



American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



Ohio Chapter

**STATE OF OHIO AND OHIO CHAPTER,
AMERICAN ACADEMY OF PEDIATRICS
FINAL PROJECT REPORT - OBESITY
JULY 2012 – JUNE 2013**



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Scope of the Problem: Childhood Obesity in Ohio

Ohio is ranked as the fifth heaviest state in the nation, as nearly two-thirds of the state's residents are overweight (38%) or obese (28%), according to the Ohio Department of Health, Office of Healthy Ohio. The prevalence of childhood overweight and obesity has steadily increased over the past 30 years,¹ and this is what has been learned about obesity:

1. A child of normal weight at age 5 years, who remains normal at age 10 years, has only a 10% risk of being an obese adult;
2. A child who is obese at 5 years of age has a 50% risk of being an obese adult; and
3. A child obese at 10 years of age has an 80% risk of adult obesity.²

The National Health and Nutrition Examination Survey (NHANES) from 2006 reports that the prevalence of obesity, as defined by a BMI $\geq 95^{\text{th}}$ percentile, was:

- 12.4% for children 2-5 years old
- 17.0% for children 6-11 years old
- 17.6% for children 12-19 years old.^{3,4}

Of particular importance are the children between the ages of 2-5 years old and 6-11 years old; these age groups have experienced an increase in prevalence of obesity of approximately 2.1% and 1.2%, respectively, in the past four years alone.^{2,3}

Why is Childhood Obesity a Problem?

Like other chronic diseases, childhood obesity has lasting, compounding consequences over time, and it is less likely to be reversed. Overweight children are more likely to have increased blood pressure, blood glucose, and insulin levels, as well as abnormal lipid profiles and psychosocial issues.

Compared to children of healthy weight, Ohio's obese children are reported to be:

- 4.6-fold more likely to have diabetes,
- 2.0-fold more likely to have poor health status,
- 1.9-fold more likely to have limited ability to do things,
- 1.8-fold more likely to have asthma, and
- 1.6-fold more likely to have poor mental health.⁴

Obesity also markedly increases the use of health services by Ohio children. Compared to healthy weight children, obese children are reported to be:

- 2.1-fold more likely to have had 2 or more hospitalizations in the past year,
- 1.8-fold more likely to have had 2 or more Emergency Department (ED) visits in the past year,
- 1.4-fold more likely to have special health care needs, and

¹Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA*. 2002 Oct 9;288:1728-32

²Whitaker RC, Wright JA, Pepe MS, Seidel KD, Dietz WH. Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine* 1997; 337(13), (Sep 25):869-73.

³Ogden CL, Carroll MD, Flegal KM. High body mass index for age among US children and adolescents, 2003-2006. *JAMA*. 2008 May 28;299:2401-5.

⁴Anderson SE, Whitaker RC. Prevalence of obesity among US preschool children in different racial and ethnic groups. *Arch Pediatr Adolesc Med*. 2009 Apr;163:344-8.

- 1.4-fold more likely to use chronic medication.⁴

For all obesity-related illnesses – for children and adults – \$93 billion are spent annually. More than 27% of the growth in overall health care spending between 1987 and 2002 has been attributed to treating obese patients.⁵

In “Obesity in Children and Families Across Ohio,”⁶ the prevalence of obesity among Medicaid eligible children is a key driver of their well-being, chronic illnesses and use of the health care system. Approximately 47.5% of Medicaid children are overweight or obese, compared to 30.1% for children with job-based insurance coverage.⁴

Genetics, environment, and personal behavior make childhood obesity the most complex public health problem ever faced. To control it, programs must address its roots, which lay in the first few years of life.

Recommendations for Addressing Childhood Obesity

In 2007, The American Academy of Pediatrics, and 14 other collaborating organizations, provided Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity that guide clinicians in very specific terms about how to screen for, assess, and manage excess weight that may occur in the early years of life.⁷ The recommendations are rooted in scientific research, including a review of all available literature, compiled to formulate an optimal approach for effectiveness. The nine Expert Committee Recommendations (ECR) around behavior modification are:

1. Encouraging exclusive breast feeding during the first six months of life
2. Having breakfast daily
3. Encouraging family meals
4. Limiting fast food consumption
5. Increasing fruits and vegetables
6. Limiting sugar-sweetened beverages
7. Eating age-appropriate portion sizes
8. Limiting screen time to two hours per day, or less
9. Participating in at least 60 minutes of physical activity¹³

More recently, the Dietary Guidelines Advisory Committee conducted another review of the literature, and published *Dietary Guidelines for Americans, 2010*, with a nearly identical list of behaviors affecting weight management.⁸

⁵ Thorpe, K. The Rise in Health Care Spending and What to Do About It. 2005. http://www.medscape.com/viewarticle/516112_1.

⁴ Cuttler L, Singer M, Simpson L, Gallan A, Nevar A, Silvers JB. Obesity in Children and Families Across Ohio. Ohio Family Health Survey. 2008. ckm.osu.edu/sitetool/sites/ofhspublic/documents/OFHSReport_Cuttler.pdf

⁷ Barlow S, Expert Committee. Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Pediatrics Vol. 120 Supplement December 2007, pp. S164-S192.

⁸ U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010*. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.

Many organizations – including the American Academy of Pediatrics, National Initiative for Children’s Healthcare Quality, and 5-2-1-0 campaign developed by the Maine Youth Overweight Collaborative – have adopted the Expert Committee Recommendations, as well as the Dietary Guidelines for Americans, 2010 recommendations, in their respective “toolkits” developed to address obesity prevention and treatment.

The Ohio Chapter, American Academy of Pediatrics Addresses Childhood Obesity

The Ohio Chapter, American Academy of Pediatrics (Ohio AAP) has adopted the Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity since they were published in 2007. By targeting children and families at well child visits from birth through 18 years, the Ohio AAP is able to approach the childhood obesity epidemic from both the prevention and management areas of focus. Primary care providers generally rate their ability to successfully treat obesity as low, and cite many barriers towards treating and preventing obesity among their patients. That is why the Ohio AAP has developed two programs, with assistance from the Ohio Department of Health, to address childhood obesity – *An Ounce of Prevention is Worth a Pound* and *A Pound of Cure*. These two programs provide Ohio AAP practitioners with unique perspectives and opportunities for managing their patients.

An Ounce of Prevention is Worth a Pound

Introduced in 2007, the Ounce of Prevention is Worth a Pound toolkit addresses the growing epidemic of childhood obesity. The goal is to provide primary care providers with simple tools to educate parents in prevention strategies by making good nutritional and physical activity decisions for their children. Ounce of Prevention starts in infancy at the first well child visit, and provides age-appropriate tools through 18 years old. The complete toolkit includes a BMI wheel, age specific parent handouts from birth to age 18, anticipatory guidance charts for healthcare providers, healthy serving size handouts for ages 2-18, snack suggestions, sports nutrition information, calcium information, handouts for tweens and teens, and posters for the medical office. In 2011, the complete set of handouts was acculturated and translated into Spanish for further reach and usage.

The Ounce of Prevention toolkit was developed by the Ohio Chapter, AAP; the Ohio Department of Health, Healthy Ohio; the American Dairy Association Mideast; the Ohio Dietetic Association; and Nationwide Children's Hospital.

A Pound of Cure

A Pound of Cure is a training program for obesity counseling in primary care. It offers training and resources to aid clinicians in evaluating, interviewing, educating, tracking, and following up with overweight and obese children, and their families. It is designed to support primary care providers with a specific counseling process, and the resources, to make them optimally effective by providing behavior change techniques as a component of education about core messages. A Pound of Cure has been especially effective for younger children identified as overweight or obese, but in 2012, information was added for teenagers in the continuing battle against overweight and obesity.

The intervention is presented as a set of succinct modules for use within a brief 15-20 minute time frame in a busy practice. These modules are structured to guide physicians in identifying a child's overall obesity-related health risk by collecting a comprehensive history – including family, diet, and physical activity history – as well as a physical exam and laboratory evaluation. This information is used to prompt physicians to address fundamental behaviors that fuel excess weight gain, as well as to help physicians set goals with children and families to help them manage and address their weight concerns.

Methods

Through the grant awarded by the Ohio Department of Health and Ohio Office of Medical Assistance, which is administered by BEACON and the Government Resource Center, the Ohio AAP has committed to extending the Ounce of Prevention training as a recruitment tool, and merging Ounce of Prevention into the Pound of Cure for a single obesity-focused program. The Ohio AAP has committed to execute the Pound of Cure project by implementing a second wave of a quality improvement learning collaborative focused on achieving best clinical care and health outcomes for children ages 2-18 years old, with a diagnosis of overweight or obesity.

Specifically with the Ounce of Prevention, the Ohio AAP agreed to coordinate 15 trainings for medical providers which address anticipatory guidance for families as it relates to healthy nutrition and physical activity habits for children from birth through age 18. These trainings are provided through regional trainings, webinars, and in-office trainings, and offer continuing medical education (as provided through the Ohio AAP Chapter operating funds) as a benefit to members. These trainings are also used as a recruitment tool for engaging providers into the Pound of Cure Learning Collaborative.

With the Pound of Cure, the Ohio AAP will focus efforts to recruit 12-24 practices to participate in Wave Two of the Learning Collaborative. The Collaborative trains providers in the Pound of Cure process and materials, while also teaching providers quality improvement tools and resources. To review longer term outcomes of the collaborative, and to encourage peer-to-peer engagement, the Ohio AAP made an effort to keep half of the practices from Wave one engaged in Wave Two.

Learning Collaborative Structure

The Ohio AAP has committed to organizing a quality improvement learning collaborative, based on the Pound of Cure obesity management program – which incorporates the Ounce of Prevention obesity prevention materials – using the Institute for Healthcare Improvement Breakthrough Series model.

An Institute for Healthcare Improvement (IHI) Breakthrough Series (BTS) Collaborative usually brings together practice teams working on improving processes, practice, and outcomes in health care. The goal of a collaborative is to get results, and to close the gap between the best care and the usual practice for a specific topic, in this case, childhood obesity. In the case of the Pound of Cure Learning Collaborative, a total of 18 practices registered to participate, to improve the management of overweight and/or obese children, through:

- A ten month time period to achieve measurable improvements in the management of pediatric patients – 2-18 years old – who are diagnosed as overweight (BMI \geq 85th percentile) or obese (BMI \geq 95th percentile)
- Teams received quality improvement training and support from the BEACON Quality Improvement Coordinators during monthly action period calls, site visits, and one-on-one interactions, focusing on:
 - Learning the Model for Improvement
 - Developing Smart AIM statements
 - Planning small tests of change using the Plan-Do-Study-Act Cycle
 - Mapping out office flow and how to incorporate Pound of Cure into their practice
 - Mapping out the well child visit flow and how to incorporate the utilization of the blood pressure slide rule tool to correctly identify the child’s blood pressure category
 - Sustaining the identification and counseling of overweight and obese patients after the collaborative has ended
- Teams received coaching on how to apply proven strategies for management with overweight and obesity
- Teams met at the day-long learning session, at the beginning of the collaborative, to learn evidence-based guidelines and utilize a rapid-cycle quality improvement approach to assist with making changes to their current delivery system
- Teams participated in monthly action periods, following the learning session, during which they submitted data regarding their performance, along with a summary of changes being tested
- Teams shared reporting and tools on a designated website to promote shared lessons learned
- Teams were supported and connected via listserv and monthly conference calls throughout the collaborative to learn from one another and share improvement ideas, tools and methodologies

More details, including the Pound of Cure mission, project goals/aims, and collaborative expectations are included in the Collaborative Charter, which is included as Appendix A.

The Pound of Cure Learning Collaborative has assisted participants in testing changes to the process of care delivery using the “Key Driver” model. The *Pound of Cure* project leadership has identified three key drivers that lead to managing overweight and obesity in children 2-18 years old. They are:

- 1) Efficient clinical processes for care delivery
- 2) Informed, engaged, and activated patients and families
- 3) Effective counseling on weight-related lifestyle behaviors

The Key Driver Diagram (Appendix B) lists these steps, along with interventions that might be chosen to achieve the goals of the Pound of Cure Learning Collaborative.

System Framework

The Ohio Chapter, AAP utilizes the Model for Improvement framework as detailed in the book *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* as outlined by Langley, Nolan, Norman, and Provost.

The Model for Improvement – Based on building knowledge sequentially; multiple, planned tests of change allows learning to be captured while during the pilot or testing phase. This approach reduces the risk of lengthy planning periods and lost time and effort.

The Model for Improvement requires collaborative teams to ask three questions:

- 1) *What are we trying to accomplish?* – (Aim) – Participants determine which specific outcomes they are trying to change through their work.
- 2) *How will we know that a change is an improvement?* – (Measures) – Team members identify appropriate measures (either outcome, process, or balancing measures) to track their success.
- 3) *What changes can we make that will result in improvement?* – (Changes) – Teams identify key changes that they will actually test in their practice.

These three questions then lead to the “Plan-Do-Study-Act” (PDSA) Cycle of learning, brought on by testing the changes from question three. The Model for Improvement is illustrated below in Figure 1. The process of continuous and serial changes over time is reflected in Figure 2, Multiple PDSA Cycles.

Figure 1. Model for Improvement

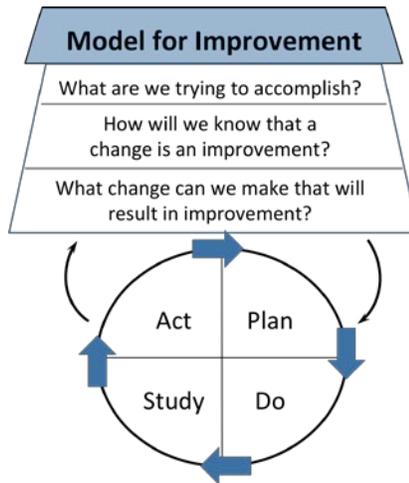
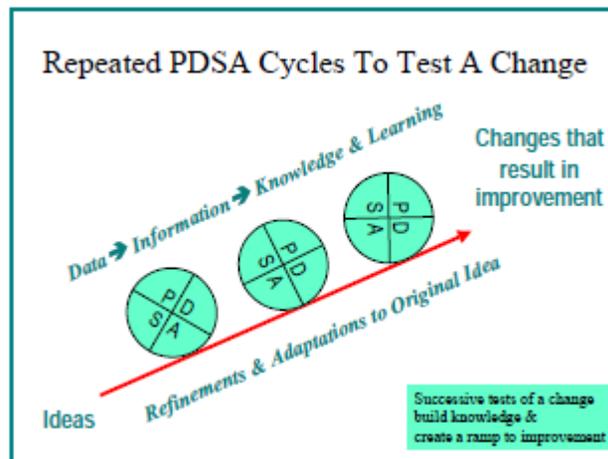


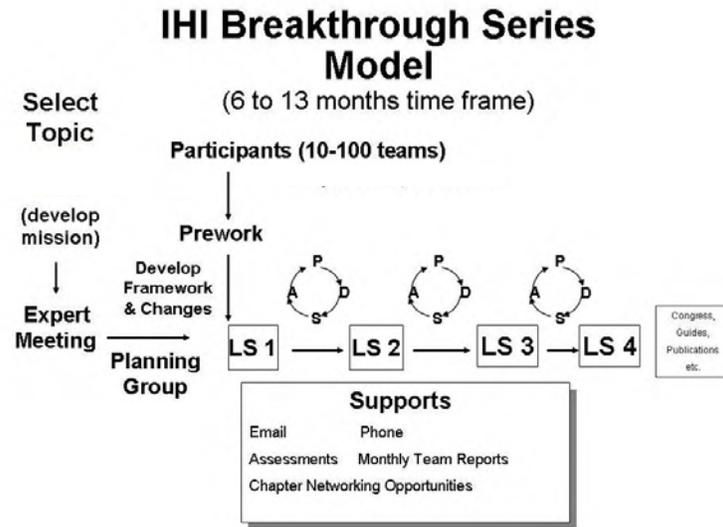
Figure 2. Multiple PDSA Cycles



The Collaborative Learning Model – A Learning Collaborative brings together healthcare organizations in multi-disciplinary teams to improve care for a designated health condition. After teams complete set

pre-work activities, they will attend one learning session during a 6-month period. Teams will learn best practices and plan tests of change with guidance from Improvement Faculty. During the action periods, practice teams will analyze their progress with input from a Quality Improvement Consultant, develop strategies to overcome barriers to change, and plan for further spread of the changes. The Institute for Healthcare Improvement Breakthrough Series Model is illustrated in Figure 3.

Figure 3. Institute of Healthcare Improvement Breakthrough Series Model



Recruitment of Practitioners and Practices

The Ohio Chapter, American Academy of Pediatrics has recruited primary care practice teams from throughout the state, utilizing urban and suburban practices, as well as private and hospital-affiliated practices or health centers. Providers with an interest in addressing the childhood obesity epidemic have been targeted for participation in an Ounce of Prevention is Worth a Pound office-based training. Practices, which have been trained in the Ounce of Prevention obesity prevention program, have been targeted for participation in the Pound of Cure Learning Collaborative.

Recruitment for Ounce of Prevention Trainings

Office-Based Trainings for Ounce of Prevention have been an effective mechanism for providing education to primary care providers covering obesity prevention topics since the toolkit launched in 2007. In 2011, the Ohio AAP enlisted the assistance of a graphic designer to help develop recruitment materials for the Ounce of Prevention trainings. In addition to a formal mailing to the Ohio AAP membership, information about Office-Based trainings has been included in multiple Ohio AAP communications vehicles, including the quarterly newsmagazine, Ohio Pediatrics; the bi-weekly electronic newsletter, Ohio AAP Today; the Ohio AAP website (www.ohioaap.org); and the Ounce of Prevention website (www.theounceofprevention.org). Samples of these materials are located in Appendix C.

During this grant period, the Ohio AAP has been able to host 15 trainings through regional meetings, webinars and in-office trainings to spread the Ounce of Prevention materials. During these 15 trainings, nearly 175 healthcare providers were educated on obesity prevention techniques during the well child visits. Figure 4 below outlines the practices, and number of providers, participating in the 1-hour CME training. The continuing medical education credit has been provided by the American Academy of Pediatrics in Elk Grove Village, Illinois. All CME credits are provided in-kind with Ohio AAP Chapter operating funds as a member benefit.

Figure 4: Ounce of Prevention Trainings

Practice	Medicaid Percentage	Training Date	Attendees	Speaker
Toledo Children's Hospital	90%	July 30, 2012	5	Amy Sternstein, MD
Kunz Medical Group	32%	July 30, 2012	3	Amy Sternstein, MD
Pediatrics of Massillon	33%	July 31, 2012	2	Amy Sternstein, MD
Good Samaritan Hospital	80%	September 5, 2012	26	Robert Murray, MD
Webinar		September 12, 2012	5	Robert Murray, MD
Smith Clinic	17%	October 11, 2012	30	Amy Sternstein, MD
Southern Ohio Medical Center	75%	October 26, 2012	35	Robert Murray, MD
Webinar		November 14, 2012	6	Amy Sternstein, MD
MetroHealth Medical Center	95%	November 20, 2012	2	Robert Murray, MD
Webinar		December 7, 2012	3	Amy Sternstein, MD
Clinton Memorial Hospital	70%	January 17, 2013	17	Robert Murray, MD
Webinar		January 23, 2013	2	Robert Murray, MD
Webinar		February 1, 2013	4	Robert Murray, MD
Blanchard Valley Hospital	80%	February 15, 2013	26	Amy Sternstein, MD
Worthington Industries Pediatrics	0	March 13, 2013	8	Amy Sternstein, MD

Recruitment for Pound of Cure Learning Collaborative

The Ohio AAP set out to recruit between 12-24 practices for the Pound of Cure Learning Collaborative, Wave Two, which launched in July, 2012. In 2009-2011, a total of 612 providers, in 195 practices, were trained in the Ounce of Prevention obesity prevention program through office-based trainings, regional trainings, or webinars. Those practices that have received obesity prevention training through the Ounce of Prevention is Worth a Pound program were the primary targets for the Pound of Cure Learning Collaborative. Additionally, the project team set a goal of keeping half of the practices participating in Wave One of the collaborative engaged in Wave Two.

The Pound of Cure Project Team and three BEACON Quality Improvement Coordinators contacted practices throughout Ohio for recruitment into the Pound of Cure Learning Collaborative. In an effort to standardize the information provided by all of the recruiters, a Recruitment Letter, Recruitment Packet and Talking Points/Scripts were provided. These items can be found as Appendices D-F.

The full Pound of Cure Learning Collaborative Recruitment Plan is attached as Appendix G.

The practices that fully participated in the Pound of Cure Learning Collaborative can be found in Figure 5 below.

Figure 5: Pound of Cure Learning Collaborative Practices – Wave Two

Practice Name	Wave 1	Wave 2	Providers	Medicaid Population
Ashtabula County Health Department	✓	✓	3	40% (includes pediatric and adult population)
Child and Adolescent Specialty Care of Dayton	✓	✓	3	10%
Children’s Health Clinic		✓	4	70%
Cleveland Clinic Twinsburg		✓	4	10%
Kunz Medical Group		✓	3	32%
Pediatric Associates, Inc.	✓	✓	7	30%
Pediatric Associates of Massillon		✓	2	33%
Toledo Children’s Primary Care		✓	5	90%
Wheeling Hospital Center for Pediatrics	✓	✓	4	70%
Wilmington Medical Associates	✓	✓	3	20%

The Ohio AAP and BEACON Quality Improvement Coordinators were initially able to recruit a total of 18 practices to participate in the learning collaborative, however, eight practices either did not attend the learning session or dropped out of the collaborative during the ten month commitment. These practices represented approximately 25 additional healthcare providers, and included:

- Cleveland Clinic Westown Physician Center – Cleveland, Ohio
- John DiTraglia Pediatrics – Portsmouth, Ohio
- Lorain County Health & Dentistry – Lorain, Ohio
- Marysville Pediatrics – Marysville, Ohio
- Nationwide Children’s Hospital Adolescent Clinic – Columbus, Ohio
- Northeast Cincinnati Pediatric Associates – Cincinnati, Ohio
- Ohio Pediatrics, Inc. – Kettering, Ohio
- Rocking Horse Community Health Center – Springfield, Ohio

A Pound of Cure Learning Collaborative

Once practices were identified as strongly interested, or interested, in participating in the learning collaborative, the Pound of Cure Project Team provided the practices with a Pre-Work Packet (see

Appendix H), and hosted four Pre-Work Calls as a way to provide practitioners with information about the collaborative, expectations from practice teams, expectations from the project team, highlight work that would need to be completed prior to the Learning Session, and to answer questions the practice teams had concerning the collaborative.

The Learning Session to kick off the Pound of Cure Learning Collaborative was held on Monday, July 30, 2012, and primarily focused on transitioning practices from using the Ounce of Prevention materials at well child visits (by identifying children as overweight or obese through the use of recording either weight-for-length in children under 2 years of age, or recording Body Mass Index for children 2-18 years old), to explaining how to use the Pound of Cure materials to manage a child's weight within the primary care setting. In addition to reviewing the Pound of Cure materials, the Learning Session was structured to provide a case study of an obese patient, with role play examples of Motivational Interviewing to help practitioners engage the patient and family in addressing concerns about weight gain, and coordinating sessions on appropriate billing and coding for each of the Pound of Cure visits.

In addition to the clinical content, practices were provided training in quality improvement methods, such as the Model for Improvement and Plan-Do-Study-Act Cycles, at the Learning Session. Dedicated time for practices to work together and develop their team's Aim Statement, first PDSA Cycle and 90-Day Goals was provided during this time focused on quality improvement. Practices also received training on what data needs to be collected on a monthly basis, and how that data should be collected throughout the learning collaborative. Appendix I includes the Learning Session Agenda for July 30, 2012.

After the Learning Session, practices collected and input data on a monthly basis into the Pound of Cure Sharepoint Site developed by the State of Ohio Data Infrastructure Team. Data was due on the 5th day of the following month, and was then reviewed on the Action Period Calls which are held monthly.

During the Monthly Action Period Calls, teams had an opportunity to discuss their successes and address any barriers encountered during the month, as well as review the data. These two items typically took up half or less than half of the call time. The majority of time on the calls was focused on providing practitioners with additional information to help them succeed during the Learning Collaborative. Topics addressed on the Monthly Action Period Calls, with full presentations for each month in Appendices J-R, included:

- Quality Improvement Tools and Methods such as Plan-Do-Study-Act Cycles, Office Flow and Process Mapping, and Sustainability and Spread by BEACON Quality Improvement Coordinators Heather Hall and Mary Ann Swank, MSN, ED, RNC-OB
- Review of Office Systems Inventories and other pre-collaborative evaluations
- Obesity Laboratory Evaluations by Amy Sternstein, MD and Robert Murray, MD
- Promotion of Pound of Cure in Participating Practices by Angela Krile of Krile Communications
- Tips on Surviving the Holidays by Rachel Riddiford, MS, RD, LD
- Parenting Behaviors and Their Relationship to Overweight/Obesity by Keeley Pratt, PhD, LMFT, AAMFT
- Putting Motivational Interviewing into Practice by Christopher Bolling, MD, FAAP
- Ten Tips for Helping Families Change their Child's Nutrition Habits by Dina Rose, PhD
- Review of Wave One Pound of Cure Results
- Participating Practice Plans for Sustainability of A Pound of Cure

The Pound of Cure Learning Collaborative successfully followed the IHI Breakthrough Series model for learning collaboratives.

Evaluation

The Ohio AAP evaluates both the Ounce of Prevention is Worth a Pound and A Pound of Cure programs in multiple fashions. Evaluations are conducted through paper surveys, online surveys, provider surveys, family surveys, practice measures, site visits, and one-on-one interviews with providers. The variety of methods for evaluating both programs helps the Ohio AAP provide the strongest and most informative programs to its members.

Ounce of Prevention is Worth a Pound

The Ounce of Prevention training is a 1-hour CME based training (all CME credits are provided in-kind with Ohio AAP Chapter operating funds as a member benefit) that is typically held in a practice's office, and led by a medical expert in the field of child overweight and obesity. Each participant attending the training is given a pre-test that captures practice demographics and provider baseline knowledge of physical activity and nutrition recommendations. This pre-test is administered through a paper copy or online through Survey Monkey, which can be viewed as Appendix S. Results from the pre-test are compiled, and then compared to the 6-month follow-up tests that are sent post-training. Pre-Test results can be found in Appendix T.

Additionally, the American Academy of Pediatrics requires a CME Evaluation form to be completed immediately after the training so providers can receive the appropriate credit for participation. (All CME credits are provided in-kind with Ohio AAP Chapter operating funds as a member benefit.) This evaluation form measures both the content of the presentation as well as the effectiveness of the speaker. This evaluation can be found in Appendix U.

Pound of Cure

The Pound of Cure Learning Collaborative is dedicated to achieving best clinical care and health outcomes for children ages 2-18 years old, with a diagnosis of overweight or obesity, by using the nine Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity. The Pound of Cure Project Team has offered several opportunities for evaluation of items ranging from the materials used in the collaborative to health care provider knowledge and behavior change, to family knowledge and behavior change over the past ten months. These evaluations have been conducted through online surveys via Survey Monkey, paper surveys in the primary care office, practice narratives, site visits, and telephone interviews.

Specifically, from July 2012 through June, 2013, each practice has been asked to implement the Pound of Cure program to measurably improve the clinical health care of overweight/obese children ages 2 -18 years. Body Mass Index (BMI) and blood pressure are recorded at each office visit, and has been used to measure immediate improvements in children's health care (either through decreasing or maintaining current levels). Measures for the Pound of Cure Learning Collaborative include:

1. 90% of patients will have documentation of BMI percentile at well child visits
2. 90% of patients will have documentation of counseling for nutrition at well child visits
3. 90% of patients will have documentation of counseling for physical activity or sedentary behaviors at well child visits
4. 90% of patients will have documentation of BMI percentile at initial *Pound of Cure* office visits
5. 90% of patients will have documentation of blood pressure at initial *Pound of Cure* office visits
6. 90% of patients will have documentation of blood pressure category at initial *Pound of Cure* office visits
7. 90% of patients will have documentation of BMI percentile at follow up *Pound of Cure* office visits (visits 2-4)
8. 90% of patients will have documentation of blood pressure at follow up *Pound of Cure* office visits (visits 2-4)
9. 90% of patients will have documentation of blood pressure category at follow up *Pound of Cure* office visits (visits 2-4)
10. 90% of patients with BMI $\geq 85^{\text{th}}$ percentile will have documentation of diagnosis (overweight or obese)
11. 90% of patients will have documentation of obesity-related co-morbidities
12. 90% of patients will have documentation of family readiness to make changes
13. 90% of patients with BMI $\geq 85^{\text{th}}$ percentile will have documentation of history (family, nutrition, physical activity, labs) at the initial *Pound of Cure* office visit
14. 90% of patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of counseling (nutrition, physical activity) at the initial *Pound of Cure* office visit
15. 90% of patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of counseling (nutrition, physical activity) at the follow up *Pound of Cure* office visits (visits 2-4)
16. 90% of patients return for initial *Pound of Cure* office visit
17. 75% of patients complete the program (attending all of the follow up visits, as well as completing the post- assessment)

Each specific measure, and the measures numerators and denominators, are clarified in the measures table, which is included as Appendix V. To assist with data collection of these measures, a series of chart review tools and summary sheets were provided to the practices, which can be found in Appendices W and X.

Given the unique nature of the Pound of Cure Learning Collaborative and chart review methodology, a patient registry was developed to facilitate provider management of patients (sample registry in Appendix Y). In traditional quality improvement projects, providers conduct random chart reviews to fulfill their monthly chart review requirements. In the Pound of Cure Learning Collaborative, providers review the charts of those children who have “enrolled” in the Pound of Cure program by reviewing initial and follow up visits of children benefiting from the obesity management counseling. The patient registry allows providers to enter the patient charts they have reviewed and to monitor patient progress through the series of office visits.

Before being able to record data, however, primary care providers participating in the Pound of Cure Learning Collaborative were trained in obesity counseling, through provision of Pound of Cure counseling strategies and materials at the Learning Session on July 30, 2012. Regular feedback of data on their compliance with the national guidelines has been given during the monthly action period calls, steadily improving the quality of their practice around obesity.

The aim of evaluating the Pound of Cure materials is two-fold:

1. To evaluate the effectiveness of Pound of Cure materials in changing primary care provider knowledge, self-efficacy, and documentation behaviors relative to baseline, as they establish obesity counseling within their practice, and
2. To evaluate the effect of primary care provider counseling on families' Expert Committee Recommendations (ECR) related behaviors

Provider level behavior changes were recorded prior to the start of the collaborative, and have been recorded again after the 10-month collaborative is complete. The goal is to show that primary care providers will show significant improvement in:

1. knowledge of childhood obesity and its treatment, particularly, the Expert Committee Recommendations and treatment algorithm, as compared to their baseline knowledge
2. their self-efficacy for counseling on childhood obesity in their practice
3. obesity related documentation behaviors.

Additionally, several family level measures were evaluated, measuring families' ability to improve their dietary, sedentary, and physical activity related behaviors.

Clinician questionnaires on the state of childhood obesity, the ECR and the treatment algorithm comprise the knowledge questionnaire, which is visible in Appendix Z. The knowledge questionnaire has been developed, reviewed, and the content validated by experts in the field of childhood obesity.

The self-efficacy questionnaire is founded in the Social Cognitive Theory and assesses the primary care providers' sense of proficiency toward approaching childhood obesity within primary care (Appendix AA). Questions encompass multiple aspects of childhood obesity counseling and appear as a 100-point scale.

For families, the Expert Committee Recommendations behavioral index was developed prior to the learning collaborative; the tool is founded in the ECRs and includes queries on nine of the recommendations, as they pertain to families with children 2-18 years old (Appendix BB). A physician panel reviewed the ECR behavioral index for content. Statements, several represented pictorially, were written at the sixth grade reading level or lower to encapsulate the behavioral and knowledge-related concepts for prevention and management of excess weight. All families have been asked to complete the questionnaire twice – once at the beginning, and once at the end, of a series of obesity management office visits.

Additionally, for the learning collaborative, family feedback forms were generated to evaluate parents' perceptions on the office visit from wait time to office visit topics discussed. This form is represented in Appendix CC.

The Office Systems Inventory (OSI) is a tool adapted from previous learning collaboratives to encapsulate the office systems and processes that each practice had in place prior to, and upon completion of, the learning collaborative (Appendix DD). It is designed to help practices assess the systems they have in place so that every child receives appropriate preventative care, evaluation, and treatment for pediatric overweight and obesity. The OSI queries on three areas, which are the three drivers of the Pound of Cure Key Driver Diagram:

1. Efficient clinical processes for care delivery
2. Informed, engaged and activated patients and families
3. Effective counseling on weight-related lifestyle behaviors

Within each key driver, the OSI addresses the interventions of the learning collaborative, also displayed in the Key Driver Diagram. This includes things such as the process for calculating BMI percentiles at all well child visits, as well as all Pound of Cure visits, to completing a comprehensive family history collection, to motivational interviewing techniques, to use of education materials, and referral of patients.

Each month during the collaborative, practice teams are responsible for completing a practice narrative (Appendix EE). Practice narratives provide the Pound of Cure Project Team with insight on how the teams were progressing in the learning collaborative. This was also used in conjunction with monthly phone calls and monthly chart reviews. Several questions on each practice narrative remained the same from month to month and gauged each team's tools tested, system or process changes, changes and tests planned for the following month, reflections on practice specific data, and barriers and successes experienced that month. Each practice narrative also contained unique questions such as topics to be addressed on the monthly call, how teams spread the Pound of Cure package to other providers in their practice, mechanisms for keeping providers engaged in obesity management, differences between the two age groups counseled, outcome measures used to define successful counseling, and reflections on laboratory evaluations.

Throughout the collaborative, practice teams were asked to continuously make changes in the way care is delivered in the practice, in an effort to develop effective clinical practices when managing overweight and obese patients in the primary care setting. The quality improvement tool used to make these changes on a small scale, and expand on a larger scale, are PDSA Cycles. One practice's completed PDSA Cycle Worksheet is included as Appendix FF, which demonstrates the steps taken to testing when the families complete the Pound of Cure paperwork, and if they comply by bringing it with them to the initial Pound of Cure visit.

Site Visits are another effective way of being able to see what changes practices are making in the office, how they are managing the patient population, their office flow and process, and to assist with improvement in a number of areas. From October to December 2012, the Pound of Cure Project Team scheduled site visits with the majority of practices to visually see how Pound of Cure was being incorporated into the practice. Topics addressed during the site visits were a review of each team's PDSA cycles; office flow diagrams around integration and use of the blood pressure tool; insight into and feedback on patient recruitment and POC materials; any barriers or successes around insurance billing and coding issues; and a review of data and each team's patient registry. Information regarding the agenda for site visits and the evaluation tool used by the Project Team are available as Appendices GG and HH.

Finally, as the Pound of Cure Learning Collaborative concludes, the Project Team has developed a list of questions and topics to be addressed during closing interviews with the practice team's physician leader. The closing interviews aim to obtain overall perceptions of the Pound of Cure counseling strategy, materials and learning collaborative, the time commitment devoted by each provider, advice for newly recruited providers, and what were some of the most influential factors that improved one's confidence to approach this complex weight management process and will help sustain the changes made during this learning collaborative. The interviews will be completed mid-June. Questions from the closing interviews can be found in Appendix II.

Outcomes

By using many different evaluation methods, the Ohio AAP has been able to effectively review both the Ounce of Prevention is Worth a Pound obesity prevention program and the Pound of Cure obesity management program. Each entity has successfully increased providers' knowledge of the Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity. Additionally, parents are provided with easy-to-use and easy-to-understand materials from their primary care provider on how to prevent and/or manage their child and families obesity-related health risks.

Ounce of Prevention

Each participant attending the Ounce of Prevention training is given a pre-test, which captures practice demographics and provider baseline knowledge of physical activity and nutrition recommendations. Results from the pre-test are compiled, and compared to the 6-month follow-up tests, which are administered on a rolling basis; that process began in early 2013. A complete copy of the Ounce of Prevention Pre-Test Results is available for review in AppendixT.

Of the providers participating in the 15 trainings, 26.2% of those responding currently use the Ounce of Prevention materials in their practice. Of those not currently using Ounce of Prevention, 90% specified they had not heard of the program or materials. Highlights of the pre-test results are:

Percentage	Measure
78%	Use an EMR
78%	See between 0-5 well-child visits each week
75%	Document height, weight and BMI at each well-child visit
40%	Document that physicians are the primary person using Ounce of Prevention Materials and having obesity prevention discussions with families

Practices identified the following barriers to providing anticipatory guidance in practice:

Percentage	Barrier
74%	Lack of time
44%	Parents are not receptive
24%	Lack of reimbursement

Practices identified the following barriers within the community which prevent healthy lifestyles:

Percentage	Barrier
77%	Limited family nutrition education, cooking skills, meal planning, etc.
72%	Limited access to purchase healthy foods
27%	Limited areas that are safe for children to play

In terms of Body Mass Index (BMI):

Percentage	Measure
76%	Patients, over age 2, which have their BMI percentage calculated and plotted
91%	Respondents that believe BMI is a good indicator of risk for overweight and/or obesity
72%	BMI Calculated by EMR
19%	BMI Calculated by BMI Wheel
9%	BMI Calculated by Hand Calculator

In terms of providing anticipatory guidance on nutrition:

Percentage	Measure
28%	Provide anticipatory guidance on nutrition all of the time
43%	Provide anticipatory guidance on nutrition most of the time
90%	Providers offer nutritional advice to all ages (1-18)
65%	Practitioners currently have materials that they use in practice to provide nutritional advice
79%	Providers use anticipatory guidance materials from the American Academy of Pediatrics
18%	Use Bright Futures
27%	Use WIC materials

In terms of providing anticipatory guidance on physical activity:

Percentage	Measure
26%	Practitioners provide anticipatory guidance on physical activity during all well child visits
53%	Practitioners provide anticipatory guidance on physical activity during most or all of the well child visits
85%	Providers offer physical activity advice to children ages 3-18
42%	Offer advice to parents of children 1-2 year olds
8%	Find themselves very confident in providing physical activity advice to children

Pound of Cure

It is difficult to truly measure the impact of reducing a child's obesity-related health risks in any time frame under one year. However, the Pound of Cure Learning Collaborative has been tracking at least 14 measures since July, 2012 in an effort to measurably improve the clinical health care of overweight/obese children ages 2 -18 years.

The latest data report on these measures reflects the time period from July 2012 through May 2013 (Appendix JJ). Specifically, baseline chart reviews occurred in late July 2012, and monthly chart reviews were recorded from August, 2012 through May, 2013. Data below is interpreted from the charts included in Appendix JJ.

Well Child Visit Measures (ages birth – 18 years):

1. Patients with documentation of BMI percentile at well child visits – 100%
2. Patients with documentation of counseling for nutrition at well child visits – 100%
3. Patients with documentation of counseling for physical activity at well child visits – 100%

Initial Pound of Cure Visit Measures (ages 2-11 years; ages 12-18 years):

(April data is represented due to the fact that there were no new patients seen in May for initial visits)

4. Patients with documentation of BMI percentile at initial *Pound of Cure* office visits – 100%; 100%
5. Patients with documentation of blood pressure at initial *Pound of Cure* office visits – 100%; 100%
6. Patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of diagnosis – 100%; 75%
7. Patients with documentation of obesity-related co-morbidities – 100%; 80%
8. Patients with documentation of family readiness to make changes – 100%; 100%
9. Patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of history (family, nutrition, physical activity, labs) at the initial *Pound of Cure* office visit – family, nutrition, and physical activity – 100%; 100%; labs ordered – 100%; 100%
10. Patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of counseling (nutrition, physical activity) at the initial *Pound of Cure* office visit – 100%; 100%

Follow Up Pound of Cure Visit Measures (ages 2-11 years; ages 12-18 years):

11. Patients with documentation of BMI percentile at follow up *Pound of Cure* office visits (visits 2-4) – 100%; 75% (maintained 100% until that final data point)
12. Patients with documentation of blood pressure at follow up *Pound of Cure* office visits (visits 2-4) – 100%; 100%
13. Patients with BMI $\geq 85^{\text{th}}$ percentile have documentation of counseling (nutrition, physical activity) at the follow up *Pound of Cure* office visits (visits 2-4) – 100%; 100%

A multitude of additional data has been collected through the Pound of Cure Learning Collaborative, and that information can be viewed on the next pages.

"A Pound of Cure" Learning Collaborative Provider Demographics

Provider Demographics	
Female	87.1%
White	93.5%
Asian	6.5%
Average Yrs. Practice	13.87 (11.843)
Demographics of the providers who participated in wave two of the POC learning collaborative.	

Self-efficacy to counsel the overweight patient

The 31-statement, four domain self-efficacy questionnaire was administered to primary care providers (n=31) in July 2012. Baseline self-efficacy was 81.77 points (on a 100-point Likert scale), suggesting that the participants were moderately confident of their abilities to address obesity in a global manner. The four domains making up the questionnaire were:

1. Evaluation of Obesity Related Health Risk/Status (ORHS)
2. Utilization of Motivational Interviewing Skills during Counseling Encounters with Families (MIS)
3. Management and Treatment of Patient Excess Weight (MTPEW)
4. Excess Weight Management Environment and Resources (EWMER)

Providers (n=19) completed the post-self-efficacy survey in June 2013, upon completion of the POCLC; overall self-efficacy increased to 91.66 points. This was a statistically significant (p=0.002) 9.90-point increase in overall self-efficacy to counsel the overweight child and family. All domains of self-efficacy improved each achieving statistical significance.

Provider race (p=0.004) and years practicing medicine (p=0.008) were the only variables to reach statistical significance in our regression model explaining the provider change in self-efficacy. Provider gender (p=0.144) and provider type (p=0.146) were not significant predictors of changing provider self-efficacy. The number of Action Period calls (p= 0.146), practice narratives (p=0.073), and monthly data entries (p=0.389) did not contribute to our regression model, either. Our model suggests that as providers are in practice longer, their degree of confidence to counsel on obesity decreases. Additionally, this model suggests that Asian Americans were less self-efficacious in their ability to counsel than Whites.

Results of provider self-efficacy survey

Domain	Pre-POCLC	Post-POCLC	p-value
ORHS	89.30 (11.65)	95.85 (3.68)	0.01505*
MIS	81.11 (13.13)	89.54 (8.68)	0.003*
MTPEW	74.89 (20.81)	90.68 (11.62)	0.001*
EWMER	80.71 (19.17)	89.92 (8.42)	0.030*
Overall	81.77 (13.81)	91.66 (6.6)	0.002*

Provider self-efficacy survey by domain and overall scores, out of 100-point Likert scale, represented as mean (standard deviation). Pound of Cure learning collaborative (POCLC), Evaluation of Obesity Related Health Risk/Status (ORHS), Utilization of Motivational Interviewing Skills during Counseling Encounters with Families (MIS), Management and Treatment of Patient Excess Weight (MTPEW), Excess Weight Management Environment and Resources (EWMER)* denotes statistical significance (p < 0.05)

Knowledge of the Expert Committee Recommendations

The 27-question knowledge questionnaire was administered to primary care providers (n=31) in July 2012. On average, primary care providers answered 17.32 (SD=1.67), out of 27 questions correctly at baseline. The questionnaire was comprised of three categories:

- Statistics around overweight and obesity
- Treatment strategies and goals
- The Expert Committee counseling messages

Post-collaborative surveys were distributed to providers in June 2013. Twenty providers completed the post-knowledge surveys. Despite an increase in provider self-efficacy, provider knowledge remained constant. Given that we did not see an increase in provider overall knowledge, we conducted a post-hoc analysis in which providers received partial credit for portions of “select all that apply” questions that they got correct; these scores are represented as their component scores. Even when examining providers’ answers when they received partial credit, there was no improvement in their knowledge (p=0.334). This suggests that between 2007 at the start of the pilot study and 2012 at the start of the efficacy trial the behavioral targets represented in the ECRs had fully penetrated the population of pediatric clinicians within Ohio. This is a strong indication that it was not a dearth of knowledge that resulted in diminished physician confidence to counsel. Physician awareness of the ECR recommendations resulted in a ceiling effect within the knowledge questionnaire, suggesting that a more difficult knowledge questionnaire may need to be developed to better capture the range of PCP knowledge about obesity intervention.

Results of provider ECR knowledge questionnaire

Score Type	Pre-POCLC	Post-POCLC	p-value
Component Score	20.53 (1.41)	20.84 (3.13)	0.189
Actual Score	17.32 (1.67)	18.00 (3.20)	0.334

Provider knowledge survey by score (27 questions), represented as mean (standard deviation) number of questions answered correctly. Pound of Cure learning collaborative (POCLC), Partial credit awarded for multi-select questions answer partially correct (Component Score). * denotes statistical significance (p < 0.05)

Prior to, and upon completion of, the Learning Collaborative practice teams completed a 33-question survey on weight management office systems within their practice. The survey was comprised of three domains, directed at three, predefined, key drivers within our driver diagram:

- Efficient clinical processes for care delivery (ECP)
- Informed, engaged and activated patients and families (IEA)
- Effective counseling on nutrition and physical activity (CNPA)

All thirteen teams completed this survey at baseline and eleven teams submitted a post-survey. At baseline, practices on average had 19 systems in place. Only one office systems was in place in *all* practices: assessing a child’s dietary behaviors at all well child office visits. At the end of POCLC, practices an average had almost 26 (p=0.017) systems in practice, a statistically significant improvement. There was a statistically significant increase in office systems within the key driver of efficient clinical processes for care delivery (p=0.0085) while the remaining two key drivers approached statistical significance.

Results of Office Systems Inventory by Key Driver

Key Driver	Pre-POCLC	Post-POCLC	p-value
ECP	9.20 (3.82)	13.10 (1.60)	0.0085*
IEA	6.60 (2.41)	8.50 (2.64)	0.0665
CNPA	3.20 (1.69)	4.10 (1.37)	0.067
Overall	19.00 (7.38)	25.70 (4.64)	0.017*
Practices completed the Office systems inventory pre and post Pound of Cure Learning Collaborative (POCLC). Domains of the inventory represent systems that support our key driver diagrams, key drivers: Efficient clinical processes for care delivery – 16 statements (ECP), Informed, engaged and activated patients and families – 11 statements (IEA), and Effective counseling on nutrition and physical activity – 6 statements (CNPA). Scores represented as mean (standard deviation). * denotes statistical significance (p < 0.05)			

In addition to maintaining previously established office systems, an additional seven office systems were adapted by all practices. These systems included:

- for infants 0-2 years:
 - measuring weight to length at all well-child visits
 - calculating BMI percentiles on all children seen for well-child visits
 - systematically assessing a child’s risk for overweight and obesity at all well-child visits
- for children over two years:
 - documenting and interpreting a child’s BMI percentiles
 - scheduling office visits to follow up on weight management outcomes
 - making referrals to specialty care when needed
 - assessing current physical activity behaviors at all well-child visits
 - assessing the child's family history for obesity related health risks

Office Systems Inventory	Pre	Post
Key Driver 1 - Efficient Clinical Processes for Care Delivery		
For infants 0-2 yrs., our practice measures weight to length at all well-child visits	85%	100%
Calculates BMI percentiles on all children seen for well-child visits	85%	100%
Takes and records a child's blood pressure at all well-child visits	85%	91%
Systematically assesses a child’s risk for overweight and obesity at all well-child visits for children over two years (e.g. nutrition and activity behaviors, BMI percentiles)	77%	100%
Documents and interprets a child’s BMI percentiles.	85%	100%
Interprets a child's blood pressure at all well-child visits	54%	73%
Documents a diagnosis of overweight or obese when a child is identified with a BMI greater than the 85th or 95th percentile, respectively	54%	91%
Has a specific place in the medical record to document discussions on a child's obesity related health risk	62%	91%
Has a specific place in the medical record to document discussions on a child's weight management counseling	62%	82%
Has a patient registry to monitor outcomes of overweight and obese patients as they receive counseling on weight management	8%	36%
Schedules office visits to follow up on weight management outcomes and makes referrals to specialty care when needed.	77%	100%
Has educational materials available in waiting room/exam rooms that address pediatric overweight/obesity	54%	73%
The materials we use for referrals relating to overweight and obesity are organized and accessible to all staff in the practice.	54%	91%
Utilizes a referral tracking system.	23%	36%
To coordinate referrals with community agencies or specialists, we currently use a standardized referral form or have a standard way to communicate written information about patients we refer.	62%	82%
To coordinate referrals with community agencies or specialists, we currently have a standard way to request written information back from the referral agency.	31%	36%

Key Driver 2 - Informed, engaged, and activated patients and families		
Utilizes readiness assessments with children and families who are overweight or obese to determine whether families are ready to address change behavior changes	8%	45%
The providers in our practice routinely use open-ended questions (or reflective statements) when we discuss behavior change with children and families	69%	82%
All the providers in our practice are comfortable using effective family-centered techniques (e.g. family and self management support, motivational interviewing)	38%	64%
Engages children and families to select their own approach to healthy nutrition and activity habits.	69%	73%
Assesses the child's current eating behaviors at all well-child visits	100%	100%
Assesses current physical activity behaviors at all well-child visits.	92%	100%
Assesses the child's family history for obesity related health risks.	69%	100%
If a child is overweight or obese and the family is ready to address behavior change, our practice sets and documents goals with the child and family	62%	82%
Our practice utilizes strategies to address cultural differences of our patient population	38%	55%
Emphasizes family lifestyle changes and family health improvement when counseling children and families about overweight and obesity	85%	91%
Has a tool/survey to capture changes in a child's physical activity and nutrition related behaviors.	15%	45%
Key Driver 3 -Effective counseling on nutrition and physical activity		
Uses an obesity risk assessment that is incorporated into all well child visits	46%	82%
Provides obesity prevention materials at all well-child visits	69%	91%
Develop a counseling plan, for weight management, with the patient and family.	38%	73%
Evaluate social-emotional, nutritional, physical activity and sedentary behaviors and current medical status during a visit on weight management.	62%	82%
Has materials in both English and Spanish that address pediatric overweight/obesity	54%	27%
Someone in our practice is responsible for regularly updating the practice's resource information regarding overweight and obesity resources	31%	55%

Each practice was also requested to submit a Plan-Do-Study-Act Cycle to the Pound of Cure Project Team at two points during the learning collaborative. Initially, 100% of the practice teams submitted their first PDSA cycle after the Learning Session in July. Each practice received constructive feedback on their change attempts by the Project Team. Examples of the changes the practice teams attempted during the initial PDSA cycle are:

- Calculate hypertension risk in overweight and obese patients using NHLBI guidelines
- Parent and child awareness of posters promoting A Pound of Cure within the practice setting
- Training of physicians and staff on Pound of Cure materials
- Identification of potential patients for inclusion in the Pound of Cure program
- Revise EHR template to ease data collection for Pound of Cure collaborative
- Develop reminder/recall system to remind patients of next scheduled Pound of Cure office visit
- Use blood pressure app for smartphones to calculate pediatric blood pressure category

Every month, practice narratives were collected from each team in an effort to gain additional insight to the unique nature of each participating practice. Early in the collaborative, the Project Team learned what action period call topics teams thought were most important for successful implementation of Pound of Cure materials into their practice. This information was helpful to deliver pertinent and useful information in a timely manner – leading to the list of action period call topics described above. The Project team received valuable feedback on the best mechanism to deliver nutrition and physical activity information on action period calls: finding local, low cost or free, and safe community resources; specific exercise regimens; and success stories that utilize motivational interviewing techniques to help patients achieve their dietary and activity goals. Practice teams were also asked to describe how they introduced A Pound of Cure information to other providers in their practice; team leaders either sat with each

physician and spent time going through the binder or held a series of presentations either during lunch or regularly scheduled staff meetings to share the information.

Teams reported the Pound of Cure tools that they tested, system process changes, tests of change planned for the coming month, and barriers and successes, in a series of responses that gradually increased in scope, the extent of which varied based on whether the team had participated in the previous collaborative. Initially, Pound of Cure tools that were tested focused orientating providers to the Pound of Cure counseling model, identifying eligible patients for Pound of Cure, establishing a reminder phone call system, and raising awareness about Pound of Cure through the use of in-office posters. As teams delved into the collaborative, changes became more intricate. During September, practice teams were encouraged to complete an office flow diagram around blood pressure readings, categorization, and documentation. Teams were then provided a blood pressure categorization tool – this tool was tested by all practices during a collaborative PDSA cycle. This PDSA cycle helped to progressively change their traditional office systems by implementing blood pressure categorization with the staff. The blood pressure tool transitioned from a tool used just during weight management visits to a tool essential to all well child visits and is the first of many best practices implemented by the practice teams.

Additional office systems established included utilization of patient recalls to increase follow-up at office visits, coordination of weight management visits with other office visits, establishment of file folders with copies of all materials for the Pound of Cure program, and investing in additional patient incentives to encourage patient follow-up. Practice teams also worked to streamline documentation around the office visit, particularly as practices transitioned from paper to electronic medical record systems.

Practices were encouraged to understand their unique barriers, while celebrating their successes each month. Initially, time was a common barrier; several practices expressed difficulty in managing patient visits with the restraints of short appointment times or providers already full schedules. Time was particularly valuable especially when families no-showed or rescheduled or cancelled last minute. While time continued to be a challenge throughout the collaborative, maintaining patient and family motivation and adherence to Pound of Cure eventually became the barrier that practices faced most often.

Recruitment of patients and parents into the Pound of Cure program was the main barrier expressed during the collaborative, which was also a barrier in wave one. Providers expressed “We had difficulty getting parents to commit to the study. We spent extra time showing parents the upward trend of weight gain their child has demonstrated and the consequences of that gain.”

In addition to providing practices with posters for their waiting rooms and office, practices mailed letters to patients inviting them to participate in the Pound of Cure program, as well as used follow up phone calls (for initial and follow up visits) and messages were left with minimal success. In fact, one practice completed a PDSA Cycle regarding whether patients and parents noticed the posters in the waiting room, and realized that the families were not spending enough time in the waiting room to read the poster. Therefore, they decided to add posters in other portions of the practice to make families aware of the Pound of Cure program. Many providers cited a lack of response and patient compliance.

Despite universal difficulty in patient recruitment and adherence to the program, there was success on an individual level and good parental response to the program. From a wave one provider “First family

completed all POC visits! Family very happy with program! Accomplished keeping BMI stable over the course of Pound of Cure visits!”

Other practices have cited similar findings: “The families involved that are truly active and excited to be in the program, are having good results;” and “Patients that are enrolled seemed enthusiastic about Pound of Cure program.”

Furthermore, “maintaining family participation and motivation is difficult, however I feel we have more families involved and taking steps than we would if we didn't have a formal program,” said one Pound of Cure Wave Two provider. “I also feel that we are able to provide better strategies in our everyday well visits for all of our patients (both healthy weight and unhealthy weight).”

In response to wave one provider feedback, the Project Team expanded the age range of the Pound of Cure learning collaborative from ages 2-11 to include children 12-18 years of age. Early in the collaborative, the Project Team queried providers on age-related differences around patient recruitment and adherence. Providers gave mixed responses as to which group is more responsive and more easily recruited into the program. Some providers stated that “parents seemed less concerned with ‘baby fat’ in younger children” and therefore were less recruited into the program, whereas other providers felt “that it was easier to recruit younger children because they are driven by parental concern.”

Similarly, “the older patients are easier to talk to about the process because they have more control in making changes” but the “older kids have to be more motivated than the parents since they are making the changes.”

As the collaborative progressed, the data revealed that younger children were attending more follow up office visits. Providers believed that this was a result of “parents being responsible for the change,” “younger children are more dependent on their parents,” “parents are more used to bringing younger children to the office on a more frequent basis,” and younger children are not required to miss school.

Despite contrasting opinions about which group is more easily recruited and committed to Pound of Cure, all providers felt that Pound of Cure was most effective in children 2-11 years old, 62.5% felt it is most effective with obese patients, 50% believed it was most effective with overweight patients, and only 12.5% believed that Pound of Cure was really effective with 12-18 year olds.

Despite the inherent barriers of weight management, particularly in the pediatric population, teams stayed positive, finding successes in their work each month. Teams expressed that they have gotten very good at identifying obesity, recording weight for length for children less than 2 years of age, and recording and categorizing blood pressure. Providers were motivated and engaged in the Pound of Cure program as a result of these successes. Additionally, embedding the curriculum into daily practice ensured continued use of materials and provider engagement. Furthermore and of most importance, is how all providers redefined successful weight management. The following are how our teams define success with Pound of Cure patients and families:

- “If a patient is attempting a lifestyle change or has learned something about nutrition and actually following the change.”
- “No weight gains or slower weight gain. Also behavioral changes in diet and/or exercise that have been made but not yet seen in weight change measured at the most recent visit.”
- “Applying new behavior changes!”

- “What I want is to see patients BMI and other (BP, lab abnormalities) moving toward normal, however I feel some success with ANY positive healthy choices/changes.”
- “Improved nutrition and physical activity.”
- “Awareness and willingness to work on change. Acknowledging that there is a problem. Attempting any of the set goals. Choosing to participate in Pound of Cure and keeping appointments.”
- “Change of habits and continued interest In making small progressive changes.”
- “For a child who is still growing in height, to maintain your weight while you grow into it is a success.”
- “Parental understanding of potential adverse effects of overweight, and willingness to make changes to address the problem.”

Providers also used the following outcome measures to define successful counseling:

- Meet goals set at previous visit – 88.9%
- Reduction in weight – 88.9%
- Reduction in BMI percentile – 66.7%
- Reduction in blood pressure – 77.8%
- Decrease in screen time - 88.9%
- Increase in physical activity – 100%
- Decrease in consumption of sugary beverages – 100%
- Limit fast food consumption – 88.9%
- Eat breakfast daily – 77.8%
- Increase in vegetable intake – 88.9%
- Increase in fruit intake – 88.9%
- Increase in calcium rich foods – 44.4%

During site visits with the practices, similar topics were discussed as mentioned in the practice narratives. Providers reflected on barriers, such as recruitment, and brainstormed ideas to overcome that barrier. Additionally, the project team presented the practices with a tool to assist providers in recording the blood pressure category by using a slide rule tool to accurately identify blood pressure category. The Project Team used the site visits to discuss other materials, and the development of additional materials that would be useful to practices, as well as billing/coding issues, the current PDSA Cycles the practice was completing, and data. A summary of site visit information for each of the practices is attached in Appendix KK.

The Pound of Cure project team also conducted closing interviews with physician team leaders. Closing interviews are scheduled starting in late May and running through mid-June. These one-on-one discussions with the primary providers participating in A Pound of Cure shed light on the best practices adapted by the practice teams, and what will be sustained upon completion of the Pound of Cure learning collaborative.

Family Feedback on Counseling

Family feedback forms were received from a convenience sample of families (n=132). Sixty-two percent of families had to wait to see their provider, waiting on average 10 minutes. Once in the office, all patients reported that they spend “about the right” time with their provider.

During the initial office visit (n=45), families reported that the provider spoke to them about their child’s BMI (51.1%), their family history (82.2%), dietary history (95.6%), physical activity history (100%). During follow up office visits (n=54), families reported that the provider spoke to them about their child’s BMI (42.6%), their family history (16.7%), dietary history (72.2%), and physical activity history (81.5%).

Additionally, when asked about specific dietary and activity habits discussed, families reported that the provider spoke to them about the following topics at each of these office visit types:

Topic	Initial Visits	Follow up Visits
Have Breakfast Daily	68.9%	22.2%
Fruit and Vegetable Consumption	86.7%	72.2%
Family Meals	62.2%	22.2%
Fast Food Consumption	66.7%	27.8%
60 minutes of physical activity	80%	64.8%
Limit TV time to 2 hours or less	71.1%	27.8%
Limit Sugary Beverage Consumption	80%	40.7%
Establishing a Routine Sleep Schedule	51.1%	11.1%
Age-Appropriate Portions	66.7%	46.3%
Proper Juice Consumption	44.4%	18.5%
Adequate Dairy Consumption	35.6%	14.8%
Healthy Snacks	73.3%	64.8%

All families reported that the doctor told them information specific to their child’s needs, that the visit was helpful, and that the doctor answered all their questions. On average, families received three handouts, and all thought that the number of handouts they received was appropriate. Nearly all families also reported that the doctor discussed all portions of the handout with them. Nearly 95% of families set a goal during the office visit. On average families, together with the doctor, set two goals per visit. Finally, all families felt that they waited an appropriate amount of time between office visits.

Patient registry

The patient registry served to facilitate provider monitoring of patients enrolled in POC and office visits attended. Providers who chose to use the patient registry submitted de-identified registries to the Project Team at the end of the Learning Collaborative. Seven practices submitted their patient registries; information of 162 patients was reviewed.

Demographics of POC learning collaborative patients at initial office visits

Gender	Male	29.8%
	Female	70.2%
Age	2-6 Yrs.	18.1%
	6-12 Yrs.	66.5%
	12-18 Yrs.	15.4%
	19-24 Yrs.	0%
Weight Status	Overweight	15.3%
	Obese	38.8%
	Severe Obesity	45.9%
Blood Pressure	Normotensive	77.6%
	Pre-hypertensive	3.7%
	Stage 1 Hypertension	3.7%
	Stage 2 Hypertension	5.6%

Demographics of Pound of Cure eligible patients

attending learning collaborative office visits.

The average age of 9.2 years. There were slightly more females (70.2%) and almost an equal distribution of children between obesity and severe obesity categories. More than half of the children attended at least one follow-up visit (55.5%). Adjusting for age and gender, there was an overall decrease in BMI z-score of 0.03 and in BMI percentile of 0.156%, despite an average weight gain of 1.54 kg. The average time between the initial visit and last follow-up visit attended varied and can be seen in the table below. More statistical analyses will be performed to determine the effect of the child's age and time between initial and follow up visits on overall weight maintenance and BMI z-score reduction.

POC learning collaborative patient weight-related outcomes

Measures	Initial Visit	Last Follow Up Visit	p-value
Weight	58.69 (25.71) kg	60.23 (26.16) kg	0.000*
Height	1.39 (0.199) m	1.41 (0.120) m	0.000*
BMI z-score	2.32 (0.6293)	2.29(0.614)	0.229
BMI Percentile	97.80(2.94) %	97.64 (3.21) %	0.2335
Pound of Cure eligible patient anthropometrics during the learning collaborative. Height, weight, and BMI percentile demonstrate changes between initial and last follow up office visit attended, represented as mean (standard deviation). * denotes statistical significance			

POC learning collaborative follow-up visit characteristics

Office Visit Number	Attendance	Time	Change in BMI %ile
2 nd	41 (45.56%)	46.63 (22.80) days	0.0206 %
3 rd	17 (18.89%)	86.88 (42.35) days	-0.6385 %
4 th	16 (17.78%)	219.13 (87.11) days	-0.0267 %
5 th	7 (7.78%)	204.43 (79.63) days	1.1833 %
6 th	9 (9.99%)	190.44 (87.55) days	- 1.8333 %
Each row represents data for the subset of patients who attended that office visit as their last office visit. Office visit attendance rates represented as number of patients who attended that office visit as their last office visit (percent of patients with respect to total follow up visit population). Time represented as mean days (standard deviation) between initial and final follow-up visit attended. Mean change in BMI percentile for age and gender for population of children attending follow-up visits.			

Conclusion

Two programs have been developed by the Ohio Chapter, American Academy of Pediatrics to aide practitioners in successfully treating, and overcoming barriers to treating, overweight and obesity within the primary care office. An Ounce of Prevention is Worth a Pound is designed to help physicians discuss with parents obesity prevention tips during well child visits from birth through age 18 years. A Pound of Cure is designed as a tool for physicians to manage overweight and obesity within their office setting, instead of referring the patient to a specialist. Both programs are based on the 2007 Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity, as developed by the American Academy of Pediatrics, and 14 other collaborating organizations.

By taking a two-pronged approach to addressing the pediatric obesity epidemic, the Ohio AAP is dedicated to addressing the problem now, and in the years ahead. The consistency in messaging for both programs simplifies the education for providers, and helps them reinforce the messages when providing anticipatory guidance, and management counseling, to children and parents. The Ohio AAP is committed to continuing a two-program approach to helping practitioners help their patients struggling with weight gain.

Both the Ounce of Prevention and the Pound of Cure materials have been highly regarded by those practitioners that have used them. The materials are easy to use and understand for parents and patients alike. In Wave 2, the Project Team developed a Blood Pressure Slide Rule Tool to assist providers in correctly identifying whether a pediatric patient is normal-tensive, pre-hypertensive, or hypertensive. Being able to correctly identify a patient's blood pressure category assists the provider in recommending a treatment plan to patients and families because it makes it more understandable for parents and children on the gravity of elevated blood pressure.

One Pound of Cure provider stated in the monthly practice narrative: "The Pound of Cure handouts and tools are ESSENTIAL for helping families with age appropriate healthy living strategies. The tools are a one-stop shop for information for families on a very large variety of areas of interest or educational need. There is something of value for everyone. These tools are an essential starting point for any general pediatric practice."

Another provider wrote: "The handouts are fantastic. They are easy to understand, make it easy to explain things to parents and informative."

The pediatric obesity epidemic is not going to change overnight. There is not a pill a child can take to achieve instant results, but "Everyone is going to see that these small changes can make a big difference. If our kids get into the habit of getting up and playing, if their palates warm up to veggies at an early age, and if they're not glued to a TV screen all day, they're on their way to healthy habits for life," explains Michelle Obama, First Lady of the United States of America. The Ohio AAP hopes the Ounce of Prevention and the Pound of Cure are part of the small changes that can make a big difference.

As the state fiscal year ends, the Ounce of Prevention and Pound of Cure obesity prevention and management programs are wrapping up without additional funding to continue educating physicians on the nine expert committee recommendations. The future of these programs is uncertain at the time, however the Ohio AAP is continuing to write grant proposals and seek additional funding to continue the work started by these entrepreneurial 20 practices, which have participated in Waves 1 and 2 of the Pound of Cure Learning Collaborative. The overall goal is to combine Ounce of Prevention and Pound of Cure into one program that provides training on prevention and disease management, with the potential to spread throughout Ohio, as well as nationally.

In conclusion, a provider participating in the Pound of Cure Learning Collaborative Wave Two stated: "The Pound of Cure project takes the overwhelming task of managing obesity and makes it manageable. The Pound of Cure toolkit provides a system for identifying problematic habits and pairs each area of concern with specific patient education handouts to evoke lifestyle change. This practical approach has resulted in much healthier lifestyles for my overweight and obese patients and has even trickled down to improved habits for my healthy weight patients."