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ARTICLE

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ABSTRACT

OBJECTIVES. The goals were (1) to determine the feasibility and yield of maternal depression screening during all well-child visits, (2) to understand how pediatricians and mothers respond to depression screening information, and (3) to assess the time required for discussion of screening results.

METHODS. Implementation of brief depression screening of mothers at well-child visits for children of all ages was studied in 3 rural pediatric practices. Two screening trials introduced screening (1 month) and then determined whether screening could be sustained (6 months). Screening used the 2-question Patient Health Questionnaire. Practices tracked the proportions of visits screened and provided data about the screening process.

RESULTS. Practices were able to screen in the majority of well-child visits (74% in trial 1 and 67% in trial 2). Of 1398 mothers screened, 17% had 1 of the depressive symptoms and 6% ($n = 88$) scored as being at risk for a major depressive disorder. During discussion, 5.7% of all mothers thought they might be depressed and 4.7% thought they were stressed but not depressed. Pediatric clinicians intervened with 62.4% of mothers who screened positive and 38.2% of mothers with lesser symptoms. Pediatrician actions included discussion of the impact on the child, a follow-up visit or call, and referral to an adult primary care provider, a mental health clinician, or community supports. Pediatrician time needed to discuss screening results decreased in the second trial. Prolonged discussion time was uncommon (5–10 minutes in 3% of all well-child visits and >10 minutes in 2%).

CONCLUSIONS. Routine, brief, maternal depression screening conducted during well-child visits was feasible and detected mothers who were willing to discuss depression and stress issues with their pediatrician. The discussion after screening revealed additional mothers who felt depressed among those with lesser symptoms. The additional discussion time was usually brief and resulted in specific pediatrician actions.

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Key Words
depression, maternal, primary care, screening

Abbreviations
EPDS—Edinburgh Postnatal Depression Scale
USPSTF—US Preventive Services Task Force
PHQ—Patient Health Questionnaire

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DEPRESSION IS ONE of most prevalent and disabling mental illnesses in the United States and is twice as likely to affect women as men.[1,2] Because rates of major depression among women peak during the childbearing years,[3] their children may suffer the consequences.

Many studies from infancy through adolescence show that a mother's depression affects her children adversely. Both clinical depressive disorders and subthreshold depressive symptoms have an impact on how effectively mothers can parent.[2] Maternal depressive symptoms are associated with fewer positive parenting behaviors and more negative interactions with young children.[4–6] Mothers with depressive symptoms are more likely to seek urgent care for their young child and to utilize more health services and are less likely to limit television watching, to read to their child, and to implement safety measures.[4,7–10] Over time, children raised in a home with a depressed parent are more likely to develop behavioral problems and depression.[11–14] Although postpartum, low-income, single, or young mothers may be at greater risk for depressive symptoms,[15–18] effects of depression are seen among mothers in all sociodemographic groups.

Frequent contacts with mothers during well-child visits give pediatric clinicians the opportunity to improve child outcomes by helping mothers when they are depressed. However, current approaches used by pediatricians to detect depression may be inadequate, because they usually rely on observation of symptoms (81%); only 8% of pediatricians ask routinely about maternal depressive symptoms.[19] During usual care, pediatricians have been shown to detect fewer than one half of the mothers who are depressed.[20] To remedy this, more-structured screening for depression during pediatric visits has been advocated.[21]

An efficient depression screening option is now available. The US Preventive Services Task Force (USPSTF) recommended that all adults receive depression screening with 2 questions that assess mood and anhedonia with follow-up services provided.[22] This 2-question screener has been well validated with psychiatric interviews.[23–25] Incorporation of this brief screener into the well-child visit is more realistic than incorporation of earlier, longer, screening measures,[17,26,27] which require more time to administer and to score. In preliminary studies, we determined that a paper-based, brief screening was well accepted by mothers and pediatricians were able to incorporate it into well-child visits.[28]

Currently, pediatricians report lack of time as a significant barrier to detecting and intervening for maternal depression.[19] Before routine screening for maternal depression by pediatricians is proposed, a better understanding of the number of mothers who would screen positive and the time required to discuss the screening results is needed. In addition to screening, referral for follow-up care is important. Pediatricians cannot be expected to make formal diagnoses for mothers who are not their patients. However, discussing the possibility of a depressive disorder and its impact on the child and providing referrals, when indicated, would be appropriate tasks for pediatric clinicians.

The purpose of this study was to estimate the proportion of mothers who screen positive, how pediatricians and mothers respond to this information, and the discussion time required when community practices incorporate routine depression screening into well-child visits. These issues were explored in 2 screening trials in community practices. In the first phase, we introduced screening in a 1-month trial. In the second phase, a 6-month trial was conducted to determine whether the approach could be used routinely.

METHODS

Study Design

The parental depression screening system was implemented in 2 phases, in 3 community pediatric practices, to determine its feasibility. First, practices attempted to implement screening for parental depression at all well-child visits for a 1-month pilot period (May to June 2003). After each screening encounter, clinician data about the interaction were collected. In the second phase, with additional funding support, these practices were part of a program to determine the feasibility of implementing the depression screening and referral system at all well-child visits for a longer period (6 months, from May to October 2004). Figure 1 summarizes the screening process and the time periods when clinician-reported data were collected.

The USPSTF endorses screening if systematic follow-up is provided for individuals with positive screening results.[22] Therefore, before implementation of the screening, discussion occurred within each practice to define practice and referral resources available to assist mothers who screened positive and needed additional assistance. The offices also had available posters, educational materials about depression, and information about self-help approaches for depression (eg, social support and exercise).

With the screening protocol, parental screening was conducted at all well-child visits, except in 1 practice that chose not to screen parents at adolescent health visits. Screening was not conducted at acute visits because providers thought time was too limited and parents were focused on their ill child. Information about the screening program was posted in the reception area. The nurses provided the paper screener to the parents as they prepared the child for the visit in the examination room. The screener required <1 minute for administration and parental completion. Clinicians were asked to discuss the screener findings during the visit. Referral for additional resources was based on parental preferences. All study data collected were anonymous. Because the screening

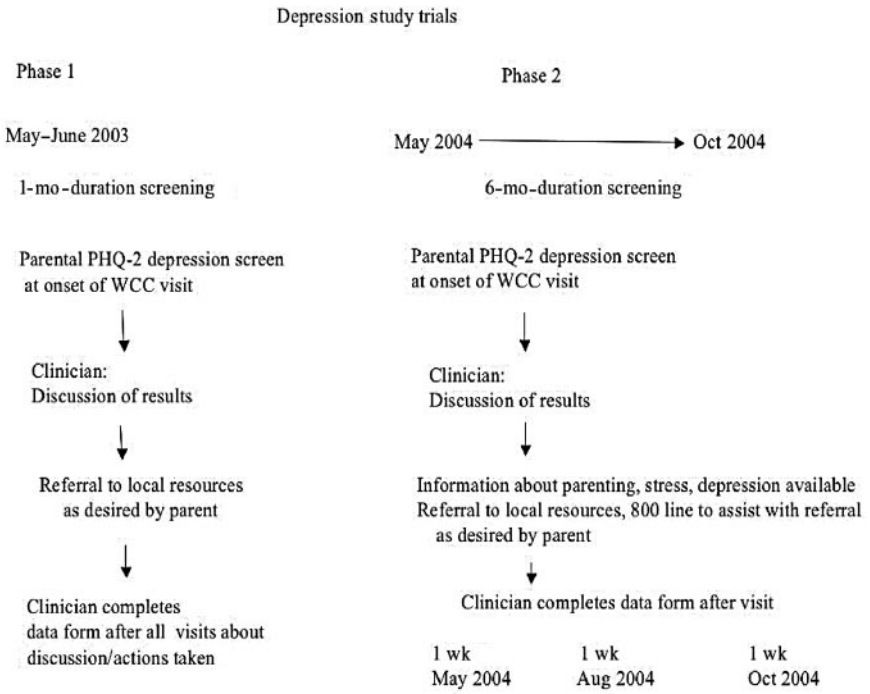

FIGURE 1
Study design for primary care depression screening and data collection in 2 phases. WCC indicates well-child care.

was part of clinical practice and data had no parental identification, written consent was not obtained. Our institutional human subjects review board approved the study protocol and waived written consent requirements.

The Screening Instrument

Initially, our group developed and tested both interview and paper formats to ask parents the 2 USPSTF-endorsed, screening questions. Because the paper format cued pediatricians to address the issue and had high parental acceptance and a better yield,[28] it was chosen for use in this study. Study question response choices addressed the frequency of symptoms, rather than offering yes/no responses, because recent work showed that this improved the measure's sensitivity and specificity.[25]

The depression screening instrument was a single, brightly colored page with an introductory paragraph for the parent explaining why the pediatric practice was screening parents (see Appendix). It stated that parental responses would be discussed during the visit. This was followed by Patient Health Questionnaire (PHQ)-2, which asked the 2 USPTF-endorsed questions about the key *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, determinants of depression, namely, altered mood and anhedonia (the inability to experience pleasure or interest in activities usually enjoyed), occurring in the previous 2 weeks. If parents reported either symptom, then they recorded their frequency from 1 to 3 (several days = 1, more than one half of the days = 2, nearly every day = 3). Summing the PHQ-2 items yielded scores ranging from 0 to 6.

The PHQ-2 is a depression risk screener derived from a longer, 9-item, self-administered, PHQ[29] depression diagnostic tool. The PHQ-2 has been validated in both primary care and obstetric populations and has been shown to perform as well as longer screening measures, in comparison with a research psychiatric interview. With a cutoff score of ≥ 3, it has a sensitivity for major depression of 83%, a specificity of 92%, and a positive likelihood ratio of 2.9.[24,25] This cutoff point was used in our study to identify screen-positive mothers who needed discussion of the findings. Pediatricians were informed that some parents who are at risk for major depressive disorders might not be detected with the cutoff point of 3. Discussion with mothers with lower symptom levels was at the discretion of individual providers and mothers.

Study Sites

The 3 participating primary care practices were in rural communities with populations of 6000 to 15 000. Medicaid was the payer for 25% of the patients in these practices. The median household income for these communities ranged from $35 600 to $49 000. Ninety-five percent of the population in these communities is white. The practices were members of Dartmouth's primary care practice-based research network, Clinicians Enhancing Child Health. There were 14 pediatricians (10.8 full-time equivalents) and 5 nurse practitioners (2.5 full-time equivalents). The number of pediatric providers per practice ranged from 4 to 10.

Evaluation

Practices provided weekly data on the number of well-child visits in their targeted age range, the number of screenings completed, and reasons for not screening, including parental refusal. Clinicians completed a 1-page data form about the interaction related to the screener for all encounters during the introductory, 1-month, screening trial. In the longer second trial, to reduce clinician burden and to incorporate screening into routine care realistically, clinician-reported data were collected only during well-child visits in three 1-week evaluation periods, in months 2, 4, and 6. Data collection by the pediatric providers focused on the information learned and the activities that occurred after screening. Clinicians provided data on the gender of the parent and child, the child's age, and the length of discussion about the screening results (none, <3 minutes, 3–5 minutes, 5–10 minutes, or >10 minutes). In addition, they completed a checklist of information learned from the discussion. The response options were as follows: parent does not think these issues of concern, parent feels stressed but not depressed at present, parent agrees may be depressed but does not wish to pursue at this time, parent agrees may be depressed and is willing to take additional action, and parent has history of mood disorder but is not on treatment. Current parental mental health treatment (medication or counseling) and actions taken at the visit, as well as comments, were documented. These data checklist items were developed from the range of free-text responses in our earlier study.[28] The data collection was designed not to lengthen the visit and to duplicate as closely as possible the type of information requested of, or available from, a parent during the child's visit. Parents provided responses to the screening questions without identifiers, and we did not collect other parental demographic data, such as age or income level.

Data Analysis

Only maternal data were analyzed in this report. Frequencies and sample characteristics were calculated overall and for each screening trial. When no significant differences existed between the 2 trials for an item, data from the 2 trials were combined and analyzed together. Analyses were conducted with the χ^2 test and Fisher's exact test for categorical variables and the t test and Pearson's correlation for continuous variables. Variation at the practice level was examined in bivariate analyses for depression screening responses, discussion time, and maternal responses. For the outcome of referral for additional assistance, a binary logistic regression model was developed to determine which information obtained predicted maternal referral. Encounters with missing data were excluded from this analysis. To adjust for clustering according to practice influencing provider referral predictors, practice site was included in the model. Child's age was the most commonly missing variable in the model ($n = 100$) and did not change the outcomes if omitted. Analyses were conducted with SPSS version 11 software (SPSS, Chicago, IL)

RESULTS

Screening Rates

There were 1366 opportunities for well-child screening during screening period 1 (1 month) and 1213 opportunities during screening period 2 (3 weeks assessed during the 6-month period). Figure 2 shows the proportions of visits with depression screening completed and visits with maternal data available for analysis. These pediatric practices were able to perform screening in most well-child encounters. Practices also were able to sustain screening over time. Screening rates during the initial 1-month trial of screening (74%) and during 6 months of ongoing screening (67%) were similar. The screening rates increased gradually in the second phase (64%, 67%, and 70% for the 3 assessment weeks). The introduction of screening into the practices was well received, with few parents declining. The most common reason for screening interruption was short-term changes in staffing patterns. This report describes maternal screening results (848 in period 1 and 550 in period 2) with clinician-completed data on the encounter. Data on the age of the child were entered for 814 encounters in the first screening phase and 477 in the second phase. There were no significant differences in the age distributions in the 2 time periods, with 30.9% of visits for children ≤12 months of age, 29.2% for children 1 to 5 years of age, 27.8% for children 6 to 12 years of age, and 11.7% for children ≥13 years of age.

Results of Screener

Overall, 237 mothers (17%) had a positive response to 1 of the screening items, indicating in the past 2 weeks that they had 1 of the depressive symptoms (down, depressed, or hopeless; little interest or pleasure in doing things). Although some depressive symptoms were common, only 6% of mothers had higher symptom levels (scores of ≥3), resulting in a positive depression screen. The responses in Table 1 did not vary significantly between the 2 screening trials or according to practice site or child's age. Mothers of younger children (<6 months, <1 year, or <5 years of age) were no more likely than mothers of older children to screen positive or to have any depressive symptoms. Among all mothers, 7.3% had symptom scores of 1, 3.6% had scores of 2, 2.1% had scores of 3, 1.9% had scores of 4, 0.6% had scores of 5, and 1.4% had scores of 6. The average depressive symptom score also did not vary significantly according to practice site.

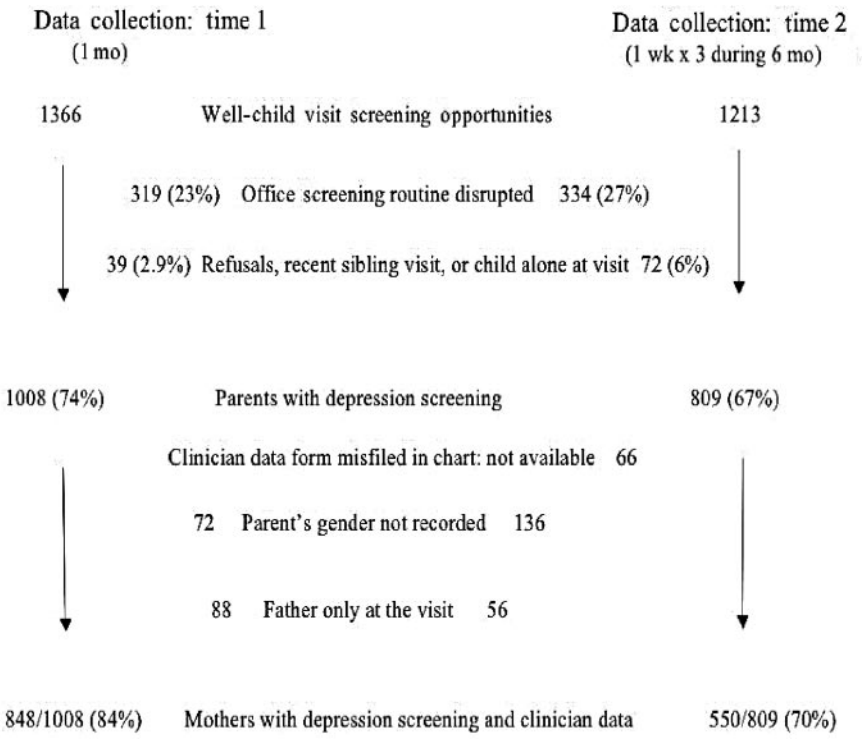

FIGURE 2
Primary care implementation of depression screening and data collection.

TABLE 1 **Maternal Depression Screening Results for Data Collection During the 2 Screening Phases**

	No. (%) in 1- and 6-mo Trials Combined (n = 1398)
Felt down, depressed, or hopeless in past 2 wk	225 (16.1)
Little interest or pleasure in doing things in past 2 wk	129 (9.2)
Either symptom present in past 2 wk	237 (17.0)
Screen positive for depression (scores of 3-6)	85 (6.1)

Pediatric Provider Discussion Time With Depression Screening

Pediatric provider time involved after screening is summarized in Table 2. For most well-child visits, discussion time responding to the screening was minimal. Eighty-five percent of visits with screening in the first time period and 89.6% in the second time period required either no additional time or <3 minutes. The discussion time decreased significantly in the 6-month screening trial, compared with the earlier 1-month trial. Pediatrician discussion time was correlated with symptom levels on the screener (r = 0. 50; $P < .0001$), but discussion was not limited to mothers who screened positive at scores of ≥3. The screening process resulted in discussion between pediatric providers and mothers who had lower symptom levels, as well as mothers who screened positive (discussion time of >5 minutes for 17.1% [36 of 152 mothers] with scores of 1 or 2, compared with 36.5% [31 of 85 mothers] with scores of 3 to 6).

TABLE 2 **Pediatric Provider Screening Discussion Time With Mothers During the 2 Screening Trials**

Discussion Time	No. (%)		P
	1-mo Screening Trial (n = 848)	6-mo Screening Trial (n = 550)	
None	460 (54.3)	387 (70.4)	<.001
<3 min	262 (30.9)	106 (19.3)	<.001
3-5 min	92 (10.8)	26 (4.7)	<.001
5-10 min	22 (2.6)	21 (3.8)	NS
>10 min	12 (1.4)	10 (1.8)	NS

NS indicates not significant ($P \geq .05$).

Maternal Responses to Screening

Maternal responses during discussion with clinicians are summarized in Table 3 for both mothers who screened positive and mothers with lower levels of depressive symptoms. There were no significant differences in responses between the 2 screening periods. During discussion, 56.5% of the 72 mothers who screened positive thought they might be depressed and 83.5% of those mothers were willing to take action. There was significant variation between practices in the numbers of mothers who felt depressed and were willing to take action (21–60%; $P < .05$). Although similar proportions of mothers perceived themselves as stressed, mothers at lower symptom levels were more likely to see themselves as stressed rather than depressed. However, a sizable proportion (29.4%) of mothers with symptom scores of 1 to 2 thought they might be depressed. The discussion of symptoms was initiated by pediatric clinicians when desired by mothers with scores of 1 to 2. Discussion of low-level symptoms varied according to

TABLE 3 **Maternal Responses to Screening for Women With Low-Level Depressive Symptoms and Women Who Screened Positive ($n = 208$)**

	No. (%)		*P*
	Low-Level Symptoms (Score of 1 or 2) ($n = 136$)	Screen Positive (Score of 3-6) ($n = 72$)	
Mother feels stressed not depressed			
Yes	46 (33.8)	20 (27.8)	NS
No	90 (65.8)	52 (72.2)	
Mother thinks she might be depressed but is not willing to pursue now			
Yes	12 (8.8)	6 (8.3)	NS
No	124 (91.2)	66 (91.7)	
Mother thinks she might be depressed and is willing to take action			
Yes	28 (20.6)	34 (47.2)	<.001
No	108 (79.4)	38 (52.8)	
Mother has history of mood disorder and is not currently receiving treatment			
Yes	13 (9.3)	11 (15.2)	NS
No	123 (90.4)	61 (84.7)	
Mother is currently receiving treatment (medication and/or counseling)			
Yes	28 (18.4)	30 (35.3)	<.01
No	124 (81.6)	55 (64.7)	

Twenty-nine mothers with depressive symptoms were excluded because of incomplete discussion data. NS indicates not significant.

practice (from 6% to 33% of those mothers). Discussion did not vary according to practice when scores were ≥3. This discussion of low-level symptoms resulted in nearly twice as many mothers who acknowledged that they might be depressed than if we had provided pediatricians with information only on the screen-positive mothers. Mothers also shared information about their history of mood disorders and current treatment. We do not have data on their length of treatment. Among mothers currently under treatment by their primary care provider or a mental health clinician, 30.9% (30 of 97 mothers) had positive depression screening scores of ≥3.

Clinician Responses to Screening Results

When mothers had depressive symptoms, pediatric clinicians took a number of action steps, including referral, discussion of the impact of depression on their child, and follow-up monitoring via telephone or a later visit. These actions did not differ significantly between trials. Table 4 shows how the responses varied according to symptom levels for the combined trials. As expected, providers were significantly more likely to act when mothers had positive screening results (62.4%), but they also assisted mothers with lower symptom levels (38.2%). There was variation between practices in the

TABLE 4 **Pediatric Provider Clinical Actions for Mothers With Low-Level Depressive Symptoms and Mothers Who Screened Positive ($n = 237$)**

	No. (%)		*P*
	Low-Level Symptoms (Score of 1 or 2) ($n = 152$)	Screen Positive (Score of 3-6) ($n = 85$)	
Discussed impact on child			
Yes	39 (25.7)	34 (40)	<.05
No	113 (74.3)	51 (60)	
Referral to primary care physician, mental health professional, or community support			
Yes	36 (23.7)	36 (42.4)	<.01
No	116 (76.3)	49 (57.6)	
Follow-up visit or telephone call planned			
Yes	10 (6.6)	11 (12.9)	NS
No	142 (93.4)	74 (87.1)	
Any of these clinician actions			
Yes	58 (38.2)	53 (62.4)	<.001
No	94 (61.8)	32 (37.6)	

NS indicates not significant.

referral of mothers with lower symptom levels (ranging from 21% to 45%; $P < .05$).

A logistic regression analysis determined which maternal information items available to the pediatric providers from the discussion explained their referral to the mother's primary care provider or a mental health clinician, after controlling for practice variation (Table 5). The mother's response that she might be depressed and wished to take action was clearly the major factor. However, the following factors were influential and were also significant independent predictors, after controlling for practice site: level of symptoms on the screener, mothers who thought they were either stressed or depressed but did not want to pursue it now, and mothers with a past history or current mental health treatment.

DISCUSSION

Findings from this study suggest that maternal depression screening during well-child visits is feasible and adds significant value. Approximately 1 of 20 mothers would screen positive with the PHQ-2 depression screener. Of our >1300 screens with clinician follow-up data, almost 10% led to a specific clinician action, typically referral or discussion of the impact of the mother's emotional state on the child. Clinician time demands were modest, with most screenings requiring no additional discussion, 20% to 30% requiring brief discussion (<3 minutes), and only 4% to 5% requiring longer discussion.

Clinicians were able to screen in ~70% of well-child visits in the 2 trials. Higher screening rates were obtained when clinicians and nurses integrated the screening forms into their daily routines completely. Screen-positive rates were similar in the 2 screening periods. Providers seemed to become more efficient in the second trial, taking less time while continuing to assist the same proportion of mothers.

One strength of this study is that it evaluated the implementation of routine screening in community private practices and not academic teaching practices involving less-experienced trainees. It also examined the clinician and mother responses to screening and not just screening results. To our knowledge, this study is the first to explore the time required and visit interactions as a result of routine maternal depression screening.

There are certain limitations of this study. This study was conducted in 1 region, in a small number of practices located in small towns. How would these results generalize to other settings? A study by Grupp-Phelan et al[30] that screened for maternal depression in both inner-city primary care and emergency department settings used the 9-question version of the PHQ. We can compare our results with the results of that study because, as a screener, the PHQ-9 performs similarly to the PHQ-2 used in this study. In that urban setting, 9% to 10% of mothers screened positive as being at risk for a major depressive disorder, compared with our private practice settings, where 6% of mothers screened positive as being at risk for major depression.[30] Kemper and Babonis,[31] using the short version of the Rand screener, also had 50% more mothers screen positive for maternal depression in an urban teaching clinic than in private practice settings. Therefore, in an urban, low-income, clinical setting, a 50% increase in clinician screening discussion time might be expected. For screening to be effective in clinical settings serving predominantly low-income families, with fewer household resources and supports, additional on-site social service supports and referral resources may be required.

Because the study aim was to determine whether depression screening could be incorporated into routine well-child care, the clinician data collected were limited to readily available information and did not involve obtaining consent for follow-up monitoring. Although clinicians included comments about other psychosocial information learned (eg, marital issues, alcoholism, domestic violence, or death in the family), these psychosocial data were not collected systematically. With this study design, we could not determine mothers' views of the screening process or actions on the referrals. Previous research showed that mothers are receptive to their pediatricians discussing the mothers' mental health,[32] particularly in the context of an ongoing relationship.[33] Clinicians in this study gave us feedback, in this study and earlier studies, that parents in their practice viewed this screening approach positively. The clinicians received comments that the parents were glad someone cared and the clinicians' help had made a difference in the parents' lives. It will be important in future research to learn more about the brief clinician interactions (eg, the best approach to discussing different symptom levels) and what aspects of the encounter determine whether the mother is willing to consider depression and to seek help. Ultimately, it will be important to study

TABLE 5 **Predictors of Pediatric Clinician Referral of Mother to Primary Care Provider, Mental Health Clinician, or Community Supports, Adjusted for Practice ($n = 1271$)**

	Odds Ratio (95% CI)	*P*
Mother thinks she might be depressed and is willing to take action	28.3 (12.0-66.9)	<.001
Mother thinks she might be depressed but does not want to take action	5.0 (1.3-18.7)	.02
Mother feels stressed not depressed	3.9 (1.6-9.6)	.004
Mother has history of mental health problems	7.5 (2.4-23.4)	<.001
Mother is currently receiving treatment (medication and/or counseling)	2.7 (1.2-6.1)	.014
Depressive symptom score	1.7 (1.4-2.0)	<.001
Age of child	0.99 (0.92-1.06)	.78

Practice site was a significant covariate predictor and was controlled for in the model ($P = .03$).
CI indicates confidence interval.

whether better maternal and child outcomes occur as a result of primary care screening.

The approach to screening used in this study may offer clinicians a more-effective way to detect mothers at risk for depression (see Appendix for our recommended screening form). Pediatric clinicians have faced challenges when using other approaches to detect depression in the family. The most commonly used approaches of observation or selective inquiry about symptoms have been shown to have a low yield when used by pediatricians.[20] Use of a longer depressive symptom screener is difficult because the additional time needed to complete and to score the screener may be too long for busy clinicians. Even a 10-item measure such as the Edinburgh Postnatal Depression Scale (EPDS) can be challenging to complete. Chaudron et al[34] reported that screening occurred in 46% of visits and 31% of screening forms (28 of 90 forms) either were not scored by providers or were scored inaccurately when the 10-item EPDS was implemented at infant well visits.

Screening for depression raises some issues for clinicians. First, clinicians have voiced the concern that the resulting discussions would lead routinely to lengthy well-child visits. This study showed that screening did not require discussion at most visits and usually did not result in prolonged visits. Our clinicians commented that the information learned in the discussion about the family, psychosocial stressors, and mother's status was important to them in providing appropriate care to the child and was worth the time invested. Incorporation of screening into other longer visits would be appropriate.

Second, limited formal mental health resources may present a challenge. However, there are many precipitants for these mothers, and not all mothers need or chose to use mental health services. A variety of resources and options, rather than only traditional mental health services, should be used to meet mothers' needs. Our practices reported that many mothers used adult primary care and obstetric providers, social services and other community programs, pastoral counseling, and friend and spouse support.

Third, many depressed mothers already feel isolated, guilty, and less competent as a parent. It is important that depression screening and discussion be a supportive and not judgmental process. Pediatricians who are supportive and empathetic and provide practical assistance with child behavioral and developmental issues can help reduce and not increase mothers' self-blame.

National recommendations have emphasized the role of pediatricians in detecting postpartum depression, with less emphasis on depression among other mothers.[35] Recently, comprehensive analyses of studies with diagnostic interviews showed that the prevalence of major depression is the same for postpartum women as for other women with children. The analyses showed that the point prevalence for major depression at different times during the first postpartum year ranged from 1% to 5.9%.[36] The point prevalence of major and minor depression combined varied between 6.5% and 12.9% in the first year.[36] Although our data were limited in the number of young infants <3 months of age, we also found no differences in positive screening results or depressive symptoms according to the age of the child.

This study produced lower screen-positive rates than did other screeners used in pediatric primary care. There are several possible reasons, beyond sociodemographic variation. The EPDS rates might be higher because the EPDS detects both anxiety and depressive symptoms. Factor analysis showed that, in the postpartum period, 38% of the total score was accounted for by 3 anxiety questions.[37] Differing EPDS cutoff points (scores of 10–13) are used, and higher screen-positive rates for the EPDS (20%) are noted in pediatric primary care when a lower threshold (scores of ≥10) for positive screening results is used.[34] The 3-item Rand screener has higher screen-positive rates but assesses a longer time period of 1 to 2 years, rather than focusing only on current symptoms like the PHQ-2.[31] The PHQ-2 is being used widely in adult clinical care settings, and additional investigations comparing the PHQ-2 with the EPDS in the prenatal and early postpartum periods are needed.

It is important to remember that the screening process in this study informed providers about mothers at higher risk for a clinical depressive disorder but did not provide a definitive diagnosis. In primary care and obstetrics/gynecology settings, 75% of patients who screened positive had a depressive disorder and 38% had major depression.[25] It is important for pediatricians to be aware of both groups when caring for the children, because depressive symptoms as well as major depression may affect parenting practices negatively, may result in behavioral problems, and may increase utilization of health care.[38,39] Individuals with subthreshold depression have poorer functioning in daily life, feel they have difficulty caring for their child, and are at higher risk of developing a major depressive disorder in the next year.[30,40,41] If it was desired by mothers, pediatricians discussed depression issues with any symptoms. The tested screening process seems to have triggered discussions with pediatric clinicians that led to actions for mothers who self-identified that they might be depressed even without positive screening results. Therefore, the screener supported an appropriate pediatric role of engaging mothers in a discussion of whether they might be depressed, discussing the impact on the child, and encouraging mothers to receive follow-up services.

CONCLUSIONS

We have introduced a new, brief, effective approach to detecting mothers at risk for depression. Determination of maternal and child health outcomes requires additional study. Our findings are consistent with earlier

studies showing that maternal depression is an important issue throughout childhood. The choices that pediatric practices make about whether to use a structured screening approach ultimately are made on the basis of perceived value for the time invested. The time spent helping depressed mothers function better may pay preventive dividends in the child's mental health and healthy development. We hope that our findings help pediatric clinicians detect mothers at risk for depression, with realistic expectations about the time and parent-clinician interaction involved in implementing routine maternal depression screening.

APPENDIX: SCREENING FORM

Depression is a common but treatable illness that occurs more often among parents. Many people who suffer don't realize they have a medical disease and could benefit from treatment.

The US Preventive Services Task Force recommended that all adults be checked for depression when they see a doctor. Parents of children who are cared for in this practice may see us more often than any other health care provider. The Task Force is considered the authority on preventive health care and we believe it is wise to follow their advice. It's our job because, if a parent is depressed, their child is affected. The child does better if the parent gets help.

For this reason, please take a minute to respond to the 2 statements below. We'll then take a look at your responses together during this visit.

Over the past 2 weeks, you have felt down, depressed, or hopeless (true or false).

If true, have you felt this way for (several days, more than half the days, or nearly every day)?

Over the past 2 weeks, you have felt little interest or pleasure in doing things (true or false).

If true, have you felt this way for (several days, more than half the days, or nearly every day)?

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