

CHAPTER IV

Proposal :

A Community Participation Approach to Integrated Caries Prevention

Background

Khon Kaen Provincial Health Office started the caries prevention and oral health promotion for preschool children in 1992. The program included prenatal counseling for women and oral examinations, oral health instruction in pediatric clinics and prescriptions for fluoride supplements for children six months to five years old, and encouraging children to brush through demonstrations and distributing free toothbrush.

The data obtained from the Khon Kaen oral health survey in 1991 and 1996 showed an increasing trend of dental caries in five- and six-year-old children, which were 83.9 percent and 88.7 percent respectively (Khon Kaen Provincial Health Office [KK.PHO], 1996). These occurrences were higher than the national level (Dental Health Division [DHD], Health Department, Public Health Ministry, 1994). The goal of the 7th Dental Health Plan indicated that 20 percent of children six years old should be caries-free in 1996. Therefore, Khon Kaen Provincial Health Office didn't achieve that goal. The pattern of caries in Khon Kaen children began as pits and fissures at age three and progressed to proximal molar caries at age five-six (KK.PHO, 1996). The pre-eruptive effect of fluoride consumed two years before

tooth eruption induced fluoroapatite, which strengthens enamel to decrease susceptibility to caries. The incomplete calcification of pit and fissure after tooth eruption are highly susceptible to caries. The calcification process continues two years after tooth eruption. Fluoride - both systemic and topical - still plays a role to induce calcification and decrease demineralization from acid, which results from carbohydrates fermented by bacteria.

Khon Kaen Provincial Office supplies fluoride drops and tablets to community hospitals and health centers for distribution to children aged six months to five years. The data from the Khon Kaen survey (1996) showed 54.5 percent of the preschool children sample group received fluoride supplements but only ten percent continued using them (see Chapter 3, Table 4.12). The correlation of children who received fluoride supplements and dental caries status are negative but not statistically significant (see Chapter 3, Table 4.23). The main problems were the irregular and short duration of fluoride consumption, which required parents' compliance in administering to children. Most parents claimed that fluoride was used up and that they didn't receive it again.

The other important factor of dental caries progression is sugar consumption (see Chapter 2). Although fluoride supplements and tooth brushing are promoted, children still have caries if they eat high amounts of sweets. There are many snack shops in schools and villages allowing children easy access to sweets.

Therefore, the strategy of caries prevention with fluoride supplement only may not be effective. The promotion of brushing, low frequency of sweets eating, and motivation of oral health concern are required to increase the caries reduction effectiveness. This chapter proposes an intervention program to improve the effectiveness of caries prevention and development of a database for evaluation.

Rationale

Dental health promotion by health volunteer should be motivated to be a strategy for caries prevention in preschool children because health volunteers are close to villagers.

Health centers and health officers are front line services. Khon Kaen Province had 212 health centers and 849 health officers. The health officer population ratio was 1:1,990 (KK.PHO., 1995). Health officers were assigned to give dental health education and fluoride drops or tablets to the mothers who come in pediatric clinics for care of their children's oral health. The percentage of sample parents who received information about fluoride from health personnel or exhibitions or campaign parades was 38.6. There is no relationship between this source of information and child dental caries status (see Chapter 3). Dental caries status was significantly different statistically between those whose parents had received information about fluoride from volunteers and the sample group, which did not receive information (see Chapter 3). The relationship was negative to the dmfs variable. Health volunteers are people in the village. They are close to villagers and have time to talk with villagers about their problems. Problems are discussed in the same language and people are of

the same position. Therefore, community participation induced by health volunteers is the strategy to solve the problem of dental caries.

The target group should be high risk of dental caries. One factor associated with child dental caries was the educational level of parents (see chapter 3). Children whose parents finished primary school or lower had higher numbers of dmfs than children whose parents studied beyond primary school. Children from low educated families were at high risk of contracting caries. The government should provide support to this group.

Completed information should be collected for program development. Strategy selection and planning requires relevant information for decision-making. Evaluation research provides information as tools to persuade others that the program is worthwhile and should be supported continuously, or that changes need to be made (Walt, 1996). The previous exercise (Chapter 3) was incomplete quantitative information such as bottle feeding practice, sweets and fermented carbohydrate consumption, fluoride concentration in natural drinking water, and other preventive methods.

Aim

1. To reduce dental caries (dmfs) by 34 percent in preschool children of participating villages in three years.

Objectives

1. To induce community participation for dental care in 200 villages.
2. To develop a dental health database of preschool children in Khon Kaen Province.

Methodology

1. Strategies

1.1. Technical strategies

Health volunteers encourage child oral cleansing by parents from six months and tooth brushing with fluoride toothpaste by parents starting at child age 18 months until the children can clearly brush their own teeth.

Health volunteers encourage parents to control the frequency of in-between meal eating and the consumption of sweets by children.

Health officers and health volunteers distribute fluoride drops for children aged six to 36 months in low fluoridated areas (<0.3 PPM).

Health officers and health volunteers screen the high caries risk for regular stimulation and refer to dental clinics for specific treatment.

The criteria of high caries risk are the number of caries surfaces over five (50 percentile), and low level of parent's education which is less than or equal to grade six.

1.2. Community participation approach

Community participation is one means to enhance the project effectiveness or as the co-production of services. The intensity of participation ranges from information sharing to consultation and to decision-making, depending on the capacity of health volunteers or village committees. Health volunteers act as community participation mechanisms and community mobilizes (Paul, 1987).

2. Process

2.1. Preparation phase

Provincial health office will construct the provincial committee to prepare "Caries prevention guidelines for preschool children". This guideline contains information to support the village committee or health volunteers for dental caries problem solving.

The program will be oriented for district officers, health center officers and dentists of community hospitals. The purpose is to illustrate the effect of volunteer activities and to exchange the experiences of pilot areas, which intervened during 1995-1997.

The target villages will be selected by these criteria:

- Feasibility leading to success, such as good cooperation and teamwork of volunteers.
- Limited accessibility to health services such as the lack of a health center in that village.

2.2 Action phase

The communities will be oriented on dental problems. Health officers have to collect the response of communities' problems perceived. This process will motivate the demand of communities and will evaluate the beneficiary needs and preferences. If the people don't have adequate demand of services or concern of the problems, the project goal will be unlikely achieved. Activities should not be initiated until the people are successfully motivated.

Volunteer will be trained on dental caries causation, methods of prevention, and simple oral examination skills. Information will be shared between health personnel and health volunteers in order to perform volunteer tasks by using the caries prevention guideline for preschool children:

Volunteers will do participatory base-line data collection. Volunteers will examine children's teeth and observe the supply of sweets through retail data. Results shall be discussed among village committee groups with health personnel consultants.

Problem solving will be discussed and planned in reference to the guidelines among village committees and health personnel. The intensity of community participation depends on the capacity of health volunteers or village committees.

Intervention will be based on the village committee plan. The minimum activity should include simple oral health examination with flashlights, encouragement to brush regularly, and recommendation and distribution of fluoride supplements every three months.

Dental personnel will do monitoring from provincial health offices to district health personnel and community hospital personnel. Dental personnel will be responsible for monitoring village activities with health center personnel with one dental staff member overseeing one to two villages.

2.3. Evaluation phase

2.3.1. Database line will be collected at the beginning and the end of the program. Types of data are:

Oral health status by dmfs index

Dentists and dental nurses will calibrate standard oral examinations. WHO criteria (WHO, 1989) will be utilized for defined dental caries. The record will also include arrested caries. Oral health data will be collected longitudinally from 4

sample villages and 4 control villages. All children under 5 year-old will be examined (about 50 persons per village) at the beginning and after 2 years.

Socio-economic data of the participating village population. The socio-economic data include child age, child sex, geographic region, education status, mother's education, father's education, mother's age, father's age, mother's occupation, father's occupation, family income, and relationship of caregiver.

Parent's behavior includes breast-feeding, diet, oral cleanliness habits, and fluoride consumption.

Predisposing factors such as knowledge, attitudes.

Enabling factors such as numbers of shops selling sweets and the amount of sweets for sale.

Reinforcement factors such as sources of information, dental caries prevention activities.

Other relevant factors such as fluoride concentration in natural drinking water, fluoridated toothpaste, concentration and frequency of sugar intake in medical syrup, weight and height.

2.3.2. Process activity reports (at three-month intervals).

- The community orientation activity report. This report will describe the community's demands and preferences and justification for continuing or revising the process or withdrawing.
- The activity plan of village committees or health volunteers.
- The action of health volunteers and numbers and coverage of people receiving services.

Duration Fiscal year 1998-2000

Table 4.30 Timetable of fiscal years 1998-2000

Activity	1998	1999	2000
- Assembling the provincial committee	-		
Guideline instruction	-		
- Program orientation	-		
- Target selection	-		
- Community orientation	-		
- Volunteer training	-		
- Volunteer action			
- Supervision	-	- - -	- - -
- Database collection	-		
- Guideline evaluation	-		
- Process evaluation	-	-	-
- Project evaluation			
- Report			-

Table 4.31 Timetable of fiscal year 1998

Activity	MONTHS											
	1	2	3	4	5	6	7	8	9	10	11	12
- Assembling the provincial committee	—											
- Guideline instruction	—	—										
- Program orientation	—	—	—									
- Target selection		—	—									
- Community orientation			—	—								
- Volunteer training				—								
- Volunteer action									—			
- Supervision										—		
- Database collection												
- Guideline evaluation												
- Process evaluation												

Budget Total 87,520 Baht**1. Action 22,560 Baht**

Fiscal year 1998 17,376 Baht

- Guideline construction
 - Per Diem of health personnel 10 people x 180 Baht x 3 times = 5,400 Baht
- Stationery 200 copies x 20 Baht = 4,000 Baht
- Program orientation
 - Per Diem of health personnel 48 people * 180 Baht = 2,160 Baht
 - Stationery 48 copies * 20 Baht = 960 Baht
- Community orientation
 - Per Diem of health center personnel 4 villages *
 - 108 Baht * 2 times = 986 Baht
- Volunteer training
 - Per Diem of health personnel for training
 - 4 villages * two people * 108 Baht = 1,728 Baht
- Monitoring

Per Diem of health personnel

4 villages * 2 persons * 108 Baht * 3 times = 2,592 Baht

Fiscal year 1999-2000 5,184 Baht per year

- Monitoring

Per Diem of health personnel = 2,592 Baht

2. Evaluation 99,400 Baht

Fiscal year 1998, 2000 30,320 Baht per year

- Database collection

Oral examinations and other information

8 days * 2 dental staff members * 400 Baht = 6,400 Baht

8 days * 2 collectors * 200 Baht = 3,200 Baht

8 days * one driver * 200 Baht = 1,600 Baht

Material 8 days * 500 Baht = 4,000 Baht

- Data processing

500 records * 4 Baht = 2,000 Baht

- Data analyzing = 10,000 Baht

Guideline evaluation

- Self-administration 40 records = 400 Baht

- Process evaluation

Per Diem of health personnel for meeting

12 people * 180 Baht * 2 times = 4,320 Baht

References

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