A Community-based Randomized Trial of Postcard Mailings to Increase Dental Utilization Among Low-income Children

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ABSTRACT

Purpose: Increasing awareness about the importance of preventive dental care among low-income families has been considered to be key to overcoming nonfinancial access to care barriers for children. The purpose of this randomized, controlled trial was to measure the impact of postcard mailings on dental utilization by low-income children through a dental society program designed to increase access to dental care.

Methods: Five thousand eight hundred and seven low-income 2- to 4-year-olds were randomly assigned to 1 of 3 groups: (1) Group 1 (n=2,014) received postcards containing information on how to enroll in the Yakima County Access to Baby and Child Dentistry program; (2) Group 2 (n=2,014) received the enrollment information as well as additional information on the availability of fluoride varnish and the need to visit the dentist by the age of 1-year-old; and (3) Group 3 (n=1,779) did not receive postcards.

Results: Preventive services utilization rates were not different among the groups: 61% for Group 1, 62% for Group 2, and 60% for Group 3, although rates were high for a Medicaid population.

Conclusions: Postcard mailings did not significantly increase utilization of preventive dental services. Other strategies to increase utilization of preventive oral health measures are needed. (J Dent Child 2012;79(3):154-8)

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Children who qualify for Medicaid are entitled to comprehensive oral health coverage through the federally mandated Early Periodic Screening, Diagnostic, and Treatment program. According to an analysis by the Kaiser Commission on Medicaid and the Uninsured, 43% of low-income children on Medicaid or Children's Health Insurance Program (**CHIP**) have had a dental visit within the past year vs 34% of those uninsured and 40% with insurance.[1] Nevertheless, disparities in oral health remain among poor, middle, and higher-income families[2] and dental health among preschoolers is worsening.[3] The focus of much effort is now on the youngest children, whose utilization of preventive care is especially low.[4]

To address the underutilization of Medicaid dental services by the very young, the Washington State Access to Baby and Child Dentistry (**ABCD**) program was developed in 1995.[5] The program has been deemed successful and has expanded to 37 of the 39 counties in Washington State. This program consists of 4 components: (1) outreach to parents and families; (2) training and certification of dentists; (3) enhanced dental benefits; and (4) enhanced dental fees.

Initial evaluation of the Spokane, Wash., ABCD program found that only 54% of children visiting the dentist received a fluoride treatment.[6] One reason for underutilization of fluoride treatment for children is attributable to the lack of parental knowledge about this benefit. A focus group study indicated that many caregivers

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were not aware of their coverage.[7] An American Dental Association-sponsored symposium also recently highlighted parent education as important.[8] In medicine, lack of parental knowledge about immunization schedules has been found to contribute to mothers not taking their children for immunization.[9]

In June 1999, Yakima County, Wash., began its own version of the ABCD program, entitled "Mom and Me."[10] The Yakima version of the program differs from prior versions in that primary responsibility for the outreach component of the program rests with the local dental society rather than with the local health department. An outreach manager accepts referrals from various organizations in the community and visits homes to provide family oral health instruction and acts as a liaison between the family and the dentist. In 2001, 51% of the 4,705 0- to 6-year-olds who were enrolled in the Mom and Me program had had at least 1 dental visit.[10] In 2009, Yakima County's dental Medicaid utilization rate for children 5 years of age and younger was the highest in the state at 58%.[11] Even so, 42% of this population was still not receiving any dental care that year.

A recent review of parent reminder and patient recall systems showed that reminders increased vaccination rates among children by 1.45 to 2.87 times.[12] All types of reminders, including postcards, letters, telephone, and auto dialer, were effective. Moreover, postcards with a health message have been found to be more effective in promoting the use of prevention compared to a neutrally worded postcard reminder.[12,13] Patient-directed postcards in conjunction with physician reminders are more effective than physician reminders alone.[14]

Postcard reminders are often used in dental practices for 6-month recalls, and their positive effect on attendance behavior has been documented.[15,16] This study evaluated the effect of postcards with information about the dental society-run program in Yakima on utilization of dental care by young children enrolled in Medicaid.

METHODS

STUDY DESIGN

The study was a 3-arm randomized community intervention trial using postcard mailings to the families of Medicaid-enrolled and Basic Health Plus-enrolled 12- to 36-month-old children as of September 30, 2002 and residing in Yakima County. Basic Health Plus is a Washington state Medicaid program for children of parents covered by Washington's Basic Health insurance program. Children on Basic Health Plus meet Medicaid eligibility requirements (household income levels less than or equal to 200% of the federal poverty level, which is the minimum gross income a family requires for necessities as defined by the Department of Health and Human Services) and receive similar benefits to children on Medicaid, including dental coverage and no deductibles or copays. Use of the program simplifies procedures for families with adults on Basic Health.[17]

The Washington State Institutional Review Board approved the study and a waiver for the informed consent.

STUDY POPULATION

Children (N=6,041) were identified through the state Medicaid Management Information System database. The selection criteria were: age between 12- and 36-months; a resident of Yakima County as of September 30, 2002; and enrollment in state/federal Medicaid or Basic Health Plus. Children were included in the study whether or not they had received prior dental services.

CONDITIONS

There were 3 conditions:

1. Group 1 (enrollment information only) received a postcard with information on how to enroll in the Mom and Me program (Figure 1).
2. Group 2 (enrollment information enhanced with information about specific benefits) received postcards with the Mom and Me logo, as well as 2

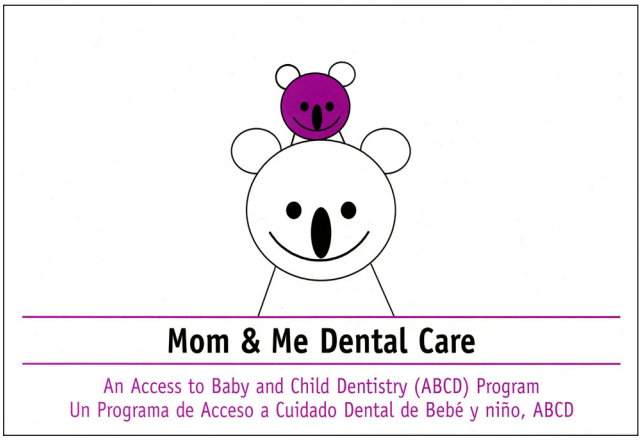

Figure 1. Postcard with information on how to enroll in the Mom and Me program. Reverse of card states in English and Spanish: "The Mom and Me Dental Care Program provides dental services for Yakima County Medicaid-eligible children from birth to 6-years-old. If you have not yet enrolled your child in the Mom and Me program, please call the office for more information. 1-800-964-9889 or 509-248-1305."

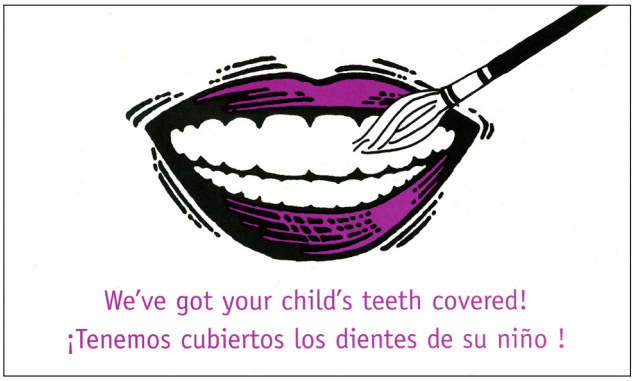

Figure 2. Postcard with information on the fluoride varnish benefit. Reverse of card states in English and Spanish: "The Mom and Me Dental Care Program allows 3 fluoride varnish treatments per year for your child. Ask your dentist about getting fluoride treatment for your child 3 times per year. If you have not yet enrolled your child in the Mom and Me program, please call the office for more information. 1-800-964-9889 or 509-248-1305."

others highlighting the fluoride varnish benefit and early dental appointments for infants (3 cards rotated each mailing, Figures 1-3).

3. Group 3 received no postcard mailings.

The postcards were 6" x 10" and written in both English and Spanish. Postcards had a short message and illustration on the front with more detailed information and contact phone numbers for the program on the rear of the cards.

ASSIGNMENT TO CONDITIONS

The children were randomly assigned to conditions using the Microsoft Excel RAND function. Initial group sizes were 2,014 (Group 1), 2,014 (Group 2), and 2,013 (Group 3) children. For group comparisons the 234 Group 3 children (no contact), but sharing an address with a child in Group 1 or 2, were removed, leaving 1,779 children in group 3. Since the comparisons of primary interest were between Groups 1 and 3, and Groups 2 and 3, no other children were removed from the analyses.

PROCEDURES

The first mailing of the enrollment information card to Groups 1 and 2 occurred on November 7, 2002. Following this mailing, serious errors were discovered in the Spanish translations on the postcards. The study was halted and re-initiated following approval of cards with a revised Spanish translation. The postcards returned as undeliverable or with forwarding addresses were used to correct the address database prior to study reinitiation. The study was restarted on July 14, 2003 with the mailing of Mom and Me enrollment information cards to 3,880 families in Groups 1 and 2. Following further corrections to the address database, 5 additional sets of postcards were mailed on: October 15, 2003 (1,792 enrollment postcards for Group 1; 1,801 fluoride varnish benefit postcards for Group 2); February 5, 2004 (enrollment postcards for Group 1 or early dental visit postcards for Group 2); June 3, 2004 (enrollment postcards for Groups 1 and 2); June 24, 2004 (enrollment postcards for Group 1 or fluoride varnish benefit postcards for Group 2); and July 16, 2004 (enrollment postcards in Group 1 or early dental visit postcards for Group 2).

OUTCOMES DATA

Claims data, including Current Dental Terminology (CDT) codes covering the 18-month period following study reinitiation (July 2003 through January 2005), were extracted from the State of Washington Medicaid Management Information System extended database for the 6,041 children initially randomized to study conditions. CDT codes were broken into standard categories (ie, preventive D1000-D1999, etc).

DATA ANALYSIS

For each study group, utilization rates for all dental services, diagnostic dental services, preventive dental services, and restorative dental services, were calculated. Because topical fluoride was a service specifically promoted by the postcards sent to Group 2, the use of fluoride was also evaluated in each of the 3 study groups. Chi square analyses were performed to compare differences in utilization rates between Groups 1 or 2 and Group 3 for the entire data set (from July 2003 through January 2005). With this sample size, the study had 80% power to be able to detect a difference of 5% in utilization between the groups. A significance level was set at α=0.05.

RESULTS

CHARACTERISTICS OF THE CHILD POPULATION

On July 14, 2003, when the study was reinitiated, children randomized to the study ranged in age from almost 2 to nearly 4-years, with a mean of 2.9 years. There were no significant age differences between children assigned to groups. Race and gender data were available to the study for the 3,617 of the children with dental claims data. Of those children, 1,834 were female (51%) and

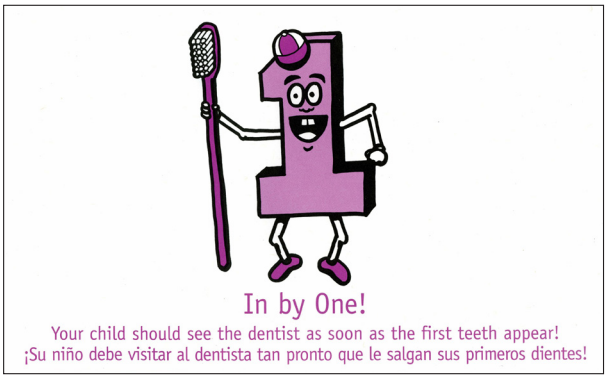

Figure 3. Postcard with information on seeing a dentist by 1-year-old. Reverse of card states in English and Spanish: "The Mom and Me Dental Care Program provides dental care for your young child. Your child should start seeing a dentist as soon as the first baby teeth appear (usually by the first birthday), and continue to see the dentist every 6 months. If you have not yet enrolled your child in the Mom and Me program, please call the office for more information. 1-800-964-9889 or 509-248-1304."

Table 1. Dental Utilization Rates by Study Group: Number of Users (% Utilization)

Study group*	Preventive dental users N (%)	Diagnostic services users N (%)	Topical fluoride users N (%)	Restorative dental users N (%)	Total eligible
1	1,226 (61)	1,235 (61)	1,197 (59)	539 (27)	2,014
2	1,245 (62)	1,241 (62)	1,206 (60)	547 (27)	2,014
3	1,061 (60)	1,072 (60)	1,026 (58)	438 (25)	1,779

**Group 1 received postcard mailings with information on how to enroll in the Mom and Me Dental Care Program. Group 2 received postcard mailings with enrollment information as well as information on fluoride varnish treatments and visiting the dentist by 1 year old. Group 3 did not receive any postcards from the study.*

1,783 were male (49%). Self-reported racial distribution was 17% Caucasian, 2% Native American, and 67% Hispanic, with the remaining making up less than 1% of the population, or listed as "other" or "unknown."

UTILIZATION RATES

There was no significant difference in the utilization of any dental benefits between Groups 1 and 3 (P=.35), or Groups 2 and 3 (P=.15). The utilization rates of any dental benefits for all the groups were relatively high: 62% (1,258/2,014) for Group 1; 63% (1,274/2,014) for Group 2; and 61% (1,085/1,779) for Group 3 (no contact).

Utilization rates for preventive and diagnostic services, along with topical fluoride utilization, are shown in Table 1. There was no significant difference in the utilization of preventive dental benefits between Groups 1 and 3 (P=.44), or Groups 2 and 3 (P=.17). Nor was there a significant difference in the utilization of diagnostic dental benefits between Groups 1 and 3 (P=.50), or Groups 2 and 3 (P=.39). Furthermore, there was no significant difference in the utilization of fluoride dental benefits between Groups 1 and 3 (P=.27) or Groups 2 and 3 (P=.16).

There were trends toward differences in restorative utilization rates between groups, which did not reach statistical significance (see Table 1). The difference in utilization rates between Groups 1 and 3 did not reach statistical significance (chi-square=2.27, P=.13). The difference between Groups 2 and 3 approached, but did not reach, statistical significance (chi-square=3.17, P=.08).

DISCUSSION

This is the first trial of a community intervention to boost Medicaid dental utilization among low-income preschool children. The children were randomly assigned to conditions, and the outcome was measured using Medicaid claims data.

Postcard mailings did not increase dental utilization by low-income 2-to 4-year-old children enrolled in Medicaid. Overall utilization did not increase due to postcard mailings with information on how to enroll in the Mom and Me dental program, nor was it increased by postcard mailings advertising specific benefits covered by the program. When examining individual types of services, the postcard mailings did not significantly increase utilization of diagnostic, preventive, or fluoride services.

By contrast, a 2005 Cochrane review concluded that postcards, letters, and telephone reminders were all effective in increasing childhood immunization rates.[12] Likewise, a 2010 Cochrane review concluded that personalized postcards are effective at increasing influenza vaccination rates for those 60 years and older in the community.[18]

It is possible that the relatively high rate of dental utilization among low-income children in Yakima County swamped any effect that the postcard interventions may have had in this study. Overall dental utilization in our study was comparable to overall utilization rates for Medicaid and CHIP-enrolled 2- to 5-year-old children in Yakima County for fiscal year 2004 (60%; data supplied by Washington Dental Service Foundation). Washington State as a whole, however, had a 45% Medicaid dental utilization for 2- to 5-year-old children during fiscal year 2004, which is considerably lower than our study population and that of Yakima County.

Yakima County Dental Society and the Mom and Me program have made concerted efforts to increase dental utilization among Medicaid-eligible children. The Mom and Me Program was established in 1999 and had enrolled nearly 11,000 children by 2005. Yakima County dramatically increased its Medicaid dental utilization rates among 0- to 5-year-old children from 24% in 1997 (prior to the establishment of the Mom and Me program) to 58% in 2009, 10 years after the program was established. A number of dental outreach programs were active in Yakima County over this time frame. All of this activity likely contributed to the increase in utilization of dental services.

For the postcards to have been successful, some key elements needed to have been in place: (1) the parents read the postcards; (2) the parents understood and valued the postcard information; (3) the parents followed through and utilized the Mom and Me Program; and (4) there was a dentist accessible to the family. A breakdown at any point in this chain would result in failure of the postcards to have an effect on the utilization of benefits.

One limitation of this study was that randomization to group occurred at the child level rather than the family level. Because postcards were mailed to the household address of each child, some families may have had more than one intervention, resulting in contamination between groups. The effects of this contamination were decreased by removing children from the no contact group from the analyses if they shared an address with a child in another group. A better design would have been to randomize at the household level, however, and select a single child in each household for study. However, some contamination between groups would always occur in such a community study due to sharing of information between neighbors.

Previously reported successes of postcard interventions for increasing immunization rates have mostly involved reminders to patients already enrolled in some sort of medical practice, thereby eliminating the barriers of enrolling in an additional program and gaining access to a provider. It appears that a postcard intervention is not sufficient to lower access to care barriers for the approximately 40% of Medicaid-enrolled children in Yakima County who do not regularly access the dentist.

CONCLUSIONS

Based on the results of this randomized, controlled trial study, the following conclusion can be made:

Postcard mailings did not significantly increase utilization of diagnostic, preventive, or fluoride services over an already high level of utilization existing in Yakima County in 2003 and 2004.

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