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Increasing Participation by Private Physicians in the EPSDT Program in Rural North Carolina

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Synopsis

This study evaluated a method to increase physicians' participation in Early and Periodic Screening, Diagnosis and Treatment (EPSDT), a preventive health care program for Medicaid eligible children. Use of EPSDT can improve children's health status and reduce health care costs. Although the potential benefits of EPSDT are clear, the program is underused; low rates of participation by private physicians contribute to underuse.

This study targeted a population of 73 primary care physicians in six rural counties in North Carolina where the physician supply, their participation in EPSDT, and use of EPSDT were low. A mailed intervention packet attempted to address barriers to participation perceived by private providers. The packet consisted of a carefully constructed letter, an informative journal article, and an educational pamphlet. Participation in EPSDT screening increased from 15 to 25 private physicians (67 percent), at a cost, on average, of less than \$30 per recruited provider. Suggestions are presented for adapting the intervention packet to other settings.

CREATED BY THE 1967 AMENDMENTS to the Social Security Act, the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Program provides comprehensive diagnostic and treatment services for Medicaid-eligible children from birth to age 21. EPSDT has been shown to improve children's health status and reduce health care costs (1-6). Though the benefits of the EPSDT Program are clear, only 31 to 37 percent of all eligible children in the United States receive EPSDT screenings (7,8). The low use of EPSDT is partially attributable to a low rate of participation in the program by private physicians (9).

Reasons for physicians' nonparticipation appear to relate to low reimbursement levels and perceived bureaucratic constraints within the Medicaid system (9-17). States have been encouraged to eliminate or reduce such barriers, and through the Omnibus Budget Reconciliation Act (OBRA) of 1989 (P.L. 101-329), have been mandated to improve use of EPSDT. In North Carolina (NC), the Division of Medical Assistance, NC's Medicaid agency, has responded by making Medicaid participation more "provider-friendly." Provider relations representatives hold orientation sessions for providers or their office personnel, offer consultation and, if re-

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quested, visit the physician's office and assist in setting up the billing system. The Medicaid agency also publishes a newsletter to keep providers informed of programmatic changes. In addition, the agency has minimized the paperwork required for EPSDT reimbursement. NC's reimbursement rate, roughly 90 to 100 percent of actual charges, is comparable to rates in other southeastern States. Reimbursement is relatively speedy; a check is sent within 17 days of receipt of a claim.

Despite the provider-friendly Medicaid climate in NC, private physician participation in EPSDT remains low, and public health departments bear a major burden of providing EPSDT screenings. In NC and a number of other States, chronically underfunded health departments face budget reductions because of State revenue shortfalls, making it unlikely that health departments alone can meet the OBRA mandate for increased EPSDT screenings. Determining the utility and costs of a method for recruiting private physicians to aid overburdened health departments in providing EPSDT screenings was the goal of this study. The project, Phase I of the federally funded "Healthy Kids Project" to improve EPSDT utilization in rural areas, targeted six rural counties where physician supply, physician participation in the EPSDT Program, and EPSDT use were all low.

Physician Supply in NC and Rural Areas

In the rural United States, despite numerous efforts to correct imbalances in the geographic distribution of physicians, access to medical care for EPSDT or other services remains limited (18,19). Access is especially limited in the rural South (20). In NC, where nearly half the population lives in rural areas and where 84 of the State's 100 counties are rural (21), most Health Manpower Shortage Areas also are rural. While the overall supply of physicians in the United States increased from 207 physicians per 100,000 population in 1985 to 222 per 100,000 in 1989, physician supply in NC fell from 169 to 160 per 100,000 (22,23). Even that low ratio obscures the severity of the problem. Within the State, physician-to-population ratios

range more than 30-fold, from 658 physicians per 100,000 population in an urban county with major medical centers to 18 per 100,000 in a rural county (22).

Nationwide, shortages are particularly acute in primary care. These shortages are of special concern because of the need for preventive services for children (19). Children in low-income families, including those who rely on Medicaid for health services, are at especially high risk for health problems. Many physicians, even in nonshortage areas, choose not to provide services through the Medicaid Program (14,24). The Healthy Kids Project addressed this barrier to EPSDT use by testing a relatively simple, potentially replicable method of recruiting physicians to become providers of EPSDT screenings through the Medicaid Program.

Research Model

The approach of the Healthy Kids Project is guided by an adaptation of the PRECEDE framework for planning health education programs (25). The adapted model is described in detail elsewhere (26). Briefly, the model indicates that, if health education interventions are to succeed, the interventions must consider predisposing, reinforcing, and enabling factors that contribute to the behavioral causes of the identified problem. In the Healthy Kids Project, the identified problem is the unfavorable health status of NC's rural poor children. The specific behavioral cause being addressed is families' nonuse of the EPSDT Program; when used, the program has been shown to improve health. Predisposing factors include demographic characteristics as well as knowledge, attitudes, and perceptions that predispose parents for or against use of EPSDT for their children. Reinforcing factors are professional and interpersonal actions that encourage and reward EPSDT use. Enabling factors are structural supports or barriers to EPSDT use.

The emphasis in Phase I of the Healthy Kids Project was on the enabling factors. Before testing interventions to encourage parents to bring their children for EPSDT screenings (Phase II of the project), the project staff focused on increasing the availability and accessibility of EPSDT screenings. Rather than expecting already overloaded health departments to stretch their limited resources even further, the project sought to increase availability and accessibility of services by recruiting private physicians to provide EPSDT screenings.

Table 1. Physician supply and participation in the Early and Periodic Screening, Diagnosis and Treatment Program (EPSDT) and rate of EPSDT use before intervention, 1990

Geographic area and type of physician	Physicians per 100,000 population ¹	Population served by 1 physician ¹	Physicians participating in EPSDT ²	EPSDT use rate (percent) ³
Bladen County	...	...	...	29.6
All physicians	52	1,932	...	...
Primary care physicians	36	2,810	2 of 7	...
Columbus County	...	...	...	8.8
All physicians	70	1,436	...	...
Primary care physicians	45	2,214	0 of 12	...
Hoke County	...	...	...	29.3
All physicians	28	3,534	...	...
Primary care physicians	28	3,534	0 of 4	...
Johnston County	...	...	...	30.0
All physicians	64	1,572	...	...
Primary care physicians	43	2,335	4 of 21	...
Person County	...	...	...	28.5
All physicians	41	2,428	...	...
Primary care physicians	32	3,157	1 of 6	...
Randolph County	...	...	...	38.0
All physicians	64	1,567	...	...
Primary care physicians	35	2,874	8 of 23	...
North Carolina	...	...	...	34.3
All physicians	160	625	(*)	...
Primary care physicians	68	1,471	(*)	...
United States	...	...	...	⁵ 31.4
All physicians	222	450	(*)	...
Primary care physicians	70	1,420	(*)	...

¹ SOURCES: "North Carolina Health Manpower Data Book. A Special Report on Health Care Resources in North Carolina." Health Services Research Center, University of North Carolina, Chapel Hill, 1989, and D. A. Kindig and H. Movassaghi: "The Adequacy of Physician Supply in Small Rural Counties." Health Affairs 8: 67 (1989).

² Numerator is the number of primary care physicians providing EPSDT screens before Phase I of the Healthy Kids Project, May 1990. The denominator is the number of primary care physicians practicing in the county. Data were supplied by the North Carolina Board of Medical Examiners and verified by Healthy Kids Project staff, May 1990.

³ Children screened as a percent of eligibles, State fiscal year 1989-90, by county. SOURCE: North Carolina Division of Medical Assistance, 1990, Raleigh.

⁴ There are no records of physician participation in EPSDT for either North Carolina or the United States as a whole; there is no requirement to tabulate these records at the State level.

⁵ SOURCE: Table 6. State EPSDT performance indicators 1988. In "Report on 1989 Maternal-Child Health Federal Legislation." Children's Defense Fund, Washington, DC, 1990.

Methodology

Phase I of the Healthy Kids Project was set up in a one-group pre-experimental design to assess the impact of mailed recruitment materials on physicians' willingness to provide EPSDT screenings. Institutional Review Board approval was obtained for conduct of the project. IRB approval would not be required in most settings, however, since the recruitment effort may be considered a part of normal agency practice.

Setting. The Healthy Kids Project is a collaborative research effort of the University of North Carolina at Greensboro, University of North Carolina at Chapel Hill, NC Division of Medical Assistance, NC Center for Health and Environmental Statistics, and the departments of health and social services in six rural NC counties. The counties are poor, and a high percentage of homes lack indoor plumbing (27). Less than half the population com-

pletes high school (28). The Medicaid population has a large number of female heads of household, most of whom are nonwhite (mostly black, but also Lumbee Indian). Rates of pregnancy for teens and rates of out-of-wedlock births are high (29). In all six counties, EPSDT utilization is low, as is the physician supply and physician participation in EPSDT. Table 1 shows the ratio of physicians per 100,000 population, the standard unit for this indicator, as well as the ratio of population per physician, a more descriptive statistic for areas with less than 100,000 population.

Target population. The project targeted all 73 primary care physicians practicing in the six counties in settings that might provide EPSDT screenings, that is, pediatric, family, general, or internal medicine practices. Nurse practitioners were not targeted because in NC they are required to practice with physician supervision and thus are governed by physicians' practice decisions. The target popula-

Table 2. Detailed costs of implementing the intervention to 73 physicians

<i>Cost component</i>	<i>Dollar cost per intervention</i>
Base costs, total	\$2.65
Mailing list (\$25 total).....	.34
Printing pamphlet .....	.34
Printing letter .....	.10
Photocopying article .....	.17
Postage .....	.45
Typing, stuffing, and mailing @ 9 person-minutes (\$8.36 per hour).....	1.25
Mail followup costs (total)	1.06
Envelope and postcard .....	.03
Postage .....	.40
Typing, stuffing, and mailing @ 4.5 person-minutes (\$8.36 per hour).....	.63
Telephone followup costs: calls to 45 physicians @ 15 person-minutes (\$8.36 per hour) ..	1.29

NOTE: Personnel costs include wages and fringe benefits for clerical personnel in accordance with NC salaries. Multiple phone calls were needed to reach the 45 physicians who did not return the postcard promptly; actual conversation time was considerably less than 15 minutes. Personnel costs of phone calls to the 45 physicians are allocated across 73 physicians. Phone charges are not itemized since these were local calls in most settings.

tion was identified from a listing of physicians registered with the NC Board of Medical Examiners when the intervention was conducted. Before implementing the intervention, project staff called the physicians' offices to verify that they currently were practicing in the study counties and to determine whether the physicians provided EPSDT screenings (table 1).

Description of intervention. The mailed recruitment packet consisted of a letter, an article from the North Carolina Medical Journal, and a pamphlet used for educating parents about EPSDT. Packets were sent to all 73 physicians, both EPSDT providers and nonproviders, in May 1990.

The two-page personal letter, signed by the nurse who was the principal investigator of the Healthy Kids Project, briefly described EPSDT and the project. It emphasized the need to increase EPSDT use in the physician's county and assured the physician that seeing one EPSDT client would not incur an obligation to see unlimited numbers. It included information about reimbursement, described the State Medicaid office's provider assistance program, and listed persons to contact for further information or enrollment. The letter sought to answer potential questions about EPSDT Program requirements and to assure physicians that participation in EPSDT need not involve major additional effort.

The article (30) explained Medicaid from the

physician's perspective, discussing its purposes, eligibility requirements, and administration and describing NC's procedures for physicians to become Medicaid providers and receive payment for services. The article included a statement by the president of the NC Medical Society about the need for physicians to support the Medicaid Program. This article was included in the packet to present basic information about Medicaid, relevant to physician participation, and to provide evidence of organizational support for the Medicaid Program.

The pamphlet, used to educate parents about EPSDT in Phase II of the project, was developed in accordance with the adapted PRECEDE model (26). Although designed to appeal especially to nonwhite parents on Medicaid, it included information relevant to providers. The pamphlet indicated that EPSDT is available to all Medicaid-eligible children from birth through age 20, specified the main components of the EPSDT screen, listed the periodicity schedule for screenings, and explained that assistance with transportation and appointments is available for EPSDT visits. Because the pamphlet was designed for parents, it also told providers what parents might know and expect of EPSDT services.

Evaluation. Four months after the intervention, a followup mailing from the project office asked the 73 targeted physicians to return a postcard indicating whether they were willing to be included on a list of EPSDT providers to whom public health nurses could refer clients for EPSDT screening. Project staff members made phone calls to 45 physicians' offices that did not return the postcard within 2 weeks. When the physicians or their office representatives were reached, staff members also attempted to ask those who became EPSDT providers why they chose to do so and to ask those who did not why they chose not to. To avoid contaminating the evaluation of the recruitment packet as mailed, staff members were instructed *not* to clarify information from the packet or to make any additional efforts to recruit physicians during the phone call.

The major analysis examined changes in EPSDT provider status from before to after the recruitment intervention. Records of costs (table 2) provided the basis for calculating the dollar cost to recruit a new EPSDT provider. The cost analysis excluded the design of the intervention packet, since this cost would not be incurred in repeating the implementation. (In this project, the design cost totalled approximately \$4,000; most of this amount was

Table 3. Effectiveness and cost-effectiveness in achieving increases in primary care physicians' participation in EPSDT screenings from pre- to post-intervention, by county

County	Number of primary care physicians	Physicians providing EPSDT screenings				Dollar cost per physician recruited ¹		
		Pre-intervention		Post-intervention		With followup		
		Number	Percent	Number	Percent	Base cost	Mail	Mail and phone
6-county total	73	15	21	25	34	\$19.35	\$27.08	\$36.50
Bladen	7	2	29	5	71	6.18	8.66	11.67
Columbus	12	0	...	2	17	15.90	22.66	30.00
Johnston	21	4	19	7	33	18.55	25.97	35.00
Randolph	23	8	35	10	43	30.48	42.67	57.50
Hoke ²	4	0	...	0	...	² 10.60	² 14.84	² 20.00
Person ²	6	1	17	1	17	² 15.90	² 22.26	² 30.00

¹ Calculated as total intervention costs divided by net increase in providers.

² Costs for Hoke and Person Counties are total intervention costs, since there

were no increases in provider participation in these counties.

spent to develop and rigorously field test the pamphlet for its appeal to parents.) Supplemental analyses of data from the Board of Medical Examiners were performed to explore variations in EPSDT participation according to characteristics of the physicians and their practices. Because the project dealt with the entire population, rather than a random sample, of physicians eligible to provide EPSDT screenings in the six counties, statistical testing was not justified.

Results

In four of the six counties, the number of physicians participating in EPSDT showed an increase at 4 months after the recruitment intervention; overall, there was a 67-percent increase in participation (table 3). Before the intervention, 15 (21 percent) of 73 physicians provided EPSDT screenings; after, 25 (34 percent) agreed to provide screenings and to be included on a list of physicians to whom public health nurses could refer children for screenings. Eleven physicians became EPSDT providers, but 1 who had been a provider stopped participating, resulting in a net gain of 10 providers. Seven of the 11 who became providers attributed the change entirely to the intervention; the other 4 said they had considered providing EPSDT screenings before the intervention, and conditions in their practices now were suitable for doing so. One new recruit had not been seeing Medicaid patients before the intervention. In response to questions about reasons for nonparticipation, 6 of the 48 physicians who continued not to participate said they did not see children, 4 said they were too busy to do EPSDT screenings, 1 was planning to retire, and 1 did not want to partici-

pate in the Medicaid Program per se. The remaining physicians either gave no reasons or gave nonspecific reasons for nonparticipation such as "not interested."

The cost of each mailed intervention effort, whether successful or not, was \$2.65 without follow-up or \$3.71 with mail followup to ascertain the physician's willingness to be listed as a provider to whom public health nurses could refer clients for EPSDT screenings; additional telephone followup that included research-related questioning about reasons for nonparticipation raised the cost per intervention effort to \$5 (table 2). With a net gain of 10 providers, the cost per physician successfully recruited (that is, the cost-effectiveness) was \$19.35 without followup, \$27.08 with mail followup, or \$36.50 with mail followup and research-related telephone followup, with variations across counties (table 3).

Willingness to provide EPSDT screenings appeared to vary somewhat according to physicians' sex, race, primary care specialty, and number of hours worked per week (tables 4 and 5). Because it was not appropriate to test for statistical significance in a population, and subgroups are small, these particular findings should be interpreted cautiously. In this population, female physicians were more likely to provide EPSDT screenings, as were nonwhites. All pediatricians in the study counties chose to provide EPSDT screenings, but there were only five pediatricians in the entire target area. Physicians in internal medicine were least likely to provide EPSDT screenings; nevertheless, 2 of 21 chose to participate. Physicians who chose to provide EPSDT screenings also worked an average of approximately 4 more hours per week than those not providing EPSDT.

Table 4. Sex, race, and primary care specialty of 73 physicians according to provider status in the Early and Periodic Screening, Diagnosis and Treatment Program

Characteristic	Provider		Nonprovider		Total number
	Number	Percent	Number	Percent	
Sex					
Male	19	31	43	69	62
Female	6	55	5	45	11
Race					
White	20	33	41	67	61
Nonwhite	5	42	7	58	12
Specialty					
Family practice....	16	40	24	60	40
General practice ..	2	29	5	71	7
Internal medicine..	2	10	19	90	21
Pediatrics.....	5	100	0	0	5

Table 5. Percent of time spent in primary care and number of hours worked per week by primary care physicians according to EPSDT provider status

Item	EPSDT provider (N = 12)	Nonprovider (N = 32) ¹
	<i>Percent of time spent in primary care</i>	
Mean ± SD	93 ± 5.5	91 ± 15
Median.....	90	98
Range.....	85-100	40-100
<i>Hours worked per week</i>		
Mean ± SD	59 ± 19.3	55 ± 10.7
Median.....	60	60
Range.....	40-99	30-70

¹ Only 31 nonproviders gave information on percent of time spent in primary care.

NOTE: based on 1990 records of the North Carolina Board of Medical Examiners; data available for only 58 percent of the project's population. EPSDT = Early and Periodic Screening, Diagnosis and Treatment; SD = standard deviation.

Discussion

As in all pre-experimental studies, factors other than the intervention may have contributed to the changes observed. Nevertheless, since 70 percent of the net increase in providers was attributed by the providers to the intervention, the potential value of the intervention should not be discounted. The intervention is easy to implement, relatively inexpensive, and replicable in other settings. However, the analysis applies to an intervention designed to recruit physicians to perform EPSDT screenings in a relatively "provider-friendly" State Medicaid system. Success in adapting the recruitment intervention to other settings may hinge on the Medicaid policies of each State. If restrictive policies exist, it

would be folly to expect an intervention describing the positive aspects of EPSDT and Medicaid participation to succeed. Obviously, structural changes at the Medicaid policy level would be needed first.

In States that have addressed structural barriers to EPSDT access, the recruitment intervention used in this project may be worthy of adaptation. In this project, physician participation in EPSDT screenings was increased by 67 percent, at a base cost of under \$20 per successfully recruited provider or, with mail followup, under \$30. Looking at the costs of recruitment and the savings associated with doing EPSDT screens, real cost savings may accrue. One child enrolled in the EPSDT Program in 1980-81 equated to Medicaid savings of up to \$30 annually (6); in 1990-91 dollars, this would amount to \$45 per child per year. Based on these figures, if just one physician were to see one new EPSDT client each month for 12 months, for a total of 12 children, and continue providing scheduled EPSDT services to these 12 children (and no more), there could be a benefit of \$540 annually from an initial investment of less than \$30. Thus, the costs appear well justified.

The recruitment packet, available from the senior author, although designed for NC, can be adapted for other settings. The letter can be modified to incorporate site-specific information. If a publication describing the State's Medicaid system is not available, the article (30) in the packet provides a model for researchers, Medicaid officials, or medical society members to use in writing a similar article for a State journal or newsletter. Alternatively, the personal letter could be expanded to include the information contained in the article. This might lessen the impact of the intervention, however, since information in a letter may not be considered as important as that in a professional publication.

EPSDT pamphlets, also part of the recruitment packet, often are provided at no cost by State Medicaid offices. Because quality varies, the State pamphlet may need to be modified; this would raise costs. If a suitable pamphlet or resources to develop one are not available, and the intervention is attempted without a pamphlet, the impact of the abbreviated intervention should be evaluated before using it on a large scale.

In States that sanction independent practice by nurse practitioners (NPs), the recruitment mailing might be expanded to include, or modified to focus on NPs, particularly since OBRA 89 allows EPSDT reimbursement to NPs. Even in States that do not allow independent practice, NPs might persuade

their physician colleagues to provide EPSDT services. Although few NPs were employed in the counties included in this project, the most enthusiastic response received was from a practice in which a physician employer shared the packet with an NP. The NP followed up to enter the practice into the EPSDT system and even publicized EPSDT by enlarging the pamphlet into a poster.

Findings from this project revealed that, even after receiving the recruitment packet, some physicians thought that EPSDT is only for young children. Future recruitment efforts might emphasize more clearly that EPSDT is for people through age 20, and that physicians who do see teens or 20-year-olds, but not young children, may restrict EPSDT services to this older age group.

The two project counties that experienced no increases in physician participation had the fewest number of primary care physicians per capita; their physicians were extended over a patient population twice the norm for North Carolina and for the United States as a whole. The small number of counties precludes definitive generalization, but logic suggests that it may be unrealistic to expect further extension of physicians' services to include EPSDT in areas with such severe shortages. Before considering a recruitment intervention of the type undertaken in this project in such areas, it might be appropriate first to work with key leaders or local medical societies to learn why area physicians do not provide EPSDT services. These discussions might lead to concerted actions focused on relieving the shortages, rather than directly on recruiting existing physicians to become EPSDT providers.

Finally, this project was intended as an evaluation of a recruitment effort as it was implemented in practice, not as a formal investigation of characteristics associated with physicians' participation in EPSDT. By design, the only physician practice data used were those readily available from the State Board of Medical Examiners. This project's findings that physicians were more likely to provide EPSDT if they were pediatricians, nonwhite, or female, or if they worked longer hours, cannot be generalized beyond the small study population. Previous research (11,13,16,17) has focused on characteristics associated with overall participation in the Medicaid Program, not the provision of EPSDT services within Medicaid. Structured research, independent of recruitment efforts, is needed to identify characteristics associated with EPSDT participation. Such information might provide further guidance for designing and targeting

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interventions for potential providers of EPSDT services.

Conclusions

An intervention to increase private physician participation in the EPSDT Program in rural NC was found to be effective and cost-effective. The intervention may be replicable in other areas where the Medicaid system encourages private provider participation. The results of the evaluation apply to the population of primary care physicians in the six counties studied; these physicians and counties may differ from those in other areas. Costs calculated for these settings also may differ, especially for salaries. The itemized breakdown of time and expenses provided in this report should enable others to make adjustments for their particular needs.

EPSDT is a Federal-State Program that, if used, can work. The Congress has taken action to support increased use of EPSDT, but public health departments alone cannot bear the burden of an enlarged patient load. Health officials can adapt the intervention described in this paper to increase private providers' participation in EPSDT.

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