



Access to Public Benefits among Dual Eligible Seniors Reduces Risk of Nursing Home and Hospital Admission and Cuts Costs

By: Ginger Zielinskie, MBA, Laura Samuel, PhD, CRNP, Sarah Szanton, PhD, ANP, FAAN, Charles Betley, MA, Rachel Cahill, MPA

Executive Summary

The healthcare sector is in the midst of a major shift as new payment models demand both improved health outcomes and reduced healthcare costs. Although there is a growing consensus that the sector must address the social determinants of health, relatively little is known about whether specific non-medical interventions can positively impact health outcomes and associated healthcare costs, particularly among low-income seniors and other high-utilizers.

With this research gap in mind, a cross-sector research partnership between Benefits Data Trust, Johns Hopkins University School of Nursing, and the Hilltop Institute at the University of Maryland Baltimore County studied the impact of access to food and energy assistance on healthcare utilization among all community-dwelling seniors (age 65+) in Maryland who received both Medicare and Medicaid (known as “dual eligibles.”) This unique dataset combined individual-level administrative data from Medicaid, the Supplemental Nutrition Assistance Program (SNAP) with Medicaid and Medicare claims data from 2009 through 2012. With this information, the team modeled nursing home, hospital, and emergency room use in a calendar year based on SNAP participation in the previous year and benefit amount among SNAP participants.

After controlling for age, race/ethnicity, gender, income, chronic conditions, partial Medicaid eligibility, Medicaid spend-down eligibility, and Medicaid home and community based services waivers, the study found that access to SNAP significantly improved low-income seniors’ chances of living independently in the community and avoiding hospitalization. Specifically:

- SNAP participation significantly reduced the likelihood of subsequent nursing home use
- SNAP significantly reduced the likelihood of subsequent hospital use
- SNAP significantly reduced Medicare and Medicaid costs

This study shows that access to food can reduce healthcare utilization for even the most vulnerable older adults. Unfortunately, benefits participation among seniors is low. Less than half of eligible seniors participate in SNAP.ⁱ Policymakers can use these findings as motivation to decrease barriers to benefits participation so that all eligible older adults can age in their community while reducing healthcare costs. State leaders can play a particularly important role by adopting policy options and conducting targeted outreach to increase benefits participation among seniors and lower Medicaid costs.

Background

A robust body of research convincingly demonstrates that food insecurity and financial strain lead to poor health outcomes across the population.ⁱⁱ Older adults who receive both Medicare and Medicaid (the so-called “dual eligibles”) are considered particularly vulnerable, as they suffer more chronic conditions and functional limitations than their higher income counterparts, and account for a disproportionate share of healthcare spending.ⁱⁱⁱ Research also confirms that participation in the Supplemental Nutrition Assistance Program (SNAP) reduces food insecurity.^{iv} What is less clear is whether access to SNAP and other public benefits that address food insecurity and financial strain improve health outcomes and reduce healthcare costs.

In a health policy context, food insecurity and financial strain fall into the category of “social determinants” which are estimated to be responsible for up to 40 percent of an individual’s health outcomes and healthcare costs.^v There is growing understanding that to achieve the goals of improving health outcomes and controlling costs, the healthcare sector must tackle the social determinants of health more directly.^{vi} With payment reform models under development across the country, healthcare payers now have new incentives to invest in interventions that can ameliorate the social determinants of health.^{vii}

Research Partnership

The research partnership described here was born, in some ways, out of a new awareness in health policy circles that diverse actors – many of whom would be new to healthcare – must work together if efforts to understand and tackle the social determinants of health are to succeed. After meeting at a national health policy conference in late 2013, the original conveners recognized an opportunity to merge ideas, datasets, and resources to better understand the relationship between public benefits enrollment and healthcare costs.^{viii} After several meetings and conversations to recruit partners with the necessary expertise, a dynamic team emerged, including:

- ✓ **Benefits Data Trust**, a national, not-for-profit organization operating the Maryland Benefits Center, which helps vulnerable seniors and families apply for public benefits
- ✓ **Johns Hopkins University School of Nursing**, led by Dr. Sarah Szanton, Professor and Dr. Laura Samuel,

Assistant Professor who investigate health disparities and aging

- ✓ **The Hilltop Institute at the University of Maryland Baltimore County** that conducts claims data analytics as manager of the Maryland Medicaid data warehouse
- ✓ **Maryland Department of Health (MDH)** the state Medicaid agency
- ✓ **Maryland Department of Human Services (DHS)**, the state agency responsible for administering SNAP and other public benefits

This diverse partnership took on the ambitious task of constructing a first-of-its-kind data set linking administrative participation data with healthcare claims data. After a year of in-kind, exploratory work, the Robert Wood Johnson Foundation joined the effort in early 2015 by investing in the research team’s innovative approach and promising preliminary findings. The remainder of this brief summarizes the resulting study and its significant policy implications.

Methods

In close coordination with Maryland’s health and human services agencies (DHS and MDH), the study team assembled a unique data set that links administrative data from Medicaid and SNAP – including benefits enrollment status, income, and other demographic information – with Medicare and Medicaid claims data for dual eligibles, aged 65 or older, in Maryland between 2009 and 2012. This was the first time that the Hilltop Institute, on behalf of MDH, linked Medicare and Medicaid nursing facility claims data at the level of individual services to assess total cost of care among dual eligibles. Because Medicare is the primary payer for dual-eligible hospitalizations, Medicare claims were used to calculate hospital utilization and costs.

This study measures healthcare utilization during each calendar year of a beneficiary’s enrollment. Healthcare utilization was measured as number of days in the nursing home, number of inpatient hospital days, number of emergency department visits, cost of nursing home admissions and cost of inpatient hospitalizations. SNAP exposure was measured as the cumulative average monthly benefit amount through the prior year.

This approach to measuring benefits allowed the team to estimate each year's healthcare utilization as a function of benefits exposure in the prior year.

The study team used advanced regression techniques which estimate both (1) the likelihood of an admission to a nursing home, hospital, or emergency room, and (2) the odds of each additional day of care among those who were admitted.^{ix} Separately, the team estimated the cost of admission to a nursing home or hospital, among those admitted to either facility. The final models controlled for age, race/ethnicity, income, gender, chronic conditions, partial Medicaid eligibility, Medicaid spend-down eligibility, and Medicaid home and community based services waivers, and proportion of year enrolled in Medicaid.

Study Population

This study represents a true population analysis, rather than a sample, and includes nearly all low-income Maryland seniors (age 65 and older) enrolled in both Medicare and Medicaid and living in the community. This includes both "full" dual eligibles who receive comprehensive Medicaid coverage, and "partial" dual eligibles (e.g. QMB/SLMB) for whom Medicaid only pays for Part B premiums and other Medicare co-payments.

The study excludes dual-eligible seniors who were residing in a nursing home for nine months or more of the year prior to healthcare observation (i.e. the benefits participation year), since individuals living in a nursing home are not eligible for SNAP. The study also excluded those who were enrolled in a Medicare Advantage Plan (representing approximately 15% of total Medicare enrollment in Maryland) since claims data were not available for this group.^x Finally, the study also excluded those with less than 6 months of claims data in a given calendar year, due to partial year Medicare enrollment or death.

Among the 53,646 dual eligible seniors included in the study as of 2012, 69% are female, 39% Caucasian, 33% Black, and 5% Hispanic. The average participant is 76 years old with 2.5 chronic conditions and annual countable

income of just \$5,864. Although nearly all of the seniors in the study population qualify for SNAP, less than half (47%) participated in 2012.

About 28% of the study population experienced a hospitalization and 17% were admitted to a nursing home in any given year. Among those who were hospitalized, the average annual cost to Medicare was \$25,091. Among those admitted to a nursing home, the average annual cost was \$28,360 for both short term Medicare-funded and longer term Medicaid-funded nursing home stays.



Results

This study found that participation in food may help dual eligible seniors live independently in the community by avoiding nursing home admission. Specifically, the study found participation in SNAP lowered odds of a nursing home admission in the following year compared with their likely-eligible peers as well as reduced the risk of longer stays. Among those receiving SNAP, a \$10 increase in monthly SNAP benefits further reduced the odds of nursing home admissions and more days in the following year. Furthermore, SNAP participation was associated with a significant reduction in nursing home spending.^{xi} See Table 1.

The study also found that food assistance may help older dual eligibles avoid hospitalization. Specifically, the study found that SNAP participants had lower odds of a hospital admission or an emergency department visit in the following year compared with their likely-eligible peers. Among those receiving SNAP, \$10 increase in monthly SNAP benefits significantly reduced the odds of hospital admission and emergency department use further. Among those with any hospitalization or emergency department use, SNAP participation significantly reduced the likelihood of additional days in the hospital or additional emergency department visits. Furthermore, receipt of SNAP was associated with a significant reduction in Medicare spending on hospital care, although changing the level of SNAP had only small effects on hospital spending.^{xii} See Table 2.

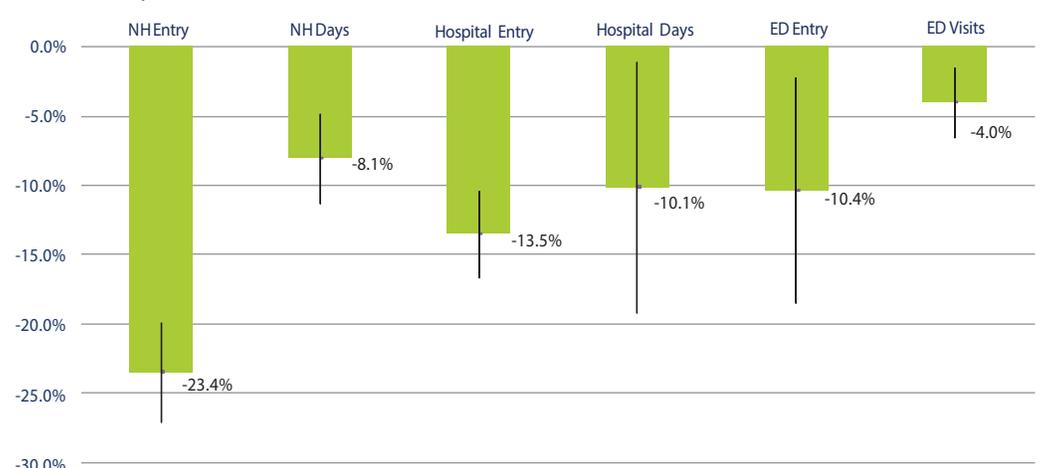
TABLE 1: Nursing Home Use

	Comparing SNAP participants to Non-Participants	Increasing average monthly SNAP benefit in participants by \$10
Odds of NH Admission (Change in Odds Ratio)	23% reduction	7% reduction
Length of NH Stay (Change in Incident Rate Ratio for each day)	8% reduction	1% reduction

TABLE 2: Hospital Use^{xii}

	Comparing SNAP participants to Non-Participants	Increasing average monthly SNAP benefit in participants by \$10
Odds of Hospital Admission (Change in Odds Ratio)	14% reduction	2% reduction
Length of Hospital Stay (Change in Incident Rate Ratio for each day)	10% reduction	1% reduction
Odds of Emergency Department Use (Change in Odds Ratio)	10% reduction	2% reduction
Number of Emergency Department Visits (Change in Incident Rate Ratio for each visit)	4% reduction	1% reduction

FIGURE 1: Impact of SNAP on Likelihood of Healthcare Utilization (Odds Ratios*)



*NOTE: Effect sizes and medical cost savings are only estimates, as peer review process is ongoing, and final results may change before publication.

In order to translate findings into practical terms, the study team shared final results with economists at Northwestern University who estimated the cost savings associated with lower odds of healthcare utilization among SNAP participants. Using the average cost of nursing home admissions and hospitalizations in our 2012 data, Northwestern researchers estimated that, on average, giving SNAP to non-SNAP participants in the 2012 sample could have been associated with nursing home savings of \$34 million and an inpatient hospital savings of \$19 million.

Northwestern researchers estimated that, on average, SNAP participation results in approximately \$2,120 per year in medical cost savings among income-eligible seniors (age 65 and older).

TABLE 3: Estimated Cost Savings per SNAP Participant (Age 65 and Older) ^{xiv}

Savings Per Capita			
	Nursing Home (Day)	Hospital (Stay)	Total
	\$1,360	\$760	\$2,120

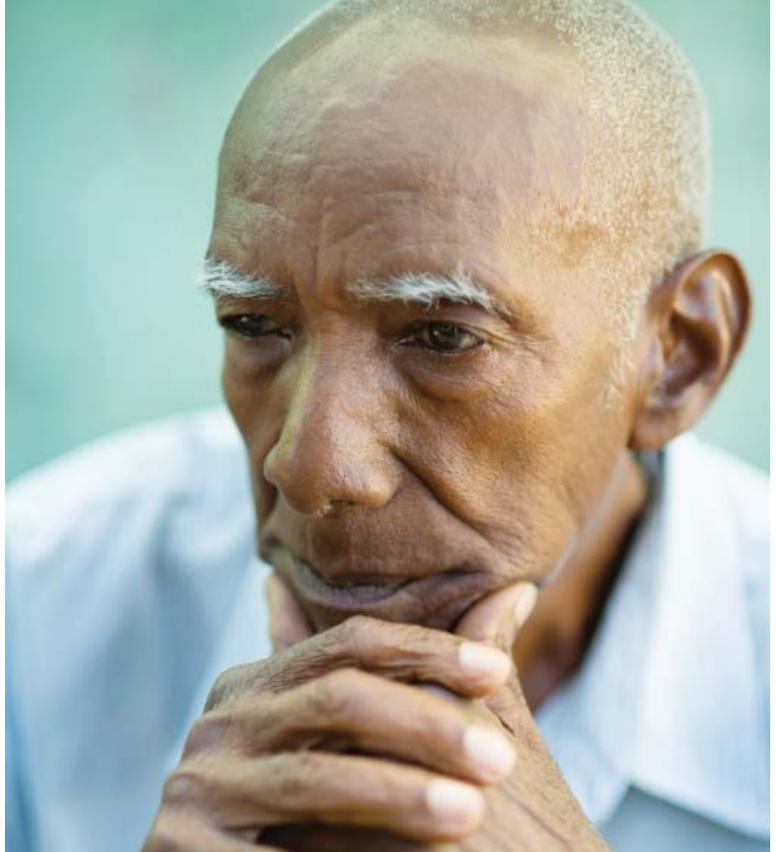


Policy Implications and Recommendations

Combined with prior evidence of reduced hunger and hardship among seniors, these results suggest that access to public benefits – particularly SNAP – represent an important investment towards “aging in place” and slowing healthcare cost growth. With this new evidence, state and federal policymakers can take decisive action to improve access to these programs. Specifically:

- ✓ States can select policy options and request federal waivers to reduce SNAP enrollment barriers for seniors. In addition to reducing healthcare costs, streamlining benefits enrollment can increase administrative efficiency within human service agencies. Specific policy strategies include:
 - Establish an Elderly Simplified Application Project (ESAP) for SNAP to keep eligible seniors enrolled. This successful demonstration waives verification requirements at application, extends certification periods to 36 months, and waives the recertification interview.
 - Coordinate application and verification requirements across SNAP and Medicaid so that efforts to streamline enrollment into one program carry over to others.
 - Leverage administrative data, as Maryland has, to identify dual eligible seniors that likely qualify for but are not enrolled in SNAP and conduct targeted outreach in order to increase participation.
- ✓ Similarly, the federal government can take significant steps to streamline benefits enrollment procedures. For example, the U.S. Department of Agriculture could partner with the Social Security Administration to proactively identify and enroll low-income seniors in SNAP, as has been done on a limited basis for SSI recipients.^{xv}
- ✓ In addition to streamlining enrollment, Congress should maintain and strengthen benefit values to ensure that vulnerable seniors can access the resources they need to live healthy, independent lives. Efforts to significantly cut federal spending on SNAP benefits through block granting or other structural changes must be avoided.^{xvi}

- ✓ Public and private healthcare payers, as well as healthcare providers participating in delivery system reform, can invest in efforts to screen for food insecurity and financial strain in order to systematically connect dual eligibles to SNAP and other benefits and services.
 - The Center for Medicare and Medicaid Innovation is currently pursuing 5 year demonstration programs to test this approach through the Accountable Health Communities Model.^{xvii}



Conclusion

Results from this study suggest that investments in SNAP may reduce nursing home, hospital, and emergency department use among dual eligible seniors. Policymakers and administrators can leverage this information to invest in these critical programs and decrease barriers to participation. Furthermore, the research team and data set assembled for this project represent innovative new approaches to assessing whether efforts to ameliorate the social determinants of health can positively impact health outcomes and reduce healthcare costs. More research is needed to identify additional non-medical interventions that are cost-effective and capable of operating at scale.

About the Authors

Ginger Zielinskie, MBA, President & CEO of Benefits Data Trust, leads a diverse and dedicated team committed to transforming how people in need access public benefits and services. Committed to cross-sector collaboration, Ginger works with states, cities, the private sector and community based organizations to understand the true outcomes that can be achieved when people are able to meet their basic needs. As an organizational leader, Ginger remains committed to building a place and space where people want to work, empowers individuals and teams, and remains fiercely committed to solving tough problems.

Sarah Szanton, PhD, ANP, FAAN is a Professor at Johns Hopkins University School of Nursing with a joint appointment in the Department of Health Policy and Management at the Bloomberg School of Public Health. She tests interventions to reduce health disparities among older adults and focuses on ways to help older adults “age in place.” Dr. Szanton completed undergraduate work in African-American Studies at Harvard University and earned a bachelor’s degree from the Johns Hopkins School of Nursing in 1993. She holds a nurse practitioner Master’s from the University of Maryland and PhD from Johns Hopkins University. She is Associate Director for Policy of the Center for Innovative Care in Aging at Johns Hopkins as well as Core Faculty at the Center on Aging and Health, the Hopkins Center for Health Disparities Solutions and Adjunct Faculty with the Hopkins Center for Injury Research and Policy and Adjunct faculty at Arizona State University.

Laura Samuel, PhD, CRNP is an Assistant Professor at Johns Hopkins University School of Nursing and is committed to addressing socioeconomic disparities. Dr. Samuel evaluates programs and policies that may improve the health of the most socioeconomically vulnerable individuals in communities. To date her research has evaluated how low socioeconomic status leads to high chronic disease burden and earlier aging in low income groups. Her research interests stem from her clinical experience. As a family nurse practitioner, she provided primary care in communities and regularly witnessed the myriad ways a lack of financial resources can be detrimental to health. She has a Masters in Nursing from Boston College and a PhD from Johns Hopkins University School of Nursing. She is Principal Faculty at the Center for Innovative Care in Aging and Core Faculty for the Center on Aging and Health.

Charles Betley, MA is a Senior Policy Analyst at the Hilltop Institute, University of Maryland Baltimore County. He is responsible for health services data analysis, program evaluation, and addressing related policy issues. He has participated in projects evaluating Maryland’s Health Choice program, and providing technical expertise for the Maryland Community Services Rate Review Commission, among other projects. Prior to joining Hilltop, Mr. Betley was Director of Payment and Cost Analysis for the Pennsylvania Health Care Cost Containment Council, evaluating provider cost performance in a research effort to improve payment transparency and identify drivers of health care cost. Mr. Betley has also worked for Ohio Medicaid, the Congressional Budget Office, and the Maryland Health Services Cost Review Commission. Mr. Betley undertook doctoral studies in health policy and earned an M.A. in political science from the University of Michigan. His undergraduate degree is from Duke University.

Rachel Cahill, MPA, is a consultant for Benefits Data Trust, a national, not-for-profit organization committed to transforming benefits access. Before joining BDT, Ms. Cahill led policy and advocacy initiatives at the Center for Hunger-Free Communities at Drexel University’s School of Public Health and the Greater Philadelphia Coalition Against Hunger. She received her undergraduate degree from the University of Notre Dame and a Master’s in Public Administration from the University of Pennsylvania, Fels Institute of Government.

Acknowledgements

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End Notes

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^{vii} Bachrach, Deborah, et al. Addressing Patients' Social Needs: An Emerging Business Case for Provider Investment. s.l.: Manatt Health Solutions, 2014.

^{viii} Ginger Zielinskie, President of Benefits Data Trust, and Dr. Karen Matsuoka, former Director of Health Systems and Infrastructure Administration at Maryland MDH met at the National Academy for State Health Policy (NASHP) conference in October 2013.

^{ix} To model the frequency of events such as hospital days and nursing home days, the researchers used a zero-inflated negative binomial model that account for the numbers of dual eligible who do not experience a major health care event in a given year, along with the cumulative duration of those events among those who do. Cost models were estimated using a Heckman selection model, which similarly accounts for non-utilizers while estimating effects on the continuous variable of health care costs.

^x A relatively small percentage (15%) of Medicare beneficiaries in Maryland are enrolled in a Medicare Advantage plan, compared to approximately 40% in other states.

^{xi} Szanton, et al. "Food assistance is associated with decreased nursing home admissions for Maryland's dually eligible older adults." *BMC Geriatrics*. <https://bmgeriatrics.biomedcentral.com/articles/10.1186/s12877-017-0553-x>

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^{xiii} LIHEAP effect sizes were not statistically significant for hospital outcomes.

^{xiv} Table 3 shows the estimated savings and associated calculations associated with an increase of \$10 per month in SNAP benefits for a SNAP participant aged 65 and above. All items should be interpreted as averages for SNAP participants aged 65 and above. All monetary units are in 2015 dollars, rounded to nearest dollar. Inpatient and ED estimates from the Medical Expenditure Panel Survey (MEPS), a widely-used data set by health economists to estimate health care costs. For nursing home stays, as cost data on nursing home stays among SNAP participants is not available in the MEPS, costs were computed based on usage statistics from the study population, supplemented with the median cost of a nursing home stay in a semi-private room reported in Genworth Financial (2015).

^{xv} The Combined Application Projects (CAP) Demonstration has produced successful partnerships among States, the Food and Nutrition Service, and the Social Security Administration to streamline SNAP enrollment for one-person SSI households. U.S. Department of Agriculture, Food and Nutrition Service. FNS Combined Application Process. Accessed on 3/16/16. Available at: <http://www.fns.usda.gov/fns-combined-application-projects>

^{xvi} The U.S. House of Representatives recently proposed to reduce SNAP spending by \$150 billion over 10 years. See A Balanced Budget for a Stronger America, Fiscal Year 2017 Budget Resolution, March 2016. Accessed on 3/28/16. Available at: http://budget.house.gov/uploadedfiles/fy2017_a_balanced_budget_for_a_stronger_america.pdf

^{xvii} Center for Medicare and Medicaid Innovation. Accountable Health Communities Model. Accessed on 3/16/16. Available at: <https://innovation.cms.gov/initiatives/AHCM>