



Published in final edited form as:

Health Promot Pract. 2026 March ; 27(2): 221–226. doi:10.1177/15248399251319341.

The Five-Year Impact of State and Community Program Efforts to Increase Opportunities for Healthy Eating and Active Living, 2018–2023

Anu Pejavara, MPH¹, Sahra Kahin, MA, MPH¹, Terrence O'Toole, PhD, MDiv¹, Ruth Petersen, MD, MPH¹

¹Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, Georgia.

Abstract

The burden of obesity and other chronic diseases negatively affects the nation's health, businesses, economy, and military readiness. From 2018 to 2023, the Centers for Disease Control and Prevention's Division of Nutrition, Physical Activity, and Obesity (DNPAO) awarded funding to 71 recipients to advance evidence-based strategies to increase opportunities for healthy eating, physical activity, breastfeeding, and tobacco-free living. Recipients consisted of states, universities, and communities funded through the three following cooperative agreements: State Physical Activity and Nutrition (SPAN), Racial and Ethnic Approaches to Community Health (REACH), and the High Obesity Program (HOP). Recipients tailored efforts to their state or local contexts by using community engagement methods, needs assessments, and coalitions to accomplish their work. DNPAO developed an evaluation approach that was inclusive, transparent, and feasible for recipients. DNPAO annually collected and validated recipient self-reported data using a two-way cloud-based platform to increase the visibility around data sharing and to ensure real-time communication. SPAN, REACH, and HOP recipients made considerable impact in funded states and communities. For example, more than 28 million people have increased access to places to be physically active, and over 9 million people have increased access to places with healthy nutrition standards. Recipients also leveraged additional resources from a source other than the granting organization totaling almost \$400 million during the five-year cooperative agreement period. This paper documents the combined five-year impact of three public health programs funded by one CDC Division and illustrates the rigorous methods used to evaluate impact.

Keywords

obesity prevention; nutrition; physical activity; evaluation; program impact; federal programs; SPAN: State Physical Activity and Nutrition; HOP: High Obesity Program; REACH: Racial and Ethnic Approaches to Community Health; state; community health

Corresponding author: Anu Pejavara, MPH¹.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. The authors have no conflicts of interest to disclose.

Background

In the United States, chronic diseases such as heart disease, cancer, type 2 diabetes, and obesity are the leading cause of death and disability (Boersma et al., 2018). Chronic diseases—largely driven by preventable health behaviors such as poor nutrition, physical inactivity, and tobacco use—can negatively affect our nation’s businesses, economy, and military readiness (Centers for Disease Control and Prevention [CDC], 2023a; CDC, 2023b; The Milken Institute, 2023; Ward et al., 2021). Research indicates that increasing access to healthy opportunities, such as improving physical activity and nutrition environments and implementing tobacco-free policies, can improve health behaviors and prevent chronic disease (The Guide to Community Preventive Services, 2021; U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2024; The Guide to Community Preventive Services, 2020). To prevent and reduce chronic diseases, DNPAO provides financial and technical support to states and communities to increase opportunities for healthy eating, physical activity, breastfeeding, and tobacco-free living. In September 2018, the Centers for Disease Control and Prevention’s Division of Nutrition, Physical Activity, and Obesity (DNPAO) awarded five-year funding to 62 states, universities, and communities through the three following cooperative agreements: State Physical Activity and Nutrition (SPAN, DP18–1897), Racial and Ethnic Approaches to Community Health (REACH, DP18–1813), and the High Obesity Program (HOP, DP18–1809). In 2020, an additional five REACH recipients were funded for three years, and in 2021, four additional REACH recipients were funded for two years. This totaled 71 SPAN, REACH, and HOP recipients advancing evidence-based strategies to increase opportunities for healthy eating, physical activity, breastfeeding, and tobacco-free living during 2018–2023.

This paper highlights the evaluation approach and program impact of three 2018–2023 cooperative agreements: SPAN, REACH, and HOP. While some DNPAO cooperative agreement findings have been published in the past, they have been limited to mid-progress findings (Vaughan et al., 2017) or a singular cooperative agreement (Murriel et al., 2020). DNPAO has not published a paper that describes portfolio-level impact across multiple cooperative agreements inclusive of work at the state and community levels. The findings described in this paper can advance public health program implementation and evaluation by describing the extent to which states and communities increased access to healthier food, places to be physically active, breastfeeding support, and tobacco-free living—by implementing evidence-based strategies to prevent chronic disease and improve health outcomes.

Purpose

The primary long-term purpose of these cooperative agreements was to address risk factors to prevent and reduce chronic disease by increasing access to healthier foods, physical activity, breastfeeding, and tobacco-free living. SPAN, REACH, and HOP recipients were expected to expand the implementation and reach of evidence-based policy, systems, and environmental change strategies from research studies and recommendations from expert bodies such as the Community Preventive Services Task Force (The Guide to Community Preventive Services, 2024c), 2020–2025 *Dietary Guidelines for Americans*

(U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2020), *Physical Activity Guidelines for Americans, 2nd edition* (U.S. Department of Health and Human Services, 2018), and practice-based experiences from the field (CDC, 2023c).

To evaluate recipient activities, DNPAO designed a guiding framework using CDC's *Framework for Program Evaluation in Public Health* (CDC, 2023d). DNPAO used logic models to provide a visual representation of the sequence of related events connecting the programs' activities with the desired outcomes. The cooperative agreements included these overarching evaluation questions:

- To what extent did SPAN, REACH, and HOP recipients increase access to healthier foods, places to be physically active, breastfeeding support, and tobacco-free living from 2018 to 2023?
- To what extent did SPAN, REACH, and HOP recipients leverage and secure additional funds from 2018 to 2023 to amplify cooperative agreement strategies?

Recipients had the flexibility to use a variety of activities to support the implementation of evidence-based strategies (O'Toole et al., 2022). The physical activity strategy included implementing policies and practices to connect activity-friendly routes, such as sidewalks and multi-use paths, to everyday destinations, such as schools, workplaces, and parks. The nutrition strategy included implementing healthy nutrition standards where food is sold, served, and distributed and expanding access to healthy foods through food banks and food pantries for those at high risk of food insecurity. Recipients implementing the breastfeeding strategy enhanced hospital practices to support breastfeeding and implemented practices in workplaces and communities for continued access to breastfeeding support. For recipients implementing the tobacco strategy, they had the choice to focus on tobacco-free policies in worksites or multi-unit housing. Recipients tailored approaches to their state or local contexts by using community engagement methods, needs assessments, and coalitions to accomplish their work.

Methods

To develop the evaluation approach, DNPAO used an inclusive and transparent process in both the design and implementation stages of the evaluation.

During the design stage of the evaluation, the principles of engagement, usability, and co-creation drove the approach. Before the cooperative agreement began, DNPAO engaged internal staff who served as evaluators, project officers, and subject matter experts. Drawing on their scientific expertise, wisdom from program implementation, and lessons learned from previous cooperative agreements, DNPAO drafted an initial evaluation design. Each evaluation component was designed to clearly outline how data would be used and analyzed. Once recipients were onboarded, DNPAO engaged them in a co-creation phase eliciting their feedback on the relevance, feasibility, and potential burden of evaluation reporting. This process of engagement ensured the evaluation design was context-driven and aligned with the experiences and needs of recipients and the communities they serve.

This collaboration led to refinements of the initial draft and the decision to adopt a mixed methods design. The cooperative agreement evaluation questions were answered through a variety of quantitative and qualitative data: performance measures, leveraged funds, contextual questions, and long-term outcome evaluations. Recipients self-reported evaluation data annually using a two-way cloud-based platform which allowed DNPAO and recipients to view the data simultaneously and allowed DNPAO to provide feedback directly in the system in a timely fashion. The quantitative methods used to collect performance measures and leveraged funds are the primary focus of this paper.

DNPAO asked recipients to report annual progress on intervention strategies through two types of performance measures: 1) those that counted the progress made in settings or policies, and 2) those that counted the population of people potentially reached through those activities. In the interest of brevity, only the latter performance measure data are reported here. “People potentially reached” was defined as those who could benefit from a new or improved policy, systems, or environmental change. DNPAO provided guidance to recipients on methods to calculate potential reach, such as counting all the residents of a census tract near a new or enhanced place for physical activity or counting all new births that occurred in a hospital after a breastfeeding-friendly practice was implemented. All findings are presented as potential reach except for the community-clinical linkage strategy, which required recipients count the actual number of patients referred to locally available health and preventive programs. Within a strategy, individuals were counted only once; for example, if a community implemented one change to the physical activity environment and later made an additional physical activity improvement in the same community, those individuals were counted as having been potentially impacted by that strategy once.

DNPAO also requested recipients track and report leveraged funds, which were defined as “a financial representation of resources, goods, or services from a source other than the granting organization to amplify current program efforts and help establish a foundation to sustain efforts beyond the funding period.” Categories, definitions, and instructions for estimating leveraged funds were initially developed and piloted by DNPAO during a previous funding cycle of HOP (Murriel et al., 2020) and refined during this cycle.

Once evaluation data were collected, the principles of data quality, timeliness, and transparency drove DNPAO’s approach. After reporting was received each year, DNPAO evaluators engaged recipients in a collaborative process to validate performance measures and leveraged funds. To ensure data integrity and quality, DNPAO evaluators used a rigorous, multi-step process for data cleaning, management, and analysis. Following validation, data underwent deduplication to ensure sites or population reach were not double counted from previous program years. Rather than waiting until the end of the five-year cooperative agreement cycle, DNPAO annually committed to aggregating data both at the portfolio level and by various subgroups to communicate mid-progress impact. DNPAO used this commitment to real-time data collection and analysis to facilitate agile decision-making. Transparency was also embedded in the evaluation process. DNPAO shared details of the review, validation, and data cleaning processes with recipients along the way. DNPAO held an annual webinar wherein recipient findings were transparently shared, fostering a culture of openness and collaboration.

Results

This paper focuses on quantitative data findings for SPAN, REACH, and HOP from 2018 to 2023 reported in performance measures and leveraged funds. Qualitative findings from other recipient deliverables, such as contextual questions and long-term outcome evaluations, will be shared separately and used to complement the findings presented here.

There were 71 recipients: 16 SPAN, 40 REACH, and 15 HOP. Sixty-two of the total recipients were funded for the entire five-year cooperative agreement period (2018–2023), and nine were funded for either two or three years. Funded recipients consisted of state and local entities such as health departments, universities, and community-based organizations in diverse geographic locations ranging from rural to urban.

Table 1 illustrates the seven strategies for SPAN, REACH, and HOP, and their cumulative potential population reach during the five-year cooperative agreement period. Validated and cleaned annual performance measure counts were aggregated for each strategy and presented by cooperative agreement. Because strategies varied by cooperative agreement, and some strategies were required while others were optional, certain items in the table are marked as N/A if they were not applicable. All aggregated counts are presented as potential reach, except for community clinical linkages which was calculated as actual reach since the activity was implemented directly with patients. For the tobacco strategy, while recipients could elect to conduct activities in worksites or multi-unit housing, all three recipients chose worksites; therefore, the count is presented for employees only. Each cumulative performance measure count includes N, the number of recipients implementing and reporting on that measure.

For leveraged funds, during the 2018–2023 funding period, SPAN recipients reported over \$175 million leveraged (N = 16), over \$200 million leveraged for REACH (N = 40), and over \$23 million leveraged for HOP (N = 15) across all reported sources. In total, SPAN, REACH, and HOP recipients leveraged almost \$400 million.

Strengths and Limitations

Several strengths should be noted for this evaluation. When developing a context-driven approach to evaluation guidance and tools, DNPAO evaluators recognized the diverse needs of recipients and the communities they serve. This allowed for a nuanced mixture of evaluation reporting that tells a portfolio-level story while maintaining the ability to identify the context of individual programs. After recipients annually submitted data, DNPAO evaluators undertook multiple levels of data quality review, both internally and collaboratively with recipients.

A few limitations in the evaluation of SPAN, REACH, and HOP should be noted. First, the data used in these findings are self-reported by recipients and based on recipients' interpretations of DNPAO evaluation guidance. Second, most data reflect potential impact of strategy implementation rather than actual impact or use. Third, funding periods differed for some REACH recipients. This may have limited the intervention scope and impact in some communities. Lastly, although findings from this paper may generate ideas for other

public health organizations, recipients participating in SPAN, REACH, and HOP are not representative of all public health entities.

Implications for Practice

By implementing a variety of policy, systems, and environmental changes, SPAN, REACH, and HOP recipients increased access to healthier foods, physical activity, breastfeeding, and tobacco-free living for millions of Americans. Evidence suggests that increasing access to healthy opportunities can improve health behaviors and ultimately prevent and reduce chronic disease (The Guide to Community Preventive Services, 2021; U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2024; The Guide to Community Preventive Services, 2020). The variability of potential impact numbers within and across strategies was expected. Some strategies were implemented by most of the 71 recipients while others were implemented by very few, ranging from 60 recipients (physical activity) to three recipients (tobacco). Strategies were implemented at varying levels of geography, from statewide interventions to low population density rural communities. One strategy—clinical community linkages—was implemented directly with patients and counted as actual reach, resulting in a smaller total count than the others.

Implementing the principles of engagement and co-creation of the evaluation design enhanced transparency and partnership in cooperative agreement efforts. The early engagement of internal staff across DNPAO in program evaluation design enhanced a culture supportive of programmatic efforts and reinforced the connection between science and practice. Engaging recipients in the co-creation of the evaluation design ensured a context-driven, feasible design.

Because the evaluation approach was designed with a focus on timeliness and usability, DNPAO evaluators were able to annually aggregate and share findings with recipient and internal audiences, quantitatively showing the program's year-to-year impact. Presenting findings in this way also allowed DNPAO leadership to disseminate recipient successes in diverse settings, such as public health conferences and congressional briefings, which may have contributed to increased visibility or support of DNPAO programs. In 2022, the Biden-Harris Administration's National Strategy on Hunger, Nutrition, and Health (White House National Strategy on Hunger, Nutrition, and Health, 2022) called for the expansion of the 16-state SPAN cooperative agreement to all states and territories.

Securing almost \$400 million in leveraged funds amplified SPAN, REACH, and HOP program efforts during the five-year period and helped establish a foundation to sustain efforts beyond the funding period. Tracking and reporting leveraged funds helped communicate the value of SPAN, REACH, or HOP efforts to decision makers, partners, and community members by showcasing recipients' ability to bolster their work through partner resources. The SPAN program, which primarily represented statewide entities such as state health departments, leveraged more dollars from federal resources and state budgets, producing a greater total relative to the number of recipients. For example, state health departments collaborated on and leveraged resources from other state level entities, such as the department of transportation, department of natural resources, maternal and child health programs, and university systems. In contrast, HOP recipients had an expectedly

lower overall total leveraged funds due to working primarily in rural communities with smaller populations and fewer resources. The recipients' ability to successfully leverage additional funds may suggest that recipient policy, systems, and environmental interventions are sustainable.

Acknowledgements:

This information in this paper is from programs supported by CDC cooperative agreements DP18–1807, DP18–1813, and DP18–1809. The authors acknowledge the efforts of the SPAN, REACH, and HOP recipients whose collective efforts contributed to the findings presented in this paper. The authors also acknowledge the following colleague evaluators for their support at various timepoints during the 5-year cooperative agreements: Melanie Andrews, Stella Cory, Leanna Ehrlich, Sarah Fishleder, Isabel Garcia de Quevedo, Sierra Helfrich, Iris Joi Hudson, George Huntzicker, Beth Michel, Ashleigh Murriel, Oladayo Omosa, Connor Radkey, Natalia Toledo Melendez, and Sharrice White-Cooper. Contents of this paper are solely the responsibility of the authors and do not necessarily represent the official views of CDC or the US Department of Health and Human Services. The authors used no copyrighted material, surveys, instruments, or tools in this paper.

References

- Boersma P, Black LI, Ward BW (2018). Prevalence of multiple chronic conditions among US adults. *Preventing Chronic Disease*, 17:200130. doi:10.5888/pcd17.200130
- Centers for Disease Control and Prevention. (2023a). Unfit to serve: obesity and physical inactivity are impacting national security. <https://www.cdc.gov/physicalactivity/downloads/unfit-to-serve-062322-508.pdf>
- Centers for Disease Control and Prevention. (2023b). About chronic diseases. https://www.cdc.gov/chronic-disease/about/?CDC_AAref_Val=https://www.cdc.gov/chronicdisease/about/index.htm
- Centers for Disease Control and Prevention. (2023c). State and local strategies. <https://www.cdc.gov/nccdphp/dnpao/state-local-strategies.html>
- Centers for Disease Control and Prevention. (2023d). Framework for program evaluation in public health. <https://www.cdc.gov/evaluation/php/evaluation-framework/index.html>
- The Guide to Community Preventive Services. (2021). Physical activity: Creation of or enhanced access to places for physical activity combined with informational outreach activities. <https://www.thecommunityguide.org/findings/physical-activity-creation-or-enhanced-access-places-physical-activity-combined.html>
- The Guide to Community Preventive Services. (2020). Tobacco use: Comprehensive tobacco control programs. <https://www.thecommunityguide.org/findings/tobacco-use-comprehensive-tobacco-control-programs.html>
- The Guide to Community Preventive Services. (2024). About the community preventive services task force. <https://www.thecommunityguide.org/pages/about-community-preventive-services-task-force.html>
- The Milken Institute. (2023). The costs of chronic disease in the United States. https://milkeninstitute.org/sites/default/files/reports-pdf/ChronicDiseases-HighRes-FINAL_2.pdf
- Murriel AL, Kahin S, Pejavara A, O'Toole T. (2020). The High Obesity Program: overview of the Centers for Disease Control and Prevention and Cooperative Extension Services efforts to address obesity. *Preventing Chronic Disease*, 17:190235. doi:10.5888/pcd17.190235
- O'Toole TP, Blanck HM, Flores-Ayala R, Rose K, Galuska DA, Gunn J, O'Connor A, Petersen R, Hacker K. (2022). Five priority public health actions to reduce chronic disease through improved nutrition and physical activity. *Health Promotion Practice*, 23(1_suppl):5S–11S. doi:10.1177/15248399221120507 [PubMed: 36374608]
- U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2020). Dietary guidelines for Americans, 2020–2025. <https://www.dietaryguidelines.gov/>
- U.S. Department of Health and Human Services. (2024). Access to foods that support healthy dietary patterns. <https://odphp.health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-foods-support-healthy-dietary-patterns#cit3>

- U.S. Department of Health and Human Services. (2018). Physical activity guidelines for Americans, 2nd edition. <https://health.gov/our-work/nutrition-physical-activity/physical-activity-guidelines/current-guidelines>
- Vaughan M, Jernigan J, Pitt Barnes S, Shea P, Davis R, Rutledge S. (2017). Evaluating cross-cutting approaches to chronic disease prevention and management: developing a comprehensive evaluation. *Preventing Chronic Disease*, 14:E131. doi:10.5888/pcd14.160499 [PubMed: 29215974]
- Ward ZJ, Bleich SN, Long MW, Gortmaker SL (2021). Association of body mass index with health care expenditures in the United States by age and sex. *PLoS ONE*, 16(3): e0247307. doi:10.1371/journal.pone.0247307
- White House National Strategy on Hunger, Nutrition, and Health. (2022). Biden-Harris administration national strategy on hunger, nutrition, and health. <https://www.whitehouse.gov/wp-content/uploads/2022/09/White-House-National-Strategy-on-Hunger-Nutrition-and-Health-FINAL.pdf>

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1:
Strategies and Cumulative Potential Population Reach Performance Measure Counts by Cooperative Agreement (2018–2023)

Strategy and Population Reach Performance Measure	SPAN (N = 16)	REACH (N = 40)	HOP (N = 15)	Total (N = 71)
Breastfeeding: Number of people potentially impacted by new or improved sites and/or programs that are supportive of breastfeeding in a community.	1,740,106 (N = 14/16)	1,278,601 (N = 37/40)	N/A	3,018,707(N = 51/56)
Community Clinical Linkages: Number of patients referred to locally available health and preventive programs in the community.	N/A	41,502 (N = 36/40)	N/A	41,502(N = 36/40)
Early Care and Education (ECE): Number of children potentially impacted by system-level supports in state ECE Spectrum of Opportunity areas.	3,844,073 (N = 11/16)	N/A	N/A	3,844,073(N = 11/16)
Food Systems: Number of people potentially impacted by increased geographic or financial access to healthier foods.	N/A	2,311,228 (N = 36/40)	340,608 (N = 14/15)	2,651,836(N = 50/55)
Food Service Guidelines/Healthy Nutrition Standards: Number of people potentially impacted by implemented food service guidelines or healthy nutrition standards in community sites.	8,041,100 (N = 15/16)	1,058,458 (N = 32/40)	116,621 (N = 10/15)	9,216,179(N = 57/71)
Physical Activity: Number of people potentially impacted by new or improved physical activity policies and plans.	19,289,572 (N = 16/16)	8,612,187 (N = 29/40)	338,967 (N = 15/15)	28,240,726(N = 60/71)
Tobacco: Number of employees potentially impacted by implemented or strengthened local smoke-free or tobacco-free policies.	N/A	1,021,884 (N = 3/40)	N/A	1,021,884(N = 3/40)