

# CHOICES NATIONAL ACTION KIT:

## Active Physical Education Strategy Report



CHOICES uses cost-effectiveness analysis to compare the costs and outcomes of different policies and programs promoting improved nutrition or increased physical activity in schools, early care and education and out-of-school settings, communities, and clinics. This strategy report describes the projected national population reach, impact on health and health equity, implementation costs, and cost-effectiveness for an effective strategy to improve child health. This information can help inform decision-making around promoting healthy weight. To explore and compare additional strategies, visit the CHOICES National Action Kit at [www.choicesproject.org/actionkit](http://www.choicesproject.org/actionkit).



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### SUGGESTED CITATION:

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## STRATEGY PROFILE

Describes the estimated benefits, activities, resources, and leadership needed to implement a strategy to improve child health. This information can be useful for planning and prioritization purposes.

**Active PE is a policy that requires that 50% of time provided in physical education classes for grades K-8 be spent in moderate-to-vigorous physical activity. Physical education teachers are trained to promote physical activity during PE classes using the SPARK or CATCH curricula.**

### WHAT POPULATION BENEFITS?

Children in grades K-8 (5-14 years old).

### WHAT ARE THE ESTIMATED BENEFITS?

*Relative to not implementing the strategy*

Increase students' moderate-to-vigorous physical activity levels and, in turn, promote healthy child weight.



✓ Increase students' moderate-to-vigorous physical activity levels



✓ Prevent cases of obesity



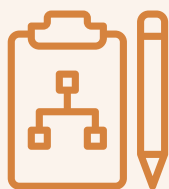
✓ Likely to improve health equity by race, ethnicity, and income

➔ More details available on the CHOICES National Action Kit at [choicesproject.org/actionkit](https://choicesproject.org/actionkit)

WHAT ACTIVITIES AND RESOURCES ARE NEEDED?

Activities	Resources	Who Leads?
Oversee training and implementation of Active PE in schools	<ul style="list-style-type: none"> <li>Time for state PE coordinator to oversee implementation and training</li> </ul>	State PE coordinator
Monitor compliance with moderate-to-vigorous physical activity policy	<ul style="list-style-type: none"> <li>Time for state PE coordinator to monitor compliance with policy</li> </ul>	State PE coordinator
Train PE teachers through state trainings	<ul style="list-style-type: none"> <li>Time for SPARK/CATCH training consultant to lead trainings</li> <li>Time for PE teachers to attend trainings</li> <li>Travel costs for PE teachers and SPARK/CATCH training consultants to attend trainings</li> </ul>	SPARK/CATCH training consultant
Purchase PE equipment and curricula	<ul style="list-style-type: none"> <li>PE equipment costs</li> <li>SPARK or CATCH curricula costs</li> </ul>	Schools
Train principals in assessing moderate-to-vigorous physical activity in PE classes at a state principals association event	<ul style="list-style-type: none"> <li>Time for training consultant to lead trainings</li> <li>Incremental time increase for principals to attend trainings on evaluating PE</li> <li>Travel costs for training consultants</li> </ul>	Training consultant

**Strategy Modification**



State and local health agencies modified this strategy in the following ways: 1) Some health agencies modified this strategy to be a best practice or implementation guideline instead of a policy. With this modification, the strategy would cost less because activities to monitor compliance, including training principals, would not occur. Additionally, a percentage – instead of all PE teachers – might be trained using this modification, which would mean reaching fewer children. 2) Some health agencies modified this strategy to use a train-the-trainer model. This modifies the training model so that the training consultants train school district master trainers and the master trainers lead trainings for the PE teachers. Modifying the strategy this way could cost less.

- See our resource library for relevant peer-reviewed publications, research reports, & briefs at [choicesproject.org/resource-library](https://choicesproject.org/resource-library)
- Learn more about strategy modifications and CHOICES projections of the strategy Active PE for US states and local areas:
  - [Allegheny County, PA](#)
  - [Hawaii](#)
  - [Iowa](#)
- Learn more about the evidence for the strategy Active PE in the CHOICES peer-reviewed publication: [Cradock et al. 2017. Am J Prev Med](#)

*Adapted from CHOICES Strategy Profile: Active Physical Education (Active PE) CHOICES Project Team at the Harvard T.H. Chan School of Public Health, Boston, MA; April 2022.*

## NATIONAL RESULTS

Projected national population reach, impact on health behaviors and prevention of excess weight gain, implementation costs, and health care cost savings for the strategy. These national results may help inform your organization's decision-making around promoting healthy weight.

<b>DESCRIPTION</b>	Policy/best practice guidelines requiring that 50% of time provided in physical education classes for grades K-8 be spent in moderate-to-vigorous physical activity
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OUTCOME	Mean (95% UI)*
<b>BEHAVIOR CHANGE PER PERSON</b> <i>Change in health behavior per person in the first year</i>	<b>269 more minutes of physical activity</b> (123; 442) <i>Moderate-to-vigorous physical activity minutes, per year</i>
<b>COST PER PERSON</b> <i>Average annualized cost per person to implement the strategy over the model period</i>	<b>\$2.20</b> (\$1.79; \$3.52) <a href="#">See Cost Results</a>
<b>POPULATION REACH</b> <i>Reach over the model period</i>	<b>49,400,000</b> (48,500,000; 50,200,000)
<b>OBESITY PREVENTED</b> <i>Cases of obesity prevented in the final year</i>	<b>11,500</b> (2,460; 26,300)
<b>CHILD OBESITY PREVENTED</b> <i>Cases of child obesity prevented in the final year</i>	<b>8,570</b> (368; 22,400)
<b>HEALTH EQUITY IMPACT</b> <i>Impact on obesity-related health equity in the final year</i>	<b>Likely to improve health equity by race, ethnicity, &amp; income</b> <a href="#">See Health Equity Indicators</a>
<b>QUALITY-ADJUSTED LIFE YEARS (QALYS) GAINED</b> <i>Quality-adjusted life years (QALYs) gained (totals over the model period)</i>	<b>3,760</b> (772; 8,480)
<b>OBESITY YEARS PREVENTED</b> <i>Years with obesity prevented (totals over the model period)</i>	<b>83,300</b> (17,600; 190,000)
<b>HEALTH CARE COSTS SAVED PER \$1 INVESTED</b> <i>Total health care costs saved per total intervention costs over the model period</i>	<b>\$0.01</b> (\$0.001; \$0.02)
<b>COST PER QALY GAINED</b> <i>Net cost per quality-adjusted life year (QALY) gained (totals over the model period)</i>	<b>\$287,000</b> (\$118,000; \$1,310,000)

Projections for the model period 2022-2031 (10 years, inclusive of the start and end years).

Costs are in 2019 dollars and discounted at 3% annually.

\*Results displayed are the mean and 95% uncertainty interval (UI). CHOICES calculates 95% uncertainty intervals by running the model 1,000 times and reporting the range (95% of estimates, centered on the mean) of projected outcomes that account for uncertainty from data sources and population projections.

- ✓ Explore our [User Guide](#) for more information about the CHOICES National Action Kit at [choicesproject.org/action-kit-user-guide](https://choicesproject.org/action-kit-user-guide)
- ✓ Learn more about CHOICES Methods at [choicesproject.org/methods](https://choicesproject.org/methods)
- ✓ Find definitions of each modeled outcome in the [Glossary \(p.12\)](#) at [choicesproject.org/action-kit-glossary](https://choicesproject.org/action-kit-glossary)

## COST RESULTS

Describes the estimated costs by activity and payer needed to implement a strategy to improve child health nationally. This information can be useful for planning and prioritization purposes.

This report includes estimates of the implementation costs of Active PE if implemented in each state in the United States. Costs are estimated from a societal perspective, meaning costs needed to implement the strategy are included regardless of who pays or whether the costs are budgetary or opportunity costs.

Average Annual Strategy Implementation Cost by Activity and Payer				
Activity	Resources	Cost per Person†	Payer	Percent of Total Cost
Oversee training and implementation of Active PE in schools	<ul style="list-style-type: none"> <li>• Time for state PE coordinator to oversee implementation and training</li> </ul>	\$0.01	State government	<1%
Monitor compliance with moderate-to-vigorous physical activity policy	<ul style="list-style-type: none"> <li>• Time for state PE coordinator to monitor compliance with policy</li> </ul>	\$0.002	State government	<1%
Train PE teachers through state trainings	<ul style="list-style-type: none"> <li>• Time for SPARK/CATCH training consultant to lead trainings</li> <li>• Time for PE teachers to attend trainings</li> <li>• Travel costs for PE teachers and SPARK/CATCH training consultants to attend trainings</li> </ul>	\$0.74	State government, School	34%
Purchase PE equipment and curricula	<ul style="list-style-type: none"> <li>• PE equipment costs</li> <li>• SPARK or CATCH curricula costs</li> </ul>	\$1.42	State government, School	65%
Train principals in assessing moderate-to-vigorous physical activity in PE classes at a state principals association event	<ul style="list-style-type: none"> <li>• Time for training consultant to lead trainings</li> <li>• Incremental time increase for principals to attend trainings on evaluating PE</li> <li>• Travel costs for training consultants</li> </ul>	\$0.03	State government, School	1%
<b>TOTAL</b>	--	<b>\$2.20</b>	--	<b>100%</b>

Costs are in 2019 dollars and discounted at 3% per year. Sums may not equal total due to rounding.

†Average annualized cost per person to implement the strategy over the model period 2022-2031 (10 years).

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ACTIVE PHYSICAL EDUCATION COST RESULTS *(continued)*

Average Annual Strategy Implementation Cost by Payer and Cost Type			
Payer	Cost per Person†		
	All Costs (% of Total)	Budgetary Costs (% of All Costs by Payer)	Opportunity Costs (% of All Costs by Payer)
Federal government	--	--	--
State government	\$0.04 (2%)	\$0.01 (20%)	\$0.03 (80%)
Local government	--	--	--
School district	--	--	--
School	\$2.16 (98%)	\$1.63 (75%)	\$0.53 (25%)
Family/Individual	--	--	--
Industry	--	--	--
Nonprofit	--	--	--
Health care	--	--	--
<b>TOTAL</b>	<b>\$2.20 (100%)</b>	<b>\$1.64 (75%)</b>	<b>\$0.56 (25%)</b>

Costs are in 2019 dollars and discounted at 3% per year. Sums may not equal total due to rounding.

†Average annualized cost per person to implement the strategy over the model period 2022-2031 (10 years).

→ To compare the costs and impacts of strategies, use the [CHOICES National Action Kit comparison builder](#). The strategy implementation cost tables included in this report may provide information useful for planning purposes.

### DEFINITIONS

**All costs** include budgetary and opportunity costs.

**Budgetary costs** refer to the actual financial costs incurred.

**Opportunity costs** refer to the value of what you have to give up in order to choose something else. For example, if an annual professional development training for bullying prevention is replaced with a training for active physical education, there is no budgetary impact, but costs for teachers to attend the training are considered an opportunity cost. The opportunity cost of their time is included in a cost analysis from a societal perspective.

## HEALTH EQUITY INDICATORS

Describes the projected impact of implementing a strategy nationally on health equity by race, ethnicity, and income.

Every person deserves access to healthy foods and drinks and opportunities to be physically active, which can help them grow up and live at a healthy weight. However, obesity levels vary by race, ethnicity, and income. Nationally, current and future projected obesity levels are highest among Black or African American and Hispanic or Latino race and ethnicity groups and populations with low household incomes.<sup>1</sup> These disparities are driven by many forces, including commercial determinants leading to increased intake of highly processed and marketed foods and drinks, as well as structural racism and social and economic determinants of health.<sup>2-4</sup> Effective policy and programmatic strategies promoting improved nutrition and increased physical activity can reduce health disparities and improve health equity.

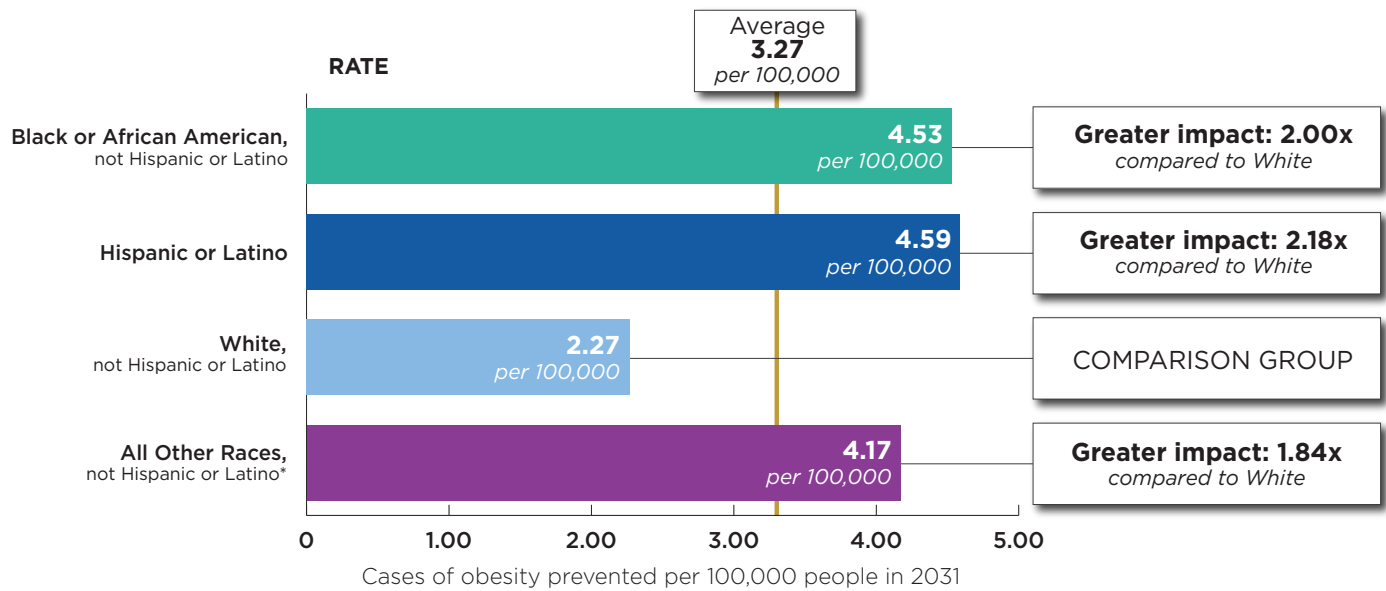
### KEY TAKEAWAYS

If implemented over 10 years (2022-2031), this strategy is projected to:

- ✓ Prevent 11,500 cases of obesity in 2031
- ✓ Prevent cases of obesity in all race, ethnicity, and income groups
- ✓ Improve health equity by race, ethnicity, and income

Learn more about CHOICES methods for projecting health equity impacts at [choicesproject.org/methods/healthequity](https://choicesproject.org/methods/healthequity)

### Comparative projected impact of the strategy by race and ethnicity



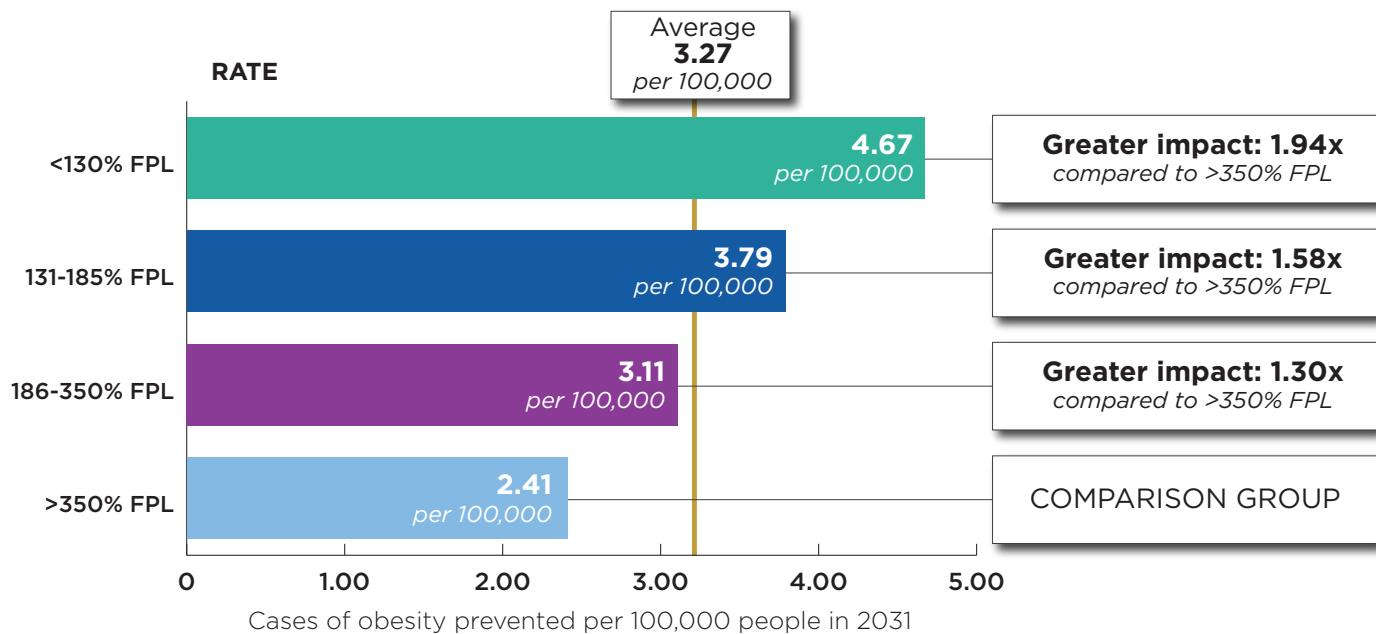
\*All Other Races includes people who identify as American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, Multi-racial, or another race or ethnicity not represented in the categories shown. While each of these groups represent distinct populations with differences in health opportunities, risk, and outcomes, they are summarized together due to limited data in national- and state-level surveillance systems.



The Black or African American and Hispanic or Latino populations are projected to experience the largest preventive benefits, which are 2.00 and 2.18 times greater compared to the White population. *The comparative impact in each population group compared to the population average is provided in a table on [page 9](#).*

Continued on the next page

**Comparative projected impact of the strategy by household income as a percentage of the federal poverty level (FPL)**



Populations with lower household incomes (185% FPL or less) are projected to experience preventive benefits that are 1.58-1.94 times greater compared to populations with the highest income (>350% FPL). *The comparative impact in each population group compared to the population average is provided in a table on [page 9](#).*

**How is this strategy expected to impact health equity?**

Every child deserves opportunities to be physically active each day to support their health and wellbeing. Physical activity plays a vital role in children’s physical and mental health.<sup>5</sup> While not all children have access to safe streets, playgrounds, or spaces to be physically active,<sup>6,7</sup> schools can provide an environment that supports physical activity. Physical education (PE) is the cornerstone of school-based physical activity opportunities, and an active PE policy requiring that 50% of time provided in PE classes for grades K-8 be spent in moderate-to-vigorous physical activity is one strategy to promote physical activity in elementary and middle schools. Helping all physical education teachers integrate best practices for quality, active PE will ensure more students have an opportunity to be active and grow up healthy and ready to learn. Promoting active PE in public schools is expected to improve student health and promote health equity for Black and Hispanic or Latino students and students from households with lower incomes, who are more likely to attend public schools than non-Hispanic White students and students in households with higher incomes.<sup>8-11</sup>

*Continued on the next page*



**Projected impact of the strategy by race, ethnicity and income, mean (95% UI)<sup>a</sup>**

	<b>OBESITY PREVENTED</b>	<b>OBESITY PREVENTED PER 100,000</b>	<b>COMPARATIVE IMPACT<sup>b</sup></b>	
	<i>Cases of obesity prevented in the final year</i>	<i>Cases of obesity prevented per 100,000 people in the final year</i>	<i>Ratio of obesity prevented per 100,000</i>	
<b>Race and Ethnicity</b>			<b><u>Compared with White, not Hispanic or Latino</u></b>	<b><u>Compared with Population Average</u></b>
<b>Overall</b>	<b>11,500</b> (2,460; 26,300)	<b>3.27</b> (0.70; 7.48)	--	<b>1.00 (Reference)</b> N/A
Black or African American, not Hispanic or Latino	<b>2,030</b> (396; 4,770)	<b>4.53</b> (0.89; 10.7)	<b>2.00</b> (1.17; 3.33) <i>99% likelihood of greater impact</i>	<b>1.39</b> (0.91; 1.96) <i>95% likelihood of greater impact</i>
Hispanic or Latino	<b>3,550</b> (736; 8,230)	<b>4.95</b> (1.02; 11.5)	<b>2.18</b> (1.39; 3.80) <i>99% likelihood of greater impact</i>	<b>1.51</b> (1.06; 2.02) <i>99% likelihood of greater impact</i>
White, not Hispanic or Latino	<b>4,630</b> (851; 10,700)	<b>2.27</b> (0.42; 5.24)	<b>1.00 (Reference)</b> N/A	<b>0.69</b> (0.52; 0.84) <i>&gt;99% likelihood of lesser impact</i>
All Other Races, not Hispanic or Latino <sup>c</sup>	<b>1,300</b> (226; 3,030)	<b>4.17</b> (0.72; 9.81)	<b>1.84</b> (1.09; 3.01) <i>98% likelihood of greater impact</i>	<b>1.28</b> (0.77; 1.89) <i>87% likelihood of greater impact</i>
<b>Household Income as a percentage of the federal poverty level (FPL)</b>			<b><u>Compared with &gt;350% FPL</u></b>	<b><u>Compared with Population Average</u></b>
<b>Overall</b>	<b>11,500</b> (2,460; 26,300)	<b>3.27</b> (0.70; 7.48)	--	<b>1.00 (Reference)</b> N/A
<130% FPL	<b>3,910</b> (822; 9,020)	<b>4.67</b> (0.98; 10.7)	<b>1.94</b> (1.34; 2.77) <i>&gt;99% likelihood of greater impact</i>	<b>1.43</b> (1.17; 1.73) <i>&gt;99% likelihood of greater impact</i>
131-185% FPL	<b>1,380</b> (284; 3,230)	<b>3.79</b> (0.78; 8.74)	<b>1.58</b> (0.95; 2.45) <i>96% likelihood of greater impact</i>	<b>1.16</b> (0.75; 1.61) <i>82% likelihood of greater impact</i>
186-350% FPL	<b>2,820</b> (510; 6,750)	<b>3.11</b> (0.56; 7.45)	<b>1.30</b> (0.83; 1.85) <i>90% likelihood of greater impact</i>	<b>0.95</b> (0.71; 1.17) <i>70% likelihood of lesser impact</i>
>350% FPL	<b>3,380</b> (765; 7,850)	<b>2.41</b> (0.54; 5.59)	<b>1.00 (Reference)</b> N/A	<b>0.74</b> (0.59; 0.91) <i>99% likelihood of lesser impact</i>

Projections for the model period 2022–2031 (10 years, inclusive of the start and end years).

<sup>a</sup>Results displayed are the mean and 95% uncertainty interval (UI). CHOICES calculates 95% uncertainty intervals by running the model 1,000 times and reporting the range (95% of estimates, centered on the mean) of projected outcomes that account for uncertainty from data sources and population projections.

<sup>b</sup>Ratio that compares cases of obesity prevented per 100,000 in each population group with the reference group. When the value is greater than 1.0 for a population group, we project a greater health benefit for that group compared with the reference group. When the value is less than 1.0, we project a lesser health benefit. Note: Ratios are sensitive to extremely high and low rates, so they should be interpreted in the context of the absolute rates, represented by Obesity Prevented per 100,000 here. Results may differ if estimating absolute rates and relative impacts among children only. Likelihood of greater or lesser impact compared with the reference group is estimated based on running the model 1,000 times.

<sup>c</sup>All Other Races includes people who identify as American Indian/Alaska Native, Native Hawaiian or Pacific Islander, Multi-racial, or another race or ethnicity not represented in the categories shown. While each of these groups represent distinct populations with differences in health opportunities, risks, and outcomes, they are summarized together due to limited data in national- and state-level surveillance systems.

## STRATEGY DETAILS & MODELING METHODS

*Describes the reach, effect, and cost assumptions used to make national projections for the strategy, and provides links to additional resources related to the strategy.*

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### STRATEGY

The CHOICES model for nationwide implementation of the Active Physical Education (Active PE) intervention would be a state policy requiring that 50% of physical education (PE) time be devoted to moderate-to-vigorous physical activity (MVPA) at the elementary and middle school levels.<sup>12</sup> The intervention was based on policies passed by the state legislatures in Texas (SB 891) and Oklahoma (SB 1876), where state policy directs the U.S. state boards of education (i.e., boards with regulatory or policy authority in educational settings in each state) to include a requirement that 50% of PE time be devoted to MVPA in the state PE curriculum for elementary and middle school levels.<sup>12</sup>

The SPARK PE<sup>13</sup> or CATCH PE<sup>14</sup> models would be used to implement the state policy. According to these models, all PE teachers would be trained on the SPARK or CATCH curricula and schools would purchase portable equipment and materials to promote MVPA in PE.

### REACH

The intervention would reach children in grades kindergarten through 8 (ages 5-14) who attend public elementary and middle schools in states without an Active PE policy and whose teachers implement the policy.<sup>15</sup> The reach is limited to this group of children as this is where the current body of evidence lies.<sup>16</sup> Idaho, Oklahoma, Texas, West Virginia, and the District of Columbia are not eligible for this strategy as they currently have an Active PE policy in place.

Active PE would have a 10-year reach of 49.4 million children.

### EFFECT

A systematic review found that, after putting an Active PE strategy into place by incorporating teaching strategies to increase MVPA levels, the average MVPA increase was about 6% of class time.<sup>16</sup> Every 1 MVPA minute per day increase due to Active PE would correspond with a lower BMI change of 0.02 units.<sup>17</sup>

Active PE would engage children in 269 more minutes of MVPA per person per year. In the year 2031, 11,500 cases of obesity would be prevented.

### COST

Implementation of this intervention requires additional state-level coordinator time for oversight of training and policy implementation and for monitoring compliance to the policy. Each participating teacher would attend a one-time full-day training in the first year of implementation and each school would purchase portable equipment and materials to promote MVPA in PE.<sup>15</sup> After the first year of implementation, the full training would be attended only by teachers newly hired in a district each year, and a shorter, refresher training would be attended by teachers remaining in the same district.<sup>15</sup> Each year, principals would attend a brief training on how to assess MVPA in PE as part of their annual evaluation of PE teachers.<sup>15</sup>

Active PE would incur an annual cost per child of \$2.20.

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### CHOICES METHODS

CHOICES uses cost-effectiveness analysis to compare the costs and outcomes of different policies and programs promoting improved nutrition or increased physical activity in schools, early care and education and out-of-school settings, communities, and clinics. Our methods include:

- **Key partner consultation:** Working with key partners & researchers to identify the most promising programs & policies for evaluation
- **U.S. population model:** Building a computer model of the U.S. population & projecting Body Mass Index (BMI) changes & health outcomes over time
- **Systematic reviews & meta-analyses:** Synthesizing scientific literature to estimate the likely effects of promising obesity prevention interventions on BMI & physical activity
- **Cost-effectiveness analysis:** Integrating information on the economic costs & health effects of interventions, utilizing a structured & transparent process
- **Health equity lens:** Projecting the impact of effective intervention strategies on population health and health equity

Learn more about CHOICES methods at [choicesproject.org/methods](https://choicesproject.org/methods).

### WHY DOES CHOICES USE BMI AS A POPULATION HEALTH INDICATOR?

CHOICES focuses on programs and policies that can help reverse the societal and environmental conditions that drive increases in excess body weight and that emphasize healthy eating, improved physical activity, and reduced screen viewing. Excess body weight is associated with reduced quality of life and increased risk for chronic diseases like diabetes, heart disease, and cancers,<sup>18</sup> greater healthcare expenditures,<sup>19</sup> and increased mortality risk.<sup>20</sup> Obesity is a category of excess weight defined by body mass index (BMI), which is calculated as the ratio of a person's weight (kg) to their height squared (m<sup>2</sup>).<sup>21</sup> Obesity is a chronic health condition recognized by the National Institutes of Health, the American Medical Association, Medicare, and Medicaid.

BMI is a useful population health indicator, although it does have limitations. BMI has been shown to be a good measure of individual-level adiposity, correlating highly ( $r=0.8$ ) with gold standard measures of percent body fat, among adults, children and adolescents and for different gender and racial and ethnic groups.<sup>22,23</sup> BMI is relatively simple to collect and easy to calculate, and it is used widely in medical and scientific research to measure population health.

However, weight stigma occurs when people are blamed for their weight. Weight stigma can increase a person's risk of engaging in unhealthy eating behaviors and low levels of physical activity and can reduce both the quality of health care a person receives and their utilization of care, all undermining public health.<sup>24</sup> CHOICES evaluates the cost-effectiveness of policies and programs aimed at improving nutrition and physical activity environments, promoting related health behaviors, and promoting a healthy weight across all population groups and BMI levels.

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### **For Additional Information**

Contact the CHOICES team at [choicesproject@hsph.harvard.edu](mailto:choicesproject@hsph.harvard.edu) for additional information about model assumptions.

Cradock AL, Barrett JL, Kenney EL, Giles CM, Ward ZJ, Long MW, Resch SC, Pipito AA, Wei ER, Gortmaker SL. Using cost-effectiveness analysis to prioritize policy and programmatic approaches to physical activity promotion and obesity prevention in childhood. *Prev Med.* 2017 Feb;95 Suppl: S17-S27. doi: 10.1016/j.ypmed.2016.10.017. Supplemental Appendix with strategy details available at: <https://ars.els-cdn.com/content/image/1-s2.0-S0091743516303395-mmc1.docx>

For more information about this strategy, see:

The SPARK PE curriculum at <https://sparkpe.org>

The CATCH PE curriculum at <https://catchinfo.org/modules/physical-education>

# CHOICES NATIONAL ACTION KIT: MODELED OUTCOMES GLOSSARY

Provides definitions for each modeled output displayed in the National Results table.

Modeled Output	Definition
<p><b>BEHAVIOR CHANGE PER PERSON*</b> <i>Change in health behavior per person in the first year</i></p>	<p>The change in health behavior a person is projected to have after a strategy is put in place. Health behavior changes may include decreases in sugary drink intake, increases in physical activity, decreases in time spent watching TV, or increases in water intake. Behavior change per person is reported when the strategy aims to improve a specific health behavior and data are available to project how much a behavior would improve.</p> <p><i>Averaged across people who actually receive the strategy.</i></p>
<p><b>COST PER PERSON</b> <i>Average annualized cost per person to implement the strategy over the model period</i></p>	<p>The average annualized cost to implement the strategy over the model period (e.g., 10 years) per person reached over the model period. This includes cost by all payers (government, private sector, non-profit, individual/family).</p> <p>See the <a href="#">Cost Results</a> for a breakdown of implementation costs by activity and payer.</p> <p><i>Averaged across people in the intended population of focus where the strategy is adopted (that is, people who are eligible based on age, income, geographic area, and/or participation in the setting or program of focus, and who could potentially receive the strategy based on estimated adoption rates).</i></p>
<p><b>POPULATION REACH*</b> <i>Reach over the model period</i></p>	<p>The number of people reached by the strategy over the model period.</p> <p><i>Includes all people in the intended population of focus where the strategy is adopted (that is, people who are eligible based on age, income, geographic area, and/or participation in the setting or program of focus, and who could potentially receive the strategy based on estimated adoption rates).</i></p>
<p><b>OBESITY PREVENTED*</b> <i>Cases of obesity prevented in the final year</i></p>	<p>In the final year of the model, the difference in the projected number of people with obesity if the strategy were not put in place and the projected number of people with obesity if the strategy were put in place.</p>
<p><b>CHILD OBESITY PREVENTED*</b> <i>Cases of child obesity prevented in the final year</i></p>	<p>In the final year of the model, the difference in the projected number of children with obesity if the strategy were not put in place and the projected number of children with obesity if the strategy were put in place.</p>
<p><b>HEALTH EQUITY IMPACT*</b> <i>Impact on obesity-related health equity in the final year</i></p>	<p>The projected impact on differences in obesity levels between population groups defined by race, ethnicity, and by household income. <a href="#">Learn more about our methods for projecting health equity impacts.</a></p>
<p><b>QUALITY-ADJUSTED LIFE YEARS (QALYS) GAINED</b> <i>Quality-adjusted life years (QALYs) gained (totals over the model period)</i></p>	<p>The difference in total number of quality-adjusted life years (QALYs) in the population over the model period if the strategy were not put in place compared with if the strategy were put in place. A QALY is a measure of both the quantity and quality of life. CHOICES estimates the QALYs gained as a measure of how much implementing a strategy to prevent future excess weight gain could improve the quantity and quality of life for a population. See our <a href="#">User Guide</a> for more information about QALYs.</p>
<p><b>OBESITY YEARS PREVENTED</b> <i>Years with obesity prevented (totals over the model period)</i></p>	<p>The difference in total number of person-years lived without obesity if the strategy were not put in place compared with if the strategy were put in place. This measure sums up portions of years lived without obesity across all the persons in the model, comparing the result if the strategy were put in place or not.</p>
<p><b>HEALTH CARE COSTS SAVED PER \$1 INVESTED</b> <i>Total health care costs saved per total intervention costs over the model period</i></p>	<p>The amount avoided in health care cost related to excess weight for every dollar spent to implement the strategy over the model period.</p> <p>See the <a href="#">Cost Results</a> for a breakdown of implementation costs by activity and payer.</p>
<p><b>COST PER QALY GAINED</b> <i>Net cost per quality-adjusted life year (QALY) gained (totals over the model period)</i></p>	<p>The total cost impact to improve population health in terms of quality-adjusted life years gained. Cost per QALY gained is a measure of cost-effectiveness. It includes costs to implement a strategy, cost savings due to efficiencies when implementing a strategy, and health care cost savings related to reductions in excess weight after a strategy is implemented. See our <a href="#">User Guide</a> for more information about QALYs and cost per QALY gained.</p>

All metrics reported for the population over the model period and discounted at 3% per year, unless otherwise noted. Definitions for these modeled outputs are all written assuming that an intervention is implemented.

\* Not discounted.

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