

Variables

- Denti-Cal eligible children ages 0–3 years who received dental care
- Kindergarteners who have experienced caries
- Kindergarteners who have untreated caries

5,079 untreated or treated caries were identified in SFUSD Kindergarteners in 2014–2015.

What is it?

Oral health means the absence of tooth decay, oral infection and sores, mouth and facial pain, and other diseases and disorders that cause chronic inflammation or limit an individual's well-being and capacity to bite, chew, smile, and speak.

Why is it important for health?

Poor oral health can cause pain, dysfunction, school or work absences, difficulty concentrating, and poor appearance—problems that greatly affect quality of life and ability to interact with others. Children who experience dental decay miss more school, have lower academic achievement, and have an increased risk for a lifetime of dental problems. Poor oral health can reflect systemic inflammation, which over time may limit growth and development, as well as increase risk of adverse health outcomes, including hypertension, cardiovascular disease, and cancer.¹

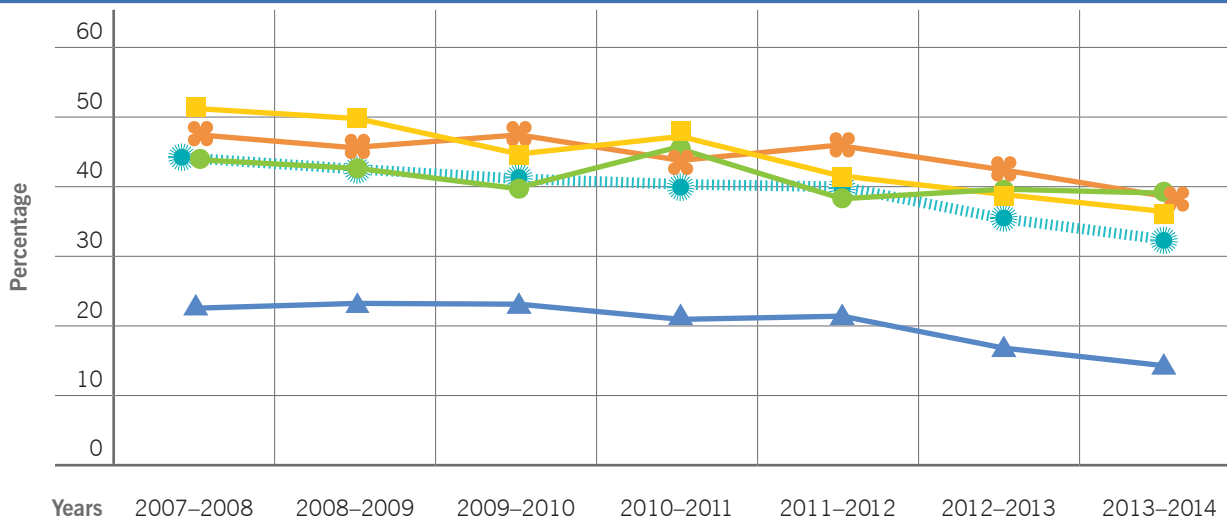
Routine dental care, fluoride treatments, and dental sealants can prevent tooth decay. One application of fluoride varnish reduces the risk of dental decay in high-risk children by 37–50 percent. Dental sealants can prevent up to 81 percent of tooth decay in children and adolescents.

What is the status in San Francisco?

Tooth decay is the single most common chronic disease of childhood in the United States. In 2011–12, nationwide, 58 percent of children ages 6–9 years had dental caries in at least one primary or permanent tooth.² Statewide, in California, by the third grade, 71 percent of students have experienced caries.³ Despite steady decreases in caries incidence in San Francisco over the past 5 years, tooth decay remains a prevalent local health problem (see **Figure A**). In 2013–14, 32.1 percent of San Francisco Unified School District (SFUSD) kindergarteners had experienced caries, 14.5 percent had untreated decay, and 61 SFUSD kindergarteners urgently needed dental care.

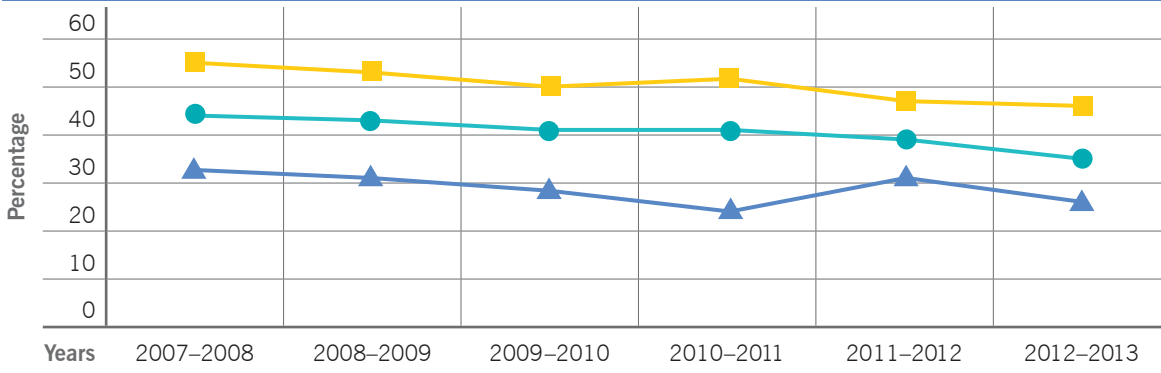
Consistent with nationwide patterns and trends, disparities in oral health persist in San Francisco. Nationally, caries occurs in clusters, with more 75 percent of caries appearing in 8 percent of U.S. children ages 2–5 years. Low-income and minority children have higher tooth decay rates. In San Francisco, low-income, Black/African American, Latino, and Asian children continue to be two times more likely to experience dental decay than higher-income and White children (see **Figures A and B**). Caries experience clusters by neighborhood (see **Map**).

Figure A: San Francisco Unified School District kindergarteners who have experienced caries



San Francisco, API, B/AA, Latino, White. Data source: SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Figure B: San Francisco Unified School District kindergarteners by income level who have experienced caries, 2012–13



● All SFUSD kindergarteners, ■ Low-income kindergarteners (in schools where over 75% of students qualify for free or reduced price meals), ▲ Higher-income kindergarteners (in schools where fewer than 25% of students qualify for free or reduced price meals). **Data source:** SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Less than half of all San Francisco children with Medi-Cal coverage have seen a dentist in the past year.

In San Francisco, Denti-Cal utilization among children ages 0–3 years is associated with decreased caries experience one year later (Figure C). Despite improvements in access to care over the past five years, 40 percent of infants and toddlers in San Francisco accessed preventative dental in 2011–12 (Figure D).

Declines in caries experience from 2009 and 2014 are attributed to suspension of adult Denti-Cal services. During this time dentists who accept Denti-Cal patients accepted more children as child Denti-Cal services remained available. This 5-year period of relatively improved access to pediatric dental care ended with the restoration of adult dental services and expansion of the Affordable Care Act (ACA). Medi-Cal dental provider reimbursement rates continue to be the lowest in the nation and are significantly below the fees most dentists charge. This low rate of reimbursement coupled with the high cost of doing business in SF, has resulted in many private offices discontinuing their acceptance of Denti-Cal patients. The wait times for

Map: Caries experience in San Francisco kindergarteners by zip code of residence, 2013–14

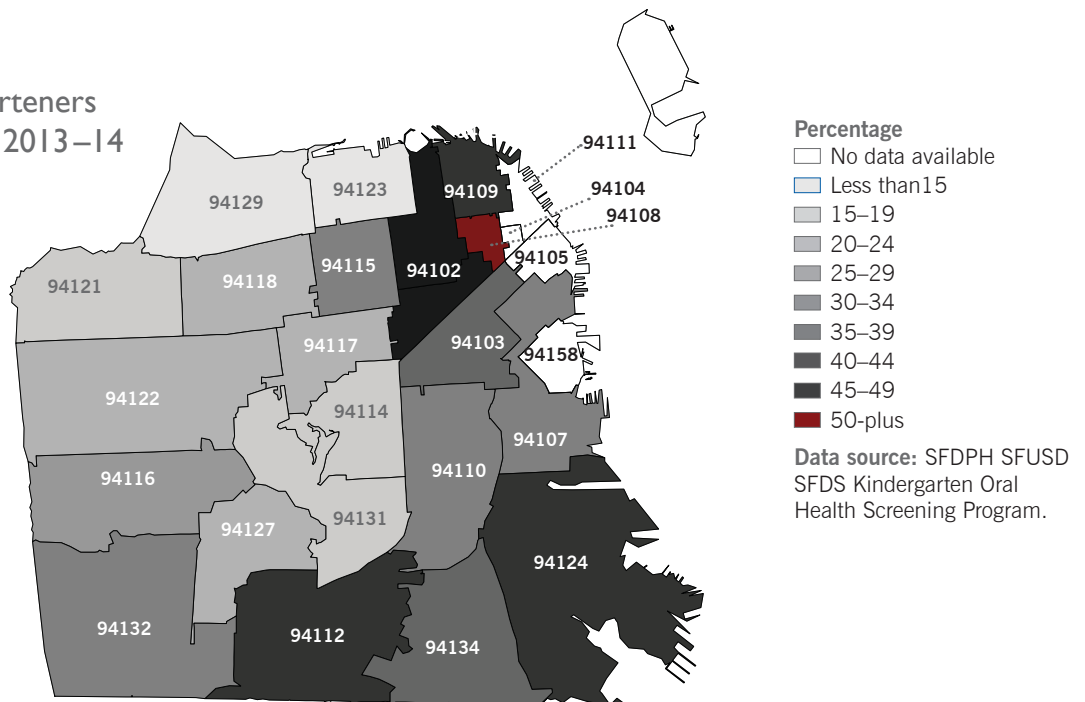
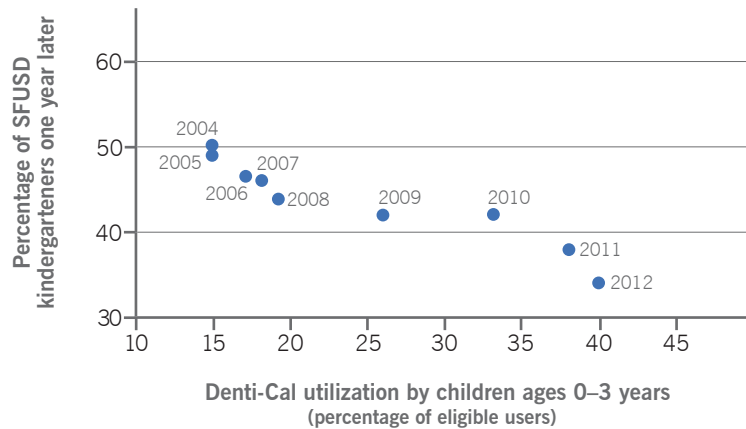


Figure C: Relationship between access to dental care by children ages 0 to 3 and caries in SFUSD kindergarteners one year later



Data source: SFUSD Kindergarten Oral Health Screening Program, California Department of Health Care Services.

dental appointments in San Francisco community clinics have increased dramatically in the past year.

Sources

SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

California Department of Health Care Services, Medi-Cal Management Information System/Decision Support System, 2012.

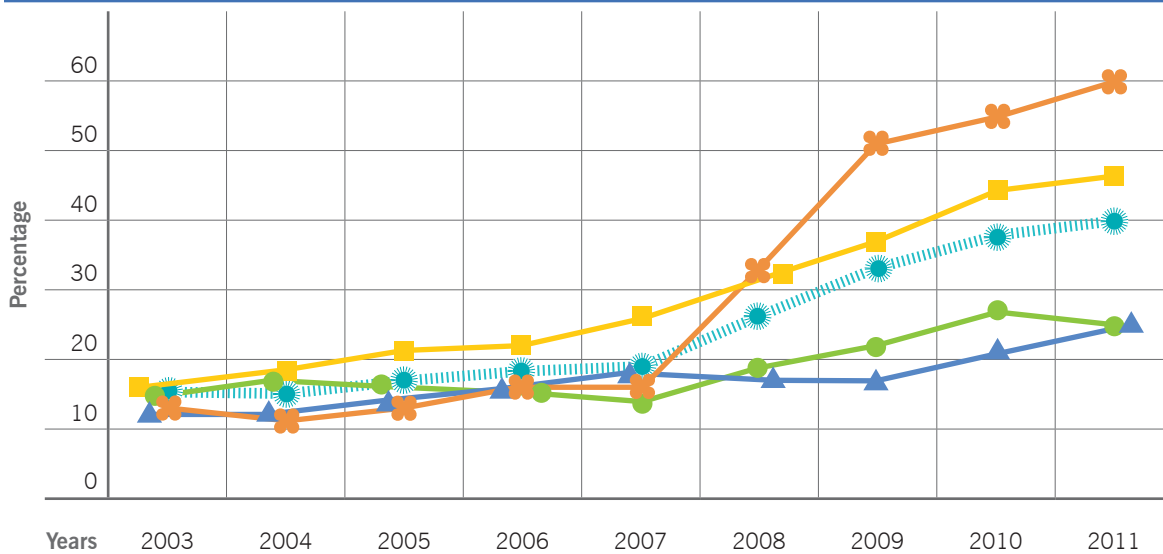
References

1. United States Department of Health and Human Services, Public Health Service, Office of the Surgeon General, "Oral health in America: A report of the Surgeon General." Rockville, MD: National Institutes of Health, National Institute of Dental and Craniofacial Research (2000).
2. Healthy People 2020. National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.
3. California Department of Public Health, "The Burden of Chronic Disease and Injury, California, 2013.

Methodology & Limitations

Between 2007-08 and 2012-13, the SFDPH Dental Services offered annual oral health screening to all children enrolled in kindergarten classes in the San Francisco Unified School District, excluding children in charter schools. Approximately 4,000 children were screened each year. Families were notified of the date of the oral health screening by flyer and a note sent home with each child. Children

Figure D: San Francisco Denti-Cal-eligible children ages 0-3 years by ethnicity who had dental care in the past year, 2003-11



● Total, ✖ API, ● B/AA, ■ Latino, ▲ White. **Data source:** California Department of Health Care Services.

Medical providers see a child up to 11 times before they ever are seen by a dentist.

who were absent or who did not assent to screening on the date specified were not screened.

Forty to fifty licensed, volunteer dentists from the San Francisco Dental Society (SFDS) conducted the dental screenings. The program annually gave the dentists a written training module detailing the clinical data to collect and the diagnostic criteria to use. The oral health information collected for each child included the number of primary and permanent teeth with untreated or treated decay and treatment need. The diagnostic criteria defined treatment need in terms of Class I, Class II, and Class III categories:

Class I: No visible dental problems. Individuals apparently require no dental treatment.

Class II: Mild dental problems. Individuals require treatment, but not of an urgent nature. Class II problems include pinhead-size dental caries that are not generalized or advanced, moderate plaque and calculus accumulation indicating the need for oral prophylaxis, or other oral conditions requiring corrective or preventive measures.

Class III: Severe or emergency dental problems. Individuals require treatment of dental caries as large as a green pea, extensive pinhead cavities, chronic abscess(es), acute or chronic oral infection, heavy calculus accumulation, insufficient number of teeth for mastication, injuries, and/or painful conditions.

The San Francisco indicator may underestimate the prevalence of caries experience. To allow comparison of local data with national caries experience estimates, the San Francisco indicator does not include extracted teeth. The National Health and Nutrition Examination Survey does not capture data on extracted or missing primary teeth.

Table I: SFUSD kindergarteners with caries experience by sex, ethnicity, and school income level, 2007–14

		2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014
		Percentage (95% Confidence Interval)						
	All	44.4 (42.8–46)	42.8 (41.3–44.3)	41.1 (39.6–42.6)	40.5 (39.0–42.0)	38.8 (37.3–40.3)	35.4 (33.9–36.9)	32.1 (30.7–33.5)
Gender	Female	42.2 (39.9–44.5)	42.5 (40.3–44.7)	39.8 (37.7–41.9)	40.4 (38.3–42.5)	37.4 (35.3–39.5)	34.2 (32.1–36.3)	29.7 (27.7–31.7)
	Male	46.4 (44.2–48.6)	43.1 (41.0–45.2)	42.5 (40.4–44.6)	40.5 (38.4–42.6)	40.2 (38.1–42.3)	36.4 (34.4–38.4)	34.2 (32.2–36.2)
Race/ethnicity	Asian	47.8 (45.1–50.5)	46.6 (44.0–49.2)	47.2 (44.8–49.6)	43.8 (41.3–46.3)	46.0 (43.5–48.5)	42.4 (39.8–45.0)	38.4 (35.7–41.1)
	B/AA	43.9 (39.2–48.6)	42.7 (37.9–47.5)	39.8 (35.0–44.6)	45.6 (40.7–50.5)	38.4 (33.7–43.1)	39.9 (34.6–45.2)	38.0 (31.8–44.2)
	Latino	51.1 (48.0–54.2)	49.4 (46.4–52.4)	45.0 (42.0–48.0)	47.2 (44.2–50.2)	41.6 (38.7–44.5)	38.9 (36.1–41.7)	36.1 (33.3–38.9)
	White	22.3 (18.8–25.8)	23.1 (19.7–26.5)	23.0 (19.8–26.2)	20.9 (18.0–23.8)	21.7 (18.9–24.5)	16.7 (14.0–19.4)	14.1 (11.4–16.8)
		Percentage by school income level						
	Low	54.6 (51.5–57.7)	52.7 (50.0–55.4)	49.7 (46.9–52.5)	52.1 (49.6–54.6)	47.4 (45.0–49.8)	46.4 (43.8–49.0)	—
	Low–Medium	45.0 (42.6–47.4)	43.3 (40.8–45.8)	42.4 (39.8–45.0)	39.9 (36.9–42.9)	39.2 (36.1–42.3)	35.3 (32.0–38.6)	—
	Medium–High	35.7 (32.4–39.0)	31.4 (28.3–34.5)	34.7 (32.1–37.3)	30.8 (28.2–33.4)	27.0 (24.4–29.6)	27.9 (25.5–30.3)	—
	High	32.5 (27.6–37.4)	30.8 (25.4–36.2)	27.8 (22.9–32.7)	24.3 (19.5–29.1)	31.3 (26.4–36.2)	25.7 (22.0–29.4)	—

—Estimates not available. **Data source:** SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Table 2: SFUSD kindergarteners with untreated tooth decay by sex, ethnicity, and school income level, 2007–14

	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	
Percentage (95% Confidence Interval)								
All	25.9 (24.5–27.3)	24.2 (22.9–25.5)	21.7 (20.5–22.9)	21.8 (20.6–23.0)	18.2 (17.0–19.4)	16.2 (15.1–17.3)	14.5 (13.4–15.6)	
Gender	Female	25.2 (23.2–27.2)	23 (21.1–24.9)	20.9 (19.2–22.6)	22.4 (20.6–24.2)	16.2 (14.6–17.8)	16.2 (14.6–17.8)	12.8 (11.3–14.3)
	Male	26.6 (24.6–28.6)	25.3 (23.4–27.2)	22.4 (20.6–24.2)	21.1 (19.4–22.8)	20.1 (18.4–21.8)	16.3 (14.7–17.9)	16.1 (14.5–17.7)
Race/ethnicity	Asian	30.5 (28.0–33)	27.7 (25.4–30.0)	26.1 (24.0–28.2)	22.8 (20.7–24.9)	22.5 (20.4–24.6)	20.8 (18.7–22.9)	18.8 (16.6–21.0)
	B/AA	29.7 (25.4–34.0)	29.8 (25.3–34.3)	22.8 (18.6–27.0)	29.7 (25.2–34.2)	19.6 (15.8–23.4)	18.1 (13.9–22.3)	15.0 (10.4–19.6)
	Latino	25.4 (22.7–28.1)	23.2 (20.6–25.8)	19.9 (17.5–22.3)	23.0 (20.5–25.5)	16.9 (14.7–19.1)	16.2 (14.1–18.3)	15.0 (12.9–17.1)
	White	10.6 (8.0–13.2)	12.4 (9.7–15.1)	13.2 (10.6–15.8)	12.9 (10.5–15.3)	10.5 (8.4–12.6)	8.3 (6.3–10.3)	5.1 (3.4–6.8)
Percentage by school income level								
Low	33.7 (30.8–36.6)	30.1 (27.6–32.6)	24.0 (21.6–26.4)	29.6 (27.3–31.9)	24.1 (22.1–26.1)	20.5 (18.4–22.6)	—	
Low–Medium	26.2 (24.1–28.3)	25.6 (23.4–27.8)	23.8 (21.5–26.1)	20.3 (17.8–22.8)	16.8 (14.4–19.2)	18.9 (16.2–21.6)	—	
Medium–High	19.0 (16.3–21.7)	15.6 (13.2–18.0)	18.3 (16.2–20.4)	15.6 (13.6–17.6)	13.2 (11.2–15.2)	12.7 (10.9–14.5)	—	
High	18.5 (14.5–22.5)	17.2 (12.8–21.6)	17.0 (12.9–21.1)	12.9 (9.1–16.7)	12.1 (8.6–15.6)	9.9 (7.4–12.4)	—	

—Estimates not available. **Data source:** SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Table 3: Number of SFUSD kindergarteners with urgent need for dental care, 2007–14

	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014
All	240	279	185	120	110	81	61

Data source: SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Table 4: SFUSD Kindergarteners with caries experience, by zip code, 2007–14

	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014
Percentage (95% Confidence Interval)							
94102	63.1 (54.1–72.1)	51.7 (42.3–61.0)	48.6 (38.5–58.6)	60.2 (51.1–69.2)	47.6 (38.5–56.7)	39.0 (29.7–48.3)	47.5 (38.7–56.2)
94103	56.7 (46.7–66.7)	52.9 (43.6–62.1)	46.9 (37.1–56.6)	54.2 (44.8–63.7)	51.8 (42.0–61.6)	41.8 (31.6–52.1)	34.9 (25.4–44.5)
94107	49.5 (38.7–60.3)	40.2 (29.7–50.8)	45.4 (34.9–55.8)	34.0 (23.9–44.2)	34.6 (25.2–43.9)	36.1 (26.0–46.2)	32.2 (23.2–41.1)
94108	52.2 (36.7–67.7)	60.0 (44.6–75.4)	57.1 (44.1–70.2)	51.0 (36.3–65.7)	63.6 (50.0–77.3)	57.5 (40.9–74.1)	53.3 (39.9–66.8)
94109	52.0 (42.8–61.2)	47.8 (38.9–56.6)	52.8 (43.7–61.8)	45.6 (36.5–54.7)	40.3 (31.5–49.2)	47.9 (38.6–57.2)	45.9 (35.5–56.3)
94110	42.8 (37.9–47.7)	39.0 (34.3–43.6)	38.7 (34.2–43.2)	38.4 (33.8–43.0)	35.8 (31.2–40.3)	30.4 (26.1–34.7)	32.3 (27.8–36.8)
94112	48.7 (44.7–52.7)	47.7 (43.8–51.5)	40.7 (12.5–68.9)	42.7 (38.9–46.5)	44.1 (40.3–47.9)	41.0 (37.2–44.9)	40.5 (36.4–44.6)
94114	26.6 (15.0–38.2)	16.2 (7.1–25.3)	23.5 (20.2–26.9)	21.8 (12.0–31.6)	21.8 (12.0–31.6)	14.6 (4.3–24.8)	15.6 (6.8–24.3)
94115	44.6 (34.4–54.8)	39.6 (29.6–49.6)	42.3 (29.8–54.7)	55.8 (45.7–65.8)	42.1 (32.6–51.6)	33.9 (25.2–42.5)	31.0 (21.4–40.6)
94116	31.6 (25.6–37.6)	36.0 (29.7–42.2)	39.6 (29.4–49.9)	31.0 (25.2–36.8)	34.0 (27.8–40.2)	33.2 (27.4–39.0)	26.3 (20.8–31.9)
94117	30.2 (18.1–42.3)	38.6 (27.9–49.4)	26.3 (20.7–31.9)	29.4 (19.5–39.2)	33.9 (24.6–43.3)	24.6 (16.5–32.6)	23.4 (15.7–31.2)
94118	48.2 (38.4–58.0)	33.8 (25.5–42.1)	31.8 (24.1–39.5)	34.4 (26.8–42.0)	32.3 (23.9–40.7)	24.2 (17.1–31.3)	20.9 (14.3–27.4)
94121	35.1 (28.4–41.8)	38.7 (31.8–45.7)	45.4 (38.6–52.2)	34.6 (28.4–40.8)	26.2 (20.0–32.3)	30.5 (23.8–37.1)	18.1 (12.7–23.4)
94122	37.6 (31.8–43.4)	37.3 (31.4–43.1)	33.9 (28.7–39.1)	28.1 (22.8–33.4)	31.4 (26.2–36.6)	24.7 (19.6–29.9)	20.1 (15.3–25.0)
94123	29.4 (4.8–54.0)	47.8 (25.2–70.4)	21.7 (2.7–40.8)	19.1 (0.0–38.2)	11.1 (0.0–24.8)	20.0 (0.0–43.6)	11.5 (0.0–25.7)
94124	54.4 (49.2–59.6)	51.3 (46.2–56.4)	46.2 (41.0–51.4)	52.0 (47.1–56.8)	46.3 (41.2–51.3)	47.4 (42.4–52.4)	41.5 (36.8–46.2)
94127	26.3 (15.7–36.9)	22.0 (12.9–31.0)	30.8 (22.2–39.5)	21.8 (12.6–31.1)	16.1 (9.0–23.2)	26.2 (17.2–35.2)	23.6 (15.2–32.0)
94129	30.0 (7.4–52.6)	40.0 (11.9–68.1)	35.0 (11.6–58.4)	18.8 (0.0–41.0)	22.2 (0.2–44.2)	—	8.3 (0.0–21.5)
94130	51.7 (31.8–71.6)	35.3 (9.6–60.9)	45.5 (26.9–64.0)	42.9 (13.4–72.4)	30.0 (7.4–52.6)	29.4 (4.8–54.0)	36.8 (12.5–61.2)
94131	28.9 (19.0–38.8)	26.6 (18.0–35.1)	29.5 (21.0–38.0)	24.0 (16.0–32.0)	33.6 (24.8–42.4)	17.0 (10.5–23.6)	17.4 (10.7–24.1)
94132	39.6 (29.8–49.4)	34.6 (25.0–44.2)	40.3 (31.3–49.4)	35.4 (26.7–44.1)	42.8 (33.9–51.6)	34.0 (25.9–42.1)	34.1 (25.6–42.6)
94133	60.9 (51.3–70.5)	67.1 (59.0–75.3)	49.0 (40.5–57.5)	55.4 (46.1–64.6)	55.7 (46.5–65.0)	45.8 (35.3–56.3)	44.8 (34.3–55.3)
94134	46.2 (41.0–51.4)	47.8 (42.8–52.9)	47.7 (42.6–52.8)	49.8 (44.7–54.8)	45.8 (40.7–50.9)	43.2 (38.1–48.2)	35.6 (30.4–40.8)

—Estimates not available. **Data source:** SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.

Table 5: Denti-Cal–eligible children ages 0–3 years who received dental care in the calendar year, 2007–12

	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	
	Percentage (95% Confidence Interval)					
All	19.5 (18.6–20.4)	26.3 (25.3–27.2)	32.5 (31.5–33.5)	38.1 (37.0–39.1)	40.5 (39.4–41.5)	
Race/ethnicity	Asian	16.9 (15.2–18.6)	29.3 (27.3–31.3)	43.5 (41.3–45.6)	49.1 (46.8–51.3)	55.2 (52.9–57.4)
	B/AA	13.9 (11.9–15.8)	18.6 (16.4–20.8)	21.8 (19.5–24.0)	27 (24.5–29.6)	25.2 (22.7–27.7)
	Latino	26.1 (24.5–27.6)	31.7 (30.1–33.3)	36.8 (35.2–38.4)	43.7 (42.0–45.4)	45.8 (44.1–47.5)
	White	17.5 (13.9–21.1)	16.9 (13.3–20.5)	17.1 (13.8–20.4)	20.8 (17.1–24.5)	24.7 (20.7–28.7)
	Other*	10.9 (8.8–13.0)	15.9 (13.5–18.3)	19.3 (16.9–21.6)	22.6 (20.3–25.0)	24.9 (22.5–27.2)

*Other includes: Non-Filipino Pacific Islander, Alaskan Native or American Indian, No response, invalid data, other, unknown. **Data source:** SFDPH-SFUSD-SFDS Kindergarten Oral Health Screening Program.