

Exploring the Cost-Effectiveness of Strategies to Improve Child Health in Boston, MA

The CHOICES Project at the Harvard T.H. Chan School of Public Health and the Boston Public Health Commission (BPHC) worked together as part of the [Massachusetts-CHOICES Project](#) (2019–2024), a training, technical assistance, and modeling initiative, to develop a playbook of strategies to promote healthy weight and advance health equity in addition to studying how cost-effectiveness metrics are used by partners throughout the state.

Methods & Strategies Modeled

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.

Using CHOICES cost-effectiveness analysis and local data, the BPHC team worked with CHOICES to create a virtual population that mirrors the current population of Boston, MA. Then, the teams examined the expected costs, health outcomes, and health care costs saved if the following strategies were implemented in Boston, Massachusetts over a 10-year timeframe (2020-2029):

- **Reducing Screen Time in Early Child Care Settings**
- **More Movement Program in Early Child Care Settings**
- **Home Visits to Reduce Screen time**
- **Movement Breaks in the Classroom**
- **Creating Healthier Afterschool Environments (OSNAP)**

CHOICES cost-effectiveness analysis examines:



How many and what types of people would be affected by the policy or program?



What the effect of the policy or program would be on health?



What will be the implementation costs and the potential health care cost savings?



How could the policy or program reduce health disparities and improve health equity?



SCHOOL OF PUBLIC HEALTH
Prevention Research Center
on Nutrition and Physical Activity

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BOSTON, MA: Reducing Screen Time in Early Child Care Settings

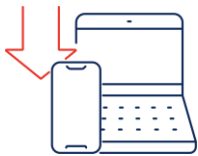
The strategy to reduce screen time in early child care settings involves providing voluntary training to early child care educators and resources to families to limit noneducational television time at child care and home. This strategy could support Boston's efforts to improve early child care quality through the Boston Healthy Child Care Initiative. It would include training opportunities for early child care educators, offering ongoing support and technical assistance, and providing parents with educational materials that may lead to reducing screen time in young children.^{1,2}

Helping educators to implement practices shown to be effective in reducing television time can help the children in Boston's early education and care settings engage in fewer minutes of screen time.

Implementing a strategy to reduce screen time in early child care settings is an investment in the future. By the end of 2029:



18,200 CHILDREN REACHED
over 10 years



33 FEWER MINUTES OF SCREEN TIME
per child per day



\$16 PER CHILD
per year

Additional Key Findings

If a strategy to reduce screen time in early child care settings was implemented in Boston, 125 cases of obesity would be prevented in 2029, saving \$138,000 in health care costs over 10 years.

In addition, this strategy would train and provide technical assistance to early childhood educators on reducing screen time. In the initial training series, this strategy would provide additional skills training and professional development for 1,380 educators and more opportunities to reduce screen time in 570 (100%) child care programs serving 3-5 year olds.

Bovenzi M, Carter S, Sabir M, Bolton AA, Barrett JL, Reiner JF, Craddock AL, Gortmaker SL. [Boston, MA: Reducing Screen Time in Early Child Care Settings](#) (Issue Brief). Boston Public Health Commission and the CHOICES Learning Collaborative Partnership at the Harvard T.H. Chan School of Public Health, Boston, MA; October 2023.

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BOSTON, MA: More Movement Program in Early Child Care Settings

The more movement program provides training opportunities and resources for early child care educators to implement actions in their programs to encourage physical activity. This strategy could support Boston's efforts to improve early child care quality through the Boston Healthy Child Care Initiative. It would include training opportunities for early child care educators in physical activity curricula, provide resources and instructional materials, and support technical assistance opportunities that may lead to higher physical activity levels among young children.^{1,2}

Helping educators implement practices shown to be effective in increasing physical activity can help the children in Boston's early education and care settings to move more.

Implementing the more movement program in early child care settings is an investment in the future. By the end of 2029:



18,200 CHILDREN REACHED
over 10 years



7.4 ADDITIONAL MINUTES OF MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY
per child per day



\$16 PER CHILD
per year

Additional Key Findings

If the more movement program in early child care settings was implemented in Boston, 94 cases of obesity would be prevented in 2029, saving \$104,000 in health care costs over 10 years. Besides promoting a healthy weight, increasing physical activity is linked to improved bone and muscular health and better gross motor skills in young children.³⁻⁵

In addition, this strategy would train and provide technical assistance to early childhood educators. In the initial training series, the more movement program would provide additional skills training and professional development for 1,380 educators and more physical activity promotion opportunities in 570 (100%) child care programs serving 3-5 year olds.

Bovenzi M, Carter S, Sabir M, Bolton AA, Barrett JL, Reiner JF, Cradock AL, Gortmaker SL. [Boston, MA: More Movement Program in Early Child Care Settings](#) {Issue Brief}. Boston Public Health Commission and the CHOICES Learning Collaborative Partnership at the Harvard T.H. Chan School of Public Health, Boston, MA; October 2023.

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BOSTON, MA: Home Visits to Reduce Screen Time

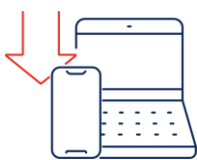
The home visits to reduce screen time strategy aims to reduce the amount of screen time viewed at home by young children. Community health workers would provide counseling and resources on strategies to limit children's screen time to children and families who participate in home visiting programs.

Through professional development training opportunities, community health workers would learn ways to support families and children in limiting their screen time. During a home visit, community health workers would share the importance of appropriate screen time limits and provide strategies and tools for families to use, including a screen time management device. Integrating this strategy through existing home visiting programs could help more children manage their screen time and grow up at a healthy weight.¹

Implementing the home visits to reduce screen time strategy is an investment in the future. By the end of 2029:



3,320 CHILDREN REACHED
over 10 years



1.8 FEWER HOURS OF SCREEN TIME
per child per day



\$44,600 SAVED IN HEALTH CARE COSTS
over 10 years

Additional Key Findings

If the home visits to reduce screen time strategy was implemented in Boston, 60 cases of childhood obesity would be prevented in 2029. Besides promoting a healthy weight, this strategy may also benefit children in other ways. Providing children and their families with strategies to move away from their screens allows for more time for activities like reading and active play.

By training and equipping 119 community health workers annually by ensuring that everyone has access to what they need to grow up healthy and strong, this strategy could help reach those families and children that may be at higher risk of having or developing obesity. Children in households with low income could see greater health benefits from this strategy.¹

Carter S, Bovenzi M, Sabir M, Bolton AA, Reiner JR, Barrett JL, Cradock AL, Gortmaker SL. [Boston, MA: Home Visits to Reduce Screen Time](#) {Issue Brief}. Boston Public Health Commission, Boston, MA, and the CHOICES Learning Collaborative Partnership at the Harvard T.H. Chan School of Public Health, Boston, MA; February 2023.

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BOSTON, MA: Movement Breaks in the Classroom

Movement breaks in the classroom is a strategy to promote physical activity during the school day by incorporating five-to-10-minute movement breaks in K-5 public elementary school classrooms. To implement the movement breaks strategy in Boston, teachers, Wellness Champions, and staff would receive training, equipment, and materials to incorporate short activity breaks in the classroom to help children move more.^{1,2}

This aligns with Boston Public School's (BPS) Physical Education and Physical Activity Policy that requires schools to offer physical activity opportunities during the school day,³ as well as BPS' Whole School, Whole Community, Whole Child approach, which supports students' holistic health by promoting positive classroom environments that foster physical activity and learning.

Integrating movement breaks in the classroom is an investment in the future. By the end of 2029:



29,400 STUDENTS REACHED
over 10 years



25 ADDITIONAL MINUTES OF MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY
per student per school week



\$1.74 PER CHILD
per year

Additional Key Findings

If movement breaks were incorporated into classrooms in Boston, 37 cases of childhood obesity would be prevented in 2029 and save \$35,300 in health care costs related to excess weight over 10 years.

By training and equipping over 600 teachers and other school staff yearly to incorporate movement breaks in the classroom, this strategy could help all Boston Public Schools cultivate a positive school climate and improve social emotional learning.⁴ Participation in movement breaks are associated with students spending more time on task,⁵ and teachers report that students are more engaged, supportive of each other, and responsive to teacher instructions after participating in a movement break.⁶

Carter J, Greene J, Neeraja S, Bovenzi, M, Sabir M, Carter S, Bolton AA, Barrett JL, Reiner JR, Craddock AL, Gortmaker SL. [Boston, MA: Movement Breaks in the Classroom](#) (Issue Brief). Boston Public Schools, Boston Public Health Commission, and the CHOICES Learning Collaborative Partnership at the Harvard T.H. Chan School of Public Health, Boston, MA; August 2022.

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BOSTON, MA: Creating Healthier Afterschool Environments (OSNAP)

The Out of School Nutrition and Physical Activity (OSNAP) initiative helps afterschool programs improve practices and policies that increase physical activity and consumption of healthy snacks.

To implement this initiative, the Boston Public Health Commission would provide professional development opportunities for afterschool program leaders serving students in grades K-5. Afterschool staff leaders would participate in three learning collaborative sessions and receive technical assistance to assess¹ and modify their programs' practices and policies² to meet the OSNAP nutrition and physical activity goals.

Creating healthier afterschool environments is an investment in the future. By the end of 2029:



10,800 CHILDREN REACHED
over 10 years



\$34,100 SAVED IN HEALTH CARE COSTS
in 2029



\$18.30 PER CHILD
per year

Additional Key Findings

If the OSNAP initiative was implemented in Boston, 37 cases of obesity would be prevented in 2029. It is also projected to be cost-effective at commonly accepted thresholds³ based on net population health improvement related to excess weight (\$72,100 per quality-adjusted life year gained).

This strategy may also support children's health in a variety of other ways. Regular physical activity, healthy eating, and adequate hydration can improve children's mental and emotional well-being and their heart, lung, and bone health.⁴ These healthy behaviors can also strengthen students' attention, memory,^{5,6} and cognitive functioning,⁵ all important components for learning and academic performance.

Carter S, Bovenzi M, Clarke J, Bolton AA, Reiner JF, Barrett JL, Cradock AL, Gortmaker SL. [Boston, MA: Creating Healthier Afterschool Environments \(OSNAP\)](#) [Issue Brief]. Boston Public Health Commission, Massachusetts, and the CHOICES Learning Collaborative Partnership at the Harvard T.H. Chan School of Public Health, Boston, MA; July 2023.

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