CHOICES NATIONAL ACTION KIT:

Creating Healthier Early Care and Education Environments 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.

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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.

Improving nutrition, physical activity, & screen time policies & practices for children ages 3-5 by incorporating the Nutrition & Physical Activity Self-Assessment for Child Care (NAP SACC) Program into state's Quality Rating and Improvement Systems (QRIS) for early care and education programs.

WHAT POPULATION BENEFITS?

Children ages 3-5 attending licensed early care and education programs that participate in their state's Quality Rating and Improvement Systems (QRIS).

WHAT ARE THE ESTIMATED BENEFITS?

Relative to not implementing the strategy
Promote healthy child weight.

✓ **Prevent cases of obesity**

✓ **Projected to be cost-effective**

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

➜ *More details available on the CHOICES National Action Kit at* choicesproject.org/actionkit

WHAT ACTIVITIES AND RESOURCES ARE NEEDED?

Activities	Resources	Who Leads?
Train early care and education health professionals to work with early care and education programs	• Time of state training consultant to train early care and education health professionals • Time of early care and education health professionals to be trained	State QRIS administrators
Provide consultation to early care and education program directors and staff for conducting self-assessments of program policies and practices, completing action plans, and implementing changes to improve nutrition, physical activity, and screen time environments in programs	• Time of early care and education health professionals to provide consultation to early care and education programs • Time of early care and education program directors and staff to participate in consultation	Early care and education health professionals

WHAT ACTIVITIES AND RESOURCES ARE NEEDED? *(continued)*

Activities	Resources	Who Leads?
Provide materials and equipment for implementing NAP SACC program	• Cost for GO NAP SACC online license • Physical activity equipment costs	State QRIS administrators
Implement changes in early care and education programs to improve nutrition, physical activity, and screen time environments	• Time of early care and education program directors to implement changes	Early care and education program directors
Improve nutritional quality of meals served in early care and education programs	• Food costs for improving nutritional quality of meals	Early care and education program directors
Monitor compliance with NAP SACC program	• Time of state-level QRIS Administrators to monitor compliance	State QRIS administrators
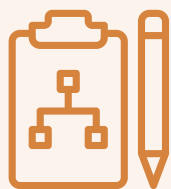
Strategy Modification

In states where NAP SACC is already being implemented, the strategy could be modified to focus on increasing the number of early care and education programs that participate in NAP SACC. With this modification, the cost for the GO NAP SACC online license would not be needed, since it is a fixed annual cost paid per state (i.e., it does not depend on the number of participating programs). With this modification, the impact on health is expected to be similar, and the impact on reach and cost would vary according to the number of programs reached.

• See our resource library for relevant peer-reviewed publications, research reports, & briefs at choicesproject.org/resource-library
• Learn more about strategy modifications and CHOICES projections of the strategy Creating Healthier Early Care and Education Environments for US states:
Arkansas
New Hampshire
Oklahoma
Washington
West Virginia
• Learn more about the evidence for the strategy Creating Healthier Early Care and Education Environments in the CHOICES peer-reviewed publication:
Gortmaker et al. 2015. *Health Aff (Milwood)*

NATIONAL RESULTS

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

DESCRIPTION	Improving nutrition, physical activity, and screen time policies and practices through the Nutrition and Physical Activity Self-Assessment for Child Care Program among ages 3-5

OUTCOME	Mean (95% UI)*
BEHAVIOR CHANGE PER PERSON *Change in health behavior per person in the first year*	*Change in BMI was assessed directly.* *Individual health behaviors were not assessed.*
COST PER PERSON *Average annualized cost per person to implement the strategy over the model period*	**$9.10** ($8.91; $9.33) See Cost Results
POPULATION REACH *Reach over the model period*	**5,890,000** (5,740,000; 6,010,000)
OBESITY PREVENTED *Cases of obesity prevented in the final year*	**27,400** (4,470; 50,300)
CHILD OBESITY PREVENTED *Cases of child obesity prevented in the final year*	**27,400** (4,470; 50,300)
HEALTH EQUITY IMPACT *Impact on obesity-related health equity in the final year*	***Likely to improve health equity by race and ethnicity, but not likely to improve health equity by income due to differences in population reach by household income*** See Health Equity Indicators
QUALITY-ADJUSTED LIFE YEARS (QALYS) GAINED *Quality-adjusted life years (QALYs) gained (totals over the model period)*	**8,530** (1,370; 15,800)
OBESITY YEARS PREVENTED *Years with obesity prevented (totals over the model period)*	**178,000** (29,200; 324,000)
HEALTH CARE COSTS SAVED PER $1 INVESTED *Total health care costs saved per total intervention costs over the model period*	**$0.07** ($0.01; $0.12)
COST PER QALY GAINED *Net cost per quality-adjusted life year (QALY) gained (totals over the model period)*	**$58,600** ($28,500; $295,000)

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
✓ Learn more about CHOICES Methods at choicesproject.org/methods
✓ Find definitions of each modeled outcome in the Glossary (p.12) at 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 the strategy Creating Healthier Early Care and Education Environments if implemented in each eligible 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**
Train early care and education health professionals to work with early care and education programs	• Time of state training consultant to train early care and education health professionals • Time of early care and education health professionals to be trained	$0.01	State government	<1%
Provide consultation to early care and education program directors and staff for conducting self-assessments of program policies and practices, completing action plans, and implementing changes to improve nutrition, physical activity, and screen time environments in programs	• Time of early care and education health professionals to provide consultation to early care and education programs • Time of early care and education program directors and staff to participate in consultation	$4.69	State government, School (Early care and education programs)	52%
Provide materials and equipment for implementing NAP SACC program	• Cost for GO NAP SACC online license • Physical activity equipment costs	$0.86	State government, School (Early care and education programs)	9%
Implement changes in early care and education programs to improve nutrition, physical activity, and screen time environments	• Time of early care and education program directors to implement changes	$3.08	State government, School (Early care and education programs)	34%
Improve nutritional quality of meals served in early care and education programs	• Food costs for improving nutritional quality of meals	$0.41	State government, School (Early care and education programs)	4%
Monitor compliance with NAP SACC program	• Time of state-level QRIS Administrators to monitor compliance	$0.05	State government	1%
TOTAL	--	**$26.50**	--	**100%**

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).

Average Annual Strategy Implementation Cost by Payer and Cost Type			
	Cost per Person†		
Payer	**All Costs (% of Total)**	**Budgetary Costs (% of All Costs by Payer)**	**Opportunity Costs (% of All Costs by Payer)**
Federal government	--	--	--
State government	**$3.85 (42%)**	**$0.09 (2%)**	**$3.76 (98%)**
Local government	--	--	--
School district	--	--	--
School (Early care and education programs)	**$5.24 (58%)**	**$1.17 (22%)**	**$4.07 (78%)**
Family/Individual	--	--	--
Industry	--	--	--
Nonprofit	--	--	--
Health care	--	--	--
TOTAL	**$9.10 (100%)**	**$1.26 (14%)**	**$7.83 (86%)**

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.[1] 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.[2-4] Effective policy and programmatic strategies promoting improved nutrition and increased physical activity can reduce health disparities and improve health equity.
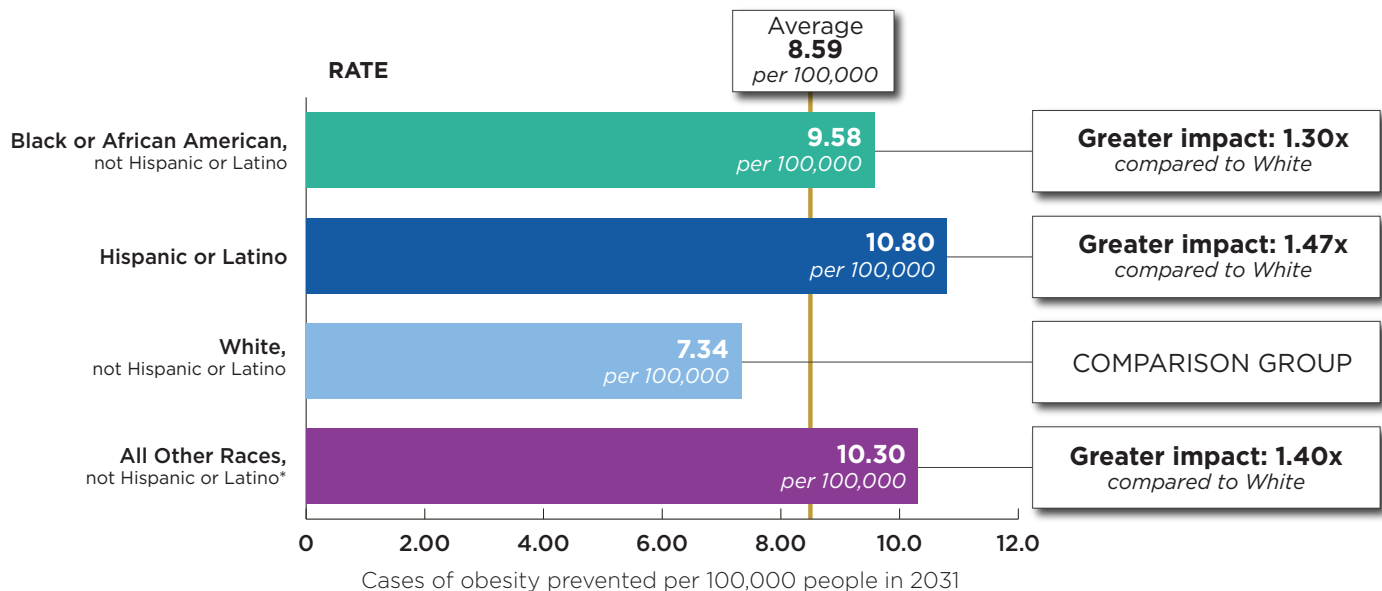
KEY TAKEAWAYS

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

✓ **Prevent 27,400 cases of obesity in 2031**
✓ **Prevent cases of obesity in all race, ethnicity, and income groups**
✓ **Improve health equity by race and ethnicity**
✓ **Not likely to improve health equity by income**

> Learn more about CHOICES methods for projecting health equity impacts at choicesproject.org/methods/healthequity

Comparative projected impact of the strategy by race and ethnicity

RATE

Average
8.59
per 100,000

Group	Rate	Impact
Black or African American, not Hispanic or Latino	**9.58** per 100,000	**Greater impact: 1.30x** compared to White
Hispanic or Latino	**10.80** per 100,000	**Greater impact: 1.47x** compared to White
White, not Hispanic or Latino	**7.34** per 100,000	COMPARISON GROUP
All Other Races, not Hispanic or Latino*	**10.30** per 100,000	**Greater impact: 1.40x** compared to White

Cases of obesity prevented per 100,000 people in 2031

*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 preventive benefits that are 1.30 and 1.47 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 .*

Continued on the next page

Childhood Obesity Intervention Cost-Effectiveness Study (CHOICES) Project at the Harvard T.H. Chan School of Public Health

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

Average
8.59
per 100,000

RATE

	Rate	Impact
<130% FPL	**7.26** per 100,000	**Lesser impact: 0.71** *compared to >350% FPL*
131-185% FPL	**7.42** per 100,000	**Lesser impact: 0.73** *compared to >350% FPL*
186-350% FPL	**7.78** per 100,000	**Lesser impact: 0.76** *compared to >350% FPL*
>350% FPL	**10.2** per 100,000	COMPARISON GROUP

Cases of obesity prevented per 100,000 people in 2031
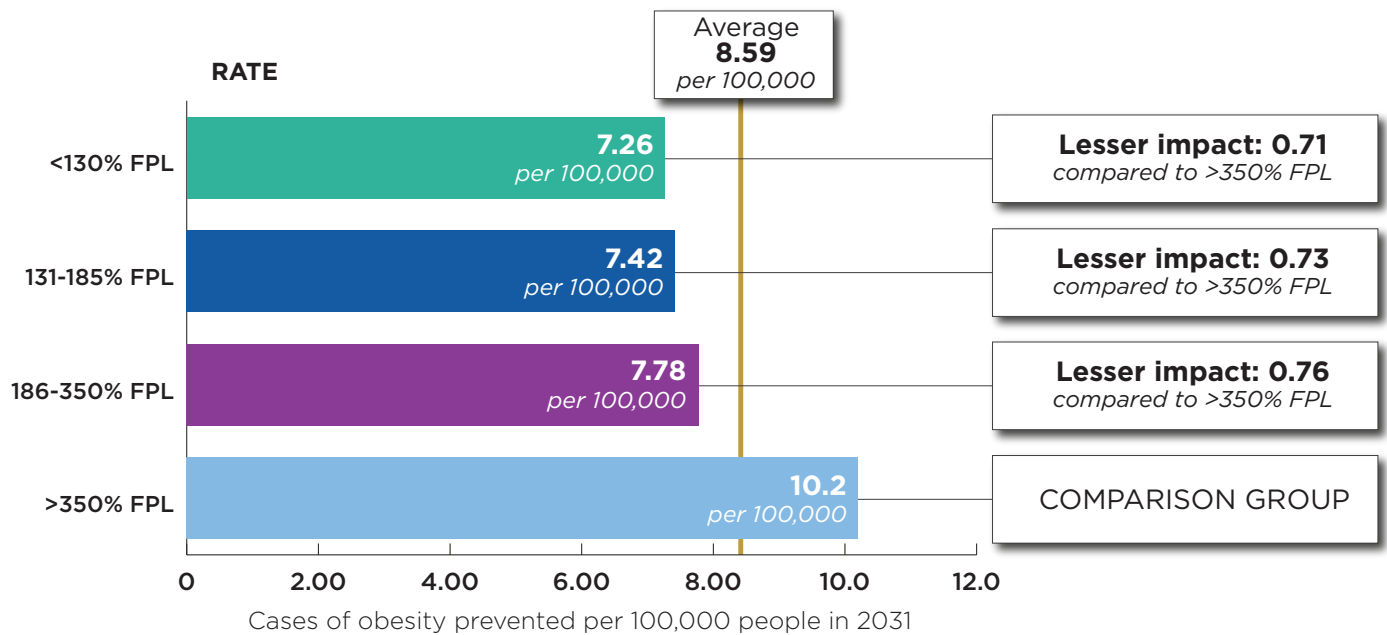
Populations with lower household incomes (185% FPL or less) are projected to experience preventive benefits that are 0.71-0.73 times the benefits projected among populations with the highest income (>350% FPL). *The comparative impact in each population group compared to the population average is provided in a table on* page 9.

How is this strategy expected to impact health equity?

Every child deserves opportunities to grow up at a healthy weight. Promoting healthy eating habits, physical activity, and screen time reduction among young children can foster healthy early development, overall well-being, and better future health.[5] Half of young children ages 3-5 attend an early care and education (ECE) program that may be regulated at the state-level.[6,7] The introduction of a strategy that incorporates the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) Program into a state's Quality Rating and Improvement System (QRIS) to assess and improve quality in ECE programs can play a crucial role in establishing a strong basis for healthy living. This strategy is expected to improve health the most among Black and Hispanic or Latino children, who are at greater risk of obesity compared with White children.[8] Thus, the strategy is likely to improve health equity by race and ethnicity. Multiple barriers to accessing ECE programs exist for families with lower incomes,[9] resulting in lower enrollment in ECE programs among children from households with lower incomes compared with higher incomes.[6] Therefore, implementing this strategy in licensed ECE programs statewide is not likely to improve health equity by income. However, prioritizing efforts to support adoption of NAP SACC in ECE programs that serve more children from households with low incomes could lead to improved health equity by income.

Projected impact of the strategy by race, ethnicity and income, mean (95% UI)[a]

	OBESITY PREVENTED[b]	OBESITY PREVENTED PER 100,000[b]	COMPARATIVE IMPACT[c]	
	Cases of obesity prevented in the final year	*Cases of obesity prevented per 100,000 people in the final year*	*Ratio of obesity prevented per 100,000*	
Race and Ethnicity			*Compared with White, not Hispanic or Latino*	*Compared with Population Average*
Overall	**27,400** (4,470; 50,300)	**8.59** (1.40; 15.8)	--	**1.00 (Reference)** N/A
Black or African American, not Hispanic or Latino	**3,890** (617; 7,460)	**9.58** (1.52; 18.4)	**1.30** (0.76; 2.09) *85% likelihood of greater impact*	**1.11** (0.70; 1.56) *70% likelihood of greater impact*
Hispanic or Latino	**7,030** (1,210; 13,700)	**10.8** (1.86; 21.1)	**1.47** (0.96; 2.28) *96% likelihood of greater impact*	**1.26** (0.93; 1.65) *94% likelihood of greater impact*
White, not Hispanic or Latino	**13,600** (2,080; 25,400)	**7.34** (1.13; 1.37)	**1.00 (Reference)** N/A	**0.85** (0.69; 1.00) *97% likelihood of lesser impact*
All Other Races, not Hispanic or Latino[d]	**2,890** (437; 5,900)	**10.3** (1.54; 20.9)	**1.40** (0.91; 2.12) *94% likelihood of greater impact*	**1.19** (0.81; 1.67) *81% likelihood of greater impact*
Household Income *as a percentage of the federal poverty level (FPL)*			*Compared with >350% FPL*	*Compared with Population Average*
Overall	**27,400** (4,470; 50,300)	**8.59** (1.40; 15.8)	--	**1.00 (Reference)** N/A
<130% FPL	**5,520** (798; 10,900)	**7.26** (1.05; 14.3)	**0.71** (0.49; 1.04) *96% likelihood of greater impact*	**0.84** (0.63; 1.09) *91% likelihood of greater impact*
131-185% FPL	**2,460** (360; 4,920)	**7.42** (1.09; 14.8)	**0.73** (0.41; 1.14) *93% likelihood of greater impact*	**0.86** (0.52; 1.26) *79% likelihood of greater impact*
186-350% FPL	**6,400** (952; 12,400)	**7.78** (1.16; 15.1)	**0.76** (0.54; 1.12) *93% likelihood of greater impact*	**0.91** (0.69; 1.17) *80% likelihood of lesser impact*
>350% FPL	**13,000** (2,240; 24,400)	**10.2** (1.76; 19.1)	**1.00 (Reference)** N/A	**1.19** (1.00; 1.36) *98% likelihood of lesser impact*

Projections for the model period 2022-2031 (10 years, inclusive of the start and end years).
[a]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.
[b]All cases of obesity prevented are among children, since all people reached by the strategy would still be children in the final model year.
[c]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.
[d]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.

STRATEGY

The Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) program involves child care health consultants working with early childcare and education (ECE) program directors to complete self-assessments of current nutrition, physical activity (PA), and screen time practices and policies, and then implement improvements.[10,11] In the CHOICES model of a hypothetical nationwide implementation of NAP SACC, the program is incorporated into each eligible state's Quality Rating and Improvement Systems (QRIS) for ECE programs (or the state equivalent),[12] such that completion of NAP SACC is required for voluntarily attaining QRIS certification. This model assumes implementation using Go NAP SACC,[13] which is an online resource used by participating states. The NAP SACC program evaluated for effects on health among young children in a randomized trial included in-person workshops and program activities.[10,11] The CHOICES model assumes similar effects would be experienced with greater implementation efficiency (i.e., potentially lower costs) using Go NAP SACC.

Resources from Go NAP SACC,[13] the University of North Carolina's Center for Health Promotion and Disease Prevention,[14] and the Center for Training and Research Translation[15] provide more information about the program's framework and tools for implementation.

REACH

The model assumes that the NAP SACC program would reach all 3-5-year-old children attending licensed ECE programs (both child care centers and family daycare homes) that opt to participate in their state's Quality Rating and Improvement System (QRIS).[12] Because QRIS systems incentivize ECE programs to voluntarily meet high standards and provide training, they are an ideal way to help ECE programs make the commitment to devote the time to the NAP SACC program and to improving nutrition, physical activity, and screen time practices.

We modeled implementation of NAP SACC in all states that have not yet implemented NAP SACC[16] and that have QRIS for ECE, comprising 24 states and the District of Columbia. We estimate that 50% of children ages 3-5 attend a licensed ECE program, with children from households with higher incomes more likely to attend licensed ECE programs compared to those from households with lower incomes.[6,7] We estimate that 59% of children attending licensed child care centers and 21% of children attending family daycare homes attend a program that participates in QRIS.[17,18] Among ECE programs participating in QRIS in eligible states, we assume 73% would complete NAP SACC.[10]

This NAP SACC strategy would have a 10-year reach of 5.89 million children.

EFFECT

A randomized control trial study evaluated the impact of NAP SACC on preventing excess weight gain in children.[11]

CHOICES projects that over 10 years, 178,000 years with obesity would be prevented. In 2031, 27,400 cases of obesity would be prevented.

COST

The NAP SACC program would involve training a core group of child care health professionals to work with ECE programs. Both the time of the professionals and ECE program staff for training and consultation, as well as travel costs for professionals to consult with programs, are included in the modeled costs. Participating ECE programs would be provided with online access to NAP SACC program materials via an annual license purchased by the state[19] and would also purchase physical activity equipment upgrades.[12] Time for ECE program directors to implement changes resulting from participation in the NAP SACC program[13] and small costs incurred by improving the nutritional quality of meals served are included.[12] Labor costs at the state level for QRIS administrators to monitor compliance with NAP SACC standards required for QRIS certification are also included.[12]

NAP SACC would incur an annual cost per child of $9.10.

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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.

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,[20] greater healthcare expenditures,[21] and increased mortality risk.[22] 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[2]).[23] 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.[24,25] 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.[26] 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.

For Additional Information

Contact the CHOICES team at choicesproject@hsph.harvard.edu for additional information about model assumptions.

For more information about this strategy, see:
Gortmaker SL, Claire Wang Y, Long MW, Giles CM, Ward ZJ, Barrett JL, Kenney EL, Sonneville KR, Afzal AS, Resch SC, Cradock AL. Three interventions that reduce childhood obesity are projected to save more than they cost to implement [supplemental appendix]. *Health Affairs*, 34, no. 11 (2015):1304-1311. Available at: https://www.healthaffairs.org/doi/suppl/10.1377/hlthaff.2015.0631/suppl_file/2015-0631_gortmaker_appendix.pdf

CHOICES NATIONAL ACTION KIT: MODELED OUTCOMES GLOSSARY

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

Modeled Output	Definition
BEHAVIOR CHANGE PER PERSON* *Change in health behavior per person in the first year*	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. *Averaged across people who actually receive the strategy.*
COST PER PERSON *Average annualized cost per person to implement the strategy over the model period*	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). See the Cost Results for a breakdown of implementation costs by activity and payer. *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).*
POPULATION REACH* *Reach over the model period*	The number of people reached by the strategy over the model period. *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).*
OBESITY PREVENTED* *Cases of obesity prevented in the final year*	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.
CHILD OBESITY PREVENTED* *Cases of child obesity prevented in the final year*	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.
HEALTH EQUITY IMPACT* *Impact on obesity-related health equity in the final year*	The projected impact on differences in obesity levels between population groups defined by race, ethnicity, and by household income. Learn more about our methods for projecting health equity impacts.
QUALITY-ADJUSTED LIFE YEARS (QALYS) GAINED *Quality-adjusted life years (QALYs) gained (totals over the model period)*	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 User Guide for more information about QALYs.
OBESITY YEARS PREVENTED *Years with obesity prevented (totals over the model period)*	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.
HEALTH CARE COSTS SAVED PER $1 INVESTED *Total health care costs saved per total intervention costs over the model period*	The amount avoided in health care cost related to excess weight for every dollar spent to implement the strategy over the model period. See the Cost Results for a breakdown of implementation costs by activity and payer.
COST PER QALY GAINED *Net cost per quality-adjusted life year (QALY) gained (totals over the model period)*	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 User Guide for more information about QALYs and cost per QALY gained.

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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