PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

The Health and Obesity: Prevention and Education (HOPE) Curriculum Project Curriculum Development

Jeannie Huang, Parvathi Pokala, Linda Hill, Kerri N. Boutelle, Christine Wood, Karen Becerra and Karen Calfas

Pediatrics 2009;124;1438-1446; originally published online Oct 19, 2009;
DOI: 10.1542/peds.2009-0009

The Health and Obesity: Prevention and Education (HOPE) Curriculum Project—Curriculum Development

abstract

The Health and Obesity: Prevention and Education (HOPE) project is a multidisciplinary, healthy living counseling curriculum to educate pediatric clinicians in training on how to recognize children who are at risk for obesity and its comorbidities and how to promote healthy weight among children and their families. Curriculum topics were selected by experts of nutrition, medicine, dentistry, behavioral counseling, and education and incorporate the recent 2007 Expert Committee recommendations regarding the prevention, assessment, and treatment of childhood and adolescent obesity. The HOPE curriculum instructs medical and dental clinicians on the health consequences of childhood obesity and screening techniques to identify children and families at risk, reviews the current evidence for health intervention recommendations, and teaches trainees regarding the theoretical rationale and art of constructive and culturally sensitive weight counseling for behavioral change. Although designed and tailored specifically for and currently available medical and dental trainees, the HOPE curriculum is Web-based and will also be made available to currently practicing clinicians across the United States beginning in winter 2009. This educational tool, grounded in understanding of relevant sciences, literature, and research methods, provides clinicians with the skills necessary to identify and counsel patients who are at risk to promote healthy weight among youth. This article discusses the approach and methods used for curriculum development. Future publications will discuss HOPE project implementation and outcomes. *Pediatrics* 2009; 124:1438–1446

AUTHORS: Jeannie Huang, MD, MPH,[a,b] Parvathi Pokala, DDS,[c] Linda Hill, MD, MPH,[d] Kerri N. Boutelle, PhD,[a,b] Christine Wood, MD,[e] Karen Becerra, DDS,[f] and Karen Calfas, PhD[d]

Departments of [a]Pediatrics and [d]Family and Preventive Medicine, University of California, San Diego, San Diego, California; Divisions of [b]Gastroenterology and [c]Pediatric Dentistry, Rady Children's Hospital, San Diego, California; [e]El Camino Pediatrics and San Diego Childhood Obesity Initiative, San Diego, California; and [f]San Ysidro Health Center, San Ysidro, California

KEY WORDS

child, obesity, internship and residency, medicine, dentistry, education

ABBREVIATIONS

AAP—American Academy of Pediatrics
HOPE—Health and Obesity: Prevention and Education

www.pediatrics.org/cgi/doi/10.1542/peds.2009-0009

doi:10.1542/peds.2009-0009

Accepted for publication Jun 9, 2009

Address correspondence to Jeannie Huang, MD, MPH, Department of Pediatrics, 200 W Arbor Dr, MC 8450, San Diego, CA 92103. E-mail: jshuang@ucsd.edu. E-mail correspondence for the HOPE project is hopeproject@ucsd.edu.

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: *Dr Calfas is a co-founder of SanTech, a company involved in integrating Web and wireless technologies and devices with effective strategies for health behavior. The other authors have indicated they have no financial relationships relevant to this article to disclose.*

Childhood obesity is one of the nation's most important health issues.[1] As of 2006, >30% of children and adolescents are overweight or obese and >16% are obese in the United States.[2] Children who meet the criteria for obesity are at risk for serious health problems, including hypertension,[3] impaired glucose tolerance and type 2 diabetes,[4,5] liver disease,[6] and obstructive sleep apnea.[7,8] Obese children report a lower quality of life[9] and demonstrate more negative self-perceptions, decreased self-worth, increased behavioral problems, and lower perceived cognitive ability.[10–12] Moreover, childhood obesity contributes to increased medical expenses. The Centers for Disease Control and Prevention estimates that among children and adolescents, annual hospital costs related to obesity were $127 million during 1997–1999 (in 2001 dollars), up from $35 million during 1979–1981.[13] Obesity in childhood is also a significant predictor of adult obesity.[14,15] For children who remain obese into young adulthood, life expectancy can be shortened by as many as 20 years[16]; therefore, the crisis of adult obesity and

its resultant impact on health care expenditures and premature death is indeed a pediatric problem.

Obesity is a chronic health condition. As such, long-term medical management is appropriate, with particular attention to comorbidity development and identification. The continuity, coordination, and comprehensiveness of health care that can be provided in health care settings[17] make this environment ideal for the care of chronic illness. As health care advisors to both children and their parents, physicians and dentists have access and the ability to influence families' awareness of obesity as a health concern and offer families guidance on pursuing healthful dietary habits and regular physical activity. Dental practitioners have the greatest contact with children at 6 to 18 years of age,[18] whereas pediatricians and family practitioners are more likely than dental practitioners to see children during the early years.

Recent studies demonstrate a lack of weight screening and insufficient guidance provided by primary care practitioners to patients regarding weight management strategies. National data indicate that both the rate and content of physician counseling about diet, exercise, and weight loss are inadequate.[19,20] In addition, physician adoption of expert recommendations for the treatment and prevention of childhood overweight remain suboptimal.[21–23] In a study at an academic medical center, reviewing data from >2500 well-child visits, only 53% of obese children aged 3 months to 16 years were identified as obese.[21] Among those identified as obese, evaluation and treatment did not follow published guidelines. In a 2004 survey among 339 pediatricians and family practitioners, only 19% physicians were aware of national pediatric obesity recommendations.[22] Physicians who were aware of recommendations were more than twice as likely to have positive attitudes about personal counseling ability and the overall efficacy of their obesity counseling. In a survey that we performed among 253 dentists, >50% of dental clinicians reported insufficient preparation for dietary counseling of overweight patients (unpublished data). Insufficient clinician confidence, knowledge and counseling skills, and lack of time and resources may contribute to inadequate counseling on diet, physical activity, and weight loss.[24,25] This is discouraging given that physician–patient interactions regarding healthy diet habits have been shown to effect change and result in improved eating habits and weight loss.[20] Similarly, physical activity counseling by physicians can produce increases in moderate physical activity among previously sedentary patients.[26] Lack of training seems to be an important issue, and survey studies[27,28] have demonstrated notable interest in additional training in a number of arenas, particularly behavioral modification strategies and parenting techniques.

As community leaders, both physicians and dentists have a responsibility to serve as advocates for children's oral and overall health. Both the American Academy of Pediatrics (AAP)[29] and the American Academy of Pediatric Dentistry[30] recognize the need for increased clinician involvement in recognizing children at risk and in counseling patients on how to live healthy lifestyles. In addition, most clinicians welcome clinical resources for obesity management and express an interest to advocate for policy change.[31] However, no standardized mechanism in dental and medical training programs currently exists to train future clinicians on how to incorporate weight status screening techniques into their practice, how to effectively counsel patients on healthy weight and lifestyles, and how to advocate for necessary policy and environmental changes to promote a healthy lifestyle.[32]

OVERVIEW AND PURPOSE

The Health and Obesity: Prevention and Education (HOPE) project is a Web-based, multidisciplinary, healthy living and counseling curriculum to educate pediatric clinicians and clinicians in training on how to recognize children who are at risk for obesity and its comorbidities and how to promote healthy dietary choices and increase physical activity among children and their families. The curriculum instructs future clinicians on the health consequences of childhood obesity and screening techniques to identify children and families at risk, review the current evidence for health intervention recommendations, and teaches trainees the theoretical rationale and art of constructive weight counseling for behavioral change. An interactive practicum has been incorporated into the curriculum whereby trainees have the opportunity to practice counseling skills, using role-plays that are based on sample patient output. In addition, representatives from communities that are disparately affected by the pediatric obesity epidemic provide important insight regarding how to approach weight management in a culturally sensitive manner. The Web-based HOPE curriculum will be distributed to medical and dental training programs throughout the United States and will be made available to currently practicing physicians and dentists for continuing education credits beginning in winter 2009. There are 3 main phases to the HOPE project: curriculum development, curriculum distribution and implementation, and outcomes analysis. This article reviews the curriculum development phase of the HOPE project.

CURRICULUM DEVELOPMENT

The HOPE Expert Advisory Board was assembled in September 2006 and represents expertise in the areas of medicine, dentistry, nutrition, physical activity, behavioral management and counseling, and education for the purpose of educating clinicians and clinicians in training regarding the prevention, assessment, and management of pediatric obesity. Funding for a Web-based curriculum was obtained March 2008, and the HOPE project was formally initiated in June 2008. With the December 2007 publication of the Expert Committee recommendations[29] from 15 national health organizations on the prevention, assessment, and treatment of pediatric obesity, the HOPE Expert Advisory Board decided to highlight the recommendations as the main focus of the curriculum. Review of the Expert Committee recommendations[29] and literature review from relevant sources (American Dietetic Association, American Medical Association, National Initiative for Children's Healthcare Quality, Institute of Medicine, and the American College of Preventive Medicine) was performed to identify specific key curriculum topics and objectives, which are listed in Table 1. In addition, specific HOPE project objectives were designed to address the 6 American College of Graduate Medical Education competencies to incorporate graduate medical education requirements (Table 1).

To determine which topics should be addressed by the curriculum, the Expert Advisory Board considered the following: What are the effective screening techniques to identify children and families who are at risk for obesity and its comorbidities? What constitutes healthy physical activity and diet choices? Which messages should clinicians promote in the clinical practice setting? Which clinical interventions have been found to be efficacious in pediatric weight management? In cases in which disagreements arose regarding curriculum messages, a systematic literature search was performed to ascertain the strength of supportive evidence for these recommendations to resolve identified conflict. A preliminary list of topics was thus generated and provided to practicing physicians and dentists at focus group meetings for feedback regarding whether the list of topics adequately addressed what should be included in a curriculum that addresses pediatric obesity.

Focus Group Methods and Results

Methods

Input was obtained from medical and dental trainees and practicing clinicians via focus group meetings. The prerequisite for participation in the trainee meetings was current enrollment in a training program that involves clinical training regarding the health of children; the prerequisite for participation in the clinician focus group meetings was current involvement in the treatment of children with at least 50% time dedicated to clinical care. Focus group meetings were held separately according to medical or dental specialty and level of training. Focus group queries for clinicians in practice focused on what topics should be covered in the HOPE curriculum (a preliminary list of topics was provided for feedback), as well as resources that should be provided to help the integration of recommendations into clinical practice. Focus group queries for clinicians in training focused on the best method of Internet learning and desired curriculum format. Focus group questions are listed in Table 2. For all focus group sessions, an audio recording device was used to record participants' responses. In addition, at all meetings, the HOPE administrative assistant was present to record response themes and visualized participant reactions to questions. All summary notes and transcribed responses were made available to the advisory board for curriculum development purposes.

Results

A total of 5 focus group meetings (1 medical trainee, 1 dental trainee, 1 medical clinician, and 2 dental clinician meetings) were conducted with 4 to 8 participants per meeting for a total of 24 participants (8 trainees, 6 pediatricians, and 10 dentists). Among all focus group participants, PowerPoint modules (ideally limited to 1 hour) were well received and a familiar means of training in regards to knowledge acquisition. In regards to Web-based learning, both trainees and clinicians preferred video accompaniment with the PowerPoint presentation, expressing a desire to "see" the lecturer. There were differences in learning styles. For example, some trainees expressed a desire to learn in a multiple-format learning Web environment (ie, having a Web site that would allow them to access multiple resources at the same time). In contrast, practicing clinicians preferred having the video PowerPoint format be automatically delivered on selection of a topic module; accompanying resources could then be selected according to desired use. Clinicians also desired inclusion of case-based learning and role-plays.

Both dental and medical providers reported that pediatric obesity is a very important pediatric health issue. Reported barriers to current involvement in obesity management included poor success rates, fears of upsetting clients/patients, and poor reimbursement. Time management was also reported as a barrier, but clinicians reported a willingness to take the time if their involvement were effective. All

TABLE 1 HOPE Curriculum Modules and Learning Objectives

Obesity epidemiology and etiology
To understand the epidemiology of childhood obesity in the US (MK)
To review the underlying etiologies of childhood obesity (MK)
To review the role and responsibilities of health professionals in the assessment and management of obesity in children (P)
Review of the expert committee guidelines for pediatric obesity
To become familiar with the evidence associated with the recommendations from the expert committee (PBLI)
To know how to assess for obesity risk (PC)
To know how to identify obesity-related morbidities (MK, PC)
To become familiar with the methods to assess diet and physical activity behaviors (PC)
To know the specific eating and physical activity behaviors that are likely to promote maintenance of healthy weight (PC)
To become familiar with the 4 stages of obesity management and care (PC)
To recognize when to refer patients for subspecialty evaluation (PC) and to learn how to interact and collaborate with other health professionals regarding obesity-related issues (P)
Oral health and obesity
To review the status of oral health among children (MK)
To summarize the relationships between oral health, lifestyle behaviors, and obesity and obesity-related comorbidities (MK)
To establish the basis for intervention on obesity and oral health for medical and dental clinicians (MK, PC)
To review a universal protocol for assessment and intervention on both oral health and obesity among all clinicians (P, PC)
Behavioral counseling for effective dietary and physical activity change
To understand the behavioral and empirical basis for counseling children and their parents on weight-related issues (MK)
To learn how to communicate effectively health messages regarding diet, physical activity, and weight with patients and their families (ICS, PC)
To identify barriers to counseling (ICS)
To learn skills on how to counsel effectively (ICS)
To learn how to teach and motivate parents on how to use their authority effectively to implement healthy family lifestyles (PC, ICS)
To become familiar with the motivational interviewing technique for eliciting the concerns of patients, evoking motivation, and formulating a plan for behavioral change (ICS, PC)
Cultural sensitivity
To understand the epidemiology of obesity affecting certain cultural backgrounds (MK)
To understand the social, economic, and environmental barriers that might affect specific cultures (P, PC)
To recognize key cultural considerations when working with families on obesity prevention and control (P, PC)
To increase sensitivity when caring for a culturally diverse population by providing a framework to assess thoroughly your patient within their cultural, social, and environmental context (P, ICS)
To learn how to work effectively with an interpreter when working with non–English-speaking patients (ICS, P)
Advocacy
To recognize the importance of social, community, and environmental change to reduce the obesity epidemic (P)
To be aware of social, economic, and environmental barriers that might affect overweight/obese patients and their families in regard to their ability to implement clinical recommendations (PC)
To learn about the role and responsibility of medical and dental professionals in the public health agenda of obesity (P)
To learn how to interact and collaborate with other medical personnel regarding obesity-related issues (P, SBP)
To learn the skills necessary to advocate for the weight management needs of the population that one serves (ICS)
Systems
To gain knowledge of practice and delivery systems of weight management (SBP)
To be aware of office system changes that can be used to screen, track, and manage overweight and obese children (SBP)
To become aware of what is required to implement weight screening and management practices (SBP, PBLI)
To become familiar with the chronic care paradigm (SBP)
To review quality improvement models and to learn how to evaluate and improve clinical approaches to weight assessment and management (PBLI)
To identify resources regarding obesity in one's general practice location/environment (SBP)

The American College of Graduate Medical Education competency addressed by the learning objective is noted in parentheses. MK indicates medical knowledge; P, professionalism; PBLI, practice-based learning and improvement; PC, patient care; ICS, interpersonal and communication skills; SBP, systems-based practice.

providers expressed interest in the HOPE curriculum modules. Dental providers expressed significant interest in playing a role in the prevention of pediatric obesity by delivering consistent health messages in concert with medical providers.

A predetermined list of HOPE module topics was provided to clinicians at the focus group meetings; they are listed in Table 1, and no additional recommendations were elicited at the meetings. In regard to supplementary materials, focus group clinician participants reported a desire to have 1 Web site where they could learn about the guidelines, access a list of local weight-related patient resources, and could download clinical toolkits and other relevant patient materials. Identified clinical tools that would be useful included clinical intake forms or worksheets, clinical algorithms, preprinted referral forms, and patient information handouts.

CURRICULUM FORMAT, MODULES, AND RATIONALE

The final HOPE curriculum addresses the prevention, assessment, and man-

TABLE 2 Focus Group Questions According to Group

Common to all
What do you think about pediatric obesity? Is it an important issue? Why or why not?
What is your role in pediatric obesity prevention?
What is your role in pediatric obesity assessment and management?
Are you familiar with the AAP Expert Committee recommendations?
In general, for factual data, how do you learn best? For skills, how do you learn best?
How do you learn best on the Web?
What is the ideal length for an educational seminar on this topic? What is the ideal length for a Web-based seminar on this topic?
Trainees
Tell us about your educational setup and the methods used to train you. Which are most effective and why?
Medical providers
What are barriers to your spending time talking/intervening/counseling patients on weight-related topics?
What topics should we include in a curriculum designed to train clinicians on how to assess, prevent, and manage pediatric obesity? What is missing from this list (list provided)?
What pediatric obesity messages or clinical practices should be taught to residents training today?
What resources would you like to see on a Web site for the assessment, prevention, and management of pediatric obesity?
How does your office operate? To implement guidelines, what system-based changes have occurred in the past? What has worked; what has not?
What clinical tools would be helpful to implement weight-related guidelines?
How did you last receive continuing education credits?
Dental providers
Do you think there is a role for dentists in obesity prevention or management? Why or why not?
What would your level of interest be in joining with other medical professionals toward a common goal of reducing pediatric obesity?
How do you currently interact with medical professionals?
Do you currently refer patients for weight issues? Why or why not? What would facilitate this?
How did you last receive continuing education credits?

agement of pediatric obesity via 7 main modules. These are listed by topic and are presented in the lecture format as described in the next section. The HOPE curriculum is identical for dental and medical trainees independent of specialty. Most module materials have relevance to clinical practice as a whole, independent of dental or medical specialty (obesity epidemiology and etiology, behavioral counseling, systems, advocacy, and cultural sensitivity). Although some modules are more medically and/or dentally oriented, an important goal of the HOPE project is to provide an overall orientation to the collaborative framework within which each specialty can contribute to the public health effort of reducing pediatric obesity and to improve communications between specialties. Relevance to each specialty has been made evident in each module, and the modules have been piloted to both pediatric medical and dental clinicians in training with positive reviews (described in the section Curriculum Testing).

Similarly, the HOPE modules will also be provided to currently practicing dental and medical clinicians beginning in winter 2009. One of the barriers to training clinicians is lack of faculty experience and knowledge of the guidelines, as has been previously established.[24,25] The HOPE modules as developed can be provided to faculty for faculty development and are offered free of charge and for continuing education credits to encourage participation by not only faculty members but also clinicians in practice. Maintenance of board part IV certification will be made available as an additional incentive.

Format

For each module, the learner views a dual-screen format projecting a video file of the lecturer accompanied by a simultaneous, self-advancing PowerPoint slide set. Figure 1 provides a sample screenshot of a typical HOPE module. In addition to the dual-panel presentation, a reference bar will be available whereby participants can select supplementary materials to view at any point during the program. Selected resources appear as "pop-up" applications and allow participants to view several information formats at the same time or individually as desired. Role-play scenarios are posted with relevant modules for case scenario and case-based learning as requested by focus group participants. Supplementary HOPE program materials developed according to the needs identified in the focus group sessions comprise reference materials such as key articles and clinical toolkits. Clinical toolkits adapted from materials currently available from public and professional sources provide participants with the necessary instruments to implement suggested guidelines into clinical practice and include clinical algorithms, clinical intake forms, poster displays, and patient information handouts. Lists of regional (according to geographic location within the United States) resources are available for clinicians to distribute to patients as needed; the HOPE team plans to update these resources quarterly to ensure their reliability and utility. In cases in which focus groups identified crucial curriculum elements that are not available from other sources, new materials were created.

The selected multiresource Web-based format satisfies the various learning styles elicited during focus group discussions. The HOPE modules may also be delivered in person by faculty, and

FIGURE 1
Screenshot sample of HOPE curriculum Web site. The reference bar is located below the dual-screen PowerPoint module and provides pop-up links to supplemental materials.

HOPE lecture slides are available on request. Similarly, in-person role-play scenarios can be performed using HOPE project scripts and learning tools. Sample HOPE evaluation tools are available on request to program directors for resident evaluation.

Training program directors are able to select from available formal didactic lectures and experiential (participatory) components according to the needs of the trainee population that they serve. For example, the training program director at each site may choose to incorporate select elements of the HOPE curriculum if the current didactic program at their location already meets some of the teaching objectives via other educational activities; however, if no formal pediatric obesity curriculum exists at a given location, then the HOPE curriculum in its entirety informs and educates trainees on all teaching objectives of the HOPE project.

Module Topics

Epidemiology and Etiology of Pediatric Obesity

Overweight and obesity have significantly increased during the past 3 decades among children and adolescents. Awareness of this public health issue and contributing factors is an important step toward prevention and treatment of this epidemic.

Review of the 2007 Expert Committee Obesity Guidelines

The 2007 AAP guidelines[29] codify the recommendations on the prevention and treatment of pediatric obesity from an expert committee representing 15 national health care organizations that serve children and/or have expertise in obesity and obesity-related conditions, including the American Medical Association, the Health Resources and Service Administration, and the Centers for Disease Control and Prevention. Clinicians who treat children should be aware of these clinical guidelines for their practice of weight management.

Oral Health and Obesity

Oral health clinicians have daily access to children with weight issues similar to other medical professionals who serve children.[30] Given an already accepted role in discussing dietary issues, there is a notable role for dentists and oral health practitioners in healthy weight management among children. Collaboration among health care providers will be essential to reverse the growing epidemic of obesity among youth.

Behavioral Counseling for Effective Dietary and Physical Activity Change

Physician–patient interactions regarding healthy dietary and physical activity habits have been shown to effect change that results in improved weight-related behaviors[20,26]; however,

inadequate training and/or competency and time issues can hinder physician–patient engagement on weight-related issues.[24,25,31] Clinicians thus need to be proficient in effective behavioral counseling techniques and methods to promote healthy diet and physical activity and ultimately healthy weight in their pediatric patients. Additional topics to be covered in separate but optional video lectures include motivational interviewing and advanced parenting.

Cultural Sensitivity

Obesity occurs disproportionately among children and communities of color. Understanding and addressing the patterns and causes of prevailing disparities in childhood obesity is a prerequisite step to addressing them effectively.[33] Cultural approaches have been shown to be effective in promoting healthy weight among children of color. Clinicians should be familiar with cultural issues when engaging in healthy weight management for children. Four separate video modules address issues of the Hispanic American, African American, Asian American/Pacific Islander, and Native American cultures.

Systems

Systems management is crucial to the improvement of health care delivery, from prevention to treatment. Well-constructed systems can provide necessary resources and allow providers to spend more time on obesity prevention and counseling, as well as improve physician self-efficacy for healthy weight management.[31] Likewise, clinicians must be familiar with systems-based practice and quality improvement models to translate the expert committee obesity guidelines into practice.

Advocacy

The cause of the obesity epidemic is multifactorial and includes societal, commercial, financial, and community factors. Similarly, effective weight management requires involvement from not only the health care sector but also the schools, the local environment, and society at large. Clinicians must therefore learn how to advocate for policy and environmental changes in their communities to combat the obesity epidemic.

CURRICULUM TESTING

Authors of the HOPE curriculum modules included expert advisory board members. For modules for which expertise was not adequately represented by expert advisory board members, such as the cultural sensitivity modules, outside experts were recruited for participation. Curriculum testing incorporated an iterative improvement process. Lectures were created in PowerPoint and limited to 1 hour in length. All lectures were presented to the expert advisory board for initial review and revision. This was then followed by pilot testing of the lecture series among current trainees via incorporation into the University of California, San Diego, Pediatric, Preventive Medicine, and Pediatric Dentistry Residency Core Curriculums.

Curriculum Testing Methods and Results

Methods

Main lectures, practicums, and associated materials from each module were presented to a select group of residents within each program during a rotation or format that allowed consistent attendance at all HOPE module presentations. In general, delivery of the modules occurred twice a week for 5 weeks of a monthly outpatient rotation. Content pilot testing feedback was provided via anonymous written Likert scale evaluations to assess curriculum contents, palatability, and effectiveness. Write-in boxes were also provided for additional, more specific feedback on what additional information should be included in the presentation and need for clarification. In addition, PowerPoint slides were provided for comment on slide content, presentation of information, and clarity. Knowledge quizzes developed by module authors and HOPE staff to test main concepts of each module were beta-tested by trainees immediately after the lectures. Training handouts and toolkit materials were also provided, and attendees were asked to comment on palatability, utility, and clarity.

Results

Twenty-four residents (13 pediatric, 4 pediatric dental, and 7 preventive medicine residents) participated. Overall, modules were well received; the majority of attendees agreed that the material was informative (100%, 95 ± 15% (median, mean ± SD) agreed; 85%, 76 ± 27% strongly agreed), met specified objectives (100%, 95 ± 15% agreed; 90%, 81 ± 23% strongly agreed), and was clearly presented (100%, 95 ± 10% agreed; 76%, 80 ± 18% strongly agreed). Other comments focused mainly on the need for more relevant clinical examples (eg, in the systems module, trainees requested additional presentation of relevant pediatric obesity–related examples) and slide formatting issues.

Curriculum Modifications That Resulted From Feedback

Formatted responses from the curriculum testing were analyzed and summarized for author and expert advisory board review. Specific written responses were also provided to the module's author and the expert advisory board for continued refinement and curriculum improvement to increase comprehension and palatability by residency trainees. Feedback in regard to slide formatting was incorporated. Knowledge quiz responses were graded and questions edited when percentage correct statistics

were <70% to reduce interpretation variability. Given the overall positive reviews of the curriculum, repeat testing was not performed.

Additional content review was performed by select section members and members of the board of directors of the American Academy of Pediatrics and members of the Professional Educational Committee of the North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition. All suggestions were incorporated. A mock website was developed for beta-testing and additional review by selected national medical and dental education experts prior to website publication and distribution.

The Web site is being formatted, and a mock Web site is being developed for beta testing and additional review by selected national medical and dental education experts before Web site publication and distribution. Commentary from these individuals will be used to improve Web site presentation of curriculum components to increase residency program usability and subscription. Final publication of the Web site is occurred in summer 2009.

CURRICULUM WEB DISTRIBUTION

Web access to the HOPE curriculum was made available to all medical and dental training programs that provide care to children throughout the United States beginning in summer 2009. In winter 2009, invitations to participate in the HOPE online course will be distributed to health providers via health professional societies. Continuing education credits will be made available to professionals who complete Web-offered didactic sessions to increase subscription to this service. Similarly, maintenance of board part IV certification will be made available as an additional incentive. Under available funding, Web access, continuing education credits, and maintenance of board certification will be provided free of charge.

CURRICULUM OUTCOMES

Outcomes of the HOPE curriculum project will be measured via curriculum evaluations from both training program students and practicing clinicians. Specifically, examination scores for each module will be tabulated to determine gain of knowledge in the immediate postexposure period. User satisfaction scores, Web site access statistics, and number of distributed continuing education credits will provide data regarding program subscription, usability, and palatability. In addition, training program directors will be contacted after distribution at scheduled time points to receive feedback regarding the HOPE project and to obtain data as to how the HOPE curriculum may or may not have been formally integrated into the program's core curriculum.

Ultimately, whether clinician and trainee participation in the HOPE curriculum project and the anticipated improvement in knowledge and skill acquisition changes actual clinical practice and patient outcomes is the important question. Clinician performance of recommended practices (eg, determination of weight status using BMI, screening for obesity-related comorbidities, delivery of important health messages using behavioral counseling techniques) should be measured to determine whether clinician uptake of the HOPE materials has translated into clinical practice implementation. Likewise, relevant patient outcomes (eg, weight status changes, prevalence of associated comorbidities over time) will need to be evaluated to determine whether educational endeavors such as the HOPE project are effective as a public health intervention.

At completion, the HOPE project will provide a fully developed, multidisciplinary curriculum that empowers medical and dental clinicians to promote healthy lifestyles and healthy weight among youth. This standardized educational series, grounded in an understanding of relevant sciences, literature, and research methods, will unify the approach to weight management among not only oral health and medical practitioners but also future and current clinicians. Reports regarding the implementation and evaluation of the HOPE curriculum will be forthcoming.

ACKNOWLEDGMENTS

Funding for the HOPE curriculum project was received from the Vitamin Cases Consumer Settlement Fund (Cypress Funds) and Pfizer Medical Education grants. SK Telecom Americas provided Web site technical support.

We thank Kevin Boyd, DDS, Shaila Serpas, MD, Alice Ammerman, PhD, RD, Raynald Samoa, MD, Larry Yin, MD, Lynelle Boamah, MD, Daniel Calac, MD, Emma Wright, MPH, and Wendy Slusser, MD, MS, for valuable input into and collaboration on the HOPE curriculum project. We also thank Dr Sandra Hassink, Dr Henry Schaeffer, and Dr David Krol of the AAP and Dr John Pohl of the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition for help in reviewing and providing feedback regarding the HOPE modules.

REFERENCES

1. Koplan JP, Liverman CT, Kraak VA. *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: National Academies Press; 2004
2. Ogden CL, Carroll MD, Flegal KM. High body mass index for age among US children and adolescents, 2003–2006. *JAMA*. 2008; 299(20):2401–2405
3. Sorof J, Daniels S. Obesity hypertension in children: a problem of epidemic proportions. *Hypertension*. 2002;40(4):441–447
4. Sinha R, Fisch G, Teague B, et al. Prevalence of impaired glucose tolerance among children and adolescents with marked obesity [published correction appears in *N Engl J Med*. 2002;346(22):1756]. *N Engl J Med*. 2002;346(11):802–810
5. Uwaifo GI, Elberg J, Yanovski JA. Impaired glucose tolerance in obese children and adolescents. *N Engl J Med*. 2002;347(4): 290–292; author reply 290–292
6. Schwimmer JB, Deutsch R, Rauch JB, Behling C, Newbury R, Lavine JE. Obesity, insulin resistance, and other clinicopathological correlates of pediatric nonalcoholic fatty liver disease. *J Pediatr*. 2003;143(4):500–505
7. Redline S, Tishler PV, Schluchter M, Aylor J, Clark K, Graham G. Risk factors for sleep-disordered breathing in children: associations with obesity, race, and respiratory problems. *Am J Respir Crit Care Med*. 1999; 159(5 pt 1):1527–1532
8. Mallory GB Jr, Fiser DH, Jackson R. Sleep-associated breathing disorders in morbidly obese children and adolescents. *J Pediatr*. 1989;115(6):892–897
9. Schwimmer JB, Burwinkle TM, Varni JW. Health-related quality of life of severely obese children and adolescents. *JAMA*. 2003; 289(14):1813–1819
10. Davison KK, Birch LL. Weight status, parent reaction, and self-concept in five-year-old girls. *Pediatrics*. 2001;107(1):46–53
11. Stradmeijer M, Bosch J, Koops W, Seidell J. Family functioning and psychosocial adjustment in overweight youngsters. *Int J Eat Disord*. 2000;27(1):110–114
12. Braet C, Mervielde I, Vandereycken W. Psychological aspects of childhood obesity: a controlled study in a clinical and nonclinical sample. *J Pediatr Psychol*. 1997;22(1): 59–71
13. Wang G, Dietz WH. Economic burden of obesity in youths aged 6 to 17 years: 1979–1999. *Pediatrics*. 2002;109(5). Available at: www.pediatrics.org/cgi/content/full/109/5/e81
14. Clarke WR, Lauer RM. Does childhood obesity track into adulthood? *Crit Rev Food Sci Nutr*. 1993;33(4–5):423–430
15. Mossberg HO. 40-year follow-up of overweight children. *Lancet*. 1989;2(8661): 491–493
16. Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. *JAMA*. 2003;289(2):187–193
17. Starfield B, Shi L. The medical home, access to care, and insurance: a review of evidence. *Pediatrics*. 2004;113(5 Suppl):1493–1498
18. Manski RJ, Moeller JF, Maas WR. Dental services: an analysis of utilization over 20 years. *J Am Dent Assoc*. 2001;132(5):655–664
19. Galuska DA, Will JC, Serdula MK, Ford ES. Are health care professionals advising obese patients to lose weight? *JAMA*. 1999;282(16): 1576–1578
20. Nawaz H, Adams ML, Katz DL. Physician-patient interactions regarding diet, exercise, and smoking. *Prev Med*. 2000;31(6): 652–657
21. O'Brien SH, Holubkov R, Reis EC. Identification, evaluation, and management of obesity in an academic primary care center. *Pediatrics*. 2004;114(2). Available at: www.pediatrics.org/cgi/content/full/114/2/e154
22. Kolagotla L, Adams W. Ambulatory management of childhood obesity. *Obes Res*. 2004; 12(2):275–283
23. Huang JS, Donohue M, Golnari G, et al. Pediatricians' weight assessment and obesity management practices. *BMC Pediatr*. 2009; 9(1):19
24. Yeager KK, Donehoo RS, Macera CA, Croft JB, Heath GW, Lane MJ. Health promotion practices among physicians. *Am J Prev Med*. 1996;12(4):238–241
25. Huang J, Yu H, Marin E, Brock S, Carden D, Davis T. Physicians' weight loss counseling in two public hospital primary care clinics. *Acad Med*. 2004;79(2):156–161
26. Calfas KJ, Long BJ, Sallis JF, Wooten WJ, Pratt M, Patrick K. A controlled trial of physician counseling to promote the adoption of physical activity. *Prev Med*. 1996;25(3): 225–233
27. Barlow SE, Dietz WH, Klish WJ, Trowbridge FL. Medical evaluation of overweight children and adolescents: reports from pediatricians, pediatric nurse practitioners, and registered dietitians. *Pediatrics*. 2002;110(1 pt 2):222–228
28. Story MT, Neumark-Stzainer DR, Sherwood NE, et al. Management of child and adolescent obesity: attitudes, barriers, skills, and training needs among health care professionals. *Pediatrics*. 2002;110(1 pt 2):210–214
29. Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. *Pediatrics*. 2007;120(suppl 4):S164–S192
30. Vann WF, Jr, Bouwens TJ, Braithwaite AS, Lee JY. The childhood obesity epidemic: a role for pediatric dentists? *Pediatr Dent*. 2005;27(4):271–276
31. Perrin EM, Flower KB, Garrett J, Ammerman AS. Preventing and treating obesity: pediatricians' self-efficacy, barriers, resources, and advocacy. *Ambul Pediatr*. 2005;5(3):150–156
32. Goff SL, Holmboe ES, Curry L. Barriers to obesity training for pediatric residents: a qualitative exploration of residency director perspectives. *Teach Learn Med*. 2006; 18(4):348–355
33. Simpson L, Alendy C, Cooper J, Murphy CG. Childhood Obesity: The Role of Health Policy. Report to the Second National Childhood Obesity Congress. National Initiative for Children's Healthcare Quality, Cambridge, MA, 2008. Available at http://www.cincinnatichildrens.org/assets/0/78/1067/1395/1833/1835/1849/1853/25d0bc47-60da-49e4-b626-89cb87de49b9.pdf. Accessed September 29, 2009

The Health and Obesity: Prevention and Education (HOPE) Curriculum Project Curriculum Development

Jeannie Huang, Parvathi Pokala, Linda Hill, Kerri N. Boutelle, Christine Wood, Karen Becerra and Karen Calfas

Pediatrics 2009;124;1438-1446; originally published online Oct 19, 2009;
DOI: 10.1542/peds.2009-0009