

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Improving the Management of Family Psychosocial Problems at Low-Income Children's Well-Child Care Visits: The WE CARE Project

Arvin Garg, Arlene M. Butz, Paul H. Dworkin, Rooti A. Lewis, Richard E. Thompson
and Janet R. Serwint

Pediatrics 2007;120;547

DOI: 10.1542/peds.2007-0398

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/120/3/547.full.html>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2007 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



Improving the Management of Family Psychosocial Problems at Low-Income Children's Well-Child Care Visits: The WE CARE Project

Arvin Garg, MD, MPH^a, Arlene M. Butz, ScD, RN^a, Paul H. Dworkin, MD^b, Rooti A. Lewis, BA^a, Richard E. Thompson, PhD^c, Janet R. Serwint, MD^a

^aDivision of General Pediatrics and Adolescent Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland; ^bDepartment of Pediatrics, University of Connecticut School of Medicine, Farmington, Connecticut; ^cDepartment of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

The authors have indicated they have no financial relationships relevant to this article to disclose.

ABSTRACT

OBJECTIVE. Our goal was to evaluate the feasibility and impact of an intervention on the management of family psychosocial topics at well-child care visits at a medical home for low-income children.

PATIENTS AND METHODS. A randomized, controlled trial of a 10-item self-report psychosocial screening instrument was conducted at an urban hospital-based pediatric clinic. Pediatric residents and parents were randomly assigned to either the intervention or control group. During a 12-week period, parents of children aged 2 months to 10 years presenting for a well-child care visit were enrolled. The intervention components included provider training, administration of the family psychosocial screening tool to parents before the visit, and provider access to a resource book that contained community resources. Parent outcomes were obtained from postvisit and 1-month interviews, and from medical chart review. Provider outcomes were obtained from a self-administered questionnaire collected after the study.

RESULTS. Two hundred parents and 45 residents were enrolled. Compared with the control group, parents in the intervention group discussed a significantly greater number of family psychosocial topics (2.9 vs 1.8) with their resident provider and had fewer unmet desires for discussion (0.46 vs 1.41). More parents in the intervention group received at least 1 referral (51.0% vs 11.6%), most often for employment (21.9%), graduate equivalent degree programs (15.3%), and smoking-cessation classes (14.6%). After controlling for child age, Medicaid status, race, educational status, and food stamps, intervention parents at 1 month had greater odds of having contacted a community resource. The majority of residents in the intervention group reported that the survey instrument did not slow the visit; 54% reported that it added <2 minutes to the visit.

CONCLUSIONS. Brief family psychosocial screening is feasible in pediatric practice. Screening and provider training may lead to greater discussion of topics and contact of community family support resources by parents.

www.pediatrics.org/cgi/doi/10.1542/peds.2007-0398

doi:10.1542/peds.2007-0398

This work was presented in part at the annual meeting of the Pediatric Academic Societies; May 5–8, 2007; Toronto, Ontario, Canada.

This trial has been registered at www.ClinicalTrials.gov (identifier NCT00397644).

Key Words

low-income children, pediatrician, well-child care visit, family psychosocial problem

Abbreviations

AAP—American Academy of Pediatrics
WCC—well-child care
WE CARE—Well-child Care Visit, Evaluation, Community Resources, Advocacy, Referral, Education
FRB—Family Resource Book
GED—graduate equivalent degree

Accepted for publication Apr 13, 2007

Address correspondence to Arvin Garg, MD, MPH, David M. Rubenstein Child Health Building, 200 N Wolfe St, Room 2083, Baltimore, MD 21287. E-mail: agarg1@jhmi.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275). Copyright © 2007 by the American Academy of Pediatrics

APPROXIMATELY 28 MILLION children in the United States live in low-income families,¹ and many grow up exposed to family psychosocial problems. Psychosocial problems, such as food insecurity,²⁻⁵ housing instability,⁶⁻⁸ inadequate parental education,⁹ and parental substance use,^{10,11} are associated with higher rates of behavioral, developmental, and learning problems in children. Pediatric professional guidelines from the American Academy of Pediatrics (AAP) emphasize the importance of routinely addressing these “new morbidities” within the context of the medical home.^{12,13} *Bright Futures*, in their well-child care (WCC) guidelines, also stresses the importance of viewing the child in the context of the family and community.¹⁴ However, few pediatricians routinely address family psychosocial problems at WCC visits.¹⁵ Potential barriers for screening include lack of time, professional training, and knowledge of community resources.¹⁵⁻¹⁷

Limited research has been conducted to evaluate the effectiveness of a standardized approach to assessing family psychosocial problems during WCC visits. A previous study found the use of a self-administered questionnaire increased the identification of family psychosocial problems in mothers attending an urban clinic.¹⁸ However, the impact of the screening questionnaire on provider behavior was not assessed. The objectives of this study were to evaluate the feasibility and impact of implementing the WE CARE (Well-child Care Visit, Evaluation, Community Resources, Advocacy, Referral, Education) intervention at a medical home for low-income children. The primary hypotheses for this study were that the WE CARE intervention would increase the overall discussion and referral rates for family psychosocial problems at WCC visits.

PATIENTS AND METHODS

Study Design/Setting

This study was a randomized, controlled trial conducted in an urban hospital-based pediatric clinic at a large academic institution. The clinic serves as a medical home for ~10 000 children ages from birth to 21 years, with Medicaid as the predominant source of health care coverage. Pediatric residents serve as the primary care providers for patients. Ten continuity clinic sessions are conducted independently each half-day, with morning and afternoon sessions. Residents are assigned to the same half-day session and preceptor for the academic year. First-year pediatric residents are only assigned to afternoon sessions. Residents from sessions where investigators served as preceptors were excluded (Drs Garg and Serwint). Residents were randomly assigned by continuity clinic sessions to reduce the risk of contamination. The sessions were stratified by morning and afternoon sessions and randomized to ensure similar numbers of first-year residents. A total of 45 pediatric

resident providers (intervention: 24; control: 21) were involved in the study. The study was approved by the institutional review board at the Johns Hopkins School of Medicine.

Participants

Parents of children aged 2 months to 10 years who presented from April 11, 2006, to June 28, 2006, for a WCC visit with an enrolled resident provider were eligible. The newborn visit was excluded; we believed it would be challenging for providers to address family psychosocial problems due to the multitude of topics that needed to be discussed relating to the care of the newborn. In addition, because our focus was on screening for parental problems, adolescent visits were excluded because parents may not be present for the entire visit. Because most respondents were parents, we use the term parent to include all caregivers (parents and other legal guardians). Parents were excluded if they were not the child’s legal guardian, a foster parent, non-English speaking, previously enrolled in the study, or lacked access to a working telephone. Pediatric residents assigned to the 8 continuity clinic sessions were also participants in this study. Written informed consent was obtained from all participants before enrollment.

Intervention Materials

WE CARE Survey Instrument

The study required the development of a brief family psychosocial survey instrument for use in pediatric office settings. The content of the WE CARE survey instrument was developed by using an interdisciplinary collaborative approach. The *Bright Futures* pediatric intake form was used as an initial guide for the inclusion of family psychosocial problems (parental depression, substance use, intimate-partner violence, parental abuse, social supports, housing, single parent, less than high school education, and unemployed).¹⁹ Other family psychosocial problems, identified from the literature and from discussion with clinic staff members were considered (food insecurity, child care). Available community resources were identified by a clinic social worker, clinic lawyer advocate, internal medicine colleagues, and the principal investigator (Dr Garg). Only those problems for which community resources were available were included in the survey. Ten family psychosocial problems (lack of high school education, unemployment, smoking, drug abuse, alcohol abuse, depression, intimate-partner violence, child care need, homelessness, and inadequate food supply) were selected. The self-report survey was designed to allow parents to identify problems and to indicate their motivation to address them (see Appendix). For depression and intimate-partner violence, validated screening questions from the US Preventive Services Task Force were reviewed and adapted

to form 1 question per topic for depression and intimate-partner violence.^{20,21} Intimate-partner violence included physical and verbal abuse. The original survey was endorsed by the pediatric clinic's Community Advisory Board. Two focus groups consisting of clinic parents were conducted to assess the face validity of the survey. The focus groups reviewed the survey for understandability, ease to complete, and culturally appropriateness, and their suggestions were incorporated into the final version. It took focus group participants <5 minutes to complete the survey.

The study survey readability was at the third-grade level using the Flesch-Kincaid grade level formula. Content validity was established by having faculty members and social workers review it and assess whether the questions were representative of the psychosocial topics that were being screened. A 2-week test-retest reliability was conducted with the first 20 participants yielding a high reliability ($r = 0.92$).

WE CARE Family Resource Book (FRB)

A WE CARE Family Resource Book was developed by the principal investigator (Dr Garg), a social worker, and a clinic lawyer advocate. The FRB contained 1-page tear-out sheets listing available community resources (range: 2–4 resources) for each of the 10 psychosocial problems. This information sheet contained the program name, a brief description, contact information, program hours, referral source, eligibility, and payment source for each community resource. Multiple copies of the topic-specific information sheets were contained in the book. One month before the implementation of the study, all community resources were contacted by the principal investigator (Dr Garg) to review enrollment criteria and program costs. The majority of the community resources were free of charge. The FRB was placed in each of the clinic's continuity examination rooms within easy view of providers and families.

Intervention

Parents in the intervention group were given the WE CARE survey by a research assistant to complete before their child's encounter with the resident. They were instructed to give the survey to their child's physician at the beginning of the visit for review.

Pediatric residents participated in a 20-minute teaching session before study implementation. The session included an overview of pediatric professional guidelines and an introduction to the intervention materials. Residents were instructed to review the WE CARE survey with the parent during the visit and make a referral (ie, tear-out and hand an information sheet from the FRB) if the parent indicated that he/she wanted assistance with any psychosocial problem. Residents participated in a 10-minute booster educational session 1-month post-study initiation.

Control Conditions

The WE CARE FRB was made available to providers in the control group. The residents were informed of the FRB at the beginning of the study by their preceptors. The preceptors read a standardized 1-paragraph script that introduced the FRB. Residents were encouraged to use it for any of their families. The FRB was made available to the control group because before the study, a 1-page information sheet listing some community resources, including child care and parent education, was available in each examination room. We believed making the FRB available to all providers was consistent with the standard of care for this clinic.

Data Collection for Intervention/Control Groups

Demographic information was collected from parents before the visit. Immediately postvisit, parents in both groups were interviewed by using a standardized form and asked whether they discussed any of the 10 family psychosocial problems and/or received any referrals to community resources during the WCC visit. If discussion was not reported, parents were queried about whether they wish they had been asked about the specific topic during the visit (ie, desire for discussion). For parents not available postvisit, the interview was obtained via telephone. Postvisit interviews were considered incomplete if a parent was unable to be reached within 1 week of the index visit.

A short telephone interview was conducted 1-month postenrollment. Parents were asked whether they recalled being referred to any community resources at their index child's visit, whether they had contacted the resource, and if so, which community organization(s) were contacted. If a community resource had not been contacted, the parent was asked the reason(s) why contact had not been made. Parents were considered lost to follow-up if they were not reached by 6 weeks' postindex visit.

All medical charts were reviewed at the end of the study by 1 author who was blinded to group assignment (Dr Garg) to determine documentation of referrals to the clinic social work staff at the index visit.

Residents completed a survey at the end of the study that assessed their attitudes and behaviors regarding family psychosocial screening, as well as their knowledge of community resources (data not reported here). Intervention residents were asked 3 additional questions to evaluate the impact of the intervention on the visit. Two questions explored the impact on the duration of the visit, and 1 question elicited their comfort with having parents hand them the WE CARE survey.

Sample Size and Statistical Analysis

We estimated that each group required a minimum of 75 parents to detect an absolute difference of at least 20% in the overall referral rate of family psychosocial prob-

lems with a 2-tailed α error of .05 and statistical power of 80%. This was based on previous research that demonstrated an 18% increase in the detection of family psychosocial problems by using a structured questionnaire.¹⁸ In this study, we estimated the detection and referral rates to be similar. A limited review of 20 medical charts from this clinic site before the study found a baseline referral rate of 10% for family psychosocial problems. We enrolled a sample of 100 parents in each group to account for an estimated 25% loss to follow-up.

An intention-to-treat model was used for the analysis. Primary outcome variables included (1) discussion of family psychosocial topics, (2) referrals to community resources, and (3) parent's unmet desires for discussion. χ^2 was used to compare differences between groups for dichotomous variables, and Student's *t* test was used for continuous variables. Cluster analyses using general estimating equations were conducted for dichotomous variables to control for parent clusters by specific resident. Unadjusted odds ratios were reported using the control group as the comparison group. Logistic regression was used to assess the dichotomous outcomes, whereas adjusting for variables deemed relevant a priori including race, ethnicity, education status, Medicaid status, and for baseline variables that were significantly different between the 2 groups at a $P < .10$ level. For missing data for the 1-month outcome, we assumed that parents had not contacted a community resource. Descriptive statistics were used to measure intervention residents' poststudy responses. SPSS 13.0 (SPSS Inc, Chicago, IL)²² and Stata 9.0 (Stata Corporation, College Station, TX)²³ were used for the statistical analyses. Statistical significance was defined as $P < .05$.

RESULTS

Sample Characteristics

A total of 350 eligible parents who presented for WCC during the data collection period were identified. Recruitment of participants continued until 200 subjects were enrolled. Ninety-two were not approached, either because of a lack of identification by clinic personnel or insufficient time to enroll before the visit, resulting in 258 (73.7%) that were approached (Fig 1). Of these 258 subjects, 26 (10.0%) were not eligible and 32 (13.8%) refused participation, resulting in the enrollment of 200 subjects. Of the 200 parents, 100 were randomly assigned to the intervention group and 100 were randomly assigned to the control group. For the primary analysis, data were available for 98 intervention parents and 95 control parents. Eighty-five (86.7%) subjects in the intervention group and 89 (93.7%) subjects in the control group completed a follow-up telephone interview at 1 month.

Table 1 describes the baseline characteristics for the study subjects. Most of the parents were mothers

(82.7%), black, (90.8%) and unemployed (51.8%). Most parents (74.2%) reported having had a previous visit with their child's provider. The majority of the index children were ≤ 2 years of age (55.3%) and insured by Medicaid (86.4%).

In comparing baseline characteristics, parents in the intervention group were more likely to have not completed high school, received food stamp benefits, and have children > 2 years of age. There were no other significant differences.

Of the participating residents, 32.6% were PL-1s, 23.3% PL-2s, and 44.2% PL-3s. There was no significant difference in the distribution of PL-1s between the intervention and control groups (38.1% vs 27.3%; $P = .45$). Intervention residents ($n = 24$) had a mean of 4.2 enrolled parents (range: 0–9), whereas control residents ($n = 21$) had a mean of 4.8 enrolled parents (range: 1–11).

Discussion of Family Psychosocial Topics at WCC Visits

The mean number of family psychosocial topics discussed at the WCC visit were significantly higher for parents assigned to the intervention group than the control group (2.9 vs 1.8, respectively; $P < .01$). In the multivariate regression analyses, the odds for discussion of parent's education status and food insecurity at WCC visits were significantly higher in parents in the intervention group (Table 2).

Parents' Unmet Desires to Discuss Family Psychosocial Topic at WCC Visits

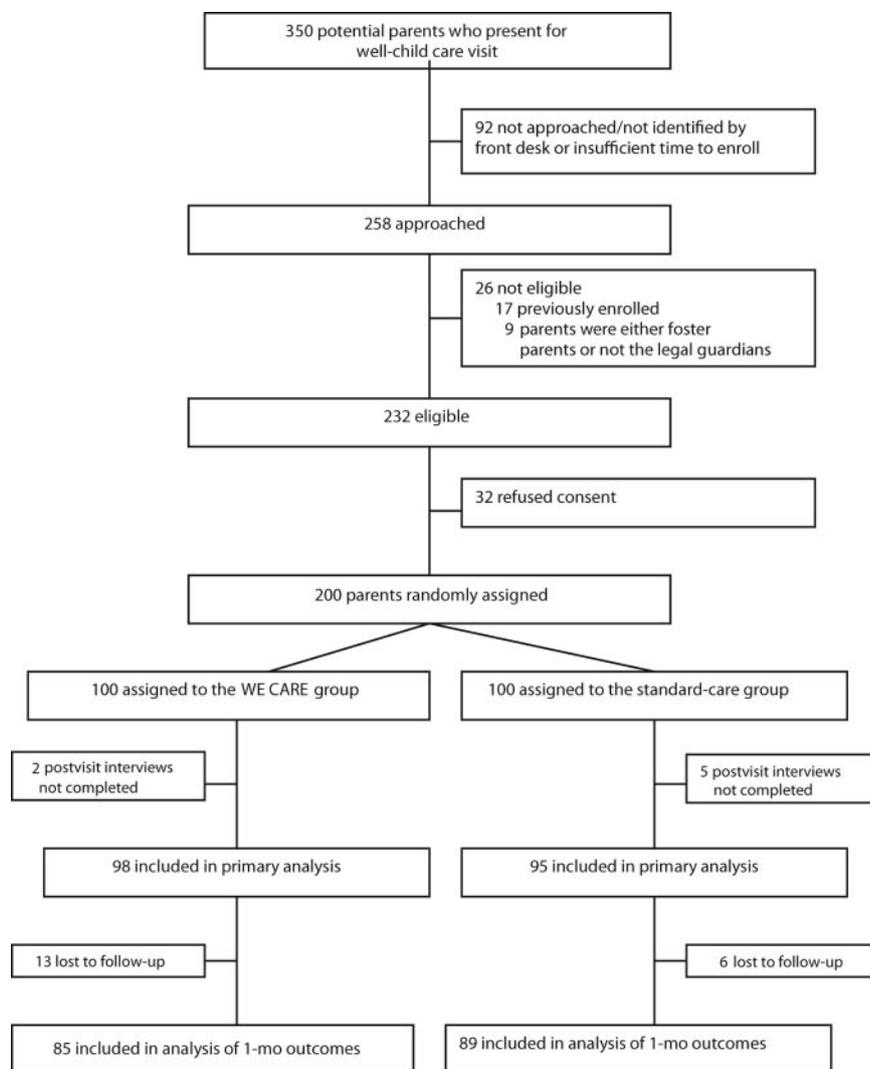
Parents in the intervention group had fewer unmet desires to discuss family psychosocial topics than the control group (0.46 vs 1.41, respectively; $P = .001$). More parents assigned to the control group desired discussion with their child's provider on homelessness, drug exposure, intimate-partner violence, and child care needs (Table 3).

Referrals for Family Psychosocial Problems at WCC Visits

Parents in the intervention group received a significantly greater mean number of referrals than parents in the control group (1.15 vs 0.24; $P < .001$). Fifty-one percent of intervention parents reported receiving ≥ 1 referral from their child's provider vs 11.6% for control parents ($P < .001$); 58% of referred parents in the intervention group received > 1 referral. Intervention parents had significantly greater odds of receiving referrals for graduate equivalent degree (GED) programs, job training, food resources, and smoking-cessation classes than parents in the control group (Table 4). The majority of referrals were from the FRB (98% in the intervention group vs 64% in the control group). There was no significant difference in the referral rate to clinic social workers at the index visit between the 2 groups (intervention: 5% vs control: 1%; $P = .21$).

Among the 193 parents in both groups, a total of 137

FIGURE 1
Enrollment, randomization, follow-up, and data analysis for the study participants.



referrals were made for family psychosocial problems (intervention [$n = 113$] vs control [$n = 24$]). The majority of referrals were for employment (21.9%), GED (15.3%), and smoking-cessation classes (14.6%). Relatively few referrals were made for alcohol/drug treatment programs (6.6%), parent depression (5.8%), or intimate-partner violence (0.7%).

At the 1-month postvisit interview, more parents in the intervention recalled receiving a referral during the index visit than the control group (41.2% vs 6.7%; $P < .001$). In the subset of parents who had reported receiving a referral postvisit ($n = 61$), more parents in the intervention group recalled being referred than parents in the control group at 1 month (69% vs 20%; $P < .01$).

At 1 month, 20.0% of the parents in the intervention group reported contacting a referred community resource versus 2.2% of parents in the control group. In the subset of intervention parents who had reported receiving a referral postvisit ($n = 50$), 34% reported contacting a community resource. The community resources contacted in-

cluded job training (27.8%), housing assistance (22.1%), GED classes (16.7%), food resources (16.7%), smoking-cessation classes (11.1%), and child care (5.6%). The most common reason for parents not contacting a referred community resource was lack of time (66.7%).

Pediatric Resident Providers' Attitudes Toward the WE CARE Intervention

Twenty two (91.6%) of the 24 residents assigned to the intervention group completed the poststudy questionnaire. None reported feeling uncomfortable with having parents hand them the WE CARE survey. Seventy-seven percent reported that the survey did not slow down the visit. Most residents (90.9%) reported that the survey added <5 minutes to the visit; 54.5% reported that it added <2 minutes to the visit.

DISCUSSION

This study demonstrated a positive impact of the WE CARE intervention on provider discussion and referral

TABLE 1 Baseline Characteristics of Participants

	Overall (n = 200)	Intervention (n = 100)	Control (n = 100)
Parent characteristics			
Relationship to child, %			
Mother	82.7	85.6	79.8
Father	6.6	3.1	10.1
Other	10.7	11.3	10.1
Age, mean (SD), y	30.4 (9.9)	30.4 (9.3)	30.3 (10.7)
Education status, % ^a			
≤11 y	22.1	32.3	12.1
High school graduate	66.2	58.3	73.7
College	11.8	9.4	14.1
Race, % ^b			
Black	90.8	95.9	85.9
White	3.1	1.0	5.1
Asian	1.5	0	3.0
Other	4.6	3.1	6.1
Ethnicity, %			
Hispanic/Latino	2.6	0	5.2
Unemployed	51.8	50.0	53.5
Uninsured	18.8	14.3	23.3
Household income, %			
Less than \$15 000	40.4	47.2	34.0
\$15 000–\$29 999	38.3	31.5	44.7
\$30 000–\$49 999	14.8	13.5	16.0
More than \$50 000	6.6	7.9	5.3
Temporary cash assistance, %	20.0	19.6	20.4
Food stamps, % ^c	49.7	58.8	40.8
Supplemental Nutrition Program for Women, Infants, and Children, %	44.6	43.3	45.9
Supplemental security income, %	11.3	9.3	13.3
No. of visits with child's provider, %			
First	25.8	25.5	26.0
2–4	28.4	24.5	32.3
>5	45.8	50.0	41.7
Child characteristics			
Age ^a			
Age, mean (SD), y	2.9 (2.5)	3.4 (2.7)	2.4 (2.2)
2 mo to 2 y, %	55.3	45.9	64.6
>2 to 5 y, %	26.9	28.6	25.3
>5 to 9 y, %	17.8	25.5	10.1
Medicaid insurance, %	86.4	89.4	83.5

^a $P < .01$.^b $P > .05$ and $< .10$.^c $P < .05$.

for family psychosocial problems at WCC visits for children in low-income families. Despite AAP professional guidelines, few pediatricians routinely address families' circumstances and well-being. To better understand how to incorporate these guidelines into pediatric practice, the AAP Task Force on the Family in 2003 emphasized the need for additional research on the "mechanics, content, and effectiveness of family-orientated pediatrics practice."²⁴ Although previous interventions, within the context of pediatric primary care, have focused on a specifically targeted family psychosocial problem, such as maternal depression,^{25–27} parental smoking,^{28–30} or intimate-partner violence,^{31,32} we believe that this is the first randomized, controlled trial demonstrating the feasibility and impact of screening multiple family psychosocial problems at one time.

An important feature of the WE CARE intervention was the ease of incorporation into the pediatric clinic. There is limited time to screen for family psychosocial problems given the need for providers to address other important anticipatory guidance topics, such as injury prevention, nutrition, and discipline. To reduce screening time, our intervention used time before the visit (ie, waiting room time) to administer the screening survey. The majority of providers reported that the intervention did not slow down the visit, and 54% reported that it added <2 minutes to the visit. In addition, the intervention was not overly burdensome to clinic staff members. Most referrals to community resources were made by providers accessing the FRB, not from clinic social workers.

A vital component of the intervention was the iden-

TABLE 2 Discussion of Family Psychosocial Topics at WCC Visits Per Group Assignment

Topic Content Discussed	%		Unadjusted OR (95% CI)	Adjusted OR (95% CI) ^a
	Intervention (n = 98)	Control (n = 95)		
Education status	24.5	7.4	4.1 (1.7–9.6) ^b	2.7 (1.2–6.5) ^c
Employment status	40.8	29.5	1.6 (0.8–3.5)	1.8 (0.8–3.7)
Food insecurity	25.5	8.4	3.7 (1.4–9.9) ^d	3.5 (1.2–10.3) ^c
Homelessness risk	25.5	9.5	3.3 (1.1–9.7) ^c	3.1 (0.9–10.3)
Depression in parent	21.4	10.6	2.3 (1.0–5.4)	2.2 (0.8–5.5)
Smoking in parent	50.0	44.2	1.3 (0.6–2.4)	1.3 (0.7–2.6)
Problem alcohol use in household	24.5	15.8	1.7 (0.8–3.7)	1.8 (0.7–4.1)
Drug use exposure in household	33.7	26.3	1.4 (0.7–2.9)	1.3 (0.6–2.7)
Intimate-partner violence	13.3	7.4	1.9 (0.7–5.0)	2.2 (0.8–6.4)
Child care needs	28.6	22.1	1.4 (0.7–3.0)	1.7 (0.8–3.6)

OR indicates odds ratio; CI, confidence interval.

^a Adjusted for child age, Medicaid, parent race, educational status, receipt of food stamps, and clustering by resident.

^b $P < .001$.

^c $P < .05$.

^d $P < .01$.

TABLE 3 Parents Unmet Desires to Discuss Family Psychosocial Topics at WCC Visits Per Group Assignment

Topic Content Not Discussed	Intervention		Control		P
	No Discussion, n	Desired Discussion, %	No Discussion, n	Desired Discussion, %	
Education status	75	4.0	88	8.0	.29
Employment status	57	3.5	67	11.9	.09
Food insecurity	72	15.3	86	25.6	.11
Homelessness risk	72	4.2	86	23.3	<.001
Depression	77	3.9	82	12.2	.06
Smoking	50	8.0	53	17.0	.17
Problem Alcohol use in household	74	8.1	80	15.0	.18
Drug use exposure in household	65	3.1	70	20.0	<.01
Intimate-partner Violence	85	3.5	88	15.9	<.01
Child care Needs	70	12.9	74	33.8	<.01

tification of available community resources for providers to refer at-risk families to for services. It has been suggested that it is unethical to screen for psychosocial problems if resources are unavailable.³³ Furthermore, providers are less likely to screen for these problems if they are unaware of resources to refer to.¹⁶ The identification of resources resulted from an interdisciplinary collaborative approach between pediatricians, social workers, a lawyer advocate, and input from internal medicine colleagues. We were surprised with the number of resources, most of which were free of charge, that were available in our community. The intervention is consistent with the definition of community pediatrics, that is, using a community's resources in collaboration with the medical home to improve the quality of services for children.³⁴ We believe that the identification of resources and the development of a FRB is a first step in developing an integrated system linking low-income families via their child's medical home with available community social resources.

Another strength of the study was the acceptability of the intervention by parents and providers. Parents were forthcoming in self-reporting both their psychosocial

problems, such as unemployment, smoking, and food insecurity, and their motivation for addressing these issues. In many regards, the survey was a family needs assessment performed by parents. This screening method is consistent with a family-centered approach because it conveys a sense of nonjudgmental partnership and mutual responsibility between parents and providers.³⁵ Also, it was time efficient because, in focus groups, the survey took <5 minutes to screen for 10 family psychosocial problems. Parents in the intervention group had fewer unmet desires for discussion of family psychosocial problems with their child's provider, suggesting that more parents believed that their family needs were addressed during the visit. In addition, the intervention was acceptable to providers. None of the providers reported feeling uncomfortable with parents handing them the survey during the visit.

The WE CARE intervention had a significant impact on provider referral rates for family psychosocial problems. In particular, parents in the intervention group had significantly greater odds of receiving referrals to community resources, such as GED programs, job training, food pantries, and smoking-cessation classes. The

TABLE 4 Referrals for Family Psychosocial Problems at WCC Visits Per Group Assignment

	%		Unadjusted OR (95% CI)	Adjusted OR (95% CI) ^a
	Intervention (n = 98)	Control (n = 95)		
Parents who received a referral	51.0	11.6	8.0 (3.8–16.7) ^b	6.7 (2.6–17.1) ^b
Parents who received a referral from the FRB	50.0	7.4	12.6 (5.3–29.9) ^b	10.5 (3.3–32.9) ^b
Referral type				
GED	20.4	1.0	24.1 (3.2–183.6) ^b	13.9 (1.8–108.3) ^b
Job training	25.5	5.3	6.2 (2.2–16.9) ^b	5.3 (1.6–17.2) ^c
Food pantries; food stamps/WIC	12.2	1.0	13.1 (1.7–103.0) ^c	10.1 (1.2–85.0) ^d
Homeless shelter services; rental assistance programs	14.3	4.2	3.8 (1.2–12.0) ^d	3.4 (1.0–11.9)
Counseling services; crisis hotline	6.1	2.1	3.0 (0.6–15.1)	2.4 (0.4–12.7)
Smoking-cessation classes	16.3	4.2	4.4 (1.4–13.8) ^c	3.6 (1.1–12.1) ^d
Alcohol/drug outpatient treatment programs	6.1	2.1	3.0 (0.6–15.1)	2.6 (0.5–13.1)
Domestic violence centers	1.0	0	1.0 (0.9–1.0)	NA ^e
Child care referral service; Head Start contact information	12.2	5.3	2.5 (0.8–7.4)	2.6 (0.6–10.9)
Recalled referral 1 month later	41.2	6.7	9.7 (3.8–24.6) ^b	10.4 (4.3–25.4) ^b
Contacted community resource	20.0	2.2	11.0 (2.5–49.2) ^b	17.3 (3.8–77.7) ^b

OR indicates odds ratio; CI, confidence interval; WIC, Supplemental Nutrition Program for Women, Infants, and Children.

^a Adjusted for child age, Medicaid, parent race, educational status, receipt of food stamps, and clustering by resident.

^b $P < .001$.

^c $P < .01$.

^d $P < .05$.

^e Not applicable; proportions were too small for the multivariable model.

survey likely served as a prompt to initiate provider discussion and referral. Previous studies have demonstrated the effectiveness of provider prompting in pediatric practice for improving immunization rates and asthma care.^{36,37} This method of prompting may be a useful model for pediatricians to employ to effectively address the “new morbidities” that children face.

In the subset of parents who reported receiving a referral immediately postvisit, 69% of parents in the intervention group, compared with 20% of parents in the control group, recalled receiving a referral at 1 month, suggesting that the intervention had a more meaningful and lasting effect. If a parent does not recall receiving a referral, then he/she is unlikely to have contacted community resources for assistance. Not surprisingly, the intervention also led to greater contact of referred resources in the community. Overall, 34% of referred intervention parents reported contacting a community resource. This finding indicates that the intervention had an important proximal impact on many parents, which potentially may lead to behavioral changes. In the adult literature, systematic reviews by the US Preventive Task Force have found good evidence that brief physician counseling had a positive impact on smoking,³⁸ alcohol abuse,³⁹ and depression²⁰; however, insufficient evidence for the effectiveness of drug use⁴⁰ or intimate-partner violence²¹ screening was found. Additional research will be needed to assess the potential impact that our intervention can have on both parental and child outcomes.

The most common reason cited for parents not contacting a resource was lack of time. It is unclear whether this was because of parents having other competing

demands on their time, such as child care and employment, or whether the family psychosocial problem was viewed as a low priority for parents. Additional research will be needed to explore and address this barrier to better facilitate low-income families’ ability to access and enroll into available resources.

There are limitations to the study. The study was conducted at a teaching hospital-based clinic, which may limit its generalizability to other ambulatory pediatric settings. However, ~21% of underserved children in the United States receive primary care at hospital-based clinics,⁴¹ indicating that our setting was a relevant place to study the intervention. Although most parent baseline characteristics were similar, there were differences between the groups with regards to parent education status, receipt of food stamps, and child age despite random assignment. This may have led to increased discussion and referrals in the intervention group. We are not aware of any systematic bias that would result in these differences, and our results were accordingly adjusted to account for these variables. Despite group randomization by clinic session, contamination between intervention and control providers may have occurred, resulting in findings toward the null hypothesis. Our results suggest that this was minimal. Although face validity, content validity, and reliability were assessed, the survey tool did not use previously validated screening questions and instead relied on parental self-report. This may have resulted in underreporting because of a social desirability bias and parental unwillingness to acknowledge sensitive psychosocial problems. Despite the potential underreporting, greater overall discussion and referral rates were found in the intervention group compared with

standard of care. Additional research is required to assess the criterion-related validity of the survey instrument. We do not have data on the content and style of the provider–parent discussion, which may have influenced parents’ adherence. It is unknown whether the discussion of family psychosocial problems may have displaced other important anticipatory guidance topics during the visit. (Relatively few referrals were made for sensitive topics [eg, depression and intimate-partner violence]. This suggests that residents may be less comfortable with addressing these subjects and may require further structured clinical training). Also, although we contacted all the community resources, the quality and efficacy of the resources were unknown. Finally, a recall bias may have occurred at the 1-month interview.

CONCLUSIONS

This study demonstrates the feasibility and effectiveness of addressing multiple family psychosocial problems during WCC visits for low-income children. We believe that the WE CARE intervention can serve as a model for addressing family psychosocial problems for medical homes that care for low-income children. Additional research will be needed to assess the long-term impact of family psychosocial screening interventions on parental outcomes and child health, behavioral, and developmental outcomes.

ACKNOWLEDGMENTS

This work was supported by grants from the Commonwealth Fund (New York, NY) and the National Research Service Award training grant from the Health Resources and Services Administration (T32HP10004).

We thank Ed Schor, MD, for contributions and thoughtful review of this manuscript.

REFERENCES

1. National Center for Children in Poverty. Basic facts about low-income children: birth to age 18. Available at: nccp.org/publications/pub_678.html. Accessed April 2, 2007
2. Alaimo K, Olson CM, Frongillo EA. Food insufficiency and American school-aged children’s cognitive, academic, and psychosocial development [published correction appears in *Pediatrics*. 2001;108:824b]. *Pediatrics*. 2001;108:44–53
3. Alaimo K, Olson CM, Frongillo EA, Briefel RR. Food insufficiency, family income, and health in US preschool and school-aged children. *Am J Public Health*. 2001;91:781–786
4. Weinreb L, Wehler C, Perloff J, et al. Hunger: its impact on children’s health and mental health. *Pediatrics*. 2002;110(4). Available at: www.pediatrics.org/cgi/content/full/110/4/e41
5. Casey PH, Szeto KL, Robbins JM, et al. Child health-related quality of life and household food security. *Arch Pediatr Adolesc Med*. 2005;159:51–56
6. Wood DL, Valdez RB, Hayashi T, Shen A. Health of homeless children and housed, poor children. *Pediatrics*. 1990;86:858–866
7. Wood D, Halfon N, Scarlata D, Newacheck P, Nessim S. Impact of family relocation on children’s growth, development, school function, and behavior. *JAMA*. 1993;270:1334–1338
8. Bassuk EL, Weinreb LF, Dawson R, Perloff JN, Buckner JC. Determinants of behavior in homeless and low-income housed preschool children. *Pediatrics*. 1997;100:92–100
9. Shonkoff JP, Phillips DA, eds. *From Neurons to Neighborhoods*. Washington, DC: National Academy Press; 2000
10. Tarter RE, Kabene M, Escallier EA, Laird SB, Jacob T. Temperament deviation and risk for alcoholism. *Alcohol Clin Exp Res*. 1990;14:380–382
11. Hill SY, Locke J, Lowers L, Connolly J. Psychopathology and achievement in children at high risk for developing alcoholism. *J Am Acad Child Adolesc Psychiatry*. 1999;38:883–891
12. American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. The new morbidity revisited: a renewed commitment to the psychosocial aspects of pediatric care. *Pediatrics*. 2001;108:1227–1230
13. American Academy of Pediatrics, Medical Home Initiatives for Children with Special Needs Project Advisory Committee. The medical home. *Pediatrics*. 2002;110:184–186
14. Green M, Palfrey JS, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. Arlington, VA: National Center for Education in Maternal and Child Health; 1994
15. Kogan MD, Schuster MA, Yu SM, et al. Routine assessment of family and community health risks: parent views and what they receive [published correction appears in *Pediatrics*. 2005;116:802]. *Pediatrics*. 2004;113:1934–1943
16. Hochstein M, Sareen H, Olson L, O’Connor K, Inkelas M, Halfon N. A comparison of barriers to the provision of developmental assessments and psychosocial screenings during pediatric health supervision [abstract]. *Pediatr Res*. 2001;49:24a
17. Olson AL, Kemper KJ, Kelleher KJ, Hammond CS, Zuckerman BS, Dietrich AJ. Primary care pediatricians’ roles and perceived responsibilities in the identification and management of maternal depression. *Pediatrics*. 2002;110:1169–1176
18. Kemper KJ. Self-administered questionnaire for structured psychosocial screening in pediatrics. *Pediatrics*. 1992;89:433–436
19. National Center for Education in Maternal and Child Health. *Bright Futures in Practice: Mental Health*. Washington, DC: National Center for Education in Maternal and Child Health; 2002
20. Pignone MP, Gaynes BN, Rushton JL, et al. Screening for depression in adults: a summary of the evidence for the US Preventive Services Task Force. *Ann Intern Med*. 2002;136:765–776
21. US Preventive Services Task Force. Screening for family and intimate partner violence: recommendation statement. *Ann Intern Med*. 2004;140:382–386
22. Statistical Package for Social Scientists. *SPSS User’s Guide to Version 13.0 Statistical Package*. Chicago, IL: SPSS Inc; 2006
23. *Stata Statistical Software* [computer program]. Release 9.0. College Station, TX: Stata Corporation; 2006
24. American Academy of Pediatrics Task Force on the Family. Family pediatrics: report of the task force on the family. *Pediatrics*. 2003;111:1541–1571
25. Kemper KJ, Babonis TR. Screening for maternal depression in pediatric clinics. *Am J Dis Child*. 1992;146:876–878
26. Olson AL, Dietrich AJ, Prazar G, et al. Two approaches to maternal depression screening during well child visits. *J Dev Behav Pediatr*. 2005;26:169–176
27. Olson AL, Dietrich AJ, Prazar G, Hurley J. Brief maternal depression screening at well-child visits. *Pediatrics*. 2006;118:207–216
28. Wall MA, Severson HH, Andrews JA, Lichtenstein E, Zoref L. Pediatric office-based smoking intervention: impact on maternal smoking and relapse. *Pediatrics*. 1995;96:622–628
29. Winickoff JP, Buckley VJ, Palfrey JS, Perrin JM, Rigotti NA. Intervention with parental smokers in an outpatient pediatric

- clinic using counseling and nicotine replacement. *Pediatrics*. 2003;112:1127–1133
30. Curry SJ, Ludman EJ, Graham E, Stout J, Grothaus L, Lozano P. Pediatric-based smoking cessation intervention for low-income women: a randomized trial. *Arch Pediatr Adolesc Med*. 2003;157:295–302
 31. Siegel RM, Hill TD, Henderson VA, Ernst HM, Boat BW. Screening for domestic violence in the community pediatric setting. *Pediatrics*. 1999;104:874–877
 32. Parkinson GW, Adams RC, Emerling FG. Maternal domestic violence screening in an office-based pediatric practice. *Pediatrics*. 2001;108(3). Available at: www.pediatrics.org/cgi/content/full/108/3/e43
 33. Perrin EC. Ethical questions about screening. *J Dev Behav Pediatr*. 1998;19:350–352
 34. Rushton FE; American Academy of Pediatrics, Committee on Community Health Services. The pediatrician's role in community pediatrics. *Pediatrics*. 2005;115:1092–1094
 35. American Academy of Pediatrics, Committee on Hospital Care. Family-centered care and the pediatrician's role. *Pediatrics*. 2003;112:691–696
 36. Minkovitz CS, Belote AD, Higman SM, Serwint JR, Weiner JP. Effectiveness of a practice-based intervention to increase vaccination rates and reduce missed opportunities. *Arch Pediatr Adolesc Med*. 2001;155:382–386
 37. Halterman JS, Fisher S, Conn KM, et al. Improved preventive care for asthma: a randomized trial of clinician prompting in pediatric offices. *Arch Pediatr Adolesc Med*. 2006;160:1018–1025
 38. US Preventive Services Task Force. Counseling to prevent tobacco use and tobacco-related diseases: recommendation statement. Available at: www.ahrq.gov/clinic/3rduspstf/tobaccoun/tobcounrs.htm. Accessed April 2, 2007
 39. Whitlock EP, Polen MR, Green CA, Orleans T, Klein J; US Preventive Services Task Force. Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: a summary of the evidence for the US Preventive Services Task Force. *Ann Intern Med*. 2004;140:557–568
 40. US Preventive Services Task Force. Drug abuse screening: recommendation statement. Available at: www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat3.section.10931#15313. Accessed April 2, 2007
 41. Weitzman M, Byrd RS, Auinger P. Children in big cities in the United States: health and related needs and services. *Ambul Child Health*. 1996;1:347–359

WE CARE SURVEY

Our goal at the Harriet Lane Clinic is to provide the best possible care for your child and family. We would like to make sure that you know all the resources that are available to you for your problems. Many of these resources are free of charge. Please answer each question with an "X" and hand it in to your child's doctor at the beginning of the visit. Thank You!

1. Do you have a high school degree?

YES

NO

YES

NO

MAYBE
LATER

If NO, would you like help to get a GED?

2. Do you have a job?

YES

NO

YES

NO

MAYBE
LATER

If NO, would you like help with finding employment?

3. Do you smoke cigarettes?

YES

NO

YES

NO

MAYBE
LATER

If YES, would you like help to quit?

4. Do you or does anyone else in your home use drugs?

YES

NO

YES

NO

MAYBE
LATER

If YES, would you like help with it?

5. Do you or does anyone else in your home have a problem with alcohol?

YES

NO

YES

NO

MAYBE
LATER

If YES, would you like help with it?

6. Are you feeling sad or hopeless a lot of the time?

YES

NO

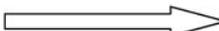
YES

NO

MAYBE
LATER

If YES, would you like help with it?

7. Does your partner hit or verbally abuse you? YES NO MAYBE LATER

YES If YES, would you like help? 

NO

8. Do you need daycare for your child? YES NO MAYBE LATER

YES If YES, would you like help finding it? 

NO

9. Do you think you are at risk of becoming homeless? YES NO MAYBE LATER

YES If YES, would you like help with this? 

NO

10. Do you need help in getting food by the end of the month? YES NO MAYBE LATER

YES If YES, would you like help with this? 

NO

In case your child's doctor cannot address all these issues at this visit, please rank the 3 items that you wish to talk about in order of importance.

1. Most important

2. 

3. Least important

Improving the Management of Family Psychosocial Problems at Low-Income Children's Well-Child Care Visits: The WE CARE Project

Arvin Garg, Arlene M. Butz, Paul H. Dworkin, Rooti A. Lewis, Richard E. Thompson and Janet R. Serwint

Pediatrics 2007;120;547

DOI: 10.1542/peds.2007-0398

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/120/3/547.full.html
References	This article cites 31 articles, 13 of which can be accessed free at: http://pediatrics.aappublications.org/content/120/3/547.full.html#ref-list-1
Citations	This article has been cited by 12 HighWire-hosted articles: http://pediatrics.aappublications.org/content/120/3/547.full.html#related-urls
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Development/Behavioral Issues http://pediatrics.aappublications.org/cgi/collection/development:behavioral_issues_sub Psychosocial Issues http://pediatrics.aappublications.org/cgi/collection/psychosocial_issues_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://pediatrics.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://pediatrics.aappublications.org/site/misc/reprints.xhtml

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2007 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

