

CALIFORNIA ORAL HEALTH NEEDS ASSESSMENT

TRAINING MANUAL FOR THE EPIDEMIOLOGICAL SURVEY

FOR EXAMINERS AND RECORDERS

THE DENTAL HEALTH FOUNDATION

California Oral Health Needs Assessment

TRAINING MANUAL FOR EXAMINERS AND RECORDERS

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PREFACE

This manual has been prepared for the California Oral Health Needs Assessment. It is limited to the epidemiological survey of preschool, elementary school, and high school students. The manual is intended to serve as a reference for examiners and recorders and is to be used in conjunction with other materials received for this training at the training sessions. It is not intended as the sole source of information.

Examiners will also receive copies of two publications to be referred to during the training sessions and for reference with the training manual during the survey:

1. Oral Health Surveys of the National Institute of Dental Research: Diagnostic Criteria and Procedures. NIH publication No. 91-2870. January 1991
2. Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987

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Background

The paucity of data on the oral health needs of California children has led to the State of California, Department of Health Services, Maternal and Child Health Branch contracting with The Dental Health Foundation to produce such data. Although some data exist on specific programs and in local areas, and there are regional data from national studies, none of these can be extrapolated to the oral health needs of California children.

The data to be collected are to be used to determine whether the Oral Health Objectives as specified in "Healthy People 2000" are being met. As such these data will provide a baseline for evaluation of efforts to meet these objectives. The objectives relating to children are concerned with fluoride supplement use, Baby Bottle Tooth Decay and feeding practices in 2-5-year-olds, caries prevalence in 6-8-year-olds and 15-year-olds, sealant prevalence for first and second permanent molars, and destructive periodontal disease in women of child-bearing age, which would include teenagers. Objectives vary by educational status of the parents/ guardians, and by race and ethnicity.

California has a large and varied population. There are concerns about the oral health needs of children in urban and rural areas, in suboptimally fluoridated communities, and among four main racial/ethnic groups, namely, Asians, African Americans, Whites, and Latino/Hispanics. Preventive modalities of community water fluoridation, application of sealants, and early intervention have shown in numerous studies that they are safe and effective and cost-effective. This needs assessment is designed to be able to provide program planners at the State and local level to target such preventive modalities to populations identified as being most seriously in need.

No study to date has comprehensively looked at the oral health needs of Head Start and non-Head Start preschool children, at the condition of the teeth of elementary schoolchildren of the four main racial/ethnic groups, and of 10th graders in High Schools and Continuation High Schools.

Reasons for Collecting Data on Oral Health Needs of Californian children.

1. Federal Legislation: The Omnibus Reconciliation Act of 1989 (OBRA `89) included changes of Medicaid's Early and Periodic Screening, Diagnosis and Treatment (EPSDT) and Title V Maternal and Child Health (MCH) programs. Recommendations were made for states to undertake needs assessments of their populations, which would include oral health. MCH programs were directed to spend more of their budget on non-perinatal issues relating to all children.

2. Oral Health Needs Assessment Model: A Public Health Service grant has been awarded to Dr. Mark Seigel, Acting MCH Director in Ohio, to develop a model for oral health needs assessments being conducted at the state level. Dr. Seigel has been a primary member of our California oral health needs assessment project advisory board. Ohio is currently in a second round of data collection for their needs assessment. Several other states including Arizona, Hawaii, Nevada, Oregon, and Washington have already completed data collection for their oral health needs assessment.

3. Healthy People 2000: The consensus document "Healthy People 2000" contains many objectives relating to oral health. These objectives are to be used for the evaluation of future proposals to improve the health of the nation. (Healthy People 2000: National Health Promotion and Disease Prevention Objectives. Conference Edition. U.S. Department of Health and Human Services. Public Health Service)

Oral health objectives that relate to the preschool population (age 2-5 years) are:

1. Increase to at least 75% the proportion of parents and caregivers who use feeding practices that prevent BBTB, and to at least 65% the proportion of parents and caregivers with less than high school education who use feeding practices that prevent BBTB.

2. Increase use of professionally or self-administered topical or systemic (dietary) fluorides to at least 85% of people not receiving optimally fluoridated public water.

Oral health objectives that relate to the Grade K (age 5-6) population are:

1. Increase to at least 90% the proportion of all children entering school programs for the first time who have received an oral health screening, referral, and follow-up for necessary diagnostic, preventive, and treatment services. School programs include Head Start, prekindergarten, kindergarten, and first grade.

2. Increase the use of professionally or self-administered topical or systemic (dietary) fluorides to at least 85% of people not receiving optimally fluoridated public water.

Oral health objectives that relate to Grades 1-2 (age 6-7) are:

1. Reduce dental caries so that the proportion of children with one or more carious lesions (in permanent or primary teeth) is no more than 35% among children aged 6 through 8, no more than 45% among children aged 6-8 whose parents have less than a high school education, and no more than 40% among Black children aged 6-8.
2. Reduce untreated dental caries so that the proportion of children with untreated dental caries (in permanent or primary teeth) is no more than 20% among children aged 6 through 8, no more than 30% among children aged 6-8 whose parents have less than a high school education, no more than 25% among Black children aged 6-8, and no more than 25% among Hispanic children aged 6-8.
3. Increase use of professionally or self-administered topical or systemic (dietary) fluorides to at least 85% of people not receiving optimally fluoridated public water.

Oral health objectives that relate to Grade 3 (age 8-9) are:

1. Increase to at least 50% the proportion of children who have received protective sealants on the occlusal (chewing) surfaces of permanent molar teeth. (National data (1986-87) showed 11% of children aged 8 with sealants.)
2. Increase use of professionally or self-administered topical or systemic (dietary) fluorides to at least 85% of people not receiving optimally fluoridated public water.
3. Reduce dental caries so that the proportion of children with one or more carious lesions (in permanent or primary teeth) is no more than 35% among children aged 6 through 8, no more than 45% among children aged 6-8 whose parents have less than a high school education, and no more than 40% among Black children aged 6-8.
4. Reduce untreated dental caries so that the proportion of children with untreated dental caries (in permanent or primary teeth) is no more than 20% among children aged 6 through 8, no more than 30% among children aged 6-8 whose parents have less than a high school education, no more than 25% among Black children aged 6-8, and no more than 25% among Hispanic children aged 6-8.

Oral health objectives that relate to Grade 10 (age 14-16) are:

1. Increase to at least 50% the proportion of children who have received protective sealants on the occlusal (chewing) surfaces of permanent molar teeth. (National data (1986-87) showed 8% of adolescents aged 14 with sealants.)
2. Increase use of professionally or self-administered topical or systemic (dietary) fluorides to at least 85% of people not receiving optimally

fluoridated public water.

3. Reduce dental caries so that the proportion of adolescents with one or more carious lesions is no more than 60% among adolescents aged 15.

4. Reduce untreated dental caries so that the proportion of children with untreated dental caries is no more than 15% among adolescents aged 15; no more than 25% among adolescents aged 15 whose parents have less than a high school education; no more than 20% among Black adolescents aged 15; and no more than 25% among Hispanic adolescents aged 15.

Planning for the survey

A professional advisory committee has met twice in February and April 1993 to discuss the protocol for the project which specifies the sampling frame, sample size, types of oral health status data to be collected, data collection and reporting methodology, and demographic characteristics of the population to be surveyed.

Working groups in sampling, data processing, oral examination survey instruments, questionnaire design, and Baby Bottle Tooth Decay (BBTD) have assisted in developing protocols.

For the survey, dental examiners are to be identified, trained and standardized. Recorders and site coordinators are also to be identified and trained. The oral health survey is to be field tested (concurrent with the training sessions), conducted, the data analyzed, and a preliminary report of findings is to be prepared, followed by a final report which will be submitted to the MCH Branch for approval by February 28, 1994.

Survey design

PRESCHOOLS: (age 2-5 years) (BBTD group): LOGISTICS

Two groups of licensed day care centers and preschools will be used: Head Start facilities, and non-Head Start facilities. Head Start (representing low income children, aged 3-4 years) and non-Head Start facilities (representing moderate- and upper- income children) will be selected. Because there is no mandate for children to attend preschool, the sample chosen will not necessarily be representative of all children of this age. However over 500,000 children are enrolled in preschools in California.

Public Schools: Public Schools represent about 90% of California school children in grades K-12. It would be expected that children in private schools have fewer unmet needs. Data on ethnicity/racial composition for private schools are less available than for public schools, and it is not possible to apply the same criteria for school selection for private schools. Private schools often have smaller class sizes, which may take more time for data collection. Thus private schools are not included in the sample. However, all socioeconomic groups are represented in public schools.

Thus the sample chosen for grades K-12 will be representative of children in public schools rather than all children.

GRADES K, 1-2, and 3: LOGISTICS

Grades K, 1-2, and 3 have been selected as the specific grades in elementary schools for this survey. The same elementary schools will be used for these grades. Grades 1 and 2 will be combined for logistical purposes, to minimize the number of days of data collection at the schools. Each elementary school must have a minimum of two classes of grade K and two classes of grade 3, with one class of grade 1, and one class of grade 2.

In two days at one school, the examination team must complete data collection on at least 50 children per grade K, 25 children per grade 1, 25 children per grade 2, and 50 children per grade 3.

Each classroom must have a minimum of 30 children with an 85% return of consent forms with completed questionnaire data.

When the non-response is higher (less than 25 returned consents with completed questionnaire data per class), then additional children of the same grade from other classes in the same school will be needed. If these classes are unavailable at the school site, then another school may be selected.

It is recommended that where there are three classes of grade K and grade 3 per school, all of these be targeted for the consent process. Similarly, two classes of grade 1, and two classes of grade 2 be targeted for the consent process.

The data collection team should complete more than the designated number of examinations at any school when there are additional children with returned consents and completed questionnaires and there is available time.

At the school on the first day, the sequence of grades to be examined should be grade K, 3, 1; on the second day, the sequence of grades to be examined should be grade K, 3, and 2.

GRADE 10: LOGISTICS

Two groups will be used to provide a combined sample: High Schools and Continuation High Schools. Continuation High Schools would be a proxy for high school drop-outs. These are often smaller schools and we need to go to the larger schools for efficiency in data collection.

For 10th grade in high schools and continuation high schools an even higher non-response rate is predicted. Thus four classes per school must be targeted for the consent process. Where appropriate, a competition and reward system for teachers should be used for the highest proportion by class of returned completed consents and questionnaires per school. A similar system should be used for principals for the highest proportion by school of returned completed consents and questionnaires per school district.

Race/ethnicity

"Asian", "African-American/Black", "Latino/Hispanic", and "White" will be used to stratify the children. In California's schools, there are 45% White children, 35% Latino/Hispanic children, 11% Asian children, and 9% African American/Black children. 'Asian' will include Asian, Pacific Islander, and Filipino. 'Black' and 'White' will be non-Hispanic. In data collection, 'Other' will be designated for children who do not fit any of the 4 major groups. Parents/ guardians will have identified the race/ ethnicity for each child by questionnaire.

A combination of schools that have all four groups of interest represented, and schools in which the ethnic groups predominate have been selected. Since there is no random assignment of children to schools, existing data from the Department of Education indicating the ethnic/ racial composition of schools have been used as a basis for sampling the selected schools. Because there are 5 ethnic/racial groups ("Asian", "African-American/Black", "Latino/Hispanic", "White", and "Other"), 5 elementary schools have been selected for each geographic area so that sufficient numbers of children of each of these groups will be selected for the sample. Each school should have a minimum of 20% of each of the 4 major ethnic/racial groups ("Asian", "African American/Black", "Latino/ Hispanic", and "White"). Where the proportion of each of these groups is generally under-represented for the geographic area, then partitions in the strata have been created that preferentially select schools which have at least 20% of each ethnic/racial group.

It must be emphasized that any study that demonstrates a discrepancy in outcomes based on race or ethnicity should not stop with the reporting of such discrepancies, but must go on to ask why they exist. Thus, the findings will be reported by ethnicity/race but will also compare the other factors that affect oral health needs.

NON-RESPONSE

It is anticipated that there will be some non-response by schools, parents and children. Two samples of schools have been selected for this reason. For preschools and elementary schools, it is anticipated that there will be about 20% non-response by parents/children, and perhaps 50% non-response in high schools. Thus, larger schools have been selected to allow for this level of non-response.

GEOGRAPHICAL REGIONS AND FLUORIDATION STATUS

Geographical regions have been used to stratify the sample. These regions are selected on the basis of fluoridation status, to conform to county boundaries, to represent as wide an area of California as possible including rural and urban areas, and to facilitate data collection and minimize travel expense. Ten geographic regions of California, which represent approximately 75% of school children have been selected. Within each geographic region, five elementary schools, and five high schools, have been

selected at random following stratification by ethnicity. Up to five continuation high schools of more than 75 students have been selected per region. Fewer than 10% of Californians reside in rural areas; two of the regions will be rural. Thus, the survey will be of selected sites, to be as representative as possible of California's children. Due to budgetary considerations, the survey will not be geographically representative of all California children.

For Fluoridation Status, three of the 10 geographic regions that are selected are fluoridated. Since only 17% of Californians have access to optimally fluoridated water, specific regions where the water is fluoridated will be selected as part of the sample, rather than relying on a random sample. Optimal fluoridation of water supplies continues to be the cornerstone of dental public health programs, and it is reasonable to design the survey to be able to report on the differences between groups according to fluoridation status.

The benefits of fluoridation are usually measured for lifetime residents. However, California has a high immigrant and mobile population. For elementary school age children in grades K-3, it is expected that there will be about 30% lifetime residents. Thus, for each age group, and each ethnic group the number of lifetime residents will be 50 children x 30%, or 15 children examined per geographic region. For the three fluoridated geographic regions, this will generate a combined sample size of 45. By including "all but 2 years of lifetime residence" the sample size could be doubled to 90.

For grade 10 students in high school, it is expected that there may be 10% lifetime residents. Thus, for each ethnic group the number of lifetime residents will be 50 x 10% = 5 per geographic region. For the three fluoridated geographic regions, this will generate a sample size of 15. By including "all but 2 years of lifetime residence" the sample size could be doubled to 30. Where there are no differences between two ethnic groups, data can be aggregated to produce a larger sample size. However, it may be unreasonable to take this approach. Thus, we may not be able to make a definitive statement about the effects of fluoridation status at grade 10.

The ten geographic regions selected are:

1. Alameda/Contra Costa counties - Fluoridated
2. San Francisco County - Fluoridated
3. Sacramento, San Joaquin, Santa Clara, and Solano Counties
4. Colusa, Glenn, and Lake Counties.
5. North Los Angeles County
- 6 South Los Angeles County
7. City of Long Beach, Los Angeles County - Fluoridated
8. Orange, Riverside, San Bernardino, and San Diego Counties - North
9. Orange, Riverside, San Bernardino, and San Diego Counties - South
10. Fresno County (Rural sites)

These sites represent 12 of the 13 largest counties, and 75% of the public school population of California.

SAMPLE SIZE

For preschools the total number of examinations will be up to 5000 from 100 preschools. This is divided into two groups: 2500 children, mostly 3-4-year-olds, in Head Start from 50 preschools that contain 'Head Start' in the name. Another 2500 children, 2-5-year-olds, from 50 Non-Head Start preschools. Data on race/ethnicity for preschools are not readily available, and the selection of the preschools is not based on race/ethnicity. Thus, it is expected that the sample will be representative of the racial/ethnic composition of preschool children in the State as a whole. Thus, it is likely to produce a sufficient sample size of 'Whites' and 'Latino/Hispanics' but not of 'Asians' or 'African American/Blacks'. The size of preschools is generally small and to overcome this the preschools have been selected by a computer program that preferentially selects for larger preschools.

A subgroup is defined as a group of children of a specific age group, of a specific ethnic group, in a specific geographic region. It is anticipated that 10% of each subgroup will show incomplete data, thus producing a sample size of 45 per subgroup, from which generalizations can be made.

For the 2-5-year age group in pre-schools and day care centers, it is recommended that there be 25-50 completed consent forms and questionnaires returned per site prior to data collection. Where facilities are smaller, it is recommended, where travel time permits, that additional nearby facilities be used so that the data collection team can complete 50 examinations per day. Thus, at a minimum there must be 25 completed consent forms and questionnaires per site, with two nearby sites visited per day by the data collection team, where feasible.

For elementary schools the total number of examinations will be 7500. This is divided into three groups: 2500 in Grade K; 2500 in Grades 1-2; and 2500 in Grade 3. Within these subdivisions, a minimum 500 children each of the four major racial/ethnic groups will be sampled (with an additional 500 divided among these groups and the 'other' category). For example, there will be an expected minimum of 500 Black Grade K children. Data will be collected from 10 geographic regions, and thus the expected minimum sample size for each subgroup will be 50.

For Grade 10 in high schools the total number of examinations will be 2500. As for the elementary schoolchildren, it is expected that a minimum of 500 children each of the four major racial/ethnic groups will be sampled (with an additional 500 divided among these groups and the 'other' category). For example, there will be an expected minimum of 500 Asian Grade 10 children. Data will be collected from 10 geographic regions, and thus the expected minimum sample size for each subgroup will be 50.

For Grade 10 in Continuation High Schools the total number of examinations will be 1500 from 30 schools. This reduced number reflects the fact that within all of the ten regions there are only 42 Continuation High Schools with a 10th grade student body of more than 75 students. Although some regions have more than five continuation high schools and others have 0-5 such schools, there will be no more than 5 continuation high schools visited per region, due to budgetary considerations. There are many smaller schools but they are unlikely to produce at least 50 students with consents to participate.

SAMPLE SELECTION

A statistician, Dr. Patricia Kipnis, has been contracted to produce the sample of schools for the survey. A strategy has been selected to produce the desired distribution of ethnic/racial groups within the geographic areas of elementary and high schools, from a data base available from the Department of Education.

The strategy for school selection selects 5 elementary schools and 5 high schools in each of the ten geographic areas. For each geographic area the distribution of ethnic/racial groups was developed, together with the size of the student body by grade. Where any ethnic/racial group showed less than 20% representation for the area, then only individual schools with a higher than 20% representation were selected. Schools showing 100% of a particular group were excluded. Some areas did not have sufficient representation of all ethnic/racial groups. However, the strategy produces the best possible selection of schools to achieve the goal of conducting surveys of the four major ethnic/racial groups. The strategy also selected schools proportionate to their size, with larger schools being preferentially selected. A second sample of schools has been selected as a back-up for those schools that do not participate.

Selection of the Head Start and Non-Head Start preschools is from a separate data base. Preschools are generally smaller, and stratification by ethnicity is not possible, because of lack of data. Five Head Start preschools and 5 non-Head Start pre-schools in each geographic area have been selected at random, proportionate to size. A second sample of preschools has been selected as a back-up for those schools that do not participate.

CONSENT PROCESS

Due to the research nature of this examination survey, the protocol has been submitted and approved by the California Health and Welfare Agency, Committee for Protection of Human Subjects. Consent forms and cover letters have been developed for school principals/directors of the three types of schools (preschools, elementary schools, and high schools) and for parents/guardians. (see Appendices)

QUESTIONNAIRES

To provide information on each child examined, questionnaires are to be completed by parents/guardians of preschool children and of elementary schoolchildren, and by high school students and their parents/guardians. These forms will be provided to the school to be distributed from the classroom, to be taken home by the parents/guardians or children/students, completed by their parents/guardians, and returned to the classroom the following Monday. They will not be distributed on a Friday or the day before a holiday. There will be no interviewers. The package will be available in English/Spanish, English/Cambodian, English/Cantonese, and English/Vietnamese. The number of packages by specific language will be determined for each site. It is predicted based on available data that for preschools and elementary schools, the proportion of packages printed for all the ten regions will be 92% English/Spanish, 3% English/Cambodian, 2% English/Cantonese, and 3% English/Vietnamese. For high schools, the proportion of packages printed for all the ten regions will be 92% English/Spanish, 1.5% English/Cambodian, 2.5% English/Cantonese, and 4% English/Vietnamese.

A cover letter from the principal/director of the preschool/school on their letterhead, a consent form and a questionnaire will be in each package for each child (see Appendix). The site coordinator for each school will count the number of returned consents, and issue a second set as needed, so that the required number are returned prior to the examination team's visit to the school.

Parents/guardians of all the children in the selected preschools, and in the selected classes of the other schools, will be asked to complete a questionnaire. The questions vary according to the age group of the children and include fluoride toothpaste use, fluoride supplement use, dental visits, dental insurance, residence history of the child (to assess the impact of the fluoridation status of their community), place of birth of the child (to confirm residence history, and to determine differences by country of birth), ethnicity/race of the child, education level of parents/guardians, family income, time off work to take their child to the dentist (to assess the economic impact of children's oral health status), about the parents'/guardians' perception of the current oral health status of their child, and for the preschool age group about infant feeding practices. Questions will vary by age group (see copies of the questionnaires).

RECRUITMENT, TRAINING, CALIBRATION and Reliability

Dentists have been recruited primarily from private practice with the assistance of the California Dental Association. Dentists have been selected who are licensed in California. Dentists are required to drive, be in good health and have received Hepatitis B immunizations. It is anticipated that additional dentists will be needed as replacements for those who cannot complete the schedule. The geographic distribution of dentists who are willing to serve was a factor in the selection, so that travel time is limited. It is conceivable that this distribution may affect which geographic areas are used for the survey. Preference will be given to those dentists who have previously performed similar surveys. For preschools, pediatric dentists have been recruited.

For preschools (Head Start and Non-Head Start), there are 8 examination teams; 4 in Southern California and 4 in Northern California.

For elementary schools there are another 8 examination teams; 4 in Southern California and 4 in Northern California.

For high schools (including continuation high schools) there are another 8 examination teams; 4 in Southern California and 4 in Northern California.

Examiners will be trained and calibrated. There will be two training and calibration/standardization sessions during September 1993; one in Northern California and one in Southern California.

Field testing will occur with the training sessions. The actual survey will be conducted from September to December.

A schedule has been devised (for the proposed 10 geographic regions) to collect all data in 8 weeks where each examiner will be needed up to 2 days a week. Reliability data will be collected in weeks 1, 4, and 8 by pairing examiners (see Schedules). In one geographic area in Central California, all examiners will be paired for reliability between Northern and Southern California teams. Otherwise, each examiner team will mainly be involved in their local region to minimize travel expense.

DENTAL EXAMINATIONS

The American numbering system for teeth will be used (1 - 32), where #1 is the maxillary right third molar, #16 is the maxillary left third molar, #17 is the mandibular left third molar, and #32 is the mandibular right third molar. These will be described as T1 - T32. The lettering system for primary teeth will not be used; primary teeth will be designated for the appropriate spaces T4 - T13 and T20 - T29.

Supernumerary teeth are not to be scored. The examiner must decide which tooth is the supernumerary.

Orthodontically banded or bracketed teeth are scored as usual on all visible surfaces.

The teeth or tooth spaces to be examined for preschool children are T4 - T13 and T20 - T29. It is not expected to find permanent teeth in the preschool population, although there may be some older children with partially erupted permanent first molars and/or permanent mandibular central incisors in the Fall of their last year in preschool.

The teeth or tooth spaces to be examined for elementary school children (grades K-3) are T3 - T14 and T19 - T30. It is not expected to find permanent second molars in this population. These children will have both primary and permanent teeth; where a tooth space has both a primary and a permanent tooth, only the permanent tooth will be scored.

The teeth or tooth spaces to be examined for high school students (grade 10) are T2 - T15 and T18 - T31. It is not expected to find permanent third molars in this population. By this age nearly all primary teeth will have been lost.

All anterior teeth (incisors and cuspids/canines) are considered to have 4 surfaces (mesial, distal, lingual, and facial). Incisal edges are not considered to be separate surfaces. If a lesion or restoration is confined solely to the incisal edge, its score should be assigned to the nearest adjacent surface. All posterior teeth have 5 surfaces (occlusal, mesial, distal, lingual, and facial).

When in doubt, the dental examiner must choose the less disease/need category.

The following are the measures of oral health/disease and needs to be used for this survey.

1. Dental caries and treatment received: Tooth surfaces will be assessed for primary teeth (decayed, extracted, and filled surfaces - defs) and permanent teeth (Decayed, Missing, and Filled Surfaces - DMFS). For these indices, criteria for caries diagnosis and treatment received, will be the same as that used in the National Institute of Dental Research's school-based children's surveys, unless specified here.

References:

1. Oral Health Surveys of the National Institute of Dental Research: Diagnostic Criteria and Procedures. January 1991; page 5-9.
2. Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 35.

The codes to be used are different than those used in these references and are to be found elsewhere in this manual.

Teeth that are unerupted or missing for reasons other than extraction due to caries (congenitally missing, orthodontic extraction, missing due to trauma) are all to be scored as 'Expected tooth missing'.

For preschool children only, where there is an expected primary tooth missing, and in the judgment of the examiner it has been extracted due to caries, then it is to be scored as missing due to caries.

For elementary school children, primary teeth may be considered as extracted due to caries when normal exfoliation, or orthodontic extraction, or extraction/loss due to trauma would not be a sufficient explanation for the tooth's absence. When in doubt, score the tooth space as 'Expected tooth missing', and not as 'Missing due to caries'.

A tooth is considered to be present when any part of its crown projects through the gum.

Caries NIDR criteria will be used for caries assessment.

An additional code is to be used for this survey that is not listed in either of these references. When in the judgment of the examiner a pit or fissure cannot be called decayed by the criteria, but the examiner is uncomfortable calling it sound, then an incipient caries call is made, indicating incipient caries or the need for a sealant for that surface.

When in doubt, the dental examiner must choose the less disease category.

Treatment received

Temporary fillings are scored in the same manner as permanent restorations.

Teeth or tooth surfaces that are sealed and filled are to be scored only as filled.

Teeth or tooth surfaces that are restored and decayed, or sealed and decayed, whether primary or secondary decay, are to be scored only as decayed.

DECAY TAKES PRECEDENCE.

2. Dental restorative treatment needs: Including the treatment of caries and defective restorations and tooth fractures, a separate index will be used for the treatment needs for each tooth. The Dental Restorative Treatment Needs Index as developed for the NIDR 1979-1980 survey, and used in the 1982-84 Hispanic Health And Nutrition Examination Survey, and in the evaluation of the 1982-84 California School-Based Dental Disease Prevention Program will be used.

Reference: Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 37-38.

The codes to be used are different than those used in the references and are to be found elsewhere in this manual.

Following the calls for the condition of each of the surfaces of a tooth, the examiner will call a treatment need for the tooth as a whole. A tooth may have no decay or incipient decay, but may require treatment for other reasons, such as trauma.

The examiner will follow these criteria for treatment needs involving sealants, extractions, crowns, root canal or other pulpal treatment needs, and tooth replacements.

Sealant:

A pit or fissure on a primary or permanent tooth which cannot be called decayed by the criteria, yet the examiner is uncomfortable calling it sound, indicating incipient caries or the need for a sealant for that tooth. When the other surfaces of the tooth are to receive a different treatment, then the other treatment takes precedence.

Extraction:

The primary or permanent tooth is unrestorable by root canal treatment and crown or any other means. There is less than half of the coronal tooth that is sound.

Teeth that should be extracted for orthodontic or prosthetic needs are not to be recorded.

Tooth Replacement or Space Maintenance:

Examiners are not to call for the replacement or space maintenance for a missing primary tooth or where a primary tooth is determined to need extraction. The need for a space maintainer will be determined by a computer program based on the age of the child and the location of the tooth space.

For missing permanent teeth or permanent teeth determined to need extraction, the examiner should indicate whether the tooth space should receive a replacement. A computer program will determine the type of replacement

based on age and the number of tooth spaces requiring replacement. Under most situations a tooth space created by a missing permanent tooth or a permanent tooth determined to need extraction should be called as needing replacement. The exceptions would be where there is crowding.

For orthodontic needs, a separate assessment is to be made for the high school sample (see below).

Root Canal Treatment:

The tooth is restorable by root canal treatment and crown. There is more than half of the coronal tooth that is sound and there is no caries or fracture subgingivally.

There must be no evidence of prior root canal treatment. A restoration involving the lingual surface on an anterior tooth, or a restoration involving the occlusal surface on a posterior tooth, is not in itself sufficient evidence of prior root canal treatment. The child/student must be asked if the tooth has had a root canal treatment. However, if the child/student cannot communicate or respond, then the judgment of the examiner must be used.

In addition, one or more of the following must be present:

1. The non-carious tooth tissue is darker than the other teeth.
2. There is a fistula or swelling in the surrounding tissues.
3. The child/student acknowledges pain at night with no stimulus. Pain with hot or cold or sweet that lasts less than a few minutes is not a criterion for root canal treatment.
4. The tooth is tender to percussion. The examiner may tap gently on the tooth and the adjacent teeth with the end of the handle of the mouth mirror to ascertain tenderness to percussion. This is only done if there is still doubt about the condition of the tooth, and is not to be done routinely.

A tooth with extensive decay not meeting these criteria is not to receive a treatment need call for root canal treatment.

There is no call for a pulp cap treatment need.

Crown:

The tooth would best be restored with a crown rather than an intracoronal restoration. A satisfactorily restored tooth however is not to be considered as needing a crown, even if the restoration is very extensive. The following criteria should be met:

1. One or two cusps of a multicusped tooth are missing due to caries or

fracture or are severely undermined by caries as evidenced by discoloration.

2. More than one-third of the crown of an anterior tooth is missing due to caries or fracture, and the tooth could not be restored by a bonded composite restoration.

Teeth with 1-4 surfaces needing treatment should receive a treatment need for 1-4 surface restorations, unless the criteria above are met for a crown. It is not acceptable to call for a treatment need of a crown for a tooth with mesial, distal, occlusal and lingual/facial caries, when the above criteria are not met. This applies to primary and permanent teeth.

3. Oral trauma of the teeth would be incorporated in the dental examination and Dental Restorative Treatment Needs assessment. Oral trauma involving soft tissues or bones would be coded under Oral Lesions (Other).

4. Unusual oral lesions (lips or oral mucosa) would be checked if present, with 9 categories including: None, Ulcer, Acute necrotizing ulcerative gingivitis (ANUG), White patch, Red patch, Swelling (more than 1 cm), Gingival hyperplasia/hypertrophy, Cleft lip or palate, and Other.

The oral screening should begin with an examination of the soft tissues. This is usually brief, and most children will be free of unusual oral lesions. If there is more than one lesion, the most severe condition should be recorded. There is space for the recorder to enter a short word description under 'Other'.

The codes to be used are different than those used in the references and are to be found elsewhere in this manual.

The references here are to be used only as a guide.

References:

1. Oral Health Surveys of the National Institute of Dental Research: Diagnostic Criteria and Procedures. January 1991; page 53-78.
2. Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 43.

5. Overall treatment urgency (American Dental Association Index). This information would be conveyed on a form to parents/guardians of all children/students.

Category 1. No treatment needed according to this screening.

Category 2. Treatment needed, but not urgent. If sealants alone are indicated, this would be a recommendation for treatment (category 2).

Category 3. Treatment of an urgent nature needed, due to extensive decay in one or more teeth, or pain or infection.

6. Periodontal treatment needs: An assessment will be made for High School students only (Community Periodontal Index of Treatment Needs - CPITN). Six teeth will be scored using a periodontal probe. The teeth are: #3, #8, #14, #19, #24, #30. If any of these teeth are not present, then the adjacent molar or central incisor should be substituted. The codes for this index are to be found elsewhere in this manual.

The description in the WHO reference will be used.

Reference: Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 31-33.

7. Fluorosis: Dean's community fluorosis index (CFI) will be used for High School students only. Fluorosis will not be recorded for each tooth, but only for the two most affected teeth in the mouth.

Reference:

1. Oral Health Surveys of the National Institute of Dental Research: Diagnostic Criteria and Procedures. January 1991; page 36-40.
2. Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 39-40.

8. Orthodontic needs: For high school students only, the dental examiner will make a clinical judgment about the current need for orthodontic treatment using the WHO criteria. There are four categories of need: none; in treatment (fixed or removable); mild; moderate-severe. The moderate-severe category requires a measurement in some cases; the dental examiner should use the periodontal probe for this purpose. Since the periodontal probe has markings at 3.5mm and 5.5mm, the dental examiner will have to use some judgment to estimate deviations of more than 4mm and 9mm or more. Note that 9mm = 3.5mm + 5.5mm. Students will have been asked by questionnaire if they ever had orthodontic treatment. Note that, apart from the category of 'in treatment', the other categories correspond to the WHO criteria.

Reference:

1. Oral Health Surveys. Basic Methods. Third Edition. World Health Organization. 1987; page 30-31.

EXAMINATION PROCEDURES

Examination teams will consist of a dentist and a recorder. One group of teams will conduct examinations for preschool children, another group of teams for elementary schoolchildren, and another group of teams for high school students.

Dental examiners must wear eye protection, including corrective lens eyewear. Dental examiners should use only the magnification required for correct vision and not any additional magnifying aids. A recent vision check by a licensed optometrist is recommended.

For preschools and elementary schools, each examination will take about 3 to 5 minutes, including infection control and entering of data. During one school day up to 50 preschool children will be examined. For elementary schools, during one school day up to 75 children from grades K-3 will be examined.

For high schools, each examination will take about 6 minutes, including infection control and entering of data. During one school day up to 50 students from grade 10 will be examined.

A reclining chair will be provided for the children. A special light will be used to illuminate the oral cavity. Mouth mirrors and explorers will be used. For high school students a periodontal probe will also be used. No radiographs will be taken. Sufficient instruments will be provided to the dental examiner to complete all examinations in one week, after which time they will be sterilized at a local site.

The dental examiner will be responsible for the transportation of the equipment and supplies, and for the sterilization of the instruments.

INFECTION CONTROL

Accepted infection control procedures will be followed. Universal precautions dictate that all persons be treated as potentially infectious.

Eating and drinking must not be done in areas where potentially infectious material may occur. Applying of cosmetics other than hand cream must not be done in these areas, and excessive jewelry should be avoided.

Hands must be washed at the beginning of the day using water and an antimicrobial soap. Between changing gloves, an antiseptic cleanser must be applied to the hands, rubbing the hands together until dry. Hands should be washed with water and soap periodically.

In the unlikely event of known skin contact with blood, hand washing must be done as soon as possible thereafter.

Disposable latex gloves must be worn for all examinations and must be replaced after each examination or if torn. Gloves must not be reused.

Heavy latex gloves must be used for clean up and may be reused if decontaminated and not deteriorated.

Masks must be used for all examinations, and should be changed when they become moist. Masks should be removed by handling the fasteners after removing gloves, and not by touching the mask itself.

Young children may be somewhat fearful of a person with a mask. In such cases the dental examiner should explain that it is to protect the child and the dental examiner from breathing or coughing on each other. The mask could be removed and reapplied prior to gloving to show the face of the examiner. Caution should be used when considering drawing of a mouth on the outside of

the mask, in case a child interprets that as a clown, of whom they may be afraid.

Disposable gowns must be worn, and changed between morning and afternoon sessions.

Personal protective equipment must be removed as soon as possible when penetrated by potentially infectious materials, and prior to leaving the work area. Gloves, masks, and gowns should be placed in designated plastic bags for disposal.

All contaminated reusable instruments which can be sterilized in verifiable heat sterilizing devices must be thoroughly cleaned and heat sterilized. Biological monitoring is required.

Sterilization will be done at a site that is close to the examiner or the recorder. This may be the office of the examiner or recorder, or another designated site.

A bag that has been sterilized containing a mouth mirror and explorer will be used for each child.

Between examinations, the procedure listed below should be followed:

- a. dismiss student
- b. remove headrest cover
- c. remove light cover (if used)
- d. remove used gloves
- e. place new headrest cover (and light cover if used)
- f. wash hands or use antiseptic cleanser
- g. glove
- h. pick up clean/sterilized instrument pack
- i. tear open instrument pack

If an instrument is dropped during the procedure, the procedure is as follows:

- a. retrieve the dropped instrument and place it and the remaining instrument(s) in the set in the CONTAMINATED instruments container.
- b. remove gloves
- c. wash or cleanse hands
- d. glove with clean gloves
- e. pick up clean instrument pack and tear it open
- f. continue with the examination

In the event the light must be adjusted, the examiner must use a paper towel or the light cover to touch surfaces.

Immunizations: All examiners must have had immunity or immunization for Hepatitis B. All personnel should have current seasonal influenza immunization. Some school districts require that examiners have a current tuberculosis test.

Preparing Instruments for Sterilization

1. The heavy duty gloves must be cleaned and disinfected before storage.
2. Four containers will be used for instruments: two labeled CONTAMINATED; one labeled SCRUBBED; and one labeled STERILIZED. Each container should be disinfected before and after use.
3. Following an examination, to remove debris from contaminated instruments, they should be wiped carefully with gauze by the examiner while still wearing gloves. Used instruments should then be placed in the CONTAMINATED container, partially filled with water.
4. At the end of a session, the CONTAMINATED container should be placed on a table. The examiner must wear heavy duty gloves when handling multiple explorers. The tips of instruments should be scrubbed with a stiff brush, rinsed, drained, blotted dry and placed in the SCRUBBED container. Brushes should be rinsed and placed in containers. If using a sink, it should be disinfected after used.
5. Instruments are to be packaged one set per autoclave bag for sterilization. Packages are to be dated. These bags may be placed in larger autoclave bags to facilitate handling. The name of the person who is to pick up the bags from the sterilization site should be written on the bags. Bags to be sterilized should not be mixed with those that are already sterilized. Instruments are considered sterile for 30 days if the package is not compromised. After 30 days, instruments should be re-wrapped for re-sterilization.

Setting up and Cleaning up

Each preschool/school will provide a work table with a top surface that can be disinfected. At the beginning and end of the day, on table tops and other surfaces used in the examination process, a disinfectant should be sprayed, wiped with a paper towel and sprayed again. The solution must remain in contact for 10 minutes for proper disinfection.

The dental chair and light must be cleaned of dust and debris at the beginning and end of each day.

Waste baskets must be lined with plastic bags. At the end of the day the plastic bag should be securely fastened. The school principal or site coordinator should be consulted for the proper disposal site.

California Oral Health Needs Assessment

Examination Calls

Type of Tooth

- 0 Expected tooth missing (unerupted, missing for reasons other than extraction due to caries: congenitally missing, orthodontic extraction, missing due to trauma)
- 1 Primary tooth present
- 2 Permanent tooth present

Condition of Tooth and Condition of Surfaces

- 0 Sound
- s Incipient pit/fissure caries (would need a sealant)
- 1 Pit/fissure caries
- 2 Smooth surface caries
- 3 Metal intracoronal restoration (amalgam or other metal)
- 4 Tooth colored intracoronal restoration (composite or other)
- 5 Sealant present (partial or complete pit/fissure sealant)
- 6 Crown (placed due to caries; any material)
- 7 Esthetic restoration (veneer, bonding, crown for esthetics or fracture)
- 8 Traumatized tooth (missing due to trauma, fractured due to trauma, discolored due to trauma)
- 9 Missing/Extracted due to caries

Note: Pontics or space maintainers or partial dentures are not recorded.

Note: A tooth missing due to trauma would be coded: Type 0 Condition 8.

California Oral Health Needs Assessment

Examination Calls

Dental Treatment Needs Index

- 0 = No treatment needed
- 1 = 1 surface restoration needed
- 2 = 2 surface restoration needed (or two 1 surface restorations)
- 3 = 3 surface restoration needed (or three 1 surface restorations or a 2-surface restoration + a 1-surface restoration)
- 4 = 4 or 4+ surface restoration needed
- 5 = Sealant needed
- 6 = Crown needed (primary or permanent tooth)
- 7 = Root Canal or other pulpal/endodontic treatment needed
- 8 = Tooth replacement needed
 - when permanent tooth already missing and replacement needed
- 9 = Extraction needed (primary or permanent tooth)
- 76 = Root Canal and crown needed (primary or permanent tooth)
- 98 = Extraction of permanent tooth and replacement needed

Lesions (lips or oral mucosa) .

- 0 = None
- 1 = Ulcer
- 2 = Acute necrotizing ulcerative gingivitis (ANUG)
- 3 = White patch
- 4 = Red patch
- 5 = Swelling (more than 1 cm)
- 6 = Gingival hyperplasia/hypertrophy
- 7 = Cleft lip or palate
- 8 = Other

Periodontal Status Codes

- 0 = Healthy
- 1 = Bleeding observed after probing
- 2 = Calculus felt during probing
 - but all the black area of the probe visible
- 3 = Pocket 4-5 mm (gingival margin situated on black area of probe)
- 4 = Pocket >6 mm (black area of probe not visible)

Fluorosis Codes

- 0 = Normal
- 1 = Questionable
- 2 = Very mild
- 3 = Mild
- 4 = Moderate
- 5 = Severe

Orthodontic Needs

- 0 = None
- 1 = In treatment (fixed or removable)
- 2 = Mild needs (one or more rotated or tilted teeth or slight crowding or spacing, which disturb the regular alignment of the teeth)
- 3 = Moderate-severe needs: including the presence of one or more of the following conditions of the incisors:
 - a. maxillary overjet 9mm or >9 mm;
 - b. mandibular overjet/anterior crossbite equal to or greater than a full tooth depth;
 - c. open bite;
 - d. midline shift >4mm;
 - e. crowding or spacing >4mm

California Oral Health Needs Assessment

Examination Calls

Type of Tooth

- 0 Expected tooth missing (unerupted, missing for reasons other than extraction due to caries: congenitally missing, orthodontic extraction, missing due to trauma)
- 1 Primary tooth present
- 2 Permanent tooth present

Condition of Tooth and Condition of Surfaces

- 0 Sound
 - s Incipient pit/fissure caries (would need a sealant)
 - 1 Pit/fissure caries
 - 2 Smooth surface caries
 - 3 Metal intracoronal restoration (amalgam or other metal)
 - 4 Tooth colored intracoronal restoration (composite or other)
 - 5 Sealant present (partial or complete pit/fissure sealant)
 - 6 Crown (placed due to caries; any material)
 - 7 Esthetic restoration (veneer, bonding, crown for esthetics or fracture)
 - 8 Traumatized tooth (missing due to trauma, fractured due to trauma, discolored due to trauma)
 - 9 Missing/Extracted due to caries
- NOTE: Pontics or space maintainers or partial dentures are not recorded.

Example: A tooth missing due to trauma would be coded: Type 0 Condition 8.

Dental Treatment Needs Index

- 0 No treatment needed
- 1 1 surface restoration needed
- 2 2 surface restoration needed (or two 1 surface restorations)
- 3 3 surface restoration needed (or three 1 surface restorations or a 2-surface restoration + a 1-surface restoration)
- 4 4 or 4+ surface restoration needed
- 5 Sealant needed
- 6 Crown needed (primary or permanent tooth)
- 7 Root Canal or pulpotomy treatment needed
- 8 Tooth replacement needed when permanent tooth already missing and replacement needed
- 9 Extraction needed (primary or permanent tooth)
- 76 Root Canal and crown needed (primary or permanent tooth)
- 98 Extraction of permanent tooth and replacement needed

Lesions (lips or oral mucosa)

- 0 None
- 1 Ulcer
- 2 Acute necrotizing ulcerative gingivitis (ANUG)
- 3 White patch
- 4 Red patch
- 5 Swelling (more than 1 cm)
- 6 Gingival hyperplasia/hypertrophy
- 7 Cleft lip or palate
- 8 Other _____

Periodontal Status Codes

- 0 Healthy
- 1 Bleeding observed after probing
- 2 Calculus felt during probing, but all the black area of the probe visible
- 3 Pocket 4-5 mm (gingival margin situated on black area of probe)
- 4 Pocket >6 mm (black area of probe not visible)

Fluorosis Codes

- 0 Normal
- 1 Questionable
- 2 Very mild
- 3 Mild
- 4 Moderate
- 5 Severe

Orthodontic Needs

- 0 None
- 1 In treatment (fixed or removable)
- 2 Mild needs
(one or more rotated or tilted teeth or slight crowding or spacing which disturb the regular alignment of the teeth)
- 3 Moderate-severe needs
including the presence of one or more of the following conditions of the incisors
 - a. maxillary overjet 9mm or >9 mm;
 - b. mandibular overjet/anterior crossbite equal to or greater than a full tooth depth;
 - c. open bite;
 - d. midline shift >4mm;
 - e. crowding or spacing >4mm

Remember: When in doubt, assign the less disease/need category

Schedule for data collection

Preschools

Schedule of dental examiners by week

(8 examiner teams in 8 weeks)

Week/ DDS	1 R	2	3	4 R	5	6	7	8 R
1	1.1	1.5	1.7	1.9				10.1
	1.2	1.6	1.8	1.10				10.5
2	1.1	2.1	2.3	3.6	2.7	2.9		10.2
	2.5	2.2	2.4	2.6	2.8	2.10		10.6
3	1.3	3.1	3.3	3.6	3.7	3.9		10.3
	1.4	3.2	3.4	3.5	3.8	3.10		10.7
4	1.3	4.1	4.3	1.9	4.7	4.9		10.4
	4.5	4.2	4.4	4.6	4.8	4.10		10.8
5	5.1	5.4	5.6	7.10	5.9	9.1	9.5	10.1
	5.2	5.5	5.7	5.8	5.10	9.2	9.6	10.9
6	5.1	6.2	6.4	7.6	6.7	6.9	9.7	10.2
	6.1	6.3	6.5	6.6	6.8	6.10	9.8	10,10
7	5.3	7.2	7.4	7.6	7.8	9.3	9.9	10.3
	7.1	7.3	7.5	7.7	7.9	9.4	9.10	
8	5.3	8.2	8.4	7.10	8.7	8.9		10.4
	8.1	8.3	8.5	8.6	8.8	8.10		

Key: 1.1 is region 1, facility 1 (one facility of 25-50 per day);
1.1 - 1.5 are Head Start preschools; 1.6 - 1.10 are non-Head Start preschools.

R: Reliability

Pre-school

Number of Days by Region by Examiner

Region - DDS	1	2	3	4	5	6	7	8	9	10	Total
1	8	-	-	-	-	-	-	-	-	2	10
2	1	10	1	-	-	-	-	-	-	2	14
3	2	-	10	-	-	-	-	-	-	2	14
4	2	-	-	10	-	-	-	-	-	2	14
5	-	-	-	-	9	-	1	-	4	2	16
6	-	-	-	-	1	10	1	-	2	2	16
7	-	-	-	-	1	-	9	-	4	1	15
8	-	-	-	-	1	-	1	10	-	1	13
Total	13	10	11	10	12	10	12	10	10	14	112

Number of Facilities by Head Start / non-Head Start by Examiner

Facility - DDS	Head Start	Non- Head Start	Total
1	5	5	10
2	7	7	14
3	8	6	14
4	7	7	14
5	8	8	16
6	7	9	16
7	9	6	15
8	7	6	13
Total	58	54	112

Pairing of examiners and number of facilities by grade for Reliability:

DDS- DDS	1	2	3	4	5	6	7	8
1		HS		N	HS			
2	HS		N			HS		
3		N		HS			HS	
4	N		HS					HS
5	HS					HS		N
6		HS			HS		N	
7			HS			N		HS
8				HS	N		HS	
Total	3	3	3	3	3	3	3	3

Key: HS - Head Start; N - Non-Head Start

Number of Facilities by Head Start status for reliability examinations.

In each facility used for reliability checks, for each examiner, up to 10 children will be examined by two examiners. The children for these second examinations will be identified by the last digit of their ID number which will end in '5' or '0'. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes. Examiners may confer after the second examination, but may not alter the examination records.

Facility Type	Facilities	Number of children for 2nd exams
Head Start	8	80
Non-Head Start	4	40
Total	12	120

Schedule of preschool children by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, **55**, 6, 7, 8, 9, 10, **60**, 11, 12, 13, 14, 15, **65**, 16, 17, 18, 19, 20, **70**, 21, 22, 23, 24, 25, **75**

Dentist B: 51, 52, 53, 54, 55, **5**, 56, 57, 58, 59, 60, **10**, 61, 62, 63, 64, 65, **15**, 66, 67, 68, 69, **70**, **20**, 71, 72, 73, 74, 75, **25**

Elementary Schools

Schedule of dental examiners by week

(8 examiner teams in 8 weeks)

Key: 1.1,K31 is region 1, school 1, grades K31 (one class of 25 for each grade per day)

R: Reliability

Week - DDS	1 R	2	3	4 R	5	6	7	8 R
9	1.1,K31 1.1,K32	1.3,K31 1.3,K32	1.4,K31 1.4,K32	3.1,K31 3.1,K32			1.5,K31 1.5,K32	10.1,K31 10.1,K32
10	1.1,K31	2.1,K31 2.1,K32	2.2,K31 2.2,K32	3.2,K32	2.3,K31 2.3,K32	2.4,K31 2.4,K32	2.5,K31 2.5,K32	10.2,K31 10.2,K32
11	1.2,K32 1.2,K31			3.2,K32 3.2,K31	3.3,K31 3.3,K32	3.4,K31 3.4,K32	3.5,K31 3.5,K32	10.3,K31 10.4,K32
12	1.2,K32	4.1,K31 4.1,K32	4.2,K31 4.2,K32	3.1,K31	4.3,K31 4.3,K32	4.4,K31 4.4,K32	4.5,K31 4.5,K32	10.5,K31 10.5,K32
13	5.1,K31 5.1,K32	5.3,K31 5.3,K32	6.2,K31 6.2,K32	7.1,K31 7.1,K32	5.4,K31 5.4,K32	5.5,K31 5.5,K32	9.2,K31 9.2,K32	10.1,K31
14	5.1,K31	6.1,K31 6.1,K32	6.3,K31 6.3,K32	7.2,K32 7.3,K31	6.4,K31 6.4,K32	6.5,K31 6.5,K32	9.3,K31 9.3,K32	10.2,K32 10.3,K32
15	5.2,K32 5.2,K31	9.1,K31 9.1,K32	8.1,K31 8.1,K32	7.2,K32 7.2,K31	7.4,K31 7.4,K32	7.5,K31 7.5,K32	9.4,K31 9.4,K32	10.3,K31 10.4,K31
16	5.2,K32	8.2,K31 8.2,K32	8.3,K31 8.3,K32	7.1,K31 7.3,K32	8.4,K31 8.4,K32	8.5,K31 8.5,K32	9.5,K31 9.5,K32	10.5,K32

Elementary Schools: Number of Days by Region by Examiner

Region - DDS	1	2	3	4	5	6	7	8	9	10	Total
9	8	-	2	-	-	-	-	-	-	2	12
10	1	10	1	-	-	-	-	-	-	2	14
11	2	-	8	-	-	-	-	-	-	2	12
12	1	-	1	10	-	-	-	-	-	2	14
13	-	-	-	-	8	2	2	-	2	1	15
14	-	-	-	-	1	8	2	-	2	2	15
15	-	-	-	-	2	-	6	2	4	2	16
16	-	-	-	-	1	-	2	8	2	1	14
Total	12	10	12	10	12	10	12	10	10	14	112

Pairing of examiners at elementary schools and number of days for Reliability:

DDS- DDS	9	10	11	12	13	14	15	16	Total
9		1		1	1				3
10	1		1			1			3
11		1		1			1		3
12	1		1					1	3
13	1					1		1	3
14		1			1		1		3
15			1			1		1	3
16				1	1		1		3
Total	3	3	3	3	3	3	3	3	24

Number of children for reliability examinations. On each day up to 14 children will be examined by two examiners. The children for these second examinations will be identified by their ID number which will end in '5' or '0'. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes. Examiners may confer after the second examination, but may not alter the examination records.

Number of Days at Elementary Schools for Reliability	Number of children for 2nd exams
12	168

Schedule of elementary schoolchildren by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, **205**, 6, 7, 8, 9, 10, **210**, 11, 12, 13, 14, 15, **215**, 16, 17, 18, 19, 20, **220**, 21, 22, 23, 24, 25, **225**, 26, 27, 28, 29, 30, **230**, 31, 32, 33, 34, 35, **235**, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120

Dentist B: 201, 202, 203, 204, 205, **5**, 206, 207, 208, 209, 210, **10**, 211, 212, 213, 214, 215, **15**, 216, 217, 218, 219, **20**, 221, 222, 223, 224, 225, **25**, 226, 227, 228, 229, 230, **30**, 231, 232, 233, 234, 235, **35**, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320

High Schools

Schedule of dental examiners by week

(8 examiner teams in 8 weeks)

Week - DDS	1 R	2	3	4 R	5	6	7	8 R
17	3.1	3.3	3.5	1.5	3.7	3.9		10.1
	3.2	3.4	3.6		3.8	3.10		10.2
18	3.1	2.1	2.3	1.6	2.5	2.7		10.3
		2.2	2.4		2.6	2.8		
19	4.1	1.1	1.3	1.5	1.7			10.4
		1.2	1.4		1.8			
20	4.1	4.2	4.3	1.6	4.4	4.5		10.5
21	5.1	5.3	5.5	8.1	7.3	5.9		10.1
	5.2	5.4	5.8	5.6	7.4	5.7		
22	5.1	6.1	6.3	6.10	6.5	6.7	7.1	10.3
	6.9	6.2	6.4		6.6	6.8	7.2	
23	9.1	8.3	8.5	6.10	8.8	8.2	7.5	10.4
		8.4	8.6		8.7	8.9		
24	9.1	9.2	9.3	8.1	9.5	9.9		10.5
		9.7	9.4		9.8	9.6	9.10	

Key: 5.6 is region 5, school 6, grade 10 (at least 50 from 2-4 classes per day)

R: Reliability

High Schools: Number of Days by Region by Examiner

Region - DDS	1	2	3	4	5	6	7	8	9	10	Total
17	1	-	10	-	-	-	-	-	-	2	13
18	1	8	1	-	-	-	-	-	-	1	11
19	7	-	-	1	-	-	-	-	-	1	9
20	1	-	-	5	-	-	-	-	-	1	7
21	-	-	-	-	9	-	2	1	-	1	13
22	-	-	-	-	1	10	2	-	-	1	14
23	-	-	-	-	-	1	1	9	1	1	13
24	-	-	-	-	-	-	-	1	10	1	12
Total	10	8	11	6	10	11	5	11	11	9	92

Pairing of examiners and number of High Schools for Reliability:

DDS- DDS	17	18	19	20	21	22	23	24	Total
17		1	1		1				3
18	1			1		1			3
19	1			1			1		3
20		1	1					1	3
21	1					1		1	3
22		1			1		1		3
23			1			1		1	3
24				1	1		1		3
Total	3	3	3	3	3	3	3	3	24

Number of High School students for reliability examinations

In each high school used for reliability checks, for each examiner, 4 students will be examined twice by the same examiner; a total of 8 students. The students for these second examinations will be identified by their ID number. These students will be asked to wait in a separate area until they are called to be examined. An additional 8 students will be examined by two examiners. The students for these second examinations will be identified by their ID number; these students will be asked to wait in a separate area until they are called to be examined. This is a total of 16 students per school. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes. Examiners may confer after the second examination, but may not alter the examination records.

School	Number of Schools	Number of students for 2nd exams
High	10	160
Continuation	2	32
Total	12	192

Schedule of High School Students by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, 6, **56**, 3, 7, 8, 9, 10, 11, 12, **62**, 9, 13, 14, 15, 16, 17, 18, **68**, **15**, 19, 20, 21, 22, 23, 24, **74**, **21**, 25

Dentist B: 51, 52, 53, 54, 55, 56, **6**, **53**, 57, 58, 59, 60, 61, 62, **12**, **59**, 63, 64, 65, 66, 67, 68, **18**, **65**, 69, 70, 71, 72, 73, 74, **24**, **71**, 75

Mailing the Discs and Data analysis

Data collected from the questionnaires and dental examinations will be entered into a laptop computer. At the end of each day of data collection, a disk containing the data will be mailed to a central location.

Mail the discs to: Dr. Howard Pollick
School of Dentistry, UCSF,
707, Parnassus Avenue, D-3212,
San Francisco, CA 94143-0754

Stamped mailers for the discs will be provided, with the address above.

Data will be combined for data analysis. The analysis program will be written to produce the tables needed for the report.

Logistics

Reimbursement; per diem; travel

Each dental examiner, recorder, and site coordinator must sign a contract with The Dental Health Foundation that specifies terms of the agreement; this is necessary for participation in this survey. The terms of the agreement specify reimbursement procedures for pay and travel expenses. All reimbursement paperwork will be handled by Wally Chipman, Executive Director, The Dental Health Foundation.

Due to budget limitations, each dentist and recorder have been selected based on their living within close proximity to the majority of school sites to which they have been assigned. The following criteria apply to each dentist and recorder:

1. less than 100 miles and 2 hours driving time from the majority of school sites
2. able to leave home at no earlier than 6:30 am and arrive at the majority of school sites by 8:30 am
3. able to complete the required number of examinations that day
4. able to return home the same day
5. no allowance for per diem or meals will be made except when an overnight stay is necessary

The site coordinator for each school will live near the school and be familiar with the school, and will not incur travel expense.

Travel to the rural sites in Fresno county

For the rural sites in Fresno county and to obtain reliability data between Northern and Southern California examination teams, all examiner-teams (dentists and recorders) will be paired up. Each team is encouraged to travel by car-pool. This will require per diem costs for 1-2 days for each dentist and recorder.

For each category of school (preschool, elementary, and high school) it is expected that each examination team will travel to the site the evening before the examination day. Where two days of examinations are required in Fresno County, they must be consecutive days. Examination teams are expected to then return home the evening of the last examination day. Salary expense will only apply to examination days, and not for travel days.

Equipment

Screening and infection control equipment and supplies

Each dental examiner will be provided with the equipment for the screenings at the training session. The dental examiner is expected to transport the equipment by automobile. An inventory list of the equipment will be provided, to be checked at least weekly. Additional supplies needed should be communicated to Joanne Wellman at 1-916-327-8903 or 1-800-684-2424.

Laptop computers and discs

Each recorder will be provided with a laptop computer and discs for the screenings at the training session. Since the recorder may not be the same person for each dentist at all sites, the dentist is expected to transport the laptop computer and discs by automobile. An inventory list of this equipment will be provided, to be checked at least weekly. Additional supplies needed should be communicated to Joanne Wellman at 1-916-327-8903 or 1-800-684-2424.

Paperwork

Each recorder and dentist will be provided with the paperwork for the screenings at the training session. They are expected to take the paperwork with them to each site. An inventory list of the paperwork will be provided, to be checked at least weekly. Additional supplies needed should be communicated to Joanne Wellman at 1-916-327-8903 or 1-800-684-2424.

Personnel

Site coordinator; school personnel

For each preschool or school, a site coordinator has been or will be assigned. The responsibilities of the site coordinator are:

To confirm the day of the screenings with the school administration and teachers, and the dental examiner and recorder.

To distribute the consent/questionnaire packages to the children/students, two or three weeks before the screening day.

To collect the consent/questionnaire packages the Tuesday after the packages have been distributed.

To count and record the number of positive consents; to send reminder notices.

To count and record the final number of positive consents, and complete a form indicating the proportion of non-response. To call Joanne Wellman at 1-916-327-8903 or 1-800-684-2424 to give the count.

To call the dental examiner and recorder and re-confirm the day of the screenings and provide information about directions and times for the screenings.

To attend the day of the screenings and assist.

Start to finish; example for one child; one day

The dentist and recorder should meet the site coordinator in the office at the preschool/school. They should introduce themselves to the school administrators and then set up in the selected location for the screenings.

A list of consenting children by room will be made by the site coordinator. A copy of the list will be provided for the recorder. The first five children on the list will be escorted to the screening location by the site coordinator. A teacher is encouraged to accompany the children.

The site coordinator will have organized the consent/questionnaire packages and handed them to the recorder. The outside of each package will have the child/student's name, the checked box for consenting to participate, and the room number.

The dentist will have set up a position and be ready for the first child with the appropriate infection control procedures.

The recorder will have set up a position and plugged in the laptop computer and called up the first screen for data entry.

The recorder will open the envelope for the first child on the list who will be brought to the screening, and begin entering the data.

The recorder will match the name and date of birth on the consent form and the questionnaire, and check that consent has been given. The recorder will then write on the questionnaire an ID Number beginning with number 1 for the first child. (When there are two examiners present for reliability checks, the two dentists will follow the schedules for the sequence of numbers to be used. The second examination team will use ID numbers starting with number 51. For the second examination of a child/student the same ID number will be used as written in by the other examination team recorder, and the reliability code 'Y' -for yes- will be entered) The same ID number will be written in on the list of children. The Zip Code from the consent form will then be entered. Then the data from the questionnaire will be entered. The recorder will then inform the dentist that the questionnaire data are complete, and the dentist may proceed with calling out the oral examination findings. The recorder will enter these calls, guiding and confirming with the dentist as needed. When the final call is given (urgency need) the data will be saved, a referral form will be checked for that child (according to the urgency call) and the recorder will write in the child/student's name on the form and hand it to the child/student.

For the high school students, the dentist will ask the student if he or she has any of the conditions which would preclude a periodontal screening, as a second check (the consent form expressly asks parents/ guardians not to consent if the student has a history of rheumatic fever or has a heart condition such as congenital heart defect or valve disorder, or a bleeding disorder such as hemophilia, or has been told that he or she must take antibiotics before having a dental exam). In such a case, the student should be excused.

The dentist will change gloves and proceed with other infection control procedures prior to the second child/student being invited to the screening chair. In the time it takes for these infection control procedures, the recorder will be calling up the next screen and checking that the next child/student's consent/questionnaire package is for the next child/student. The recorder will then write in the ID No. on the questionnaire as number 2, and write that number for that child/student on the list, and proceed with data entry as before.

This sequence will continue until all consenting children/students have been screened.

At the end of the day, the dentist will scrub and bag the instruments and be responsible for waste disposal and gathering the equipment and supplies.

The recorder will transfer the data for the day to one disk labeled for mailing, and to another disk labeled for back-up. The recorder will be responsible for gathering the computer equipment and supplies and for mailing the disk to the address on the disk mailer.

Start to finish; first to last day

It is to be expected that the process will become more efficient over time.

The first time all examination teams will be paired up which should make it easier to collect the data in the time.

The schedule will be finalized at the training sessions, so that each dentist and each recorder will know where they will be going and when. The schedule for each preschool or school needs to be coordinated by the site coordinator between the school, the dentist, and the recorder. The proposed schedules for preschools, elementary schools, and high schools should be adhered to as much as possible so that all schools can be completed by December 1993.

Reliability Checks

At the beginning, middle and end of the survey, examination teams will be paired up.

In addition to the list of consenting children, another list will be made for reliability checks. The schedule of children/students to be screened a second time is listed below, and is different for preschools, elementary schools, and high schools.

The site coordinator will be responsible for monitoring who needs to be screened a second time.

The recorder will enter the same ID number and enter that this is a reliability check. The recorder will enter all questionnaire data as well as the dental examination calls. The child/student will be given a dental screening results form after the first screening, but not after the second screening. The second examiner must not see which category of need was written on the dental screening results form.

Preschools

Schedule of preschool children by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, **55**, 6, 7, 8, 9, 10, **60**, 11, 12, 13, 14, 15, **65**, 16, 17, 18, 19, 20, **70**, 21, 22, 23, 24, 25, **75**

Dentist B: 51, 52, 53, 54, 55, **5**, 56, 57, 58, 59, 60, **10**, 61, 62, 63, 64, 65, **15**, 66, 67, 68, 69, 70, **20**, 71, 72, 73, 74, 75, **25**

Students to be re-examined by the other dentist:

First by Dentist A: 5, 10, 15, 20, 25

First by Dentist B: 55, 60, 65, 70, 75

There is no re-examination by the same dentist for preschools.

In each preschool/day care center used for reliability checks, for each examiner, up to 10 children will be examined by two examiners. The children for these second examinations will be identified by the last digit of their ID number which will end in '5' or '0'. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes. Examiners may confer after the second examination, but may not alter the examination records.

Elementary Schools

Schedule of elementary schoolchildren by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, **205**, 6, 7, 8, 9, 10, **210**, 11, 12, 13, 14, 15, **215**, 16, 17, 18, 19, 20, **220**, 21, 22, 23, 24, 25, **225**, 26, 27, 28, 29, 30, **230**, 31, 32, 33, 34, 35, **235**, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120

Dentist B: 201, 202, 203, 204, 205, **5**, 206, 207, 208, 209, 210, **10**, 211, 212, 213, 214, 215, **15**, 216, 217, 218, 219, **220**, **20**, 221, 222, 223, 224, 225, **25**, 226, 227, 228, 229, 230, **30**, 231, 232, 233, 234, 235, **35**, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320

Students to be re-examined by the other dentist:

First by Dentist A: 5, 10, 15, 20, 25, 30, 35

First by Dentist B: 205, 210, 215, 220, 225, 230, 235

There is no re-examination by the same dentist for elementary schools.

In each elementary school used for reliability checks, up to 14 children will be examined by two examiners. The children for these second examinations will be identified by the last digit of their ID number which will end in '5' or '0'. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes. Examiners may confer after the second examination, but may not alter the examination records.

High Schools

Schedule of High School Students by ID number for all examinations including Second Examinations

Dentist A: 1, 2, 3, 4, 5, 6, 56, 3, 7, 8, 9, 10, 11, 12, 62, 9, 13, 14, 15, 16, 17, 18, 68, 15, 19, 20, 21, 22, 23, 24, 74, 21, 25

Dentist B: 51, 52, 53, 54, 55, 56, 6, 53, 57, 58, 59, 60, 61, 62, 12, 59, 63, 64, 65, 66, 67, 68, 18, 65, 69, 70, 71, 72, 73, 74, 24, 71, 75

Students to be re-examined by the same dentist:

Dentist A: 3, 9, 15, 21

Dentist B: 53, 59, 65, 71

Students to be re-examined by the other dentist:

First by Dentist A: 6, 12, 18, 24

First by Dentist B: 56, 62, 68, 74

In each high school used for reliability checks, for each examiner, 4 students will be examined twice by the same examiner; a total of 8 students. The students for these second examinations will be identified by their ID number (see schedule). These students will be asked to wait in a separate area until they are called to be examined. An additional 8 students will be examined by two examiners. The students for these second examinations will be identified by their ID number (see schedule); these students will be asked to wait in a separate area until they are called to be examined. This is a total of 16 students per school. In all instances the first examination shall count as the one to be included in the survey; the second examination shall only be used for reliability purposes.

Examiners may confer after the second examination, but may not alter the examination records.

Problem solving

Each dentist and recorder will take with them to each preschool/school the materials they need to refer to in the event of problems.

Any incident involving injury or any damage to school property should be documented and communicated to the school administration.

Any problem with the examination equipment, supplies, or computer should be communicated to Joanne Wellman at 1-916-327-8903 or 1-800-684-2424.

Arrangements for distribution of equipment

All examination equipment, supplies, laptop computers, and disks, and forms will be distributed at the training sessions.

Dentists and recorders will be asked to take these items in their car to their home, to be stored and transported by them for use during the survey.

CALIFORNIA ORAL HEALTH NEEDS ASSESSMENT

TRAINING SESSIONS

AGENDA

CONCORD SEPT 11th 1993 / ANAHEIM SEPT 19th 1993

8:30 am Registration and Continental Breakfast 9:00 am
Introductions

9:15 am Background

9:30 am Planning

9:35 am Survey Design: Preschools, Elementary Schools, High Schools
Race/Ethnicity, Geographic Areas
Sample Size, Sample Selection

10:00 am Consent Forms and Approval Process

10:05 am Questionnaires

10:15 am Recruitment, Training, Calibration, and Reliability

10:30 am Break

10:45 am Dental Examinations: Indices

11:10 am Dental Examinations: Infection Control/Sterilization

11:30 am Schedules: Preschools, Elementary Schools, High Schools

12:00 noon Lunch

1:00 pm Mailing of Discs and Data Analysis

1:05 pm Personnel: Dentists, Recorders, Site Coordinators, Regional Coordinators
Stipends; per diem; travel

1:30 pm Dental Equipment: Chairs, Lights, Instruments, Supplies

2:00 pm Computer Laptops, Discs

2:30 pm Paper/Reference Material

2:45 pm Break

3:00 pm Start to Finish: One Child; One Day; First to Last Day

3:30 pm Reliability Checks; Spot Checks

3:45 pm Problem Solving

4:00 pm Training Sessions: Preschool, Elementary School, High School

4:30 pm Distribution of Equipment