



UNIVERSITY OF KENTUCKY
CENTER FOR POVERTY RESEARCH



United States Department of Agriculture

Understanding Food-Related Hardships among Older Americans

Request for Proposals

Date of RFP Announcement: November 14, 2018

Due Date for Requested Letter of Intent: December 12, 2018

Due Date for Applications: January 23, 2019

Executive Summary

The University of Kentucky Center for Poverty Research, with funding from the Food and Nutrition Service in the U.S. Department of Agriculture, will competitively award grants to qualified individuals and institutions to provide rigorous research that expands our understanding of, and the attendant policy implications for, food-related hardships among older Americans. Total anticipated funding under this mechanism is \$1.2 million for one large grant at \$500,000, two large grants at \$250,000 each, and four small grants at \$50,000 each.

I. Background and Purpose

A. Statement of the Problem and Relevant Research

Food insecurity, the lack of enough food for an active, healthy life for all household members at all times, is a leading public health challenge in the United States affecting persons of all ages, including older Americans. Ziliak and Gundersen (2018) report that in 2016 13.6% of persons age 60 and older were marginally food insecure, 7.7% were food insecure, and 2.9% were very low food secure (i.e., at times the food intake of one or more household members was reduced and their eating patterns were disrupted because the household lacked money and other resources for obtaining food), which translates into 8.6 million, 4.9 million, and 1.8 million seniors, respectively. This is an increase of 45% since 2001 in the fraction food insecure, and a doubling of those classified as very low food secure.

The increase in the number of seniors who are food insecure is especially concerning in light of two factors. First, the number of seniors has increased at a

faster rate than the general population. For the general population, the number of food insecure individuals increased by 22% from 2001-2016 (Table 1A, Coleman-Jensen et al., 2017), less than half the increase for seniors (Ziliak and Gundersen, 2018). For the general population, very low food security (VLFS) increased 62.5% ((Table 1A, Coleman-Jensen et al., 2017), far less than for seniors (Ziliak and Gundersen, 2018). Second, the number of seniors is projected to increase dramatically in the coming years. By 2030, about 1-in-5 Americans will be over the age of 65. Even if the proportion of food-insecure seniors stays the same or even falls slightly, the number of food insecure seniors will continue to grow in absolute terms.

The food insecurity rates among seniors and their disproportionately large increase since 2001 is of great concern. Making this trend even more concerning is that older food insecure persons are significantly more likely than their food secure counterparts to have reduced nutrient intakes and worse health outcomes (Ziliak and Gundersen, 2017). For example, controlling for other confounding factors, food insecure seniors have reduced intakes ranging from 4-7.5% of energy, protein, iron, magnesium, and Vitamins B6 and C compared to food secure seniors. In terms of health outcomes, the odds that food insecure seniors are depressed is 60% higher, face serious heart conditions is 40-50% higher, suffer asthma complications is 52% higher, and have activities of daily living (ADL) limitations is 22% higher. This suggests that food insecurity is disruptive to good health and well-being for older persons. (Other work finding food insecure seniors are more likely to be in poor-health includes, since 2005, e.g., Afulani et al., 2015; Bengle et al., 2010; Bhargava and Lee, 2016, 2017; Champagne et al, 2007; Johnson et al., 2011; Oemichen and Smith, 2016; Sattler and Lee, 2013; Sattler et al., 2014; Smit et al., 2013; Temple, 2006). In addition, given the demonstrated higher health care costs associated with food insecurity (Berkowitz et al., 2018; Tarasuk et al., 2015) the financial burdens on both the health care system and individual seniors likely increase in the coming years with a growing senior population.

In order to counteract the forces that drive food insecurity among seniors, there have been a wide array of programs developed by the USDA (e.g., Senior Farmers' Market Nutrition Program), Department of Health and Human Services (HHS) (e.g., Nutrition Services Incentive Program), and charitable organizations (e.g., Meals On Wheels, Feeding America) designed to reduce food insecurity. The Supplemental Nutrition Assistance Program (SNAP), administered by USDA's Food and Nutrition Service, is the only large-scale nutrition program that is available to eligible seniors (i.e., those age 60 and older, and meeting the net income and asset tests). An extensive literature has demonstrated that, in the absence of SNAP, food insecurity would be far higher than it is. (See Gundersen et al., 2017 and references therein, for more on this evidence.) In order to encourage elderly individuals to participate in SNAP, there are several special rules that make it easier for seniors to qualify for the program including, e.g., the lack of a gross income criterion for seniors and a higher asset limit.

B. Program Objectives

While prior research has established some of the key risk factors and negative health consequences associated with food insecurity, and the role of SNAP and other assistance programs in alleviating food insecurity, there remain multiple pressing unanswered research questions on the causes and consequences of food hardships. This is particularly true for research on food insecurity among seniors which has received substantially less attention than research on other food insecure populations (National Academies of Sciences, Engineering, and Medicine, 2016).

To address this research lacuna, we have established a list of questions under the Priority Research Areas below. These are, of course, not exhaustive and researchers are encouraged to consider these and other questions in their proposal so long as they fall within one of the three general research priorities. We welcome both quantitative and qualitative research using primary and/or secondary data. However, we wish to emphasize that successful applications will meet the following criteria:

1. The proposal must address the issue of food insecurity among seniors. For purposes of this RFP, seniors are defined as those 60 and older. While research can consider other household members (e.g., spouses under the age of 60; grandchildren present in the household) the central questions being posed must address food insecurity among seniors.
2. There is an extensive literature examining the causes and consequences of food insecurity and the role of food assistance programs in alleviating food insecurity. While most of this literature has dealt with food insecurity more broadly (rather than food insecurity among seniors), there are numerous insights from this body of work germane to the questions being posed in this RFP. We are looking for proposals that build on the existing research and offer new and creative approaches to the questions around food insecurity among seniors.
3. The research must address policy relevant issues. A central goal of the USDA is to reduce food insecurity among seniors. The research funded by this announcement should inform the work of policymakers and program administrators in their efforts to achieve this goal.
4. We strongly encourage researchers to examine causal effects, especially for proposals examining the effects of food assistance and other safety net programs on food insecurity, as well as the impact of food insecurity on health outcomes.

5. While grants at the \$500,000 level can include other components, they should include some primary data collection.

C. Priority Research Areas

We seek innovative research that may focus on one or more of the following three general topics. The associated research questions are illustrative and not exhaustive.

1. Describing households with food insecure seniors

What are the social, economic, and health characteristics of food insecure households with older adults that go beyond simple demographic descriptors - such as functional status and ability to live independently, access to transportation, mental function, spousal health status, social network and family connections, cultural and linguistic integration, geographic context, and internet and smart device use?

How are low-income seniors who are food insecure different from low-income seniors who are food secure?

What combination(s) of individual/household characteristics and circumstances ameliorate or exacerbate the likelihood of senior food insecurity?

How does food insecurity fluctuate with eligibility for and receipt of other old age programs such as SSI and Medicare?

How is food security status in old age related to food security status at other points in the life course? To what extent can risk factors for elderly food insecurity be identified and detected prior to old age? Similarly, what factors lead food insecurity to decrease from early to advanced old age?

What is the impact of food insecurity on other factors not related to food or health? How does household spending on non-food necessities change in response to food-related hardship?

2. Understanding program participation

What are the demographic, social, and economic characteristics of households with older adults who participate in nutrition assistance programs? How are they different from those who do not participate?

What role do cultural, economic, and eligibility/application factors play in encouraging or restricting senior program participation?

How does household access to the internet and use of smart technology affect likelihood of application and program participation among the elderly, as well as program recertification?

What changes or alternatives to eligibility and benefit level determinations are likely to encourage greater program participation by eligible seniors?

To what extent can incentives such as a healthy eating incentive encourage greater program participation among eligible seniors?

To what extent do seniors participate in nutrition programs alone or in combination with other nutrition programs and free food acquisitions such as food pantries?

Why have some nutrition programs like the Food Distribution Program on Indian Reservations (FDPIR) seen an increase in elderly participation? What lessons can be drawn that are applicable to other nutrition programs – especially SNAP?

3. Evaluating program impact

To what extent do nutrition assistance programs, alone or in combination, reduce food insecurity, promote health and nutrition, and delay adverse health outcomes?

To what extent do nutrition assistance programs bridge the nutrition intake gap observed between food secure and insecure seniors?

How are other behaviors and health conditions associated primarily with old age impacted by SNAP use (e.g., frailty, duration of independent living)?

How do household spending patterns on non-food necessities change in response to SNAP use?

How do the impacts of other federal nutrition assistance programs compare to those of SNAP?

How do program impacts vary with different benefit delivery mechanisms? (i.e, SNAP benefits delivered via EBT versus CSFP's pre-packaged commodity boxes of non-perishable foods that are

picked up at local distribution centers or delivered directly to participants)

What subgroups of seniors benefit most by nutrition assistance program participation and how? For example, how do impacts compare by rural versus urban location?

II. Award Information

A. Award Summary

Fixed price contracts will be established between the University of Kentucky Research Foundation (UKRF) and the grantee institution or organization. Underwriting for awards made under this announcement is provided by the Food and Nutrition Service, U.S. Department of Agriculture, Contract Number 12319818C0010.

We anticipate funding one large grant at \$500,000, two large grants at \$250,000 each, and four small grants at \$50,000 each. This ceiling is inclusive of any facilities and administration (F&A) indirect costs. For the purposes of this award the budget period will commence on March 27, 2019 and conclude on February 15, 2022. Grant awards do not allow for reimbursement of pre-award costs.

B. Eligibility

Proposed principal investigator(s) must hold a Ph.D. or equivalent academic degree, and be employed at a college, university, or non-profit research organization located in the United States or its territories. Members of minority and underrepresented groups are strongly encouraged to apply.

C. Disqualification Factors

Applications that exceed the budget ceiling amount, that do not address food-related hardships among older persons in the U.S., or that otherwise disregard RFP application guidelines will be considered non-responsive and not eligible for funding under this mechanism.

III. Application Submission Information

A. Letter of Intent to Submit a Proposal

If you plan to submit a proposal, we request a letter of intent to be submitted via email by December 12, 2018. The letter should only contain the names and contact information of any principal investigator and co-investigators, the title and topical domain of the planned project, whether the proposal is for a large or small grant, and the name of the college/university/organization that will serve as the point of contact for award administration. This letter is not mandatory and is only to be used for planning purposes for grant reviews. Please email the letter of intent as a Word or PDF document to Mr. Jeffrey Spradling at ukcpr@uky.edu

B. **Submission of Full Proposals**

The completed application must be received by 5:00pm EST on January 23, 2019. Email applications to Mr. Jeffrey Spradling at ukcpr@uky.edu. To be considered responsive to the RFP, applicants must submit a PDF of the complete application, inclusive of cover pages and appendices, **along with a Word version** of the title page, project summary, and main body of the proposal, including bibliography. Email acknowledgement of receipt of all application materials will be provided on or about the close of business on January 25, 2019.

C. **Content and Format of Grant Applications**

Applicants for a Large Grant must limit their project narrative to no more than 20 pages, and applicants for a Small Grant must limit their project narrative to no more than 10 pages. For the purposes of this announcement the project narrative begins with the Background and Motivation section and ends with the Budget Justification and Timeline, and excludes appendices and front matter such as cover page, table of contents, and project summary. The narrative must be double spaced, 1" margins on all sides, and standard 12 pt. font. Front matter and appendices may be single spaced, but must adhere to requirements on font size and margins.

UKCPR seeks applications from institutions who can demonstrate the capacity to undertake substantive research projects, both administratively and technically. Applicants should specify in the project narrative how they will be able to fulfill the project goals described above. In addition, applicants must specify administrative arrangements that will minimize start-up costs. If funding under this mechanism is to be used in conjunction with funds from other sources, the applicant must specify the sources and duration of those funds and how the resources in this competition will be leveraged to accomplish project goals.

Each application must contain the following components in order

1. *Cover Page*

Each application must contain a cover page with the title of the proposed research; applicant name(s) and institutional affiliation (if multiple investigators, a PI must be identified); program name (Large Grant with \$500,000 maximum; Large Grant with \$250,000 maximum; Small Grant); and contact information including full mailing address, email address, phone and fax numbers. The name and contact information of the institutional research representative should also be identified.

2. *Table of Contents*

The table of contents must identify the page location of each major section and subsection, beginning with the Background and Motivation Section.

3. *Project Summary*
A key component of the successful application will be a non-technical two-page summary containing the title, PI(s), objectives, methods, policy implications, budget request, and timeline of the proposed project.
4. *Background and Motivation*
The application shall present an analysis of key trends and past research on the focal area of interest in the proposed project. The background and motivation should demonstrate the applicant's command over the policy and research significance of trends in food-related hardships among older persons as well as the past research on the issue. The section should also demonstrate how the proposed research expands upon the corpus of knowledge on senior food insecurity.
5. *Research Design*
The application shall present a research design for the performance period. For the purposes of the research design, the performance period has two subperiods: the report period and the journal article review period. The report period commences on the date of award and concludes on the due date of final report, which is 24 months for Large Grants (March 27, 2019 – March 26, 2021) and 18 months for Small Grants (March 27, 2019 – September 26, 2020). The journal review period is the period from submission of final technical report and draft journal article to the submission of the final revised journal article for the peer-reviewed edited volume (March 26, 2021 – February 15, 2022 for Large Grants and September 26, 2020 – February 15, 2022 for Small Grants). This prospectus should include identification of key research questions, conceptual and theoretical foundations of the focal hypotheses to be tested, data, and statistical methods of analysis. If the proposed project entails primary data collection (e.g. surveys, ethnographic/qualitative, field experiments), the applicant shall make clear how the data will be collected, processed, and analyzed, and how such data is fundamental to answering the questions being posed.

All proposals must contain a timely plan for obtaining Institutional Review Board (IRB) approval or exemption for human subjects research. Typically, secondary data analysis is eligible for exemption approval.

6. *Expected Results and Impact*
The applicant shall describe the type of information expected to result from the effort and link it to potential policy and scientific relevance in advancing our understanding of the causes, consequences, and correlates of food-related hardships among older persons in the United States.

7. *Staffing Plan*
The application shall identify with a biographical narrative all key personnel involved in the project, including principal investigator(s), co-investigators, and senior staff. This includes senior staff involved in primary data collection (if applicable). If the application contains a sub-award to another institution, a letter of support from that institution's research administration must be included in the appendices.

8. *Budget Narrative and Timeline*
The applicant's budget narrative must link the research to the funding requested, including the appropriateness of the level and distribution of funds to the successful execution of the project. This includes identifying the distribution of effort of all key personnel to the project, the cost (if any) of data collection efforts, and administration. F&A indirect cost recovery is allowed. Any cost normally treated as an indirect cost being budgeted as a direct cost will require budget narrative justification. The availability, or potential availability, of additional funds to be used in conjunction with those requested in this announcement should be detailed, i.e. funding source, duration, effort and other costs covered. Current external funding for other projects and effort commitment of key personnel for other projects should be described.

Applicants must budget for one trip to Lexington, Kentucky (planned for the week of June 24, 2020) and one to Washington, D.C. (planned for the week of August 4, 2021).

The budget narrative shall also contain a detailed timeline of project goals and deliverables. The full budget period is March 27, 2019 – February 15, 2022 for both Large and Small Grants.

9. *Appendices*
 - (i) Bibliography
 - (ii) Curriculum Vitae
Curriculum Vitae of principal investigators(s) and co-investigators shall be included in the appendices. The CV should include highest educational degree and institution, current and past employment and professional appointments, concurrent and prior funded grants, and a listing of reports and publications in the past 5 years that are pertinent to the research proposed herein.
 - (iii) Letters of Commitment and/or Support (if applicable)

IV. Application Review Information

Applications will be initially screened for relevance to the subject areas described above, academic qualifications of the principal investigator, the ability of the applicant institution to administer a grant, inclusion of requested proposal sections, and adherence to RFP guidelines, such as the budget ceiling and page limits. Those proposals not

passing the initial screen will be notified to that effect in writing. Those proposals passing the initial screen will undergo a full review by a Technical Review Panel consisting of nationally recognized experts and staff from FNS. Review Panel members are not eligible for funding under this mechanism, and extreme care will be taken to avoid potential conflicts of interest.

Proposals will be evaluated based upon a 100-point scale across several factors, including:

- **Research Merit** (35 points): Among other criteria, proposals will be scored based on the importance and relevance of the proposed project to research foci identified in this announcement, the clarity of the questions posed, how it expands on the existing literature, and, most critically, how it assists FNS in meeting its goals of increasing its understanding of food-related hardships among older persons in the United States.
- **Methodology** (20 points): Proposals will be judged based upon the appropriateness of the proposed research design for the questions being posed, the feasibility of the methodology given the proposed choice of data sets (see below for the criterion for data collection), and the applicant's grasp of the significance of past research and the extent to which the proposed methods expand upon prior studies.
- **Data** (20 points): For projects involving primary data collection, points will be awarded based upon appropriateness of the data to the research foci, the quality of the design of the qualitative and/or quantitative survey (including the prospective internal and external validity), and the feasibility of the proposed researchers to conduct the survey in a timely and cost-effective manner. In awarding points, the prior track record of the investigators and their organization in primary data collection efforts will be considered. For secondary data analyses, applications will be scored based upon appropriateness of the data to the research design, and the quality and external validity of said data.
- **Personnel** (15 points): Reviewers will judge the proposed key personnel for the necessary skills, experience, and track record to produce an excellent product. Included in this will be the time commitment of key personnel to the project in relation to the proposed budget and other funded projects.
- **Budget and Workplan** (10 points): Among other criteria, proposals will be judged based on the feasibility of the timeline proposed, the reasonableness of the budget, and the quality of infrastructure at the PI's institution to successfully execute the proposed project.

In addition to the points awarded above, UKCPR and FNS will weigh proposals based on overlap with ongoing projects, the extent to which the proposal integrates with the other

highly scored proposals to form a more cohesive portrait, and potential future research and policy benefits.

V. Award Administration Information

A. Award Notices

Applicants will be notified of grant award on or about March 27, 2019.

B. Contact Information

Administrative questions relating to this announcement should be directed to Mr. Jeffrey Spradling, UKCPR Assistant Director, and technical questions directed to Dr. James P. Ziliak, UKCPR Director. All inquiries should be submitted via E-mail at ukcpr@uky.edu and reference *RFP on Food Hardships* in the subject line.

C. Reporting requirements

1. Large Grants (funded at \$250,000 - \$500,000)

(i) *Progress Reports*: The awardee shall submit biannual progress reports due on Sept. 25, 2019, March 25, 2020, and Sept. 23, 2020. The progress report should summarize progress toward completion, especially highlighting the achievement of key milestones set out in the Workplan. Changes in personnel and in budget allocation across categories should also be described. The grantee should notify and seek approval from UKCPR of any changes to key personnel 30 days prior to such requested change. In addition, reporting challenges and how they were overcome should be included in progress reports. Submit progress reports as a Word document to ukcpr@uky.edu.

(ii) *Events*: The awardee or their approved designee shall attend the following functions:

(1) A Progress Report Conference in Lexington, Kentucky to be held on or about the week of June 24, 2020. At this conference recipients will give a formal presentation of preliminary results.

(2) A Research Symposia on Food-Related Hardships among Older Americans in Washington, DC to be held on or about the week of August 4, 2021. At the symposium, each of the grant recipients will present their final research findings.

(iii) *Deliverables*: The awardee shall submit the following deliverables:

(1) A final report on or before March 24, 2021. The report shall include the following components: Title Page, Acknowledgement, Abstract, Executive Summary (2-3 pages single spaced), Introduction, Research Methods, Data, Results, Discussion, and Conclusion.

(2) An article for an edited volume to be published in a peer-reviewed academic journal or press. The article shall be submitted on or before March 24, 2021, and a revised version (if applicable) by May 15, 2021. Length of article will be determined based on publication outlet.

(3) Along with the final report and an article for the edited volume, awardees are highly encouraged to publish additional technical papers and nontechnical policy briefs based on research funded by this award.

2. **Small Grants (funded at \$50,000)**

(i) *Progress Reports*: The awardee shall submit biannual progress reports due on Sept. 25, 2019, and March 25, 2020. The progress report should summarize progress toward completion, especially highlighting the achievement of key milestones set out in the Workplan. Changes in personnel and in budget allocation across categories should also be described. The grantee should notify and seek approval from UKCPR of any changes to key personnel 30 days prior to such requested change. In addition, reporting challenges and how they were overcome should be included in progress reports. Submit progress reports as a Word document to ukcpr@uky.edu.

(ii) *Events*: The awardee or their approved designee shall attend the following functions:

(1) A Progress Report Conference in Lexington, Kentucky to be held on or about the week of June 24, 2020. At this conference recipients will give a formal presentation of preliminary results.

(2) A Research Symposia on Food-Related Hardships among Older Americans in Washington, DC to be held on or about the week of August 4, 2021. At the symposium, each of the grant recipients will present their final research findings.

(iii) *Deliverables*: The awardee shall submit the following deliverables:

(1) A final report on or before Sept. 23, 2020. The report shall include the following components: Title Page, Acknowledgement, Abstract, Executive Summary (2-3 pages single spaced), Introduction, Research Methods, Data, Results, Discussion, and Conclusion.

(2) An article for an edited volume to be published in a peer-reviewed academic journal or press. The article shall be submitted on or before Sept. 23, 2020, and a revised version (if applicable) by December 1, 2020. Length of article will be determined based on publication outlet.

(3) Along with the final report and an article for the edited volume, awardees are highly encouraged to publish additional technical papers and nontechnical policy briefs based on research funded by this award.

D. Invoicing

Contracts are established as fixed-price with invoicing based on deliverables consistent with timeline as detailed in Section III.C of this RFP and finalized at subcontract execution. All invoices shall be submitted to APPOInvoices@uky.edu using Subcontractor's standard invoice, but at a minimum shall include milestone/deliverable, payment amount, Subcontract number, Purchase Order number, and certification as to truth and accuracy of invoice. Invoices that do not reference Subcontract Number may be returned to Subcontractor. Contractor reserves the right to reject an invoice.

E. Terms and Conditions

1. Award Terms
UKCPR reserves the right to negotiate with the project investigators and/or their institutional representatives regarding the scope of work proposed, including funding level and project duration.
2. Publication
 - (i) The report and any attendant work products produced as a result of this award shall contain the following:
“This project was supported with a grant from the University of Kentucky Center for Poverty Research through funding by the U.S. Department of Agriculture, Food and Nutrition Service, Contract Number 12319818C0010. The opinions and conclusions expressed herein are solely those of the author(s) and should not be construed as representing the opinions or policies of the UKCPR or any agency of the Federal Government.”
 - (ii) UKCPR holds right of first refusal to publish results from research emanating from this grant award. This clause ensures UKCPR’s ability to fulfill contract requirements of a special journal issue/book upon project completion.
 - (iii) The Awardee agrees not to disclose any information concerning the work under this contract to any persons or individual prior to submission of such disclosure to UKCPR for review and comment. This includes press releases, reports, briefs, and data. Such submission shall occur at a minimum sixty (60) days prior to the anticipated date of any publication or disclosure unless another time period is mutually agreed to. UKCPR has the right to require the removal of any information deemed confidential, including but not limited to personal identifying information, HIPPA related data, or information provided to the Awardee by UKCPR and identified as Confidential or Controlled.

3. **Rights to Data**
The Awardee will retain custody of and have primary rights to the data developed under this award, subject to government rights to access consistent with current FNS regulations. Unless otherwise restricted by prior agreement, the Awardee shall provide access to research data from this project and establish public use files of research data developed under this award.

F. Disclaimer

Nothing in this announcement should be construed as to obligate the University of Kentucky Research Foundation, UKCPR, or the Food and Nutrition Service to make any awards whatsoever. Awards are contingent upon funding availability and research needs.

The University of Kentucky is an equal opportunity institution.

Applicant Checklist

Full Proposals should include:

1. **Cover Page**
 - a. Title of proposed research
 - b. PI name, Organization, & contact information
 - c. Program applying for funding (Large or Small Grant)
 - d. Authorized representative & contact information
2. **Table of Contents**
3. **Project Summary (2 pages, single spaced)**

(Note: Sections 4-8 are to be double spaced; 10 pages max for small grants, 20 pages max for large grants)

4. **Background and Motivation**
5. **Research Design**
6. **Expected Results and Impact**
7. **Staffing Plan**
8. **Budget Justification and Timeline**
9. **Appendices (e.g. bibliography, CVs, letters of support)**

References

- Afulani P, Herman D, Coleman-Jensen A, Garrison G. Food insecurity and health outcomes among older adults: The role of cost-related medication underuse. *Journal of nutrition in Gerontology and Geriatrics* 2015;34:319-342.
- Bengle R, Sinnett S, Johnson T, Johnson M, Brown A, Lee J. Food insecurity is associated with cost-related medication non-adherence in community-dwelling, low-income older adults in Georgia. *Journal of Nutrition for the Elderly* 2010;29:170-191.
- Berkowitz S, Basu S, Meigs J, Seligman H. Food insecurity and health care expenditures in the United States, 2011-2013, *Health Services Research*, 2018;53(3):1600-1620
- Bhargava V, Lee J. Food insecurity and health care utilization among older adults. *Journal of Applied Gerontology* 2017;36 (12):1415-1432.
- Bhargava V, Lee J. Food insecurity and health care utilization among older adults in the United States. *Journal of Nutrition in Gerontology and Geriatrics* 2016;35(3):177-192.
- Champagne C, Case P, Connell C, Stuff J, Gossett J, Harsha D, McCabe-Sellers B, Robbins J, Simpson P, Weber J, Bogle M. Poverty and food intake in Rural America: Diet quality is lower in food insecure adults in the Mississippi Delta. *Journal of the American Dietetic Association* 2007;107:1886-1894.
- Coleman-Jensen A, Rabbitt M, Gregory C, Singh A. *Household Food Security in the United States in 2016*. Washington DC: U.S. Department of Agriculture, Economic Research Service, Economic Research Report No. 237. 2017
- Gundersen C, Kreider B, Pepper J. Partial identification methods for evaluating food assistance programs: A case study of the causal impact of SNAP on food insecurity. *American Journal of Agricultural Economics* 2017;99(4):875-894.
- Johnson C, Sharkey J, Dean W. Indicators of material hardship and depressive symptoms among homebound older adults living in North Carolina. *Journal of Nutrition in Gerontology and Geriatrics* 2011;30(2)154-168.
- National Academies of Sciences, Engineering, and Medicine. *Meeting the dietary needs of older adults: Exploring the impact of the physical, social, and cultural environment: Workshop summary*. Washington, DC: The National Academies Press. 2016.
- Oemichen M, Smith C. Investigation of the food choice, promoters and barriers to food access issues, and food insecurity among low-income, free-living Minnesotan seniors. *Journal of Nutrition Education and Behavior* 2006;48(6):397-404.

Sattler E, Lee J. Persistent food insecurity is associated with higher levels of cost-related medication nonadherence in low-income older adults. *Journal of Nutrition in Gerontology and Geriatrics* 2013;32:41-58.

Sattler E, Lee J, Bhargava V. Food insecurity and medication adherence in low-income older Medicare beneficiaries with type 2 diabetes. *Journal of Nutrition in Gerontology and Geriatrics* 2014;33:401-417.

Smit E, Winters-Stone K, Loprinzi P, Tang A, Crespo C. Lower nutritional status and higher food insufficiency in frail older US adults. *British Journal of Nutrition*, 2013;110(1):172-178.

Tarasuk V, Cheng J, Oliveira C, Dachner N, Gundersen C, Kurdyak P. Association between household food insecurity and annual health care costs. *Canadian Medical Association Journal* 2015;187(14):E429-E436.

Temple J. Food insecurity among older Australians: Prevalence, correlates and well-being. *Australasian Journal on Ageing* 2006;25(3):158-163.

Ziliak J, Gundersen C. *The State of Senior Hunger in America 2016: An Annual Report. Supplement*. Report submitted to Feeding America. 2018.

Ziliak J, Gundersen C. *The Health Consequences of Senior Hunger in the United States: Evidence from the 1999-2014 NHANES*. Report submitted to Feeding America. 2017.