May 2014

Study of Costs Associated with Community Activities under the Communities Putting Prevention to Work (CPPW) Initiative

Final Analysis Report

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Disclaimer

This report was prepared by RTI International, under contract to the Assistant Secretary for Planning and Evaluation (ASPE). The findings and conclusions in this report are those of the authors and do not necessarily represent the views of ASPE, the Centers for Disease Control and Prevention, or the Department of Health and Human Services.

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EXECUTIVE SUMMARY

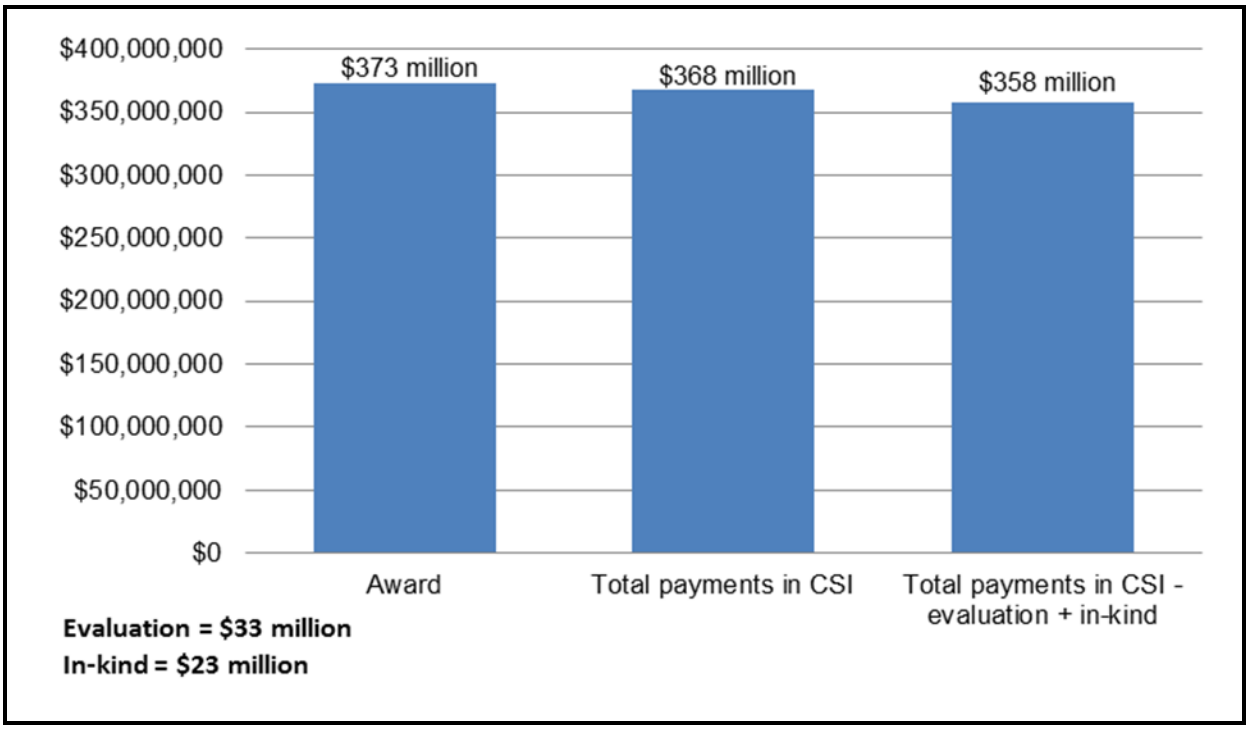
The Centers for Disease Control and Prevention's (CDC's) Communities Putting Prevention to Work (CPPW) program funded 44 communities and states under the American Recovery and Reinvestment Act (ARRA) to implement community-based tobacco and obesity prevention interventions. As part of the larger evaluation of the program, we conducted a study of the implementation costs across all funded communities. In this report, we summarize findings from our analysis of the costs of CPPW across all of the ARRA-funded programs. This study was, to our knowledge, the first of its kind in terms of measuring the costs of prevention activities. To ensure that complete and uniform cost data were collected across communities, we used a Web-based cost data collection instrument designed specifically for the CPPW cost study. We also provided technical support to program staff who completed the instrument. Communities reported their costs on a quarterly basis and further provided allocations of costs to their objectives, where each community established its own objectives. For evaluation purposes, we assigned community cost estimates for each objective to interventions, because interventions were consistently defined across communities, whereas objectives were not.

We conducted analyses to examine the allocation of communities' CPPW costs across resource categories (i.e., labor, partners, administration, and in-kind), across MAPPS categories (i.e., **M**edia, **A**ccess, **P**oint of Decision/Promotion, **P**rice, and **S**ocial Support and Services), and across the full set of CPPW interventions (n=81). In addition to describing intervention costs within communities, we also compared total and intervention-level CPPW costs across communities. Finally, we compared community costs (aggregate and per capita) by size of the CPPW target population and by the community type designation under the CPPW program (tribal, state, urban, or large city).

Figure ES-1 gives an overview of the total award amounts (see first bar) across all of the ARRA-funded CPPW communities. In the second bar, we show total payments reported in the Web-based cost instrument. In the third bar, we show total CPPW costs, which are equal to total payments minus the amount for evaluation ($33 million), plus the value of in-kind costs ($23 million). This bar reflects total CPPW programmatic costs because it removes evaluation costs and adds in-kind costs reported by each community. This estimate of total CPPW programmatic costs is used for all other cost estimates in this report.

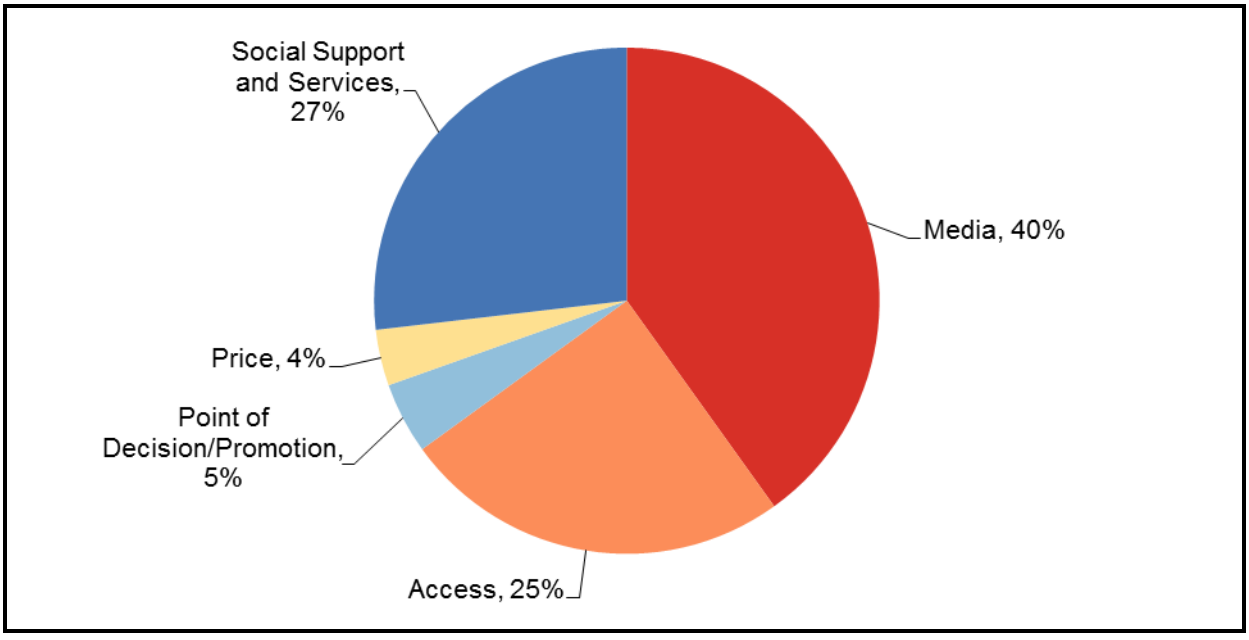
At the MAPPS category level, we find a few key differences across tobacco and obesity communities. On average, tobacco communities spent more on Media than any other category (40%) (Figure ES-2). The remainder was mostly spent on Social Support and Services (27%) and Access (25%). In contrast, obesity communities spent an average of 53% on Access and only 24% on Media (Figure ES-3).

Figure ES-1. Total CPPW Award Amounts, Total Payments, and Total Costs Including In-Kind Costs



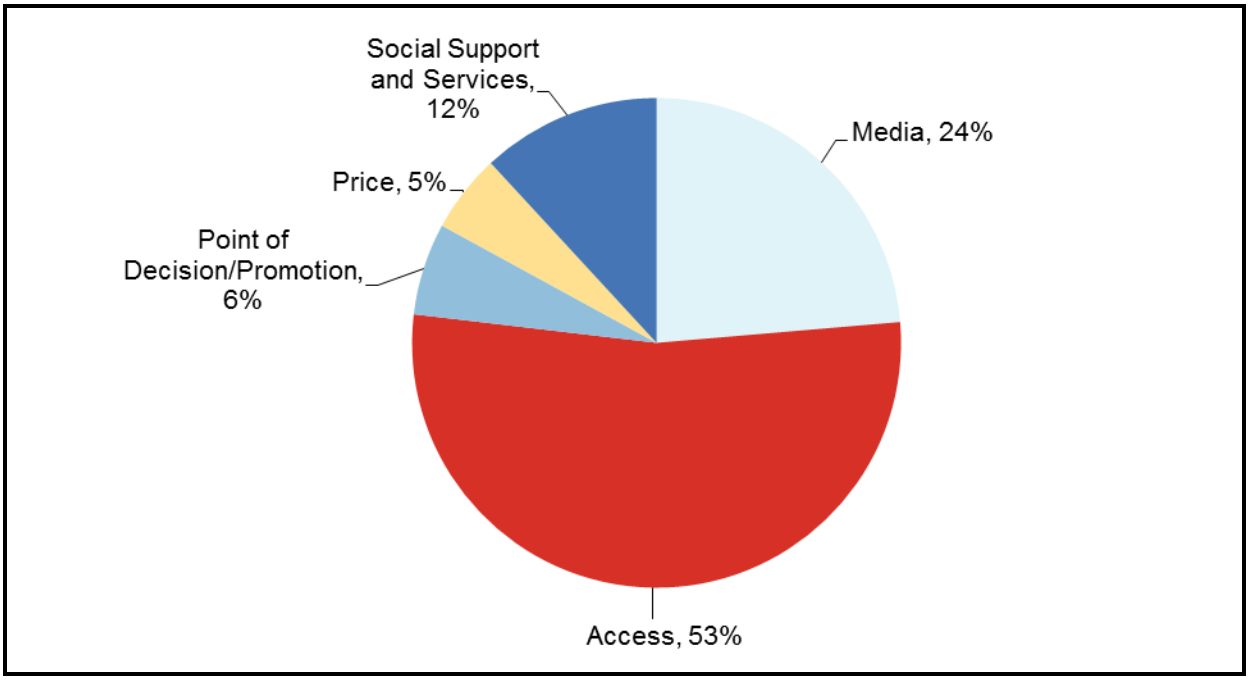
Note: CPPW = Communities Putting Prevention to Work; CSI = Cost Study Instrument

Figure ES-2. Total Costs by MAPPS Category (Tobacco Communities)



Note: MAPPS = Media, Access, Point of decision/promotion, Price, and Social support and services

Figure ES-3. Total Costs by MAPPS Category (Obesity Communities)



Note: MAPPS = Media, Access, Point of decision/promotion, Price, and Social support and services

Underlying these MAPPS category averages, we found significant variation across the communities. In tobacco communities such as DeKalb County and the city of Chicago, more than 60% of the total dollars were spent on Media, and very little was spent on Point of Decision/Promotion, Price, and Social Support and Services. Similarly, in obesity communities, such as Seattle and Healthy Lakes, about 80% of the total dollars were spent on Access (detailed, community-level tables are presented in Section 5).

The cost estimates described in this report provide information about the allocation of CPPW program costs across the 79 interventions implemented by CPPW tobacco and obesity prevention communities. We also illustrate how total and per capita CPPW costs varied by community size and other factors. These estimates provide a useful foundation for conducting future analyses that compare costs to program outcomes. Such information could provide guidance for ongoing and future community prevention activities.

Looking across all communities at the intervention level, we found that 63% of CPPW costs were allocated to obesity interventions and the remaining 37% to tobacco interventions. For obesity, two broad media interventions (one for physical activity and one for nutrition) were the most prevalent type of intervention. Physical activity and nutrition media interventions were each implemented in 28 of the 30 obesity communities. Meanwhile, for tobacco, there were several distinct Media interventions. Although one Media intervention, "Tobacco—Hard-hitting counter-advertising," was very common (18 of 21 communities), the Access intervention "Tobacco—Usage bans" was the most prevalent tobacco intervention overall

(implemented in 20 of 21 tobacco communities). Nevertheless, "Tobacco—Hard-hitting counter-advertising" interventions had the highest costs, totaling $40.5 million across all communities. The Access intervention "Tobacco—Usage bans" was second with $26 million. Combining all tobacco Media interventions, costs totaled $54 million. Similarly, obesity Media interventions totaled $53 million, for an overall Media intervention cost of $107 million (30% of total CPPW costs).

This study represents a first step toward understanding and defining costs for prevention activities. We learned many lessons from the CPPW cost study that should be applied in future studies that examine the cost of prevention activities. First, technical assistance helps to ensure that when multiple communities are involved, they all report costs in a standardized way. Second, typical methods for economic and cost studies may be constraining for prevention activities; new methods should be explored in the future. Third, a flexible approach to cost data collection and analysis is needed to account for real-time changes in community prevention approaches, given the contextual factors that may influence decisions at a community level, such as leadership changes. Finally, more studies are needed to examine the cost-effectiveness and costs relative to benefits for the types of community prevention activities that were implemented under the CPPW program.

1. INTRODUCTION

In this report, we summarize findings from our analysis of the costs of the Communities Putting Prevention to Work (CPPW) program across all of the American Recovery and Reinvestment Act (ARRA)-funded programs. In August 2013, we delivered a final quarterly report to ASPE that summarized CPPW costs at the community level over the full grant period. In that report, we focused on community costs devoted to the completion of each CPPW community objective. However, because communities wrote their own objective statements, the number and focus of objectives were different for each community. As a result, CPPW objective costs cannot easily be compared across communities. For this final analysis report, we linked communities' objective costs to a common set of interventions (i.e., the same set of possible interventions across all communities) that the Centers for Disease Control and Prevention (CDC) developed for the larger CPPW evaluation. We describe and compare total and intervention-level CPPW costs across the ARRA-funded CPPW communities and discuss how total CPPW costs and costs for specific interventions were related to community and CPPW program features, such as community population and the number of CPPW interventions implemented. We also describe lessons learned from this effort to collect and analyze the costs of a wide variety of community-based interventions to prevent obesity and/or tobacco use. This cost study was the first of its kind, which measured the costs of prevention activities in 44 communities at differing levels.

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2. BACKGROUND

2.1 The Communities Putting Prevention to Work (CPPW) Program

The Centers for Disease Control and Prevention's (CDC's) CPPW program funded 44 communities and states to change policy, systems, and environments to foster reductions in risk behaviors and risk factors, to prevent or delay chronic disease, and to promote wellness (CDC, 2010). Specifically, under the American Recovery and Reinvestment Act (ARRA), CPPW awarded $230 million to communities to increase levels of physical activity, improve nutrition, and decrease obesity rates and $142.8 million to communities to decrease smoking prevalence, teen smoking initiation, and exposure to secondhand smoke. Communities were originally funded for a 2-year period ending in March 2012; however, most received extensions to continue their CPPW work for various amounts of time up to 1 year without additional funds. CDC planned a multicomponent, mixed-methods evaluation of CPPW to determine the context of successful and unsuccessful implementation and the factors that affect differential outcomes among subpopulations. Evaluation of CPPW is crucial to ensure that the policy, systems, and environmental changes enacted in the funded communities are reproducible in other communities across the nation and sustainable.

CPPW-funded communities have implemented strategies in the following five categories, collectively referred to as Media, Access, Point of decision/promotion, Price, and Social support and services (MAPPS):

- Use media to promote healthy foods/drinks and increase activity; restrict advertising and employ counter-advertising for tobacco and unhealthy foods/drinks.
- Increase access to healthy food/drink choices and safe locations to be active and improve the built environment; reduce the availability of tobacco and unhealthy foods/drinks.
- Use point of decision labeling/signage/placement to discourage consumption of tobacco, increase consumption of healthy foods/drinks, and prompt physical activity.
- Use price to discourage consumption of tobacco and to benefit consumption of healthy foods/drinks.
- Use social support and services to promote tobacco cessation, breastfeeding, and increased activity.

For cost analysis, it is important to understand the many different levels around which communities organized their CPPW efforts and around which CDC Evaluation Teams organized their evaluation efforts. Each ARRA-funded community received a CPPW grant to address one or both of two **initiatives**: tobacco prevention and obesity prevention. Fourteen communities received grants for the tobacco initiative, 23 communities received grants for the obesity prevention initiative (i.e., physical activity/nutrition), and 7 communities received grants for both tobacco and obesity prevention initiatives. For each

initiative, communities wrote **Community Action Plans** (CAPs) that described specific **objectives** that they worked on to achieve as part of the CPPW program. Each community defined and described its own CPPW objectives in its **CAP**. Because objectives were written by communities and not selected from a list created by CDC, there was limited overlap in objectives across communities that worked on the same initiative. Because of this limited overlap, analyses that compare costs or other outcomes across communities will not be able to make use of the objective-level data. In addition, throughout CPPW, many communities changed their list of objectives (adding new objectives and/or eliminating old objectives). As a consequence, CPPW evaluation efforts need to account for the change in community focus over the grant period.

Community efforts were not simply organized around each community's CPPW objectives. For each **objective**, communities were asked to identify the specific **MAPPS categories** and **strategies** that they used to achieve the objective. The five MAPPS categories are described in the bulleted list above. They are the broad approaches that communities used to achieve the objectives described in their CAPs. **Strategies** are more specific approaches that fall under each MAPPS category that communities used to achieve their objectives. Communities were initially provided with a list of 45 possible evidence-based strategies from which to choose for achieving their CPPW objectives. For example, a community with ARRA CPPW funding for the tobacco prevention initiative could choose from a list of four strategies under the Media category, five strategies under the Access category, and so on. However, some communities implemented evidence-based strategies that were not on the original list of 45. When we compiled the list of strategies from communities' CAPs for Quarter 1 through the end of the grants, we found that communities implemented 58 unique initiative-specific strategies.

MAPPS strategies are fairly broad and do not always adequately capture how the specific approaches used by one community differ from those implemented by another community. For example, although multiple tobacco prevention communities may have offered Quitline and other cessation services, some of these communities also offered nicotine replacement therapy (NRT), some provided counseling and referrals, but others provided Quitline only and offered no additional services. In other words, although most of the tobacco prevention communities conducted work falling under the MAPPS strategy "Social Support and Services—Quitline and other cessation services," these communities actually provided different and varying levels of these services. To help clarify what specific interventions each community implemented, CDC developed a list of **interventions** implemented in each CPPW community. CDC's list of interventions captures the specific activities that communities implemented to achieve their objectives and has been standardized across communities. For the most part, these interventions describe the specific approaches that communities used to implement each MAPPS strategy. CDC's list of interventions from the CPPW Performance Monitoring (PM) Handbook dated March 27, 2012, contained 26

nutrition, 28 physical activity, and 28 tobacco prevention interventions, as shown in Table 2-1. Of these, 26 nutrition, 27 physical activity, and 26 tobacco interventions had costs assigned to them as part of our analysis. CDC assigned interventions to each community's objectives, key milestones (i.e., efforts used to achieve objectives), and MAPPS strategies using this list.

Table 2-1. List of Nutrition, Physical Activity, and Tobacco Interventions by MAPPS Category

CPPW Community Intervention Approach	MAPPS Category and Strategy
Media to support improved nutrition to prevent obesity	Media—Nutrition
Supporting local food production (e.g., community gardens, school gardens, home gardens)	Access—Nutrition: Farm to institution, including schools, worksites, hospitals, other community
Systems or infrastructure changes to facilitate direct farm to institution food supplies	Access—Nutrition: Farm to institution, including schools, worksites, hospitals, other community
Competitive foods	Access—Nutrition: Healthy food/drink availability
Enhance access to healthy food retailer or healthier retail food, not transportation	Access—Nutrition: Healthy food/drink availability
Enhanced access to tap water through environmental supports	Access—Nutrition: Healthy food/drink availability
Enhance usability of SNAP/WIC/EBT at healthier food retailers	Access—Nutrition: Healthy food/drink availability
Healthy meetings	Access—Nutrition: Healthy food/drink availability
Healthy vending	Access—Nutrition: Healthy food/drink availability
Incentives to offer healthier foods/choices	Access—Nutrition: Healthy food/drink availability
Improve nutritional content through policies, guidelines, or standards	Access—Nutrition: Healthy food/drink availability
Improve or provide low cost transportation to healthier food venues	Access—Nutrition: Healthy food/drink availability
Wellness policy—nutrition	Access—Nutrition: Healthy food/drink availability
Zoning/land use policies/joint use agreements (e.g., for farmers markets/community gardens)	Access—Nutrition: Healthy food/drink availability
Restrict availability of less healthy foods and beverages	Access—Nutrition: Limit unhealthy food/drink availability
Procurement	Access—Nutrition: Procurement policies and practices

(continued)

Table 2-1. List of Nutrition, Physical Activity, and Tobacco Interventions by MAPPS Category (continued)

CPPW Community Intervention Approach	MAPPS Category and Strategy
Reduce sodium through purchasing actions, labeling initiatives, restaurant standards	Access—Nutrition: Reduce sodium through purchasing actions, labeling initiatives, restaurant standards
Menu labeling	Point of Decision/Promotion—Nutrition: Menu labeling
Product placement and attractiveness	Point of Decision/Promotion—Nutrition: Product placement and attractiveness
Signage for healthy vs. less healthy items	Point of Decision/Promotion—Nutrition: Signage for healthy vs. less healthy items
Change prices of healthier foods and beverages relative to the cost of less healthy foods	Price—Nutrition: Change relative prices of healthy vs. unhealthy items
Incentives or price discounts for purchase of healthy foods when using SNAP/WIC/EBT	Price—Nutrition: Change relative prices of healthy vs. unhealthy items
Support breastfeeding through policy change and maternity care practices	Social Support and Services—Nutrition: Support breastfeeding through policy change and maternity care practices
Health education/event	Social Support and Services—Nutrition: Other
Information systems	Social Support and Services—Nutrition: Other
Policy enforcement	Social Support and Services—Nutrition: Other
Media to promote improved physical activity to prevent obesity	Media—Physical Activity
Improve access to public transportation	Access—Physical Activity: City planning, zoning, and transportation
Infrastructure changes to support biking or walking	Access—Physical Activity: City planning, zoning, and transportation
Infrastructure—Urban design and land use policies (e.g., complete streets)	Access—Physical Activity: City planning, zoning, and transportation
Neighborhood/district/jurisdiction plans that support biking or walking	Access—Physical Activity: City planning, zoning, and transportation
Physical education (PE)/physical activity requirement in afterschool/childcare	Access—Physical Activity: Require daily physical activity in afterschool/childcare settings
Physical education (PE)/physical activity requirement in schools	Access—Physical Activity: Require daily quality PE in schools
Restrict screen time in afterschool/day care	Access—Physical Activity: Restrict screen time in afterschool/day care
Create places for physical activity	Access—Physical Activity: Safe, attractive, accessible places for activity
Enhance personal safety in areas where persons are or could be physically active	Access—Physical Activity: Safe, attractive, accessible places for activity

(continued)

Table 2-1. List of Nutrition, Physical Activity, and Tobacco Interventions by MAPPS Category (continued)

CPPW Community Intervention Approach	MAPPS Category and Strategy
Environmental supports to promote walking and cycling and other physical activity	Access—Physical Activity: Safe, attractive, accessible places for activity
Joint use agreement	Access—Physical Activity: Safe, attractive, accessible places for activity
Policy enforcement	Access—Physical Activity: Other
Screen-time (other)[a]	Access—Physical Activity: Other
Wellness policy—physical activity (not require daily, quality PE)	Access—Physical Activity: Other
Point of decision prompts	Point of Decision/Promotion—Physical Activity: Signage for neighborhood destinations in walkable/mixed-use areas (library, park, shops, etc.)
Signage for neighborhood destinations in walkable/ mixed-use areas	Point of Decision/Promotion—Physical Activity: Signage for neighborhood destinations in walkable/mixed-use areas (library, park, shops, etc.)
Signage for public transportation, bike lanes/ boulevard	Point of Decision/Promotion—Physical Activity: Signage for public transportation, bike lanes/ boulevards
Incentives for active transit	Price—Physical Activity: Incentives for active transit
Reduced price for park/facility use	Price—Physical Activity: Reduced price for park/facility use
Subsidized memberships to recreational facilities	Price—Physical Activity: Subsidized memberships to recreational facilities
Product distribution or distribution of supports to promote physical activity	Price—Physical Activity: Other
Safe Routes to Schools	Social Support and Services—Physical Activity: Safe Routes to Schools
Activity groups	Social Support and Services—Physical Activity: Workplace, faith, park, neighborhood activity groups
Worksite physical activity programs	Social Support and Services—Physical Activity: Workplace, faith, park, neighborhood activity groups
Health impact assessment or similar	Social Support and Services—Physical Activity: Other
Health education/event	Social Support and Services—Physical Activity: Other
Information systems	Social Support and Services—Physical Activity--Other

(continued)

Table 2-1. List of Nutrition, Physical Activity, and Tobacco Interventions by MAPPS Category (continued)

CPPW Community Intervention Approach	MAPPS Category and Strategy
Ban branded promotional items and prizes	Media—Tobacco: Ban branded promotional items and prizes
Ban brand-name sponsorships	Media—Tobacco: Ban brand-name sponsorships
Hard-hitting counter-advertising	Media—Tobacco: Hard-hitting counter-advertising
Media and advertising restrictions consistent with federal law	Media—Tobacco: Media and advertising restrictions consistent with federal law
Media to support policy, systems, and environmental change	Media—Tobacco: Other
Media to change behavior	Media—Tobacco: Other
Usage bans	Access—Tobacco: Usage bans, including tobacco-free school campuses
Zoning restrictions (e.g., outlet density)	Access—Tobacco: Zoning restrictions
Restrict sales	Access—Tobacco: Restrict sales
Policy enforcement	Access—Tobacco: Other
Ban self-service displays and vending	Access—Tobacco: Ban self-service displays and vending
Point of decision —other	Point of Decision/Promotion—Tobacco: Product placement
Restrict point-of-decision advertising as allowable under federal law	Point of Decision/Promotion—Tobacco: Restrict point-of-decision advertising as allowable under federal law
Pricing strategy—fees	Price—Tobacco: Use evidence-based pricing strategies to discourage tobacco use
Reduce out-of-pocket costs for cessation therapies (e.g., vouchers, changes in insurance, but not NRT distribution)[a]	Price—Tobacco: Use evidence-based pricing strategies to discourage tobacco use
Pricing strategy—other	Price—Tobacco: Use evidence-based pricing strategies to discourage tobacco use
Pricing strategy—restrict free samples	Price—Tobacco: Ban free samples and price discounts
Cessation services—counseling or brief intervention	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation services—Quitline with NRT	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation services—Quitline without NRT	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation services—Quitline, unspecified	Social Support and Services—Tobacco: Quitline and other cessation services

(continued)

Table 2-1. List of Nutrition, Physical Activity, and Tobacco Interventions by MAPPS Category (continued)

CPPW Community Intervention Approach	MAPPS Category and Strategy
Cessation services—referral	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation services—screening	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation services—other	Social Support and Services—Tobacco: Quitline and other cessation services
NRT distribution	Social Support and Services—Tobacco: Quitline and other cessation services
Cessation event	Social Support and Services—Tobacco: Quitline and other cessation services
Health education/event	Social Support and Services—Tobacco: Other
Information systems[a]	Social Support and Services—Tobacco: Other

[a] No costs were recorded for these interventions in the Cost Study Instrument.

Source: The Performance Monitoring Handbook dated March 27, 2012.

Notes: Number and percentage of communities implementing each intervention are from the Performance Monitoring Handbook and include both American Recovery and Reinvestment Act- and Affordable Care Act-funded communities.

EBT = electronic benefits transfer; MAPPS = Media, Access, Point of decision/promotion, Price, and Social support and services; NRT = nicotine replacement therapy; SNAP = Supplemental Nutrition Assistance Program; WIC = Women, Infants, and Children program

Many of the proposed interventions correspond directly to MAPPS strategies. Yet the specific community-level interventions often differ in terms of setting and/or the intensity of the intervention effort (e.g., community implementation of "signage for health versus less healthy items" interventions captures both signs that provide full nutrition information for all food products and signs that provide limited information for select food products).

2.2 Cost Study Challenges

Some of the key challenges associated with CPPW cost data collection and analysis are common to the evaluation of almost any health promotion or disease prevention program (e.g., Honeycutt et al., 2006; Subramanian et al., 2009; Zarkin, Dunlap, & Homsi, 2004). Challenges to collecting cost data and analyzing CPPW program costs include the following:

- Collecting complete and uniform information on overall program costs, including
  - grantee labor inputs and wages and fringe benefits;
  - grantees' partner costs, including the cost for subgrantees, contractors, and vendors;
  - value of grantees' building space and facilities; and
  - the opportunity costs of donated labor and in-kind services.

- Allocating overall costs of the CPPW program to specific objectives and MAPPS strategies within each objective.
- Deciding how to group community efforts for comparative analyses, given that each community established its own objectives, potentially resulting in limited overlap in objectives across communities.
- Determining the appropriate output measure for comparing costs across communities of different sizes and demographic characteristics (e.g., costs per capita for the community as a whole? costs per individual receiving services? costs per organization changing its policies? costs per some measure of quality improvement? cost per person in the audience receiving media messages?).
- Estimating economies of scale and scope.
- Addressing changes in community CPPW objectives over the grant period.

To ensure that complete and uniform cost data are collected across communities, we used a Web-based cost data collection instrument designed specifically for the CPPW cost study. We also provided ongoing technical support to program staff who completed the data instrument on a quarterly basis. The first cost data collection effort gathered data on costs for Year 1 of ARRA funding for the 44 ARRA-funded CPPW communities. The next five data collections were submitted quarterly. To capture complete cost data, a final data collection was added to accommodate no-cost extensions received by CPPW communities. The final data collection was conducted on a staggered basis (because communities received extensions of varying lengths) and captured costs incurred from April 1, 2012, through the end of the grant period. All final submissions were completed by the end of July 2013.

2.3 CPPW Cost Study Research Questions

The following key research questions guided our CPPW cost analysis:

1. What are the direct costs (budgetary and volunteer/in-kind) both in aggregate and per unit incurred by objective and by intervention/MAPPS strategy within each objective at the community level through the CPPW program?
2. How do different combinations of objectives or interventions/strategies affect costs? Are there economies of scale and scope with multiple similar objectives or interventions/strategies?
3. How do the direct costs incurred by communities pursuing the same interventions/ MAPPS strategies differ, and what factors might drive these differences (i.e., differences in specific interventions implemented, variations in geographic size of community/state, population of community/state, population characteristics, staff resources, media, collaboration activities, and materials)?
4. How do efforts to target hard-to-reach populations affect costs?
5. What additional factors related to community approaches to achieve objectives are related to direct costs incurred?

In our analyses, we attempted to answer all five questions, but we focused primarily on describing costs (addressing Question 1) and exploring how costs differed across communities by community and CPPW characteristics.

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3. COST DATA COLLECTION

3.1 Cost Study Instrument Development

The Communities Putting Prevention to Work (CPPW) cost data collection effort used an activity-based costing (ABC) approach (Cho et al., 2011; Finkelstein et al., 2006; Honeycutt et al., 2013; Subramanian et al., 2009). The ABC approach enables cost estimation for each main program activity and requires data collection on all resources used for the program by activity. With this approach, program activities must be defined in a way that is meaningful to respondents (i.e., work performed for the program is organized around these activities) and represents categories that are common and can be standardized across multiple respondents. A challenge in designing the CPPW cost data collection approach was identifying program activities that satisfied both of these requirements, particularly given the variability in community strategies.

Although CPPW communities developed plans describing their specific program objectives, each community developed its own CPPW objectives rather than selecting from a uniform list, limiting the overlap in objectives across communities. Moreover, the number of objectives ranged from 6 to 30 across communities. Organizing cost data collection around objectives was meaningful for communities; however, it created an analytical challenge because objectives were not common across communities, and thus the objective costs could not be compared easily.

We addressed the issue by requesting additional information about objective costs and whether they were used to support specified strategies. These strategies were across the five Media, Access, Point of decision/promotion, Price, and Social support and services (MAPPS) strategies, a prescribed list from which communities were instructed to work. Thus, the strategies provided a common element for cost data collection across communities. Communities were required to report costs at the objective level but also to specify which strategies under each objective the costs supported.

We developed a Web-based cost data collection instrument, the Cost Study Instrument (CSI), to collect cost data from CPPW communities quarterly. We pretested a draft version of the CSI with 7 CPPW respondents. During the pretest, we evaluated the clarity of the instrument, usability of the system, and accuracy of the data entered. The Office of Management and Budget reviewed and approved the CSI in January 2011.

When designing the data collection system, we aimed to maximize the clarity and comprehensibility of the instrument while minimizing the possibility of data entry errors and the burden on respondents of completing the instrument. We developed the instrument with an intuitive and menu-driven design. The CSI included automated checks to avoid minor user errors and ensure that data entries were within the anticipated ranges. These features

allowed respondents to correct data entry mistakes prior to submission. Examples of these automated checks included confirming that the percentage allocations of costs across objectives added up to 100% and that at least one strategy under an objective was checked if an objective was assigned a non-zero percentage allocation. To minimize respondent burden, the CSI was designed to use data that respondents had already provided to other parts of the CPPW evaluation so that they would not need to enter those same data into the CSI again. For example, data on each community's objectives and strategies were preloaded into the CSI from a database managed by the Centers for Disease Control and Prevention (CDC). Partner names from communities' budgets were also preloaded in the CSI. Additionally, a CSI feature requested by pretesters allowed respondents to preload entries, such as job titles, consultant names, and percentage cost allocations across objectives, from a previous data submission. Finally, the CSI was dynamic; the most recent versions of Community Action Plans (CAPs) and objectives were loaded into the CSI every quarter to capture changes in community efforts and related cost allocations.

3.2 Cost Data Collection Procedures

The CSI collected quarterly expenditures for the following resource components: (1) labor/ personnel; (2) consultants; (3) materials, travel, and services; (4) overhead activities (i.e., indirect); and (5) partner organization efforts (i.e., contracted services). In addition to actual expenditures (costs paid for out of the CPPW grant), the CSI captured voluntary/in-kind contributions from groups and individuals partnering with the communities. Respondents were required to report in-kind labor and non-labor contributions that were used to support CPPW program activities but for which the program did not pay out of the CPPW grant. It was important to track the value of these "free" resources in addition to actual program outlays to ensure that the estimates captured the full economic cost of CPPW program efforts.

In the CSI, respondents were required to allocate costs for each resource component (except indirect costs) across a community's CPPW objectives (as defined in CAPs). Respondents entered percentage allocations of each payment across the objectives. For example, if $10,000 was paid to a partner who spent 90% of their time and efforts on Objective 1 and 10% on Objective 2, the respondent entered $10,000 in the quarterly payment cell and 90% and 10% as allocations for Objectives 1 and 2, respectively. Within each objective, respondents also used check marks to indicate which strategies linked to the objective were supported by the objective-level costs. If an objective was tied to only one strategy, then 100% of the objective-level cost was assigned to that strategy. When more than one strategy was used to achieve an objective, equal allocations of costs were assumed across the strategies. For example, if an objective was tied to three strategies but only two of them were checked for a specific cost entry (e.g., quarterly payment to a partner), then the objective-level cost was split equally across the two checked strategies.

In addition to objectives, respondents also had an option to allocate costs to the "evaluation" and "administrative" categories. Evaluation activities included staff meetings devoted to evaluation of the CPPW initiative; preparing CDC or community-level evaluation reports; collecting, reporting, transmitting, and analyzing evaluation data; supervisory, training, or technical assistance (TA) activities related to evaluation data management and reporting; Behavioral Risk Factor Surveillance System and Youth Risk Behavior Survey population data collection efforts supported by CPPW; and all nonprogrammatic activities performed by evaluation staff members. Administrative activities may have included staff recruitment, hiring, training, supervision, and management; placing orders for office supplies; staff meetings not devoted to specific CPPW objectives or evaluation of the CPPW initiative; travel to and attendance at grantee management meetings; and ARRA reporting.

Communities submitted their costs quarterly. They were asked to enter cost data for each quarter within about 6 weeks after the end of the quarter.

3.3 Technical Assistance

The RTI project team provided TA on cost data collection and reporting to all of the CPPW-funded communities throughout the project. Our TA efforts included in-person site visits conducted before data collection began; training on the use of the CSI; assistance with preparation for the first quarterly data collection and subsequent quarterly data collections; and ongoing TA via Webinars, phone calls, and e-mail. We also developed a user's guide that provided variable definitions and comprehensive instructions for data entry and submission.

Each community was assigned a dedicated TA contact (one of the TA team members) to establish consistency and build relationships with the communities. To facilitate the TA process, each community was asked to identify a cost study coordinator who served as the main contact person for the cost study. This coordinator was recommended to be a staff member who was familiar with the day-to-day operations and management of the program, but he/she could obtain additional support as needed from someone with fiscal knowledge of the program. In some communities, program or grant managers served as cost study coordinators, whereas in others fiscal administrators filled this role. To ensure provision of consistent and accurate TA, each member of the RTI TA team was trained in the use of the CSI and conduct of the site visits. We also conducted regular weekly internal meetings for the TA team.

3.4 Summary of Costs Collected in the Cost Study Instrument

Using the Web-based CSI, we collected data from each community about the costs to support each of their tobacco prevention and obesity prevention grant efforts. The following quarterly cost data were computed directly from the CSI cost data entries:

- Quarterly Grantee Labor/Personnel Expenditures (for each grantee staff position, including fringe benefits)
  - by CPPW objective and MAPPS strategy and evaluation and administrative activities, using grantee's percentage allocation estimates
  - allocating costs to each strategy checked under an objective in equal proportions (e.g., 50% of the costs for that objective to Strategy A and 50% to Strategy B)
- Quarterly Grantee Consultant Expenditures for each consultant
  - by CPPW objective and MAPPS strategy (for up to three combinations of objectives and strategies or for equal allocations across all objectives) and evaluation and administrative activities, using grantee's percentage allocation estimates
- Quarterly Grantee Costs Associated with Materials, Travel, and Services for each purchased group of items
  - by CPPW objective and MAPPS strategy (for up to three combinations of objectives and strategies or for equal allocations across all objectives) and evaluation and administrative activities, using grantee's percentage allocation estimates
- Quarterly Grantee Administrative Costs (e.g., telephone, rent) in aggregate
- Quarterly Grantee Labor and Non-Labor In-Kind Resources for each source of donations
  - by CPPW objective and MAPPS strategy (for up to three combinations of objectives and strategies or for equal allocations across all objectives) and evaluation and administrative activities, using grantee's percentage allocation estimates
- Quarterly Partner Expenditures for each paid partner
  - by CPPW objective and MAPPS strategy and evaluation and administrative activities, using partner's percentage allocation estimates
  - allocating costs to each strategy checked under an objective in equal proportions
- Quarterly Partner Labor and Non-Labor In-Kind Resources (for each source of donations) for each paid and unpaid partner
  - by CPPW objective and MAPPS strategy and evaluation and administrative activities, using partner's percentage allocation estimates
  - allocating in-kind contributions to each strategy checked under an objective in equal proportions

Originally, the cost data collection was organized to collect cost data at the objective/ strategy level. CDC created the list of CPPW interventions shown in Table 2-1 after the cost data collection efforts were underway, so we were unable to collect costs directly at the intervention level from respondents. However, cost at the intervention level is a more meaningful measure for evaluation purposes because most other CPPW evaluation efforts are organized around interventions rather than strategies. Thus, we developed an approach

that allows us to crosswalk costs from the objective/strategy level to the objective/ intervention level using information from the PM Handbook (also shown in Table 2-1). This approach was described in presentations to ASPE and CDC in November 2012, after which we received approval to estimate intervention-level costs using the approach. The study methodology is described in detail in Appendix A.

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4. ANALYSIS METHODS

4.1 Cost Data Aggregation

4.1.1 Calculating Objective/Strategy-Level Costs

In this section, we provide details on our analysis approaches to generate cost estimates using the Cost Study Instrument (CSI) cost data outputs. Details are provided on our approach to generate the most disaggregated cost estimates—those by Media, Access, Point of decision/promotion, Price, and Social support and services (MAPPS) strategy within each objective.

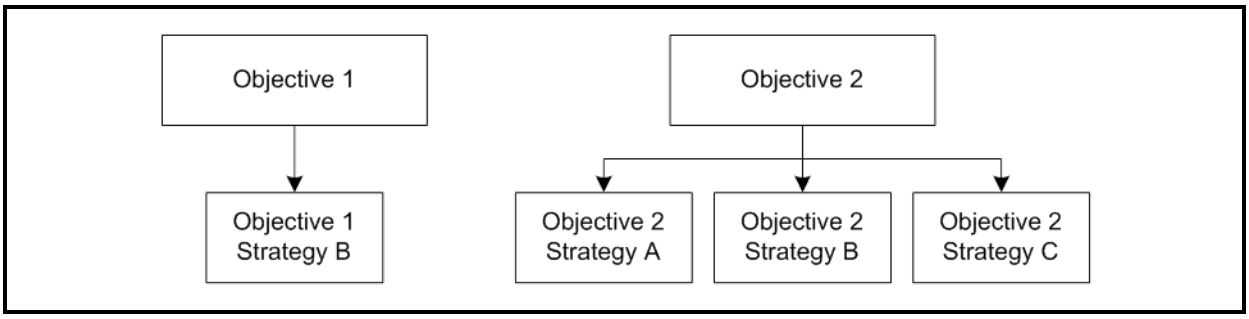
Expenditures for strategy k within objective j for item i were allocated using the following formula:

$$\text{Item cost}_{ijk} = \text{Quarterly item cost}_i * \textit{Allocation}_{ij} * (1/n_{ijk}),$$

where the first term (Quarterly item cost) represents quarterly spending for that item, staff position, or partner organization. The second term, $\textit{Allocation}_{ij}$, represents the percentage of the item's use that went toward objective j or administrative or evaluation activities. For example, if a staff member reported spending 50% of her time to get food vending machine policies passed in community schools, then her allocation for the vending machine policy objective is 50%. The final term, $1/n_{ijk,}$ represents the fraction of the item's use spent on strategy k to support the achievement of objective j. The denominator of the last term, $n_{ijk,}$ represents the total number of strategies worked on under objective j. It is worth noting that on several screens (Grantee Consultant; Grantee Materials, Travel, and Services; and Grantee In-Kind Resources), the second and third terms are combined because specific objective/strategy combinations can be selected from drop-down menus.

On the Grantee Labor/Personnel and Partner costing screens, the CSI did not collect percentage allocations across all strategies used to support a given objective. As a result, assumptions were needed when more than one strategy was used to achieve an objective. For most objectives, only one strategy was used, but when more than one strategy was used, we assumed equal allocations of costs across the strategies. In Figure 4-1, we show the example of a community that had two objectives—one for which it implemented Strategy B only and the other for which it implemented three strategies (Strategies A, B, and C). For any staff member or partner who worked on Objective 1, all Objective 1 costs were assigned to Strategy B. For any staff member or partner who worked on Objective 2, our cost analysis allocated time or costs in equal proportions to each strategy selected.

Figure 4-1. Example of Objectives and Strategies Used to Achieve Each Objective for a Community



On several screens, cost study respondents had the option of choosing "all objectives" as their allocation for a certain item. If "all objectives" was selected, then the quarterly cost for the item was allotted in equal proportions across all objective/strategy combinations that ever received a specific allocation by the community. For example, if the community had five objectives with two strategies each (all of which had received allocations over the course of the cost collection), then 10% of costs were assigned to each objective/strategy combination. Meanwhile, if "all strategies" was selected in the CSI, then the quarterly cost for the item was allocated equally across all strategies used to achieve the selected objective.

For both grantees and their partners, labor in-kind contributions were valued by multiplying the state-specific median hourly earnings estimate by the number of hours of in-kind labor resources donated to the CPPW program. Non-labor in-kind resources used the estimated value respondents assigned to them in the CSI. But whereas grantees were able to specify the objectives and strategies that each in-kind item was used to achieve, partners were only able to provide an hour sum for labor in-kind contributions and a dollar amount for non-labor in-kind resources. Therefore, in our analysis, we assume that partner in-kind resources are divvied to objectives and strategies in the same proportions as the partner's overall quarterly allocations.

Although administrative costs were reported separately from objectives and strategies in the CSI, our analysis assumes that administrative efforts were necessary for the achievement of a community's objectives. As such, administrative costs were reallocated proportionally to a community's expenditures on each objective/strategy combination. For example, if a community allocated 25% of its direct costs to strategy k within objective j over the course of the project, 25% of the community's administrative costs went toward that objective/ strategy combination.

Evaluation costs were also reported separately from objectives and strategies in the CSI. But unlike administrative costs, our analysis does not assume that these efforts were

necessary for the achievement of a community's objectives. For this reason, evaluation costs were not reallocated to objective/strategy combinations.

After costs were allocated to the objective/strategy level, they could then be aggregated to any level we needed for our analysis. Most of the analyses in this report were performed either at the community or the intervention level, the calculation of which is described in Section 4.2.

4.1.2 Non-Cost Data

In addition to objective/strategy-level costs, we compiled data from a variety of other sources for potential use in analyses of CPPW costs. Table 4-1 summarizes information about these variables and their sources. In analyses described in this report, we use only a subset of these data, but we have also conducted exploratory analyses to assess how community intervention costs differed between high and low ranges for several other variables. For example, we explored how CPPW intervention costs differ between "high" and "low" density communities. Other data have been compiled and merged with cost data for potential use in future analyses.

Table 4-1. Non-Cost Data and Sources

Variable	Source
Community population[a]	2010 Census
Community population density	2010 Area Resource File
Community poverty rate	2011 Census
Doctors per 1,000 in the community[b]	2011 Area Resource File
Land area of the community	2012 Area Resource File
Number of hospitals in the community	2008 Area Resource File
Percentage of community with a college degree[c]	2009 Area Resource File

[a] Used community population cited or described in the CPPW community profiles if Census data were different from those population estimates.

[b] Only non-federal medical doctors are counted in this measure.

[c] This variable is more precisely defined as the percentage of people at least 25 years old who attended at least 4 years of college.

4.2 Estimating Costs at the Intervention Level

The CPPW cost data collection was originally organized to collect cost data at the objective/ MAPPS strategy level. Because the list of CPPW interventions was developed after the cost data collection efforts were underway, we were unable to revise the Web-based CSI to collect costs directly at the intervention level. However, other CPPW evaluation efforts are organized around interventions, which made it important to have cost estimates at the intervention level. To allocate each community's costs to interventions, we used the

objective/strategy-level allocations described earlier. Recall that we estimated objective/strategy cost allocations by starting with the percentage cost allocation to each objective and dividing it equally across all MAPPS strategies supported by that objective. For example, if a community allocated 50% of its CPPW costs to Objective 1, which supported MAPPS Strategies 1 and 2, then the community's cost allocation to Objective 1, Strategy 1 was 25%, and the allocation to Objective 1, Strategy 2 was also 25%. Differences between the two databases used for CPPW management and evaluation made it challenging to map our objective/strategy costs directly to interventions. Specifically, the MAPPS strategies assigned to objectives in the Chronic Disease Management Information System (CDMIS) did not always match the MAPPS strategies assigned to objectives in the Project Management (PM) database. Moreover, we assigned costs to the objective/strategies in the CDMIS, but interventions were assigned to objective/strategies in the PM database. To assign costs at the objective/intervention level, we developed the approach outlined below.

Step 1: We identified objective/strategy combinations from the cost database that matched objective/strategy combinations in the PM database. We then assigned costs to the interventions that were linked to these objective/strategy combinations in the PM database.

- Fifty three percent of the objectives/strategies from the cost database were matched directly.

Step 2: We used information from the CDC PM Handbook (Tables 6, 7, and 8) (O'Neil et al., 2012) to assign interventions to objective/strategies in the cost database that did not have an objective/strategy match in the PM database. For example, if we collected costs for Objective 1, Strategy 1, but the PM database did not include this objective/strategy, then we assigned Objective 1, Strategy 1 costs to the intervention from the PM Handbook that linked to Strategy 1.

- Twenty seven percent of the objectives/strategies from the cost database had a one-to-one match to an intervention according to the PM Handbook (i.e., a MAPPS strategy was linked to only one intervention).
- Twenty percent of the objectives/strategies from the cost database matched to multiple interventions according to the PM Handbook (i.e., a single MAPPS strategy was linked to multiple interventions). These cases required manual coding to determine which intervention provided the best match for the objective/strategy. These 20% of objectives/strategies with multiple possible intervention matches accounted for 12% of total costs.

Step 3: We manually assigned costs to interventions for the remaining objectives/strategies by first reading the objective text and MAPPS strategy and then selecting the most appropriate intervention from the list of possible interventions. For example, for the MAPPS strategy Quitline and Other Cessation services, we determined which of the possible interventions (e.g., Cessation services—Quitline without NRT) provided the best fit with the objective description. This manual coding was conducted by two coders with input from the

management team and resulted in a linkage of all objective/strategy cost estimates to objective/intervention costs.

4.3 Descriptive CPPW Cost Analyses

We conducted cost analyses to examine the allocation of communities' CPPW costs across resource categories (i.e., labor, partners, administration, and in-kind), across MAPPS categories (i.e., **M**edia, **A**ccess, **P**oint of Decision/Promotion, **P**rice, and **S**ocial Support and Services), and across the full set of CPPW interventions. In these analyses, we used cumulative cost estimates for the full grant period. We included costs for labor; materials, travel, and services; partners; and program administration. We also included the value of all in-kind contributions of time and materials that were reported by communities and their partners. Unless explicitly stated, cost estimates exclude evaluation costs, because those costs were not used to support CPPW program efforts. In the quarterly reports we submitted to ASPE after the end of each CPPW cost reporting period, we showed costs at the objective, the objective/strategy, and the strategy levels. In this report, however, we describe only the intervention costs, where we assigned objective/strategy costs to interventions using the approach outlined in Section 4.2.

4.3.1 Costs by Community

We first estimated total CPPW spending for each community and compared spending to the community's CPPW award. In this initial analysis, our measure of CPPW spending included communities' spending on evaluation activities, but did not include the value of their in-kind donations. We then estimated total CPPW program costs for each community as the sum of spending on labor, materials/supplies, travel, partners, and program administration minus the portion of spending that communities allocated to evaluation plus the value of in-kind donations reported by communities and their partners. These estimates of CPPW costs are used in the rest of our analyses.

4.3.2 Cost Analyses Using Community Intervention Costs

Within a community, each intervention may be used to support more than one objective. We therefore estimated community costs for each intervention by summing the objective costs allocated to an intervention across all objectives that used that intervention. For example, if the intervention "Create safe places for physical activity" was used to support three of a community's objectives, then we summed the objective/intervention costs for "Create safe places" across all three objectives to estimate the community's total cost for that intervention. We used this approach to estimate community costs for each intervention used by a community.

We summed intervention costs across communities to estimate the total amount of CPPW costs going to each intervention. We also summed intervention costs by MAPPS category to examine the portion of total CPPW costs going to each of the five MAPPS categories. We

assessed whether these category shares differed by initiative (tobacco, nutrition, and physical activity). For example, we addressed the question of whether tobacco communities as a whole differed from obesity communities in their allocation of costs to Media interventions versus Access interventions. We also examined the variation across communities in their allocations of costs across MAPPS categories. For this analysis, we looked separately at tobacco and obesity communities and calculated allocations of CPPW costs at the community level across the five MAPPS categories.

In our analysis of intervention costs across all communities, we estimated intervention costs per capita using data on each community's CPPW target population. We did this in two ways. First, we divided aggregate intervention costs by the aggregated population of all communities that implemented a given intervention. This calculation resulted in a weighted measure of per capita intervention costs, because the costs in larger communities received a larger weight than the costs in smaller communities. We also calculated each community's cost per capita and examined the variation in community cost per capita across all communities that implemented an intervention. We also calculated the average of these community per capita intervention costs to generate a measure that gives equal weight to the population size of each community. In all of these analyses, a community was only considered to have worked on an intervention if it had non-zero costs for that intervention.

4.4 Comparative CPPW Cost Data Analyses

In addition to describing intervention costs within and across communities, we also compared total and intervention-level CPPW costs across communities. We first plotted the cost data to examine trends in total CPPW costs by community type and by CPPW target population. For these analyses, we used definitions developed as part of the CPPW program to define each community as tribal, state, urban, or a large city. The communities denoted as "state" communities received an award at the state level to support work in two separate communities within the state. In our community cost by population plots (Figures 5-7 through 5-12), the data denoted by "state" represent each individual community supported by an award to the state (i.e., two communities per state award).

We also plotted per capita CPPW costs for each community against community population to examine whether, as one might expect, costs per capita decline as the community size increases. Such a trend may be suggestive of relatively high fixed costs to implement CPPW interventions and low costs for each additional person in the community reached by CPPW or, in other words, indicative of potential economies of scale. However, such a finding may be indicative of the way CPPW funds were awarded, and hence the total amount available for communities to spend on CPPW. For smaller communities, the award amounts were roughly in proportion to community population, but for many of the largest CPPW communities, awards were approximately $15 to $16 million, regardless of community population. We plotted community total and per capita costs by population for all

communities and by initiative. We also fit a trend curve to the cost and population data for all communities except the smallest (Pueblo of Jemez) and largest (New York City and Los Angeles County).

We then plotted costs by community population for specific interventions. For these analyses, we considered only the interventions that the largest numbers of tobacco (obesity) communities had implemented. We examined trends in total community intervention costs, including all communities that had implemented the intervention.

Finally, we used linear regression modeling to explore the relationship between intervention costs and community and CPPW program features. We estimated models with the following form:

$$Cost_{ij} = B_0 + B_1 * X_i + B_2 X_i + e_{ij},$$

where $Cost_{ij}$ represents the total cost of intervention i in community j, X_i is a vector of CPPW features, some specifically related to intervention i, and X_j is a vector of features for community j. X_i includes the following:

- Indicators for initiative (tobacco or physical activity; nutrition is reference category)
- Indicator for New York City or Los Angeles County (with populations of nearly 9 million and 10 million, respectively, these communities are outliers)
- Indicators for CPPW community type (tribal, urban, or state; large cities is reference category)
- Total number of CPPW interventions in the community
- Total number of community interventions in the same MAPPS category as intervention i
- Number of partners
- Percentage of intervention i costs for labor
- Percentage of intervention i costs for in-kind resources
- Percentage of intervention i costs for administration

Xj includes

- community j population, and
- percentage below the federal poverty line in community j.

We used results from these regression analyses to assess the possibility of economies of scale or scope in the provision of CPPW programs and to consider whether hard-to-reach communities, defined as those with a high percentage of people in poverty, experience higher costs to implement CPPW interventions compared with lower poverty communities.

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5. ANALYSIS RESULTS

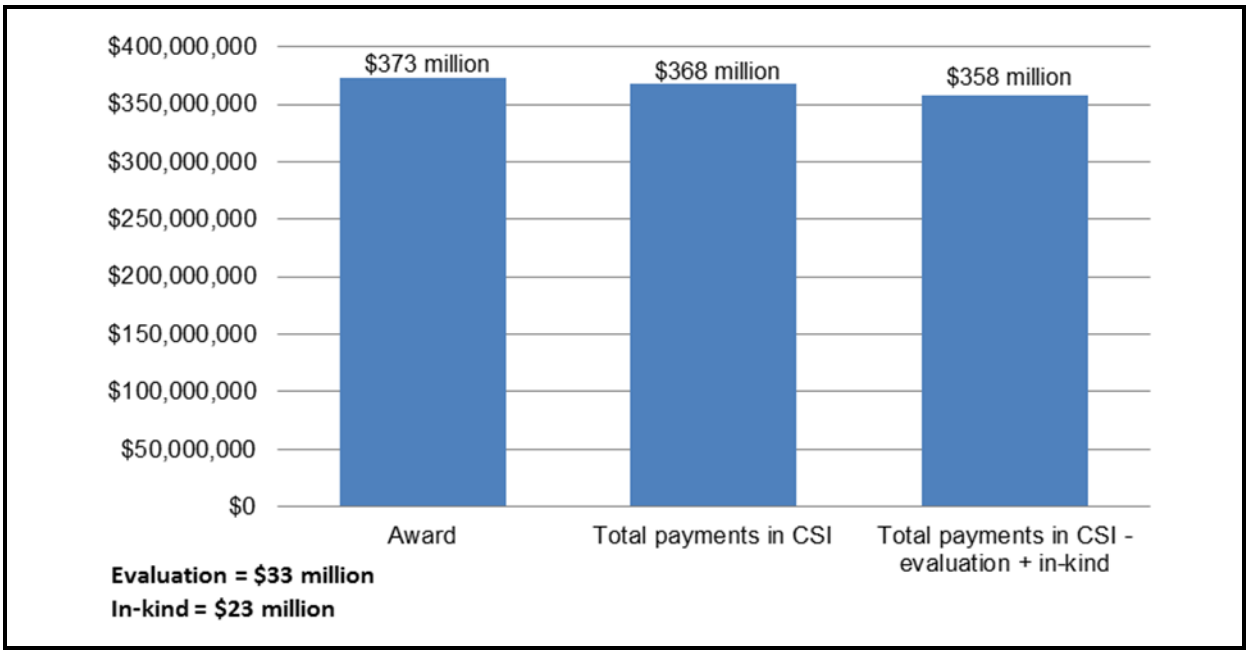
5.1 Descriptive Analyses

In this section, we summarize Communities Putting Prevention to Work (CPPW) costs for the full grant period. First, we show each community's total award alongside its total costs, including in-kind and evaluation costs. Tobacco, nutrition, and physical activity costs are described by resource category and Media, Access, Point of decision/promotion, price, and support and services (MAPPS) category. Intervention-level costs are summarized across all communities within each initiative. Intervention costs are described in aggregate and per capita.

5.1.1 CPPW Cumulative Expenditures versus Total Awards

Figure 5-1 gives an overview of the total award amounts across all 51 of the CPPW American Recovery and Reinvestment Act (ARRA) communities included in the cost study. We also show total payments reported in the Cost Study Instrument (CSI) in the second bar. About $5 million in CPPW awards (1.4%) was not paid out for CPPW programmatic or evaluation costs. In the third bar, we show total CPPW programmatic costs, which is total payments minus the amount for evaluation ($33 million) plus the value of in-kind costs ($23 million). We use this estimate of total CPPW costs for all other cost estimates shown in this report.

Figure 5-1. Total CPPW Award Amounts, Total Payments, and Total Costs Including In-Kind Costs



Note: CPPW = Communities Putting Prevention to Work; CSI = Cost Study Instrument

Table 5-1 gives a more detailed look at awards and programmatic costs. A couple of tobacco communities had no in-kind costs or very low in-kind costs (Los Angeles County and Philadelphia). However, these same communities reported significant in-kind costs for their obesity grants. Excluding these, Pima County reported notably low in-kind costs ($6,699) for their community and award size. At the other end, Tri-County Health Department reported the largest in-kind costs at nearly $7 million, over $5 million more than the next largest in-kind costs of $1.6 million in Chicago.

Every community reported non-zero costs for evaluation, ranging from $59,000 in the small community of Ringgold County to about $3.1 million in a much larger community, Seattle (obesity grant only). Seattle (obesity) also spent the largest share of any CPPW award on evaluation (20%). In contrast, similarly sized communities such as Pima County and Southern Nevada spent just 4% of their award on evaluation.

5.1.2 CPPW Costs by Resource Category and by Community

Table 5-2 presents cumulative CPPW costs through the end of the grants in dollars and as a percentage of total costs by resource category. Note that subtotal costs include actual expenditures only, and total costs include both actual expenditures and the value of in-kind contributions donated to the CPPW efforts. We monetized the value of the in-kind labor hours by multiplying state-specific median hourly wages (from the Bureau of Labor Statistics) by the number of in-kind hours donated by each community (for reference, median hourly wages for each community are shown in Appendix Table B-1). For the full grant period, all but one community reported at least one type of in-kind contribution (labor or non-labor).

Costs incurred by CPPW partners comprised the highest resource category (an average of 52% of total costs through the end of the grant), although four of the communities did not make a monetary payment to their partners. The next highest resource category was labor/ personnel (an average of 20% of total costs), followed by materials, travel, and services (12%); administrative (7%); and consultant expenditures (3%). The distribution of total costs across resource categories among obesity and tobacco communities is shown in Figures 5-2 and 5-3, respectively. As a portion of total costs, obesity communities had a higher percentage of in-kind contributions than tobacco communities (7% vs. 4%). Tobacco communities, however, had a higher share of costs for materials, travel, and services (15% vs. 10%), which probably reflects the purchase of quitline services and nicotine replacement therapy by most tobacco communities.

Table 5-1. CPPW Awards and Total Costs, by Community

Community	Award	Total Payments in CSI	In-Kind Costs	Evaluation Costs	Total Payments in CSI – Evaluation Costs + In-Kind Costs
Austin Travis County Health and Human Services	$7,473,150	$7,461,796	$12,518	$259,975	$7,214,338
Boston Public Health Commission (Obesity)	$6,411,167	$6,411,167	$769,839	$916,978	$6,264,028
Boston Public Health Commission (Tobacco)	$6,119,677	$6,110,278	$200,366	$344,771	$5,965,873
Cherokee Nation Health Services Group (Obesity)	$1,009,206	$1,004,316	$575,168	$60,000	$1,519,484
Cherokee Nation Health Services Group (Tobacco)	$1,099,650	$1,086,976	$1,424,800	$89,040	$2,422,736
Chicago Center for Health Systems Dev. Inc. dba/PHIMC	$15,898,821	$15,426,054	$1,591,902	$1,131,921	$15,886,035
County of Santa Clara Public Health Department	$6,975,483	$6,398,044	$302,405	$822,087	$5,878,362
County of Los Angeles, Department of Public Health (Obesity)	$15,920,342	$15,520,210	$131,786	$2,466,950	$13,185,046
County of Los Angeles, Department of Public Health (Tobacco)	$16,184,860	$16,160,227	$0	$2,087,196	$14,073,031
County of Pima	$15,800,000	$15,790,753	$6,699	$679,472	$15,117,981
County of San Diego Health and Human Services Agency	$16,105,299	$16,105,299	$257,104	$1,250,860	$15,111,543
County of St. Louis	$7,593,110	$7,295,064	$17,081	$1,189,267	$6,122,878
DeKalb County Board of Public Health	$3,196,347	$3,175,181	$725,344	$504,421	$3,396,104
District of Columbia Department of Health	$4,960,924	$4,967,844	$189,970	$350,640	$4,807,174
Douglas County Health Department	$5,713,346	$5,502,522	$535,966	$357,415	$5,681,074
Fund for Public Health in New York, Inc. (Obesity)	$15,531,115	$15,531,967	$295,526	$1,057,917	$14,769,576
Fund for Public Health in New York, Inc. (Tobacco)	$15,544,629	$15,543,728	$139,742	$732,933	$14,950,537
Great Lakes Inter-Tribal Council, Inc.	$990,559	$990,534	$66,369	$62,426	$994,477
Hamilton County General Health District	$6,744,040	$6,466,827	$84,295	$229,631	$6,321,491
Indiana State Department of Health (Bartholomew County)	$2,508,770	$2,451,980	$762,927	$151,046	$3,063,861
Indiana State Department of Health (Vanderburgh County)	$2,854,188	$2,789,473	$49,429	$282,969	$2,555,932

(continued)

Table 5-1. CPPW Awards and Total Costs, by Community (continued)

Community	Award	Total Payments in CSI	In-Kind Costs	Evaluation Costs	Total Payments in CSI – Evaluation Costs + In-Kind Costs
Iowa Department of Public Health (Linn County)	$2,498,539	$2,429,577	$46,016	$154,067	$2,321,526
Iowa Department of Public Health (Ringgold County)	$783,032	$675,541	$7,114	$58,894	$623,761
Jefferson County Board of Health (Obesity)	$6,285,057	$6,209,024	$444,714	$215,899	$6,437,840
Jefferson County Board of Health (Tobacco)	$6,972,663	$6,914,330	$91,196	$303,914	$6,701,612
Louisville/Jefferson County Metro Government	$7,878,491	$7,687,194	$88,217	$690,138	$7,085,273
Maine Department of Health (Healthy Lakes)	$1,920,403	$1,897,583	$76,525	$141,178	$1,832,930
Maine Department of Health (Portland)	$2,362,887	$2,342,151	$349,560	$172,497	$2,519,215
Metro Public Health Department of Nashville/Davidson County	$7,527,527	$7,568,688	$36,463	$268,551	$7,336,600
Miami-Dade County Health Department	$14,738,754	$14,242,043	$1,076,781	$1,191,832	$14,126,992
Minnesota Department of Health (Minneapolis)	$2,961,243	$2,929,859	$271,066	$339,069	$2,861,856
Minnesota Department of Health (Olmsted County)	$2,961,243	$2,826,257	$69,538	$208,634	$2,687,162
Multnomah County Health Department	$7,499,787	$7,714,317	$675,748	$585,416	$7,804,649
Orange County Health Department	$6,636,408	$6,435,828	$35,951	$212,742	$6,259,038
Philadelphia Department of Public Health (Obesity)	$15,018,277	$14,610,382	$97,802	$1,657,611	$13,050,573
Philadelphia Department of Public Health (Tobacco)	$10,356,927	$9,785,220	$1,426	$1,836,123	$7,950,523
Pueblo of Jemez	$859,102	$839,324	$149,496	$64,572	$924,248
Respiratory Health Association of Metropolitan Chicago	$11,551,828	$11,546,684	$352,853	$850,896	$11,048,641
Rhode Island Department of Health	$3,317,407	$3,317,407	$41,763	$345,915	$3,013,254
San Antonio Metropolitan Health District	$15,612,353	$15,426,584	$267,396	$1,473,095	$14,220,885
Seattle and King County Public Health (Obesity)	$15,514,419	$15,475,485	$1,534,643	$3,091,001	$13,919,127
Seattle and King County Public Health (Tobacco)	$9,970,781	$9,944,247	$702,400	$781,789	$9,864,858

(continued)

Table 5-1. CPPW Awards and Total Costs, by Community (continued)

Community	Award	Total Payments in CSI	In-Kind Costs	Evaluation Costs	Total Payments in CSI – Evaluation Costs + In-Kind Costs
South Carolina Department of Health and Environmental Control (Florence County)	$2,904,215	$2,805,358	$74,043	$440,890	$2,438,511
South Carolina Department of Health and Environmental Control (Horry County)	$3,083,442	$3,036,128	$113,561	$202,148	$2,947,541
Southern Nevada Health District	$14,607,991	$14,656,984	$513,026	$588,060	$14,581,950
State of Hawaii Department of Health, Kauai District Health	$2,222,589	$2,208,214	$265,506	$146,285	$2,327,435
State of Hawaii Department of Health, Maui District Health	$1,212,633	$1,205,831	$332,545	$59,590	$1,478,786
Tri-County Health Department	$10,511,509	$10,339,438	$6,911,031	$677,421	$16,573,048
West Virginia Department of Health and Human Resources (Mid-Ohio Valley Health Department)	$4,500,671	$4,487,274	$276,097	$371,210	$4,392,160
Wisconsin Department of Health and Family Services (LaCrosse County)	$2,978,484	$2,857,748	$45,959	$345,067	$2,558,640
Wisconsin Department of Health and Family Services (Wood County)	$2,978,484	$2,902,930	$52,707	$401,049	$2,554,588
Total	$372,861,829	$367,507,870	$23,140,380	$32,903,470	$357,744,780

Note: CPPW = Communities Putting Prevention to Work; CSI = Cost Study Instrument

Table 5-2. CPPW Costs by Resource Category and by Community

Community Name (Initiative)ı	Labor		MTS		Consultants		Administrative		Partner		Subtotal (Actual Expenditures)		In-Kind		Total (Spending + In-Kind)
	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	
Austin Travis County Health and Human Services (T)	$965,414	13%	$190,821	3%	$0	0%	$362,430	5%	$5,943,131	80%	$7,461,796	100%	$12,518	0%	$7,474,313
Boston Public Health Commission (O)	$1,046,602	15%	$1,451,274	20%	$7,750	0%	$458,261	6%	$3,447,280	48%	$6,411,167	89%	$769,839	11%	$7,181,006
Boston Public Health Commission (T)	$1,036,464	16%	$1,469,494	23%	$161,158	3%	$560,875	9%	$2,882,289	46%	$6,110,278	97%	$200,366	3%	$6,310,645
Cherokee Nation Health Services Group (O)	$360,540	23%	$35,503	2%	$0	0%	$54,009	3%	$554,264	35%	$1,004,316	64%	$575,168	36%	$1,579,484
Cherokee Nation Health Services Group (T)	$382,988	15%	$77,527	3%	$0	0%	$61,015	2%	$565,447	23%	$1,086,976	43%	$1,424,800	57%	$2,511,776
Chicago Center for Health Systems Dev. Inc. dba/PHIMC (O)	$2,923,430	17%	$238,147	1%	$1,897,900	11%	$724,634	4%	$9,641,944	57%	$15,426,054	91%	$1,591,902	9%	$17,017,956
County of Santa Clara Public Health Department (T)	$2,266,817	34%	$1,245,664	19%	$0	0%	$158,528	2%	$2,727,035	41%	$6,398,044	95%	$302,405	5%	$6,700,450
County of Los Angeles, Department of Public Health (O)	$4,605,565	29%	$258,512	2%	$2,523,500	16%	$660,975	4%	$7,471,658	48%	$15,520,210	99%	$131,786	1%	$15,651,996
County of Los Angeles, Department of Public Health (T)	$3,498,195	22%	$2,439,868	15%	$100,361	1%	$397,401	2%	$9,724,402	60%	$16,160,227	100%	$0	0%	$16,160,227
County of Pima (O)	$1,247,053	8%	$2,595,298	16%	$969,200	6%	$145,515	1%	$10,833,687	69%	$15,790,753	100%	$6,699	0%	$15,797,452
County of San Diego Health and Human Services Agency (O)	$3,175,308	19%	$521,691	3%	$0	0%	$743,859	5%	$11,664,441	71%	$16,105,299	98%	$257,104	2%	$16,362,403
County of St. Louis (T)	$1,132,046	15%	$2,593,286	35%	$0	0%	$542,391	7%	$3,027,341	41%	$7,295,064	100%	$17,081	0%	$7,312,145
DeKalb County Board of Public Health (T)	$1,028,959	26%	$337,443	9%	$86,981	2%	$322,170	8%	$1,399,628	36%	$3,175,181	81%	$725,344	19%	$3,900,526
District of Columbia Department of Health (T)	$380,850	7%	$30,549	1%	$0	0%	$179,505	3%	$4,376,939	85%	$4,967,844	96%	$189,970	4%	$5,157,814
Douglas County Health Department (O)	$513,274	9%	$107,019	2%	$0	0%	$31,027	1%	$4,851,202	80%	$5,502,522	91%	$535,966	9%	$6,038,489
Fund for Public Health in New York, Inc. (O)	$5,929,415	37%	$5,815,267	37%	$249,357	2%	$1,434,620	9%	$2,103,307	13%	$15,531,967	98%	$295,526	2%	$15,827,493
Fund for Public Health in New York, Inc. (T)	$2,923,039	19%	$7,639,371	49%	$312,530	2%	$1,442,532	9%	$3,226,256	21%	$15,543,728	99%	$139,742	1%	$15,683,469
Great Lakes Inter-Tribal Council, Inc. (T)	$138,592	13%	$197,959	19%	$0	0%	$60,800	6%	$593,184	56%	$990,534	94%	$66,369	6%	$1,056,903
Hamilton County General Health District (O)	$565,727	9%	$647,194	10%	$559,107	9%	$561,740	9%	$4,133,059	63%	$6,466,827	99%	$84,295	1%	$6,551,122
Indiana State Department of Health (Bartholomew County) (O)	$1,030,412	32%	$509,265	16%	$724,878	23%	$187,424	6%	$0	0%	$2,451,980	76%	$762,927	24%	$3,214,907
Indiana State Department of Health (Vanderburgh County) (O)	$491,986	17%	$217,255	8%	$27,314	1%	$138,643	5%	$1,914,275	67%	$2,789,473	98%	$49,429	2%	$2,838,902
Iowa Department of Public Health (Linn County) (T)	$1,218,636	49%	$877,896	35%	$21,587	1%	$151,648	6%	$159,811	6%	$2,429,577	98%	$46,016	2%	$2,475,593
Iowa Department of Public Health (Ringgold County) (T)	$365,126	53%	$114,188	17%	$0	0%	$82,977	12%	$113,250	17%	$675,541	99%	$7,114	1%	$682,655
Jefferson County Board of Health (O)	$3,281,712	49%	$1,027,644	15%	$890,016	13%	$1,009,652	15%	$0	0%	$6,209,024	93%	$444,714	7%	$6,653,739
Jefferson County Board of Health (T)	$2,962,322	42%	$1,582,802	23%	$349,824	5%	$2,019,382	29%	$0	0%	$6,914,330	99%	$91,196	1%	$7,005,526
Louisville/Jefferson County Metro Government (O)	$492,006	6%	$870,442	11%	$2,176,945	28%	$272,592	4%	$3,875,210	50%	$7,687,194	99%	$88,217	1%	$7,775,411
Maine Department of Health (Healthy Lakes) (O)	$598,672	30%	$94,061	5%	$53,418	3%	$214,916	11%	$936,516	47%	$1,897,583	96%	$76,525	4%	$1,974,108
Maine Department of Health (Portland) (O)	$488,743	18%	$203,935	8%	$13,357	0%	$70,581	3%	$1,565,535	58%	$2,342,151	87%	$349,560	13%	$2,691,711
Metro Public Health Department of Nashville/ Davidson County (O)	$3,793,070	50%	$533,429	7%	$24,823	0%	$263,649	3%	$2,953,718	39%	$7,568,688	100%	$36,463	0%	$7,605,151
Miami-Dade County Health Department (O)	$1,716,375	11%	$890,188	6%	$109,328	1%	$398,774	3%	$11,127,377	73%	$14,242,043	93%	$1,076,781	7%	$15,318,824

(continued)

Table 5-2. CPPW Costs by Resource Category and by Community (Cumulative through March 31, 2013) (continued)

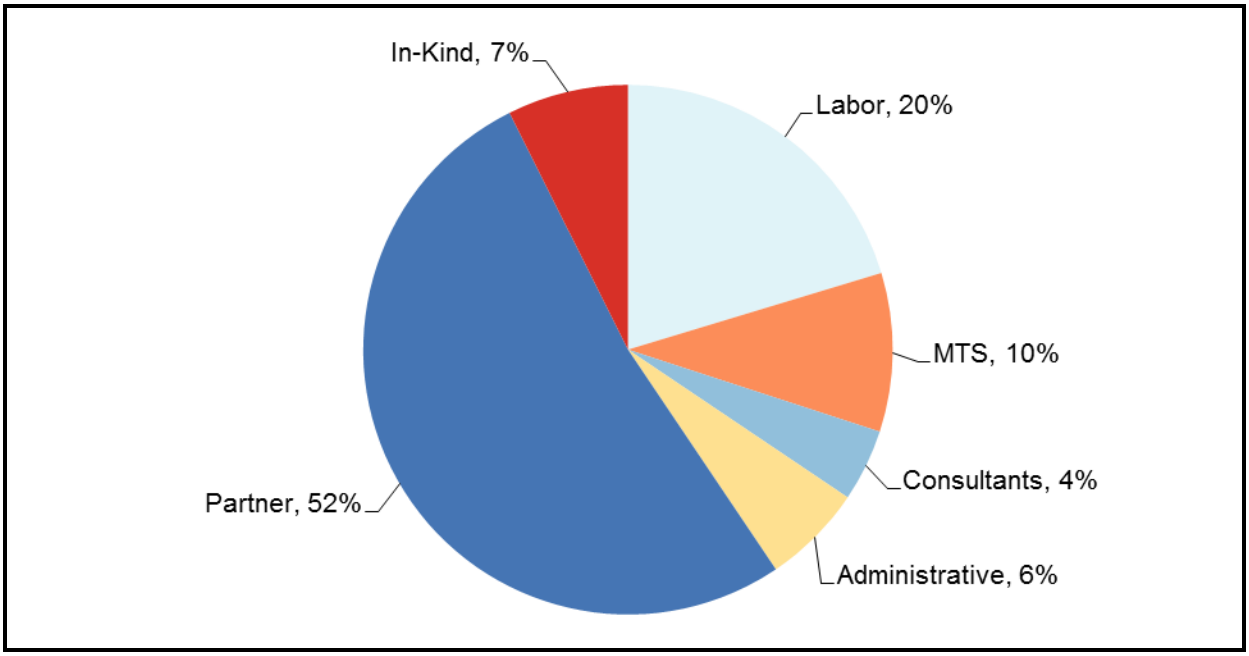
Community Name (Initiative)	Labor		MTS		Consultants		Administrative		Partner		Subtotal (Actual Expenditures)		In-Kind		Total (Spending + In-Kind)
	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total	
Minnesota Department of Health (Minneapolis) (O)	$798,409	25%	$38,489	1%	$0	0%	$257,786	8%	$1,835,174	57%	$2,929,859	92%	$271,066	8%	$3,200,924
Minnesota Department of Health (Olmsted County) (O)	$696,436	24%	$134,835	5%	$0	0%	$189,675	7%	$1,805,311	62%	$2,826,257	98%	$69,538	2%	$2,895,795
Multnomah County Health Department (O)	$2,485,929	30%	$1,270,851	15%	$0	0%	$633,842	8%	$3,323,695	40%	$7,714,317	92%	$675,748	8%	$8,390,065
Orange County Health Department (T)	$1,629,944	25%	$1,581,423	24%	$118,406	2%	$1,020,142	16%	$2,085,913	32%	$6,435,828	99%	$35,951	1%	$6,471,780
Philadelphia Department of Public Health (O)	$2,734,756	19%	$288,374	2%	$10,009	0%	$780,228	5%	$10,797,015	73%	$14,610,382	99%	$97,802	1%	$14,708,184
Philadelphia Department of Public Health (T)	$1,994,955	20%	$305,615	3%	$3,611	0%	$618,886	6%	$6,862,153	70%	$9,785,220	100%	$1,426	0%	$9,786,647
Pueblo of Jemez (O)	$576,960	58%	$76,615	8%	$24,323	2%	$161,426	16%	$0	0%	$839,324	85%	$149,496	15%	$988,820
Respiratory Health Association of Metropolitan Chicago (T)	$1,202,660	10%	$532,403	4%	$121,159	1%	$1,246,424	10%	$8,444,039	71%	$11,546,684	97%	$352,853	3%	$11,899,537
Rhode Island Department of Health (T)	$902,557	27%	$84,997	3%	$313,595	9%	$108,405	3%	$1,907,853	57%	$3,317,407	99%	$41,763	1%	$3,359,170
San Antonio Metropolitan Health District (O)	$1,357,058	9%	$1,787,507	11%	$196,925	1%	$1,993,952	13%	$10,091,142	64%	$15,426,584	98%	$267,396	2%	$15,693,980
Seattle and King County Public Health (O)	$3,351,543	20%	$420,850	2%	$0	0%	$1,605,522	9%	$10,097,569	59%	$15,475,485	91%	$1,534,643	9%	$17,010,127
Seattle and King County Public Health (T)	$3,020,791	28%	$357,753	3%	$0	0%	$1,302,286	12%	$5,263,416	49%	$9,944,247	93%	$702,400	7%	$10,646,647
South Carolina Department of Health and Environmental Control (Florence County) (T)	$401,241	14%	$86,252	3%	$0	0%	$40,078	1%	$2,277,786	79%	$2,805,358	97%	$74,043	3%	$2,879,401
South Carolina Department of Health and Environmental Control (Horry County) (T)	$415,768	13%	$129,818	4%	$48,942	2%	$176,701	6%	$2,264,900	72%	$3,036,128	96%	$113,561	4%	$3,149,689
Southern Nevada Health District (T)	$1,758,992	12%	$194,923	1%	$1,045	0%	$191,785	1%	$12,510,240	82%	$14,656,984	97%	$513,026	3%	$15,170,010
State of Hawaii Department of Health, Kauai District Health (O)	$514,750	21%	$603,825	24%	$41,680	2%	$83,139	3%	$964,820	39%	$2,208,214	89%	$265,506	11%	$2,473,720
State of Hawaii Department of Health, Maui District Health (O)	$402,905	26%	$33,449	2%	$0	0%	$56,300	4%	$713,177	46%	$1,205,831	78%	$332,545	22%	$1,538,376
Tri-County Health Department (O)	$2,180,756	13%	$45,434	0%	$0	0%	$1,411,175	8%	$6,702,073	39%	$10,339,438	60%	$6,911,031	40%	$17,250,469
West Virginia Department of Health and Human Resources (Mid-Ohio Valley Health Department) (O)	$319,614	7%	$2,248,261	47%	$278,069	6%	$221,140	5%	$1,420,190	30%	$4,487,274	94%	$276,097	6%	$4,763,370
Wisconsin Department of Health and Family Services (LaCrosse County) (O)	$1,158,640	40%	$288,117	10%	$19,107	1%	$217,884	8%	$1,174,000	40%	$2,857,748	98%	$45,959	2%	$2,903,708
Wisconsin Department of Health and Family Services (Wood County) (O)	$916,095	31%	$478,389	16%	$0	0%	$67,312	2%	$1,441,134	49%	$2,902,930	98%	$52,707	2%	$2,955,637
Average Across Communities	—	20%	—	12%	—	3%	—	7%	—	52%	—	94%	—	6%	—

Notes: CPPW = Communities Putting Prevention to Work; MTS = Materials, Travel, and Services; O = obesity; T = tobacco; "—" = average costs across communities are not shown

Administrative costs are those from the Administrative Expenditures screen of the Cost Study Instrument (CSI). Costs allocated to the administrative category within other resources categories (e.g., labor, consultant) are reported as part of the total for that resource category.

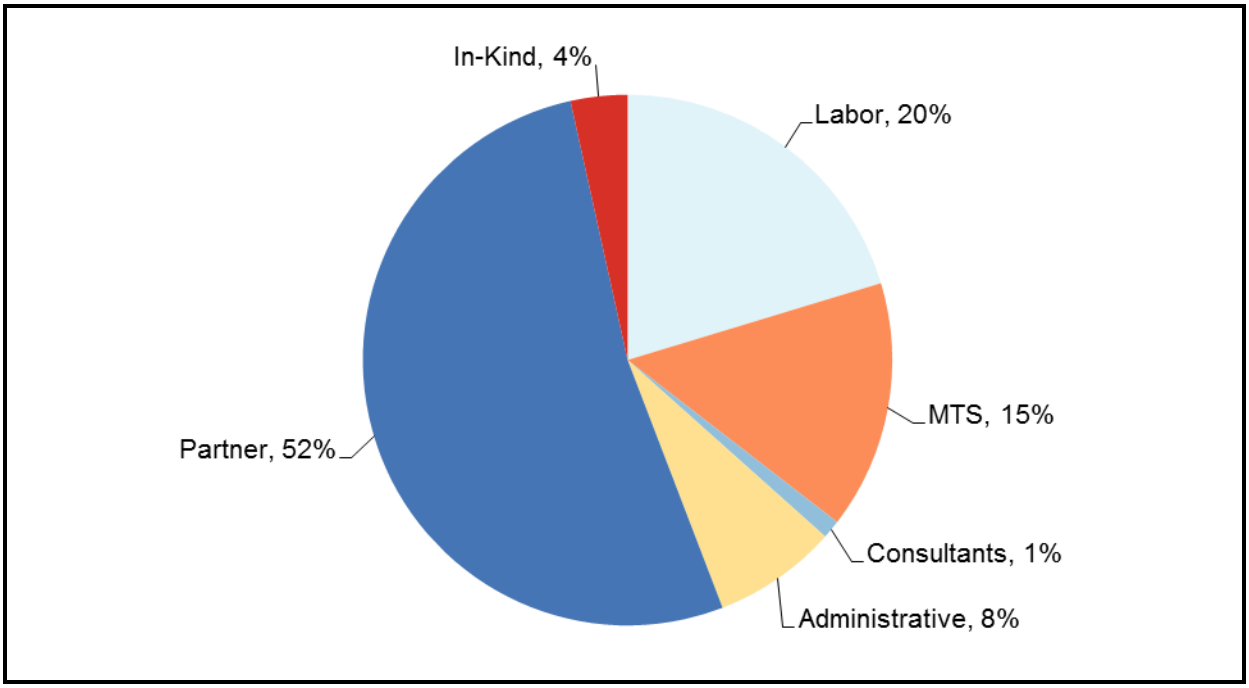
In-kind labor hours are valued using state-specific median hourly wage estimates from the Bureau of Labor Statistics. See Appendix B for a list of wages for each community.

Figure 5-2. Total Costs by Resource Category (Obesity Communities)



Note: MTS = Materials, Travel, and Services

Figure 5-3. Total Costs by Resource Category (Tobacco Communities)



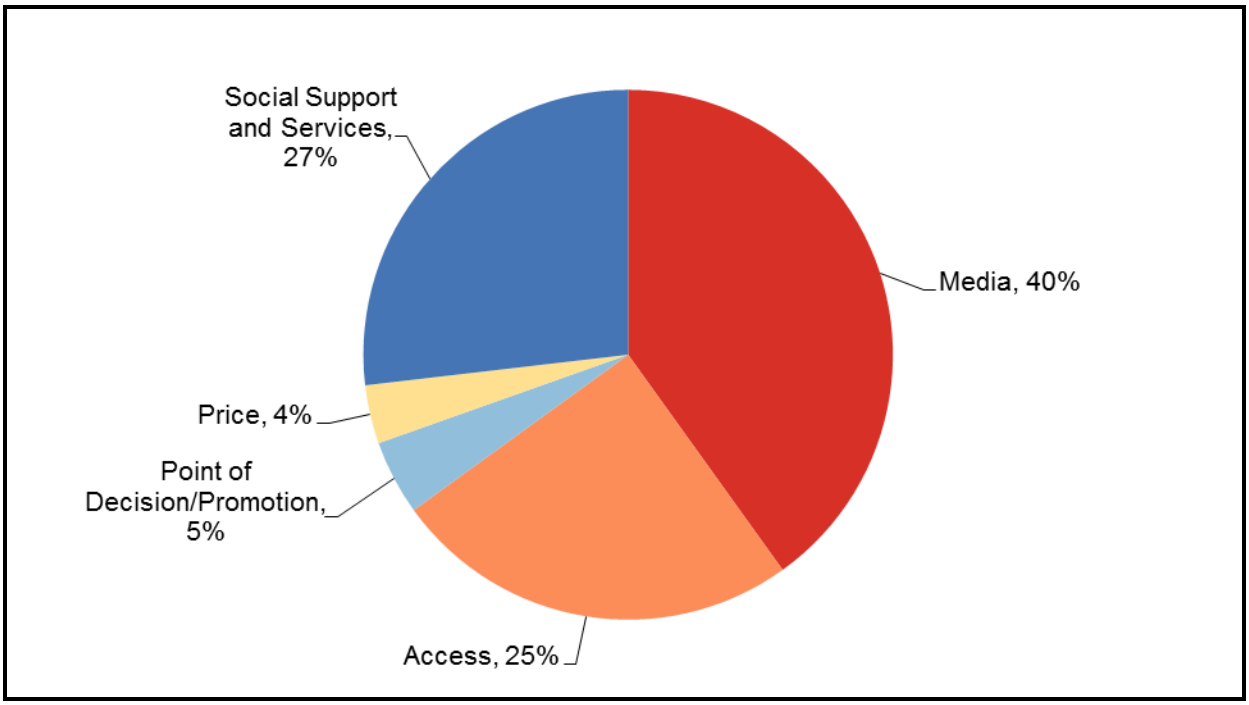
Note: MTS = Materials, Travel, and Services

5.1.3 CPPW Costs by MAPPS Category

Figure 5-4 shows costs for the full grant period by MAPPS category among tobacco communities. Figures 5-5 and 5-6 show costs for the full grant period by MAPPS category among obesity communities working on physical activity and nutrition initiatives, respectively. On average, tobacco communities devoted more of their efforts to Media than any other category (40%), with 27% spent on Social Support and Services and 25% spent on Access. In contrast, obesity communities spent an average of 53% on Access and only 24% on Media. Costs for physical activity initiatives were allocated differently than costs for nutrition initiatives. Approximately 16% of physical activity initiative costs were for Social Support and Services and 3% were for Price. In contrast, 8% of nutrition initiative costs were for Social Support and Services and 7% of costs were for Price.

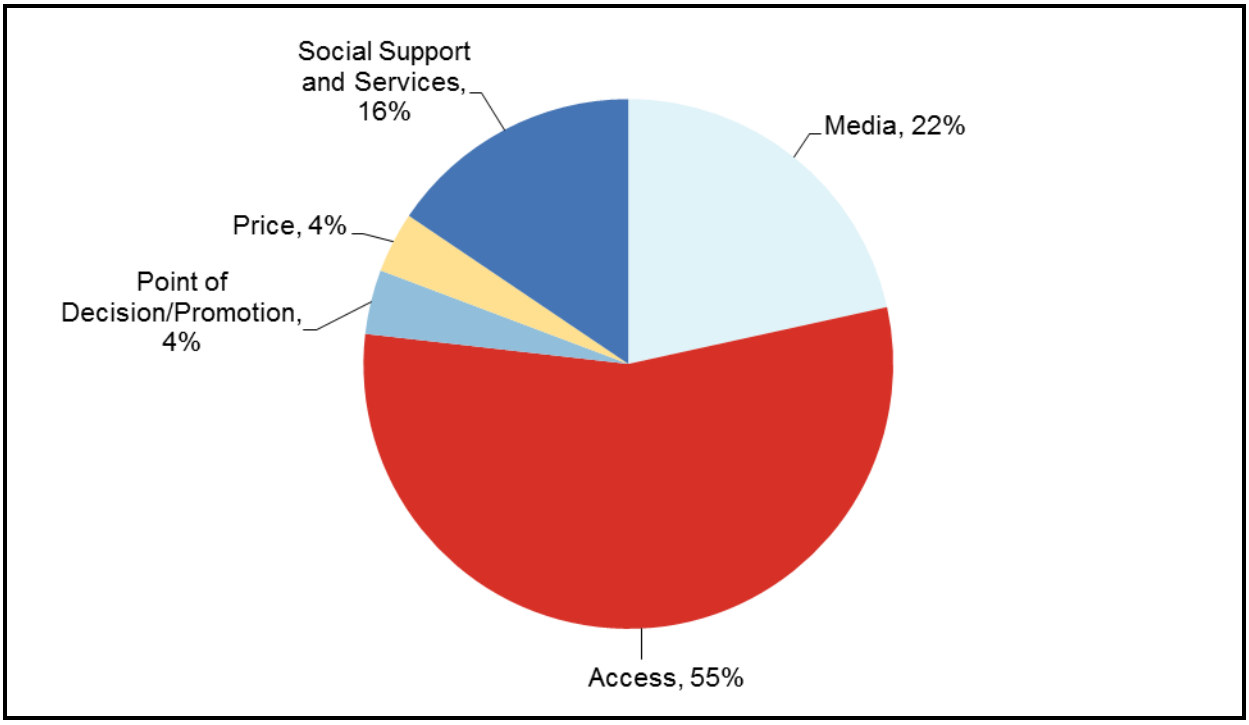
Tables 5-3 through 5-6 show the significant variation in costs across the five MAPPS categories by tobacco and obesity communities. In tobacco communities such as DeKalb County and the city of Chicago, over 60% of the total dollars were spent on Media, and very little was spent on Point of Decision/Promotion, Price, and Social Support and Services (see Table 5-3). Table-5-4 shows the average, minimum, and maximum percentage of costs for each MAPPS category. In obesity communities such as Seattle and Healthy Lakes, about 80% of the total dollars were spent on Access (see Table 5-5). On average, 53% of costs for obesity communities supported Access-related interventions (see Table 5-6).

Figure 5-4. Total Costs by MAPPS Category (Tobacco Communities)



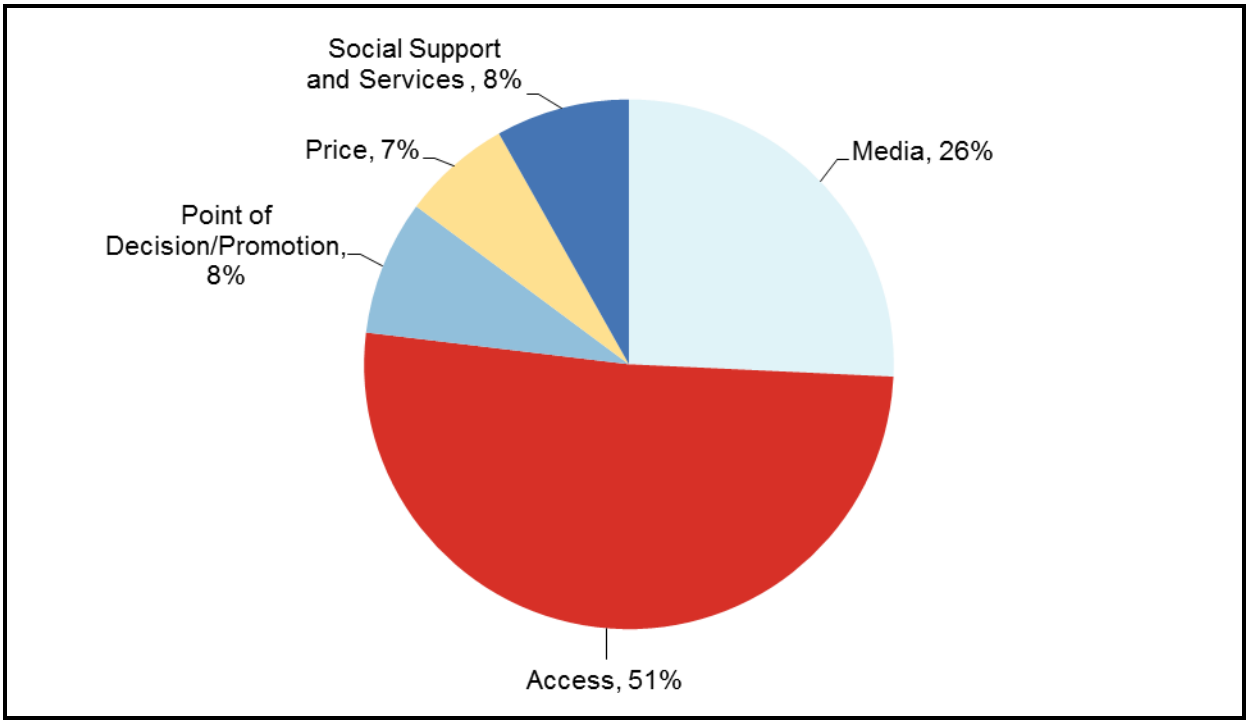
Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

Figure 5-5. Total Costs by MAPPS Category (Physical Activity Initiatives)



Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

Figure 5-6. Total Costs by MAPPS Category (Nutrition Initiatives)



Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

Table 5-3. MAPPS Category Cost Shares by Community (Tobacco Communities)

Awardee[a]	Population	Type of Award	Award Amount	Total Costs	M 21	A 21	P 19	P 18	S 21
Iowa Department of Public Health (Ringgold County)	5,131	State Coordinated	$783,032	$623,761	14%	27%	10%	3%	45%
Great Lakes Inter-Tribal Council, Inc.	13,750	Tribal	$990,559	$994,477	30%	27%	13%	11%	19%
South Carolina Department of Health and Environmental Control (Florence County)	136,885	State Coordinated	$2,904,215	$2,438,511	29%	34%	3%	0%	34%
Cherokee National Health Services	140,293	Tribal	$1,099,650	$2,422,736	31%	47%	4%	5%	13%
Rhode Island Department of Health	178,438	State Coordinated	$3,317,407	$3,013,255	37%	19%	10%	10%	24%
Iowa Department of Public Health (Linn County)	211,226	State Coordinated	$2,498,539	$2,321,527	6%	17%	15%	9%	53%
South Carolina Department of Health and Environmental Control (Horry County)	269,291	State Coordinated	$3,083,442	$2,947,542	38%	20%	4%	0%	38%
District of Columbia Department of Health	601,723	Urban Areas	$4,960,924	$4,807,174	52%	8%	7%	7%	26%
Jefferson County Board of Health	658,466	Urban Areas	$6,972,663	$6,701,612	26%	36%	9%	15%	14%
DeKalb County Board of Public Health	691,893	Urban Areas	$3,196,347	$3,396,104	66%	24%	5%	0%	6%
Boston Public Health Commission	722,023	Urban Areas	$6,119,677	$5,965,874	24%	39%	4%	4%	30%
St. Louis County	998,954	Urban Areas	$7,593,110	$6,122,878	26%	41%	7%	0%	25%
Austin Travis County Health and Human Services	1,024,266	Urban Areas	$7,473,150	$7,214,339	37%	21%	22%	3%	17%
Orange County Health Department	1,145,956	Large Cities	$6,636,408	$6,259,038	35%	22%	0%	0%	43%
Philadelphia Department of Public Health	1,526,006	Large Cities	$10,356,927	$7,950,524	49%	17%	0%	3%	32%
County of Santa Clara Public Health Department	1,781,642	Large Cities	$6,975,483	$5,878,362	42%	37%	1%	3%	16%
Seattle and King County Public Health	1,931,249	Large Cities	$9,970,781	$9,864,859	37%	36%	2%	2%	24%
Southern Nevada Health District	1,951,269	Large Cities	$14,607,991	$14,581,950	57%	15%	1%	3%	24%
Chicago Center for Health Systems Dev. Inc. dba/PHIMC	2,714,844	Large Cities	$11,551,828	$11,048,642	64%	8%	4%	1%	24%
Fund for Public Health in New York	8,175,133	Large Cities	$15,544,629	$14,950,538	44%	15%	0%	6%	35%
County of Los Angeles Department of Public Health	9,818,605	Large Cities	$16,184,860	$14,073,032	22%	41%	6%	1%	30%

Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

[a] Awardees with costs greater than $0.

Table 5-4. Summary Statistics on MAPPS Category Cost Shares (Tobacco Communities)

Summary Statistics	Population	Award Amount	Total Costs	M 21	A 21	P 19	P 18	S 21
Unweighted Mean[a]	1,652,240	$6,801,030	$6,360,797	36%	26%	7%	5%	27%
Weighted Mean[b]	—[c]	—[c]	—[c]	40%	25%	5%	4%	27%
Median	722,023	$6,636,408	$5,965,874	37%	24%	5%	3%	25%
Min	5,131	$783,032	$623,761	6%	8%	0%	0%	6%
Max	9,818,605	$16,184,860	$14,950,538	66%	47%	22%	15%	53%
Std. Dev.	2,503,940	$4,633,540	$4,264,529	15%	11%	5%	4%	11%

Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

[a] Mean calculated by weighting each community's costs equally.

[b] The "Weighted Mean" for each MAPPS category was calculated by summing all community costs for a MAPPS category then dividing by total community costs across all MAPPS categories. We refer to this as the weighted mean since the larger communities' MAPPS category costs have a greater influence on the mean than smaller communities' costs.

[c] "—" = Left blank because these are the same as for the unweighted mean, although weighting leads to differences in the percentage attributable to each MAPPS category.

Table 5-5. MAPPS Category Cost Shares by Community (Obesity Communities)

Awardee[a]	Population	Type of Award	Award Amount	Total Costs	M 29	A 30	P 26	P 24	S 30
Pueblo of Jemez	16,945	Tribal	$859,102	$924,248	69%	26%	4%	0%	1%
Maine Department of Health (Healthy Lakes)	49,707	State Coordinated	$1,920,403	$1,832,931	0%	80%	17%	0%	4%
Healthy Portland	66,211	State Coordinated	$2,362,887	$2,519,215	17%	55%	23%	3%	3%
State of Hawaii Department of Health, Kauai District Health	67,091	State Coordinated	$2,222,589	$2,327,435	36%	38%	1%	4%	21%
Wisconsin Department of Health and Family Services (Wood County)	74,749	State Coordinated	$2,978,484	$2,554,588	20%	76%	2%	1%	1%
Indiana State Department of Health (Bartholomew County)	76,794	State Coordinated	$2,508,770	$3,063,861	55%	23%	1%	2%	19%
Wisconsin Department of Health and Family Services (LaCrosse County)	114,638	State Coordinated	$2,978,484	$2,558,640	23%	60%	7%	0%	9%
Mid-Ohio Valley Health Department	133,280	State Coordinated	$4,500,671	$4,392,160	30%	59%	4%	1%	5%
Cherokee National Health Services	140,293	Tribal	$1,009,206	$1,519,484	21%	62%	0%	0%	17%
Minnesota Department of Health (Olmsted County)	144,248	State Coordinated	$2,961,243	$2,687,162	40%	24%	22%	4%	10%
State of Hawaii Department of Health, Maui District Health	154,834	State Coordinated	$1,212,633	$1,478,786	53%	47%	0%	0%	0%
Indiana State Department of Health (Vanderburgh County)	179,703	State Coordinated	$2,854,188	$2,555,933	28%	42%	8%	7%	15%
Minnesota Department of Health (Minneapolis)	392,871	State Coordinated	$2,961,243	$2,861,855	40%	52%	3%	3%	2%
Douglas County Health Department	517,110	Urban Areas	$5,713,346	$5,681,075	50%	50%	0%	0%	0%
Nashville/Davidson County Metro Health Department	626,681	Urban Areas	$7,527,527	$7,336,600	35%	43%	4%	15%	3%
Jefferson County Department of Health	658,466	Urban Areas	$6,285,057	$6,437,841	29%	59%	0%	5%	8%
Boston Public Health Commission	722,023	Urban Areas	$6,411,167	$6,264,029	32%	41%	2%	23%	3%
Multnomah County Health Department	735,334	Urban Areas	$7,499,787	$7,804,648	7%	73%	8%	5%	7%
Louisville/Jefferson County Metro Government	741,096	Urban Areas	$7,878,491	$7,085,273	27%	59%	6%	1%	7%
Hamilton County Public Health	802,374	Urban Areas	$6,744,040	$6,321,491	43%	27%	0%	12%	18%
Pima County	980,263	Large Cities	$15,800,000	$15,117,981	32%	40%	6%	4%	18%
Tri-County Health Department	1,299,071	Large Cities	$10,511,509	$16,573,049	8%	53%	20%	6%	12%
Philadelphia Department of Public Health	1,526,006	Large Cities	$15,018,277	$13,050,573	26%	53%	7%	3%	11%
San Antonio Metropolitan Health District	1,714,773	Large Cities	$15,612,353	$14,220,886	8%	51%	6%	0%	34%
Seattle and King County Public Health	1,931,249	Large Cities	$15,514,419	$13,919,127	6%	84%	0%	5%	5%
Miami-Dade County Health Department	2,496,435	Large Cities	$14,738,754	$14,126,991	29%	56%	3%	0%	11%
Cook County	2,516,507	Large Cities	$15,898,821	$15,886,035	11%	50%	6%	15%	17%
County of San Diego Health and Human Services Agency	3,095,313	Large Cities	$16,105,299	$15,111,543	22%	56%	9%	3%	10%
Fund for Public Health in New York, Inc.	8,175,133	Large Cities	$15,531,115	$14,769,577	31%	47%	2%	8%	13%
County of Los Angeles Department of Public Health	9,818,605	Large Cities	$15,920,342	$13,185,046	26%	56%	6%	3%	9%

Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

[a] Awardees with costs greater than $0

Table 5-6. MAPPS Category Cost Shares by Community (Obesity Communities)

Summary Statistics	Population	Award Amount	Total Costs	M 29	A 30	P 26	P 24	S 30
Unweighted Mean[a]	1,332,260	$7,668,007	$7,472,269	29%	51%	7%	6%	10%
Weighted Mean[b]	—[c]	—[c]	—[c]	24%	53%	6%	5%	12%
Median	642,574	$6,348,112	$6,292,760	29%	53%	6%	4%	9%
Min	16,945	$859,102	$924,248	6%	23%	0%	0%	0%
Max	9,818,605	$16,105,299	$16,573,049	69%	84%	23%	23%	34%
Std. Dev.	2,216,886	$5,631,328	$5,381,380	15%	15%	6%	5%	8%

Note: MAPPS = Media, Access, Point of decision/promotion, Price, Social support and services

[a] Mean calculated by weighting each community's costs equally.

[b] The "Weighted Mean" for each MAPPS category was calculated by summing all community costs for a MAPPS category then dividing by total community costs across all MAPPS categories. We refer to this as the weighted mean since the larger communities' MAPPS category costs have a greater influence on the mean than smaller communities' costs.

[c] "—" = Left blank because these are the same as for the unweighted mean, although weighting leads to differences in the percentage attributable to each MAPPS category.

5.1.4 CPPW Costs by Intervention

Obesity interventions were implemented in 30 communities and constituted 63% ($224,168,064) of total CPPW costs (including in-kind costs but not evaluation). Obesity costs were split evenly between physical activity ($112,798,421) and nutrition ($111,369,644) interventions. Media-related interventions were the most prevalent type of obesity intervention across the 30 obesity communities. Physical activity and nutrition Media interventions were each implemented in 28 of the 30 obesity communities. Obesity Media costs are concentrated entirely in broad media interventions for each initiative—"Nutrition—Media to support improved nutrition to prevent obesity" and "PA—Media to support improved physical activity to prevent obesity"—whereas Access costs in nutrition and physical activity are spread across several interventions that collectively account for a much greater share of overall obesity costs (see Section 5.1.3, CPPW Costs by MAPPS Category). The individual Access interventions "Nutrition—Restrict availability of less healthy foods and beverages" and "PA—Environmental supports to promote walking and cycling and other physical activity" were implemented in 24 and 22 communities, respectively.

Similar to the aggregate cost results, Media interventions were also among the most costly interventions per capita. Using a weighted average (by community population) of the community-intervention costs per capita, the "Nutrition—media intervention" was slightly more than double the next most costly nutrition interventions (i.e., "Nutrition—Health education/event," "Nutrition—Restrict availability of less healthy foods and beverages," and "Nutrition—Zoning/land use policies/joint use agreements"). Average per capita intervention costs were also calculated using an unweighted average (each community receives equal weight). Using this average, we found that average costs per capita could be heavily skewed by a few very small communities. For instance, the "PA—Media intervention" has an unweighted average of $11 per capita, driven largely by Pueblo of Jemez's per capita cost of $242. Median per capita costs, however, are not affected by such outliers. Using these medians, we again find the Media interventions leading all other interventions in per capita costs, immediately followed by several Access interventions. Aggregate and per capita costs for all interventions implemented in obesity communities are shown by initiative in Tables 5-7 and 5-8.

Tobacco interventions were implemented in 21 communities and constituted 37% ($133,576,734) of total CPPW costs (including in-kind costs but not evaluation). Unlike the catch-all obesity Media interventions, there were several distinct tobacco Media interventions. Although "Tobacco—Hard-hitting counter-advertising" was very common (18 communities), the Access intervention "Tobacco—Usage bans" was the most prevalent tobacco intervention overall—implemented in all but one tobacco community. Nevertheless, "Tobacco—Hard-hitting counter-advertising" interventions led in aggregate costs, totaling

Table 5-7. Intervention Cost Summary (Nutrition)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Media to support improved nutrition to prevent obesity	28	$28,892,296	$1,031,868	39,812,176	$0.73	$5.90	$1.69	$20.74	$0.14	$111.31
Restrict availability of less healthy foods and beverages	24	$11,495,347	$478,973	36,005,752	$0.32	$0.97	$0.27	$1.48	$0.02	$5.54
Enhance access to healthy food retailer or healthier retail food, not transportation	23	$8,910,730	$387,423	37,164,972	$0.24	$0.90	$0.53	$1.42	$0.01	$6.33
Wellness policy	23	$8,207,031	$356,827	37,701,452	$0.22	$0.85	$0.42	$1.33	$0.00	$4.89
Signage for healthy vs. less healthy items	21	$6,630,677	$315,747	27,175,398	$0.24	$1.59	$0.37	$4.01	$0.01	$18.33
Improve nutritional content through policies, guidelines, or standards	19	$8,081,592	$425,347	31,211,680	$0.26	$1.05	$0.68	$1.14	$0.01	$4.72
Change prices of healthier foods and beverages relative to the cost of less healthy foods	18	$6,924,687	$384,705	33,256,352	$0.21	$0.45	$0.39	$0.38	$0.00	$1.34
Breastfeeding—Support breastfeeding through policy change and maternity care practices	17	$7,467,155	$439,244	33,000,544	$0.23	$0.99	$0.33	$1.44	$0.04	$5.71
Zoning/land use policies/joint use agreements (e.g., for farmers markets/community gardens)	15	$6,050,780	$403,385	21,699,500	$0.28	$9.36	$0.53	$33.72	$0.01	$131.23
Enhance usability of SNAP/WIC/EBT at healthier food retailers	14	$2,115,292	$151,092	20,488,636	$0.10	$0.49	$0.20	$0.62	$0.00	$2.09
Procurement	14	$1,971,321	$140,809	19,590,700	$0.10	$0.47	$0.17	$1.10	$0.03	$4.25
Healthy vending	12	$1,563,537	$130,295	25,837,034	$0.06	$0.39	$0.20	$0.44	$0.01	$1.27
Produce placement and attractiveness	12	$1,757,401	$146,450	18,841,696	$0.09	$0.18	$0.11	$0.20	$0.01	$0.64

(continued)

Table 5-7. Intervention Cost Summary (Nutrition) (continued)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Systems or infrastructure changes to facilitate direct farm to institution food supplies	11	$2,742,957	$249,360	10,556,915	$0.26	$0.76	$0.37	$0.95	$0.05	$3.01
Menu labeling	10	$826,047	$82,605	12,948,337	$0.06	$0.43	$0.12	$0.65	$0.00	$1.87
Supporting local food production (e.g., community gardens, school gardens, home gardens)	8	$1,596,612	$199,577	8,375,630	$0.19	$0.69	$0.20	$0.84	$0.02	$2.17
Incentives or price discounts for purchase of healthy foods when using SNAP/WIC/EBT	7	$667,914	$95,416	16,245,083	$0.04	$0.08	$0.06	$0.07	$0.01	$0.17
Competitive foods	6	$973,461	$162,244	5,143,605	$0.19	$0.34	$0.12	$0.47	$0.06	$1.27
Health education/event	5	$960,192	$192,038	2,656,112	$0.36	$0.34	$0.22	$0.29	$0.05	$0.74
Incentives to offer healthier foods/ choices	4	$335,358	$83,839	4,781,917	$0.07	$0.11	$0.03	$0.17	$0.02	$0.36
Enhanced access to tap water through environmental supports	3	$1,127,370	$375,790	9,427,577	$0.12	$0.40	$0.49	$0.32	$0.05	$0.67
Healthy meetings	3	$179,508	$59,836	8,291,051	$0.02	$0.53	$0.30	$0.66	$0.01	$1.27
Reduce sodium through purchasing actions, labeling initiatives, restaurant standards	3	$1,065,728	$355,243	8,990,978	$0.12	$0.26	$0.29	$0.14	$0.10	$0.37
Policy enforcement	3	$175,800	$58,600	5,191,471	$0.03	$0.03	$0.02	$0.02	$0.01	$0.05
Improving or providing low cost transportation to healthier food venues	2	$281,823	$140,912	2,566,214	$0.11	$0.55	$0.55	$0.65	$0.09	$1.01
Information systems	2	$369,027	$184,514	3,897,687	$0.09	$0.23	$0.23	$0.32	$0.00	$0.46

Note: SNAP = Supplemental Nutrition Assistance Program; WIC = Women, Infants, and Children program; EBT = electronic benefits transfer

[a] Mean across communities of (Community Costs/Community Population).

Table 5-8. Intervention Cost Summary (Physical Activity)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Media to support improved physical activity to prevent obesity	28	$24,108,784	$861,028	39,143,056	$0.62	$11.01	$1.55	$45.41	$0.07	$242.17
Environmental supports to promote walking and cycling and other physical activity	22	$13,592,772	$617,853	29,801,932	$0.46	$1.02	$0.77	$1.09	$0.02	$4.56
Create places for physical activity	21	$9,701,346	$461,969	27,959,212	$0.35	$0.66	$0.36	$0.67	$0.04	$2.42
Infrastructure—Urban design and land use policies (e.g., complete streets)	21	$5,784,102	$275,433	36,072,616	$0.16	$0.59	$0.27	$0.75	$0.01	$2.75
Safe routes to schools	18	$12,383,970	$687,998	18,293,716	$0.68	$0.95	$0.44	$1.19	$0.00	$4.68
Physical education/physical activity requirement in afterschool/childcare	16	$2,941,743	$183,859	21,550,628	$0.14	$0.75	$0.17	$1.16	$0.01	$4.06
Physical education/physical activity requirement in schools	15	$11,247,225	$749,815	33,216,384	$0.34	$1.17	$0.50	$1.51	$0.04	$5.72
Neighborhood/district/jurisdiction plans that support biking or walking	13	$7,251,227	$557,787	22,108,988	$0.33	$0.73	$0.51	$0.77	$0.06	$2.82
Signage for public transportation, bike lanes/boulevard	12	$1,520,242	$126,687	12,084,601	$0.13	$0.54	$0.10	$1.16	$0.02	$4.08
Activity groups	11	$2,557,756	$232,523	22,297,420	$0.11	$0.53	$0.27	$0.55	$0.05	$1.65
Signage for neighborhood destinations in walkable/mixed-use areas	11	$2,410,875	$219,170	14,512,665	$0.17	$0.35	$0.16	$0.55	$0.00	$1.93
Reduced price for park/facility use	11	$2,157,837	$196,167	22,907,152	$0.09	$0.32	$0.04	$0.58	$0.00	$1.74
Joint use agreement	10	$2,733,583	$273,358	18,396,100	$0.15	$0.57	$0.26	$0.77	$0.03	$2.34
Worksite physical activity programs	9	$1,202,638	$133,626	8,922,783	$0.13	$0.56	$0.23	$0.78	$0.01	$2.30
Restrict screen time in afterschool/ day care	9	$1,407,155	$156,351	8,584,444	$0.16	$0.44	$0.18	$0.67	$0.06	$2.11

(continued)

Table 5-8. Intervention Cost Summary (Physical Activity) (continued)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Enhance personal safety in areas where persons are or could be physically active, not Safe Routes to School	9	$5,079,501	$564,389	8,700,169	$0.58	$0.44	$0.16	$0.74	$0.01	$2.38
Infrastructure changes to support biking or walking	7	$1,433,896	$204,842	6,440,689	$0.22	$0.27	$0.10	$0.38	$0.01	$1.09
Subsidized memberships to recreational facilities	5	$1,920,330	$384,066	6,610,547	$0.29	$0.52	$0.44	$0.54	$0.00	$1.16
Point-of-decision prompts	5	$473,909	$94,782	13,373,911	$0.04	$0.16	$0.04	$0.21	$0.01	$0.48
Improve access to public transportation	4	$815,311	$203,828	4,638,834	$0.18	$0.46	$0.46	$0.52	$0.01	$0.93
Health education/event	4	$982,553	$245,638	2,728,194	$0.36	$0.37	$0.31	$0.37	$0.04	$0.81
Incentives for active transit	4	$86,864	$21,716	3,199,161	$0.03	$0.02	$0.02	$0.02	$0.00	$0.05
Wellness policy	3	$342,438	$114,146	2,545,558	$0.13	$0.10	$0.09	$0.09	$0.02	$0.19
Policy enforcement	2	$93,840	$46,920	1,476,430	$0.06	$0.06	$0.06	$0.07	$0.02	$0.11
Product distribution or distribution of supports to promote physical activity	2	$65,803	$32,901	1,133,967	$0.06	$0.05	$0.05	$0.04	$0.02	$0.08
Health impact assessment or similar	2	$134,421	$67,211	4,211,208	$0.03	$0.03	$0.03	$0.01	$0.02	$0.04
Information systems—Physical activity	1	$368,300	$368,300	802,374	$0.46	$0.46	$0.46	n/a	$0.46	$0.46

[a] Mean across communities of (Community Costs/Community Population).

$40.5 million across all communities. The Access intervention "Tobacco—Usage bans" was second with $26 million, followed by another Media intervention "Tobacco—Media and advertising restrictions consistent with federal law" and three interventions related to cessation services.

Similar to the aggregate cost results, Media interventions were also among the most costly interventions per capita. Using a weighted average, "Tobacco—Hard-hitting counter-advertising" had the highest per capita cost among interventions implemented in more than five communities. Per capita costs for "Tobacco—Hard-hitting counter-advertising" were more than double the weighted per capita costs for "Tobacco—Usage bans" and other notable high cost interventions, such as "Tobacco—Media and advertising restrictions consistent with federal law" and "Tobacco—Cessation services—Quitline, unspecified." Results were similar for the median per capita intervention costs. Aggregate and per capita costs for all interventions implemented in tobacco communities are presented in Table 5-9.

5.2 Comparative Analyses

In this section, we use community total and per capita CPPW costs to compare costs across the spectrum of community types and sizes. Community comparisons are presented separately for tobacco and obesity, unless results did not differ. We also use plots to compare intervention costs by target population for communities that implemented a given intervention. In these analyses, we only consider the interventions implemented in a relatively large number of communities. Finally, we supplement these results with a simple regression analysis that examines the factors affecting each community's intervention costs. At each level, programmatic costs include in-kind costs, but exclude evaluation costs.

5.2.1 Aggregate Community Costs

In Figures 5-7 and 5-8, we present the aggregate community costs for all tobacco communities by community type for each of the four community types: large city, urban, state coordinated, and tribal communities. Among the 21 tobacco communities, there were 8 large cities, 6 urban areas, 5 state coordinated communities, and 2 tribal communities. In Figure 5-7, we show aggregate community costs plotted by population. We also delineate community types using different colored data points.

In Figure 5-8, we see a positive, linear correlation between population and total costs. However, this correlation does not continue linearly beyond a population of about 3 million people. We find that there is an apparent ceiling on CPPW grants of about $15 million, regardless of community population. Although New York City and Los Angeles County have populations well beyond the next largest community's population, their costs did not increase in proportion to their populations. Removing these population outliers from the sample, we can see a tighter positive relationship between costs and population (see Figure 5-8).

Table 5-9. Intervention Cost Summary (Tobacco)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Usage bans	20	$26,180,924	$1,309,046	34,076,132	$0.77	$3.74	$1.42	$6.74	$0.16	$30.03
Hard-hitting counter-advertising	18	$40,545,820	$2,252,546	26,175,764	$1.55	$3.03	$2.56	$2.61	$0.16	$9.79
Restrict point-of-decision advertising as allowable under federal law	17	$3,327,193	$195,717	24,216,768	$0.14	$1.44	$0.22	$3.20	$0.01	$12.66
Cessation services—other	12	$11,177,203	$931,434	28,909,860	$0.39	$2.87	$0.49	$8.04	$0.02	$28.35
Pricing strategy—restrict free samples	11	$2,027,473	$184,316	7,692,972	$0.26	$1.38	$1.02	$1.84	$0.00	$5.77
Cessation services—counseling or brief intervention	11	$8,349,226	$759,021	28,776,468	$0.29	$0.68	$0.50	$0.64	$0.04	$1.85
Pricing strategy—fees	11	$2,425,666	$220,515	31,060,284	$0.08	$0.10	$0.08	$0.09	$0.01	$0.30
Cessation services—quitline, unspecified	10	$6,810,277	$681,028	10,733,749	$0.63	$2.06	$0.70	$4.01	$0.22	$13.31
Restrict sales	10	$5,403,636	$540,364	19,601,452	$0.28	$1.09	$0.62	$1.71	$0.00	$5.72
Cessation services—referral	9	$1,591,416	$176,824	4,564,110	$0.35	$2.31	$1.00	$4.23	$0.01	$13.31
Media and advertising restrictions consistent with federal law	9	$11,852,493	$1,316,944	22,618,664	$0.52	$1.66	$0.65	$2.19	$0.15	$6.49
Point of decision—other	7	$2,762,874	$394,696	12,909,929	$0.21	$0.63	$0.51	$0.51	$0.05	$1.52
Zoning restrictions (e.g., outlet density)	7	$1,278,314	$182,616	8,771,821	$0.15	$0.61	$0.11	$1.09	$0.01	$3.02
Cessation services—quitline with NRT	5	$3,070,430	$614,086	4,020,216	$0.76	$0.80	$0.46	$0.85	$0.06	$2.06
Cessation event	4	$276,629	$69,157	4,822,122	$0.06	$2.47	$0.02	$4.90	$0.01	$9.82
Ban branded promotional items and prizes	4	$865,187	$216,297	1,904,546	$0.45	$1.98	$1.94	$2.16	$0.07	$3.96
Cessation services—screening	4	$1,455,080	$363,770	11,006,843	$0.13	$0.38	$0.21	$0.43	$0.10	$1.00
NRT distribution	4	$1,044,112	$261,028	5,424,243	$0.19	$0.32	$0.20	$0.34	$0.06	$0.82

(continued)

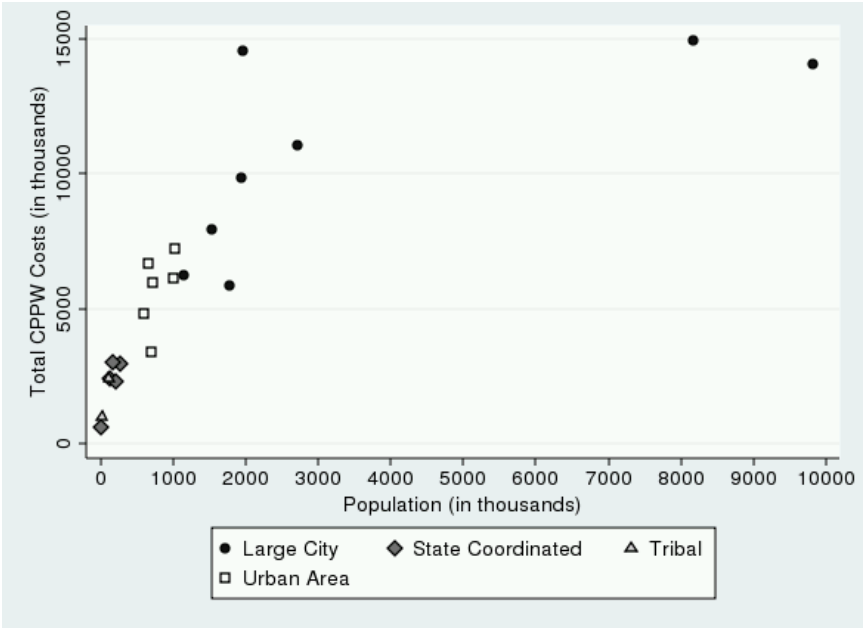
Table 5-9. Intervention Cost Summary (Tobacco)(continued)

Intervention Description	Number	Aggregate Cost	Mean Community Cost	Aggregate Population	Per Capita Cost	Mean of Community Per Capita Costs[a]	Median	Standard Deviation	Minimum	Maximum
Policy enforcement—tobacco	3	$405,476	$135,159	5,642,442	$0.07	$0.10	$0.10	$0.09	$0.00	$0.19
Cessation services—quitline without NRT	2	$1,046,134	$523,067	406,176	$2.58	$2.32	$2.32	$1.12	$1.52	$3.11
Ban brand-name sponsorships	2	$151,503	$75,752	1,956,400	$0.08	$2.02	$2.02	$2.76	$0.07	$3.96
Health education/event—tobacco	2	$1,029,286	$514,643	2,088,154	$0.49	$0.74	$0.74	$0.40	$0.46	$1.03
Media to support policy, systems and environmental change	1	$113,251	$113,251	19,124	$5.92	$5.92	$5.92	N/A	$5.92	$5.92
Pricing strategy—other	1	$330,138	$330,138	658,466	$0.50	$0.50	$0.50	N/A	$0.50	$0.50
Ban self-service displays and vending	1	$40,520	$40,520	2,714,844	$0.01	$0.01	$0.01	N/A	$0.01	$0.01
Media to change behavior	1	$16,473	$16,473	1,781,642	$0.01	$0.01	$0.01	N/A	$0.01	$0.01

Note: N/A = not applicable; NRT = nicotine replacement therapy

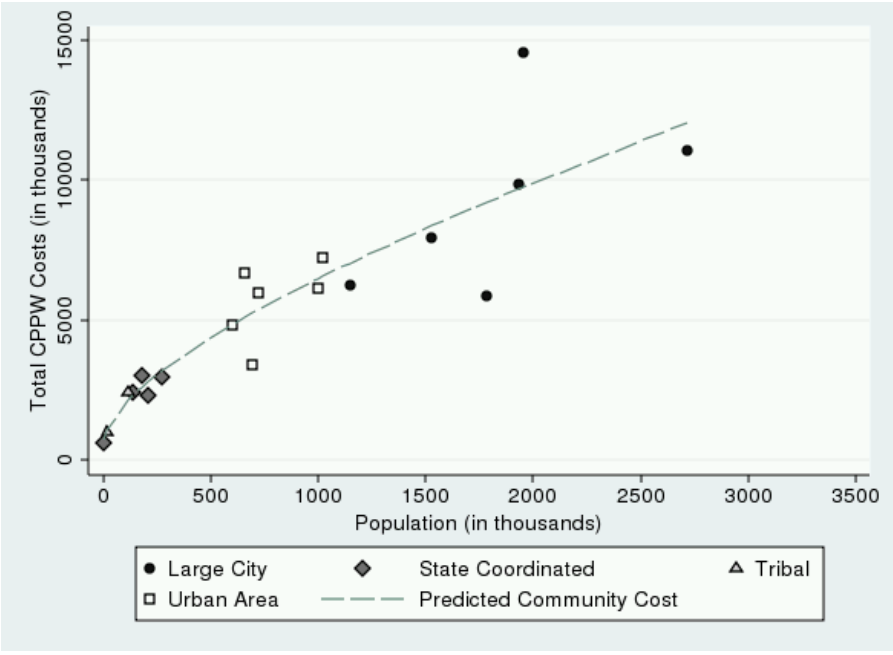
[a] Mean of (Community Costs/Community Population)

Figure 5-7. Total Community Costs (Tobacco), by Community Type and Population



Note: CPPW = Communities Putting Prevention to Work

Figure 5-8. Total Community Costs with Predicted Community Cost (Tobacco), by Community Type and Population

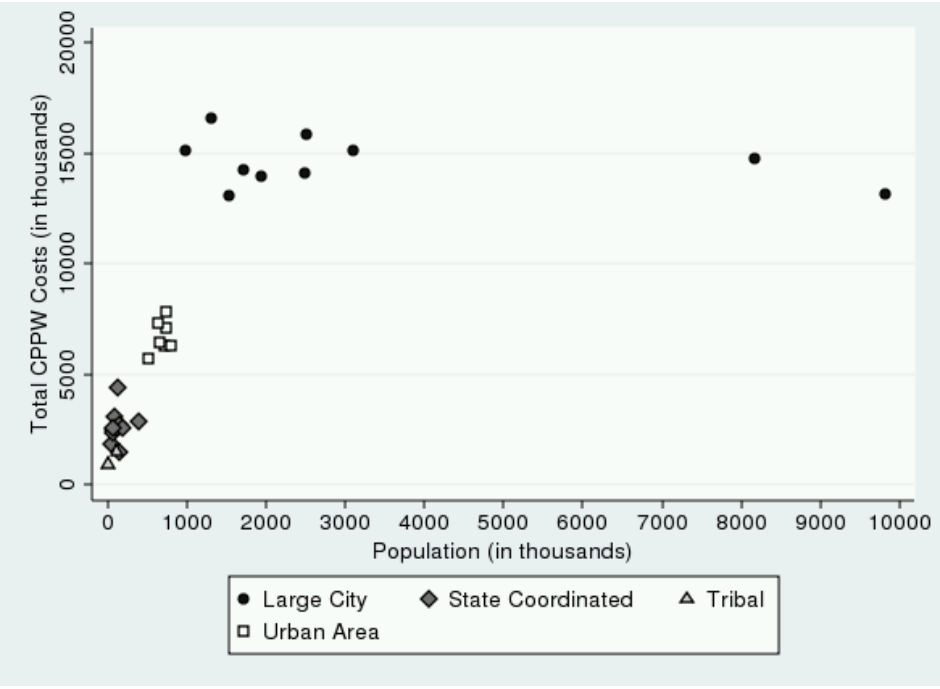


Note: New York City and Los Angeles County are excluded. CPPW = Communities Putting Prevention to Work

In Figures 5-9 and 5-10, we present the aggregate community costs for all obesity communities by community type. Among the 30 obesity communities, there were 11 state coordinated communities, 10 large cities, 7 urban areas, and 2 tribal communities. Figure 5-9 shows aggregate obesity community costs plotted by population.

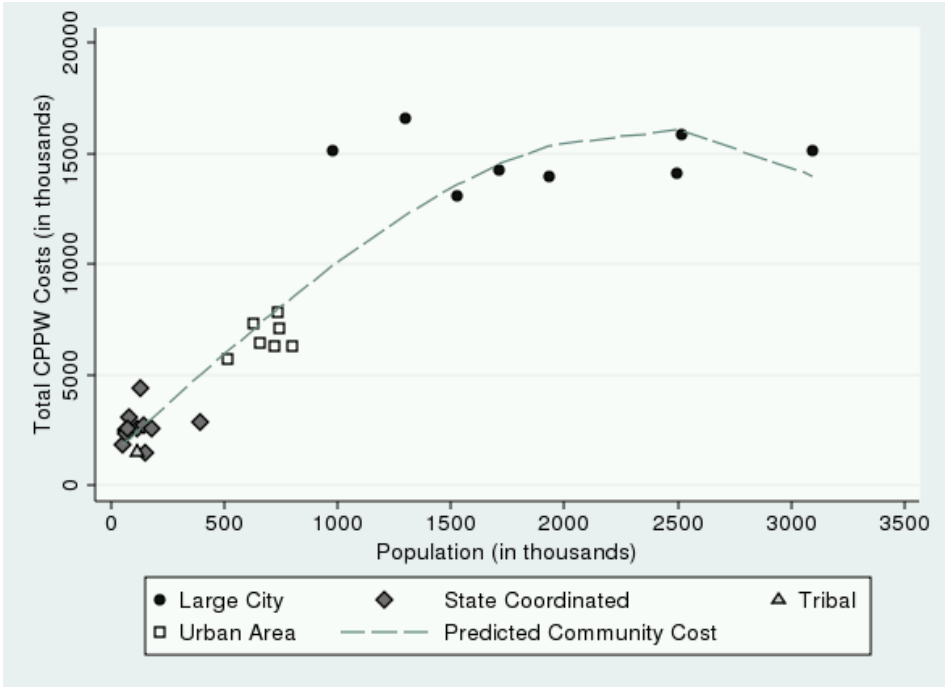
In Figure 5-9, we again see a positive correlation between population and total costs for the smaller communities. Costs are approximately in proportion to community population for the tribal, state coordinated, and urban area communities. For the large cities, total costs are close to $15 million, regardless of community size. Total costs appear to plateau beyond a population of about 1 million.

Figure 5-9. Total Community Costs (Obesity), by Community Type and Population



Note: CPPW = Communities Putting Prevention to Work

Figure 5-10. Total Community Costs with Predicted Community Cost (Obesity), by Community Type and Population



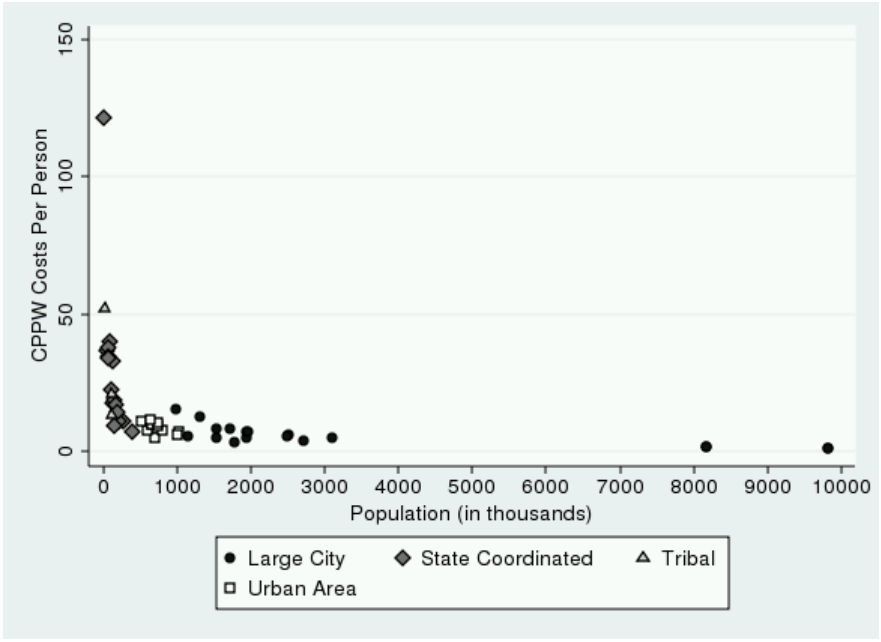
Note: New York City and Los Angeles County are excluded. CPPW = Communities Putting Prevention to Work

5.2.2 Per Capita Community Costs

In the aggregate community cost results, we saw a positive (but not always linear) relationship between community costs and community population. Here, we compare community costs accounting for the population differences that are associated with aggregate costs. Figures 5-11 and 5-12 show per capita community costs for tobacco and obesity communities combined. Results did not differ when separating tobacco and obesity communities.

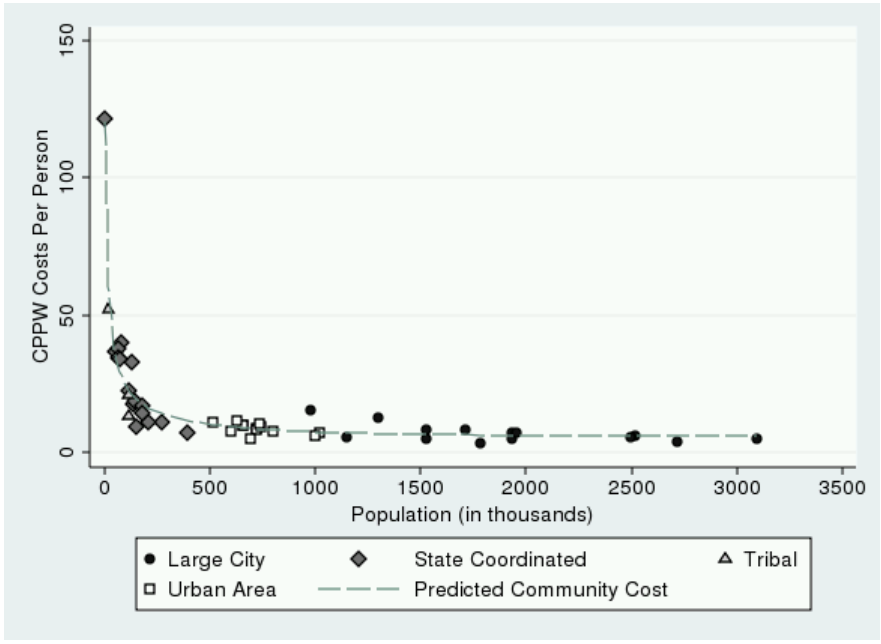
Now accounting for larger community populations, we see that larger communities actually have lower costs on a per person basis. The very large communities of New York City and Los Angeles County have per capita costs less than $2. Although the median community per capita cost was just about $10 (Jefferson County), very small communities such as Ringgold County and Pueblo of Jemez had per capita costs over $100 and $500, respectively. Pueblo of Jemez is excluded from Figures 5-11 and 5-12 because the high per capita cost for this community made it difficult to observe cost differences across the other communities.

Figure 5-11. Total Community Costs Per Capita (Tobacco and Obesity), by Community Type and Population



Note: Pueblo of Jemez is excluded (Per capita cost: $513; Population: 1,800). CPPW = Communities Putting Prevention to Work

Figure 5-12. Total Community Costs Per Capita with Predicted Community Costs (Tobacco and Obesity), by Community Type and Population



Note: New York City, Los Angeles County, and Pueblo of Jemez are excluded. CPPW = Communities Putting Prevention to Work

5.2.3 Aggregate Community-Intervention Costs

On the intervention level, we provide data to compare intervention costs across communities doing the same interventions. We selected a subset of key interventions to illustrate graphically in Figures 5-13 through 5-21. Interventions were selected to represent some of the highest cost and highest prevalence interventions (see Tables 5-5 through 5-7) from each CPPW initiative:

- Tobacco—Figures 5-13 through 5-16
  - Usage bans
  - Hard-hitting counter-advertising
  - Restrict point-of-purchase advertising as allowable under federal law
  - Pricing strategy—fees
- Nutrition—Figures 5-17 through 5-19
  - Media to support improved nutrition to prevent obesity
  - Restrict availability of less healthy foods and beverages
  - Enhance access to healthy food retailer or healthier retail food, not transportation
- Physical Activity—Figures 5-20 and 5-21
  - Media to support improved physical activity to prevent obesity
  - Environmental supports to promote walking and cycling and other physical activity

Similar to the aggregate community cost results, the x-axis is skewed toward very large populations due to the outlier populations of New York City and Los Angeles County. We have inserted a polynomial line of fit to estimate the relationship between communities' intervention costs and population. In Figures 5-16 through 5-21, we observe costs increasing at a decreasing rate—beginning to plateau after a population of about 3 million. Although these relationships are weak, they echo the findings of the community-level aggregate cost results. Intervention costs tend to increase with population, except in the very large populations of New York City and Los Angeles County.

Figure 5-13. Tobacco—Usage Bans

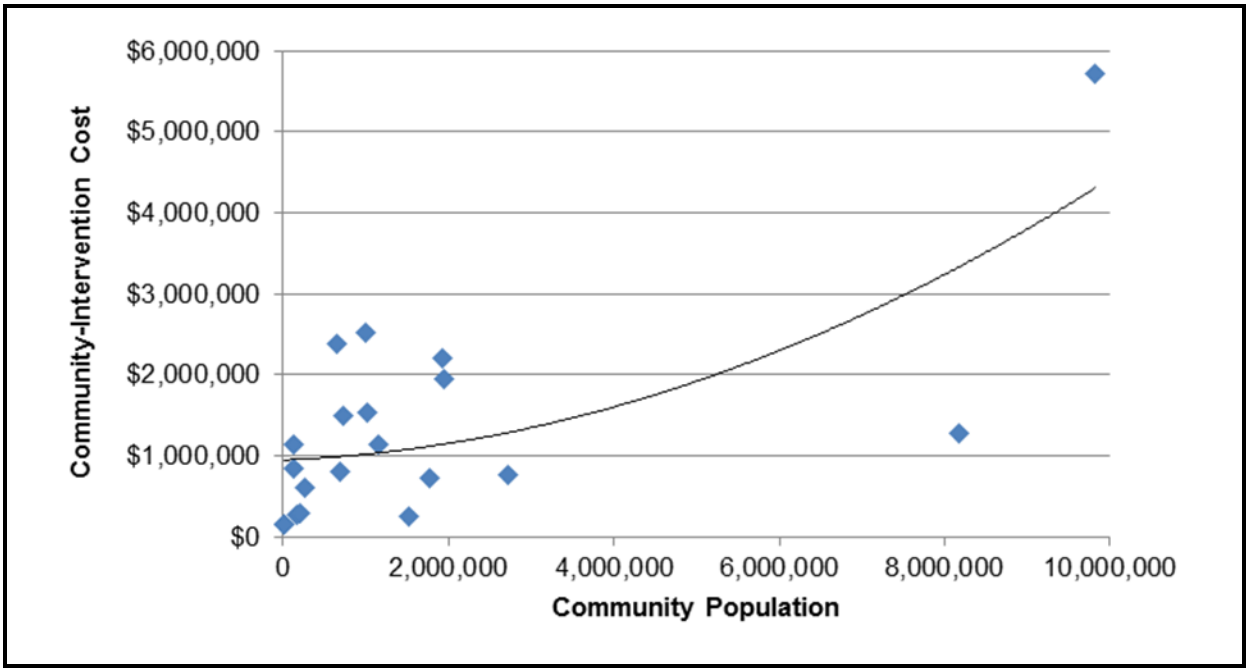


Figure 5-14. Tobacco—Hard-Hitting Counter-Advertising

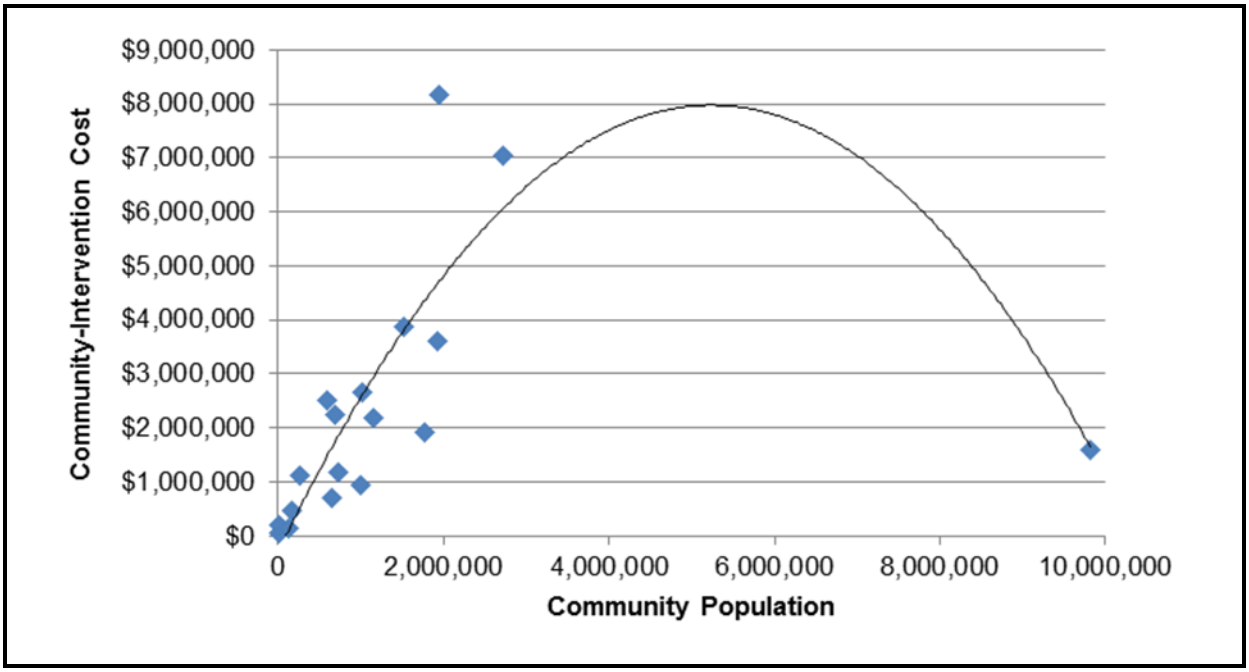


Figure 5-15. Tobacco—Restrict Point-of-Purchase Advertising as Allowable under Federal Law

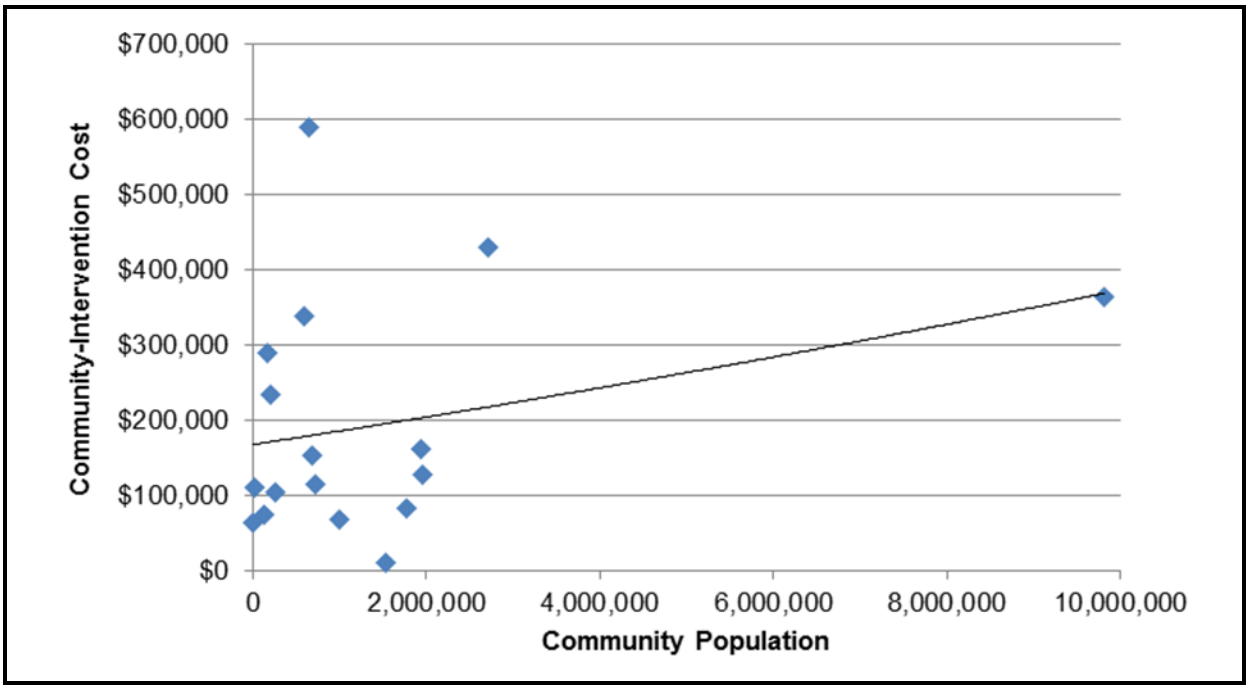


Figure 5-16. Tobacco—Pricing Strategy—Fees

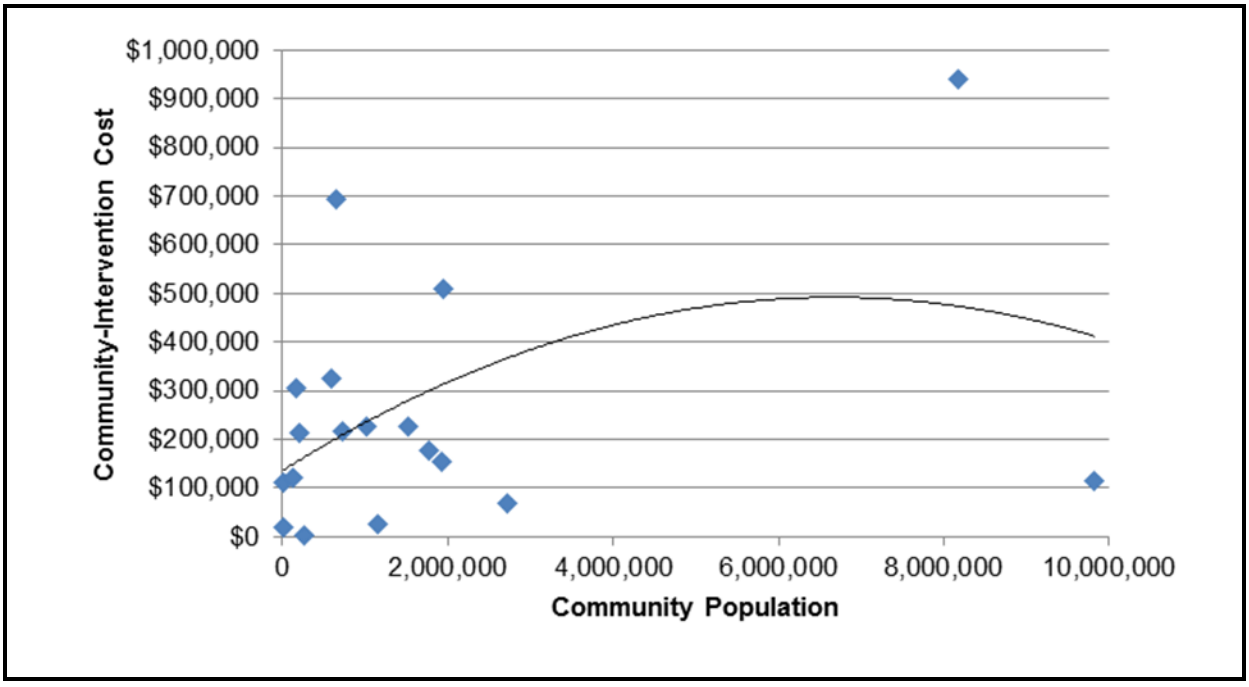


Figure 5-17. Nutrition—Media to Support Improved Nutrition to Prevent Obesity

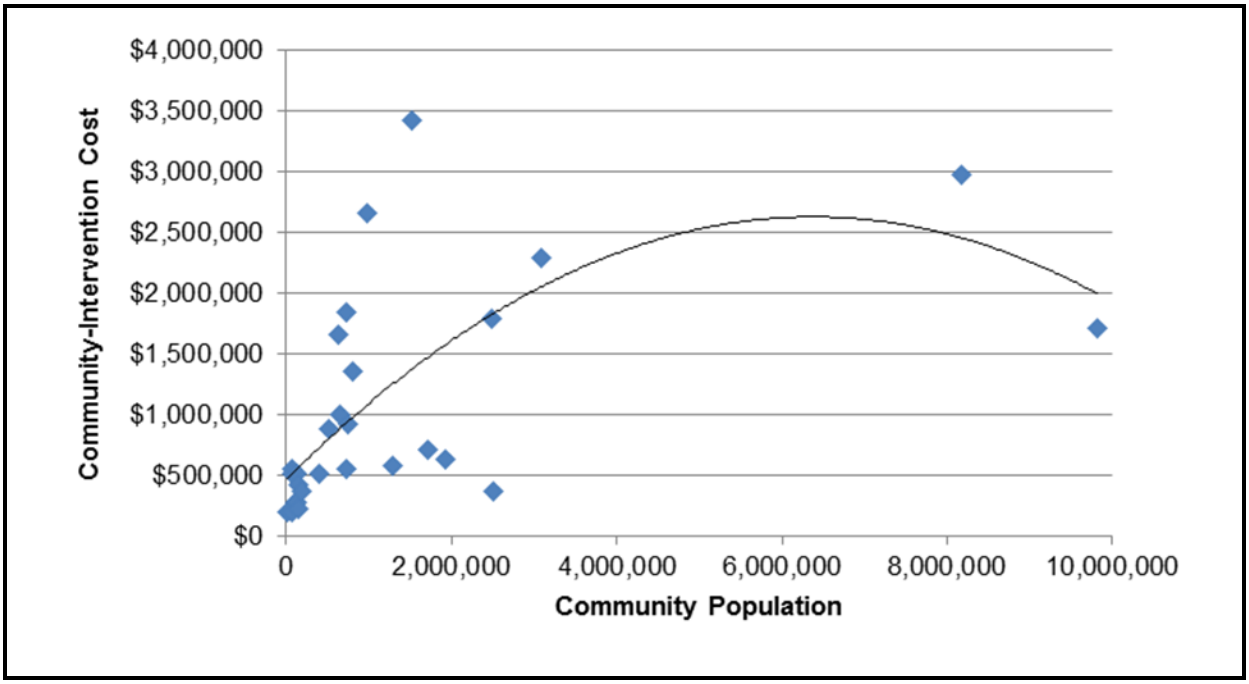


Figure 5-18. Nutrition—Restrict Availability of Less Healthy Foods and Beverages

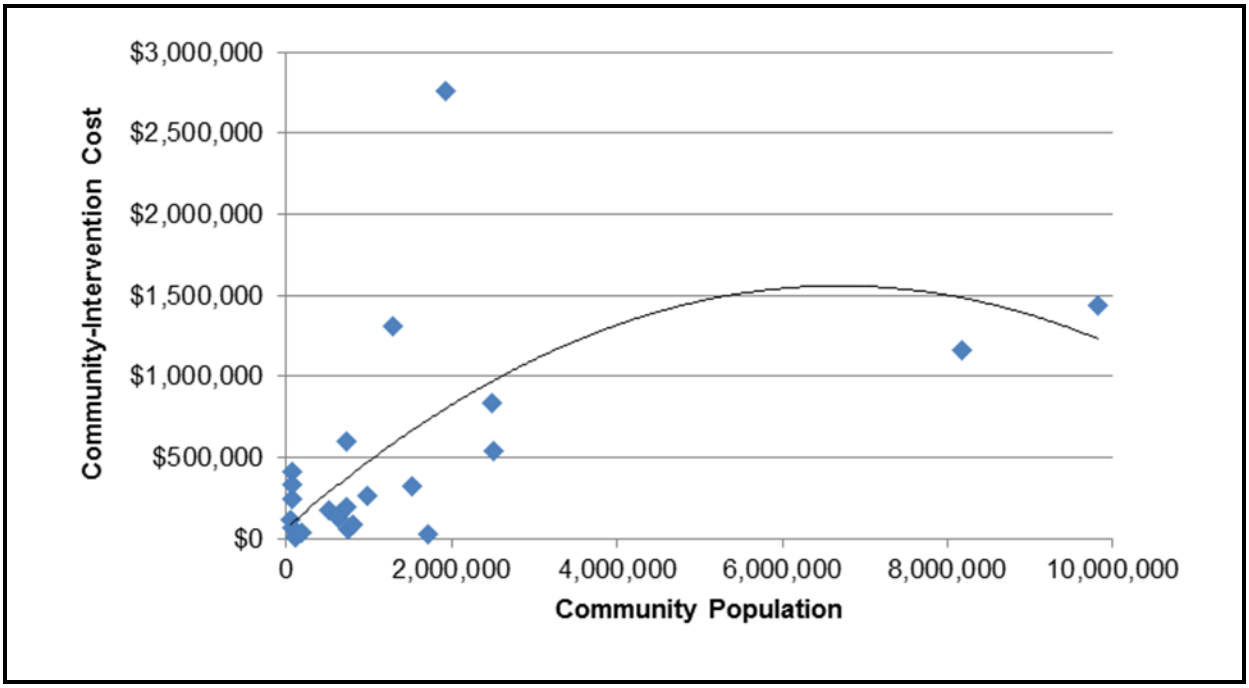


Figure 5-19. Nutrition—Enhance Access to Healthy Food Retailer or Healthier Retail Food, Not Transportation

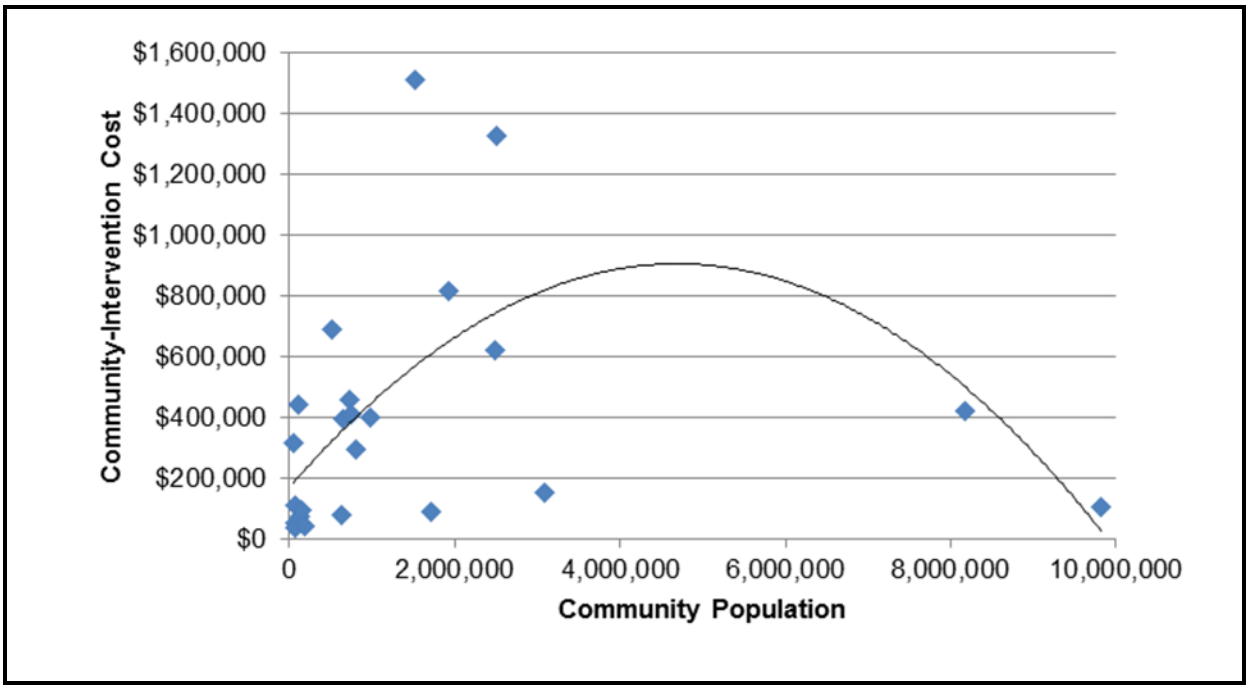


Figure 5-20. Physical Activity—Media to Support Improved Physical Activity to Prevent Obesity

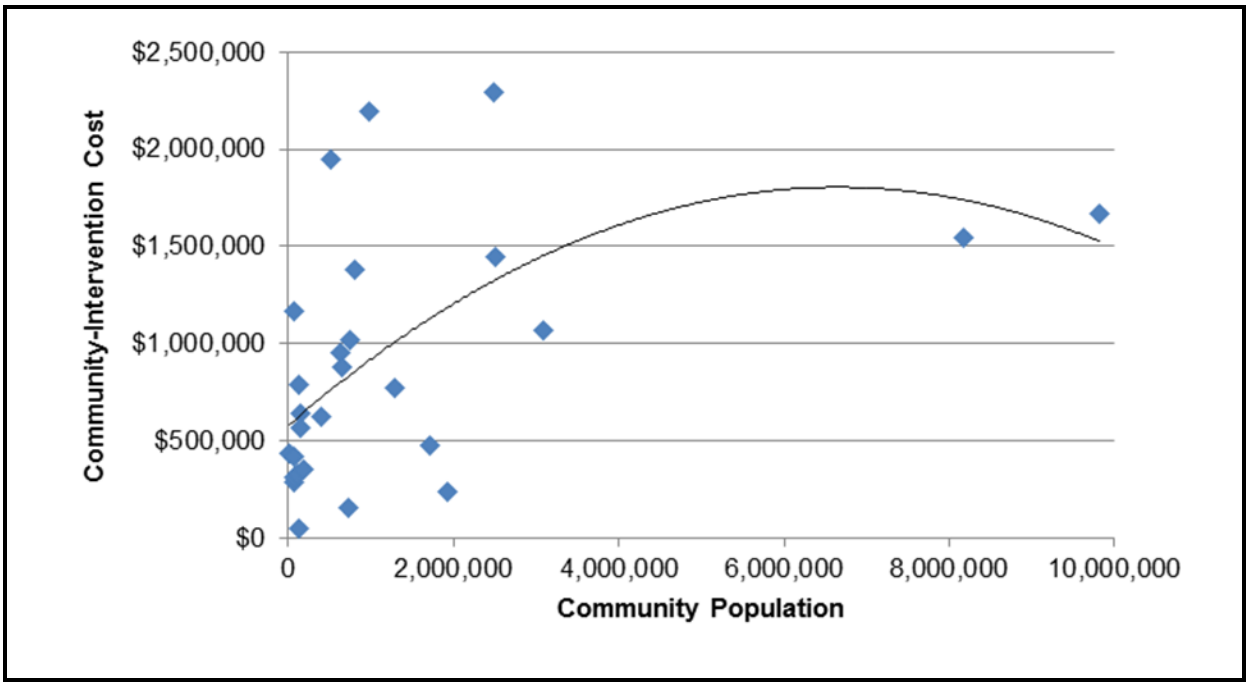
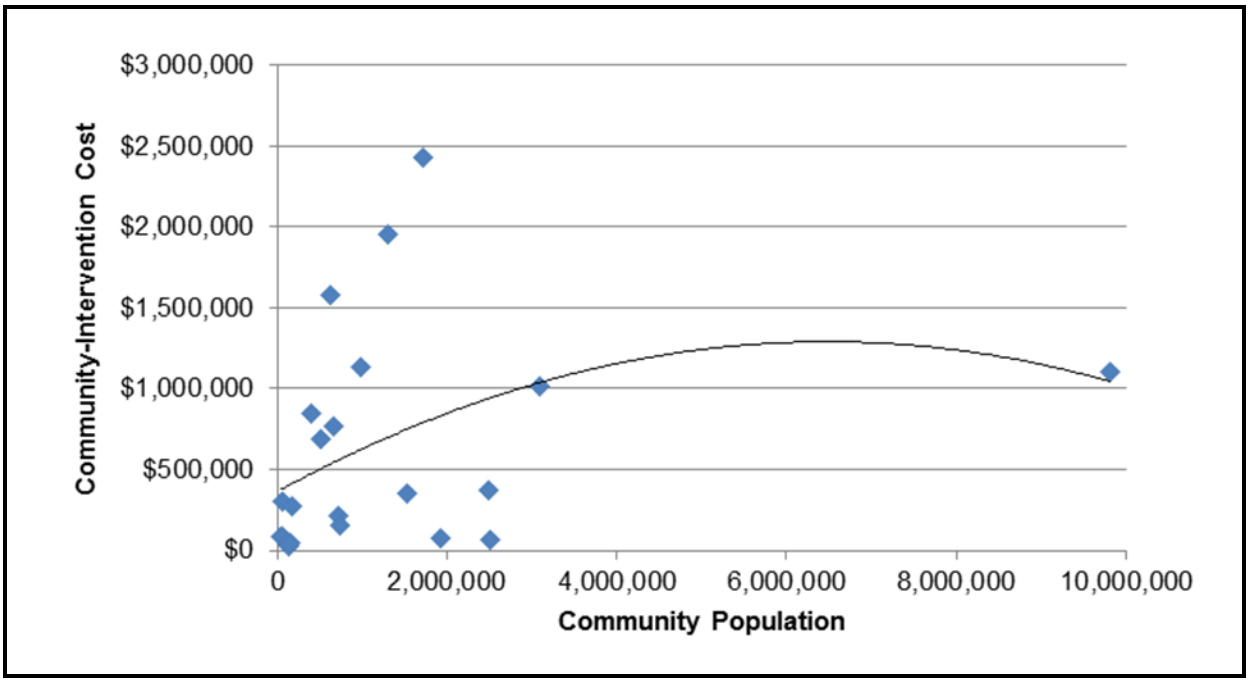


Figure 5-21. Physical Activity—Environmental Supports to Promote Walking and Cycling and Other Physical Activity



5.2.4 Regression Analysis: Community-Intervention Costs

Considering interventions at the community level, we had 768 community-interventions across all 51 cost study communities. By regressing intervention costs at the community level on a number of community and CPPW program features, we were able to assess the relationship between these features and intervention costs at the community level. Results from three model functional forms are shown in Table 5-10.

Across all functional forms of the model, we found that tribal community costs were about $900,000 less per intervention than costs for large cities, holding other variables constant. Similarly, urban community costs per intervention were about $450,000 to $470,000 less than large city intervention costs, and state communities' costs per intervention were about $740,000 to $770,000 less than large city costs. Additionally, the coefficient on the total number of category interventions is negative and significant across different functional forms, suggesting that the more interventions a community has in a given MAPPS category, the lower the cost of any particular intervention in that MAPPS category. This finding may indicate economies of scope in the provision of CPPW interventions. On the other hand, it may reflect the possibility that communities that divided similar amounts of costs across more interventions in a category inevitably had lower costs for each intervention.

Table 5-10. Results of Linear Regression Models of CPPW Intervention Costs by Community

Explanatory Variables	Model 1	Model 2	Model 3
Population (in thousands)	−91 (78)	−87 (83)	−90 (83)
% Below Poverty Line	5,433 (7,947)	5,791 (7,817)	5,542 (7,856)
Tobacco Intervention	−27,319 (94,338)	52,789 (114,717)	54,151 (115,469)
Physical Activity Intervention	866 (42,996)	27,158 (42,810)	22,949 (42,605)
New York or Los Angeles County	965,021 (592,881)	897,880 (604,013)	916,153 (603,315)
Tribal Community	−925,055* (208,223)	−924,324* (207,615)	−922,858* (207,679)
Urban Community	−450,949* (136,770)	−471,533* (155,102)	−471,976* (155,108)
State Coordinated Community	−737,252* (172,067)	−771,053* (192,077)	−771,976* (192,176)
Total Category Interventions	−29,412* (8,006)	−131,463* (33,941)	−142,652* (43,723)
Total Category Interventions_squared	N/A	9,985* (2,869)	9,188* (2,819)
Total Interventions	−26,024* (7,408)	1,435 (25,810)	3,673 (27,012)
Total Interventions^2	N/A	−682 (618)	−809 (728)
Total Category Interventions x Total Interventions	N/A	N/A	856 (1,637)
Total Partners	3,030 (1,878)	1,696 (1,974)	1,788 (1,983)
Labor Cost %	−10,348* (1,278)	−10,632* (1,371)	−10,616* (1,365)
In-Kind Cost %	−7,059* (1,952)	−6,747* (1,922)	−6,771* (1,937)
Administrative Cost %	687 (2,823)	459 (2,743)	392 (2,763)
Constant	1,574,774* (290,733)	1,518,439* (269,900)	1,527,588* (270,453)
Observations	768	768	768
R-squared	0.23	0.24	0.24
Adj. R-squared	0.22	0.22	0.22
F-statistic	10.40	9.27	8.73
Probability > F	0.00	0.00	0.00

* $p < 0.01$

Notes: Robust standard errors are shown in parentheses. N/A = Not included in regression model.

There were 768 combinations of distinct community-interventions. An indicator variable for nutrition interventions is omitted from the model due to multicollinearity (i.e., this is the referent category). An indicator variable for "large city" communities is also omitted from the model due to multicollinearity. "Total Category Interventions" is the number of different interventions within a community/MAPPS category. "Total Interventions" is the number of different interventions within a community regardless of MAPPS category affiliation.

Higher labor and in-kind percentages for an intervention's costs were also significantly associated with lower costs for that intervention. This may reflect that being able to use a large share of grantee labor and in-kind resources to support an intervention's implementation allowed communities to provide these interventions at a lower cost.

6. DISCUSSION

6.1 What Have We Learned about the Costs of Community Interventions from the CPPW Cost Study?

This report presents detailed results on the types of costs incurred by the Communities Putting Prevention to Work (CPPW) communities and their split across the five MAPPS categories and the different CPPW interventions. To our knowledge, the CPPW cost study represents the first effort to provide cost estimates of community-based interventions that were collected using a prospective cost data collection approach.

As expected, on average, half of the funds awarded to the communities were passed on to partners (i.e., 52% of total costs were paid to partners), indicating the importance of partner organizations in implementing the CPPW efforts. Organizations that directly received the awards (e.g., state or local health departments) did not act alone but rather involved other organizations in the community to implement community-based programs. Payments to partners varied widely between communities.

In-kind resources also represented an important contribution to the CPPW program. On average, 6% of the total costs required to implement CPPW efforts were not paid for by the grants but instead were donated in local labor and non-labor contributions. In-kind costs varied widely. In one of the tribal organizations, in-kind contributions accounted for more than half of the total program costs.

Communities were required to conduct evaluations of their programs. An average of 9% of total CPPW costs was spent on evaluation efforts (ranging from 3% to 20%). Communities did not receive specific guidance on how much to spend on evaluations. A few communities received additional funding to conduct enhanced evaluations; those costs are not included in our analysis.

The split of costs across the MAPPS categories varied significantly between tobacco and obesity communities. In tobacco communities, the largest portion of the funds was spent on Media (40%). A significant amount of funds was also spent on Social Support and Services and Access (approximately 25% each). In obesity communities, the majority of the funds were spent on Access (53%); Media and Social Support and Services accounted for 24% and 12%, respectively. The split of costs across MAPPS communities was similar across physical activity and nutrition efforts in the obesity communities. Both tobacco and obesity communities spent a relatively small portion of their funds on Point of Decision/Promotion and Price. Across the communities, we found wide variation in shares of funds going to each MAPPS category. We explored whether there was a relationship between the share spent on each MAPPS category and community size (e.g., whether large communities spent a larger share of their funds on Media), but we found no relationship between shares and size.

Usage bans and hard-hitting counter-advertising were the two most commonly implemented and by far the most expensive interventions among tobacco communities. Media and advertising restrictions consistent with federal law was also a relatively expensive tobacco intervention at the average community level, but it was implemented by less than half of the tobacco communities. In obesity communities, two Media interventions (media to support improved nutrition to prevent obesity and media to support improved physical activity to prevent obesity) were the highest-cost interventions both at the community level and in aggregate.

Our per capita spending estimates indicate that overall spending declined with community size. At the aggregate level, this finding suggests that economies of scale may exist in community-based interventions. However, we cannot definitively state that for two reasons. First, the concept of economies of scale refers to how output changes with inputs (per unit cost decreases as costs are being spread over increasing output), and we do not have measures of output for the CPPW program that can be readily compared to costs. Second, the CPPW Funding Opportunity Announcement contained explicit budget caps and de facto budget caps on the awards. For example, many of the awards for large cities clustered around $15 million; with populations ranging from 1 million to nearly 10 million, this necessarily led to reductions in per capita costs. Although large cities (i.e., communities with high population counts) could have responded to the budget caps by focusing on a limited number of interventions, this did not appear to be the case according to the data that we analyzed.

We learned a number of important lessons as data were collected from the CPPW communities. First, ongoing technical assistance (TA) was essential to ensure compliance with reporting requests and to provide for data submission quality checks. Second, detailed testing of the Cost Study Instrument (CSI) was needed before making the instrument available to communities for Web-based reporting. Third, the data collection system should be flexible enough to accommodate ongoing changes in community efforts because activities, strategies, and interventions can change over time due to improvements or knowledge gained. Frequent monitoring and updates were needed to collect accurate costs while maintaining changes in community efforts. Fourth, although training and setup of cost reporting infrastructure can be time consuming, communities were able to report the required level of data without significant burden. Finally, in-person training site visits were important in establishing rapport and strong working relationships with communities, which improved compliance with the study requirements.

6.2 Strengths and Limitations

We identified a number of strengths and limitations in the CPPW cost data collection, reporting, and analysis. In some cases, the strengths and limitations are inherently linked. For example, collecting data at the objective level and on a quarterly basis improved data

accuracy, but it also increased the burden on communities. To minimize this burden, we did not require communities to provide detailed allocations of objective spending across the strategies contributing to that objective.

6.2.1 Strengths

The first strength of the study is that we developed a systematic prospective cost data collection approach to collect and report costs of interventions that were based on evidence-based strategies. Second, the use of a Web-based cost data collection instrument provided for a central data repository, which simplified aggregation of data across respondents and over time, system checks for minor data entry errors, and system flexibility. The Web-based features were especially useful for CPPW because they accommodated a wide range of strategies undertaken by CPPW communities and made it possible to modify the instrument as needed to reflect ongoing changes in community efforts. Third, the intense TA provided to study respondents on data collection and reporting ensured that data were reported accurately, on time, and consistently across the communities. Finally, the quarterly frequency of data collection was also a significant contributor to data accuracy.

6.2.2 Limitations

The cost data in this study were self-reported. We were able to check the quarterly total costs entered in the CSI against quarterly expenditures reported in financial quarterly American Recovery and Reinvestment Act (ARRA) reports; however, we had no way of verifying the accuracy of reported cost allocations across community objectives and strategies. Furthermore, we could not verify the accuracy and consistency with which in-kind contributions were reported across the communities.

We faced a trade-off between respondent burden and complexity and accuracy of the data when we developed the CSI. Communities were asked to allocate their costs across objectives and then simply check whether those costs should apply to the strategies listed under each objective. To limit respondent burden, we did not ask for specific percentage allocations for each strategy. When one strategy under an objective was selected, 100% of the cost assigned to that objective was assigned to that one strategy. When multiple strategies were checked under an objective, the costs were split equally across the strategies.

Furthermore, respondents were asked to allocate costs across objectives and strategies because—when the CSI was being developed—the list of CPPW interventions had not been determined yet. As a result, instead of obtaining costs at the intervention level directly from the CSI, we had to map costs from the objective/strategy to objective/intervention level. A small degree of accuracy was likely lost during the mapping because strategies did not always have a direct one-to-one link to the interventions.

The quarterly spending rate may not provide a fully accurate indicator of how CPPW work progressed over the duration of the project. We instructed communities to report their costs when they were paid rather than when the work was performed. For example, a partner could have performed the bulk of the work in Quarter 1 and completed it at the beginning of Quarter 2. Because most contracts were set up with payments upon deliverables, this partner would not have received any payments in Quarter 1 but would have received the entire payment in Quarter 2. In our data, all of the costs would have been recorded in Quarter 2.

Our analysis of per capita costs makes use of community population to estimate the cost of each community intervention per person in the community. However, because many of the interventions were targeted to specific subpopulations in the community (e.g., school children or smokers), a preferred measure of per capita cost would estimate the cost per person in the targeted subpopulation or per person reached by intervention activities. We plan to use estimates of the number of people reached by each intervention in future analyses of per capita costs of specific CPPW interventions. This will better facilitate comparisons of intervention costs across communities.

Although all communities submitted data during each reporting period, total costs reported by six communities were slightly higher than their award amounts, and these communities were unable to reconcile the differences. In five of the communities, the difference was less than 1% of the total award. In Multnomah County Health Department, the difference was approximately 3% of the total award.

The CPPW program was implemented as part of the economic stimulus plan with unprecedented amounts funded to the communities. These large grants were awarded for a limited performance period; thus, there is some uncertainty about whether our estimates can be extrapolated directly to other similar community-based programs.

This study was the first step toward understanding and defining costs for prevention activities, and many lessons learned can and should be applied to future studies examining the cost of prevention activities. Typical methods for economic and cost studies may be constraining for prevention activities, and new methods should be explored in the future. More studies are necessary to examine cost-effectiveness and cost-benefit of these types of prevention activities in order to make accurate decisions related to the costs and benefits of prevention activities.

Prevention activity costs should be collected for additional activities related to policy, systems, and environmental change strategies to replicate the information collected in this study and to determine whether there are more efficient or effective ways to collect cost data on population health interventions. The initial goals of this study were to determine how cost data could be collected for prevention activities, to understand the challenges of collecting cost information, and to build an accurate tool for cost data collection. The

Community Transformation Grants program includes an ongoing cost study that was modeled on the CPPW cost study, which will provide additional information on best practices for prevention cost data collection and outcomes. As more prevention programs begin to collect cost data, we plan to assess data collection approaches continually to ensure that costs are collected as accurately and efficiently as possible.

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7. SUMMARY

The Communities Putting Prevention to Work (CPPW) program supported the implementation of a wide variety of tobacco and obesity prevention interventions. The 51 American Recovery and Reinvestment Act (ARRA)-funded programs included in the CPPW cost analysis implemented some combination of 79 different tobacco, nutrition, or physical activity interventions. Our cost analyses describe how communities allocated their CPPW payments and in-kind costs across resource categories (labor, partner, administrative, materials and travel, and consultant costs), across the five MAPPS categories that were the focus of the CPPW program (i.e., **M**edia, **A**ccess, **P**oint of decision/promotion, **P**rice, and **S**ocial support and services), and to the 79 specific interventions. We also assessed how total and per capita CPPW costs differed across initiatives (tobacco, nutrition, and physical activity) and across community types and size.

We estimated that total CPPW program costs (i.e., excluding costs for evaluation efforts and including in-kind costs) were $358 million ($134 million for tobacco and $224 million for obesity); per capita costs ranged from about $1 per person for New York City and Los Angeles County to over $500 for a small tribal community. The largest shares of tobacco communities' costs were for Media (40%), Social Support and Services (27%), and Access (25%) interventions. The tobacco interventions with the highest costs were usage bans ($26 million) and hard-hitting counter-advertising ($40.5 million). For obesity prevention communities, over half of costs were for Access interventions. Nutrition interventions with the highest costs were Media ($29 million) and restricting the availability of less healthy foods and beverages ($11.5 million); for physical activity, the highest cost interventions were Media ($24 million) and environmental supports to promote physical activity ($14 million).

Communities' CPPW costs increased with community size to a certain point, except in large city communities with populations of about 1 million people or more. This relationship may suggest economies of scale in the provision of CPPW program activities, but it may also reflect the fact that the Funding Opportunity Announcement for CPPW provided explicit budget caps. Additionally, the maximum grant award was approximately $16 million, an award that was made to large cities with populations of 1 million to nearly 10 million, which necessarily led to reductions in per capita costs. Large cities could have responded to the budget caps by focusing on a smaller number of interventions than smaller communities, but we found no evidence of this.

The cost estimates described in this report provide information about the allocation of CPPW program costs across activities and by community size. They also provide a useful foundation for conducting additional analyses to compare costs to program outcomes and assessing the cost-effectiveness of specific CPPW interventions.

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Appendix A:
Methods: Assigning Cost to Interventions

Originally, the cost data collection was organized to collect cost data at the objective/Media, Access, Point of decision/Promotion, Price, Social support and services (MAPPS) strategy level. The Centers for Disease Control and Prevention (CDC) created the list of Communities Putting Prevention to Work (CPPW) interventions after the cost data collection efforts were underway, so we were unable to collect costs directly at the intervention level from respondents. However, cost at the intervention level is a more meaningful measure because most other CPPW evaluation efforts are organized around interventions rather than strategies. Because most of the CPPW objectives were linked to several diverse interventions, simply dividing objective-level costs across all interventions could lead to unrealistic intervention cost estimates. More realistic intervention cost estimates would make use of the additional information on MAPPS strategy-level costs that were collected in the Cost Study Instrument (CSI). Thus, we developed an approach that allows us to crosswalk costs from the objective/MAPPS strategy level to the objective/intervention level.

A.1 Background

Each quarter during the CPPW program, RTI received a data capture from the Chronic Disease Management Information Systems (CDMIS) database that contained CPPW objectives and MAPPS strategies assigned to them for each community. These data were uploaded into the CSI, and communities reported and allocated their costs across the objectives and strategies from the CDMIS.

After the cost data collection had started, CDC developed a separate database, the Performance Monitoring (PM) database, that also contained data on CPPW community objectives and MAPPS strategies. Interventions were then assigned to each objective/MAPPS strategy in the PM database. Tables 6, 7, and 8 in the CPPW PM Handbook (O'Neil et al., 2012) developed by CDC show how the intervention categories relate to MAPPS strategies.

However, the MAPPS strategies assigned to objectives in the CDMIS did not always match the MAPPS strategies assigned to objectives in the PM database because the two databases were coded independently. These differences between the two databases created a challenge in mapping costs collected at the objectives/MAPPS strategy level to the objective/intervention level.

A.2 Approach

Our approach for mapping costs to interventions was conducted using the steps outlined below.

Step 1: We identified objective/strategy combinations from the cost database that directly matched objective/strategy combinations in the PM database. We then assigned costs to interventions designated to these objective/strategy combinations in the PM database.

- Fifty three percent of the objectives/strategies from the cost database were matched directly.

Step 2: We used information from Tables 6, 7, and 8 of the PM Handbook to assign interventions to those objective/strategy combinations in the cost database that did not have a direct objective/strategy match in the PM database.

- Twenty seven percent of the objectives/strategies from the cost database had a one-to-one match to an intervention according to the PM Handbook (i.e., a MAPPS strategy was linked to only one intervention).
- Twenty percent of the objectives/strategies from the cost database had one-to-many matches to interventions according to the PM Handbook (i.e., a MAPPS strategy was linked to multiple interventions). Table A-1 presents an example of such a one-to-many match. These cases of one-to-many strategy-to-intervention matches required manual coding. The 20% of objectives/strategies with multiple possible intervention matches accounted for 12% of total costs.

Table A-1. Example of a One-to-Many Match of MAPPS Strategy to Interventions

Objective	MAPPS Strategy	Possible Intervention Options
100 signs will be deployed and installed in locations that provide directions to parks, greenways, and other recreational sites that are underused or have low access.	Safe, attractive accessible places for activity	Create places for physical activity. Enhance personal safety in areas where persons are or could be physically active, not Safe Routes to School. Environmental supports to promote walking and cycling and other physical activity Joint-use agreement

Note: MAPPS = Media, Access, Point of decision/promotion, Price, and Social support and services

Step 3: We manually coded the remaining 20% of the objective/strategy combinations to interventions by first reading the objective text and assigned MAPPS strategy and then selecting the most appropriate intervention from the list of possible interventions. We used information on intervention definitions from Table 5 of the CPPW PM Handbook to guide the assignment decisions. This manual coding was conducted as follows by two coders with input from the management team:

- We ranked the objectives/strategies from highest unallocated cost to lowest unallocated cost.

- Coder 1 manually coded the 10 highest cost objective/strategy combinations to interventions.
  - He described his coding process to the management team, and his approach was codified.
- Coder 1 coded the remaining one-to-many objective/strategy combinations, moving down the list from highest to lowest cost.
- Coder 2 also coded the one-to-many objective/strategy combinations starting with the highest unallocated cost.
  - He coded objectives/strategies until he accounted for at least 15% of the unmatched objective/strategies from the cost database and at least 98% of all costs.
  - Coder 2 completed his coding independently and without consultation with Coder 1.
  - Coders 1 and 2 agreed on 73% of intervention assignments.
- A member of the management team reviewed and resolved intervention assignments that Coders 1 and 2 did not agree on.
- Coder 1 completed assigning interventions for the remaining objective/strategy combinations representing 2% of total costs.

A.3 Limitations

Our approach for assigning costs to interventions is not without limitations. The first limitation is that not all objective/intervention combinations from the PM database will have costs assigned to them. At the same time, some costs will get assigned to "new" interventions (not listed for the objective in the PM database). Table A-2 presents an example of missing and new interventions resulting from our cost mapping. The objective for which linkages are shown in Table A-2 was "Adopt tobacco-free policies including the following components: (1) prohibiting the sale of or free distribution of tobacco products on campus, and (2) prohibiting tobacco advertisements in college-run publications." This objective was coded as "hard-hitting counter-advertising" in the CDMIS, but the "hard hitting counter-advertising" strategy was not assigned to this objective in the PM database. According to the PM Handbook, the MAPPS strategy hard-hitting counter-advertising corresponds to an intervention that is also called "hard-hitting counter-advertising." As a result, we assigned the costs of this objective/strategy to the "hard-hitting counter-advertising" intervention. Because this objective/intervention is not listed in the PM database, our cost mapping created a "new" objective/intervention record. Our approach resulted in 743 new objective/intervention combinations (representing 61.3% of the original objective/intervention combinations from the PM database).

On the other hand, the PM database for this example objective listed "ban branded promotional items and prizes" as a strategy and intervention assigned to this objective. However, we cannot assign costs to this objective/strategy/intervention combination

because it does not have a corresponding objective/strategy match in the cost database. This represents an example of when not all objective/intervention combinations from the PM database will have costs assigned to them. Our approach resulted in 423 (or 34.8%) objective/intervention combinations in the PM database without costs.

Table A-2. Example of Missing and New Interventions Resulting from the Cost Mapping

Database	MAPPS Strategy	Intervention (from the PM Handbook)	Cost
CDMIS	Hard-hitting counter-advertising	Hard-hitting counter-advertising	$>0
PM Database	No match	N/A	N/A

Note: CDMIS = Chronic Disease Management Information System; MAPPS = Media, Access, Point of decision/promotion, Price, and Social support and services; N/A = not applicable; PM = Project Management

Appendix B:
State Median Wages

Table B-1. 2012 Median State Wages

Grantee Name	Median Hourly Wage
Austin Travis County Health and Human Services	$15.55
Boston Public Health Commission (Obesity)	$20.88
Boston Public Health Commission (Tobacco)	$20.88
Cherokee Nation Health Services Group (Obesity)	$14.52
Cherokee Nation Health Services Group (Tobacco)	$14.52
Chicago Center for Health Systems Dev. Inc. dba/PHIMC	$17.06
County of Los Angeles, Department of Public Health (Obesity)	$18.64
County of Los Angeles, Department of Public Health (Tobacco)	$18.64
County of Pima	$16.34
County of San Diego Health and Human Services Agency	$18.64
County of Santa Clara Public Health Department	$18.64
County of St. Louis	$15.21
DeKalb County Board of Public Health	$15.48
District of Columbia Department of Health	$29.79
Douglas County Health Department	$15.01
Fund for Public Health in New York, Inc. (Obesity)	$19.19
Fund for Public Health in New York, Inc. (Tobacco)	$19.19
Great Lakes Inter-Tribal Council, Inc.	$16.18
Hamilton County General Health District	$16.03
Indiana State Department of Health (Bartholomew County)	$15.26
Indiana State Department of Health (Vanderburgh County)	$15.26
Iowa Department of Public Health (Linn County)	$15.33
Iowa Department of Public Health (Ringgold County)	$15.33
Jefferson County Board of Health (Obesity)	$14.40
Jefferson County Board of Health (Tobacco)	$14.40
Louisville/Jefferson County Metro Government	$14.78
Maine Department of Health (Healthy Lakes)	$15.84
Maine Department of Health (Portland)	$15.84
Metro Public Health Department of Nashville/Davidson County	$14.59
Miami-Dade County Health Department	$14.72
Minnesota Department of Health (Minneapolis)	$17.74

(continued)

Table B-1. 2012 Median State Wages (continued)

Grantee Name	Median Hourly Wage
Minnesota Department of Health (Olmsted County)	$17.74
Multnomah County Health Department	$17.14
Orange County Health Department	$14.72
Philadelphia Department of Public Health (Obesity)	$16.78
Philadelphia Department of Public Health (Tobacco)	$16.78
Pueblo of Jemez	$15.11
Respiratory Health Association of Metropolitan Chicago	$17.06
Rhode Island Department of Health	$17.96
San Antonio Metropolitan Health District	$15.55
Seattle and King County Public Health (Obesity)	$19.47
Seattle and King County Public Health (Tobacco)	$19.47
South Carolina Department of Health and Environmental Control (Florence County)	$14.52
South Carolina Department of Health and Environmental Control (Horry County)	$14.52
Southern Nevada Health District	$15.87
State of Hawaii Department of Health, Kauai District Health	$17.47
State of Hawaii Department of Health, Maui District Health	$17.47
Tri-County Health Department	$17.84
West Virginia Department of Health and Human Resources (Mid-Ohio Valley Health Department)	$13.73
Wisconsin Department of Health and Family Services (LaCrosse County)	$16.18
Wisconsin Department of Health and Family Services (Wood County)	$16.18

Notes: Median wages are for the entire state in which community is located.

Source: Bureau of Labor Statistics. May 2012 State Occupational Employment and Wage Estimates. Retrieved August 5, 2013, from http://www.bls.gov/oes/current/oessrcst.htm