

ALASKA LEGISLATURE COMMITTEE FILES 1981-1982 86/2

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HHESS

HB 412

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April 1, 1982

PROPOSED CS HB 412, RELATING TO DENTAL PREVENTION PROGRAM

This revised committee substitute addresses several concerns expressed by various groups presenting testimony before the House H.E.S.S. Committee. The revisions as requested by the Committee are as follows:

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Page 4: Dates were changed from 1982 to 1983, except for effective date of July 1, 1982.

Tanana Chiefs Conference, Inc.

Doyon Building
~~XXXXXX~~ 201 1st
Fairbanks, Alaska 99701
Phone (907) 452-8251

February 19, 1981

Ms. Luana Cutter, Legislative Aide
c/o Madame Thelma Bucholtz
Pouch 5 State Capitol
Juneau, Alaska 99811

Dear Ms. Cutter,

It has come to my attention that Ms. Bucholtz is interested in school-based preventive dental programs. Tanana Chiefs Conference has been providing preventive dental services to school and preschool children for over five years including topical fluoride applications and dental education. We would be happy to provide information or assistance to you in this subject. Also, Dr. David Jones, Chief, Area Dental Branch, Alaska Native Health Service, Anchorage, has a good deal of information on prevention programs.

We do plan, however, to integrate dental health education into comprehensive school health education as it becomes developed in our region. This integrated approach is more and more favored by health educators and school districts.

I am happy to assist in anyway I can.

Yours sincerely,

TANANA CHIEFS CONFERENCE, INC.

Jeanne Pontti

Jeanne Pontti
Preventive Dental Program Coord.

cc: Robert Gregory, TCC Health Education

JP:ej

POSITION PAPER
HOUSE BILL NO. 412

"An Act relating to dental disease prevention programs in schools."

WHAT THE BILL DOES: This bill recognizes that dental disease is the most prevalent ill health condition among Alaskans and that effective prevention must begin during early childhood. No amount of insurance coverage or dental health manpower can lessen this burden on society unless it is accompanied by a prevention program of this nature.

The education program and preventive services specified in this bill are clearly outlined and would be effective in decreasing the incidence of caries and periodontal disease. The program is optional both for school districts and for individuals within a participating district. In general, this bill will allow any community where public interest in dental disease prevention is of sufficiently high priority to have the elementary school set up the program.

SUGGESTIONS: The specification on p. 3, line 2, of \$3 per year for each participating child may not be advisable. Experience may show the necessary added cost to a school district may be more...or less than this. This flexibility would be allowed if there were language that empowered the Department to reimburse the costs of this service.

On p. 4, lines 1-3 specify reporting of much clinical dental information that would not ordinarily be gathered in school education and prevention programs. It would be preferable to gather this information on a sampling basis when indicated.

Recommended by: E. S. Rabeau
E. S. Rabeau, M.D., Director
Division of Public Health

Date: March 23, 1982

Approved by: Helen D. Beirne
Helen D. Beirne, Commissioner
Department of Health &
Social Services

Date: 3/25/82

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. House Bill No. 412
Title "An act relating to Dental Disease Prevention Program in Schools."
Requested by Commissioner's Office Date 03/23/82

II. FISCAL DETAIL

Agency Affected Department of Health and Social Services
Program Category Affected Health/Public Health
BRU, Program, Or Subprogram(s) Affected Family Health
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES	0	0	32.2	64.0	96.0	102.5
200 TRAVEL	0	0	1.8	3.6	5.0	6.0
300 CONTRACTUAL	0	0	2.6	5.2	6.0	6.7
400 COMMODITIES	0	0	.6	1.3	1.4	1.6
500 EQUIPMENT	0	0	2.7	0.5	0.5	0.5
600 LAND & STRUCTURES	0	0	0	0	0	0
700 GRANTS, CLAIMS, ETC.	0	0	75.0	100.0	150.0	200.0
TOTAL	0	0	114.9	174.6	258.9	317.3

FUNDING (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
GENERAL FUND	0	0	115.3	174.6	258.9	317.3
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
FULL TIME	0		0.6	1.3	2.0	2.0
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

This Fiscal Note is based on the assumption this program will start service delivery in school year 1983-84. The grant programs offered in public schools would take several years to reach the maximum level. The affected grades (K-6) in school year 1981-82 have 49,682 children. This analysis assumes that 50% of them would be included in this program in the school year 83-84, with a gradual increase after that.

This program can only be effectively administered if the Department has the professional and clerical staff needed to conduct it. Since this program would take several years to reach full implementation, the Department proposes to add staff on a part-time basis starting in FY 84 and to reach full staffing at 2.0 FTE in FY 86. These line 100 figures are based on 1/3 staffing level in FY 84, 2/3 in FY 85 and full-time staff in FY 86. The detailed analysis on the next page reflects the part-time (1/3) staffing of these two positions. The subsequent two years are proportional to 2/3 and full-time respectively.

IV. DATE 03/23/82 PREPARED BY David Spence, M.D.

AGENCY Dept. Health & Social Services

Original: Legislative Finance PHONE 465-3100

cc: Budget and Management
Prime Sponsor (First Legislator Named)

33-002 (Rev. 12/81)

JCC

Personal Services:

State Dental Officer, Rg. 26A, 12 mo. @ \$4,725 x 1/3 = \$18,900
Clerk Typist III, Rg. 8B, 12 mo. @ \$1,530 x 1/3 = 6,120

Total Salaries \$25,020

Benefits:

ASB: 6.13% of \$49,886 \$1,534
Verible Benefits @ 16.63 4,161
Health Insurance: 8 mos. @ \$183 1,464

\$ 7,159

Total Personal Services \$32,179

Travel: \$ 1,800

Contractual Services:

Space Rental: 300 sq. ft. @ \$1.50 x 4 mo. \$1,800
Communications: \$100 mo. x 4 400
Other 400

Total Contractual \$ 2,600

Supplies:

Scientific: \$100 mo. x 4 \$ 400
Office: \$50 mo. x 4 200

Total Supplies \$ 600

Equipment:

1 ea. Executive Desk \$ 275
1 ea. Executive Chair 175
1 ea. Typist Desk 460
1 ea. Typist Chair 120
2 ea. File Cabinet, 4 Dr., Ltr. @ 275 550
1 ea. Typewriter, IBM Selectric 1,100

Total Equipment \$2,700

TOTAL ADMINISTRATIVE COSTS \$39,879

Grants to School Districts:

Est. 25,000 participants @ \$3 75,000

TOTAL COSTS \$114,879

SECTION-BY-SECTION ANALYSIS

HB 412

"An Act relating to dental disease prevention programs in schools; and providing for an effective date."

Section 1. LEGISLATIVE FINDINGS. Establishes that dental disease is a serious health problem for Alaskan children, and that proper education and treatment can prevent it.

Section 2. Amends AS 18 by adding a new chapter 9, DENTAL DISEASE PREVENTION PROGRAM FOR CHILDREN. On a voluntary basis, school districts and REAAs can provide a dental disease prevention program for school children in kindergarten through sixth grade. Such a program would include: (1) education about causes of dental disease, and how to prevent it through better nutrition, personal habits, and regular dental exams; (2) preventive services including demonstration of flossing and application of fluoride rinse or gel. Any service that constitutes the practice of dentistry would be provided under the supervision of a licensed dentist.

An advisory board, with representatives from education, dental professions, and parents, would be established by the school district or REAA to advise it about the program. An existing health advisory body may advise the body in lieu of establishing a new board.

DHSS shall determine standards for prevention programs.

Program proposals, developed in cooperation with the local advisory board, shall be submitted to the Department of Health and Social Services (DHSS) by July 1 each year and shall include the method by which the program will be implemented.

DHSS shall review proposals and approve those that meet the standards. An approved program shall be reimbursed \$3 per year for each child participating in the program.

Joint programs between school districts or REAAs and public or private non-profits, and/or other school districts or REAAs, are allowable.

The Department of Education (DOE) may assist DHSS, school districts and REAAs in training teachers who wish to volunteer to provide the services provided for in the prevention program.

A parent may withdraw a child from participation in the program by written notice to the school district or REAA.

Private schools may also provide such a program, or private school children may participate in public school programs that meet the standards established by DHSS.

A report about a program shall be submitted to DHSS on January 1 each year. The report shall include at least the number of children in the program, the number of children examined, the number of children needing treatment, the number of children treated, and the number of children needing further treatment.

DHSS shall submit a report to the legislature on February 1 of each year covering the year's activities and a summary of the reports submitted to it from school districts or REAAs.

Section 3. Sets out dates for initial submission of proposals and reports,
and for initial program standards to be incorporated into DHSS regulations.

Section 4. Requires Legislative Budget and Audit Committee to evaluate
the program in its fourth year of operation. The audit would include
an analysis of the program's cost effectiveness and its impact on the
state's expenditures for medical and dental care.

Section 5. Effective date: 7/1/81.*

* All references to dates would need to be amended since HB 412 was introduced during the first session of this legislature (1981).

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241000
April 1, 1982

Rural cap - Jim Aris

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STATE OF ALASKA
THE LEGISLATURE

POUCH Y - STATE CAPITOL
JUNEAU ALASKA 99811
907-465-3800

LEGISLATIVE AFFAIRS AGENCY

MEMORANDUM

April 1, 1982

SUBJECT: Dental disease prevention program
(CSHB 412 (HESS))

TO: Representative Michael F. Beirne

FROM: Edward H. Hein *EHA*
Legislative Counsel

In drafting the enclosed committee substitute, I have taken the liberty of making some changes that improve the language of the bill without changing the substance.

Page 1, line 12: I deleted "dental" because "pain" is sufficient.

Page 1, line 29: I inserted "instruction in" for clarity.

Page 2, lines 3 - 8: I reworded this paragraph to incorporate the change you requested and clarify the meaning.

Page 2, lines 13 - 19: I have transposed the first sentence of this section to the active voice and added "body" to the second sentence. This latter change may be a substantive change. Please advise me if this is not your intent. Also, see page 2, line 25, where I inserted "or body".

Page 2, lines 20 - 22: I have transposed this sentence to the active voice.

Page 3, lines 18 - 21: I consolidated two sentences into one and reworded for clarity.

Page 4, line 27: I changed the date to January 15th because the legislature does not convene until the second Monday in January.

Representative Michael F. Beirne
Page 2
April 1, 1982

I recommend that you consider changing the January 1st date in AS 18.09.100 and sec. 3(c). The statistical information to be included in the report would not be complete for the calendar year until the end of business December 31st and the school district or REAA would then need time to compile the data.

Please contact me if you have any questions or if I may be of further assistance on this bill.

EHH:ljb

Enclosure

PUBLIC POLICY OPTIONS
FOR BETTER DENTAL HEALTH

Report of a Study

Division of Health Care Services

INSTITUTE OF MEDICINE

December 1980

National Academy Press
Washington, D.C.

NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the Councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

The Institute of Medicine was chartered in 1970 by the National Academy of Sciences to enlist distinguished members of the appropriate professions in the examination of policy matters pertaining to the health of the public. In this, the Institute acts under both the Academy's 1863 Congressional charter responsibility to be an advisor to the Federal Government, and its own initiative in identifying issues of medical care, research and education.

This publication is one of a series, "Issues in Dental Health Policy," sponsored by the W. K. Kellogg Foundation, Battle Creek, MI 49016

2101 Constitution Avenue, N.W., Washington, D.C. 20418

Area (202) 389-6178


Publication IOM 80-06

CHAPTER 1

CONCLUSIONS AND RECOMMENDATIONS

Americans have a substantial unmet need for dental care, as is indicated by surveys employing objective professional examinations of persons to determine their dental health. At the same time, proved methods exist for preventing and reducing dental diseases, which if untreated, are important causes of pain, discomfort, and disfigurement and can contribute to nutritional deficits or impaired social function. The coexistence of these circumstances provides an opportunity for improving dental health through direct support of an efficacious prevention program and implementation of an insurance plan to cover costs of dental services that can help control dental disease, reduce the backlog of need for care, and improve the quality of life for most Americans.

The national program to improve dental health described in this report proposes that dental care resources be allocated to meet more closely the population's need for dental care. Included as the highest priority is a proposed public program of preventive services for children, ranging from fluoridation of water supplies to professionally administered preventive agents and oral hygiene education. Prophylaxis and preventive and education services are proposed to be initiated through school systems in a manner that would be more timely for prevention, more equitable for access by the poor, and less costly than the existing majority of fee-for-service care.



In addition to this public program of preventive services, priorities are recommended for a national program of dental insurance leading to the availability of comprehensive dental service to all Americans. These priorities are intended to introduce a set of incentives to improve the oral health of the population by fostering an emphasis on prevention and early treatment rather than expensive dental repair and reconstruction. These priorities should also serve as a guide for the design of private health insurance plans.

The committee felt that the national goal for dental care should be the eventual availability of comprehensive dental services to all Americans through a combination of public and private financing

arrangements and administrative mechanisms that will emerge over time. Only if that goal is met, can the dental health of the nation be maximized.

The ~~overall approach~~ proposed implies that an increased investment in ~~preventive~~ measures for new generations of Americans will result in a population that has better dental health and a noticeable improvement in quality of life. This improvement would result not only from the reduction of acute and often disabling incidents of pain and discomfort, but also from the longer-term beneficial effects--less disfigurement, clearer speech, improved ability to eat healthful food--all of which can contribute to physical health and social well being.

~~Chapter 2 contains the data that describe the unmet need for dental care in the United States and itemizes the lower utilization of dental services along the lines of lower socio-economic status.~~

The existing measures of proved efficacy in preventing and reducing the most common dental diseases are discussed in Chapter 3.

The projected adequacy of supply of dental care personnel, with or without the inclusion of dental benefits in a national health insurance plan, is discussed in Chapter 4. Also discussed are possible modifications of the dental care delivery system--including a ~~greater role for dental hygienists and other auxiliary personnel--to promote more cost-effective service methods,~~ particularly in the area of prevention.

The rise of dental care expenditures over the past decade--at a rate slightly greater than expenditures for all health care--is described in Chapter 5. That section also reviews the experience of private programs of third-party payment for dental care and public programs for direct services, all of which together have accounted for a proportion of dental care expenditures that rose from about 9 percent to 23 percent in the past decade. The increase, however, is almost all due to the growth in private insurance plans; public expenditures have decreased as a proportion of the total. Still, 75 percent of all expenditures for dental care are out-of-pocket outlays. In addition, Chapter 5 describes various approaches to containing the costs of dental care and redirecting limited resources toward the goal of better oral health through better disease control.

The Rationale for Insuring Dental Services

A fundamental question for this study committee was whether health insurance, either public or private, should be extended to cover dental care, either now under existing plans or under an eventual national health insurance program.

During the course of this study, the likelihood has decreased that any national health insurance plan will be enacted in the near future. Enactment of a broad plan including dental benefits seems even more unlikely. However, the priorities developed by the committee for dental services should provide guidance to any future actions concerning dental benefits under national health insurance. Meanwhile, the recommendations should prove useful in assuring that additional funds committed to the extension of private dental insurance benefits will have a greater impact on oral health.

The issues in dental insurance differ from those in medical insurance because the services they cover differ. Hospital care, which is the biggest item of coverage by medical insurance, is needed by only a minority of people and at a reasonably predictable rate among a population with known characteristics, and is very expensive. Hospitalization meets the three major criteria for casualty insurance: the event or expense insured against (1) is relatively rare for the individual person but occurs at known rates for groups, (2) is very costly, and (3) cannot generally be controlled by the insured.

Dental care typically lacks all three of these characteristics. Most persons have or need some dental care each year. The services usually are not as expensive as other types of health care; it usually is the patient's decision to use dental services; and the patient's desires are an important factor in determining what kind of dental services are received, the dentist's suggestions notwithstanding. Control of the use of dental services by patients seems to be borne out by the experience of existing insurance plans. For example, when dental insurance was extended to a group, a relatively few more people began using dental services--perhaps an increase in individual utilization from 50 percent to 60 percent. However, there was a marked increase in expenditures because of increases in the number and expense of services received by those who were already receiving some services.

These basic differences between dental and other health services might lead traditional insurers to conclude that dental services should not be insured. However, additional factors in dental services are important to a consideration of their insurability. First, utilization of services is highly correlated with income, education and occupational status (Chapter 2). Second, much more is known about the etiology of dental disease than of many medical diseases, and effective preventive measures are already developed, proved, and available (Chapter 3). Third, patterns of current use and provision of dental services indicate that many consumers are not receiving the mix of services that could be most cost-effective for the individual and the nation. Fourth, although private dental insurance is growing rapidly and includes some preventive services, the committee finds that the current pattern of benefit coverage encourages treatment late in the disease process, such as more expensive reconstructive services, rather than prevention or early treatment.

If private dental insurance continues its present rate of growth and its present patterns in coverage, and if other public programs to improve dental health remain unchanged, the result may be that some of the most cost-effective preventive measures to improve dental health will be underutilized, while some of the less cost-effective reconstructive procedures will likely increase in use because they are covered (Chapter 6). A drift by much of the population into an emphasis on reconstructive over preventive services would parallel the pattern the country has followed in acute medical care services and would fail to obtain the maximum in oral health benefits for the costs incurred.

The committee concluded that well-designed public and private dental health insurance would be useful for achieving important objectives in dental health and that this advantage outweighs the inapplicability of some of the traditional insurance principles to dental care benefits. Specifically, the committee concluded that properly designed dental insurance could (1) permit budgeting of family dental expenses over time and over differing needs of family members; (2) avoid financial hardship; (3) encourage and expand, by covering under insurance, those services that clearly are needed and cost-effective, but that may be under-used without insurance coverage; (4) create incentives to restrain growth in expenditures over time; and (5) improve the effectiveness and accessibility to various dental care delivery systems.

Recommendations

To help achieve the purposes stated above and thus improve the quality of life for Americans, the committee recommends that properly designed health insurance covering dental care services be considered an appropriate component of a national health insurance plan. The committee also recommends that these purposes be supported by appropriate design of existing public and private dental insurance coverage.

A Basic Public Plan for Preventive Services

A major issue in the design of insurance plans for dental services is whether certain services, primarily preventive, should be provided through public financing to the entire population as a foundation upon which services covered under dental health insurance (public and private) should be built. Important subsidiary questions are how such basic preventive services should be delivered, and what relationship should be established between the basic services and the services covered by public or private insurance systems.

The evidence in Chapters 2 and 3 justifies a foundation of community fluoridation and preventive care as essential to improvement of dental health. The committee further believes that some preventive services might best be provided in or through the nation's school systems based on existing experience described in Chapter 4. The private dental office was considered by the committee as an alternative to school-based settings for delivering the preventive services that are recommended. Because many preventive services can be delivered by auxiliary personnel in a group or classroom setting, there are many efficiencies and economies to be gained in a school-based setting. In addition, a school-based setting provides greater access to the individual services (e.g., screening examination) for children from lower income families, who tend to underutilize private office dental services.

Therefore, because certain basic preventive services are necessary to improving the dental health of the nation, the committee recommends that a basic system assure the delivery of preventive services to all children, whether or not dental health insurance is included in national health insurance or there is continued growth in private dental insurance.

The committee suggests further that the most efficient way to accomplish this objective may be to encourage and enlarge school-based preventive dentistry services that have been initiated in many school districts throughout the nation, and to initiate such services where they do not now exist. This program constitutes the committee's first priority.

The committee did not recommend the specific details of the financing and operation of such a program, which would require detailed consideration of mechanisms for encouraging and funding these services through schools. However, the following is an outline of how such a program might work.

Financial support on a capitation basis might be provided to cover the reasonable full costs of providing a basic set of educational and preventive services in the schools to all children and adolescents. All children in the grades covered would receive two types of services as part of the school curriculum. The first type would be solely educational and could be integrated with the general physical and health education methods appropriate to each grade level that have been found to improve physical awareness and general health behavior most effectively. The second type would be a set of preventive services furnished directly to each child, either individual or within classroom groups, with continuing emphasis on children of greatest need and the development of personal responsibility of child and family. Services to be considered for inclusion would be a screening examination, prophylaxis (cleaning) and, if needed, sealants and topical fluoride applications. The specific set of services in this second

segment would be modified periodically on the basis of recommendations from a continuing body of experts established for this purpose. Targeting of selected preventive procedures would be desirable for particular age groups and persons with particular dental disease risks.

The school system might provide the services directly or contract for their provision, or the school-based services might be provided by a public health agency. Parents and any family dentist identified for each child would receive a report of the results of the examinations, including need for fillings or other dental care. Parents would be allowed to exempt their children from the second type of services. However, no payment would be provided by public insurance programs for such services outside the school-based program.*

The committee believes that the particulars of such an approach deserve full discussion as the preferred alternative to including such services under either national health insurance plans or a comprehensive national health policy.

Because children would not be eligible for a school-based program before the age of five or six, it is recognized and expected that children should have earlier encounters with professional dental care from their family dentist, pedodontist, or community-based child care program. In order to ease the financial barrier to this initial dental care for children of low income families a recommendation regarding the priority of this special population group is under the following outlined insurance priorities.

Dental Insurance Priorities

With the highest priority given to a school-based preventive education and services program described above and assuming its adoption whether or not a national health insurance program is enacted the committee grouped other dental services into three broad categories in decreasing order of their long-range cost-effectiveness in improving oral health (Chapter 6). If economic or other constraints limit an eventual national health insurance program initially to less than comprehensive medical and dental benefits, the committee recommends that benefits be phased in according to the priorities indicated by their long-range cost-effectiveness.

The committee recommends the following priorities for coverage of dental care under a national health insurance program:

*See additional comments by committee members, Appendix 2.

Priority One: Prevention for children and adolescents

(to be provided through the basic public plan described above)

- a) Integration of dental health education and plaque control into general education program
- b) Screening examination, prophylaxis (age 12-17 years only), an appropriate type of fluoride application, and sealants where applicable



Priority Two: Comprehensive services (other than prevention) for children and adolescents from birth to 17 years

- a) Examination
- b) Radiographs
- c) Space maintainers
- d) Extractions
- e) Restorations
- f) Crowns
- g) Endodontic treatment
- h) Treatment of handicapping malocclusion

Priority Three: Prevention for adults - 18 years and over

- a) Screening examination and prophylaxis
- b) Prophylaxis

Priority Four: Comprehensive services (other than prevention) for adults

- a) Examination
 - b) Radiographs
 - c) Extractions
 - d) Periodontal treatment
 - e) Restorations
 - f) Crowns
 - g) Endodontic treatment
 - h) Replacement services
1. bridges
 2. full and partial dentures

If these priorities are followed as a basis for phasing in dental insurance coverage, some committee members believe that emergency services for everyone should be included in Priority One. The rationale for such inclusion would be the inappropriateness of any financial barrier to obtaining services that would relieve the intense discomfort of dental emergencies. However, it is the judgment of the majority of the committee, while appreciating the concern about alleviation of suffering, that this benefit in the absence of comprehensive benefits would prove unworkable. There would be strong pressures to define many dental visits as emergencies to make them eligible for insurance

payments. In addition, greater incentive might be provided to extract teeth as an emergency procedure, particularly for low income patients, unless the backup of reconstructive services was available.*

Special Population Group Priority

The committee believes that private dental insurance can play an important role in assuring access to dental care. It also wishes to stress that private insurance is unlikely to lead to the most cost-effective dental care for the nation as a whole. The current patterns of private insurance coverage would tend to provide comprehensive coverage, including preventive and basic as well as the less cost-effective reconstructive procedures, for one segment of the population, primarily the employed who obtain insurance coverage through their employment, but leave large groups of the population without any coverage of dental services. If national health insurance with universal coverage for dental benefits is not enacted, the question remains regarding the public role in assuring access to dental care for the poor. As stated in Chapter 4, the present Medicaid program is inadequate in covering dental services for the poor. Many states do not cover dental services at all; and many of those that do have severe limitations on coverage. Such unevenness in a program funded in substantial part by federal tax dollars seems to the committee to be inequitable. Evidence is presented in Chapter 2 to suggest that the markedly lower utilization of these basic services would be expected to persist if such financial aid were not made available to this special population group.

The committee believes that achievement of better equity in access to improved dental health status requires that the child from a poor family who has been found to need such basic preventive, emergency, and restorative dental services under the school-based program recommended above should have the opportunity to receive these services. Therefore, the committee recommends that ~~at this time~~, and even if national health insurance is not enacted, steps should be taken to assure that the children of low income families have access to the basic dental services described in Priorities One and Two above.

Cost Sharing for Dental Benefits

The literature on medical care includes studies and analyses on the effects of cost-sharing by the individual on utilization, costs, and accessibility of health care services. If dental coverage is part of national health insurance, the committee assumes that the basic decisions on cost-sharing alternatives for medical care will likely apply in the same fashion to dental care benefits.

*See additional comments by committee members, Appendix 2.

The committee considered the positive effects of cost sharing on containing expenditures as well as the negative consequences resulting from inhibiting or discouraging the use of services. It seems especially important in dental care to encourage the individual to utilize those preventive services essential to future dental health. Any impediment to the use of appropriate preventive services, financial or other, should be avoided.

Therefore, the committee recommends that cost-sharing not be applied to preventive dental services.

Financing and Delivery Systems

In considering the types of delivery systems that should be covered under a dental component of a national health insurance program, a variety of payment methods, reimbursement systems, and practice setting organizations seem to show some promise. Several such delivery systems are either in place or could be created and appear to have the potential for containing expenditures while assuring quality care (Chapter 4).

Dental practice organizations along the general lines of health maintenance organizations, or with other risk-sharing characteristics, reflect certain cost-effective features. The California Dental Service Corporation administers such an HMO-like program, along with a number of private dental insurance plans. Private dentists of that state have made arrangements with the corporation to provide dental services to Medicaid patients under a risk arrangement, which has proved successful in constraining costs of the service benefits provided by Medicaid. The dentists agree to provide all the covered services at a capitation rate, and the individual dentists participating in the plan receive a fee-for-service payment for services provided to Medicaid patients. Two important results came out of this experience. First, many more Medicaid patients have had access to dental care, because a very large proportion of dentists participated in the organization's plan; and second, costs were held substantially below what they would have been had there not been an organized plan to provide the benefits. A similar experiment is under way in Massachusetts.

Such direct experience with dental care and the positive results of a variety of forms of medical care organizations along the general lines of health maintenance organizations (HMOs) have shown to be efficient and effective in providing ambulatory health services and have contributed to a substantial body of experience supporting development of alternative dental care delivery systems.

The committee recommends that alternative prepaid delivery systems and capitation reimbursement systems be made an integral part of a dental health program under national health insurance and that a substantial

research and development effort to establish, improve, and refine alternative methods of prepaid delivery of dental care be included in a national health insurance program.

Dental Auxiliaries in the Recommended Prevention Program

The data and analysis support the finding that dental auxiliaries are competent to provide a series of preventive services that meet desirable standards of quality (Chapter 4). The use of dental hygienists and expanded function dental auxiliaries in providing preventive services in a school-based preventive program for children and adolescents, such as that recommended by the committee, would have two important effects. First, program expenditures can be better contained because the limited scope of services provided by such dental auxiliaries do not require the extensive training provided to a dentist and thus the labor costs of their services are substantially less. Second, the availability of dental auxiliaries for preventive services would help assure that an adequate number of dentists will be available to meet the increasing demand for treatment services as dental insurance continues to grow.

Legal constraints on the use of auxiliaries for the direct provision of preventive services purport to protect the public from inadequately trained personnel. However, the results of many demonstrations do not support this assertion. Even if dentists are available to perform these services, the use of dental auxiliaries will be more economical and will restrain the cost of a universal school-based program (Chapter 4).

Therefore, the committee recommends that dental hygienists and dental assistants with appropriate training be used to provide preventive care in the recommended school-based system and that those few state legal restrictions to carrying out this recommendation be negated.

Quality Assurance and Utilization Review

Restorative dental services include of procedures that range from the removal of plaque and maintenance care, to an optimal level of extensive occlusal reconstruction. Although the decision to seek dental care is predominately determined by the patient, the kind of procedures and services actually delivered are heavily influenced by the dentist. Of importance, then, is the level (preventive, basic, or reconstructive) of restorative services that dental insurance should cover and that should be delivered to each patient. Therefore, mechanisms to assure the appropriate fit between provider resources and patient needs are necessary.

Various kinds of dental services and intended levels of dental health require different types of review mechanisms in order to assure the quality of care and the appropriateness of the services provided. Preventive measures such as topical fluorides, plaque removal, and teeth sealants will require one type of quality assurance mechanism, while restorative procedures may require other mechanisms such as preauthorization and record reviews. However, in order to evaluate the quality and level of the services actually provided, some system must be instituted so that there is a continuing assurance that the insured benefits are being appropriately utilized and delivered.

The committee recommends that sound mechanisms of quality and utilization review for ambulatory dental care be demonstrated and analyzed and that an effective system be included in any national health insurance system.

Information System

The administration of a national health insurance plan will require a population-based information system in order to provide several kinds of data. For example, it will be necessary to have accurate current information on the persons enrolled, services received, provider identification, and resulting treatment patterns. In addition, program management will require data on expenditures and uses of various types of resources. Continuing analysis will be required of the effect of the dental services provided on the entire dental care system and the oral health of the nation. Thus, data are needed to provide information necessary for management of operations, policy analysis, and overall program evaluation.

The committee recommends that an information system be instituted as an initial component of a national health insurance program. Funds to support these management, analysis, and evaluation activities should be allocated as part of the operating budget of national health insurance as an integral component of annual administrative expenses.

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Introduced: 3/26/81
Referred: Health, Education &
Social Services and Finance

State Ed Health

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50,000 school children
37,000 in Alaska

HOUSE BILL NO 412

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IN THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE - FIRST SESSION

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A BILL

For an Act entitled: "An Act relating to dental disease prevention programs in schools; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. LEGISLATIVE FINDINGS. The legislature finds that an overwhelming percentage of children in the state have dental disease in the form of dental caries and periodontal disease. Dental disease in childhood can and does result in significant lifetime disability, dental pain, missing teeth, and the need for dentures. Poor nutrition in childhood is a major contributing factor in lifetime dental disability. The legislature also finds that dental disease in children and the resultant abnormalities in adults can be prevented by education and treatment programs for children. It is the intent of the legislature in enacting this Act to establish for children in kindergarten through sixth grade a dental disease prevention program which will be financed and have standards established at the state level but which will be operated at the local level.

* Sec. 2. AS 18 is amended by adding a new chapter to read:

CHAPTER 9. DENTAL DISEASE PREVENTION PROGRAM FOR CHILDREN.

Sec. 18.09.010. DENTAL DISEASE PREVENTION PROGRAM IN THE SCHOOLS.

(a) A school district or regional educational attendance area may offer a dental disease prevention program for school children in kindergarten through sixth grade. The program shall include

(1) educational programs that promote dental health and are focused on development of personal practices by pupils; the educational programs shall include the causes and prevention of dental diseases,

debit the ag criteria so that all children are attended not just 3-12

1 nutrition and dental health, and the need for regular dental examination
2 with appropriate repair of existing defects;

3 (2) preventive services that include plaque control and
4 supervised application of topical prophylactic agents for caries preven-
5 tion; services do not include dental restoration, orthodontics, or
6 extraction of teeth.

7 (b) An act performed or service provided under this chapter that
8 constitutes the practice of dentistry shall be performed or provided by
9 or be subject to the supervision of a dentist licensed in accordance
10 with the provisions of AS 08.36.

11 Sec. 18.09.020. ADVISORY BOARD. An advisory board, including
12 representatives from education, dental professions, and parent groups
13 may be established by a school district or regional educational attend-
14 ance area or an existing health advisory body may be used to advise on
15 dental health programs under this chapter. An advisory board shall
16 hold a public meeting at least twice a year so that interested persons
17 may provide testimony on the dental health needs of the community.

18 Sec 18.09.030. STANDARDS. The standards of the dental disease
19 prevention program shall be determined by the department in accordance
20 with this chapter.

21 Sec. 18.09.040. PROGRAM PROPOSALS. The school district or re-
22 gional educational attendance area in cooperation with a local advisory
23 board shall submit a proposal for a dental disease prevention program
24 to the department annually by July .. The proposal shall include the
25 methods by which the program will be implemented in the school district
26 or regional educational attendance area.

27 Sec. 18.09.050. APPROVAL OF PROGRAM. The department shall review
28 program proposals submitted under AS 18.09.040 and approve those pro-
29 grams that meet standards established under AS 18.09.030. The depart-

1 ment shall reimburse a school district or regional educational attend-
2 ance area with an approved program \$3 a year for each participating
3 child for expenses incurred for the programs and services described in
4 AS 18.09.010.

5 Sec. 18.09.060. JOINT PROGRAMS. The school district or regional
6 educational attendance area may contract with other public and private
7 nonprofit agencies, as well as with other school districts and regional
8 educational attendance areas, in conducting a dental disease prevention
9 program.

10 Sec. 18.09.070. ASSISTANCE FROM DEPARTMENT OF EDUCATION. The
11 Department of Education may assist the department and school districts
12 and regional educational attendance areas in developing in-service
13 training programs in dental health and dental disease prevention for
14 kindergarten through sixth grade teachers. The technical content of
15 the training programs shall meet standards set by the department under
16 AS 18.09.030.

17 Sec. 18.09.080. WITHDRAWAL BY PARENT. The parent or guardian of
18 a child may give written notice to a school district or regional educa-
19 tional attendance area withdrawing a child from participation in a
20 dental disease prevention program. The notice may disapprove the
21 child's participation in all or any portion of the program.

22 Sec. 18.09.090. PARTICIPATION BY PRIVATE SCHOOLS. The standards
23 established by the department under AS 18.09.030 shall include proce-
24 dures under which a child in a private school in the state may receive
25 the benefits of the dental disease prevention program.

26 Sec. 18.09.100. REPORTS. (a) On January 1 of each year the
27 school district or regional educational attendance area shall submit to
28 the department a report on a dental disease prevention program estab-
29 lished by this chapter. The report shall contain information specified

1 by the department and shall include the number of participating child-
2 ren, the number of children examined, the number of children requiring
3 dental care, the number of children treated, and the number of children
4 requiring further treatment.

5 (b) On February 1 of each year the department shall submit to the
6 legislature a report on all activities under the dental disease preven-
7 tion program including a summary of the information submitted under (a)
8 of this section.

9 Sec. 18.09.110. DEFINITION. In this chapter, "department" means
10 the Department of Health and Social Services.

11 * Sec. 3. (a) The initial standards adopted by the Department of Health
12 and Social Services under AS 18.09.030 shall be published in regulations of
13 the department by March 1, 1982.

14 (b) The initial program proposals of the school districts and regional
15 educational attendance areas under AS 18.09 shall be filed with the Depart-
16 ment of Health and Social Services by July 1, 1982.

17 (c) The initial reports under AS 18.09.100(a) are due from a school
18 district or regional educational attendance area on January 1, 1983.

19 (d) The initial report from the Department of Health and Social Ser-
20 vices to the legislature under AS 18.09 100(b) is due February 1, 1983.

21 * Sec. 4. The Legislative Budget and Audit Committee shall conduct an
22 evaluation of the dental disease prevention program provided by AS 18.09 as
23 enacted in sec. 2 of this bill during the fourth year of the program. The
24 evaluation shall include the cost effectiveness of the program and the
25 impact of the program on state expenditures for medical and dental care.
26 The report shall be submitted to the legislature on or before January 1,
27 1987.

28 * Sec. 5. Sections 1 and 2 of this Act take effect July 1, 1981.

Effective Public Education for Achieving Oral Health

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DENTAL HEALTH EDUCATION is frequently advocated as a measure to prevent and control oral diseases. But this education, as usually provided, has not been shown to improve oral health, especially by preventing dental caries (tooth decay). As commonly practiced, dental health education is limited to instructing children—a restricted approach, considering the potential for educating a community. Frequently educational efforts are limited to elementary school children. Although the goal is to establish good oral hygiene and dietary habits for life, junior high and high school students and adults are largely ignored.

Often, oral hygiene measures and instruction on diets are the sole components of education intended to improve oral health. Many people seem to regard education as a process similar to inoculation, assuming that appropriate behaviors will automatically follow receipt of information, just as immunization follows inoculation.

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HEALTH, THE JOURNAL OF HEALTH PRO-
MOTION AND MAINTENANCE, 3:91-101,
November 1980

Public health education includes a wide variety of social processes, including seeking information, listening, planning, organizing, facilitating, informing, leading, and guiding. All these actions help to encourage individuals and communities to adopt effective health measures and programs. The goal is improved health, and the processes are those of planned intervention to achieve the social change needed to reach that goal. Thus health education strategies should include, but should not be limited to, instruction of school-age children.

Health professionals can initiate community action to implement programs which scientific evidence has proven effective. Current approaches to dental health education have some major limitations. There are alternative educational strategies with greater potential for bringing oral health to specific groups. The focus here is on one main strategy: how to get adult decision makers to recognize the extent and impact of oral health problems in their communities and how to help them organize efforts to obtain

- Community adoption of the most suitable, effective, and efficient ways to prevent their oral health problems;
- Comprehensive, effective, school-based programs for children; and
- Comprehensive, effective, community-based programs for adults.

LIMITATIONS OF CURRENT APPROACHES TO DENTAL HEALTH EDUCATION

Some factors contributing to the ineffectiveness of current education to improve oral health are:

- Failure to involve community and school leaders in defining community health problems and developing appropriate solutions based on scientific evidence;
- Inadequate program objectives, inadequate dissemination of accurate information, and inadequate evaluation of programs;
- Inadequate single presentations of information with little or no follow-through;
- Inadequate long-term supervision and evaluation of oral hygiene procedures;
- Inconsistencies between children's environments and the information taught about diet, plaque, fluoride, and the need for routine professional care;
- Inadequate follow-up of screening and referral procedures to assure that children needing treatment actually are able to obtain it.

Children's Participation

Once a year, usually during Children's Dental Health Week, professionally sponsored messages urge school children to brush their teeth, avoid sweets, and visit their dentist (whether or not they have one). Until recently, a local dental hygienist or dentist would visit schools, stand at the front of a classroom and tell students how and when to brush. Fortunately, over the past 10 years the sophistication of educational methods has improved. Recent concepts of learning no longer encourage students to look and listen passively and perhaps demonstrate their knowledge of facts. Today, students are expected to actively participate in

their education understanding required to identify snacks and to perform special skills.

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their education by demonstrating their understanding of information. They are required to identify "good" and "bad" snacks and to show their ability to perform specific types of oral hygiene skills.

Brushing and Flossing

However, the major thrust of this effort advocates plaque removal through brushing and flossing with the objective of controlling dental caries and gingivitis.¹⁻³ Regardless of the educational method or approach employed, such efforts have had little demonstrable effect on the public's oral health.⁴⁻¹² Although there is evidence to show that thorough plaque removal reduces gingival (gum) inflammation, the effectiveness of brushing and flossing in reducing dental caries is equivocal.¹³⁻¹⁵ The difference between brushing and flossing the teeth, and removing plaque must be distinguished. Unless plaque is removed frequently and thoroughly, dental caries can develop. However, the minimum frequency of plaque removal required to prevent dental caries has not been established. Moreover, at least in children, both thorough training and continuous strong supervision are required if brushing and flossing are to reduce inflammation of the gums.

Use of Fluorides

A major limitation of current education about dental health is that the benefits of fluorides are not stressed. Teaching the importance of fluorides to prevent dental decay is almost totally neglected in today's school programs. Most children learn nothing about the nature of fluoride and its role in preventing dental decay.

Although many children and adults may be aware of the benefits of fluoride dentifrices (through commercial advertising), their knowledge of the need for and use of other more effective fluoride regimens is grossly inadequate. This deficiency indicates a glaring failure on the part of those responsible for dental health education, and it may account for the lack of more widespread public acceptance of community water fluoridation. Corrective action to develop and implement relevant curricula can and must be taken.

Reducing Sugar Consumption

In contrast, the association between sugar and dental caries has long been known and taught. However, as Mandel recently pointed out, "the sugar-caries relationship is generally accepted. But the knowledge has not set us free, at least not caries-free."¹⁶ Efforts to teach children to consume less sugar, although admirable, are unrealistic. Such attempts cannot compete with the persuasive advertising of certain segments of the food industry that are supported by vast financial resources. Children are exposed early to countless commercials that extol the "goodness" of sugared products. Sugar-laden foods are given as tokens of love and affection, and even used as rewards in some school remedial reading programs.

It is a waste of time to try to teach nutritious snacking habits to children whose schools have vending machines filled with sugary products or hold candy sales to make money for various school projects. A survey of eating habits of high school students in Indiana showed that 73 percent of 374 students reported eating

food from vending machines—mostly highly sweetened items—at least two or three times a week.¹⁷ Without changes in current practices of advertising items laced with sugar, alterations in the types of foods available in school vending machines, and effective labeling to disclose percentages of ingredients of all packaged foods, efforts to reduce the frequency of consumption of sugary products on behalf of dental health are futile exercises.

Access to Dental Care

A third area of traditional dental health education emphasizes the importance of dental visits. Some schools have screening and referral programs; others routinely refer all children for annual dental examinations. Often dental visits are recommended without considering whether the child has access to professional dental care. Many school districts do not follow up to ensure that children actually receive needed treatment or even visit a dentist, which may subtly teach that seeking care is not really important. If the need for routine dental visits is taught as an essential ingredient for good oral health, then dental services must be available.

Students and the general public should not be denied information about thorough plaque removal, the need to eat sweets less frequently and the desirability of routine professional care. However, almost everyone beyond preschool age knows that "you should brush your teeth," "you should not eat sweets between meals," and "you should visit your dentist twice a year." However,

knowing is not doing. Information alone does not change behavior, whether it is removing plaque, restricting the frequency of sugar consumption, using fluoride optimally, or obtaining appropriate dental care. Likewise, doing is not knowing. For example, implementing a school-based program of self-applied fluoride (tablets or rinses) will directly benefit students' oral health but may not teach them what fluorides are and why they are important for oral health. Rinsing by rote will reduce dental caries, but will not make a more informed consumer or voter. Ultimately, both protection and understanding must be achieved.

**HEALTH EDUCATION
PRIORITIES FOR SOCIAL
ACTION**

Health professionals have the responsibility of promoting only those procedures that scientific studies have shown to be effective. Because many factors operate together to produce either dental caries or periodontal disease, concurrent, multiple actions are required for prevention; no single action is sufficient.

Education for social action in community health programs should encompass activities of all types that lead a community to adopt and maintain the preventive measures shown in Table 1. The following critical processes are integral to community oral health programs:

- *Inform community leaders, including health professionals, about the relative effectiveness and practicality of all known preventive measures. The information should enable them*

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TABLE 1
Methods for Preventing Oral Diseases

Disease and Preventive Method	Concentration or Dosage	Approx. % Reduction in Dental Caries and Gingivitis	Frequency and Duration
DENTAL CARIES			
<i>Fluorides</i>			
<i>Systemic and topical benefits:</i>			
Community water fluoridation	0.7-1.2 ppm	50-65	Lifetime consumption
School water fluoridation	4.5 times optimum	40	12 years
Dietary fluoride supplements			
Drops or tablets (home)	Depends on age of child and fluoride concentration of water	50-80	Birth to at least age 14
— Tablets (school)		25-40	K-8th grade
<i>Topical benefits only:</i>			
Professionally applied topical fluoride	2% NaF 8% SnF ₂ APF (1.2% F)	30-40	Once or twice a year, depending on individual's rate of tooth decay
Self-applied			
Mouthrinses	0.05 NaF (daily) 0.2 NaF (weekly)	20-50	At least through school years
Dentifrices (toothpaste)	0.40% SnF ₂ 0.76% MFP 0.22% NaF	20-30	Lifetime
Sealants		Stop pit and fissure decay, if retained	After teeth erupt, replace as needed
Control of cariogenic foods			
Unavailability in school		Proportional to reduced frequency of intake	Lifetime
Reduced frequency of intake			
Oral hygiene measures			
Closely supervised (school)			
Brushing		Equivocal	Lifetime
Flossing		Equivocal	Lifetime
Unsupervised (school and home)			
Brushing		Equivocal	Lifetime
Flossing		Equivocal	Lifetime

Continued

TABLE 1 (Continued)

Disease and Preventive Method	Concentration or Dosage	Approx. % Reduction in Dental Caries and Gingivitis	Frequency and Duration
GINGIVITIS			
<i>Oral hygiene measures:</i>			
Closely supervised (school)		~25-30	Effect decreases when supervision is withdrawn
Brushing and/or flossing			
(Unsupervised (school and home))			
Brushing and/or flossing		Equivalent	Lifetime

to make appropriate decisions to adopt and maintain worthwhile programs for their community.

- Inform school children of all grade levels and the adults who influence children's daily activities about the relative effectiveness and practicality of selected preventive measures so they can make appropriate decisions and take appropriate actions to achieve and maintain oral health.
- Inform the adult community, particularly those most susceptible to a given oral disease, about the relative effectiveness of known preventive and treatment procedures so they can take appropriate actions to achieve and maintain oral health.
- Involve and stimulate the community to take action to obtain effective program measures.

Each of these tasks involves working with people in the community and actively enlisting their help in deciding how to solve their oral health problems. There are no clearcut boundaries between these tasks and two or more may go on concurrently.

Priorities in Community-Wide Programs

An oral health program should improve the health of community residents. Moreover, community health professionals should try to achieve the best possible oral health outcomes for the available money. The most powerful educational tool for accomplishing these objectives is a planning process in which community leaders involve themselves in defining problems and identifying and implementing solutions. The health professional's responsibility in this process is twofold: to be well-informed and to help community leaders take the most appropriate actions. Specific educational strategies that may interest community leaders in oral health include the following:

- Forming a group of representatives from various agencies, civic organizations, and consumers' groups to examine oral health problems in the community;
- Helping consumers conduct surveys to identify public perceptions of oral health problems and preferred methods of resolving these problems;
- Initiating seminars and workshops to

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- bring oral health problems to the attention of community leaders; and
- Assist health professionals in updating their knowledge about the most effective ways to prevent and control oral diseases.

Community leaders (mayor, city manager, city council members, superintendent of schools, legislators, and other decision makers) must be informed of the extent and scope of the oral health problem and the relative effectiveness and practicality of known preventive measures. Public decision makers have a right to be fully and accurately informed about the comparative benefits and costs of oral health programs before making policy

Public decision makers have a right to be fully and accurately informed about the comparative benefits and costs of oral health programs before making policy decisions. . . .

decisions that involve the expenditure of public funds.

Community water fluoridation is the most effective public health method for preventing dental caries and therefore should be the cornerstone of all community oral health programs.¹⁹ The introduction of community water fluoridation may face political opposition, but committed health professionals should persevere. One reason that communities succumb to anti-fluoridation pressure is that health professionals have not fully informed the public about this valuable public health measure.^{19,20} A 1977 survey of adults in the United States revealed

that most people do not know what fluoridation is or how it affects oral health; almost one-fourth of the respondents believed that the purpose of fluoridation is to purify water. Many people did not know whether their own drinking water was fluoridated.²¹ The paramount role of the community health professional is to make sure that correct information about fluoride is provided and continuously reinforced so that future generations receive the benefits of fluoride in its most efficient form.

When community fluoridation is not possible because there is no central water supply, alternative methods of providing systemic fluorides such as fluoridating school water or providing dietary fluoride supplements must be used (see Table 1). Therefore the most important planning task in nonfluoridated communities is to determine the best method of administering systemic fluorides to the greatest number of residents.

Priorities in Comprehensive Preschool and School-Based Programs

As permanent structures in a community, schools provide excellent settings for health-related activities. No other location provides access to a similar number of children and adults. Schools are one of society's major instruments for socializ-

Ideally, school programs should provide a setting for the efficient application of preventive health services and should prepare students to make knowledgeable health decisions. . . .

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Oral Health Programs

Programs should inform and educate residents. Health professionals should provide the best possible oral health care using the available educational resources. The primary objective is to inform the community about oral health problems and to help them in defining and implementing preventive programs. A health professional's role in oral health is twofold: to help community leaders and private actions. Programs that may be implemented in oral health

representatives of civic organizations and groups to address problems in the

conduct surveys and discussions of oral health problems; and referred methods; and workshops to

ing and teaching children, explicitly or implicitly, information and behaviors that society views as appropriate, legitimate, and important as preparation for responsible community membership. Ideally school programs should provide a setting for the efficient application of preventive health services and should prepare students to make knowledgeable health decisions not only as individuals, but also as future parents, opinion leaders, and community decision makers.

There are several necessary components of a comprehensive school-based oral health program:

- A written plan of action describing program objectives, how to achieve them, and methods for program evaluation (see article by Frazier and Horowitz, this issue);
- Implementation of appropriate programs to prevent dental caries and gingivitis;
- Provision of an environment consistent with what is taught students about the prevention and control of oral diseases and how to achieve oral health;
- A comprehensive curriculum spanning all grade levels that includes scientific knowledge about the prevention and control of oral diseases for the individual and for the community; and
- Assurance of routine dental examinations and access to dental care for all children.

PRIMARY PREVENTIVE MEASURES

An innovative and inexpensive method for administering fluoride to school children is the use of self-applied fluorides.

Considerable research on the use of fluoride tablets once a day or fluoride mouthrinses once a week in schools has shown their effectiveness and their low cost.²² Moreover, these two regimens are easily accepted by students, parents, and school personnel. Fluoride tablets, used only in nonfluoridated communities, provide systemic benefits to unerupted teeth as well as topical benefits to teeth already in the mouth. Fluoride mouthrinses should not be swallowed and provide only local effects to erupted teeth. Fluoride mouthrinses may be used in both fluoridated and nonfluoridated communities. In addition, everyone should be taught the importance of using an approved fluoride-containing dentifrice.

Once appropriate fluorides are being used, oral hygiene procedures to remove dental plaque should be taught and reinforced throughout the school years in an attempt to reduce gingivitis. Emphasis on these procedures in junior and senior high school may be particularly productive because students have the necessary dexterity and because social relationships provide an incentive for good oral hygiene. Special efforts should be made to reduce the availability of sweets on school premises. For example, a school selling candy to underwrite the costs of extracurricular activities should substitute another source of funding or other sales items.

INSTRUCTIONAL ASPECTS

In any school program, teaching information and recommended behaviors should be consistent with scientific evidence. Instructional activities should be organized on the basis of the proce-

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dures shown in Table I and should stress the contributions of each to the prevention of dental caries and gingivitis. What is not known should also be clearly indicated. Whenever students participate in a caries prevention procedure at school, they, as well as parents, school personnel, and health professionals should be taught the reasons for and limitations of the procedure.

The importance of fluorides should be given top educational priority. The teaching of behaviors appropriate to its use should be the foundation of instruction in the prevention of dental caries. Health professionals, teachers, and students need to learn not only how individuals can protect themselves but also how an individual can contribute to better community oral health by advocating and supporting effective programs for preventing oral diseases.

Priorities in Community Oral Health Programs for Adults

All elements essential for a comprehensive school-based health education program should be included in other organized community programs. Activities should focus on day care centers, retirement centers, work sites, adult education programs, and health fairs. Although oral health has not previously been emphasized in such settings, these sites have

All elements essential for a comprehensive school-based health education program should be included in other organized community programs.

great potential for teaching, and some desirable trends are developing. For example, many large corporations are beginning to implement health education programs and preventive practices in an attempt to improve the health of employees and their families. Oral health must be included in these efforts.

The subject matter may vary but should include the same information recommended for students. For adults greater emphasis should be placed on preventing periodontal diseases, as well as the importance of self-examination for early diagnosis of oral cancer—particularly for male smokers over 40 years of age.

PROGRAMS FOR THE ELDERLY

Retirement homes and day care centers for the elderly are prime sites for oral health programs. Visits to dental offices by the elderly are strongly correlated with mobility and ability to pay for services.²¹ Lack of dental care among the elderly is particularly serious because half of those individuals over 65 years of age lack natural teeth, and many of these people lack adequately fitting dentures or have no dentures at all. Older people who have some or most of their natural teeth may benefit from self-applied fluoride programs such as mouthrinsing. Cemental (root) caries may be frequent in this age group because their gums have receded and the flow of saliva may be reduced naturally or from use of medicines. Although supportive data on benefits to the elderly from topically applied fluorides are sparse, older people who are particularly susceptible to dental caries in exposed tooth roots should definitely be

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given topical fluorides. The rinsing can be done in facilities for the elderly similar to the way it is done in schools.

ADULT EDUCATION PROGRAMS AND COMMUNITY HEALTH FAIRS

In addition to access to groups through work sites or various institutions, there is a need to reach parents and other adults who are not in institutional settings. This is important not only for improving the oral health of the adults themselves, but also because adults strongly influence the daily activities of young children, including health practices.

For years, adult education programs have offered a broad range of courses, but only recently have health-related courses become available. Oral health can be included in these courses. In addition, community health fairs are becoming increasingly popular. The content of oral health information should be broader and more comprehensive. Free oral inspections, including cancer screening, could be offered as well as information about the use of fluorides and assistance in obtaining dental care.

PRIORITIES IN PROGRAMS FOR MATERNAL AND INFANT HEALTH

Programs for expectant mothers and mothers with infants provide exciting opportunities for oral health activities. Often these women are strongly interested in their own health and that of their offspring and are usually eager to comply with recommended health practices.

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The instructional content of a program designed for women should be based upon individual needs. It should include the use of fluoride for mothers and children with emphasis on the value of dietary fluoride supplements for the children (starting at birth in nonfluoridated communities); the importance of water fluoridation for people of all ages; the need for thorough, routine plaque removal for adults; the advantages of regular dental care; the desirability of appropriate eating practices with emphasis on reducing sweet snacks; and the need for proper feeding practices in infancy to avoid nursing-bottle caries.

CONCLUSION

Preventing oral diseases and promoting oral health require a broad spectrum of social processes of planned intervention to achieve change. Because of the epidemic proportions of these diseases, their economic impact and their effects on health and well-being, the need for wider use and public understanding of proven primary preventive methods is essential.

Public health education for oral health must be broader in scope than merely teaching elementary school children about oral hygiene and sugar consumption. Although school-based oral health curricula are essential, they should be only one component of a comprehensive community oral health program.

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School-Based Fluoride Programs: A Critique

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HERSCHEL S. HOROWITZ, D.D.S., M.P.H.

ABSTRACT

While community water fluoridation is the most effective public health method of reducing the prevalence of dental caries, approximately one-half the population of the United States is without this preventive benefit. In communities which lack a central water source or which find it unfeasible to fluoridate, alternative methods to allow children to receive the benefits of fluoride have been sought. Methods of applying fluorides which can be performed in schools are described. Advantages and disadvantages of individual school water fluoridation, and school-based programs of professionally administered topical fluorides and self-administered fluorides are discussed.

Dental caries is a leading disease of children. It affects nearly 98% of the population in the United States. In 1977, the cost of dental care in the United States was more than 10 billion dollars. While a significant amount of this care was undoubtedly to repair carious teeth, much dental disease goes untreated inasmuch as less than half of the population receives annual dental treatment.

Because of the epidemic proportions of dental caries, its economic impact, and its health sequelae, the need to use proven cariostatic agents and techniques more extensively is obvious. Despite interest and research in other methods of caries prevention, the use of fluorides remains our most effective measure.

Fluoridation of water supplies is the most effective community method of reducing the prevalence of dental caries. Because it is a nearly ideal public health method, water fluoridation should be the basis for all organized caries preventive programs. In the United States, approximately 50% of the population benefits from this procedure.⁵ Two-thirds of those who do not consume fluoridated water live in areas where it is possible to fluoridate, but, because of adverse economic or political factors or because the need is not perceived, fluoridation has not been implemented. The remaining one-third of the unserved population cannot benefit from community water fluoridation because they live in rural areas without water systems.

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Non-fluoridated areas require alternative methods of delivering fluorides to reduce the incidence of dental caries, particularly among children, who, being most susceptible to the disease, will derive the greatest benefit. Because nearly all children attend grade school and many children attend various preschools, this environment provides an excellent setting for oral health programs. Several methods of applying fluorides are practical for use in schools, including school water fluoridation, professionally administered topical fluorides, and supervised self-administered fluorides.

SCHOOL WATER FLUORIDATION

The fluoridation of individual school water supplies is similar to community fluoridation in that no direct action is required of the individual other than routine consumption of water. School fluoridation effectively reduces the prevalence of dental caries in a student population by about 40%.^{8,10} As is the case for community fluoridation, maximum benefits from school fluoridation are not attained for several years. After school fluoridation is implemented, benefits will gradually increase until maximal caries protection is achieved after 12 years.^{8,10} This method is particularly suitable for many rural schools that consolidate kindergarten through grade 12 in the same or adjacent buildings. These school systems frequently have independent water supplies that are easy to fluoridate.

The basic equipment and materials required for school fluoridation include suitable storage containers, feeders, saturators, colorimeters, and the fluoride. At least one school employee must be trained to monitor and adjust equipment and to take samples of water for fluoride analysis. According to Newbrun, when all costs (supplies, amortized equipment, and labor) are included, the annual cost for school fluoridation to prevent one decayed surface is about \$1.90.¹³

School fluoridation provides a systemic benefit to unerupted, developing teeth and a topical effect to erupted teeth. Moreover, the entire school population will automatically participate in the program. This point is important because many school-based fluoride programs are limited to children in only certain grades, such as elementary grades, kindergarten through 6. Yet, children in junior and senior high school (grades 7-12) are particularly prone to dental caries.

A disadvantage of school fluoridation is that children consume the fluoridated water only on school days. This limitation, however, is inherent in most school-based fluoride programs in which frequent application is desirable. One reason that higher concentrations of fluoride than those recommended for community fluoridation in the same geographic area (4.5 times) are recommended for school fluoridation is because there is only part-time exposure. Another disadvantage to school water fluoridation and to other school-based programs of systemic fluoride administration is that by the time children begin to attend school, calcification of permanent incisors and first molars is completed, and therefore, these teeth cannot derive maximal benefits from systemic exposure to fluorides.

There is no simple alternative to consuming fluoridated water once a school's water supply is fluoridated; therefore, some anti-fluoridationists may be opposed to the procedure. Although the procedure has the potential for political conflict, there has been little overt opposition to school fluoridation programs.

PROFESSIONALLY ADMINISTERED FLUORIDES

An abundance of data shows that professionally administered topical applications of solutions of 2% sodium fluoride (NaF), 8% stannous fluoride (SnF₂), and acidulated phosphate fluoride (APF, 1.23% F ion) solution or gel, when used as directed, reduce the increment of dental caries about 40% in children in nonfluoridated areas.¹¹

Although professional administration of fluorides is suitable to use in clinics or dental offices, this method of delivering fluorides has serious cost limitations for school-based programs. In this country, costs of professional services for this technique at its recommended frequency are financially prohibitive for most school programs. However, such programs may be feasible in communities or states with graduate or undergraduate professional personnel whose salaries are less than customary professional fees. Estimates of cost-effectiveness by Helfetz indicate that to prevent one decayed surface the cost of an annual gel-tray treatment with APF is \$4.40, while a series of applications of NaF solution comes to \$2.60.⁹

Other disadvantages of professionally applied fluorides in public health programs include the need for portable dental equipment, which must be maintained, repaired, stored, and transported from site to site. Additionally, the taste and staining characteristics of one of the agents, stannous fluoride, has tended to discourage its wide use.

Professional application of fluoride provides only topical benefits to the teeth. It is not known how long benefits are retained after applications are stopped, although one study has shown posttreatment cariostatic effects for 36 months following 3 years of professional applications of APF.¹²

SUPERVISED SELF-ADMINISTERED FLUORIDES

For the past several years, much clinical research has focused on techniques in which children can administer fluoride to themselves in school. These procedures reduce the need for highly trained and paid personnel. Several self-applied techniques have been evaluated, including 1) toothbrushing with fluoride solutions, gels, fluoride-containing prophylaxis pastes, or fluoride dentifrices; 2) the application of fluoride gels in mouth trays; 3) mouthrinsing with fluoride solutions; 4) the use of dietary fluoride supplements (tablets); 5) the use of combinations of fluoride agents.

TOOTHBRUSHING TECHNIQUES

Toothbrushing with Fluoride-Containing Solutions and Gels

Collective findings of studies that have tested regimens of toothbrushing with concentrated fluoride solutions or gels about five times a year show that this method effectively reduces dental caries by approximately 20%.¹¹ Advocates of this procedure have claimed that, concomitant with the benefits of fluoride, participants also learn to brush their teeth correctly. Whether the group instruction that accompanies these fluoride applications imparts beneficial effects has not been demonstrated. This method has not been widely used in this country, possibly because the materials are expensive, the method is poorly accepted by participants, and alternative, less expensive, and better accepted regimens are available.

Toothbrushing with Prophylaxis Pastes

In the late 1960's and early 1970's, some researchers advocated "Brush-In" programs, consisting of toothbrushing with a fluoride-containing prophylaxis paste once a year. In theory, this procedure offered the ultimate solution for school-based caries prevention. Promised attributes of this regimen were efficacy, minimal frequency of application, and treatment of nearly unlimited numbers of children at one time. Moreover, the Brush-In was relatively inexpensive—a cost of approximately \$0.30 per application for materials was generally cited.⁶

Annual brush-ins were implemented widely in schools and other locations where the public congregates, such as shopping centers. This method is now used far less frequently, possibly because children generally dislike the taste of the stannous fluoride-containing prophylaxis paste used with this technique⁹ and because some investigators reported that little or no benefit was derived by this procedure.⁷ Today, this paste is no longer sold so discussion of benefits from its use is academic. However, some communities still schedule infrequent brush-ins with other brands of fluoride prophylaxis pastes despite the lack of clear-cut evidence of their efficacy. Continued use of such procedures, when other proven inexpensive methods of self-application of fluoride are available, is difficult to justify. Claims that a side benefit of this procedure is toothbrushing instruction also remain unsupported.

Toothbrushing with Dentifrices

Although toothbrushing with a dentifrice that contains fluoride is more often thought of as a home-based rather than a school-based procedure, it is sometimes used in schools. Substantial data show that *ad libitum* use of such dentifrices will reduce the incidence of dental caries by about 20–25%. Toothbrushing is usually performed with a dentifrice; because fluoride dentifrices cost no more than most nonfluoride dentifrices, a fluoride-containing dentifrice for toothbrushing at home is not considered an added expense. Since about 80% of all dentifrices sold in the United States contain fluoride, the authors question whether funds should be spent on a product for a school-based program that is already being used by most children at home. Students should be encouraged to use a therapeutic

*Zincate treatment paste (8.9% SnF₂; zirconium silicate abrasive).

fluoride containing dentifrice, rather than a nontherapeutic dentifrice, at home.

Students in many communities are participating in school in daily toothbrushing programs without dentifrice, frequently referred to as "plaque control programs." If this is the only preventive regimen being practiced, the opportunity to apply a fluoride dentifrice should be provided. However, purchasing fluoride dentifrice for a school toothbrushing program is expensive. The cost of materials, the daily time required to apply it, and the facilities needed to rinse the mouths and brushes of the participants are distinct disadvantages. Moreover, sanitary storage for brushes is required, which is another disadvantage of any of the methods that use a toothbrush.

APPLICATION OF FLUORIDE GELS IN MOUTH TRAYS

The daily use of concentrated fluoride gels in custom-made mouth trays is a self-applied regimen that was found in one study to reduce new decay by 75-80%, which is among the most effective results that have been achieved with topical fluoride procedures.⁴ As described by Englander, this daily procedure requires facilities for the children to rinse their mouths and trays after the 6-minute application. This method also requires adequate storage space for the trays as well as the fluoride agent. Because the technique demands much time, is complex, and very expensive, it has not been widely used in schools.

MOUTHRINSING WITH SOLUTIONS OF FLUORIDES

Research has shown that dental caries can be reduced about 35% by rinsing daily or weekly with dilute solutions of fluoride.¹³ At present, there are no data to support superior effectiveness for either frequency of rinsing, although research on this question is in progress. Weekly rinsing with 0.2% neutral sodium fluoride is currently used more often in schools than a daily rinse with 0.05% sodium fluoride because less time and materials are required with the former. Weekly fluoride mouthrinsing is the most extensively adopted school-based self-applied fluoride program in the United States; approximately eight million children do it regularly.

Mouthrinsing is generally supervised in

classrooms or elsewhere in the school by teachers, teacher aids, health aids, or volunteers. The recommended regimen is for students to rinse for 60 seconds with 10 ml of the solution. Children in kindergarten generally rinse with 5 ml. The students next empty their mouths into a paper cup and wipe their lips with a napkin, which they then stuff gently into the cup to absorb the solution. The used cups are either put in a plastic bag to be discarded with the classroom trash or are disposed directly into the classroom waste can. Weekly fluoride mouthrinsing has the following advantages:

- 1) The procedure has consistently been effective in reducing dental caries.
- 2) Little classroom time is required (about 5 minutes a week).
- 3) The technique is easy for school-age children to learn.
- 4) Few materials are needed and they are relatively inexpensive (approximately \$0.50 per child per school year).
- 5) Non-dental personnel with minimal training can easily supervise this procedure.
- 6) The solution and the procedure are generally well-accepted by the participants.

Ingestion of fluoride is not intended to occur when doing a rinse-and-expectorate procedure; therefore, fluoride mouthrinsing can be used in both fluoridated and nonfluoridated communities, although data to support the effectiveness in communities that are fluoridated are limited. Radtke and his co-workers reported that children in a fluoridated community who rinsed daily in school with a dilute solution of stannous fluoride derived considerable benefits. Results showed that caries incidence was reduced by approximately 39%.¹⁶ Because our society is mobile, there are undoubtedly many children in fluoridated communities who are not life-long residents. Offering a school-based fluoride mouthrinsing regimen to students in fluoridated communities is a convenient and inexpensive way to provide additional benefits, possibly to all children, but certainly to those who have relocated from nonfluoridated communities.

Despite the advantages and popularity of this procedure, it has some disadvantages. Weekly fluoride mouthrinses provide topical benefits only and, conceivably, the benefits last only as long as the rinsing is practiced. In addition, because a 0.2% sodium fluoride solution is a prescription item, there is sometimes a problem in identifying

a dentist or physician who is willing to assume the responsibility of writing a prescription. Moreover, a few school systems have had serious problems with teacher unions or individual teachers who maintain that supervising a fluoride regimen is not an educational responsibility.

There have been a few exceptions but, for the most part, antifuoridationists have not opposed fluoride mouthrinsing programs. This may be attributed to the fact that participation is voluntary, and because the fluoride is topically, rather than systemically, administered.

DIETARY FLUORIDE SUPPLEMENTS (TABLETS)

The daily consumption of a 1-mg fluoride tablet in school can reduce the incidence of children's dental caries by about 35%.^{1,3} The results are based on use of the tablet only on school days. The most frequently recommended procedure requires that the tablet be chewed for approximately 30 seconds, the resultant solution swished between the teeth for another 30 seconds, and then swallowed. Tablets may also be allowed to dissolve slowly in the mouth. The daily procedure is usually supervised by classroom teachers.

Fluoride tablets share most of the advantages cited for fluoride mouthrinses and have several additional advantages. They confer systemic benefits to unerupted teeth in addition to topical benefits to erupted teeth. Fluoride tablets are suitable for preschool children; mouthrinses are not because the solution should not be swallowed (if a 0.2% NaF solution is used or if a 0.05% solution is used in a fluoridated community), and this age group cannot adequately control their swallowing reflex. Moreover, benefits from fluoride tablets are retained.² There are no paper cups, napkins, or other waste products to dispose of with the use of fluoride tablets; therefore, tablet programs are less expensive than other self-applied procedures—as low as \$0.20 per child per school year. Nevertheless, school-based fluoride tablet programs also have some disadvantages. As with fluoride mouthrinses, the need for a prescription can hinder implementation. Schools may be willing to start dietary fluoride supplement programs, but may be unable to find anyone to assume the responsibility for writing a prescription. Sometimes a barrier to implementation is a health professional who

perceives that the community or school will not accept a fluoride tablet program because it encourages the use of "drugs." A few health professionals view the use of fluoride tablets in school as bothersome because the concentration of fluoride in the students' drinking water must be determined before tablets can be recommended.

One obvious disadvantage is that this daily procedure should be continued from preschool (preferably) or kindergarten through at least the eighth grade. Fluoride tablets may be used as a topical fluoride procedure among children in high school, but class schedules in high school often make a daily procedure unfeasible. Weekly mouthrinsing with fluoride solutions is usually preferred in high school settings. A few teachers resent being asked to supervise such a regimen, and claim it is not their responsibility. The antifuoridationists have not, to any great extent, opposed fluoride tablet programs, perhaps because participation requires individual consent.

COMBINATION FLUORIDE MOUTHRINSE AND FLUORIDE TABLET PROGRAM

Some school programs are using both fluoride tablets daily and fluoride mouthrinses weekly. After 6 years in one program, the prevalence of new dental caries was reduced by 45% among continuous participants. The prevalence of dental decay on approximal tooth surfaces was lowered by 85 percent.¹⁴ The cost of such a program can be modest; less than \$1.00 per child per school year. The main disadvantages are that tablets must be taken daily and both fluoride tablets and mouthrinse solutions are prescription items.

SUMMARY AND CONCLUSIONS

Each school-based fluoride regimen discussed in this paper has obvious advantages and disadvantages. Moreover, individual communities have unique characteristics that may modify the stated advantages or disadvantages of each regimen. For example, determining the concentration of fluoride in the drinking water before implementing a fluoride tablet program may be considered a disadvantage by one group of decision makers, but perceived by another group as merely a necessary step to achieve a desired benefit.

The objective of a school-based fluoride program should be to reduce dental caries for the largest number of children as much and as inexpensively as possible. In determining which school-based fluoride procedure or combination of procedures is best, one should consider the ages of the children, the concentration of fluoride in their drinking water, the known efficacy of the fluoride regimen under consideration, and its cost. Evidence to date indicates that the best method in a nonfluoridated community is fluoride tablets from preschool or kindergarten through grade 8, and weekly fluoride mouthrinsing in grades 9-12. If a fluoride tablet program is not feasible, weekly fluoride mouthrinses are recommended for all grades, kindergarten through 12. The main point is to make certain that no child is denied the benefits of fluoride. Moreover, the procedure(s) recommended should be the best currently available, based upon sound research findings.

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Similar patterns are seen in this group.

1. The time spent on diagnosis is consistent except for the CHC.

The CHC is located in a fluoridated area and the prevalence of caries was low.

2. Contract dentists spent the least time on prevention.

The Anchorage service unit spent the greatest amount of time on prevention.

The results indicate that a similar amount of time is spent on preschool children throughout the IHS programs. However, the Anchorage program spends somewhat more time on preschool children. This may be due to referrals to the pedodontist at the Anchorage facility.

Separate profiles were developed for each IES service area program for all ages and for children under five in order to refine the comparison of time allocation among service categories. Because service data is not reported for area for contract dentists, it was not possible to include them in this comparison. These comparisons are given on page 35.

There is a large variance from area to area. This may be attributable to the needs of patients and/or adequacy of practitioners and equipment to address needs. It is also possible that contract dental activities help to smooth the curve of treatment provided. The significance of the table is its highlighting different treatment emphases within areas. The greatest variation occurred in prevention, with virtually no prevention (Barrow, Bethel) to a high of 17-18 percent (Kanakanak, Norton Sound, Pribilof Islands). This in itself is difficult to evaluate since the needs of the population have not been identified. It is significant, however, when one considers that IHS protocols require an emphasis on prevention. When the emphasis on prevention is very low, it is revealing to see to which categories the emphasis shifts:

PLACE	PREVENTION	HIGHEST EMPHASIS
Bethel, adults	0.6	Prosthodontics (27%)
Barrow, children	0.0	Surgery (50%)
Kanakanak, children	0.3	Surgery (40%)

	ANCHORAGE	DARRON	DETIEL	KANAKANAK	KOTZEBUE	HT. EDGEWUBE	NORTON SOUND	PRIBILOF ISLANDS	INTERIOR ALASKA
Diagnosis	23.3	11.2	22.6	24.8	22.9	20.7	17.6	17.5	19.9
Prevention	11.8	.3	.6	1.6	17.0	5.0	5.2	16.5	7.1
Restorative	28.3	45.1	34.0	43.3	35.6	46.4	51.2	45.1	45.5
Prosthodontics	7.2	14.5	25.6	6.6	2.9	8.4	3.9	9.1	5.1
Endodontics	2.9	6.6	4.7	3.9	2.9	4.8	7.6	3.3	6.9
Periodontics	5.7	.5	1.3	2.3	.3	1.1	.7	2.7	4.5
Orthodontics	.8		.2	.4	.2	.8			.5
Oral Surgery	15.9	21.5	10.6	16.9	17.9	11.4	10.7	4.4	9.5
Palliative	4.0	.4	.3	.3	.2	1.4	3.2	1.4	1.0

Table 11: Percent Time Spent by Category of Care for All Ages (IES Direct Dentists)

	ANCHORAGE	DARRON	DETIEL	KANAKANAK	KOTZEBUE	HT. EDGEWUBE	NORTON SOUND	PRIBILOF ISLANDS	INTERIOR ALASKA
Diagnosis	30.3	20.2	23.5	28.5	21.1	30.8	17.9	28.5	28.5
Prevention	13.8		.3	.3	12.3	7.9	7.1	18.4	12.0
Restorative	43.9	21.2	50.9	29.5	36.4	41.5	52.7	40.0	43.3
Prosthodontics	.2	1.2				.9			
Endodontics	4.0	7.5	11.1	.2	12.3	5.6	3.3	2.8	4.5
Periodontics						.3			
Orthodontics			1.3						
Oral Surgery	4.1	49.8	11.6	39.7	14.9	12.9	9.5	3.2	9.0
Palliative	3.7		1.3	1.8	2.9		9.1	17.1	3.0

Table 12: Percent Time Spent by Category of Care for Children Under 5 (IHS Direct Dentists)

Table 4
TOP TEN HEALTH PROBLEMS IN THE YUKON-KUSKOKWIM DELTA REGION
RANKED BY VARIOUS METHODS

Ranked According to Mortality Statistics	Ranked According to Inpatient Statistics	Ranked According to Outpatient Statistics	Ranked According to Health Aide Statistics	Ranked According to Consumer Perceptions (YKHC Board)	Ranked According to Key Health Care Providers
Accidents	Accidents and Injuries	Accidents and Injuries	Upper Respiratory Problems	Alcoholism	Mental Health
Malignant Neoplasms	Chronic Otitis Media	Upper Respiratory Problems	Skin Diseases	Accidents	Alcoholism/Drugs
Diseases of the Heart	Influenza and Pneumonia	Acute Otitis Media	Ear, Nose, Throat Diseases	Nutritional Problems	Veneral Disease
Influenza and Pneumonia	Skin Diseases	Acute Bronchitis	Gastrointestinal Diseases	Dental	Accidents
Diseases of Early Infancy	Toxemia of Pregnancy	Strep Throat	Accidents and Injuries	Activity Limitations	Respiratory Conditions
Alcoholism	Labor and False Labor	Influenza and Pneumonia	Disease of Musculo-skeletal System	Otitis Media	Infectious Diseases
Vascular Lesions of the Central Nervous System	Mental Disorders	Infected Female Genitalia	Diseases of Circulatory System	Gonorrhea	Dental Caries
Suicides	Nephritis, Nephrosis	Chronic Otitis Media	Genitourinary/ Gyn Diseases	Infant Mortality	Diet (lack of balanced food intake)
Homicides	Abortions	Skin Diseases	Eye Diseases	Infectious Hepatitis	Otitis Media
Tuberculosis	Chronic Bronchitis	Hypertensive Disease	Misc. Communicable Diseases	Mental Illness	Housing (Inadequate)

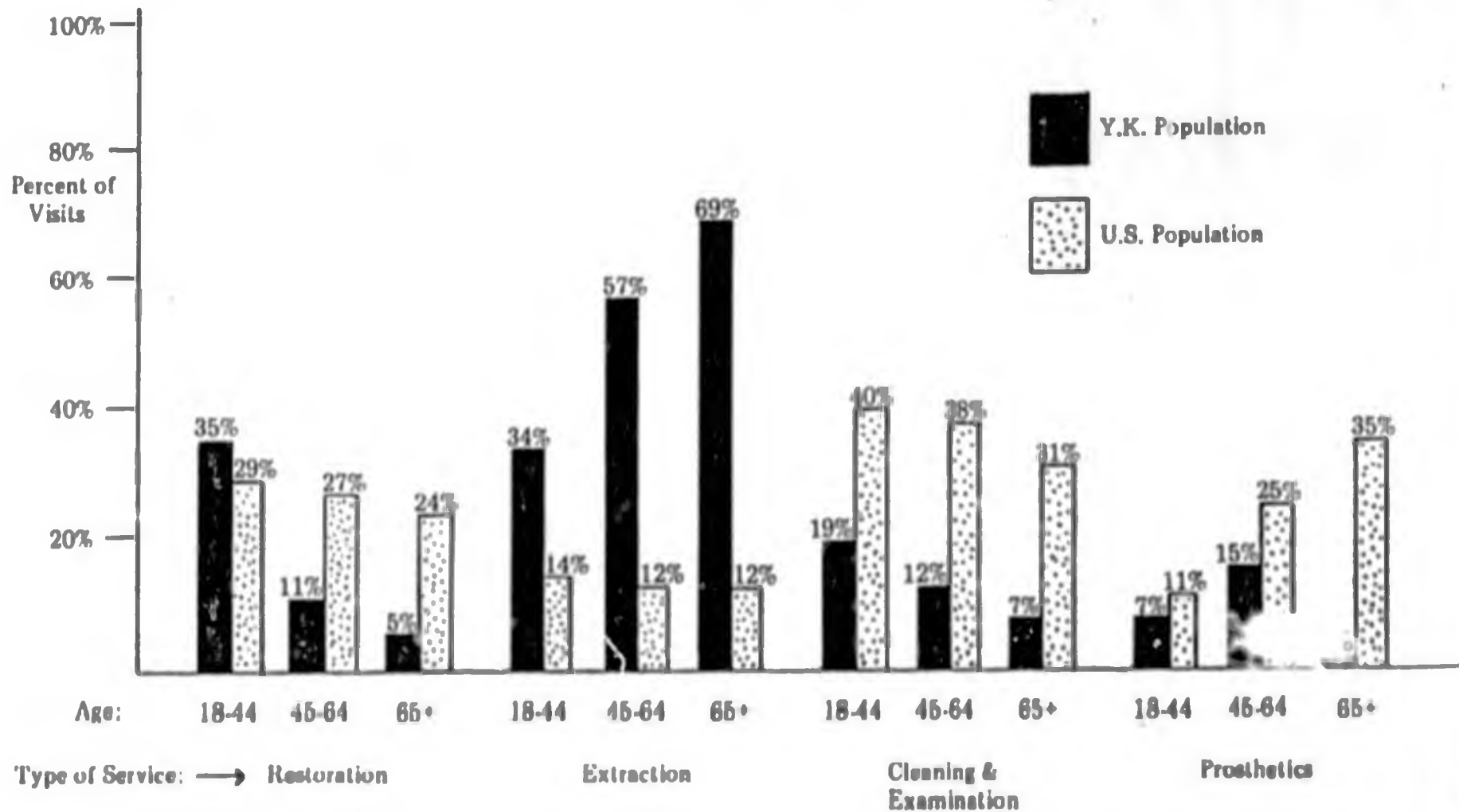
Source: Bantz, "The Tribal Specific Health Plan: Yukon-Kuskokwim Delta, 1970, p. 80.

Table 6
DIRECT AND CONTRACT DENTAL SERVICES
PROVIDED IN THE BETHEL SERVICE UNIT IN FY '78

<u>Service</u>	<u>Direct</u>		<u>Contract</u>		<u>Composite</u>	
	<u>No. of Services</u>	<u>No. of Service Min.</u>	<u>No. of Services</u>	<u>No. of Service Min.</u>	<u>No. of Services</u>	<u>No. of Service Min.</u>
Diagnostic	9141	61791	2115	24702	11256	86493
Preventive	254	5384	85	2616	339	8000
Restorative	5187	90120	4374	70740	9561	160860
Endodontic	700	18843	135	3757	835	22600
Periodontic	191	7000	22	765	213	7765
Remov. Prost.	135	6210	4	210	139	6420
Fixed Prost.	44	2455	1	20	45	2475
Oral Surgery	1883	31216	764	12160	2647	43376
Orthodontic	33	300	0	0	33	300
Adj. Services	1021	1125	13		1040	1125
Total	18589	224444	7513	114970	26108	339414
Total Costs	\$165,500		\$282,000		\$447,500	
Cost/Minute	\$0.74		\$2.45		\$1.32	

Source: Direct Services, Contract Services, and Composite Services Reports for Bethel Service Unit, FY '78
Office of Systems Development, AANIB

Percent Distribution by Type of Service Received During last Dental Visit, by Age, for the Y-K Delta and U.S. Populations.



consider the consumers' dental attitudes and practices a problem. Although the most frequently cited problem was inadequate funding of the IIS program, the second and third most frequent responses were the consumers' lack of motivation in obtaining care and his/her poor oral hygiene, respectively.

Please concisely state the major problems with your bush practice.

Response	% Responding		
	PIIS Dentists	Private	Total
Inadequate program funding	25	41	33
Consumer lack of motivation	46	19	31
Poor oral hygiene	21	22	22
Lack of equipment in villages	29	11	20
Time limitations on trips	25	11	18
Too few dentists	38	0	18
Inadequate adult and preventive care	17	15	16
Inadequate living and working facilities	4	19	12
Consumer's lack of knowledge of dental health	8	15	12
Travel difficulties	17	7	12
Consumer's poor nutrition	8	11	10
Difficulties in transporting equipment	0	11	6
Too much paperwork	0	11	6
Delays in payment	4	7	6
Difficulties in arranging follow-up care	4	7	6

It is worth noting that there were significant differences between the problems cited by PIIS dentists and those cited by dentists in private practice. The problem most often reported by PIIS dentists was inadequate manpower to meet the existing demands for treatment. Interestingly, no private dentist considered this a problem. On the other hand, private dentists felt the most important problem was insufficient program funding while only 25% of PIIS dentists thought this was so.

Providers were asked to comment specifically on the IIS incremental care program as it has operated in bush Alaska. Here both PIIS and private dentists agreed that it had not accomplished its purpose of establishing an orally healthy core group so that comprehensive care could be extended to adults. The two groups also tended to agree on the reasons for the program's failure. The main reason given was insufficient manpower and funding to accomplish the task. The second most common reason given was that all benefits from the incremental program were lost when children left school and were no longer eligible for anything but emergency care. The other frequently cited explanation for the poor success rate was that poor oral hygiene among the children produced treatment needs faster than the dentists could meet them.

In your opinion, is the IIS program of incremental care accomplishing its goal of establishing a core group of orally healthy people in bush Alaska?

Response	% Responding		
	PIIS Dentists	Private Dentists	Total
Yes	25%	26%	26%
No	75%	70%	73%

Why has the incremental care program failed?

Response	% Responding		
	PIIS Dentists	Private Dentists	Total
Inadequate staffing and funding	33	29	31
Oral health lost when child leaves school	29	30	29
Poor oral hygiene	25	15	20
Not enough preventive care	8	11	10
Consumer given no responsibility	4	7	6
Care given to some children who are not interested in it and denied to adults who are	0	4	6

PROVIDER SUGGESTIONS FOR IMPROVING THE DENTAL DELIVERY SYSTEM

Providers were asked for their opinions on how the oral health of the bush population could be improved. Both PIIS and private dentists were in substantial agreement on their recommendations. It was felt by most that providing more preventive care and more dental education would do most to improve the consumers' oral health status. The second most frequent recommendation was that consumers be encouraged to take more responsibility for their own dental care. (An equal number of private dentists also felt that treatment should be available to all, regardless of age, but only one PIIS dentist agreed with that.) The third most frequent recommendation was that program funding be increased.

What means can you suggest for improving the overall oral health of the bush population?

Response	% Responding		
	Private Dentists	PIIS Dentists	Total
Provide more preventive care and education	37	46	41
Encourage more personal responsibility for care	22	25	24
Provide adequate program funding	19	17	18
Provide comprehensive care to all regardless of age	22	4	14
Increase dental manpower	0	13	6
Train dental nurses to work in villages	11	0	6
Change the delivery system	7	4	6
Establish village clinics	4	4	4

Providers were also asked for their opinions on delivery systems. Here there are differences in opinions between PIIS and private dentists. For instance, PIIS dentists considered a delivery system utilizing only PIIS dentists as "good" while private dentists thought it only "fair." On the whole, PIIS dentists favored systems similar to the current one, with

limited participation by the private sector. Private dentists, not unexpectedly, favored systems which increased involvement of the private sector. The one exception to this disagreement was the system which called for financial participation by the consumer; this was rated excellent by both groups.

When providers were asked what would help their bush practices the answers were somewhat different. The first choice was increased funding, the second was establishment of dental clinics in the villages and the third was more dental education.

Please state your solutions to the problems you see with your bush practice.

Response	% Responding		
	PHS Dentists	Private Dentists	Total
Increase program funding	29	22	25
Establish village dental clinics	21	26	24
Provide dental health education	25	19	22
Increase the number of dentists	25	0	12
Provide fluoride treatments	8	11	11
Have dentists make more visits	17	4	10
Educate aides to provide preventive care	4	11	8
Make consumers more responsible for care	8	4	6
Have consumer contribute to cost of care	0	11	6
Improve consumer's nutrition	4	7	6
Improve consumer's oral hygiene	4	4	4
Reduce paperwork burden	0	7	4
Provide more preventive care	4	4	4

It is clear from the solutions suggested by PIIS and private dentists that the two groups have essentially different attitudes towards the existing problems with delivery of care. PIIS dentists want more dentists working in the area and better living and working conditions. Private dentists would like better conditions too but they do not want to see more dentists. Their feeling appears to be that they can take care of all demands for

SUMMARY

Consumers in the YK area report a frequency of dental visits similar to the national average. Types of visits, however, differ substantially. Y-K residents utilize emergency services two to six times as often as does the nation as a whole and other services are correspondingly under utilized.

The explanation for this utilization pattern can be found in an analysis of the barriers consumers face in seeking dental care. Some of these barriers result because of inadequacies in the current delivery system: PHS program funding levels restrict the quantity and type of services available, especially for adults. The focus of this chapter has been on other types of barriers, those which result from the consumer's perceptions of his/her need for care and his/her predisposition to seek care once a need is recognized.

It was found that a majority of consumers in the Y-K area reported an interest in optimal level care—all treatment necessary to keep the mouth in the most ideal condition possible. However, a substantial number of these same people appear to define their needs for care at a somewhat lower level: when asked what level of care they are likely to seek, the large majority wanted only emergency or maintenance level care. This restricted definition of need is perhaps one reason why more than half the consumers interviewed expressed satisfaction with the level of services now available, despite the fact that for most adults only emergency services are obtainable.

This study attempted to determine why consumers in this area perceive minimal needs for care. Part of the answer could be found in people's attitudes and beliefs about dental care. Part of the answer lies in their prior experience with dental care and their perception of its current availability.

It is difficult at any time to measure people's attitudes and beliefs and it is particularly so in cross cultural studies such as this one. Consequently, a set of indicators are commonly used as substitutes for the actual attitudes and beliefs. Factors such as age, income and education have been found to consistently correspond with certain attitudes and beliefs and to accurately indicate probabilities for utilization of dental services. This proved to be the case in the Y-K study also: there were statistically significant correlations between a person's age, sex, income, education, and location and his/her utilization of services. The younger, better educated, higher income group tended to make more frequent dental visits, be more interested in preventive care, and be less satisfied with the current level of services. However, this group is in the minority among the Y-K area population and utilization figures reflect the use pattern of the older, less educated, lower income groups. This pattern is one of infrequent visits to the dentist, greater use of emergency services, and fewer complaints about the current delivery system.

The second part of the explanation for the minimal definition of need for care and the subsequent utilization patterns among Y-K area residents is the effect of the consumer's perception of the availability of services. This perception is influenced by the consumer's prior experience with the dental care system—experience which taught the Y-K area resident that dental care was often difficult and sometimes impossible to obtain. Services have increased in recent years but consumers still perceive many problems in obtaining them. The most common complaint is that services are simply unavailable when needed: the dentist does not come often enough to the village or stay long enough to provide all the services desired. The second most common complaint is the cost, in time and money, for obtaining the services elsewhere which were not available in the village.

Consumers were asked to suggest how services could be improved so that the barriers to access that they perceive could be removed. Not surprisingly, the most common suggestion was that dentists make more frequent and longer visits. Consumers were also strongly in favor of the establishment of regional dental clinics; but in most other ways, were fairly content with the existing dental delivery system. The majority were in favor of PHS continuing to operate the system (as opposed to YKHC or the village itself taking over) and they also tended to favor PHS dentists over private dentists.

The providers of dental care in bush Alaska were surveyed for their opinions on the problems with the current delivery system and their suggestions for its improvement. The problems—as described by providers—fell into two categories: inadequacies in the system itself, and inadequacies in consumers' utilization of the system.

Providers appear to feel that there are serious problems with the consumer's perception of his/her need for care. Consumers are considered to be interested primarily in emergency care, to practice poor nutrition and oral health habits, and to lack the motivation for obtaining optimal level care. Providers also perceive consumers to face serious access problems because of high costs of care, the unavailability of services in the villages, and transportation difficulties. These perceptions of consumers' problems led providers to underestimate the actual utilization of services by consumers.

Both the private and PHS dentists who were surveyed were in substantial agreement on this evaluation of the consumer (with the exception that PHS dentists tended to have more complaints about the consumer's lack of motivation). However, their opinions differed on the problems with the system. The major problem seen by private dentists was inadequate program funding, while PHS dentists felt it was a shortage of dentists. Private dentists reported difficulties due to inadequate living and working facilities in the villages but PHS dentists were more concerned about a lack of equipment.

This division of opinions was also evident in their evaluation of al-

...to the current one with limited private involvement. Private dentists thought that more private involvement was preferable. Both groups felt that a system which involved the consumer through a co-payment for services would be most desirable.

Almost three quarters of the dentists surveyed felt that IHS's current system of incremental care was not working as intended. The reasons suggested for this were that 1) there was inadequate manpower and funding to deliver the services needed, and 2) once a child left school and was no longer eligible for comprehensive care, his/her oral health status quickly degenerated. The suggestions made for improving the oral health of the bush population were 1) provide more preventive care and dental education, 2) encourage consumers to take more responsibility for their care, and 3) increase program funding.

CONCLUSION

The purpose of the Dental Feasibility Study, as its name implies, is to determine the most feasible means of improving the oral health of the Y-K delta population. The first step taken in this process was a survey of the current status of the oral health of a sample of the population. A second survey was then made to determine current utilization patterns. The purpose of this second survey was to find out what kind of services people wanted, and why. Knowing what kind of services people were likely to demand would allow accurate projections of the type of services which should be made available. Knowing why people wanted particular types of services would help providers to understand what factors need changing if the consumers are to make better use of available services.

At present, adult consumers of dental care in the Y-K area tend to utilize emergency services to a greater extent than they do preventive or restorative services. Part of the explanation of this fact lies in the limited availability of services. Indian Health Service operates within a funding level which permits only minimal services for adults, particularly in the villages. The climate and geography of the area also act to limit access to care by making its pursuit outside the village expensive and time-consuming.

But even if there were no limitations on the services available, some consumers would not take advantage of them because of a lack of appreciation of the need for care. It is only within the last couple of generations that the population of the Y-K area has had any real need for dental care (most likely because of changes in the diet) and it is only during the past generation that dental care has been available on a regular basis. It is therefore not surprising that a full appreciation for the need for care, and the possibilities for treatment, does not yet exist. But the situation is changing. Younger adults who experienced dental health education and regular

...the while in school were shown by the survey to have a much concern with the quantity and quality of the dental care available did their parents. As these educated and experienced consumers in a larger proportion of the adult population in the years ahead, utilization patterns will change accordingly. Therefore, projections of future demands for care must be based on the socio-economic changes anticipated in the coming years.

However, it is not necessary to wait for those changes to see improvement in the oral health status of the population. The consumers and providers of this area have suggested, through the surveys, how improvements can be made now.

The first suggestion is that the quantity and variety of services available to adults be increased. Providers recommended that this be done by increasing the number of dentists practicing in the area or by having more money available to the existing private dentists so that they could provide more services. Another option might be the use of dental nurses, those used in New Zealand who could take care of the dental care of the younger children, freeing the dentists to work on adolescent and adults. A third option might be the abandonment of the incremental program and treatment of everyone—child and adult—on a first-come, first-serve basis.

The second suggestion is that more dental health education be available to adults as well as children. Consumers need to appreciate the connection between nutrition and oral hygiene and the state of the health. They also need to understand the importance of maintaining functional dentition as part of their overall well-being. Finally, consumers need to be educated as to the possibilities for treatment so that they can take a more active role in treatment decision making.

Dental health care should be made more accessible to village residents. Access could be improved by having the dentists make more frequent, longer trips to each village. Another option is to establish regional dental clinics staffed by dentists and/or dental nurses who could provide restorative service to the villages in their area. The clinics could be equipped with X-ray and lab facilities so that more comprehensive services would be available than is now the case in the villages.

The final suggestion is that consumers take more of the responsibility for their own dental care. There would be two benefits from this approach. First, the consumer would develop a greater appreciation for the services available; and second, he/she would gain some measure of control over those services. The most direct means of taking responsibility would be to assume financial involvement in the treatments. The other option would be to work through the consumer boards at YKHC and the Bethel Service Unit to influence the delivery of services.

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Center	Enrollment	# Examined by DDS	# Examined who needed treatment	# Examined who have treatment	# management patients (not treated)	Referrals	# examined w/BBM
A. akanuk	30	23	9	5	4	0	6
Chevak	28	14**	4	4	1	0	8
Emmonak	27	19	9	8	1	0	6
Fortuna Ledge	16	14	11	4	7	0	***
Galena*	21						
Gambell	26	19	11	8	5	0	14
Hooper Bay	26	22	6	3	5	0	16
Huslia	19	18	5	4	1	0	4
Kwethluk	19	17	10	8	0	10	10
Mt. Village	31	27	14	14	0	0	5
Napaskiak	17	17	14	14	0	0	12
Savoonga*	19						
Stebbins	17	12	10	9	1	0	8
Toksook Bay*	21						
Unalakleet*	27						

54%

* no information to date
 ** only 4 yr. olds
 *** records are inconclusive

3-5 yr. Head Start Program (2100%)

1980-1982 Rural Cap Child Development

CENTER	ENROLLMENT	# EXAMINED BY DDS	# EXAMINED WHO NEEDED TREATMENT	# COMPLETING TREATMENT	# REFERRALS	COMMENTS
Alakanuk	27	15	5 (33%)	4	-0-	Parents dislike quality of work done by DDS.
Chevak	26	16	4 (25%)	2	-0-	
Emmonak	28	22	10 (45%)	5	-0-	
Fortuna Ledge*						April DDS visit.
Galena	15	12	5 (42%)	4	-0-	
Gambell*						April DDS visit.
Haines	23	20	3 (15%)	-0-	-0-	
Hooper Bay*						March DDS visit.
Huslia	15	15	1 (7%)	1	-0-	
Hydaburg*						February DDS visit.
Kake*						February DDS visit.
Ketchikan	22	19	7 (37%)	0	-0-	
Kodiak	19	8	4 (50%)	3	-0-	Not all information in.
Kwethluk	22	22	12 (55%)	2	12	
Mt. Village*	20	15	7 (47%)	6	0	April DDS visit.
Napaskiak*						March DDS visit.
Savoonga*	20	19	8 (42%)	5	0	April DDS visit.
Stebbins	15	13	9 (69%)	8	-0-	
Toksook Bay*						April DDS visit.
Unalakleet*			(37%)			March DDS visit.

* No information to date.

MKR/vh
2/23/82

Last years figures with one less village having been screened was 54% of children needing treatment who had been examined! Possibly (probably) attributed to fluoride and education

Testimony on HB 412 by Jana Varati

The Alaska State Dental Hygienists Association

supports the intent & content of this bill.

Dental disease in Alaska is endemic,

especially in the rural areas where 8 of

10 children are seriously dentally

handicapped. ASDHA believes that the

implementation of the preventive

program outlined in this bill would

go a long way to alleviate the problems,

both physiological & psychological,

associated with rampant caries &

serious periodontal disease, especially

when administered through the school

system. We do agree with Rural Cap

that the education of both parents &

children is imperative if dental

disease is to be conquered.

Therefore we support the following proposed amendments:

- 1) the inclusion of all children ages 0-12 yrs.
- 2) the inclusion of language that would specifically allow systemic fluoride to be administered in those areas where it is not in the water
- 3) the inclusion of the profession of dental hygiene and its statute cite on p. 2, 8 & 10.
- 4) the deletion of the \$3 cap allowance. We do believe that a ceiling should be set, however, so that programs will not be instituted that are not basic education and prevention. We would suggest \$5. Right now

Toothkeeper can be utilized for about \$3.25 / child.

We disagree with OHS that the reports mandated in Sec. 18.09.100 Reports should be included on a sampling basis only. The records called for are comparative information & not difficult to compile. Forms for such records already exist in abundance.

While I cannot testify for the dental society or the dental assistants association but I can say that their members have always been enthusiastic participants in pilot programs of Toothkeeper throughout the state.

PLEASE NOTE: THE FOLLOWING PAGES WERE TREATED
AS A UNIT IN THE ORIGINAL DOCUMENT.

Re: HB412

Model program utilized in:
Fairbanks since 1974
Copper Center School District
Kenai/Saldotna
Anchorage School District
Barter Island
& many others

ARTHUR S. HANSEN, D.D.S.
"A PROFESSIONAL CORPORATION"
3487 AIRPORT WAY
FAIRBANKS, ALASKA 99701

TO:

Ms. Jane Varrati
Breakwater Inn
1711 Glacier
Juneau, Alaska

James J. Hansen

ToothkeeperTM
System

HEALTH EDUCATION DIVISION of

Ashco L.T.D.
Toothkeeper Division
3487 Airport Way
Fairbanks, Alaska 99701

SOLD TO: _____ SHIP TO: _____

DATE: _____ PURCHASE ORDER NUMBER: _____ DELIVERY DATE DESIRED: _____

WHEN ORDERING FOR SCHOOL PROGRAMS, PLEASE COMPLETE THIS PORTION

Name of Primary Consultant: _____ Name of School System: _____
 Address: _____ Name of School Administrator: _____
 Address: _____

How Long Have You Used This Program?: _____
 Total Number of Classrooms: _____ Total Number of Children: _____ Total Number of Teachers: _____

QUANTITY	ITEM	UNIT COST	TOTAL
	PART I LEARNING CENTER WITH CASSETTES #4100157C	\$ 65.00	
	PART I LEARNING CENTER WITH RECORDS #4100157R	\$ 65.00	
	PART II LEARNING CENTER WITH PLAQUE ERASERS		
	For 25 students #4100158	\$ 35.00	
	For 30 students #4100159	\$ 40.00	
	"THE TOOTHKEEPER" 16mm color film #4100143	\$40.00	
	Monthly Rental #4100110	\$110.00	
	"HOW TO BE A TOOTHKEEPER" 16mm color film #4100144	\$195.00	
	Monthly Rental #4100111	\$ 50.00	
	"IT'S 1' TO YOU" 16mm color film #4100149	\$200.00	
	Monthly Rental #4100112	\$ 50.00	
	DENTAL CONSULTANT UNIT (materials for 5) #4100164	\$ 26.40	
	TEACHERS' WORKSHOP UNIT #4100173	\$ 25.40	
	PLAQUE ERASERS 36 (Units of 36 only) #4100180	\$ 25.80	
	TOOTHKEEPER FLIP CHART #4100179	\$ 12.50	
	TOOTHKEEPER DENTAL MODEL (Quadrant) #4100176	\$ 17.00	
	OVERHEAD TRANSPARENCIES (Set of 5) #4100206	\$ 15.50	
	DISCLOSING MINTS 600 #4100185	\$ 8.25	
	PLAQUE ERASER PASTE REPLACEMENTS 36 (Units of 36 only) #4100203	\$ 11.90	
	MIRRORS (Learning Center) 22 (Units of 22 only) #4100202	\$ 17.25	
	TOOTHKEEPER FAMILY LEARNING KIT 36 (Units of 36 only) #4100218	\$ 29.50	
	BAYON RENTAL, LA., PROGRAM FILM 16mm color #4100154	10 day loan	
	PARENT'S GUIDE #4100114	\$.40	
	TEACHER'S GUIDE #4100175	\$ 1.20	
	DENTAL CONSULTANT'S GUIDE #4100208	\$ 1.75	
	ADMINISTRATOR'S GUIDE #4100117	\$.40	
	CONSULTANT'S SLIDES (Set of 20) #4100157	\$ 15.00	

Terms: Net 30 Days	
P.O.B. Des Moines, Iowa	
Add \$2 for shipping & hdg. less than \$1,000.00	Sub Total
32 for shipping & hdg. more than \$1,000.00	Shipping & Hdg.
Minimum Shipping & Hdg. \$2.00 (Air Mail, Air freight, or Freight extra)	State Tax
Sales Tax added where applicable	Sub Total
Minimum Order: \$10.00	Less 2% if payment accompanies order
	GRAND TOTAL

Price Effective February 1, 1981--subject to change without notice

SAMPLE PROGRAM REQUIREMENTS

<u>For 6,000 Students - 200 Classrooms</u> 200 Teachers	<u>Unit</u> <u>Cost</u>	<u>Total Cost</u>	
		<u>1st Year</u>	<u>2nd Year</u>
200 Part I Learning Center	\$65.00	\$13,000.00	
200 Part II Learning Center - 30 Unit	\$40.00	8,000.00	\$8,000.00
4 Dental Consultant Unit	\$26.40	105.60	
20 Teachers' Workshop Unit	\$25.40	508.00	
*10 "How to be a Toothkeeper" film rental - one month	\$50.00	500.00	
* 1 "Toothkeeper" film rental one month	\$110.00	110.00	
TOTALS (plus 3% Shipping and Handling)		\$22,233.60	\$8,000.00
Cost per child		3.70	1.33
<u>For 900 Students - 30 Classrooms</u> 30 Teachers			
30 Part I Learning Center	\$65.00	\$ 1,950.00	
30 Part II Learning Center - 30 Unit	\$40.00	1,200.00	\$1,200.00
1 Dental Consultant Unit	\$26.40	26.40	
3 Teachers' Workshop Unit	\$25.40	76.20	
*2 "How to be a Toothkeeper" film rental - one month	\$50.00	100.00	
*1 "Toothkeeper" film rental one month	\$110.00	110.00	
TOTALS (plus 3% Shipping and Handling)		\$3,462.60	\$1,200.00
Cost per child		3.85	1.33
<u>For 300 Students - 10 Classrooms</u> 10 Teachers			
10 Part I Learning Center	\$65.00	\$ 650.00	
10 Part II Learning Center	\$40.00	400.00	\$ 400.00
1 Dental Consultant Unit	\$26.40	26.40	
1 Teachers' Workshop Unit	\$25.40	25.40	
*1 "How to be a Toothkeeper" film rental - one month	\$50.00	50.00	
*1 "Toothkeeper" film rental one month	\$110.00	110.00	
TOTALS (plus 3% Shipping and Handling)		\$1,261.80	\$400.00
Cost per child		4.21	1.33

*16 mm films may be leased or purchased, as desired

PUBLICITY

1. Build good public relations.
2. If you have news, the media will print.
3. News people want good stories and good pictures!
4. Go to the editor or publisher.
5. Have news reporters, TV, wire-service, photographers, etc. present when news is being made.
6. Have media go into schools to see the activity (obviously this must be approved by appropriate school officials).

LEGISLATION

1. Any legislation required for funding, etc., should be written so as not to offend the educators you must deal with.
2. Be sure Governor knows about program.
3. Be careful about who introduces the Bill.
4. Seek state-wide support.
5. Don't prepare remarks to a legislator about the votes you represent.
6. Learn about legislative process.
7. Keep tabs on the committee that will be involved.
8. Don't leave all contact work with paid professionals.
9. Contact legislators.
10. Try to solve objections - be ready to improve the Bill.
11. Contact legislators.



Toothkeeper^{T.M.} dental care system

- | | | |
|------------------------------|------------------------------------|------------------------|
| a. Part I — Learning Center | b. Orientation Films | c. Family Learning Kit |
| d. Part II — Learning Center | e. Dental Consultant Teaching Unit | f. Plaque Eraser |
| g. Teachers Workshop Unit | h. Presentation Series | i. Floss Refill Unit |

		<u>CODE NO.</u>	<u>LIST PRICE</u>
A.	<u>PART I - LEARNING CENTER</u>	4100157	\$ 32.00
	1 - sound/color filmstrip w/cassette or record		
	1 - oversize dental model (quadrant)		
	1 - Teacher's Guide		
	1 - Toothkeeper flip chart		
	36 - mirrors		
	OPTION: - PART I LEARNING CENTER WITHOUT FILMSTRIP	4100199	16.00
B.	<u>PART IIA - LEARNING CENTER</u> for 25 students	4100158	30.00
	(w/floss in brush handle) 30 students	4100159	35.00
	1 - TK Plaque Eraser per stu. 35 students	4100160	40.00
	1 - Parent's Guide per stu.		
	20 - disclosing mints per stu.		
	OPTION: IIB LEARNING CENTER (floss separate from brush)		
C.	<u>TEACHERS' WORKSHOP UNIT</u> (materials for 10 teachers)	4100173	15.50
	10 - TK Plaque Erasers		
	1 - Teacher's Guide		
	1 - oversize dental model (quadrant)		
	10 - mirrors		
	20 - disclosing mints		
D.	<u>ORIENTATION FILMS</u> - 16 mm sound/color:		
	"The Toothkeeper" - 27 minute	4100143	385.00
	"How to be a Toothkeeper" - 10 minute	4100144	175.00
	"It's up to You" - 6 minute	4100149	104.00
	"East Baton Rouge Parish Model" - 10 minute	4100154	Loaner
E.	<u>DENTAL CONSULTANT TEACHING UNIT</u> (for 5 consultants)	4100164	15.25
	5 - Dental Consultant's Guides		
	20 - slides w/script		
	1 - Consultants' Workshop Outline		
	5 - Teachers' Workshop Outline		
F.	<u>PRESENTATION SERIES</u>		Discontinued
G.	<u>FAMILY LEARNING KIT</u>	Units of 36	4100238 24.45
	1 - TK Plaque Eraser	72	4100239 45.54
	2 - disclosing mints	144	4100240 82.80
	1 - Home Information Guide		
H.	<u>PLAQUE ERASER</u>	Units of 36	4100180 21.50
		72	4100181 39.70
		144	4100182 72.85
I.	<u>PLAQUE ERASER FLOSS REPLACEMENTS</u>	Units of 36	4100203 9.90
		72	4100204 18.15
		144	4100205 32.80
	<u>OTHER COMPONENTS:</u>		
	<u>LEARNING CENTER MIRRORS</u>	Units of 36	4100188 7.95
		72	4100202 14.40
		144	4100189 25.95
	<u>DISCLOSING MINTS</u>	Units of 600	4100185 6.85
		1200	4100186 13.25
	<u>FLIP CHART</u>		4100179 4.50
	<u>OVERSIZE DENTAL MODEL (quadrant)</u>		4100176 10.35
	<u>OVERHEAD TRANSPARENCIES (set of 5)</u>		4100206 12.95
	<u>FILMSTRIP W/RECORD</u>		4100145 16.00
	<u>FILMSTRIP W/CASSETTE</u>		4100146 16.00
	<u>CONSULTANT'S SLIDES (set of 20)</u>		4100167 11.00
	<u>CONSULTANT'S GUIDE</u>		4100208 1.75
	<u>PARENT'S GUIDE</u>		4100114 .30
	<u>TEACHER'S GUIDE</u>		4100175 1.70
	<u>ADMINISTRATOR'S GUIDE</u>		4100117 .30

Minimum Order \$10.00

Prices effective 4/15/76

Den-Tal-Ex Mfg. Company
 Health Education Division
 1201 S.E. Diehl
 Des Moines, Iowa 50315

SIX PHASES IN THE TOOTHKEEPER DENTAL CARE SYSTEM

PHASE I

Obtain guidelines and information about the Toothkeeper dental care system from Dr. Arthur Hansen, 3487 Airport Way, Fairbanks, Alaska 99701

PHASE II

Create interest in the education community for inclusion of personal dental care as a regular part of the classroom curriculum.

- a. Form a local Advisory Team which includes necessary school personnel.
- b. Discuss Toothkeeper curriculum guidelines with Advisory Team.
- c. Review Toothkeeper curriculum by Advisory Team.
- d. Correlate plans for implementation of Toothkeeper curriculum.
 1. Determine program budget.
 2. Determine number of classrooms and children to be included.
 3. Obtain board credit for teachers attending workshop, if possible.
 4. Establish date of workshop.
 5. Determine funding sources, etc.

PHASE III

Standardize dental consultants

A consultants' workshop is held to familiarize all volunteer dental consultants with the Toothkeeper dental care curriculum.

PHASE IV

Train Teachers

Local volunteer dental professionals to serve as consultants at the teachers' workshop. This teachers' workshop presentation should support local classroom objectives and enable correlation of personal dental care with other classroom subjects.

PHASE V

Train Children

Consistent long term reinforcement of concepts and skill development by elementary classroom teachers.

PHASE VI

Evaluate and Follow-up

- (a) Evaluate as an education program
- (b) Evaluate as a dental health program
- (c) Additional teacher training and reinforcement.

Arthur S. Hansen, D.D.S.
3487 Airport
Fairbanks, Alaska 99701

TOOTHKEEPER

OUTLINE FOR CONSULTANT'S SLIDE PRESENTATION

- SLIDE #1 (HEALTHY MOUTH) "THIS IS A RARE PICTURE, A RELATIVELY HEALTHY MOUTH. NOTICE THE GUM TISSUE TIGHTLY ATTACHED TO THE TOOTH. A UNIFORM COLOR -- NO REDNESS."
- SLIDE #2 (INITIAL DECAY) "HERE WE ARE SEEING A MOUTH WITH INITIAL DECAY. DECAY USUALLY STARTS IN BETWEEN TEETH AND AT THE GUM LINE SPACE, THE AREAS MOST DIFFICULT TO CLEAN."
- SLIDE #3 (ADVANCED DECAY) "IF LEFT UNTREATED, THE DECAY PROCESS WILL ADVANCE TO THE STAGE WHERE REPAIR IS PRACTICALLY IMPOSSIBLE."
- SLIDE #4 (INITIAL GUM INFLAMMATION) "SHOWN HERE IS ANOTHER SERIOUS DISEASE, GUM DISEASE. SOME OF YOU MAY HAVE HEARD IT REFERRED TO AS GINGIVITIS OR PYORRHEA. YOU WILL NOTICE THE REDNESS AND PUFFY GUMS. THESE GUMS WILL BLEED EASILY WHEN BRUSHING AND PERHAPS EVEN WHEN JUST EATING."
- SLIDE #5 (ADVANCED GUM DISEASE) "IF LEFT UNTREATED, JUST LIKE DECAY, GUM DISEASE GETS PROGRESSIVELY WORSE. MORE TEETH ARE LOST FROM GUM DISEASE EACH YEAR THAN FROM DECAY."
- SLIDE #6 (DIAGRAM OF PLAQUE) "HERE IS THE COMMON DENOMINATOR, GERM PLAQUE. THIS IS A STICKY, MUCOUS MASS THAT STICKS TO THE TEETH, ALLOWING BACTERIA TO COLONIZE AND START THE DISEASE PROCESS."
- SLIDE #7 (TOOTH DECAY FORMULA) "LET'S EXAMINE THE PROCESS IN FORMULA FASHION. GERMS PRESENT IN THE MOUTH REACT WITH SUGAR FOODS, PRODUCING AN ACID WHICH ATTACKS THE TOOTH TO START THE TOOTH DECAY PROCESS."

- SLIDE #8 (GUM DISEASE FORMULA) "SIMILARLY, IN GUM DISEASE, THE GERM PLAQUE PRODUCES A POISON WHICH ATTACKS THE GUMS TO CREATE GUM DISEASE."
- SLIDE #9 (STATISTICS ON GINGIVITIS IN CHILDREN) "HOW SERIOUS IS THE PROBLEM? THESE STATISTICS SHOW THAT BY AGE NINE, EIGHTY PERCENT OF THE CHILDREN HAVE GINGIVITIS OR THE INITIAL STAGE OF GUM DISEASE. ONE POSITIVE THOUGHT THOUGH, MOST GUM DISEASE AT THIS AGE IS TOTALLY REVERSIBLE WITH THOROUGH AND PROPER CLEANING BY THE INDIVIDUAL."
- SLIDE #10 (PLAQUE ON TOOTH) "HERE AGAIN IS THE CULPRIT, PLAQUE. ONE OF THE REASONS WE HAVE A DIFFICULT TIME ELIMINATING PLAQUE IS BECAUSE OF ITS ALMOST TRANSPARENT NATURE."
- SLIDE #11 (PLAQUE DISCLOSED) "WHEN WE USE THE DISCLOSING WAFER TO COLOR THE PLAQUE, IT IS EASILY IDENTIFIABLE. THE PROBLEM NOW IS SIMPLY "GET THE RED OFF!"
- SLIDE #12 (CURE) "THE TOOLS ARE SIMPLE. A SOFT BRISTLE TOOTHBRUSH, DENTAL FLOSS AND DISCLOSING WAFERS. WITH PROPER AND THOROUGH USE ONCE A DAY, THE THREAT OF MAJOR DENTAL DISEASE CAN BE REDUCED DRASTICALLY."
- SLIDE #13 (DENTISTS CAN'T DO WHAT PATIENTS WON'T) "BECAUSE WE AS DENTISTS SEE PATIENTS ONLY ON AN OCCASIONAL BASIS, (AND LESS THAN 40% OF THE POPULATION VISITS THEIR DENTIST EVERY YEAR) THE RESPONSIBILITY IS ON THE INDIVIDUAL TO MAINTAIN A DAILY REGIMEN OF PERSONAL ORAL CARE."

- SLIDE #14 (MANPOWER) "TO EVEN KEEP UP WITH THE PRESENT RATE OF DENTAL DISEASE, WE WOULD NEED MANY MORE DENTISTS THAN WE HAVE TODAY. WE MUST FIND A MORE LOGICAL SOURCE OF MANPOWER FOR TEACHING THE ELEMENTS OF PERSONAL DENTAL CARE. AS YOU CAN SEE FROM THE CHART, TEN DENTAL CONSULTANTS CAN TRAIN ONE HUNDRED TEACHERS WHO IN TURN CAN TRAIN THREE THOUSAND STUDENTS. THIS IS NOW A LOGICAL AND EFFECTIVE USE OF EXISTING MANPOWER."
- SLIDE #15 (TEACHER IN CLASS) "THIS IS WHAT WE ARE ASKING OF YOU TODAY. WITH THE TRAINING YOU ARE ABOUT TO RECEIVE, YOU CAN BE A QUALIFIED DENTAL HEALTH EDUCATOR. THIS WILL PERHAPS BE ONE OF THE FEW SUBJECTS THAT YOU TEACH WHERE YOU WILL SEE IMMEDIATE, POSITIVE RESULTS."
- SLIDE #16 (GUIDES) "TO BE EFFECTIVE, YOU NEED SUPPORT MATERIALS. YOU WILL BE RECEIVING A TEACHER'S GUIDE THAT OUTLINES THE PROGRAM IN YOUR CLASSROOM. THERE ARE ALSO GUIDES TO BE SENT HOME TO THE PARENTS TO INFORM THEM ABOUT THE PROGRAM WITH THE HOPE OF GETTING THEIR SUPPORT."
- SLIDE #17 (OVERHEAD TRANSPARENCIES) "OVERHEAD PROJECTOR SETS AND FLIP CHARTS WILL ENHANCE YOUR CLASSROOM PROGRAMS."
- SLIDE #18 (CLASSROOM KIT) "EACH OF YOU WILL HAVE A KIT IN YOUR CLASSROOM. THIS KIT INCLUDES ALL SUPPLIES NEEDED FOR THE PROGRAM, I.E., TOOTHBRUSHES, DENTAL FLOSS, DISCLOSING WAFERS, MIRRORS, AND AN ENLARGED TEACHING MODEL OF THE MOUTH. IT PROVIDES A CONVENIENT STORAGE AREA FOR THE SUPPLIES FOLLOWING EACH CLASSROOM USE. THE USE OF THESE SUPPLIES IS OUTLINE IN YOUR TEACHER'S GUIDE."
- SLIDE #19 (CLASSROOM SCHEDULE) "AS AN EXAMPLE OF THE TIME REQUIREMENT, THIS CHART IS PROVIDED IN YOUR TEACHER'S GUIDE." (DETAIL)

SLIDE #20 (FILMS) "YOUR PRIMARY SUPPORT MATERIALS ARE THE FILMS SHOWN HERE. THE LARGER FILM IS USED IN AUDITORIUM SESSION TO INTRODUCE THE CHILDREN TO THE PROGRAM. YOU WILL SEE THAT FILM IN A FEW MINUTES. THE SMALL FILM IS THE TECHNIQUE FILM THAT YOU WILL HAVE FOR USE IN YOUR CLASSROOM AS YOU FEEL IT IS NECESSARY TO REINFORCE THE TECHNIQUE."

FOOTNOTE: (SHOW THE LARGE FILM NOW AS PER THE CONSULTANT'S GUIDE.)

THE DENTAL HEALTH EVALUATION PROCEDURE

The Papillary Marginal Gingivitis Index (PMGI):

In this evaluation only the right half of the mouth from the second permanent molar through the central incisor is scored. This provides four scoring segments:

1. The right maxillary facial.
2. The right maxillary palatal.
3. The right mandibular facial.
4. The right mandibular lingual.

The marginal gingiva of the designated tooth and the gingival papilla mesial to the designated tooth are scored.

Initially, any missing teeth are indicated by an "X" mark. Permanent teeth are scored only when at least two-thirds erupted into the mouth; otherwise, they are indicated as missing.

In addition to determining whether or not gingivitis is present, the relative severity of inflammation is scored. The scoring scale is as follows:

- 0 - No inflammation - normal tissue
- 1 - Mild inflammation - a slight change in color;
no change in texture or shape
- 2 - Moderate inflammation - an obvious change in color;
change in texture or shape
(edema, hypertrophy)
- 3 - Severe inflammation - a marked redness or hypertrophy,
ulceration, spontaneous bleeding

The arithmetic sum of all of the inflammation scores divided by the number of areas examined gives the PMGI. (A complete examination would consist of 56 scored areas. This would include 28 marginal tissue areas and 28 gingivae papilla areas.)

Personal Hygiene Performance Score (PHPS):

Examination of 8 selected tooth surfaces is made after the patient has used a disclosing tablet or liquid. A tablet should be thoroughly chewed and swished for at least one minute while the liquid may be swished for approximately 30 seconds. If the tablet is used, the mouth should be rinsed prior to the evaluation procedure.

Evaluation of the following 8 tooth surfaces is performed:

1. Maxillary right first permanent molar, facial
2. Maxillary right first permanent molar, palatal
3. Maxillary right permanent or deciduous central incisor, facial
4. Maxillary right permanent or deciduous central incisor, palatal
5. Mandibular right first permanent molar, facial
6. Mandibular right first permanent molar, lingual
7. Mandibular right permanent or deciduous central incisor, facial
8. Mandibular right permanent or deciduous central incisor, lingual

Permanent molars are scored only if two-thirds erupted into the mouth. Substitute the second deciduous molar or the second permanent molar if the first permanent molar is missing or badly broken down. If a substitute tooth is not available, place an "X" on the recording chart.

To assess the stained plaque on each surface, the facial or lingual surface of the tooth must be mentally divided into five sections. Longitudinally, it is divided at the approximate area of the line angles, thus creating a larger central area. This central area is then divided into thirds horizontally, creating a gingival, middle and occlusal, or incisal, division.

Each of these five divisions is examined for the presence of stained plaque and scored as follows:

0 = No plaque

1 = Plaque in that particular section.

In all questionable areas, the lesser score of "0" is assigned.

The plaque score for each tooth surface is determined by adding the values of each of the subdivisions. The Personal Hygiene Performance Score (PHPS) is then calculated by dividing the sum of the tooth scores by the number of surfaces charted. (A complete examination would consist of 40 scored areas; 8 tooth surfaces with 5 scores for each surface.)