Caries in California

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Tooth Decay - Dental Caries: what happens when the rot sets in?

• Primary teeth
• Permanent teeth
• Coronal surfaces:
  • Pit & Fissure
  • Approximal
• Root surface
  • Pain
  • Infection
  • Abscess
• Restoration $
• Root Canal $$
• Extraction $
• Replacement $$$
Caries: obvious discoloration; obvious cavities

Caries: more extensive in the dentine; crowns
Caries: tooth colored fillings and sealants

Caries in California

Prevalence
- At one point or period of time
- Sample of population
- Percent of individuals with any evidence of tooth decay
- No matter how many teeth or surfaces are affected
- Or how badly
- Untreated and/or
- Treated

Severity
- At one point or period of time
- Sample of population
- Average number of teeth or tooth surfaces affected by tooth decay per individual
- Untreated and/or
- Treated (filled or extracted)
- decayed or filled primary teeth (dft) or surfaces (dfs)
- Decayed, Missing (due to caries) and Filled Permanent Teeth (DMFT) or surfaces (DMFS)
Caries: Assessment or Diagnosis

**Assessment**
- Eyes (corrective lenses)
- Mouth mirror ?
- Explorer ?
- Available light or flashlight
- No x-rays
- Underestimates caries
- Missing due to caries ?

**Diagnosis**
- Eyes (corrective lenses)
- Magnifying lenses?
- Mouth mirror
- Explorer
- Dental light or headlight
- X-rays – identifies approximal caries, caries depth, root canal treatments

Caries: Early or late stages

**Early**
- Enamel caries only
- Poor agreement / reliability between same or different examiners
- Some surveys ignore early signs
- When in doubt - no caries

**Late**
- Dentine caries
- Good agreement / reliability between same or different examiners

*There has to be a measure of reliability between or within examiners*
Caries: Difference in survey data

**Real or true**
- High agreement / reliability between same or different examiners
- Due to age differences in same population over time
- Measuring impact of an intervention? Compared to a true control group?
- Changes due to risk and/or preventive factors

**Not real or untrue**
- Poor agreement / reliability between same or different examiners
- Due to selecting different samples – not representative
- Due to improper statistical analysis

*Researchers must ‘bend over backwards’ to reduce the possibility that results are due to improper methods*

Caries: How to reduce discrepancies

**Calibration**
- ‘Gold’ standard
- Independent assessments
- Same subjects
- Discuss differences
- ‘Let go’ outsiders

**Dentists or hygienists or dental assistants or others**
- Dentists may be more familiar with caries, fillings and sealants
- Budget - volunteers or paid?
- Recorder accuracy

*Researchers must ‘bend over backwards’ to reduce the possibility that results are due to improper methods*

• May 21, 2019: Caries in California
• Howard Pollick, BDS, MPH
• View COHNAC Training Manual 8/26/93

Early California Caries surveys

• October 1936
• Dental Survey of San Francisco Elementary School Children;
• 46,000 children screened; ages 6-14 years
• Works Progress Administration
• Sponsored by
• San Francisco Dept. of Public Health and
• San Francisco District Dental Society
Early California Caries surveys – San Francisco 1936

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Pupils</th>
<th>Mean Number of Untreated Carious Permanent Teeth per pupil</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>6129</td>
<td>1.8</td>
</tr>
<tr>
<td>12</td>
<td>4755</td>
<td>2.1</td>
</tr>
<tr>
<td>13</td>
<td>3532</td>
<td>2.5</td>
</tr>
<tr>
<td>14</td>
<td>1545</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Pulpal involvement or extractions indicated
- More than 40% of 8-year-old pupils had pulpal involvement or needed an extraction of a deciduous or permanent tooth.
- At age 14, one in seven 14-year-olds had pulpal involvement or extractions were indicated.

Six-year molars
- About 30% of six-year molars were carious in ages 8-14;
- with an estimated additional 20% already treated; total of 50%

Deciduous teeth
At age 8, in addition to the need for extraction or pulpal treatment, untreated caries in deciduous teeth peaks at 23%

Early California Caries surveys – Oakland 1951

14,530 children screened; ages 5-17
One dentist

Permanent tooth decay
- 45% of five-year-old children with a permanent molar had decay
- 58% of six-year-olds
- 72% of seven-year-olds
- 84% of eight-year-olds
- 81% prevalence of permanent decay in all ages 5-17
- Higher prevalence in high and middle income areas
Early California Caries surveys – Oakland 1951

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Pupils</th>
<th>Mean Number of Decayed, Missing or Filled (DMFT) Permanent Teeth per pupil</th>
<th>Percent of pupils with Missing due to caries (MT) Permanent Teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>1037</td>
<td>4.0</td>
<td>18.5%</td>
</tr>
<tr>
<td>12</td>
<td>1097</td>
<td>4.6</td>
<td>21.6%</td>
</tr>
<tr>
<td>13</td>
<td>1191</td>
<td>7.2</td>
<td>28.7%</td>
</tr>
<tr>
<td>14</td>
<td>1161</td>
<td>7.1</td>
<td>31.3%</td>
</tr>
<tr>
<td>15</td>
<td>1097</td>
<td>10.6</td>
<td>39.2%</td>
</tr>
<tr>
<td>16</td>
<td>1234</td>
<td>10.6</td>
<td>40.9%</td>
</tr>
<tr>
<td>17</td>
<td>765</td>
<td>10.6</td>
<td>45.6%</td>
</tr>
</tbody>
</table>

History of Fluoridation in California

- 1952
- Henry A. Dietz
- Assistant Attorney General, State of California
- Fluoridation and Domestic Water Supplies in California

The California State Board of Public Health, on August 29, 1950, issued a statement to the effect that it approved the addition of fluoride to public water supplies.

https://repository.uchastings.edu/cgi/viewcontent.cgi?article=1380&context=hastings_law_journal
Caries in California

1955

Dental caries survey: who, why, how

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF DENTAL HEALTH
Caries in California


Aurora, Illinois – 1.2 ppm fluoride in drinking water

Note: Caries severity (DMF) increase from 12-14 years

Introductory Remarks Behavioral Sciences in Dentistry AAAS Symposium, December 27, 1965, Berkeley, California
LLOYD F. RICHARDS Division of Dental Health, State Department of Health, Berkeley, California

Dental caries is, to a great extent, preventable. At least a third of the dental caries can be prevented simply by drinking water that contains the proper amount of fluoride, especially during the period that the permanent dentition is forming.

Any community can adjust the fluoride content of its water supplies to the proper level.

Controlled fluoridation of community water supplies has been scientifically proved beyond any reasonable doubt to be a safe, practical, economical, and effective method for the prevention of dental caries.

Fluoridation makes children healthier, saves parents many dollars on dental care bills, saves the community and state millions of dollars in dental care for the indigent and institutionalized and, because of the resulting shorter time required for dental treatment, makes it possible for more people to obtain needed dental care. Everyone benefits.

Yet when parents and others in a community are asked whether or not they want fluoridation, they more often than not decide against it.

So tooth decay continues to occur at a high rate, parents continue to put off obtaining needed dental care for their children and themselves, treatment needs increase in severity and complexity, and the cost of dental care increases commensurately.

- Of the total 7,240 children studied, 38 percent had some form of non-fluoride hypoplasia.
- Enamel opacities were the greatest percentage of non-fluoride hypoplasias found (94 percent).
- Maxillary teeth were affected by non-fluoride enamel hypoplasia three times as often as mandibular teeth, and anterior teeth were affected more often than posterior teeth. The maxillary central incisors were the teeth most frequently affected.
- No definite relationship emerges between the occurrence of non-fluoride enamel hypoplasia and the fluoride levels of community water supplies.

Caries in California


<table>
<thead>
<tr>
<th>Temperature (Mean maximum)</th>
<th>0.15 or less</th>
<th>0.2 - 0.4</th>
<th>0.5 - 0.7</th>
<th>0.8 - 1.0</th>
<th>1.1 - 1.3</th>
<th>1.8 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>California</td>
<td>Colorado</td>
<td>California</td>
<td>Arizona</td>
<td>Colorado</td>
<td>Florida</td>
</tr>
<tr>
<td>Zone 2</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>Santa Ana</td>
<td>Santa Ana</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Texas</td>
<td>California</td>
<td>California</td>
<td>Arizona</td>
<td>Arizona</td>
<td>Arizona</td>
</tr>
<tr>
<td>Zone 4</td>
<td>Alabama</td>
<td>California</td>
<td>California</td>
<td>Wisconsin</td>
<td>Wisconsin</td>
<td>Wisconsin</td>
</tr>
<tr>
<td>Zone 5</td>
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<td>Arizona</td>
<td>Arizona</td>
<td>Arizona</td>
</tr>
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<td>Zone 6</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 7</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 8</td>
<td>California</td>
<td>California</td>
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<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 9</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 10</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
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<tr>
<td>Zone 11</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 12</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 13</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
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<tr>
<td>Zone 14</td>
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<td>California</td>
<td>California</td>
<td>California</td>
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<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
<tr>
<td>Zone 16</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
<td>California</td>
</tr>
</tbody>
</table>

Caries in California
More Recent Surveys and Stories

• Evaluation of the California Children’s Dental Disease Prevention Program
• 330,000 K-6 children participating in 37 counties
• Baseline – 1981-82
• Follow-up – 1983-84
• Historical Controls
• Naturally fluoridated site - Barstow and Victorville
• Low fluoride site – Monterey


- 1992 Bob Isman – UCSF Saunders Court –
- COHNAC PI – Oral Epidemiologist
- Advisory Committee –
- Physician from Davis, Robert Bates – Fluoridation

California Fluoridation Task Force, 1994

Tim Collins, Chair
Marjorie Stocks

• Report – Draft to MCH – 1994


• APHA Abstracts

• 1995 APHA Annual Meeting Session

• 1997 APHA Annual Meeting
Fluoridation in California: 1995 Law

- In 1995, then in the California State Assembly, Jackie Speier authored AB 733, the Fluoridation Act, which was passed and signed by Governor Wilson.
- In spite of opposition by anti-fluoridationists
- It mandated the fluoridation of water systems with 10,000 service connections or more when funding is available.

How did the California fluoridation law come about?
Statewide Data – played a part, but reports came out later

[Sources: The Oral Health of California's Children: A Neglected Epidemic]
Caries Status in California

• The Oral Health of California's Children
• *A Neglected Epidemic*
• Selected Findings and Recommendations
• San Rafael, The Dental Health Foundation, 1997.

Caries Status in California

• First Statewide data
• 1993-94 (data collection)
• California Oral Health Needs Assessment of Children (COHNAC)
• Pollick HF, Isman R, Fine JI, Wellman J, Kipnis P, Ellison J.
• *Background, Methodology, Findings*
• The Dental Health Foundation, Oakland, California. 1999

Methods

• View COHNAC Training Manual 8/26/93

WHO Oral Health Surveys: Basic Methods, 3rd edition

![Caries in California](image-url)
Oral Health Surveys of the National Institute of Dental Research: Diagnostic Criteria and Procedures. January 1991

https://babel.hathitrust.org/cgi/pt?id=pur1.32754062207141;view=1up;seq=2
Caries Status in California: COHNAC 1993-94

Preschools

• Of all preschool children, 31% have had some treated and/or untreated tooth decay
  • 1+ dmft
  • decayed, missing (due to extraction because of caries), or filled primary teeth
Caries Status in California: COHNAC 1993-94
Preschools

• Conversely, 69% of preschool children have no evidence of having had tooth decay
  • zero dmft

Caries Status in California: COHNAC 1993-94
Preschools: Disparities
Ethnicity, Region, Type of preschool

• There is a wide range in the percentage of children with treated and untreated tooth decay for groups identified by ethnicity, region, and the type of preschool they attend.
• On average, there are 1.3 dmft per preschool child

• Asian children in Non Fluoridated Urban areas in Head Start preschools had the highest percentage (79%) of untreated or treated tooth decay
  • (mean 4.5 dmft)
• White children in Fluoridated Urban areas in Non-Head Start preschools were the group with the lowest percentage (10%) of untreated or treated tooth decay.
  • (mean 0.3 dmft)
Fluoridation reduces economic disparities

Data from the **California Oral Health Needs Assessment, 1993-94**


<table>
<thead>
<tr>
<th>Grades K-3 Lifetime residents</th>
<th>mean dft (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty Status</td>
<td>optimal F</td>
</tr>
<tr>
<td>Below 200% (N=921)</td>
<td>2.7 (.17)</td>
</tr>
<tr>
<td>Above 200% (N=293)</td>
<td>1.6 (.24)</td>
</tr>
</tbody>
</table>

dft: decayed and filled primary teeth
SE: Standard Error
Poverty Status: Below 200% and Above 200%: of the Federal Poverty Level (according to family income and size)
N: sample size

optimal F: fluoride concentration of water supply in zip code of child’s residence at or above 0.6 ppm or mg/L
suboptimal F: fluoride concentration of water supply in zip code of child’s residence below 0.6 ppm or mg/L
* statistically significant difference between fluoride groups
Fluoridation reduces economic disparities

Data from the *California Oral Health Needs Assessment, 1993-94*  

<table>
<thead>
<tr>
<th>Grades K-3 Lifetime residents</th>
<th>mean dft (SE)</th>
<th>mean dfs (SE)</th>
<th>% caries-free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 200% (N=921)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>optimal F</td>
<td>2.7 (.17)</td>
<td>3.7 (.15)</td>
<td></td>
</tr>
<tr>
<td>suboptimal F</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>optimal F</td>
<td>5.9 (.47)</td>
<td>8.2 (.45)</td>
<td></td>
</tr>
<tr>
<td>suboptimal F</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Above 200% (N=293)</td>
<td>1.6 (.24)</td>
<td>1.9 (.21)</td>
<td>36.0</td>
</tr>
<tr>
<td></td>
<td>3.0 (.53)</td>
<td>3.6 (.43)</td>
<td>59.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>53.5</td>
</tr>
</tbody>
</table>

dft: decayed and filled primary teeth  
dfs: decayed and filled primary tooth surfaces  
SE: Standard Error  
Poverty Status: Below 200% and Above 200%: of the Federal Poverty Level (according to family income and size)  
N: sample size  
optimal F: fluoride concentration of water supply in zip code of child’s residence at or above 0.6 ppm or mg/L  
suboptimal F: fluoride concentration of water supply in zip code of child’s residence below 0.6 ppm or mg/L  
* statistically significant difference between fluoride groups
Caries Status in California:
Elementary Schools: Comparing California and US prevalence data with Healthy People Objectives

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All 6-8-year-old children</td>
<td>73%</td>
<td>53%/52%</td>
<td>35%/42%</td>
</tr>
<tr>
<td>Children aged 6-8 years whose parents have less than a high school education</td>
<td>86%</td>
<td>70%/65%</td>
<td>45%/-</td>
</tr>
<tr>
<td>Black 6-8-year-old children</td>
<td>70%</td>
<td>61%/50%</td>
<td>40%/-</td>
</tr>
<tr>
<td>Latino / Hispanic 6-8-year-old children</td>
<td>84%</td>
<td>-/-</td>
<td>-/-</td>
</tr>
<tr>
<td>Asian 6-8-year-old children</td>
<td>90%</td>
<td>-/-</td>
<td>-/-</td>
</tr>
</tbody>
</table>

- Not included in Healthy People 2000/2010 Objectives

Caries Status in California: COHNAC 1993-94
Elementary Schools:

**DENTAL CARIES: 6-8 YEAR-OLDS**

- Caries Lesions
- Objective
- Untreated Caries
- Objective

Percentage of children, aged 6 through 8 years, with one or more carious lesions in permanent and or primary teeth; by Healthy People Objectives For The Year 2000

*Carious lesions = Treated and Untreated Caries*
Caries Status in California: COHNAC 1993-94
High Schools (10th grade)

Distribution (%) of Students with 0, 1-4, 5-8, 9+ Decayed, Missing, or Filled permanent tooth surfaces (DMFS)

<table>
<thead>
<tr>
<th></th>
<th>0 DMFS</th>
<th>1-4 DMFS</th>
<th>5-8 DMFS</th>
<th>9+ DMFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular High Schools</td>
<td>23.8</td>
<td>30.0</td>
<td>19.9</td>
<td>26.3</td>
</tr>
<tr>
<td>Continuation High</td>
<td>12.5</td>
<td>29.6</td>
<td>13.4</td>
<td>44.5</td>
</tr>
<tr>
<td>All High Schools</td>
<td>23.4</td>
<td>30.0</td>
<td>19.7</td>
<td>26.9</td>
</tr>
</tbody>
</table>

*range for DMFS: 0-128

---

Caries Status in California: COHNAC 1993-94
High Schools

Mean number (and standard error of the mean) of Decayed, Missing, or Filled permanent tooth surfaces (DMFS) and percentage of DMFS by components D, M, F

<table>
<thead>
<tr>
<th></th>
<th>mean DMFS</th>
<th>SEM</th>
<th>%D/DMFS</th>
<th>%M/ DMFS</th>
<th>%F/ DMFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular High Schools</td>
<td>6.14</td>
<td>0.85</td>
<td>40.8</td>
<td>5.3</td>
<td>53.9</td>
</tr>
<tr>
<td>Continuation High</td>
<td>8.30</td>
<td>0.76</td>
<td>33.7</td>
<td>3.0</td>
<td>63.3</td>
</tr>
<tr>
<td>All High Schools</td>
<td>6.21</td>
<td>0.83</td>
<td>40.5</td>
<td>5.2</td>
<td>54.3</td>
</tr>
</tbody>
</table>
Caries Status in California: COHNAC 1993-94

High School Students in fluoridated areas have far fewer urgent treatment needs

<table>
<thead>
<tr>
<th>REGULAR HIGH SCHOOLS</th>
<th>URGENT TREATMENT NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fluoridated</td>
</tr>
<tr>
<td>Asian</td>
<td>2.7%</td>
</tr>
<tr>
<td>African-American</td>
<td>3.4%</td>
</tr>
<tr>
<td>Latino/Hispanic</td>
<td>5.8%</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>2.5%</td>
</tr>
<tr>
<td>All</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

I.D.: Insufficient Data for Asians and Blacks in Rural Areas

Caries Status in California: 2004-5 Survey

- The California Smile Survey screened 10,949 kindergarten and 10,450 3rd grade children (55% of the students enrolled in these grades in the 186 participating schools).
- decayed teeth, filled teeth, presence of dental sealants, history of rampant decay (decay experience on 7 or more teeth), and treatment urgency
Caries Status in California: 2004-5 Survey

• Half of the children screened were male, 53% were Hispanic, 27% were non-Hispanic white, 8% were Asian, and 7% were African-American.

• 43% of the children screened were from homes where parents speak a language other than English.

Caries Status in California: 2004-5 Survey

• 54% of the kindergartners and 71% of the 3rd grade children screened had a history of tooth decay.

• Untreated tooth decay was consistent across grades with more than 1 out of every 4 children having untreated decay.
### Table 3.4
Oral Health Status of California's Kindergarten Children Adjusted for Sampling Scheme and Non-Response

<table>
<thead>
<tr>
<th></th>
<th>Number Screened</th>
<th>Percent</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>% caries free (no treated or untreated decay)</td>
<td>10,944</td>
<td>46.4</td>
<td>44.1 – 48.6</td>
</tr>
<tr>
<td>% with caries experience</td>
<td>10,944</td>
<td>53.6</td>
<td>51.4 – 55.9</td>
</tr>
<tr>
<td>% with treated decay</td>
<td>10,941</td>
<td>36.9</td>
<td>35.2 – 38.6</td>
</tr>
<tr>
<td>% with untreated decay</td>
<td>10,946</td>
<td>27.9</td>
<td>26.0 – 29.7</td>
</tr>
<tr>
<td>% with rampant caries</td>
<td>10,939</td>
<td>19.0</td>
<td>17.1 – 20.9</td>
</tr>
<tr>
<td>Treatment Need</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% with no obvious problem</td>
<td>10,930</td>
<td>74.1</td>
<td>72.1 – 76.1</td>
</tr>
<tr>
<td>% needing early dental care</td>
<td></td>
<td>21.4</td>
<td>19.7 – 23.1</td>
</tr>
<tr>
<td>% needing urgent dental care</td>
<td></td>
<td>4.5</td>
<td>3.7 – 5.3</td>
</tr>
</tbody>
</table>

### Table 2.4
Oral Health Status of California's 3rd Grade Children Adjusted for Sampling Scheme and Non-Response

<table>
<thead>
<tr>
<th></th>
<th>Number Screened</th>
<th>Percent</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>% caries free (no treated or untreated decay)</td>
<td>10,443</td>
<td>29.1</td>
<td>27.2 – 30.9</td>
</tr>
<tr>
<td>% with caries experience</td>
<td>10,443</td>
<td>70.9</td>
<td>69.1 – 72.8</td>
</tr>
<tr>
<td>% with treated decay</td>
<td>10,439</td>
<td>59.6</td>
<td>57.7 – 61.5</td>
</tr>
<tr>
<td>% with untreated decay</td>
<td>10,444</td>
<td>28.7</td>
<td>27.0 – 30.4</td>
</tr>
<tr>
<td>% with rampant caries</td>
<td>10,439</td>
<td>22.5</td>
<td>20.3 – 24.6</td>
</tr>
<tr>
<td>% with dental sealants</td>
<td>10,430</td>
<td>27.6</td>
<td>25.7 – 29.4</td>
</tr>
<tr>
<td>Treatment Need</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% with no obvious problem</td>
<td>10,433</td>
<td>73.2</td>
<td>71.3 – 75.1</td>
</tr>
<tr>
<td>% needing early dental care</td>
<td></td>
<td>22.6</td>
<td>20.9 – 24.4</td>
</tr>
<tr>
<td>% needing urgent dental care</td>
<td></td>
<td>4.2</td>
<td>3.5 – 4.9</td>
</tr>
</tbody>
</table>

- 3rd grade
- 4.5% reduction in decay experience
- 49% reduction in untreated decay
- 140% increase in dental sealants

State Dental Screening Laws
California Kindergarten Dental Check-up law (AB 1433), enacted in 2006

- **For parents:** [AB 1433](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=200520060AB1433) requires your child receive an assessment of his or her oral health as part of school readiness activities for kindergarten entry (or first grade if this is your child’s first year in public school).

- In 2018, the law was updated to provide the state dental director with more oversight for the program, including data collection.
  - The number who are assessed and found to have untreated decay
  - *NEW* The number who are assessed and found to have experienced dental disease (measured as either treated or untreated dental decay)

- [https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=200520060AB1433](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=200520060AB1433)
- [https://www.cda.org/public-resources/kindergarten-oral-health-requirement](https://www.cda.org/public-resources/kindergarten-oral-health-requirement)

### Kindergarten Dental Check-up law (AB 1433), enacted in 2006

#### Assessment Form

- The date of the evaluation
- The presence (yes or no) of caries experience as evidenced by visible dental caries or dental restorations
- The presence (yes or no) of visible untreated dental caries
- Assignment to a category of treatment urgency as follows:
  - Urgent (if the child experiences pain or there is evidence of dental infection)
  - Early Dental Care (if caries appears visible without accompanying signs or symptoms or it appears the child would benefit from immediate sealant placement)
  - No Obvious Problems (if the child’s teeth appear to be visually healthy and there is no apparent reason for the child to be seen before the next routine check-up)

- [https://www.cspd.org/page/SchoolAssessments1](https://www.cspd.org/page/SchoolAssessments1)
## Kindergarten Dental Check-up law (AB 1433), enacted in 2006 – Oroville, Butte County, CA

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oroville City Elementary</td>
<td>Butte</td>
<td>321</td>
<td>282</td>
<td>73</td>
<td>0</td>
<td>1</td>
<td>31</td>
<td>36</td>
<td>2016</td>
</tr>
<tr>
<td>Butte Total</td>
<td></td>
<td>1280</td>
<td>666</td>
<td>205</td>
<td>0</td>
<td>1</td>
<td>31</td>
<td>611</td>
<td>2016</td>
</tr>
</tbody>
</table>

What’s missing?

**Percent with untreated decay**

**Oroville (fluoridated):** 73/282 x 100 = 25.9%;

**Butte County:** 205/666 x 100 = 30.8%

[https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results](https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results)

## Kindergarten Dental Check-up law (AB 1433), enacted in 2006 – Santa Maria, Santa Barbara County

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Maria-Bonita Elementary</td>
<td>Santa Barbara</td>
<td>1763</td>
<td>686</td>
<td>102</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>1060</td>
<td>2017</td>
</tr>
<tr>
<td>Santa Barbara Total</td>
<td></td>
<td>5119</td>
<td>1923</td>
<td>345</td>
<td>8</td>
<td>17</td>
<td>127</td>
<td>2981</td>
<td>2017</td>
</tr>
</tbody>
</table>

What’s missing?

**Percent with untreated decay**

**Santa Maria (fluoridated till Oct. 2018):** 102/686 x 100 = 14.9%;

**Santa Barbara County:** 345/1923 x 100 = 17.9%

[https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results](https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results)
Kindergarten Dental Check-up law (AB 1433), enacted in 2006

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</tr>
</thead>
<tbody>
<tr>
<td>Santa Maria-Bonita</td>
<td>Santa Barbara</td>
<td>1763</td>
<td>686</td>
<td>102</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>1060</td>
<td>2017</td>
</tr>
<tr>
<td>Elementary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Barbara</td>
<td></td>
<td>5119</td>
<td>1237</td>
<td>243</td>
<td>8</td>
<td>17</td>
<td>110</td>
<td>1921</td>
<td>2017</td>
</tr>
<tr>
<td>(not Incl. Santa Maria)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5119</td>
<td>1817</td>
<td>1245</td>
<td>8</td>
<td>17</td>
<td>1110</td>
<td>1931</td>
<td>2017</td>
</tr>
</tbody>
</table>

Percent with untreated decay
Santa Maria: \( \frac{102}{686} \times 100 = 14.9\% \);
Santa Barbara County (not incl. Santa Maria): \( \frac{243}{1237} \times 100 = 19.6\% \)

https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results

Santa Maria Elementary Schools

News From Parent Square
City of Santa Maria wants your input about transportation

Would you like it to be easier and less stressful to ride a bike or walk around Santa Maria? The City of your will identify a connected network of trails, maps, and paths that can make bicycling and walking students going to school. The City needs your help to identify where improvements are needed or what project work is to be done. If you have an idea about where and how to provide better transportation options, please fill out the form below to be considered for your idea. Your input will help us determine the most effective way to connect our transportation network in the City of Santa Maria.

There is also a public work session Thursday, May 30th, from 5:30 p.m. to 7:30 p.m. at the Santa Maria Public Library of Santa Maria, including Bike Routes to School.
Kindergarten Dental Check-up law (AB 1433), enacted in 2006 – Montecito (High SES, some water naturally fluoridated)

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Montecito Union</td>
<td>Santa Barbara</td>
<td>62</td>
<td>55</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>2017</td>
</tr>
<tr>
<td>Elementary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Barbara</td>
<td>(not incl. Montecito)</td>
<td>5119</td>
<td>1868</td>
<td>342</td>
<td>8</td>
<td>17</td>
<td>124</td>
<td>2977</td>
<td>2017</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5741</td>
<td>2418</td>
<td>375</td>
<td>8</td>
<td>17</td>
<td>124</td>
<td>2977</td>
<td></td>
</tr>
</tbody>
</table>

Percent with untreated decay

Montecito: \( \frac{3}{55} \times 100 = 5.5\%; \)

Santa Barbara County (not incl. Montecito): \( \frac{342}{1868} \times 100 = 18.3\% \)

https://www.cda.org/public-resources/community-resources/kindergarten-oral-health-requirement/ab1433-results
No California data on adult caries prevalence or severity. However, recent Older Adults Survey.

Untreated Tooth Decay

- Large numbers of older adults suffer from untreated tooth decay.
- Half the older adults residing in skilled nursing facilities have untreated tooth decay.
- More than one in three community-dwelling older adults suffer from untreated tooth decay.
Summary

• Caries in California has been a public health problem for decades
• Community Water Fluoridation to reduce the burden of caries has been studied and promoted for decades
• More caries in children from poor families than in children from more affluent families
• Fluoridation reduces disparities in caries between children from poor families and those from more affluent families
• In spite of reduced caries severity with fluoridation, caries continues to be a public health problem for low income groups and for seniors
• Caries severity is a more sensitive indicator of the burden of tooth decay than caries prevalence

Questions

For Discussion:

How should we continue caries surveillance?

What strategies should be used to reduce caries?

howard.pollick@ucsf.edu