not have a significant association with post-acute care costs for Medicare adults.

APPENDIX TABLE 3.

Beneficiary Characteristics and Risk Factors

Demographics

VARIABLE NAME	DESCRIPTION	SOURCE
AGE	Age	MSBF Summary Files (1)
MALE	Male	MSBF Summary Files
BLACK	Black	MSBF Summary Files
OTHER	Other Race	MSBF Summary Files
ASIAN_PI	Asian/Pacific Islander	MSBF Summary Files
HISPANIC	Hispanic	MSBF Summary Files
AIAN	American Indian/Alaska Native	MSBF Summary Files

Coverage

VARIABLE NAME	DESCRIPTION	SOURCE
ESRD	ESRD Enrollment	MSBF Summary Files
NO_PARTB	No Part B Coverage	MSBF Summary Files
NO_PARTD	No Part D Coverage	MSBF Summary Files
ANY_MEDADVANTAGE	Any Medicare Advantage Months	MSBF Summary Files

Income

VARIABLE NAME	DESCRIPTION	SOURCE
PARTD_SUBSIDY	Part D Subsidy Receipt	MSBF Summary Files
PCT_FAM_POV	Percent Families Below Poverty Line	American Community Survey (Census Tract Linked To ZIPs)
PCT_HH_100K	Percent Households with Income >= $100,000	American Community Survey (Census Tract Linked To ZIPs)

Z-Code Dx Indicators

VARIABLE NAME	DESCRIPTION	SOURCE
LOW_INCOME	Poverty, Low income, Inadequate resources	Constructed Dx Code Set Applied to Medicare Claims
ALONE	Living alone, Problems from living alone	Constructed Dx Code Set Applied to Medicare Claims
HOMELESS	Homeless	Constructed Dx Code Set Applied to Medicare Claims
HOUSING	Inadequate housing	Constructed Dx Code Set Applied to Medicare Claims
FOOD	Lack of adequate food	Constructed Dx Code Set Applied to Medicare Claims

Disability DME Indicators

VARIABLE NAME	DESCRIPTION	SOURCE
Breathing	Breathing aids	Constructed DME Code Set Applied to Medicare Claims
Commode	Commode chair	Constructed DME Code Set Applied to Medicare Claims
DM_Footwear	Diabetic footwear	Constructed DME Code Set Applied to Medicare Claims
Hosp_bed	Hospital beds and associated supplies	Constructed DME Code Set Applied to Medicare Claims
Humidifiers	Humidifiers and nebulizers with related equipment	Constructed DME Code Set Applied to Medicare Claims
Oxygen	Oxygen delivery systems and related supplies	Constructed DME Code Set Applied to Medicare Claims
Walking_Aids	Walking aids and attachments	Constructed DME Code Set Applied to Medicare Claims
Wheelchair	Wheelchairs, components, and accessories	Constructed DME Code Set Applied to Medicare Claims

Potential Disabling Conditions – Central Nervous System

VARIABLE NAME	DESCRIPTION	SOURCE
CNSH	CNS, high	CDPS Code Sets Applied to Medicare Claims (2)
CNSL	CNS, low	CDPS Code Sets Applied to Medicare Claims
CNSM	CNS, medium	CDPS Code Sets Applied to Medicare Claims
MRX2	Alzheimer's Rx	MRX Code Sets Applied To Medicare Claims (3)
MRX33	Multiple Sclerosis / Paralysis Rx	MRX Code Sets Applied To Medicare Claims
MRX38	Parkinson's / Tremor Rx	MRX Code Sets Applied To Medicare Claims
PARKINSONS	Parkinson's Disease	Constructed Dx Code Set Applied to Medicare Claims
ALZH_E	Alzheimer's Disease (ever diagnosed)	MSBF Conditions Files
AUTISM_MEDICARE_E	Autism Spectrum Disorders (ever diagnosed)	MSBF Conditions Files

CERPAL_MEDICARE_E	Cerebral Palsy (ever diagnosed)	MSBF Conditions Files
EPILEP_MEDICARE_E	Epilepsy (ever diagnosed)	MSBF Conditions Files
MULSCL_MEDICARE_E	Multiple Sclerosis (ever diagnosed)	MSBF Conditions Files
MUSDYS_MEDICARE_E	Muscular Dystrophy (ever diagnosed)	MSBF Conditions Files
SPIBIF_MEDICARE_E	Spina Bifida (ever diagnosed)	MSBF Conditions Files

Potential Disabling Conditions – Developmental

VARIABLE NAME	DESCRIPTION	SOURCE
DDL	DD, low	CDPS Code Sets Applied to Medicare Claims
DDM	DD, medium	CDPS Code Sets Applied to Medicare Claims
INTDIS_MEDICARE_E	Intellectual Disabilities (ever diagnosed)	MSBF Conditions Files
LEADIS_MEDICARE_E	Learning Disabilities (ever diagnosed)	MSBF Conditions Files
OTHDEL_MEDICARE_E	Other Developmental Delays (ever diagnosed)	MSBF Conditions Files

Potential Disabling Conditions – Sensory

VARIABLE NAME	DESCRIPTION	SOURCE
VISUAL_MEDICARE_E	Blindness and Visual Impairment (ever diagnosed)	MSBF Conditions Files
HEARIM_MEDICARE_E	Deafness and Hearing Impairment (ever diagnosed)	MSBF Conditions Files

Potential Disabling Conditions – Skeletal

VARIABLE NAME	DESCRIPTION	SOURCE
SKCL	Skeletal, low	CDPS Code Sets Applied to Medicare Claims
SKCM	Skeletal, medium	CDPS Code Sets Applied to Medicare Claims
SKCVL	Skeletal, very low	CDPS Code Sets Applied to Medicare Claims
MRX36	Osteoporosis / Paget's Rx	MRX Code Sets Applied to Medicare Claims
HIP_FRACTURE_E	Hip/Pelvic Fracture (ever diagnosed)	MSBF Conditions Files
MOBIMP_MEDICARE_E	Mobility Impairments (ever diagnosed)	MSBF Conditions Files
OSTEOPOROSIS_E	Osteoporosis (ever diagnosed)	MSBF Conditions Files
RA_OA_E	Rheumatoid Arthritis/Osteoarthritis (ever diagnosed)	MSBF Conditions Files
SPIINJ_MEDICARE_E	Spinal Cord injury (ever diagnosed)	MSBF Conditions Files
FALLS	Fall-related Dx codes	Constructed Dx Code Set Applied to Medicare Claims
FRACTURE	Fragility or fracture	Constructed Dx Code Set Applied to Medicare Claims
OSTEOPOR	Osteoporosis	Constructed Dx Code Set Applied to Medicare Claims

Frailty Dx Indicators

VARIABLE NAME	DESCRIPTION	SOURCE
GAIT	Abnormal gait/difficulty walking	Constructed Dx Code Set Applied to Medicare Claims
THRIVE	Adult failure to thrive	Constructed Dx Code Set Applied to Medicare Claims
ALTERED	Altered mental status	Constructed Dx Code Set Applied to Medicare Claims
BEDDX	Bed confinement status	Constructed Dx Code Set Applied to Medicare Claims
WHEELCHAIRDX	Dependence on a wheelchair	Constructed Dx Code Set Applied to Medicare Claims
MACHINEDX	Dependence on other enabling machines and devices	Constructed Dx Code Set Applied to Medicare Claims
VERTIGO	Dizziness or Vertigo	Constructed Dx Code Set Applied to Medicare Claims
CVDEFFECT	Effects of cerebrovascular disease	Constructed Dx Code Set Applied to Medicare Claims
HYPO	Hypotension / Syncope	Constructed Dx Code Set Applied to Medicare Claims
COORD	Lack of coordination	Constructed Dx Code Set Applied to Medicare Claims
DISAB	Limitation of activities due to disability	Constructed Dx Code Set Applied to Medicare Claims
MALAISE	Malaise/Fatigue	Constructed Dx Code Set Applied to Medicare Claims
MUSCLE	Muscle weakness/wasting	Constructed Dx Code Set Applied to Medicare Claims
NEEDASSIST	Need for assistance/supervision	Constructed Dx Code Set Applied to Medicare Claims
NUTRITION	Nutritional deficiencies	Constructed Dx Code Set Applied to Medicare Claims
OTHMOBILITY	Other reduced mobility	Constructed Dx Code Set Applied to Medicare Claims
PEPTIC	Peptic Ulcer	Constructed Dx Code Set Applied to Medicare Claims
BREATH	Dyspnea/Shortness of breath	Constructed Dx Code Set Applied to Medicare Claims

INCONTINENT	Urinary Incontinence	Constructed Dx Code Set Applied to Medicare Claims
WEIGHTLOSS	Weight Loss (Cachexia)	Constructed Dx Code Set Applied to Medicare Claims
ULCERS_MEDICARE	Pressure Ulcers and Chronic Ulcers	MSBF Conditions Files

Comorbidities – Aids

VARIABLE NAME	DESCRIPTION	SOURCE
AIDSH	AIDS, high	CDPS Code Sets Applied to Medicare Claims
HIVM	HIV, medium	CDPS Code Sets Applied to Medicare Claims
MRX22	HIV Rx	MRX Code Sets Applied to Medicare Claims
HIVAIDS_MEDICARE_E	HIV/AIDS (ever diagnosed)	MSBF Conditions Files

Comorbidities – Cancer

VARIABLE NAME	DESCRIPTION	SOURCE
CANH	Cancer, high	CDPS Code Sets Applied to Medicare Claims
CANL	Cancer, low	CDPS Code Sets Applied to Medicare Claims
CANM	Cancer, medium	CDPS Code Sets Applied to Medicare Claims
CANVH	Cancer, very high	CDPS Code Sets Applied to Medicare Claims
MRX32	Malignancies Rx	MRX Code Sets Applied to Medicare Claims
CANCER_BREAST	Breast cancer (ever diagnosed)	MSBF Conditions Files
CANCER_COLORECTAL	Colorectal cancer (ever diagnosed)	MSBF Conditions Files
CANCER_PROSTATE	Prostate cancer (ever diagnosed)	MSBF Conditions Files
CANCER_LUNG	Lung cancer (ever diagnosed)	MSBF Conditions Files
CANCER_ENDOMETRIAL	Endometrial cancer (ever diagnosed)	MSBF Conditions Files
LEUKLYMPH_MEDICARE	Leukemias and Lymphomas	MSBF Conditions Files

Comorbidities – Cardiovascular/Cerebrovascular

VARIABLE NAME	DESCRIPTION	SOURCE
CAREL	Cardiovascular, extra low	CDPS Code Sets Applied to Medicare Claims
CARL	Cardiovascular, low	CDPS Code Sets Applied to Medicare Claims
CARM	Cardiovascular, medium	CDPS Code Sets Applied to Medicare Claims
CARVH	Cardiovascular, very high	CDPS Code Sets Applied to Medicare Claims
CERL	Cerebrovascular, low	CDPS Code Sets Applied to Medicare Claims
MRX3	Anti-coagulants Rx	MRX Code Sets Applied to Medicare Claims
MRX7	Cardiac Rx	MRX Code Sets Applied to Medicare Claims
MRX23	Hyperlipidemia Rx	MRX Code Sets Applied to Medicare Claims
AMI_E	Acute Myocardial Infarction (ever diagnosed)	MSBF Conditions Files
ATRIAL_FIB_E	Atrial Fibrillation (ever diagnosed)	MSBF Conditions Files
CHF_E	Heart Failure (ever diagnosed)	MSBF Conditions Files
HYPERL_E	Hyperlipidemia (ever diagnosed)	MSBF Conditions Files
HYPERT_E	Hypertension (ever diagnosed)	MSBF Conditions Files
ISCHEMICHEART_E	Ischemic Heart Disease (ever diagnosed)	MSBF Conditions Files
PVD_MEDICARE_E	Peripheral Vascular Disease (ever diagnosed)	MSBF Conditions Files
STROKE_TIA_E	Stroke/Transient Ischemic Attack (ever diagnosed)	MSBF Conditions Files

Comorbidities – Diabetes

VARIABLE NAME	DESCRIPTION	SOURCE
DIA1H	Diabetes, type 1 high	CDPS Code Sets Applied to Medicare Claims
DIA1M	Diabetes, type 1 medium	CDPS Code Sets Applied to Medicare Claims
DIA2L	Diabetes, type 2 low	CDPS Code Sets Applied to Medicare Claims
DIA2M	Diabetes, type 2 medium	CDPS Code Sets Applied to Medicare Claims
MRX10	Diabetes Rx	MRX Code Sets Applied to Medicare Claims
DIABETES_E	Diabetes (ever diagnosed)	MSBF Conditions Files

Comorbidities – Gastric

VARIABLE NAME	DESCRIPTION	SOURCE
GIH	Gastro, high	CDPS Code Sets Applied to Medicare Claims
GIL	Gastro, low	CDPS Code Sets Applied to Medicare Claims

GIM	Gastro, medium	CDPS Code Sets Applied to Medicare Claims
MRX15	Gastric Acid Disorder	MRX Code Sets Applied to Medicare Claims

Comorbidities – Blood Disorders

VARIABLE NAME	DESCRIPTION	SOURCE
HEMEH	Hematological, extra high	CDPS Code Sets Applied to Medicare Claims
HEML	Hematological, low	CDPS Code Sets Applied to Medicare Claims
HEMM	Hematological, medium	CDPS Code Sets Applied to Medicare Claims
HEMVH	Hematological, very high	CDPS Code Sets Applied to Medicare Claims
MRX29	Iron Deficiency	MRX Code Sets Applied to Medicare Claims
ANEMIA	Anemia	MSBF Conditions Files
SCD_MEDICARE_E	Sickle Cell Disease (ever diagnosed)	MSBF Conditions Files

Comorbidities – Infectious Diseases

VARIABLE NAME	DESCRIPTION	SOURCE
INFH	Infectious, high	CDPS Code Sets Applied to Medicare Claims
INFL	Infectious, low	CDPS Code Sets Applied to Medicare Claims
INFM	Infectious, medium	CDPS Code Sets Applied to Medicare Claims
MRX24	Infections, high Rx	MRX Code Sets Applied to Medicare Claims
MRX25	Infections, medium Rx	MRX Code Sets Applied to Medicare Claims
MRX26	Infections, low Rx	MRX Code Sets Applied to Medicare Claims
MRX20	Hepatitis Rx	MRX Code Sets Applied to Medicare Claims
MRX45	Tuberculosis Rx	MRX Code Sets Applied to Medicare Claims
HEPVIRAL_MEDICARE_E	Viral Hepatitis (ever diagnosed)	MSBF Conditions Files

Comorbidities – Metabolic

VARIABLE NAME	DESCRIPTION	SOURCE
METH	Metabolic, high	CDPS Code Sets Applied to Medicare Claims
METM	Metabolic, medium	CDPS Code Sets Applied to Medicare Claims
METVL	Metabolic, very low	CDPS Code Sets Applied to Medicare Claims
MRX43	Thyroid Disorder RX	MRX Code Sets Applied to Medicare Claims
MRX17	Gout Rx	MRX Code Sets Applied to Medicare Claims
MRX27	Inflammatory /Autoimmune Rx	MRX Code Sets Applied to Medicare Claims
MRX8	Cystic Fibrosis Rx	MRX Code Sets Applied to Medicare Claims
HYPOTH_E	Acquired Hypothyroidis (ever diagnosed)	MSBF Conditions Files
CYSFIB_MEDICARE_E	Cystic Fibrosis/Other Metabolic Developmental (ever diagnosed)	MSBF Conditions Files

Comorbidities – Pulmonary

VARIABLE NAME	DESCRIPTION	SOURCE
PULH	Pulmonary, high	CDPS Code Sets Applied to Medicare Claims
PULL	Pulmonary, low	CDPS Code Sets Applied to Medicare Claims
PULM	Pulmonary, medium	CDPS Code Sets Applied to Medicare Claims
PULVH	Pulmonary, very high	CDPS Code Sets Applied to Medicare Claims
MRX4	Asthma/COPD	MRX Code Sets Applied to Medicare Claims
ASTHMA_E	Asthma (ever diagnosed)	MSBF Conditions Files
COPD_E	Chronic Obstructive Pulmonary Disease (ever diagnosed)	MSBF Conditions Files

Comorbidities – Kidney/Liver

VARIABLE NAME	DESCRIPTION	SOURCE
RENEH	Renal, extra high	CDPS Code Sets Applied to Medicare Claims
RENL	Renal, low	CDPS Code Sets Applied to Medicare Claims
RENM	Renal, medium	CDPS Code Sets Applied to Medicare Claims
RENVH	Renal, very high	CDPS Code Sets Applied to Medicare Claims
MRX12	ESRD / Renal	MRX Code Sets Applied to Medicare Claims
MRX35	Neurogenic bladder	MRX Code Sets Applied to Medicare Claims
MRX31	Liver Disease	MRX Code Sets Applied to Medicare Claims

CHRONICKIDNEY_E	Chronic Kidney Disease (ever diagnosed	MSBF Conditions Files
LIVER_MEDICARE_E	Liver Disease, Cirrhosis (ever diagnosed)	MSBF Conditions Files

Comorbidities – Miscellaneous Conditions

VARIABLE NAME	DESCRIPTION	SOURCE
SKNH	Skin, high	CDPS Code Sets Applied to Medicare Claims
SKNL	Skin, low	CDPS Code Sets Applied to Medicare Claims
SKNVL	Skin, very low	CDPS Code Sets Applied to Medicare Claims
GENEL	Genital, extra low	CDPS Code Sets Applied to Medicare Claims
MRX37	Pain	MRX Code Sets Applied to Medicare Claims
MRX44	Transplant	MRX Code Sets Applied to Medicare Claims
HYPERP_E	Benign Prostatic Hyperplasia (ever diagnosed)	MSBF Conditions Files
FIBRO_MEDICARE_E	Fibromyalgia, Chronic Pain and Fatigue (ever diagnosed)	MSBF Conditions Files
MIGRAINE_MEDICARE_E	Migraine and Chronic Headache (ever diagnosed)	MSBF Conditions Files
OBESITY_MEDICARE_E	Obesity (ever diagnosed)	MSBF Conditions Files

Mental Illness

VARIABLE NAME	DESCRIPTION	SOURCE
PSYH	Psychiatric, high	CDPS Code Sets Applied to Medicare Claims
PSYL	Psychiatric, low	CDPS Code Sets Applied to Medicare Claims
PSYM	Psychiatric, medium	CDPS Code Sets Applied to Medicare Claims
PSYML	Psychiatric, medium low	CDPS Code Sets Applied to Medicare Claims
MRX5	Attention Deficit Rx	MRX Code Sets Applied to Medicare Claims
MRX9	Depression / Anxiety Rx	MRX Code Sets Applied to Medicare Claims
MRX40	Psychotic Illness / Bipolar Rx	MRX Code Sets Applied to Medicare Claims
ACP_MEDICARE_E	ADHD, Conduct Disorders (ever diagnosed)	MSBF Conditions Files
ANXI_MEDICARE_E	Anxiety Disorders (ever diagnosed)	MSBF Conditions Files
BIPL_MEDICARE_E	Bipolar Disorder (ever diagnosed)	MSBF Conditions Files
DEPRESSION_E	Depression (ever diagnosed)	MSBF Conditions Files
DEPSN_MEDICARE_E	TO10 Depression (includes depression Dx; ever diagnosed))	MSBF Conditions Files
PSDS_MEDICARE_E	Personality Disorders (ever diagnosed)	MSBF Conditions Files
SCHI_MEDICARE_E	Schizophrenia (ever diagnosed)	MSBF Conditions Files
SCHIOT_MEDICARE_E	Schizophrenia and Other Psychotic Disorders (ever diagnosed)	MSBF Conditions Files
BRAINJ_MEDICARE_E	Traumatic Brain Injury, Brain Damage (ever diagnosed)	MSBF Conditions Files
PTRA_MEDICARE_E	Post-Traumatic Stress Disorder (ever diagnosed)	MSBF CONDITIONS FILES

Substance Use Disorders

VARIABLE NAME	DESCRIPTION	SOURCE
SUBL	Substance abuse, low	CDPS Code Sets Applied to Medicare Claims
SUBVL	Substance abuse, very low	CDPS Code Sets Applied to Medicare Claims
MRX1	Alcoholism	MRX Code Sets Applied to Medicare Claims
TOBA_MEDICARE	Tobacco Use	MSBF Conditions Files
ALCO_MEDICARE_E	Alcohol Disorders (ever diagnosed)	MSBF Conditions Files
DRUG_MEDICARE_E	Drug Use Disorders (ever diagnosed)	MSBF Conditions Files

(1) MSBF refers to the Medicare Master Beneficiary Summary Files.

(2) CDPS refers to the Chronic Illness and Disability Payment System, developed by researchers at the University of California, San Diego.

(3) MRx refers to Medicaid Rx Model, also developed by researchers at the University of California, San Diego. NDC codes are mapped to conditions.

APPENDIX TABLE 4.

Post-Acute Care Cost Model, Medicare Elders (65+)[1]

Dependent Variable: Medicare Post-Acute Care Costs (Skilled Nursing Facility, Other Inpatient, and Home Health)

Follow Up: 365 Days after Anchor Stay Discharge

Analysis of Variance			
Source	**DF**	**F Value**	**Pr > F**
Model	90	264.42	<.0001
Error	78,654		
Corrected Total	78,744		
Root MSE	28,007	R-Square	0.2323
Dependent Mean	17,511	Adj R-Sq	0.2314
Coeff Var	159.94		

Parameter Estimates Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1865.7	1346.8	1.39	0.166
TREATMENT VARIABLES				
Medicaid In Home LTSS Paid ($)	-0.208	0.019	-10.94	<.0001
Medicaid Residential LTSS Paid ($)	-0.246	0.023	-10.59	<.0001
Medicaid Nursing Home Paid ($)	0.044	0.014	3.17	0.0015
ANCHOR STAY CHARACTERISTICS				
Anchor Stay - Mental Illness DRG	201.9	1166.5	0.17	0.8626
Anchor Stay - SUD DRG	-455.3	1636.6	-0.28	0.7809
Anchor Stay - Length of Stay	48.1	10.1	4.74	<.0001
Anchor Stay - DRG Price	0.135	0.008	16.84	<.0001
DEMOGRAPHICS				
Age	-66.0	15.5	-4.27	<.0001
Male	107.5	229.6	0.47	0.6396
Black	-5.8	771.9	-0.01	0.994
Other Race	-386.0	1061.5	-0.36	0.7161
Asian/Pacific Islander	-1938.1	599.6	-3.23	0.0012
Hispanic	-1336.8	614.1	-2.18	0.0295
American Indian/Alaska Native	296.0	902.5	0.33	0.7429
MEDICARE COVERAGE CHARACTERISTICS				
ESRD Enrollment	7767.7	907.9	8.56	<.0001
No Part B Coverage	5680.0	514.4	11.04	<.0001
No Part D Coverage	-725.5	310.2	-2.34	0.0194
Any Medicare Advantage Months	2925.4	1452.3	2.01	0.044
SOCIOECONOMIC STATUS				
Part D Subsidy Receipt	2338.9	365.9	6.39	<.0001
Living Alone (Z-code)[2]	4330.7	707.8	6.12	<.0001
Homeless (Z-code)[2]	6671.9	1390.9	4.8	<.0001
% Families Below Poverty Line	-1549.7	3478.3	-0.45	0.6559
% Households with Income >= $100,000	-1261.0	1164.2	-1.08	0.2788
DURABLE MEDICAL EQUIPMENT UTILIZATION				
Diabetic footwear	-966.0	636.0	-1.52	0.1288

Hospital beds	4236.1	977.4	4.33	<.0001
Oxygen	2656.0	357.8	7.42	<.0001
Walking aids	1869.5	329.0	5.68	<.0001
Wheelchairs	6256.8	530.0	11.8	<.0001
CENTRAL NERVOUS SYSTEM CONDITIONS				
Parkinson's	924.8	607.1	1.52	0.1277
Cerebral Palsy	-1392.3	2484.9	-0.56	0.5753
Epilepsy	130.2	517.5	0.25	0.8014
Multiple Sclerosis	537.2	1032.5	0.52	0.6029
Intellectual Disabilities	3622.0	2197.4	1.65	0.0993
Learning Disabilities	2398.1	1755.5	1.37	0.1719
Other Developmental Delays	-268.6	2411.5	-0.11	0.9113
SENSORY IMPAIRMENTS				
Blindness and Visual Impairment	919.2	861.0	1.07	0.2857
COGNITIVE IMPAIRMENTS				
Alzheimer's	-2887.3	431.7	-6.69	<.0001
Traumatic Brain Injury	-311.2	769.5	-0.4	0.6859
MOBILITY IMPAIRMENTS				
Mobility Impairments	5696.5	400.6	14.22	<.0001
Other reduced mobility	7659.3	476.5	16.08	<.0001
Wheelchair dependence Dx	1160.5	634.9	1.83	0.0676
FRAILTY INDICATORS				
Falls	4586.5	241.1	19.02	<.0001
Abnormal gait	4263.9	259.3	16.44	<.0001
Failure to thrive	5322.7	583.4	9.12	<.0001
Altered mental status	5810.3	290.6	19.99	<.0001
Coordination	8855.7	354.5	24.98	<.0001
Malaise/Fatigue	3355.2	227.4	14.75	<.0001
Muscle weakness	6430.7	271.1	23.72	<.0001
Nutritional deficiencies	4159.5	253.2	16.43	<.0001
Incontinence	3697.3	257.7	14.35	<.0001
Weight Loss	717.8	348.3	2.06	0.0393
Pressure Ulcers	9739.6	440.9	22.09	<.0001
MENTAL ILLNESS				
Anxiety Disorders (ever)	232.9	250.2	0.93	0.3519
Bipolar Disorder	389.4	546.1	0.71	0.4758
Depression (ever)	124.2	239.1	0.52	0.6034
Personality Disorders	-828.1	733.7	-1.13	0.259
Schizophrenia/Psychotic Disorders	89.5	493.1	0.18	0.8559
SUBSTANCE USE DISORDERS				
Alcohol Use Disorders	852.3	414.4	2.06	0.0397
Opioid Use Disorder	1987.9	393.8	5.05	<.0001
Other Drug Disorders	1897.2	552.3	3.43	0.0006
MEDICAL CONDITIONS				
Cancer, low	-632.6	294.7	-2.15	0.0318
Prostate cancer	595.5	456.8	1.3	0.1924
Anti-coagulants Rx	1351.0	243.6	5.55	<.0001
Hyperlipidemia Rx	-987.8	273.0	-3.62	0.0003
Acute Myocardial Infarction	1297.4	350.0	3.71	0.0002
Congestive Heart Failure	3981.6	247.0	16.12	<.0001

Ischemic Heart Disease	203.8	242.2	0.84	0.4001
Peripheral Vascular Disease	843.5	256.1	3.29	0.001
Stroke	-397.1	282.9	-1.4	0.1604
Diabetes, type 1 high	5904.6	1380.3	4.28	<.0001
Diabetes, type 1 medium	1228.3	641.6	1.91	0.0555
Diabetes, type 2 low	41.8	330.8	0.13	0.8995
Diabetes, type 2 medium	1567.0	350.2	4.47	<.0001
Diabetes Rx	112.6	368.6	0.31	0.7599
Gastro, high	11539.0	530.6	21.75	<.0001
Gastro, low	842.9	236.8	3.56	0.0004
Gastro, medium	2899.4	357.1	8.12	<.0001
Gastric Acid Disorder Rx	56.2	264.8	0.21	0.832
Hematological, low	3445.0	301.4	11.43	<.0001
Iron Deficiency Rx	1603.5	637.9	2.51	0.012
Infections, high Rx	4537.0	479.2	9.47	<.0001
Infections, medium Rx	-36.3	249.0	-0.15	0.8842
Viral Hepatitis	-212.8	681.1	-0.31	0.7547
Metabolic, high	2730.8	426.6	6.4	<.0001
Acquired Hypothyroidism	120.1	232.2	0.52	0.6049
COPD	856.5	238.9	3.59	0.0003
Chronic Kidney Disease	2200.4	235.5	9.35	<.0001
Skin, low	-1405.0	512.7	-2.74	0.0061
Pain Rx	-712.0	244.4	-2.91	0.0036
Obesity	421.3	232.5	1.81	0.0699

(1) Study population includes Medicare beneficiaries with at least 6 months of Fee-For-Service coverage in 2017 and 2018 and an acute impatient admission in 2017.

(2) Z-Codes are diagnoses used to record factors that affect health status and health services.

APPENDIX TABLE 5.

Post-Acute Care Cost Model, Medicare Adults (<65)[1]

Dependent Variable: Medicare Post-Acute Care Costs (Skilled Nursing Facility, Other Inpatient, and Home Health)

Follow Up: 365 Days after Anchor Stay Discharge

Analysis of Variance			
Source	**DF**	**F Value**	**Pr > F**
Model	105	37.09	<.0001
Error	14,218		
Corrected Total	14,323		
Root MSE	37,944	R-Square	0.215
Dependent Mean	22,281	Adj R-Sq	0.209
Coeff Var	170.30		

Parameter Estimates Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	3564.1	3155.6	1.13	0.2587
TREATMENT VARIABLES				
Medicaid In Home LTSS Paid ($)	-0.254	0.031	-8.11	<.0001
Medicaid Residential LTSS Paid ($)	-0.126	0.021	-6.1	<.0001
Medicaid Nursing Home Paid ($)	-0.008	0.030	-0.26	0.7954
ANCHOR STAY CHARACTERISTICS				
Anchor Stay - Mental Illness DRG	4040.4	1326.1	3.05	0.0023
Anchor Stay - SUD DRG	3622.6	1967.7	1.84	0.0656
Anchor Stay - Length of Stay	-3.9	4.2	-0.95	0.3428
Anchor Stay - DRG Price	0.07	0.02	3.92	<.0001
DEMOGRAPHICS				
Age	-173.2	38.9	-4.45	<.0001
Male	920.4	712.8	1.29	0.1966
Black	4430.1	1290.6	3.43	0.0006
Other Race	9991.5	3669.4	2.72	0.0065
Asian/Pacific Islander	-76.4	1698.7	-0.04	0.9641
Hispanic	1491.4	1313.5	1.14	0.2562
American Indian/Alaska Native	915.6	1860.5	0.49	0.6226
MEDICARE COVERAGE CHARACTERISTICS				
ESRD Enrollment	8946.9	1564.5	5.72	<.0001
No Part B Coverage	4956.7	1704.3	2.91	0.0036
No Part D Coverage	1192.8	1286.9	0.93	0.354
Any Medicare Advantage Months	5448.9	2822.4	1.93	0.0535
SOCIOECONOMIC STATUS				
Part D Subsidy Receipt	1673.6	1046.4	1.6	0.1098
Homeless (Z-code)[2]	7474.9	1233.8	6.06	<.0001
% Families Below Poverty Line	-4713.2	10483.0	-0.45	0.653
% Households with Income >= $100,000	-1863.8	4265.4	-0.44	0.6621
DURABLE MEDICAL EQUIPMENT UTILIZATION				
Diabetic footwear	-8226.7	1782.6	-4.61	<.0001
Hospital beds	-3274.7	2695.8	-1.21	0.2245

Parameter Estimates Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|
Oxygen	2050.0	1166.1	1.76	0.0788
Walking aids	-150.5	1104.5	-0.14	0.8916
Wheelchairs	1897.6	1599.2	1.19	0.2354
CENTRAL NERVOUS SYSTEM CONDITIONS				
CNS, high (e.g. Quadriplegia, ALS)	5688.4	2126.0	2.68	0.0075
Parkinson's	-1667.6	2926.8	-0.57	0.5689
Autism Spectrum Disorders	1811.8	2954.2	0.61	0.5397
Cerebral Palsy	-2670.2	2674.9	-1	0.3182
Epilepsy	972.5	1005.2	0.97	0.3333
Multiple Sclerosis	-1863.3	1919.2	-0.97	0.3316
Muscular Dystrophy	15283.0	4979.4	3.07	0.0022
Spina Bifida	-672.2	2742.5	-0.25	0.8064
Intellectual Disabilities	-221.8	1957.1	-0.11	0.9098
Learning Disabilities	5717.1	2791.9	2.05	0.0406
Other Developmental Delays	-1950.2	2228.2	-0.88	0.3815
SENSORY IMPAIRMENTS				
Blindness and Visual Impairment	5397.8	2133.4	2.53	0.0114
COGNITIVE IMPAIRMENTS				
Alzheimer's	1931.0	3611.6	0.53	0.5929
Traumatic Brain Injury	-3871.2	1972.9	-1.96	0.0498
MOBILITY IMPAIRMENTS				
Mobility Impairments	1993.4	1312.9	1.52	0.129
Other reduced mobility	10289.0	1557.1	6.61	<.0001
Spinal Cord injury	5561.1	2088.4	2.66	0.0078
Wheelchair dependence Dx	3283.6	1722.5	1.91	0.0566
Skeletal, medium	2539.9	792.0	3.21	0.0013
Hip/Pelvic Fracture	2044.0	1945.8	1.05	0.2935
FRAILTY INDICATORS				
Falls	3710.3	783.7	4.73	<.0001
Abnormal gait	9064.0	897.1	10.1	<.0001
Failure to thrive	6674.8	2016.8	3.31	0.0009
Altered mental status	6855.4	863.4	7.94	<.0001
Hypotension	6876.2	785.4	8.75	<.0001
Coordination	10647.0	1193.8	8.92	<.0001
Incontinence	3430.7	979.0	3.5	0.0005
Weight Loss	2460.7	1138.5	2.16	0.0307
Pressure Ulcers	7528.7	1376.8	5.47	<.0001
MENTAL ILLNESS				
Anxiety Disorders (ever)	1193.3	810.0	1.47	0.1407
Bipolar Disorder	-164.9	903.3	-0.18	0.8552
Depression (ever)	492.9	834.7	0.59	0.5548
Personality Disorders	2026.0	1129.2	1.79	0.0728
Schizophrenia/Psychotic Disorders	1943.2	1043.1	1.86	0.0625
PTSD	-1474.8	972.7	-1.52	0.1295
SUBSTANCE USE DISORDERS				
Alcohol Use Disorders	-1264.1	898.7	-1.41	0.1596
Opioid Use Disorder	3021.3	902.6	3.35	0.0008
Other Drug Disorders	1095.5	934.8	1.17	0.2413

Parameter Estimates Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|
MEDICAL CONDITIONS				
Cancer, high	5882.6	1665.5	3.53	0.0004
Cancer, low	1591.0	1717.3	0.93	0.3542
Cancer, medium	1870.4	2673.6	0.7	0.4842
Cancer, very high	8653.5	2160.6	4.01	<.0001
Prostate cancer	1734.0	4032.9	0.43	0.6672
Endometrial cancer	3880.6	4373.0	0.89	0.3749
Acute Myocardial Infarction	6240.6	1392.1	4.48	<.0001
Atrial Fibrillation	6153.0	1246.9	4.93	<.0001
Congestive Heart Failure	6469.4	889.5	7.27	<.0001
Hyperlipidemia	-3016.5	780.0	-3.87	0.0001
Hypertension	1215.3	860.7	1.41	0.158
Ischemic Heart Disease	606.6	852.0	0.71	0.4765
Peripheral Vascular Disease	2030.3	1003.0	2.02	0.043
Stroke	-724.2	1174.2	-0.62	0.5374
Diabetes, type 1 high	8795.4	2100.9	4.19	<.0001
Diabetes, type 1 medium	5426.7	1785.4	3.04	0.0024
Diabetes, type 2 low	307.0	1132.2	0.27	0.7863
Diabetes, type 2 medium	4002.9	1268.6	3.16	0.0016
Diabetes Rx	-1459.8	1140.2	-1.28	0.2005
Gastro, high	12674.0	1368.4	9.26	<.0001
Gastro, low	2339.3	829.5	2.82	0.0048
Gastro, medium	5524.2	1006.0	5.49	<.0001
Gastric Acid Disorder Rx	471.2	790.7	0.6	0.5512
Hematological, extra high	17483.0	9846.1	1.78	0.0758
Hematological, very high	-3140.1	6078.3	-0.52	0.6054
Iron Deficiency Rx	2612.1	1591.4	1.64	0.1008
Anemia	3260.7	751.5	4.34	<.0001
Infectious, high	14066.0	1831.0	7.68	<.0001
Viral Hepatitis	-821.2	1080.5	-0.76	0.4473
Metabolic, high	4751.6	1151.3	4.13	<.0001
Thyroid Disorder Rx	914.9	999.1	0.92	0.3598
Gout Rx	2877.0	1658.2	1.74	0.0828
Cystic Fibrosis Rx	1378.0	2689.6	0.51	0.6084
COPD	583.8	769.0	0.76	0.4477
Neurogenic bladder Rx	-1310.1	1493.7	-0.88	0.3805
Chronic Kidney Disease	2464.4	833.5	2.96	0.0031
Skin, high	6936.6	1653.0	4.2	<.0001
Pain Rx	-2346.8	855.4	-2.74	0.0061
Fibromyalgia, Chronic Pain	90.5	773.2	0.12	0.9068
Obesity	316.1	723.3	0.44	0.6621

(1) Study population includes Medicare beneficiaries with at least 6 months of Fee-For-Service coverage in 2017 and 2018 and an acute impatient admission in 2017.

(2) Z-Codes are diagnoses used to record factors that affect health status and health services.

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