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Clinical Effort Against Secondhand Smoke Exposure: Development of Framework and Intervention

Jonathan P. Winickoff, MD, MPH, Elyse R. Park, PhD, Bethany J. Hipple, MPH, Anna Berkowitz, MPH, Cecilia Vieira, MSc, Joan Friebely, EdD, Erica A. Healey, MA, Nancy A. Rigotti, MD

ABSTRACT

OBJECTIVE. The purpose of this work was to describe a novel process and present results of formative research to develop a pediatric office intervention that uses available systems of care for addressing parental smoking.

METHODS. The scientific development of the intervention occurred in 3 stages. In stage 1, we designed an office system for parental tobacco control in the pediatric outpatient setting on the basis of complementary conceptual frameworks of preventive services delivery, conceptualized for the child health care setting through a process of key interviews with leaders in the field of implementing practice change; existing Public Health Service guidelines that had been shown effective in adult practices; and adaptation of an evidence-based adult office system for tobacco control. This was an iterative process that yielded a theoretically framed intervention prototype. In stage 2, we performed focus-group testing in pediatric practices with pediatricians, nurses, clinical assistants, and key office staff. Using qualitative methods, we adapted the intervention prototype on the basis of this feedback to include 5 key implementation steps for the child health care setting. In stage 3, we presented the intervention to breakout groups at 2 national meetings of pediatric practitioners for additional refinements.

RESULTS. The main result was a theoretically grounded intervention that was responsive to the barriers and suggestions raised in the focus groups and at the national meetings. The Clinical Effort Against Secondhand Smoke Exposure intervention was designed to be flexible and adaptable to the particular practices’ staffing, resources, and physical configuration. Practice staff can choose materials relevant to their own particular systems of care (www.ceasetobacco.org).

CONCLUSIONS. Conceptually grounded and focus-group–tested strategies for parental tobacco control are now available for implementation in the pediatric outpatient setting. The tobacco-control intervention-development process might have particular relevance for other chronic pediatric conditions that have a strong evidence base and have available treatments or resources that are underused. Pediatrics 2008;122:e363–e375

I N SUMMARIZING THE past 20 years of research on the health effects of secondhand smoke (SHS), the 2006 Surgeon General’s report on the health consequences of involuntary exposure to tobacco smoke emphasizes that SHS is a major cause of disease, with no safe level of exposure. Exposure puts children at risk for asthma, bronchiolitis, sinusitis, bacterial respiratory infections, decreased lung growth, decreased exercise tolerance, cognitive deficits, and sudden infant death syndrome.

Children are exposed to higher levels of SHS than adults. Even as a growing number of state regulations protect workers, regulations do not protect millions of nonsmoking children from exposure to tobacco toxins in their own homes and vehicles, indicating that involuntary smoking will be a persistent and significant cause of morbidity and mortality in the years ahead. Although SHS exists in many different environments that children may frequent,
nowhere is it more dangerous than in their own homes, where they spend most of their time. More than 30% of children in the United States are currently exposed to SHS at home.5,6

In child health care settings, assisting smoking parents to quit can yield great benefit for the family. Quitting smoking adds an average of 7 years to a parent’s life,7 improves the health of all of the household members, eliminates the majority of SHS exposure of the children, reduces tobacco-related poor pregnancy outcomes, eliminates the greatest cause of house fire mortality, improves the financial resources of the family,8 and decreases teen smoking initiation.9–11 Unfortunately, SHS exposure of children is assessed sporadically and almost never addressed with parents in an evidence-based fashion.3,12–15

Finding appropriate and acceptable opportunities to intervene with parents who smoke is a challenge. Parents may lack health insurance and often lack a primary care clinician.16–17 Parental smokers often see their child’s health care clinician more frequently than their own, with an average of >4 visits per year and 11 pediatric well-child visits in the first 2 years of a child’s life.18,19 Therefore, child health care offices are in a key position to influence, in a repeated and consistent manner, parents who are willing to address their smoking.20 However, not all parents are ready to make a quit attempt at any given visit to the pediatric office. The frequency of visits and the fact that many are for SHS exposure-related problems create numerous opportunities for tobacco-control interventions, increasing the likelihood of a visit coinciding with high readiness to quit smoking, an important predictor of successful quitting.17 The tobacco policy of the Ambulatory Pediatrics Association states the critical importance of implementing smoking cessation evidence-based strategies for all family members in child health care settings.20

Despite the existence of national guidelines on the subject,21,22 few effective smoking cessation interventions have used the pediatric outpatient setting to reach adult smokers. Although some pediatric offices have systems to prompt clinicians to screen for parental tobacco use, none systematically use current Public Health Service (PHS) treating tobacco use and dependence guidelines to treat parents. National rates of parental tobacco-control service delivery are low within child health care settings. Only half of parents in a national survey about clinician involvement in this issue reported being asked whether they smoke, and fewer than half were advised to quit.13 Fewer than 10% of parental smokers had cessation medication prescribed, and, despite the availability of freequitlines in every state, <1% were enrolled in a quitline or in any program to help them quit.14

No previous studies have used currently available systems of care to cue and support the major counseling and treatment components of the current PHS guideline. Successful efficacy trials have relied on external study staff to deliver the interventions.23–25 Implementation of parental tobacco-control guidelines remains elusive in real-world pediatric practice.

The aim of this article was to describe a novel process to develop a pediatric office intervention that uses available systems of care for addressing parental smoking. Specifically, we explored the development of an intervention using currently available systems of care to address parental smoking in the child health care setting that uses, in combination, evidence-based brief smoking cessation counseling, proactive referral to free regional and national quitlines, and pharmacologic management of tobacco dependence. Furthermore, we aimed to detail how, on the basis of our focus-group research, we mapped out 5 key implementation steps identified by practices, framed the intervention from the practice perspective, and designed a flexible implementation process that can be tailored to the needs of each practice. Finally, we hoped that elucidating the steps involved in developing the intervention, known as the Clinical Effort Against Secondhand Smoke Exposure (CEASE), will help inform the development process of other systems change interventions for the pediatric setting. The office-based pediatric intervention-development process described in this article may also have specific relevance and generalizability to other chronic conditions, such as attention-deficit/hyperactivity disorder, asthma, parental depression, and obesity.

**METHODS**

**Overview of Intervention Development**

Our goal was to use existing conceptual frameworks, guidelines, and office-based tools for tobacco control in the adult setting and to develop a conceptually driven pediatric office intervention for addressing parental smoking. As shown in Fig 1, the scientific development of the intervention occurred in 3 stages: stage 1, conceptual framework and initial prototype; stage 2, prototype modification and adaptation through focus-group testing; and stage 3, prototype refinement through feedback at 2 national pediatric meetings.

**Stage 1. Conceptual Framework and Initial Prototype**

**Integrating Conceptual Frameworks to Address Parental Tobacco Control in Child Health Care Settings**

Many theoretical models have aided in understanding how to implement office systems in diverse practice settings.26–31 Still, implementing best-practice guidelines has been an ongoing challenge in primary care practices, especially for services outside of those provided for symptom-driven diagnoses.34–36 Although no single model adequately combines system characteristics, patient-care processes, and techniques for achieving change,37 the Solberg and Wagner models form a complementary, comprehensive, and comprehensible framework for outpatient pediatric office systems change. Wagner’s Chronic Care Model includes characteristics of community and organizational domains to improve preventive care, and Solberg’s Prevention System focuses on specific processes of care delivered to patients within an identified practice. The Chronic Care Model describes the elements of an effective clinical system for ensuring effective patient...
and clinician interactions, whereas the Prevention System fills out the types of behaviors that should occur between patient and clinician.

The Solberg and Wagner models are consistent with the recommendations of current PHS guidelines and helped drive the development of our intervention through a series of key informant interviews with leaders in the field of implementing practice change.38 Using an iterative process of key informant interviews with members of the American Academy of Pediatrics Tobacco Consortium, we systematically adapted each construct of the Solberg and Wagner frameworks for parental tobacco control in child health care settings. Approximately 20 interviews were conducted by 1 of the team members (Dr Winickoff). Key informants were asked how the constructs of the Solberg and Wagner frameworks needed to be adapted for tobacco control in child health care settings. After suggested adaptations were made, these adapted constructs were presented back to the key informants for an informal face-validity review. The key informants had only minor editorial suggestions during the face-validity review of the integrated framework.

**Current Pediatric Guidelines**

Previous work has given child health care clinicians specific guidelines for evidence-based parental tobacco-control intervention but did not address how to implement those recommendations.3 We used these same current guidelines and presented specific office strategies for implementation within child health care settings. The 5 As (ask, advise, assess, assist, and arrange) remained at the core of our evidence-based intervention prototype;
however, significant reframing occurred as a result of focus-group testing (stage 2).

**Adaptation of Evidence-Based Adult Office System for Tobacco Control**

In 2001, health plans in Massachusetts collaborated with the Massachusetts Department of Public Health to create and promote jointly a new quitline initiative for adult primary care, called QuitWorks. Components of the adult office system that we needed to modify for our pediatric prototype intervention included (1) the smoking status screening questionnaire, which needed to change so that it identified not just the patient’s smoking status, but all of the household sources of SHS exposure, (2) the method for documenting SHS exposure in the patient’s chart, which needed to change so that documentation could be separated from vital signs and recorded in the chart of each child in the household, (3) the method for inviting the accompanying parent’s self-assessment (of readiness to quit, interest in pharmacotherapy, and/or enrollment in QuitWorks), which we wanted to be routine without imposing undue interpersonal strain between the parent and clinician, (4) the method for prescribing pharmacotherapy, which we needed to streamline to include standard dosing options, and (5) educational brochures, which we needed to revise to accommodate low-literacy readers and to include SHS messaging for parents.

**Stage 2. Prototype Modification and Adaptation Through Focus-Group Testing**

**Eight Practices in Massachusetts**

Using a series of 8 pediatric practice focus groups, we elicited practicing pediatrician and key staff responses to our proposed office system change strategy (our intervention prototype) to refine the components for a range of varied outpatient pediatric office settings. We designed the focus groups and a semistructured interview guide on the basis of well-described qualitative research methods, incorporating a discussion of constructs (eg, screening, counseling, and referral system) that have been shown to be important components of office systems in other settings. Just as in other qualitative studies, the hope was that the focus groups would enrich our understanding of key themes, in this case what the key implementation steps were, how they needed to be operationalized, and how to present them to practices.

**Recruitment**

In the spring of 2004, we identified pediatric practices located within a 20-mile radius of Boston from a list of practices available from the Massachusetts Department of Public Health. Additional eligibility requirements were that the practice had to have ≥1 pediatrician with >6 months of full-time experience and agreed to have ≥1 practice pediatrician participate in the focus group. Recruitment involved a 3-step process: (1) a telephone call, (2) e-mail message, and (3) follow-up letter. Of the 23 eligible practices, 8 (35%) agreed to participate in the focus groups within a 2-week enrollment window, at which point target enrollment was reached and closed.

**Participants and Setting**

Focus groups were conducted at each practice site and included pediatricians (1–3 per practice) and other key clinical and office staff as identified by the pediatrician team. Office staff included the office manager, nurse practitioners, clinical assistants, and secretaries. We welcomed office staff with different roles so that we could get a complete picture of the office workings and potential intervention feasibility. Having a wide variety of positions represented maximized our opportunity to create flexible strategies for a range of pediatric practice situations and staffing environments.

**Data Collection**

Focus groups lasted for ~90 minutes; all of the groups were audiotaped. Participants were given no monetary payment for their time and participation but were provided lunch. All of the procedures and data collection forms were approved by the Massachusetts General Hospital Institutional Review Board. A semistructured interview guide was developed on the basis of current guidelines and proposed theoretical underpinnings. The guide was piloted at a Boston-based practice to assess content, length, and understandability and then finalized and used for all of the group interviews. The guide contained questions about (1) present individual and clinic-wide practice patterns for parental tobacco control, (2) perceived barriers for individual and clinic-wide delivery of cessation services for parental smokers, (3) strategies for implementing each element of the proposed intervention prototype, and (4) recommendations for modifications and refinements of the proposed intervention prototype. Groups were cofacilitated by a pediatrician (Dr Winickoff) and health educator (Ms Berkowitz). Participants were asked to be frank and were assured that the purpose was not to achieve consensus but rather gather data to illustrate all of their impressions. Facilitators used probes to obtain comprehensive collection and to clarify responses.

**Data Analysis**

All of the session tapes were transcribed. Consistent with our goals for the focus groups, we conducted thematic content analysis using 2 research assistants under the supervision of our qualitative methodologist (Dr Park). The 2 coders separately reviewed transcripts and entered data into a Microsoft Access (Redmond, WA) database. We coded transcriptions for key words, refined the content and parameters of the codes, and, once thematic saturation was reached, coded categories within each descriptive theme relating to practice patterns, perceived barriers, implementation strategies, and specific modifications and refinements of the proposed intervention. Reviewers also coded for frequency, intensity, and extentiveness. At each analysis phase, the 2 coders compared their results and resolved discrepancies. Statements characteristic of the sentiment of the group were...
highlighted by the coders and selected by facilitators. An expert review of the data conducted (by Drs Winickoff and Park). No systematic differences were noted between the urban and suburban sites, and so we combined their responses.

To ensure the trustworthiness of our findings, many steps were taken to maximize dependability (consistency) and credibility (the truth of findings). We incorporated the process of triangulation by involving a multidisciplinary research team (investigator triangulation), including different types of practice sites (data triangulation), and comparing our findings with the conceptual framework models (theory triangulation). The facilitators used a standardized interview guide and discussed their impressions and debriefed with the research team after each session; cofacilitators took notes at each session to record interactions, nonverbal language, and environmental factors. The 2 coders thoroughly reviewed, separately and then together, all of the transcribed data.

A facilitator reviewed every transcript to ensure that the interview content was complete and accurate. Coders carefully examined data that seemed discrepant, unexpected, or unclear and compared all of the coded data with the transcript text, undergoing an iterative evaluation process until agreement was reached.

Stage 3. Prototype Refinement Through Feedback at 2 National Pediatric Meetings

At 2 national pediatric meetings in 2004, we performed 60-minute small-group breakout sessions with a total of 50 pediatricians at each meeting to get national practitioner key informant reactions to our revised intervention prototype. After introducing the intervention and materials in a structured fashion, the facilitator recorded session feedback that included clinician reactions and suggestions for improving the revised intervention prototype. A formal qualitative analysis of this key informant national practitioner step was beyond the scope of this study.

RESULTS

Stage 1. Initial Prototype Development

The main result from our work in stage 1 was a conceptually framed prototype intervention for delivering evidence-based parental tobacco control and lessons learned from the development process. In developing the intervention, we consistently went back to the conceptual framework to guide our decisions. Table 1 presents the framework for preventive services delivery as conceptualized for parental tobacco control in pediatric settings. A key example of this process was in the adaptation of the proactive quitline enrollment form to function within child health care settings (Fig 2). At least 3 essential modifications in the areas of screening, counseling, and clinical information systems were made to the form based on our framework. First, we had to change the “patient information,” because the smokers enrolled from the child health care offices would not be the patients. Second, we had to adjust the second A, “advice to quit,” to include an empowering smoke-free home and car message. Third, we needed to create a space to indicate the smoker’s relationship to patient.

A main lesson learned was to budget enough time for initial intervention development. Our prototype took >1 year to create because of busy senior leaders in the field who needed time to evaluate iterations of our conceptual framework and creation of materials for the prototype that had the look and feel of a useable office intervention. Another important lesson learned in stage 1 was that intervention development is nonlinear. New research, innovative approaches, and expert input can come in at any time. We chose to follow a relatively unconstrained path toward intervention creation that led to redoing materials many times over before we ever got to formal focus-group testing. A finding demonstrating low rates of counseling for SHS exposure of children in cars led to the inclusion in the prototype of a novel parent counseling brochure that we had not anticipated including.

Stage 2. Main Focus-Group Findings

In total, 8 practices with 6 to 10 participants each (64 individuals total) participated in the focus groups. This included 21 clinicians, 21 clinical assistants, 6 practice managers, and 16 administrative staff. Focus groups helped us understand (1) the lack of existing tobacco-control systems within practices, (2) barriers to intervention implementation that needed to be addressed in the next version of the intervention, (3) how to conceptualize a series of implementation steps for the next version of the intervention, and (4) how to document and follow parental smoking from visit to visit, a critical piece, unspecified in our prototype intervention. The main product from the focus group was a revised intervention prototype.

Existing Systems

We asked focus-group participants if there was a systematic method for documenting and monitoring parental smoking, but we found that no office had such a system.

Barriers

When queried about barriers for individual and clinic-wide delivery of cessation services for parental smokers, the following issues emerged: parent is not the patient; time constraints; lack of counseling skills; no reimbursement for this service; lack of skill in medication prescription for smoking cessation; and belief that addressing parental smoking may harm the therapeutic relationship with parents.

Implementation Framework

When presented with the evidence base for smoking cessation and asked about how to implement it, the following framework emerged that mapped to the 5 As themselves. Participants grouped the evidence-based intervention activities into 5 key implementation steps: (1) identification and self-assessment of readiness to quit, willingness to use medication, and willingness to enroll in the quit line; (2) counseling; (3) referral; (4) medications;
and (5) follow-up. Importantly, these steps are how pediatric offices conceptualized the operationalization of the implementation of the 5 As in their practices. The 5 implementation steps for pediatric practice map nicely to the content of the 5 As themselves (see Table 2).

Suggested Improvements
There was a lot of discussion about the location of documentation of SHS exposure. For continuity of cessation support, participants decided that the documentation of smoking status should occur on the problem list. The research team had initially conceived of documentation of smoking status as a vital sign. However, we found out that vital signs are not done as part of every pediatric visit. Therefore, we changed to suggesting documentation on the problem list after the parent fills out an annual screener card. This documentation can be updated as the smoking status of family members changes.
### Tobacco Treatment Checklist

**ADVISE to stop:**
- Stop-smoking advice given:
  - “I strongly advise you to quit smoking and to establish a smoke-free home and car, and I can help you.”

**ASSESS readiness to quit:**
- Ready to quit
- Thinking about quitting
- Not ready to quit

**ASSIST to quit:**
- Brief counseling
- Lessons from past quit attempts
- Set a quit date, if ready
- Enlist social support

**Medications if appropriate**
- Nicotine Replacement (CIRCLE):
  - patch
  - gum
  - lozenge
  - inhaler
  - nasal spray
- Other (CIRCLE): Bupropion (Zyban®/Wellbutrin SR®)

**ARRANGE follow-up:**
- Refer to Try-To-STOP TOBACCO Resource Center by faxing the lower portion of this form toll-free to 1-866-560-9113

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**CEASE action sheet:** QuitWorks enrollment

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**Figure 2**
Massachusetts example of quit-line enrollment form adapted for child health care settings. Initially conceived for the Massachusetts QuitWorks program, the CEASE enrollment form now has national applicability because of the universal availability of quit-line resources in the United States. State-specific CEASE forms reflect state-specific quit-line names and enrollment methods (attached to submission in a portable document format).
The other key observation was that the problem list may be the only part of the medical chart that is reviewed by other child health care clinicians in cross-coverage.

Stage 3. Feedback From National Meetings
Approximately 50 pediatricians participated in breakout sessions at each of 2 pediatric national meetings. Pediatricians had the following main reactions and suggestions from the national meetings: (1) they fully endorsed the parental tobacco-control project, idea of creating universal documentation of SHS exposure of children and parental smoking, and linking parental smokers to outside quitline resources for more extensive counseling support; (2) they requested an implementation guide on a single page with suggested individuals who might perform key tasks; (3) they felt that the clinician counseling burden in the office needed to be minimal (3 minutes) in order not to disrupt office operations; (4) they requested that information on billing for services be incorporated into the intervention materials; (5) approximately half felt uneasy about prescribing medications to parents in the context of the child’s care; they thought that should be optional; and (6) a few expressed concerns that they would be sued for adverse outcomes if they prescribed medications for parental tobacco dependence.

This step of soliciting reactions to our revised prototype also led to a change in how the intervention is presented to child health care clinicians. The program was initially billed as a method for getting parents to quit smoking. Pediatricians commented that their primary reason for wanting to adopt a tobacco-control program was to protect their patients, the children, from SHS exposure. Therefore, we made a shift in how the program was presented and ended up with CEASE. Clinicians are introduced to the intervention in their reference frame rather than the preconceived reference frame of the research team.

Synthesis and Description of CEASE Intervention
The main result was a theoretically grounded intervention that was responsive to the barriers and suggestions raised in the focus groups and at the national meetings. We heard the persistent concern that a busy child health care clinician cannot spend the time to do a full motivational interviewing session, especially because the parent is not the actual patient. However, the behavior of the parental smoker does directly affect the health and well-being of the child health care clinician’s patient. Therefore, a reasonable and agreed-on expectation included spending a couple of minutes on cessation messaging and trying to motivate the parental smoker to follow up with an expert. Enrolling smokers in multisession telephone counseling as an adjunct to office-based counseling ensures that smokers receive professional, evidence-based, ongoing counseling services that may not be possible otherwise. Although the intervention focuses on referral of smokers to free quit lines, the training manual also encourages knowledge and use of local program resources. Although young parental smokers may not often be available for such face-to-face counseling, its inclusion for highly motivated individuals may be important.

The clinician counseling component consists of very brief motivational messaging that is based on the parents’ own concerns, as well as potential teachable moments that may be cued by the child’s illness. This approach has been well received by parental smokers in other studies. A large majority of smokers tend to give higher satisfaction ratings to pediatric clinicians who address their smoking and offer help. Most parents believe that it is the responsibility of the pediatrician to counsel them on matters that affect their child’s health and that they should do more counseling regarding smoking cessation. The intervention includes a focused library of “halllets” (a halllet is a 2-sided sheet of paper larger than a bookmark, smaller than a pamphlet, used for messaging) for handing out to parents that address specific concerns that may arise during the child visit. Messaging elements may include brief collaborative goal setting, personal barriers to quitting, problem-solving strategies, and social support. One addition to self-management for the parental smoker includes focused strategies for reducing SHS exposure of the child, such as implementation of rules prohibiting smoking inside the home and car.

Interested clinicians can review the rationale for focused SHS messaging, including how the institution of strict smoking bans in the home and car can help address the problem of parental smoking in ≥3 ways. First, by making smoking more difficult, bans may help the cessation process for parents who smoke. Second, bans may reduce smoking rates and cigarette consumption among youth. Finally, bans have been recommended to reduce the SHS exposure of children and spouses from a parent’s smoking. In reducing SHS exposure of children, recent studies using counseling

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Mapping the CEASE Implementation Steps to the 5 As</th>
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</thead>
<tbody>
<tr>
<td>Implementation Step</td>
<td>The As</td>
</tr>
<tr>
<td>Step 1. Identification and self-assessment</td>
<td>Ask and Assess</td>
</tr>
<tr>
<td>Identify smokers with the CEASE annual card during the office visit and document smoking status. Ask those who smoke to fill out the CEASE action sheet: self-assessment screener at each visit. Document no smoking policy in the home and car.</td>
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</tr>
<tr>
<td>Step 2. Counseling</td>
<td>Advise and Assist</td>
</tr>
<tr>
<td>Talk with smokers about tobacco use and establishing a strict no smoking policy in the home and car. For those who are not ready to quit, give a “Think About It” halllet.</td>
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<tr>
<td>Step 3. Referral</td>
<td>Assist</td>
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<tr>
<td>Complete the CEASE action sheet: quit line enrollment with smokers who are ready to quit. Give those who enroll a “Welcome” halllet.</td>
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<tr>
<td>Step 4. Medication</td>
<td>Assist</td>
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<tr>
<td>Prescribe or recommend pharmacotherapy, if appropriate, for relief of withdrawal symptoms and to aid cessation.</td>
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<tr>
<td>Step 5. Follow up</td>
<td>Arrange</td>
</tr>
<tr>
<td>File the CEASE action sheet and review before each visit. Talk with those who smoke about smoking at each visit until the family is smoke-free.</td>
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思議的な表現ですが、互いに理解を図り、必要な情報を提供した上で、文脈を理解してみましょう。
and provision of written materials have proven successful.85–87 A strict household and car ban on smoking also reduces the amount of tobacco toxin exposure that children receive from nonparent relatives and other visiting adults.88,89

In addition, the CEASE intervention includes a direct-to-consumer marketing approach through the posting of pharmacotherapy options for tobacco dependence treatment. These posters cue the parental smoker to discuss with the clinician what type of pharmacotherapy might be right for them. On the poster is a dosing guide for the quick reference of those clinicians who wish to prescribe pharmacotherapy so that they may avoid the embarrassment and extra time required to look up the requested medication to treat the parent’s tobacco dependence. Some of the concerns raised in the focus groups, such as fear of legal action if clinicians treat parents, have been partially answered by the American Medical Association and are now emphasized in the CEASE materials. The American Medical Association amended its tobacco-control policy to “support efforts by any physician to identify and treat tobacco dependence in any individual, in the various clinical contexts in which they are encountered. . . .”90

The intervention developed in this study operationalizes the 5 As in accordance with the most recent national guidelines1,21 and the recommendations gathered from our focus groups and national pediatric meetings. Practice staff can choose materials relevant to their own particular systems of care. The CEASE intervention was designed to be flexible and adaptable to the particular practices’ staffing, resources, and physical configuration. We therefore present one possible option for how a pediatric practice might operationalize some of the intervention materials (Table 3).

The CEASE intervention is available from the Web site www.ceasetobacco.org and can be used by offices from any state in the United States. The state-of-the-art CEASE materials are updated as new research advances the field of tobacco control. Rather than reproducing the current set of materials in this article, the most up-to-date materials will be found on the Web site.

**DISCUSSION**

In this article, we presented the conceptual framework and development of the CEASE intervention, a program that is now available for use in child health care settings nationally. Successful tobacco-control interventions in the child health care setting have usually relied on study staff to deliver the intervention. We have demonstrated previously the feasibility of engaging parents in a smoking cessation intervention at the time of a child’s clinic visit.17 High rates of program enrollment (63%), use of nicotine-replacement therapy (NRT; 34%), and receipt of telephone quitline counseling (42%) in this previous study supported the hypothesis that a child’s clinic visit is a teachable moment to address parental smoking cessation. Other previous studies have examined the efficacy and feasibility of specific tobacco-control interventions with parents in child health care settings.17,21–25,83–87,90–98 Studies in these settings have tried to improve parental smoking cessation rates primarily through the use of counseling and provision of written materials with varied results.

Most recently, in a randomized trial of 303 parents seen at pediatric clinics, Curry et al90 conclusively demonstrated efficacy of an intervention to help parents quit smoking. The intervention consisted of brief cessation advice given by the pediatrician (usually lasting 1–5 minutes), a parent-tailored quit smoking guide distributed by the pediatrician, a 10-minute intervention with a practice nurse or health educator after the child’s visit, and ≤3 subsequent telephone calls from the practice nurse or health educator. At 12-month follow-up,
13.5% of the intervention group abstained as compared with 6.9% of the control group, resulting in an adjusted odds ratio of 2.77 (95% confidence interval: 1.24–6.60), demonstrating that office-based and telephone counseling can be effective in increasing the quit rates of parents who smoke. However, external study staff were used to deliver the office-based and telephone counseling. The CEASE intervention uses currently available systems of care, quitlines, and office personnel to deliver the intervention without hiring additional office staff.

Specific features of the CEASE intervention that have been associated with improved tobacco-control outcomes in adults include materials that prompt delivery of the 5 As, systematic and proactive enrollment of parental smokers in telephone counseling that will follow up on clinician’s advice to quit; explicit counseling of parents on the importance of strictly enforced smoking prohibitions within the home and car; and prescription of NRT for parental smokers in the context of the child’s health care visit. The CEASE intervention follows the PHS guidelines by incorporating these evidence-based tobacco-control treatments and practices. The intervention is unique in using the child health care setting to cue and support all of these elements for parents who smoke.

Many components of the CEASE intervention could be implemented with the use of an electronic medical chart, that is, documentation of parental smoking could be entered directly into the electronic problem list. Electronic medical charts are not used by the majority of pediatric practices in 2008; however, practices still need to implement evidence-based parental tobacco control. Fortunately, effective clinical information systems can begin as adaptations of currently used office systems and later be incorporated into fully developed electronic systems as they become available. The CEASE intervention addresses the need for a universal screening system, the ability to proactively deliver care to those who screen positive for smoking, and to follow the individual’s progress. The placement on the chart of a filled-out self-assessment portion of the CEASE action sheet prompts the clinician to deliver the remaining 4 As, including enrollment in telephone quitlines. In certain states, faxing the enrollment form to the state quitline will make up a clinical information system that holds promise for implementation in the pediatric outpatient setting. Planned process evaluation of CEASE at the clinician level, the patient behavior level, and practice level will add substantially to the compilation of essential elements in the national tobacco-control strategy for child health care settings.

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