

Oral Health Promotion for High-Risk Children: Case Studies from British Columbia

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A b s t r a c t

Socio-economics, family stress and parenting style each plays an important role in the development of early childhood caries as dietary and microbiological factors. Therefore, to be successful, oral health promotion initiatives should be designed and implemented with due consideration of issues such as collaboration with community partners, the role of dental health in overall child health and the involvement of the community in program planning. This article briefly describes 3 programs that have been undertaken in British Columbia either as public health initiatives or as demonstration research projects to improve oral health in young children from diverse communities with a high prevalence of early childhood caries.

MeSH Key Words: health education/dental; health promotion/methods; social environment

© J Can Dent Assoc 2003; 69(5):292-6
This article has been peer reviewed.

The prevention of early childhood caries (ECC) in children at high risk for this disease continues to challenge all who are interested in bettering children's health. While serious disturbances in the balance between bacteria, substrate and host are the factors traditionally considered to result in ECC, family, economic and social conditions also have a substantial impact on the development of the disease.¹ Income level and socio-economic status are probably the major determinants of which children will suffer from ECC.² The relationship of these social and environmental factors suggests that an approach emphasizing health promotion, rather than disease prevention at the individual level, is the model likely to have the greatest positive effect on children's oral health. Oral health promotion is a planned approach to build healthy public policies, create supportive environments, strengthen community action, develop personal skills or reorient health services in the pursuit of oral health goals.^{3,4} Not only will approaches that include at least some of these principles of health promotion have a positive impact on the child's health, but they will also positively affect the family and the community.

This paper describes some issues of importance when adopting a health promotion approach for a condition such as ECC and outlines examples of some current programs in British Columbia.

Considerations for Oral Health Promotion Initiatives

Because of the significance of socio-economic status, family stress and access to care in the development of ECC, it is important that oral health promotion initiatives include some of the following considerations.

Collaboration with Community Partners

The prevalence of ECC will not be diminished by the efforts of private dental offices working independently; instead, there must be collaboration among private practitioners, public health officials and anyone else who interacts with young children. As a positive example to the community, dental offices should offer any family, no matter how young their children, a "dental home" where preventive counselling and early management of disease is available.⁵ Other health care and child care workers are unlikely to accept their role in preventing ECC in extremely young children if the dental profession fails to adopt this approach. In addition, because community dental health staff throughout the country are reorienting their role to focus on families with infants and toddlers,⁶ practising dentists should make themselves aware of, and offer support to, these public health initiatives.

Dental Health and Overall Child Health

The evidence that supports the links among dental health, overall child health and quality of life^{7,8} provides a unique incentive to encourage collaboration with other health care workers, such as community health nurses and physicians, so as to increase their awareness of these links and their role in improving children's dental health. Reorienting existing services to encompass oral health concerns is a key aspect of oral health promotion.

Community-based Approach

Because of their particular cultural background, economic situation or remote location, individual communities may present unique challenges and opportunities for health promotion. Without a consultative process that involves the communities and listens to the voices of their residents, oral health programs and preventive interventions are unlikely to be successful.^{9,10}

Early Adoption of Positive Habits

New parents are keen to adopt practices that will encourage their child to grow and develop in a healthy manner. Health promotion interventions occurring *before* negative habits have developed may have a reasonable chance of success. Thus, introducing dental health messages and counselling at or about the time that primary teeth are erupting should be the ideal time to promote adoption of healthy habits and parenting skills. Dental health messages should continue to be part of well-child care throughout infancy and toddler stages. For high-risk children, preventive counselling beginning at the age of 3 years is too little, too late.

Counselling Approach

Families are unlikely to adopt positive behaviours or change existing poor behaviours when an authoritarian, advice-giving approach is used.¹¹ A counselling style that embraces empathy and reflective listening and that considers the stage of behavioural change of the client has more likelihood of success.¹²

Realistic Indicators of Success

Before implementing a health promotion intervention, realistic outcome measures and indicators of success must be established. Changing the "25% of children who have 80% of the cavities"¹³ to a more favourable statistic is a long-term proposition. For example, rather than aiming to decrease by 50% the prevalence of ECC among all preschool children in a given community, it may be more realistic to work on delaying the onset and severity of the caries process so that fewer children require hospitalization for dental disease at 2 years of age and more children can instead be treated in the dental operatory when they are older.

Experiences in Dental Health Promotion in British Columbia

In British Columbia, dental screenings by calibrated, certified dental assistants working in public health have demonstrated that about 11% of kindergarten-aged children have evidence of "nursing bottle tooth decay," defined as decay on at least 2 primary incisors.⁶ Given this troublesome finding, that 1 in 10 children entering kindergarten has significant dental disease, a variety of programs have been introduced throughout the province, both in public health and in externally funded demonstration research projects, to explore initiatives that might improve the oral health of young children who are at risk for ECC.

Identification of High-Risk Children by Community Dental Health Staff

Community dental staff from the province's health authorities have initiated a variety of programs to identify children at risk for ECC.⁶ A simple 7-point questionnaire is now used to identify "risky" behaviours in children attending for 12-month vaccinations at health unit offices. On the basis of responses to these questionnaires, dental staff then contact parents and offer counselling on how to reduce the risk. In 2001, about three-quarters of the 20 health regions around the province used these risk-assessment questionnaires at a total of 90 sites. The responses revealed that about one-fifth of toddlers were from families where the risk was determined to be high.⁶

The success of these risk-assessment programs depend on the cooperation and assistance of other health unit staff, such as health unit aides, public health nurses, clerical staff and volunteers. British Columbia is a large and diverse province in a variety of ways; there is even variation throughout the province in terms of where parents attend for infant vaccinations. For example, public health nurses provide 70% of the vaccinations in the Capital Health Region around Victoria; families can thus complete the questionnaire at child health clinics. However, in North Delta, a suburban community outside of Vancouver, 80% of infants attend physicians' offices for vaccinations; here, questionnaires are administered by telephone.

For many regions, data from outcomes assessment are not yet available, but some information has been gathered in the Capital Health Region. Families who were contacted after completing the questionnaire were compared with families for whom no follow-up was performed, and contact with dental staff appeared to have a positive impact on changing "dentally unhealthy" behaviours. Parents were in general more likely to begin brushing their child's teeth with a fluoridated toothpaste than they were to change the child's feeding habits.⁶ This finding is supported by the results of similar projects in other countries.¹⁴

Throughout the province, dental staff have introduced other ECC-related projects that reflect British Columbia's cultural and socio-economic diversity. The following are a few examples of the variety of programs that are underway:

- A poster and brochure designed specifically for physician's offices were developed in the Fraser South Health Region, which includes North Delta, where 80% of families see their family physician for vaccinations. Input from focus groups informed the design and size of the poster, which has been translated into Punjabi to attract the attention of the large number of South Asian families in the region. The materials have also been distributed to every community pharmacy in the province.
- Focus groups with parents of young children in the Simon Fraser Health Region explored where and when parents would benefit most from information about ECC and identified barriers to "dentally healthy" behaviours.
- The North Interior Health Region began a fluoride varnish program for high-risk preschool children. Fluoride varnish programs for preschool children are now underway throughout northern British Columbia.

Demonstration Research Projects in Oral Health Promotion

Any community-based research project must involve a strong collaboration between the community and the researchers. The aim of the project should address issues that are relevant to the community, and, ideally, the community should be involved at all stages of the project. While these goals are laudable, community participation does not always take the form that the researchers initially imagined.¹⁵ The following are brief descriptions of 2 community-based oral health promotion programs that have been undertaken in culturally diverse B.C. communities with a high prevalence of ECC.

Child Oral Health Promotion in a Northern First Nations Community

The overall purpose of this demonstration project, funded by a Special Research Demonstration Project Grant from the B.C. Health Research Foundation and conducted in a single B.C. First Nations community, was to develop a community-based, culturally sensitive health promotion program that would diminish the use of feeding and comforting practices that contribute to ECC.¹⁶ Anecdotal reports from community members indicate that bottles were not traditionally used in First Nations communities for pacifying fussy infants. In the participating community, willow cradles served this purpose. However, in recent times, the tradition of making cradles has been all but lost. The information-gathering phase demonstrated a prevalence of nursing caries in preschool children of 59%, and a mean decayed, extracted or filled teeth, or deft (and standard

deviation) of 7.0 (4.9). The activities of the project, planned and supervised by a committee of mothers from the community and health workers, emphasized traditional child-rearing practices, such as the use of willow cradles. The project supported the fabrication of cradles by community elders, and the completed cradles were then loaned to parents. In addition, pamphlets and posters with a local First Nations theme were developed, and the community health nurse provided individual counselling for mothers of infants and toddlers. The results showed improvements over baseline and were also better than those obtained in a neighbouring community, although the differences were not statistically significant. When project funding ended, more children were reported to be off the bottle by the age of 2 years and fewer slept with a bottle. The mean decayed, extracted or filled surfaces (defs) of children 18–38 months of age had decreased, and a general awareness of the program within the community was reported. Although the results of the project are not compelling as far as their statistical significance, the re-adoption of a traditional child-rearing practice, coupled with a modest improvement in dental health and an increase in community awareness of the problem of ECC, is a positive step in the spirit of community capacity-building and health promotion.¹⁶

Child Oral Health Promotion by a Lay Health Worker in an Urban Vietnamese Community

The objective of this project was to design, implement and evaluate an oral health promotion program for Vietnamese preschool children in Vancouver's inner city.¹⁷ The project comprised 4 general phases: gathering information and then planning, implementing and evaluating the project. The first phase of the project demonstrated extensive tooth decay in young children, bottle use (during the day and during sleep-time) long past the recommended weaning age and a belief by many parents that the primary teeth were not important.¹⁷ In addition to the high prevalence of dental caries among inner-city Vietnamese preschool children, another incentive to develop this program specifically for Vietnamese families was the support of a Vietnamese-speaking public health nurse who had recently established a twice-monthly Vietnamese child health clinic. Greatly respected by Vietnamese families, this nurse was a strategic community partner in emphasizing to families the link between dental health and overall child health. The project planning committee, which included Vietnamese community workers, developed a program that featured one-on-one counselling by a Vietnamese lay health counsellor, supported by community-wide activities¹⁸ (Table 1). The lay health counsellor, who had no previous dental training or background, provided in-person counselling to mothers with telephone follow-up a week later that coincided with scheduled infant vaccination visits to the Vietnamese child health clinic. Mothers were able to

Table 1 Counselling schedule at Vietnamese child health clinics in Vancouver

Age of child (months)	Messages	Gift to parent
2	Importance of baby teeth Use of soother for comforting	Soother
4	Teething Tooth cleaning	Pamphlets in Vietnamese language
6	Tooth cleaning Avoiding use of bottle in bed	Infant toothbrush
12	Baby bottle tooth decay Switching from bottle to cup	Training cup
18	Review all topics	Infant toothbrush

provide input to the project as a whole and to the content and method of delivery of the dental messages during their visits to the clinic and during follow-up telephone conversations. Frequently, mothers dropped in to consult with the community dental health worker about dental questions pertaining to their children. At all of the 4 follow-up assessment clinics held since this continuing project began more than 7 years ago, mothers who had had more than one counselling visit reported significantly less use of daytime and sleep-time bottles for their children, and these children demonstrated significantly lower prevalence of caries compared with similar-aged children at baseline. One-on-one counselling and regular follow-up provided by a lay person of similar background and culture to program participants shows promise as an effective way to facilitate adoption of healthy behaviours and to improve the oral health of children. In recent years, this program has been extended to the inner-city Chinese community of Vancouver in response to requests from community health staff. This project was initially supported by the B.C. Health Research Fund and more recently has received continuous funding from the Sharon Martin Community Health Trust Fund.

Conclusions

While the 3 initiatives described here have obvious differences, they share many similarities in approach and philosophy. Collaboration with existing public health programs such as well-baby clinics and involving other providers such as physicians and pharmacists are common threads. Encouraging community input through mothers' committees or focus groups occurred before the introduction of all of these programs. Some of the programs were designed or adapted to address the cultural differences of families of interest, for example, by reaching out to family doctors in North Delta where Punjabi-speaking families attend for vaccinations and by developing a cradle loan program for First Nations family seeking more traditional ways to comfort a fussy infant. Beginning interventions in infancy was an essential aspect of all of the projects. The importance of targeting children at high risk rather than

developing a generic program for all is a value shared by the community public health initiatives and the demonstration projects. Scrupulous outcomes assessment continues to be a challenge, and the value of all these projects will be enhanced by more rigorous evaluation. ♦

This paper is based on a presentation given at the October 2001 CAPD annual meeting.

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The views expressed are those of the author and do not necessarily reflect the opinions or official policies of the Canadian Dental Association.

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