

Purdue University

RNECE North Central

Final Report

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Figure 1

Executive/Public Summary:

The North Central Nutrition Education and Obesity Prevention Center of Excellence expanded the evidence base for policy, systems and environmental (PSE) interventions to improve access to, and success of nutrition education programs for under-served at-risk populations, with a specific focus on rural communities. Key efforts included:

- Determining that creating holistic healthy environments can enhance the success of childcare programs in improving diet quality and preventing obesity. Routine, structured day care and summer programs that focused on holistic diet and exercise programs, and education increased diet quality and limited weight gain among at-risk children, suggesting that increasing the number of, and access to such programs could have a significant impact on reducing the socioeconomic disparity in childhood obesity development.
- Developing and utilizing novel, valid tools for understanding at-risk individuals' perceptions of their food and exercise environments (photovoice and perception surveys) and how these perceptions influence their food and exercise behaviors. Preliminary results suggest significantly lower rural participation in food assistance programs and structured exercise activities in concert with much higher obesity rates. The evidence suggests more programs and effort are needed to enhance rural food assistance and activity levels.
- Defining the community environments that support successful application of SNAP-Ed and EFNEP. Robust community connections are associated with effective nutrition education programs in the community. Further, food deserts did not seem to be a perceived problem as most participants felt they have good access to healthy foods. The problem appears to be choice and convenience as participants also indicated very good access to fast food, thus confirming the key role of education.
- Determining the PSE factors that affect successful SNAP-Ed and EFNEP programming related to reducing food insecurity. Nutrition education programming (both SNAP-Ed and EFNEP) was equally successful in improving food security, regardless of rural or urban environments, socioeconomic status, or other potential confounding variables. The results indicate that a primary goal of SNAP-Ed and EFNEP should be to increase program participation across all communities and environments.

The North Central Nutrition Education and Obesity Prevention Center of Excellence expanded the evidence base for policy, systems and environmental (PSE) interventions to improve access

to, and success of nutrition education programs (SNAP-Education and EFNEP). Our goal was to identify and/or develop strategies to improve diet quality, prevent obesity and increase activity, for under-served at-risk populations, with a specific focus on rural communities. This was accomplished through support of multiple research projects focusing on critical PSE interventions in the North Central region of the United States and through multi-State collaborations on these projects between researchers and SNAP-Ed and EFNEP providers from 2014 through 2018.

North Central Nutrition Education Center of Excellence Leadership
<p>Dennis Savaiano, PhD Director Purdue University, savaiano@purdue.edu</p>
<p>Jo Britt-Rankin, PhD Associate Director - Communications University of Missouri, britt-rankinj@missouri.edu</p>
<p>Dawn Contreras, PhD Associate Director – Center Assessment Michigan State University Extension, contrer7@msu.edu</p>
<p>Marci Scott, PhD Associate Director - Implementation Michigan Fitness Foundation, msscott@michiganfitness.org</p>
<p>Tracy Eaton, MSW, CCRC Center Coordinator Purdue University, tkeaton@purdue.edu</p>

Table 1

Key Efforts:

- Determining that creating holistic healthy environments can enhance the success of childcare programs in improving diet quality and preventing obesity.** Routine, structured day care and summer programs that focused on holistic diet and exercise programs, and education increased diet quality and limited weight gain among at-risk children. **The findings suggesting that increasing the number of, and access to holistic, health-oriented childcare programs could have a significant impact on reducing the socioeconomic disparity in in childhood obesity development.**

*Summer Weight and Environmental Assessment Trial (SWEAT)*¹ provided information regarding factors that protect economically disadvantaged children from unhealthy weight gain during

¹ Hopkins LC, Penicka C, Jones B, Evich CD, Gunther C. Project SWEAT (Summer Weight and Environmental Assessment Trial): study protocol of an observational study using a multistate, prospective design that examines

the summer, and can be used by stakeholders at the local, state, and federal level to reform current policy and increase child participation in health promoting programming during the summer window of risk. This observational study examined summer weight gain in racially and ethnically diverse, economically disadvantaged, school-age children, and found that children who routinely attended structured programming were not at the same risk for summer weight gain as those who did not.

*The Influence of Policy, System and Environmental Nutrition Education Intervention on Dietary Quality at Diverse Low-Income Childcare Provider Settings*² showed a policy, systems and environmental (PSE) intervention to guide and improve meals provided by in-home child care providers in rural and urban counties may be associated with decreased refined grains, increased fruit, and increased vegetables being served to young children. This intervention also positively influenced many nutrition and physical activity environmental and policy changes in the home.

- **Developing and utilizing novel, valid tools for understanding at-risk individuals' perceptions of their food and exercise environments, and how these perceptions influence food and exercise behaviors.** While data analysis from these projects continues, preliminary results suggest significantly lower rural participation in food assistance programs and structured exercise activities in concert with much higher obesity rates. Further, photovoice has potential to increase participant engagement in creating healthy environments in both rural and urban settings. The evidence suggests more effort is needed to enhance rural food assistance and activity levels. The data collected from six states across the Mid-West is a rich source of information for future secondary data analysis that will further define participant perceptions and barriers to improving diet quality and exercise.

*Food and Activity Environment Perceptions among SNAP-Ed and EFNEP Participants in the North Central Region*³ resulted in the development of the Effect of Neighborhood Characteristics on Food Consumption and Health Behavior tool. This tool provided feedback on the current knowledge of the SNAP-Ed participants' perceptions of their environmental factors, and the effects on their food and exercise behavior. Information collected will aid nutrition education providers in implementing effective and impacting strategies in nutrition education.

the weight gain trajectory among a racially and ethnically diverse convenience sample of economically disadvantaged school-age children. *BMJ Open*. 2018 Aug 29;8(8):e021168. doi: 10.1136/bmjopen-2017-021168.

² Dawn Earnesty, MS, RDN, Miya Hourani, Cristina Szatkiewski, Annalisa Creger, Anna Jursinic, Lorraine Weatherspoon, PhD, RD.. Are In-Home Child Care Providers Currently Meeting the New Child and Adult Care Food Program (CACFP) Nutrition Standards? Academy of Nutrition and Dietetics Annual Conference. October 2017. Chicago, IL. Published abstract: Home Based Child-Care Providers are Not Currently meeting the 2017 Child and Adult Care Food Program Nutrition Standards. Earnesty, D. et al. *Journal of the Academy of Nutrition and Dietetics*. Volume 117, Issue 9, A88.

³ Katare, B., and Lynch, K. Perceptions of the Neighborhood Food and PA Environment among SNAP-Ed Participants. NCNECE Affiliates Meeting, July 2018.

The *Eat Smart in Parks*⁴⁵⁶⁷⁸ project utilized a photovoice project to engage rural and urban youth in Missouri. Through their photos, youth documented many ways the environment surrounding parks and community centers did not support healthy food choices. Findings from this study demonstrated that photovoice projects examining park food environments not only help give voice to youth that may not typically be included in decision-making, but also increase perceived importance of healthy food environments in parks. A successful grant application for additional work resulted from this project.⁹

- **Defining the community environments that support successful application of SNAP-Ed and EFNEP.** Results demonstrate that robust community connections are most likely associated with effective penetration of nutrition education programs in the community. Further, food deserts did not seem to be a perceived problem as most participants felt they have good access to healthy foods. The problem appears to be choice and convenience as participants also indicated very good access to fast food, thus confirming the key role of education. The social network analysis tools developed in this multi-state research program will lead to additional studies on optimal environments for successful SNAP-Ed and EFNEP programs.

*Evaluating a Multi-Modal Community Nutrition Education Model within SNAP-Ed and EFNEP (Phase 1 & 2)*¹⁰¹¹¹²¹³ resulted in the development of a nutrition environment assessment tool,

⁴Wilhelm Stanis, S.A., DeBlauw, C., Keller, K., Hampton, N., Dunaway, A. (2016, October). What we see, what we eat: A photovoice project with rural and urban youth in Missouri in parks and rec centers. Poster presentation at the American Public Health Association Conference, Denver, Co.

⁵ Wilhelm Stanis, S.A., Keller, K., Deblauw, C. & Hampton, N. Eat Smart in Parks: Giving voice to youth. Accepted for poster presentation at the International Society of Behavioral Nutrition and Physical Activity Conference (2017, June), Victoria, Canada.

⁶ Wilhelm Stanis, S.A., Keller, K., Deblauw, C. & Hampton, N. Eat Smart in Parks: Impacts of a youth photovoice project. Accepted for poster presentation at the Society for Nutrition Education and Behavior Conference (2017, July), Washington, DC.

⁷ Wilhelm Stanis, S.A., Hampton, N., Keller, K., & Deblauw, C. Photovoice: Involvement that gives youth a community voice. Submitted for presentation at the National Recreation and Park Association Annual Conference (2017, September), New Orleans, LA.

⁸ Wilhelm Stanis, S.A., Keller, K., Deblauw, C., Hampton, N., Chandrashekar, P., & Yazdani, N. Mixed messaging in the food environments around parks and recreation centers: An analysis of youth photos. Submitted for presentation at the American Public Health Association Annual Conference (2017, November), Atlanta, GA.

⁹ Keller, K. (PI) and Wilhelm Stanis, S.A., Liu, P., Mott, R., Hampton, N. and DeBlauw, C. (Co-Is). Enhancing Eat Smart in Parks Through Youth-Adult Partnerships. USDA National Institute of Food and Agriculture (NIFA) Agriculture and Food Research Initiative (AFRI). 2018-2022. Requested: \$2,499,494.

¹⁰ An R, Loehmer E, Khan N, Scott M, Rindfleisch K, McCaffrey J. Community partnerships in healthy eating and lifestyle promotion: A network analysis. *Prev Med Rep.* 2017 <http://dx.doi.org/10.1016/j.pmedr.2017.03.007>.

¹¹ An R, Khan N, Loehmer E, McCaffrey J. Assessing the network of agencies in local communities that promote healthy eating and lifestyles among populations with limited resources. *Amer J Health Behav.* 2017; 41(2):127-138.

¹² Covello AR, Nikolaus CJ, Curran MR, Edwards CG, Baumgartner NW, Liu RH, Loehmer EA, McCaffrey JH, An RA, Khan NA. Examining the role of habitual physical activity in the food insecurity-obesity paradox. *FASEB J.* 2017;31(1):S791.26.

¹³ Nikolaus CJ, Laurent E, Loehmer E, An R, Khan N, McCaffrey J. Nutrition environment food pantry assessment tool (NEFPAT): Development and evaluation. *J Nutr Ed Behav.* 2018;50(7)724-728. [doi.org/10.1016/j.jneb.2018.03.011](http://dx.doi.org/10.1016/j.jneb.2018.03.011).

the Nutrition Environment Food Pantry Assessment Tool (NEFPAT) used to assess the consumer nutrition environment and use of recommended practices in food pantries. This tool provides baseline data valuable for interventions within the nutrition environment of food pantries.

- **Determining the PSE factors that affect successful SNAP-Ed and EFNEP programming related to reducing food insecurity.** Nutrition education programming (both SNAP-Ed and EFNEP) was equally successful in improving food security, regardless of rural or urban environments, socioeconomic status, or other potential confounding variables. **The results indicate that a primary goal of SNAP-Ed and EFNEP should be to increase program participation across all communities and environments.** The researchers involved in this study are currently turning their attention to elderly rural at-risk groups who have very low participation rates in SNAP, using these same tools to identify factors that can increase participation among this population.

*A Longitudinal Randomized and Controlled Evaluation of the Integrated Impact of SNAP-Ed on Food Security and Obesity Prevention in Rural and Urban Counties*¹⁴ found that participants in both rural and urban areas improved their household food security as a result of direct SNAP-Ed compared with those who did not receive direct SNAP-Ed, and that direct SNAP-Ed was effective in a variety of environments and independent of PSE SNAP-Ed. Direct SNAP-Ed was also effective among individuals independent of their personal participation in nutrition related resources or the availability of these resources in their communities. Thus, expansion of direct and PSE SNAP-Ed in rural areas supports food access among the low-income population and reduces food insecurity in rural compared with urban areas.

- **Identifying and creating research collaborations and synergistic relationships among researchers and EFNEP/SNAP-Ed program directors, universities, and other implementers, and state and other federal agencies:** RNECE-NC issued two requests for applications (RFAs), allowing for identification of researchers, program directors, agencies and other implementers. A total of six projects were funded, and all PIs became members of the affiliates' program. RNECE-NC also convened a multi-state advisory team of faculty and SNAP-Ed/EFNEP implementers who provided guidance to RNECE-NC regarding funding priorities, communication strategies, and additional affiliate connections/partnerships among faculty and SNAP-Ed and EFNEP implementers in the region. Collaborations and relationships were also fostered via conference calls and meetings. A website (www.ncnece.org) was also created to invite participation and disseminate information. RNECE-NC used several strategies to increase partnerships between researchers and SNAP-Ed and EFNEP implementers. This included setting up an affiliates' program for the center, convening a multi-state advisory team of faculty and SNAP-Ed/EFNEP implementers and conducting focus groups with our affiliates, advisory

¹⁴ Rivera R, Dunne J, Maulding MK, Wang Q, Savaiano DA, Nickols-Richardson SM, Eicher-Miller HA. Exploring the association of urban or rural county status and environmental, nutrition- and lifestyle-related resources with the efficacy of SNAP-Ed (Supplemental Nutrition Assistance Program-Education) to improve food security. *Public Health Nutrition*. 2018; 21(5):957-966. PMID 29199629.

team members, and their collaborators. The advisory committee included SNAP-Ed and/or EFNEP implementers and stakeholders/researchers from every state in the North Central Region, and provided guidance to RNECE-NC regarding funding priorities, communication strategies, and additional affiliate connections/partnerships among faculty and SNAP-Ed and EFNEP implementers in the region.

RNECE-NC Multi-state Advisory Committee
Pat Aune, Director United Tribes Technical College
Trina Barno, SNAP-Ed/EFNEP Program Leader University of Minnesota Extension
Patricia Bebo, State Leader Ohio State University Extension
Linda Boeckner, State Leader University of Nebraska Extension
Christine Hradek, SNAP-Ed/EFNEP Coordinator Iowa State University Extension
Sarah Jones, Project Manager Michigan Fitness Foundation
Melissa Maulding, SNAP-Ed/EFNEP Coordinator Purdue University
Jennifer McCaffrey, State Leader University of Illinois Extension
Megan Ness, SNAP-Ed/EFNEP Coordinator North Dakota State University Extension
Paula Peters, State Leader Kansas State University Research and Extension
Amber Canto, SNAP-Ed/EFNEP Coordinator University of Wisconsin Extension
Sandra Proctor, SNAP-Ed/EFNEP Coordinator Kansas State University Research and Extension
Suzanne Stluka, State Leader South Dakota State University Extension

Table 2

The focus groups identified high priority topics including assessing effectiveness of PSE interventions on SNAP-Ed and/or EFNEP participants and examining the impact of SNAP-Ed and EFNEP interventions on rural populations. Requests for proposals in areas related to the two highest priority needs expressed during the focus groups were issued. All funded researchers joined the RNECE-NC affiliates' program and were invited to present webinars about their research to other center affiliates. All affiliates and advisory board members were invited to convene in Chicago to discuss their research, brainstorm additional collaborative opportunities, and increase their partnerships with SNAP-Ed and/or EFNEP implementers. Over sixty individuals attended the Chicago meeting. During the meeting, the group discussed a collaborative research study that would further RNECE-NC goals by looking at the food and physical activity environments of geographically diverse low-income individuals. That study (Food and Activity Environment Perceptions among SNAP-Ed and EFNEP Participants in the North Central region) included six states in the North Central region. A subsequent meeting for the RNECE-NC affiliates was held in July 2018, and featured preliminary results from the study.

Summary and Next Steps:

More research is desperately needed to better understand the influence of policy, systems and environments on diet quality, activity, obesity and health in general. The projects described herein begin to elucidate the unique PSE factors that could improve the lives of at-risk rural Americans. In total, the studies indicate that holistic approaches, where professionals consider the entire ecology of their audiences, have greater potential to impact diet and weight. Further, the projects funded by the RNECE-NC begin to create a framework, in combination with work from others across the Country, that indicates MORE effort is needed to create healthy environments, particularly in rural American, and this effort can pay significant dividends in preventing obesity, increasing diet quality and likely ameliorating the growing costs of health care. Research on rural communities, particularly PSE research, is in need of additional support, as these populations are at greater risk for poor diets, obesity, lower use of SNAP, and have unique challenges for food and health care access.

Acknowledgements:

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Appendix A: Products Generated

Summer Weight and Environmental Assessment Trial (SWEAT): PI: Gunther

Paper:

Hopkins LC, Penicka C, Jones B, Evich CD, Gunther C. Project SWEAT (Summer Weight and Environmental Assessment Trial): study protocol of an observational study using a multistate, prospective design that examines the weight gain trajectory among a racially and ethnically diverse convenience sample of economically disadvantaged school-age children. *BMJ Open*. 2018 Aug 29;8(8):e021168. doi: 10.1136/bmjopen-2017-021168.

Poster Presentations:

Hopkins LC, Gunther C. (2017) Project SWEAT (Summer Weight and Environmental Assessment Trial): An Exploration of the Protective Effect of Participation in Summer Programming on Child Weight Status. Poster presentation, NIH Office of Disease Prevention and the Pathways to Prevention Program, Pathways to Prevention Workshop: Methods for Evaluating Natural Experiments in Obesity, Washington, DC.

Hopkins LC, Labyk A, Logan J, Purtell K, Gunther C. (2017) Examining the Relationship of Weight and Health With Learning in Underserved Children During Summer. Poster presentation, The Obesity Society, Washington, DC.

Sharn A, Hopkins LC, Labyk A, Gunther C. (2017) Project SWEAT – Healthy Eating Active Living Mapping Attributes using Participatory Photographic Surveys (HEAL MAPPS): A Qualitative Approach to Combatting Unhealthy Weight Gain during Summer Months in Underserved Children. Poster presentation, Ohio State University, Columbus, OH, Undergraduate Research Office Forum.

Tiba S, Hopkins LC, Lambea MC, Gunther C. (2017) Reliability and Validity of the Expanded Food and Nutrition Education Program (EFNEP) Nutrition Education Survey. Poster presentation, Ohio State University, Columbus, OH, Undergraduate Research Office Forum.

Hall L, Hopkins LC, Gunther C. (2017) Project SWEAT: A Nutrition and Physical Activity Assessment of USDA Summer Food Service Program Sites in Urban Low-Income Zip Codes. Poster presentation, Ohio State University, Columbus, OH, Undergraduate Research Office Forum.

Invited Lectures:

Seminar speaker. (2017) “Identifying the Behavioral and Environmental Factors Influencing Risk for Childhood Obesity in Economically Disadvantaged, Racial Minority Children.” The OSU Nutrition (OSUN) Seminar Series, The Ohio State University, Columbus, OH.

Invited presenter (2018). “Securing a stop to the summer setback: policy and programmatic solutions to addressing the problem of poor nutritional health during the summer among children residing in low-income households.” Agricultural Research Congressional Exhibition and Reception, Washington, DC. Note: Project SWEAT funds were *not* used to cover expenses related to this travel.

A Longitudinal Randomized and Controlled Evaluation of the Integrated Impact of SNAP-Ed on Food Security and Obesity Prevention in Rural and Urban Counties: PI: Eicher-Miller

Peer Reviewed Papers:

Rivera R, Dunne J, Maulding MK, Wang Q, Savaiano DA, Nickols-Richardson SM, Eicher-Miller HA. Exploring the association of urban or rural county status and environmental, nutrition- and lifestyle-related resources with the efficacy of SNAP-Ed (Supplemental Nutrition Assistance Program-Education) to improve food security. *Public Health Nutrition*. 2018; 21(5):957-966. PMID 29199629

Paper submitted to Journal of Nutrition:

Rivera R, Sun H, Zhang Y, Maulding MK, Eicher-Miller HA. Nutrition assistance program participation and SNAP-Ed Program Characteristics are not associated with SNAP-Ed increases in Long-term household food security among Indiana households with children. Submitted to *Journal of Nutrition*

Posters or Talks Presented at Refereed Conferences:

National Conferences

Rivera RL, Maulding MK, Abbott AR, Craig CA, Eicher-Miller HA. Supplemental Nutrition Assistance Program-Education Program characteristics were not associated with improvement in food security. Mini-symposium. *Journal of Nutrition Education and Behavior*. 2016;48(7):S7.

Rivera RL, Maulding MK, Abbott AR, Craig CA, Eicher-Miller HA. Supplemental Nutrition Assistance Program-Education improves long-term household food security regardless of participation in Supplemental Nutrition Assistance Program or the Woman, Infants, and Children program at recruitment. Poster presentation. *Journal of Nutrition Education and Behavior*. 2016;48(7):S100.

Rivera RL, Maulding MK, Abbott AR, Craig CA, Eicher-Miller HA. Improvement in long-term household food security among Indiana households with children did not differ between rural and urban counties after a Supplemental Nutrition Assistance Program-Education Intervention. *FASEB Journal*. 2016;30(Sup 1):674.26, poster presentation.

Regional Conferences

Rivera RL, Maulding MK, Abbott AR, Wang Q, Eicher-Miller HA. Supplemental Nutrition Assistance Program-Education program and participant characteristics were not associated with improvement in household food security. Poster presented at: Purdue University Graduate School Office of Interdisciplinary Graduate Program Poster Competition; May 2, 2016; Purdue University, W. Lafayette, IN.

Rivera RL, Maulding MK, Abbott AR, Craig CA, Eicher-Miller HA. Improvement in long-term household food security among Indiana households with children did not differ between rural and urban counties after a Supplemental Nutrition Assistance Program-Education Intervention. Poster presented at: Health and Disease: Science, Technology, Culture and Policy Research; March 28, 2016; Purdue University, W. Lafayette, IN.

Invited Talks/Lectures

“Reaching food insecure families with resources in rural and urban environments and food systems”, invited to the Status of Indiana Families Conference, Indianapolis, IN, October 19, 2017.

“Improving food insecurity and nutrition in Indiana”, invited to the Indiana Nutrition Council, Indianapolis, IN, March 17, 2017.

“Does SNAP-Ed affect food security differentially in urban and rural environments?”, invited to the North Central-Nutrition Education Center of Excellence Annual Meeting, Chicago, IL, April 18, 2016.

Student Thesis/Dissertations

Rebecca Rivera, PhD, “Evaluating the effect of Supplemental Nutrition Assistance Program(SNAP) - Education on household food security status and nutrient intake of SNAP eligible participants in Indiana”, Department of Nutrition Science, Interdepartmental Nutrition Program (INP) (Start F2013, Complete S2018)

Jennifer Dunne, Dublin Institute of Technology, “Rural and urban influences impact the efficacy of Supplemental Nutrition Assistance Program-Education to improve food insecurity”, (Spring 2016)

Eat Smart in Parks: PI: Wilhelm Stanis

Posters/Presentations

Wilhelm Stanis, S.A., Deblauw, C., Keller, K., Hampton, N., Dunaway, A. (2016, October). *What we see, what we eat: A photovoice project with rural and urban youth in Missouri in parks and rec centers.* Poster presentation at the American Public Health Association Conference, Denver, Co.

Wilhelm Stanis, S.A., Keller, K., Deblauw, C. & Hampton, N. *Eat Smart in Parks: Giving voice to youth.* Accepted for poster presentation at the International Society of Behavioral Nutrition and Physical Activity Conference (2017, June), Victoria, Canada.

Wilhelm Stanis, S.A., Keller, K., Deblauw, C. & Hampton, N. *Eat Smart in Parks: Impacts of a youth photovoice project.* Accepted for poster presentation at the Society for Nutrition Education and Behavior Conference (2017, July), Washington, DC.

Wilhelm Stanis, S.A., Hampton, N., Keller, K., & Deblauw, C. *Photovoice: Involvement that gives youth a community voice.* Submitted for presentation at the National Recreation and Park Association Annual Conference (2017, September), New Orleans, LA.

Wilhelm Stanis, S.A., Keller, K., Deblauw, C., Hampton, N., Chandrashekar, P., & Yazdani, N. *Mixed messaging in the food environments around parks and recreation centers: An analysis of youth photos.* Submitted for presentation at the American Public Health Association Annual Conference (2017, November), Atlanta, GA.

Funding application based on project:

Keller, K. (PI) and **Wilhelm Stanis, S.A.**, Liu, P., Mott, R., Hampton, N. and DeBlauw, C. (Co-Is). Enhancing Eat Smart in Parks Through Youth-Adult Partnerships. USDA National Institute of Food and Agriculture (NIFA) Agriculture and Food Research Initiative (AFRI). 2018-2022. Requested: \$2,499,494

Evaluating a Multi-Modal Community Nutrition Education Model within SNAP-Ed and EFNEP (Phases 1& 2): PI: McCaffrey

An R, Loehmer E, Khan N, Scott M, Rindfleisch K, McCaffrey J. Community partnerships in healthy eating and lifestyle promotion: A network analysis. *Prev Med Rep.* 2017
<http://dx.doi.org/10.1016/j.pmedr.2017.03.007>

An R, Khan N, Loehmer E, McCaffrey J. Assessing the network of agencies in local communities that promote healthy eating and lifestyles among populations with limited resources. *Amer J Health Behav.* 2017; 41(2):127-138.

Covello AR, Nikolaus CJ, Curran MR, Edwards CG, Baumgartner NW, Liu RH, Loehmer EA, McCaffrey JH, An RA, Khan NA. Examining the role of habitual physical activity in the food insecurity-obesity paradox. *FASEB J.* 2017;31(1):S791.26.

Nikolaus CJ, Laurent E, Loehmer E, An R, Khan N, McCaffrey J. Nutrition environment food pantry assessment tool (NEFPAT): Development and evaluation. *J Nutr Ed Behav.* 2018;50(7)724-728.
doi.org/10.1016/j.jneb.2018.03.011

Poster Presentations:

A poster featuring an analysis of the impact of food assistance programs on food security patterns was presented at SNEB in July 2018.

Nikolaus CJ, Loehmer E, Jones A, An R, Khan N, McCaffrey J. Impact of food assistance program participation on food security patterns: A longitudinal study of women in Illinois. *J Nutr Ed Behav.* 2018;50(7):S24. doi.org/10.1016/j.jneb.2018.04.065

Webinar:

A webinar entitled "Evaluating a Multi-Modal Community Nutrition Education Model within SNAP-Ed and EFNEP" was held October 23, 2015.

The Influence of Policy, System and Environmental Nutrition Education Intervention on Dietary Quality at Diverse Low-Income Childcare Provider Settings: PI: Earnesty

Poster Presentations

Dawn Earnesty, MS, RDN, Miya Hourani, Cristina Szatkiewski, Annalisa Creger, Anna Jursinic, Lorraine Weatherspoon, PhD, RD.. *Are In-Home Child Care Providers Currently Meeting the New Child and Adult Care Food Program (CACFP) Nutrition Standards?* Academy of Nutrition and Dietetics Annual

Conference. October 2017. Chicago, IL. Published abstract: Home Based Child-Care Providers are Not Currently meeting the 2017 Child and Adult Care Food Program Nutrition Standards. Earnesty, D. et al. Journal of the Academy of Nutrition and Dietetics. Volume 117, Issue 9, A88.

Jursinic, Anna, Earnesty, Dawn, MS, RDN, Weatherspoon, Lorraine, PhD, RD. Poster Presentation. *Foods and Beverages Served by In-Home Child Care Providers Does Not Match their Menu.* 2017 Mid-SURE undergraduate research symposium. East Lansing, MI. April 2017.

Dawn Earnesty, MS, RDN, Miya Hourani, Cristina Szatkiewski, Annalisa Creger, Anna Jursinic, Lorraine Weatherspoon, PhD, RD.. *Are In-Home Child Care Providers Currently Meeting the New Child and Adult Care Food Program (CACFP) Nutrition Standards?* Michigan Academy of Nutrition and Dietetics Annual Conference. May 2017, Grand Rapids, MI.

Food and Activity Environment Perceptions among SNAP-Ed and EFNEP Participants in the North Central region: PI: Katare

Presentations:

Perceptions of the Neighborhood Food and PA Environment among SNAP-Ed Participants, NCNECE Affiliates Meeting, July 2018