CASE STUDY

Accelerating Efforts To Prevent Childhood Obesity: Spreading, Scaling, And Sustaining Healthy Eating And Physical Activity

ABSTRACT

During the past decade, progress has been made in addressing childhood obesity through policy and practice changes that encourage increased physical activity and access to healthy food. With the implementation of these strategies, an understanding of what works to prevent childhood obesity is beginning to emerge. The task now is to consider how best to spread, scale, and sustain promising childhood obesity prevention strategies. In this article we examine a project led by Nemours, a children’s health system, to address childhood obesity. We describe Nemours’s conceptual approach to spreading, scaling, and sustaining a childhood obesity prevention intervention. We review a component of a Nemours initiative in Delaware that focused on early care and education settings and its expansion to other states through the National Early Care and Education Learning Collaborative to prevent childhood obesity. We also discuss lessons learned. Focusing on the spreading, scaling, and sustaining of promising strategies has the potential to increase the reach and impact of efforts in obesity prevention and help ensure their impact on population health.

In 2001 the surgeon general issued the Call to Action to Prevent and Decrease Overweight and Obesity. Since then, the United States has made significant investments in identifying and implementing strategies to combat the nation’s childhood overweight and obesity epidemic. In the same time period, numerous child health organizations and health policy leaders have engaged in efforts to design and pilot interventions to address this leading public health problem.

The strategies that have emerged reach children and parents where they live, learn, and play. These strategies address improved nutrition, increased physical activity, and breast-feeding support. Childhood overweight and obesity interventions that have demonstrated promise—based on assessments of changes in the environment, individual behavior, health outcomes, or some combination of the three—have been compiled and shared by the Institute of Medicine, the Centers for Disease Control and Prevention (CDC), and the White House Task Force on Childhood Obesity.

Data on obesity prevalence from national and state surveillance systems and evaluations of state and local programmatic efforts have provided encouraging signs. In 2011–12 the National Health and Nutrition Examination Survey found that 8.1 percent of preschoolers were obese—a 5 percent reduction from 2003–04. In both 2003–04 and 2011–12, 16.9 percent of children ages 2–19 were obese, demonstrating a leveling off. State and local data show similarly
mixed trends of decreases and leveling off. While these data suggest that improvements are being made, more needs to be done to ensure that the obesity epidemic continues to be addressed, especially at the population level. Evidence demonstrates that although numerous interventions are effective in promoting health behavior change, not all effective interventions are being broadly disseminated. In this article we describe a project led by Nemours, a children’s health system, to address childhood obesity in early care and education settings. We first describe the concepts of spread, scale, and sustainability. We review a component of the comprehensive childhood obesity prevention efforts of Nemours in Delaware and its subsequent expansion to other states. Finally, we discuss lessons learned and next steps.

A Framework For Childhood Obesity Prevention

Given the availability of research and evaluation, we now have the opportunity to expand the framework of what constitutes a successful approach in childhood obesity prevention to emphasize strategies that can be spread to additional locations, scaled to reach larger numbers of people, and sustained over time.

Spreading and scaling are concepts that describe a process of increasing reach and impact on the target population. They have not been consistently defined and are used interchangeably across fields, including the health and nonprofit sectors. For this article, we treat spreading, scaling, and sustaining as three distinct concepts (see the online Appendix).

Spreading is the process of disseminating strategies with evidence of effectiveness to organizations that will implement them. Successful spread depends on recognizing the need for, and buying into, the proposed solution. Spread increases the impact of a strategy by increasing the number of organizations implementing it or increasing the number of places where it is being implemented. Scaling refers to changes in organizations or systems that facilitate the adoption and support of a strategy. These changes, in turn, increase the population affected by the change. Sustaining is the combination of elements deliberately put into place to ensure that a strategy’s impact endures. It includes funding, partnerships, and policy changes.

Policy and systems changes have great potential to advance spread, scale, and sustainability. Changes can occur at all levels of government through legislation, appropriations, or regulations and can take the form of requirements, incentives, or penalties. Systems changes can also entail partnerships among nongovernmental stakeholders.

For example, the Healthy, Hunger-Free Kids Act of 2010 mandated improvements to the Child and Adult Care Food Program that had an impact on meals served to children nationwide. The State of Missouri released its Eat Smart Guidelines, which challenged child care facilities across the state to improve their meal service by following recommended standards that were above the minimum requirements.

In addition, the Madera County Public Health Department worked with Head Start Centers in four Central Valley, California, counties to implement healthier beverage policies. As a result, “1,500 children ages five and under [in those counties] now drink water and unflavored milk...instead of soda, sports drinks, juice and juice drinks, and chocolate or other flavored milk.” And the Partnership for a Healthier America works with private industry to foster commitments to healthy eating and physical activity and reaches large numbers of people and facilities.

Nemours Childhood Obesity Initiative

DELAWARE The Nemours Children’s Health System cares for 250,000 children annually at hospitals and clinics in Delaware, Florida, Pennsylvania, and New Jersey. In 2004 Nemours began an initiative to improve child health in Delaware through prevention at the population level. The initiative’s top priority was slowing the rate of increase in the prevalence of childhood overweight and obesity.

Recognizing that children who are obese at age six have a 50 percent greater chance of being obese in adulthood, Nemours included children under five in its comprehensive obesity prevention efforts that included child care, schools, primary care, community organizations, and social marketing strategies. One of the initiative’s objectives was to encourage children to eat healthier, consume almost no sugar-sweetened beverages, exercise more, and engage in no more than two hours of recreational time in front of a television or computer each day.

Analyses of the initiative’s potential impact found a leveling off of the prevalence of overweight and obesity among Delaware children ages 2–17 between 2006 and 2011. The results reinforced the importance for Nemours and its partners—including leaders from the school, child care, and primary care sectors—to remain committed to implementing and maintaining the initiative.
EXPANDING TO OTHER STATES AND EARLY LESSONS LEARNED

The Early Care and Education Learning Collaborative was originally designed, piloted, and funded by Nemours, working with partners in Delaware, as a strategy within the multisector initiative. It was enhanced by subsequent state-level policy and regulatory changes that required healthy eating and physical activity standards in child care licensing. These changes, in turn, created a need for collaborative learning networks to implement the standards.

Nemours and its national partners launched the National Early Care and Education Learning Collaborative to prevent childhood obesity in 2012, with funding provided by the Centers for Disease Control and Prevention. This endeavor was based on the results of an evaluation of the Delaware project; the supportive environment for national implementation; the desire of Nemours to further explore the concepts of spreading, scaling, and sustaining successful strategies; and Nemours’s expertise in obesity prevention in early care and education. The project supports early care and education providers in improving the quality of care they provide to young children with respect to nutrition, physical activity, screen time, and breast-feeding support, using a national curriculum and a learning collaborative method.

The intervention is delivered through state partners, with technical assistance, training, and coaching provided through a national team. The main goals of the project are to increase the number of early care and education programs that meet the healthy eating and physical activity best practices of the Let’s Move! Child Care initiative for early care and education and to increase the proportion of young children attending programs that meet those criteria.

The collaborative model was originally adopted in six states: Arizona, Florida, Indiana, Kansas, Missouri, and New Jersey. In 2014 the model was adopted in three additional states—Kentucky; Virginia; and parts of Los Angeles County, in California.

State governments or state organizations adopted and adapted the model based on the specific needs of each state. For example, Arizona was able to adapt the collaborative’s curriculum and integrate it with the state’s current program for early childhood obesity prevention, called Empower. Nemours chose the states to adopt the model based on their stakeholders’ interest in testing a strategy for childhood obesity prevention in early care and education centers, rates of obesity among children under five, and level of readiness to implement the strategy.

To help implement the collaborative model, adopters were encouraged to prioritize stakeholder engagement and partnership building early in the process. Participating states have been encouraged to partner with public and private entities in a broad range of sectors, including organizations with a focus on health, early care and education, nutrition, or physical activity; funders; community organizations; health systems; and parents. These stakeholders help identify the geographic locations within the state where the collaboratives are implemented, recruit participants and trainers, create systems of support that enhance providers’ ability to implement healthy changes, and form a mechanism for sustaining the work.

In many cases, the organizations best suited to implement the collaborative model are not the same organizations that should scale and sustain the embedded strategies. Engaging a balanced portfolio of partners who provide feedback to each other, both within their states and to Nemours, is critical. It ensures that all appropriate skills and organizational capabilities are represented to carry out the entire set of spreading, scaling, and sustaining actions.

During implementation of the collaboratives in the original six states, Nemours used process evaluation to inform, refine, and adapt the intervention, dissemination, and adoption processes to meet the specific needs of states and encourage continued innovation. Examples include measurement of early care and education providers’ knowledge and attitudes before and after learning sessions; interviews with members of the collaborative; and formal and informal feedback, such as regular calls with Nemours and documentation using standard templates.

The first year of implementation of the collaboratives in the original six states ended in 2014, and both qualitative and quantitative outcome data were collected through the fall of 2014. Preliminary data indicate significant increases in the percentage of best practices in healthy eating and physical activity that were adopted by early care and education programs, indicating successful spread and scale in those six states. Formal evaluation results will be shared with stakeholders (including adopters) in late 2014 as a component of an ongoing feedback loop to improve future iterations of the model.

In 2013 the decision was made to add collaboratives in three new states, as mentioned above, and implementation at these sites began in 2014. As an enhancement to the original recruitment process, a request-for-proposals process was created to better assess states’ readiness to adopt the strategy and their ability to sustain it after funding from the CDC and Nemours was no longer available. In working with the first six states, it had become clear that critical policy and practice
contexts such as licensing regulations and professional development requirements could accelerate or hinder the intervention’s sustainability. New adopters were asked to consider the role of their environment and current policies and practices in support of sustaining the work from the onset of engagement.

This shift in implementation thinking led to activities that include the integration of the strategy with existing systems (for example, licensing or quality improvement). In addition, coalitions or partnerships that work to ensure that the resources needed to support the adoption of the strategy and sustain it are in place from the beginning.

The Nemours Spread, Scale, And Sustain Approach
The collaboratives take advantage of Nemours’s focus on a spread, scale, and sustain approach. Nemours’s organizational goals of spreading and scaling prevention efforts are supported through the provision of dedicated funding and resources and the stewardship of an executive champion. This approach uses Jeffrey Harris and coauthors’ framework for disseminating evidence-based health promotion practices as a starting point. It focuses on three separate iterative processes related to the development of strategy (strategy is defined as evidence-based, practice-tested, or science-informed interventions, policies, practices, system changes, or methods to achieve outcomes), dissemination, and adoption. Sustainability is a core focus throughout the three processes.

Nemours’s approach differs from the model of Harris and coauthors because it includes the development of a plan that, in turn, includes a business model to ensure deliberate spread and scale (including the dissemination of strategies); an active feedback loop, including evaluation, that encourages improvements to the strategy (including how it is disseminated and adopted); and consideration of spread, scale, and sustainability throughout implementation.

The Nemours spread, scale, and sustain approach also balances the need for fidelity to a model to achieve desired outcomes and the need for flexibility to accommodate the implementation needs of adopters based on their environments and contexts. For the collaboratives, a national curriculum was created that includes resources, best practices, and recommended change processes to guide state adopters in implementing the strategy. To create continuity for adopters and build upon current systems, best practices are aligned with other early care and education initiatives to prevent obesity. This reduces the burden on early care and education providers that need to implement the best practices and change their organizational policies and practices to support and sustain a healthy environment for children.

Dissemination of the collaboratives is via state-based early care and education or child health organizations—that is, the adopters. Using state-based adopters, who own the process, instead of centralized national adopters enhances local ability to play a more strategic role in implementing, scaling, and sustaining at the state and local levels. This is especially important given the state adopters’ ability to identify and account for their specific environments and circumstances, including policies, regulations, and partnerships.

For example, Missouri leverages its licensing requirement that staff members at child care facilities accumulate twelve hours of professional development annually by ensuring that the collaborative is an eligible activity. This provides a sustainable incentive for participation in the collaborative.

A standardized approach is used across adopters to implement the intervention, with specific opportunities for modifications to fit local needs. The required components are those deemed critical for success and for achieving the intended outcomes of the collaborative, such as having a certain number of collaborative sessions attended by early care and education providers, the provision of technical assistance between learning sessions, the use of a leadership team, and the implementation of a “train the trainer” instructional approach.

The modifiable components are those that could be adapted to meet the needs of the local adopter without affecting the intended outcomes of the collaborative. They include the number and types (in person, by phone, and online) of technical assistance interactions between learning sessions, the required expertise of trainers, and the integration of local or state obesity prevention messages.

Efficiencies are achieved by centralizing some services in support of those adopting the initiative. A national team provides consistent technical assistance, training and coaching, evaluation support, and content to state adopters. It leverages feedback from multiple sources, including adopters and other national stakeholders, to strengthen and enhance future iterations of the intervention, dissemination, and adoption.

Discussion
The Nemours experience with the collaboratives and the further development of the spread, scale,
and sustain approach has resulted in some important lessons learned (Exhibit 1).

Nemours identified the need to be more explicit with adopters about possible financing models to implement the intervention. This includes opportunities such as government funding (for example, state-level CDC funding; Medicaid funding; and other state funding sources) and private funding (for example, from foundations and through reimbursements from health insurance payers). Florida was able to leverage CDC funding to spread the collaborative from one part of the state to another, for instance.

Nemours also learned that in planning for sustainability, it is important to balance the spreading of the ultimate desired outcomes—improving nutrition and physical activity in early care and education—with the spreading of a specific intervention. There may be other strategies beyond a specific approach such as the collaboratives that could be used to achieve scale and sustainability of these outcomes. Implementers must stay focused on the outcomes they are trying to achieve instead of solely on one strategy.

Nemours sees the collaboratives as creating an impetus for change that will lead toward the desired outcomes. For example, Delaware is incorporating the content of the collaborative into its new state training system, sustaining the focus in a different, less costly way than implementing collaboratives as a stand-alone initiative.

Scale and sustainability involve infrastructure

**EXHIBIT 1**

Key Lessons Learned During The Processes Of Development Of Strategy, Dissemination, And Adoption Of The National Early Care And Education Learning Collaborative To Prevent Childhood Obesity

<table>
<thead>
<tr>
<th>Process</th>
<th>Lesson</th>
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<tbody>
<tr>
<td>Throughout strategy development, dissemination, and adoption</td>
<td>Bidirectional feedback and evaluation among developer, disseminator, and adopters—both states and early care and education (ECE) centers—are critical for using lessons learned to continually improve the strategy. Sustainability is not something that can be addressed only at the end of dissemination; it needs to be thought of at the beginning and throughout. Sustainability is more than just funding; it involves partnerships (for example, coalitions) and policies.</td>
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<td>Strategy development</td>
<td>Seek a balance of policy and practice changes; the appropriate balance depends upon the political and state environment and context. Policy and systems change have great potential to advance spread, scale, and sustainability of obesity prevention. Create interest in, and take advantage of growing attention to, ECE settings. Collaborative learning mechanisms are effective in ECE settings.</td>
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<td>Dissemination</td>
<td>Identify the optimal delivery mechanism for the particular spread and scale approach. For the collaboratives, a state-based delivery model in which a lead organization in the state works with ECE centers directly was deemed the most effective and efficient way to promote sustainability. This allowed people with knowledge of the implementation environment to play a significant role in structuring the program. Develop a business model to ensure the deliberate spread and scale. Balance the need for fidelity to a model to achieve desired outcomes and the need for flexibility to accommodate the implementation needs of states based on their environments and contexts. A nationalized curriculum facilitates fidelity to the model and outcomes.Aligning best practices with other obesity prevention in ECE initiatives being implemented in a state creates continuity and reduces burdens for adopters, as well as builds upon current systems. Adopters need a centralized system of support and technical assistance for efficient coordination and strategic review, including using lessons learned across adopters for future improvements.</td>
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<tr>
<td>Adoption</td>
<td>Develop key criteria for successful adopters and align those criteria with program goals as part of the adopter recruitment and selection of adopters. Balance fidelity of program implementation and local flexibility. Engage and prioritize stakeholders early, identifying the right partners for the right roles. Policy role and program roles require different skill sets and therefore, potentially different partners. Identify and continue exploring financing models for three different processes: the development of strategies, dissemination, and adoption. Work with adopters at the outset to develop and implement strategies to sustain and integrate key aspects of an intervention into existing state structures or financing sources to achieve maximum impact. Stay focused on the ultimate goals and outcomes and be prepared to replace a specific strategy with another one that better suits local or state needs.</td>
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**SOURCE** Authors’ analysis. **NOTES** Strategy development took place at Nemours in 2006–10. Dissemination took place at Nemours and the Centers for Disease Control and Prevention in 2009–13. Adoption has been taking place at state and local organizations since 2012.
and systems changes, including integration with current systems, to develop capacity that will help sustain the collaboratives’ impact over time. For example, New Jersey is considering training all Quality Rating and Improvement System coaches in the Let’s Move! Child Care initiative (whose content the collaboratives are based on) so the coaches can help early care and education programs integrate healthy eating and physical activity into their overall plans for program improvement.

Policy and practice changes work together to create a larger impact than can be achieved if only one type of change occurs. At the national level, updating the Child and Adult Care Food Program nutrition standards has the potential to create a need in states for training and collaborative learning networks to optimize implementation of the new standards. This creates an opportunity for the dissemination of a training strategy such as the collaboratives.

Furthermore, as the resources of the Prevention and Public Health Fund are allocated each year, there will be additional opportunities to ensure that investments maximize spread, scale, and sustainability and create a national impact in obesity and chronic disease prevention. It is important to emphasize sustainability in funding opportunity announcements and requests for proposals. To achieve maximum impact, governmental and private-sector funders should work with grantees at the outset to develop and implement strategies to sustain and integrate key aspects of an intervention into existing infrastructure. Policy changes at every level can provide a catalyst for positive change. Therefore, policy makers should explicitly incorporate into funding opportunities and policies how the investments or requirements they are proposing could achieve more impact through spread, scale, and sustainability.

Conclusion
Attention to spread, scale, and sustainability in obesity prevention has been minimal. The field needs to develop further rigor and clarity related to the strategy development, dissemination, and adoption; how they are related; and factors that can impede or promote their success. Different methods of evaluation to determine the most effective ways to spread, scale, and sustain initiatives are needed.

As the spread, scale, and sustain approach of the collaboratives moves forward, Nemours expects that the intervention will continue to evolve and change to meet the needs of adopters. Outcome evaluation of the intervention through pre and post observation of classroom practices will increase understanding of the impact of the intervention and its adaptation on outcomes of interest.

Based on evaluation efforts and continued implementation of the intervention, Nemours will develop a deeper understanding of how to effectively spread, scale, and sustain obesity prevention efforts and begin to fill the gaps listed above. It is our hope that further information will confirm the importance and utility of a spread, scale, and sustain approach to researchers, program implementers, and policy makers involved in childhood obesity prevention.

Finally, simply focusing on spread, scale, and sustainability in early care and education is not enough to change the obesity rate in young children. Promising strategies across sectors—including primary care, schools, and other community settings—must consider spread, scale, and sustainability from the outset, using lessons learned from the early care and education sector. If promising strategies achieve spread, scale, and sustainability, the resulting infrastructure and financing structures will help support continued capacity, multiplying the impact for future generations. Given the current constraints on resources and the need to accelerate the effect on health outcomes, this is the optimal time to commit to spread, scale, and sustainability across all of the sectors that focus on preventing obesity.

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16 To access the Appendix, click on the Appendix link in the box to the right of the article online.


