A School-based Public Health Model to Reduce Oral Health Disparities

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Oral Health Disparities

- There are remarkable disparities in dental disease by income.
- Poor children suffer 2-5 X as many cavities as their more affluent peers, and their disease is more likely to be untreated.
- Poor children spend nearly 12 X as many days suffering with limited ability to study, play, and interact socially, than children from higher-income families.

References: Dental Disease Is a Chronic Problem Among Low-Income Populations. HEHS-00-72: Published: Apr 12, 2000. Publicly Released: Apr 26, 2000.

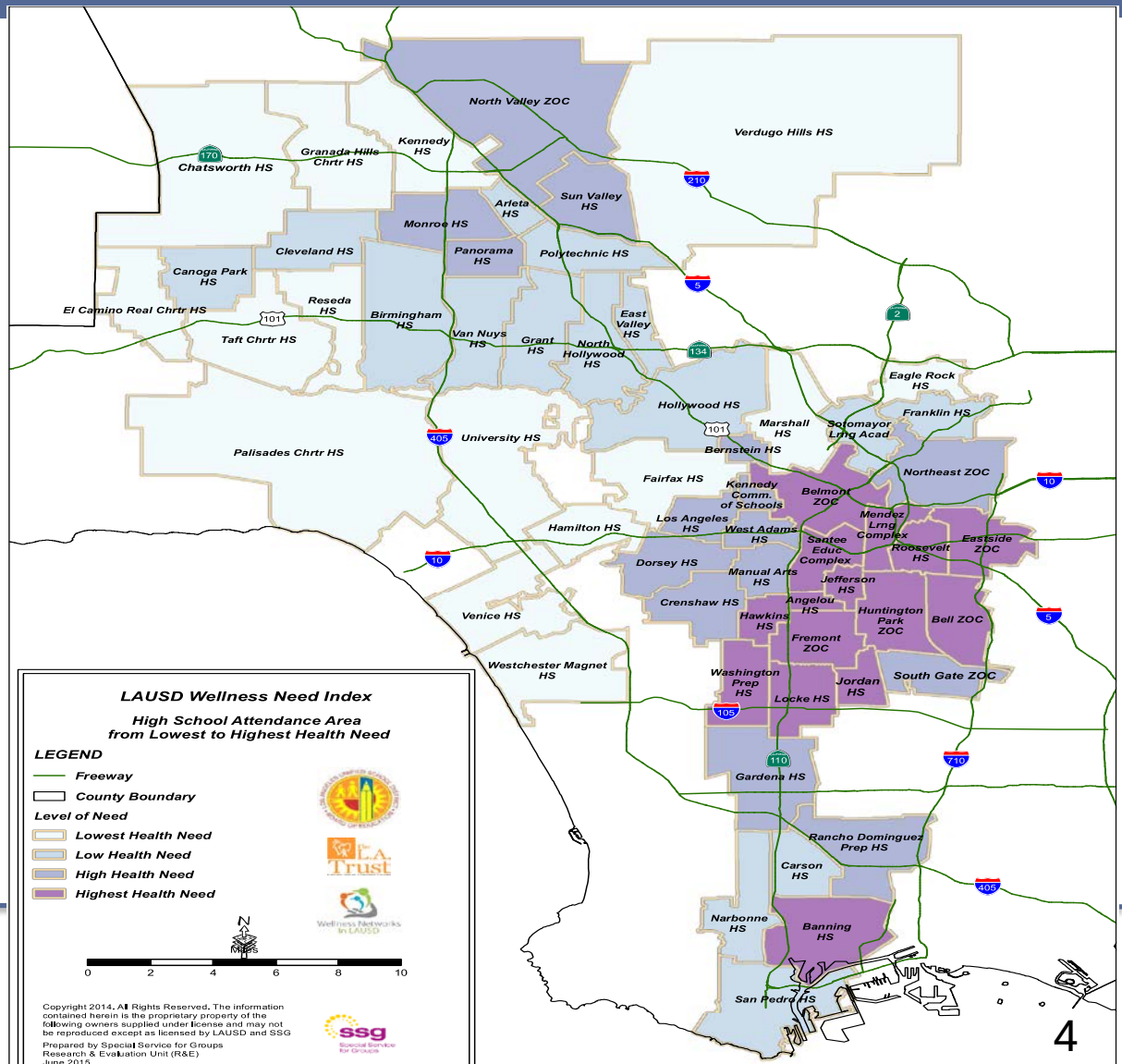
Oral Health Disparities

- Tooth decay disproportionately affects racial/ethnic minority populations such as Latinos and African Americans
- Black and Latino children with Medicaid have dental visits at longer intervals when compared to White and Asian counterparts
- 75% of Medicaid enrolled children did not receive recommended dental services and 1 in 4 did not visit the dentist in 2 years.

References: Mouradian et al. Disparities in children's oral health and access to dental care. JAMA. 2000;284(20):2625-31. Flores G, Lin H. Trends in racial/ethnic disparities in medical and oral health, access to care, and use of services in US children: has anything changed over the years? International Journal for Equity in Health. 2013;12(1):10. Office of Inspector General, U.S. Department of Health and Human Services, "Most Children With Medicaid in Four States Are Not Receiving Required Dental Services" (2016), http://oig.hhs.gov/oei/reports/oei-02-14-00490.pdf.

Access to Oral Health Services in Los Angeles

- 12% children were unable to afford dental care in 2015
- Ranged from 5%-20% by location



Source: 2015 Los Angeles County Health Survey; Office of Health Assessment and Epidemiology, Los Angeles County Department of Public Health.

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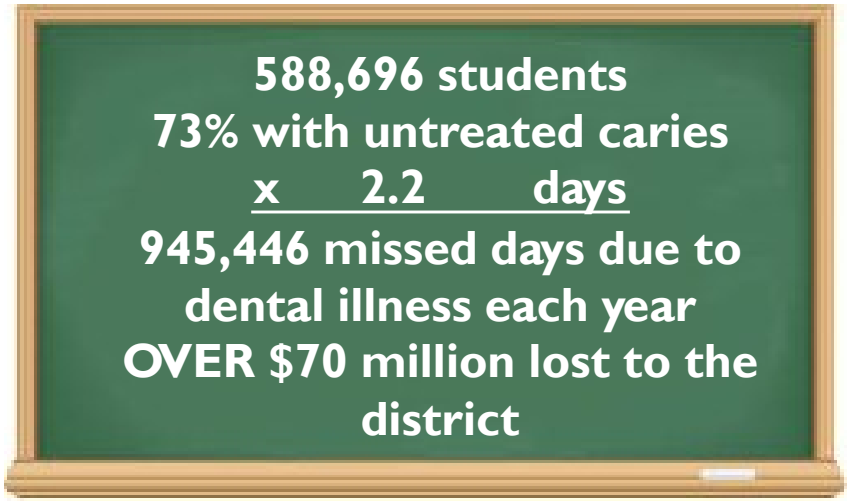
Implications for School Performance

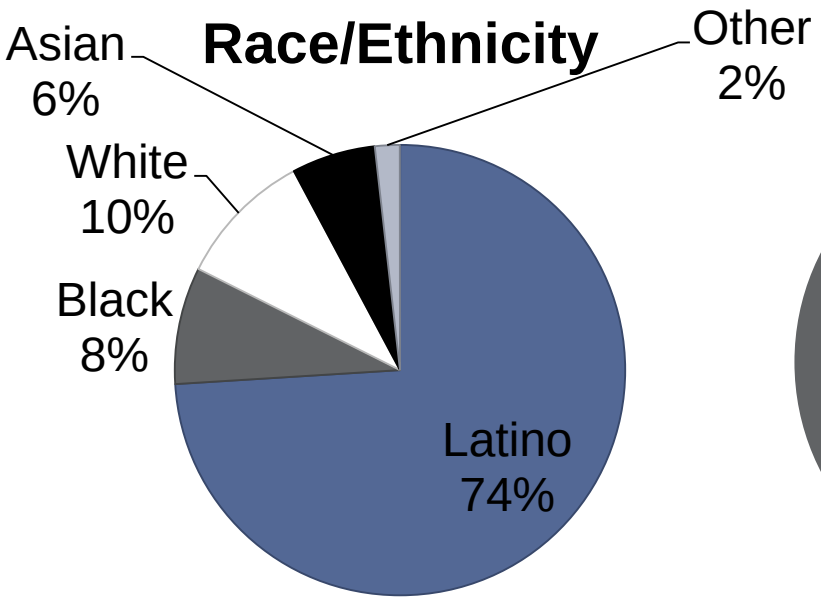
- A 2012 study of oral health needs in LAUSD found that students with toothaches are almost 4 X more likely to have a low grade point average.
- 1 in 3 school absences was dental-related which amounts to, on average, 2.2 missed school days each year due to untreated dental disease.

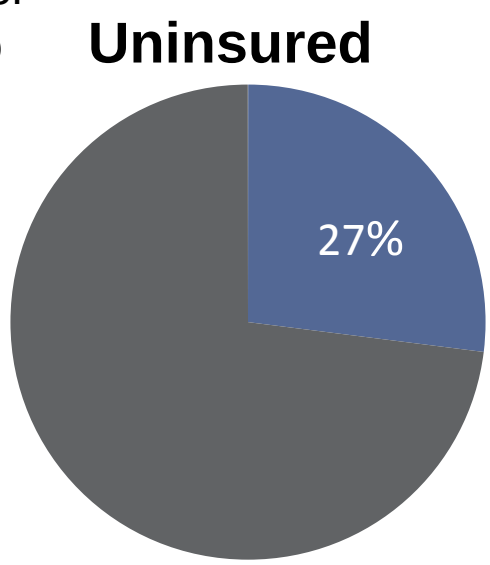


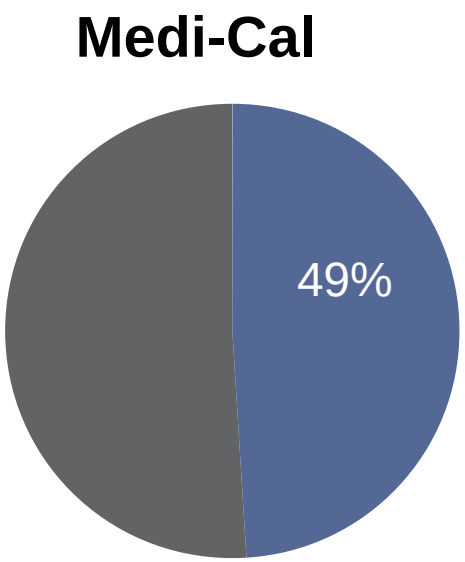
Seirawan H, Faust S, Mulligan R. The Impact of Oral Health on the Academic Performance of Disadvantaged Children. American Journal of Public Health. 2012 2012/09/01;102(9):1729-34.

LAUSD Student Population

- K-12 Enrollment 588,696 students in 1,306 schools
- Early education enrollment 18,681
- 84% qualify for free/reduced priced meals







The L.A. Trust for Children's Health

- Supports academic success by improving the health of students of the Los Angeles Unified School District.
- Started in 1991, the nonprofit organization has spearheaded health and wellness programs at LAUSD.
  - Optimize 15 Wellness Centers to provide integrated physical, mental and oral health care services for students, their families and the community.
  - Promote an array of health programs to students.
  - Advocate for health policy change at the school district and at all levels of government.

The L.A. Trust
STUDENT HEALTH = STUDENT SUCCESS

The L.A. Trust & LAUSD Oral Health Initiative

- Developed as a comprehensive public health approach to meet the oral health needs of LAUSD students
- Designed a standardized oral health education, prevention and early intervention program across LAUSD beginning in 2012
- Built on best practices from the model of Anderson Center for Dental Care at Rady Children's Hospital of San Diego Center for Healthier Communities and formative community engagement work

Oral Health Initiative Goals

The L.A. Trust Oral Health Initiative

- Reduce dental caries in LAUSD students by 25% over 5 years
- Integrate oral health care into LAUSD's health services programs
- Pilot a test program model to promote oral health for students and families

The L.A. Trust Oral Health Initiative

3 Strategic Public Health Tiers

Key Partners

- Eisner Pediatric and Family Medical Center
- Big Smiles
- Center for Oral Health
- South Central Family Health Center
- Smile Wide Clinic
- Queenscare
- Cedars-Sinai
- USC CHAMP
- Hart Health Clinic
- Watts Healthcare Corp
- St. John's Well Child & Family Center

Steps Taken

- Established an Oral Health Advisory Board
- Partnered with and trained LAUSD District Nursing Services and community partners
- Worked with parents, school staff and community providers to identify:
  - Oral health care barriers
  - Successful strategies for community engagement
  - Program elements necessary to achieve school and student participation
- Researched existing school-based models for oral health care
- Revised LAUSD's Wellness Policy to emphasize oral health

Key Informant Interviews

- 9 parents, 4 school staff, 3 oral health experts
- Topics
  - Barriers to oral health
  - Education messages
  - Fluoride varnish program

Barriers to oral health

- Barriers to a dental home
  - Cost
  - Insurance
  - Logistics
  - Competing priorities
- Oral health behaviors
  - Knowledge
  - Distrust of tap water
  - Poor diet

"Parents don't have time to help them clean their teeth; they don't have insurance and so don't go to the dentist."

"It's just because tap water is maybe not healthy so they want the bottled water. But they don't have that much knowledge that tap water is tested."

"***Parents let their children eat lots of sweets. And because they think that the baby teeth are not important because they will fall out."***

Education Messages

- Communicate importance
- Specific
- Motivating
- Delivered to parents *and* children
- From the school

Favorite: "Early care for your children's teeth will protect their smile and their health."

"We know that we are supposed to take care of their teeth but we don't always know how to."

"Just the concept of dental health is part of general health, that'd be a good message for parents to understand,"

Fluoride Varnish Program

- Enthusiasm for school-based services
- Importance of trust
- Use of licensed professionals
- Limiting time out of class
- Minimizing school cost

"I'm very positive about the program…I think it's long overdue. I think the more dental health you can provide to low income students, the better."

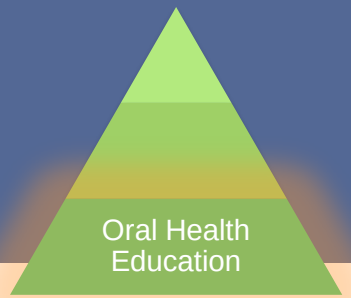
I think it's [varnishing] a new thing for some parents so I think some parents might want to hear about it beforehand…Because they might think, 'What does that mean? , What does that entail? Why are they doing it?'" There would be some distrust."

"I prefer somebody professional…cause you never know what's going to happen; if they're not putting it on right or if they're putting it on right."

Key elements for program success

- Free, school-based, preventive dental services
- Information for students and parents
- Education and training for staff and community members
- Oral health care coordination

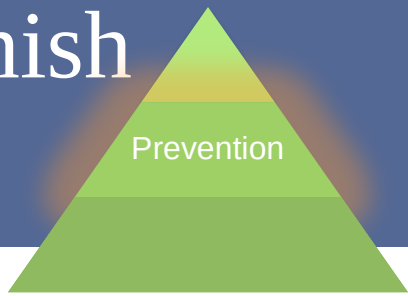
Community Wide Oral Health Education



- Tailored oral health education for parents, students, teachers, and school administrators. Education should emphasize in a clear and direct manner:
  - Causes, processes and effects of oral diseases
  - Diet and nutrition and their relation to oral health
  - Need for regular dental care
  - Use of preventive dental agents
  - Oral injury prevention
  - Drinking fluoridated water
  - Links to cancer, diabetes, mental health and finances


October 11, 2015
TheL.A.Trust
Tooth Fairy
Convention
ORAL HEALTH INITIATIVE

Universal Screening and Fluoride Varnish Program



- Public health and school-based approach
- Introduced to school staff, parents and students through presentations by District Oral Health Nurses at:
  - professional development meetings
  - parent groups,
  - student assemblies

The Beauty of Active Consent

- The consent form includes items regarding:
  - Student demographics
  - Access to and utilization of dental care
  - Oral health behaviors
  - Reason for non-participation

Sample Items

Does your child have a dentist? ☐ Yes ☐ No

Has your child been to the dentist in the last 6 months? ☐ Yes ☐ No

In the last 7 days, how many days did your child drink the following beverages?

Tap water (drinking or cooking)	☐ 0 days	☐ 1-2 days	☐ 3-5 days	☐ 6-7 days
Bottled water	☐ 0 days	☐ 1-2 days	☐ 3-5 days	☐ 6-7 days
Juice	☐ 0 days	☐ 1-2 days	☐ 3-5 days	☐ 6-7 days
Soda	☐ 0 days	☐ 1-2 days	☐ 3-5 days	☐ 6-7 days
Sports or energy drinks	☐ 0 days	☐ 1-2 days	☐ 3-5 days	☐ 6-7 days

How often does your child brush his/her teeth?

☐ Less than once /day ☐ Once/day ☐ Twice/day ☐ More than twice/day ☐ Unsure

What health insurance does your child have?

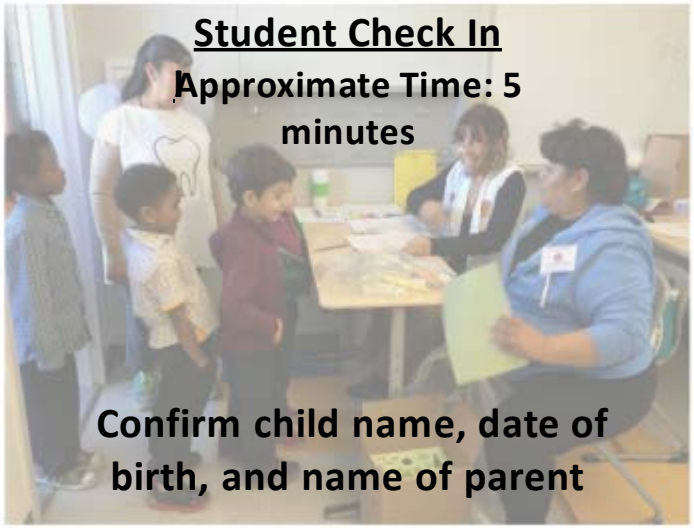
☐ Medi-Cal ☐ Healthy Way LA ☐ Private ☐ None ☐ Not sure

Event Day

- Students return signed consent form
- Parent volunteers dressed in Oral Health costumes escort students from class
- Oral health education & dry brush demo
- Dentist completes screening exam and applies fluoride varnish
- Students take home age appropriate educational materials including:
  - free toothbrush
  - toothpaste
  - dental floss

Parent Volunteers

Escort students to and from class
Give students Oral Health Goody Bag



Student Check In

Approximate Time: 5 minutes

Confirm child name, date of birth, and name of parent

Total Time Out of Class: 20 minutes

Oral Health Education

Approximate Time: 7 minutes

Brushing & flossing methods
Eating healthy foods
Drink fluoridated tap water

Wait Time

6 minutes

Provider Station

Approximate Time: 2 minutes

Screening exam
Apply fluoride varnish
Complete report

Students are Screened and Assigned Treatment Urgency Status

1.No Visible Oral Health Problems	Child's teeth appear visually healthy, and there is no reason that he/she needs to see a dentist before the next routine checkup.
2.Evidence of Oral Health Problems	There are early reversible signs of tooth decay (white spots and brown spots or molars that would appear to benefit from sealants) as well small and large cavitated lesions or other acute problems that need therapeutic oral health care.
3.Needs Urgent Oral Health Care	There are signs or symptoms that include pain, infection, swelling or soft tissue lesions lasting longer than 2 weeks (determined by questioning the child).

Guidelines developed by the Association of State and Territorial Dental Directors in association with the California Dental Association (Adopted from Rady Children's Manual)

After each child is screened…

- Each child receives:
  - Report on oral health status
  - Recommended follow-up care
  - List of local low-cost dental providers
- Reimbursement for care provided to publically insured children may be submitted by the provider
- All care is delivered at no cost to families.
- Case management by school nurse for urgent issues

Oral Health Report Card – Main St. Elementary School

Principal: Eva Rodriguez-Chavez

	2017-2018
Total number of children screened	121
Had not been to a dentist in last 6 months	35%
Drank fluoridated tap water last week	15%
Drank soda last week	32%
Drank sugar-sweetened beverages last week	81%
Abnormal exam	79%
Visible decay	78%
Potential cavities prevented	**90**
Potential school days saved	**201**

Kindergarten Oral Health Mandate

- AB 1433 signed into law in 2005, funded by California Department of Education
- Requires an “assessment” of the child’s oral health by a licensed dental professional and the completion of the data collection tool by either the school or the school district
- Schools must notify parents who are registering their child in public school for the first time (in either K or 1st grade), collect forms by May 31 of each school year and report collected data by December 31 of that calendar year to County Office of Education
- Law requires waiver on the form; majority of parents elect to opt out of assessment
- LAUSD compliance rate was at 30% for 2016-2017 (18% opt out, **12% return with assessment completed**)

Engagement with Healthy Start

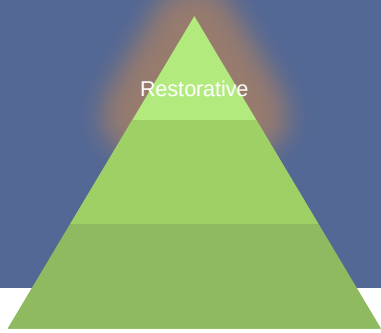
- **Healthy Start** provides comprehensive school-integrated services and activities to support
  - Academics
  - Youth Development
  - Family Support
  - Basic Needs
  - Physical and Mental Health Care

- Goal is to ensure that each child receives the physical, emotional, and intellectual support needed.

Healthy Start Role in Oral Health

- All coordinators trained in oral health and important to school function
- Help coordinate and facilitate providers “adopting” a kindergarten class
- Collect consents, educate parents, teachers, and students
- Case management for any child with an abnormal exam to ensure linkage to a dental home
- Coordinators are certified insurance enrollment counsellors and often identify additional needs for families.

Access to Restorative Care

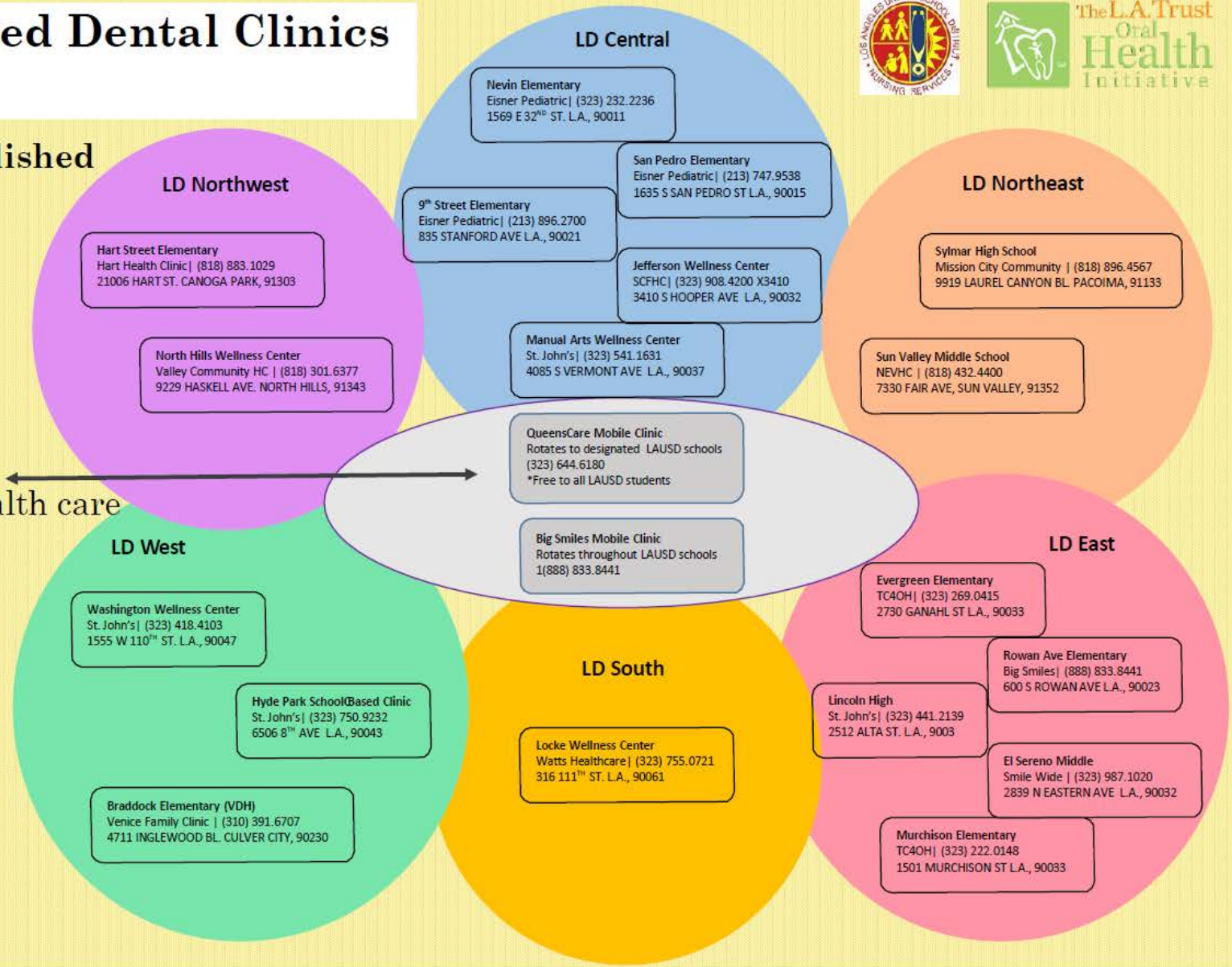


- Annually updated list of appropriate dental providers
  - Student Vetting
- Established 24 oral health “hubs” throughout LAUSD
- Expanding number of on-site dental restorative services
  - Mobile chairs
  - Mobile vans
  - Wellness Centers
- Dental resources on The L.A.Trust website

School– based Dental Clinics
Inside LAUSD

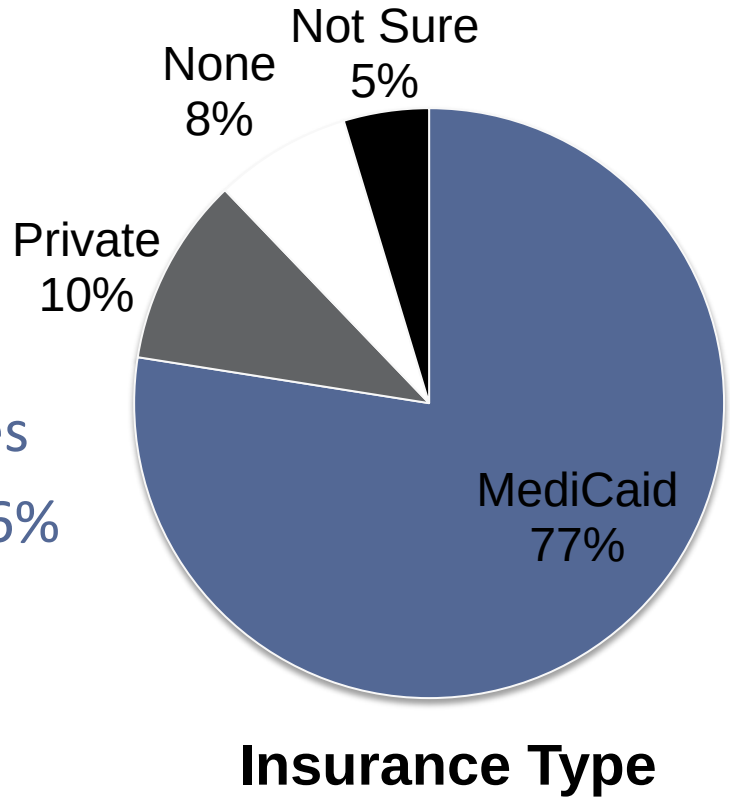
18 "hubs" established

240+ mobile sites providing oral health care



Participants

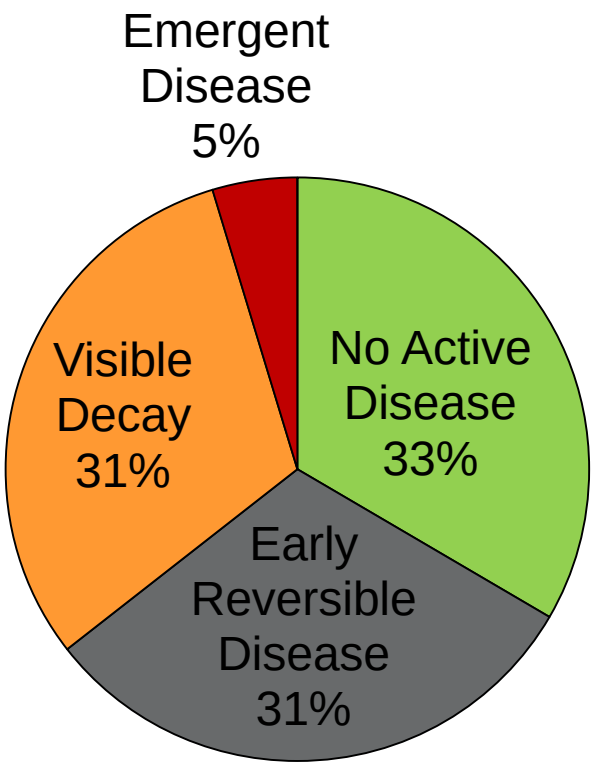
- 12,372 screenings across 67 schools
  - 14% Early Education or Primary Care Centers
  - 81% Elementary School
  - 5% Middle or High School
- 1024 students participated multiple times
- 88% Latino, 57% Spanish speaking only; 6% Black
- Age ranges from 2-18 years old



Oral Health Report Card 2013-2018

	Overall	Early Ed. Centers	Elem. Schools	Middle/ High Schools
Brush teeth less than twice/ day	32%	37%	31%	25%
No dental visit in last 6 months	39%	40%	37%	53%
Drank fluoridated water, last 7 days	33%	43%	31%	39%
Drank soda, last 7 days	46%	43%	44%	70%
Drank sugar-sweetened beverage, last 7 days	88%	93%	88%	92%
Abnormal exam	73%	66%	73%	91%
Caries experience	64%	54%	65%	84%
Visible decay	36%	34%	34%	62%
Number of visible cavities: mean (range)	1.0 (0-20)	0.9 (0-20)	0.9 (0-20)	3.2 (0-19)

Summary of Screening Results



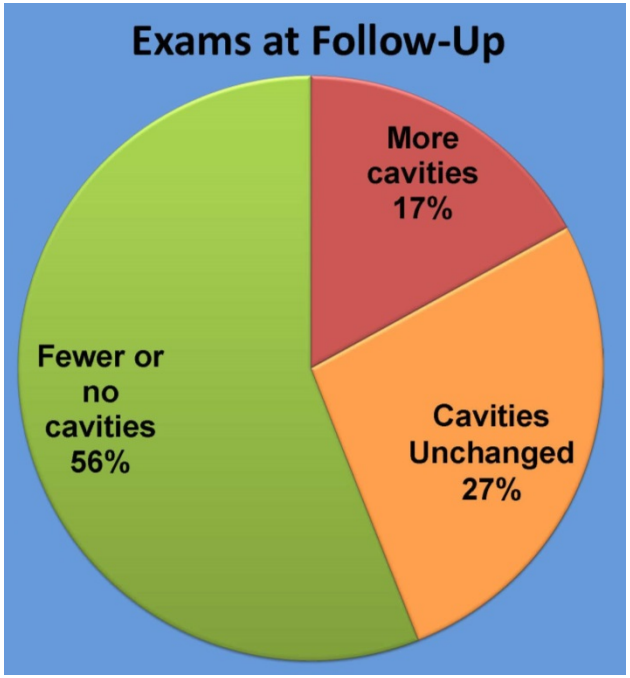
- Gingivitis and Periodontal Disease
- 40% visible gingivitis
  - 83% among adolescents
- 34% adolescents report gum bleeding with tooth brushing or flossing

- Emergent Findings
- Abscesses (36%)
- Severe decay (30%)
- Other infections (15%)
- Pain (6%)
- Broken teeth (5%)
- Other (15%)

Longitudinal Results

- 2774 students participated across 6 elementary schools over 2 years
- 22.7% (631) students participated both years

Baseline and Follow-up Findings Among Repeat Participants			
Oral Health Outcomes	Baseline	Follow-Up	p-value
No Active Disease	36.0%	47.6%	<.001
Early reversible disease	33.3%	29.9%	0.18
Mean white/brown sports	1.7	1.3	0.001
Visible Decay	27.0%	19.8%	0.003
Mean Number of Cavities	0.8	0.6	0.002
Mean Number of Cavities among those with initial decay	2.6	1.2	<.001
Emergent Dental Needs	3.4%	2.7%	0.33



Program Costs

- Program costs and reimbursement data collected from the school district and dental provider
- Although percent of students reporting Medicaid coverage ranged from 66%-77%, the percent of students for whom Medicaid actually reimbursed averaged 29% (range13%-49%)
- The cost of un-reimbursed care, ranged from $0-$3,944/ school

Average Program Costs			
	Total	Avg. school event cost	Avg. student cost
Screening day expenses			
Personnel	$25,892	$1,726	$9
Supplies	$6,629	$442	$2
Year Round Expenses			
District Oral Health Nurse Salary	$81,143	$13,524	$59
Total Costs	**$113,664**	**$15,692**	**$70**
Reimbursement	**$86,931**	**$5,795**	**$25**

Cost-Benefit Analysis

- We estimate that fluoride varnish in this population could prevent 0.74 cavities per child.
- The cost of filling these cavities amounts to $369.60 per child, compared to $70/child to run the program.
- Preventing caries could save 1.6 school days per child per year which amounts to $79.43 per child in ADA funding to the district.

Kindergarten Classroom Behavior Change Program

- We Developed and piloted a kindergarten classroom intervention to increase twice-daily brushing and dental visits
- The program components drew on behavioral change theory, including using tangible incentives and social cognitive influence

Motivation for the Program

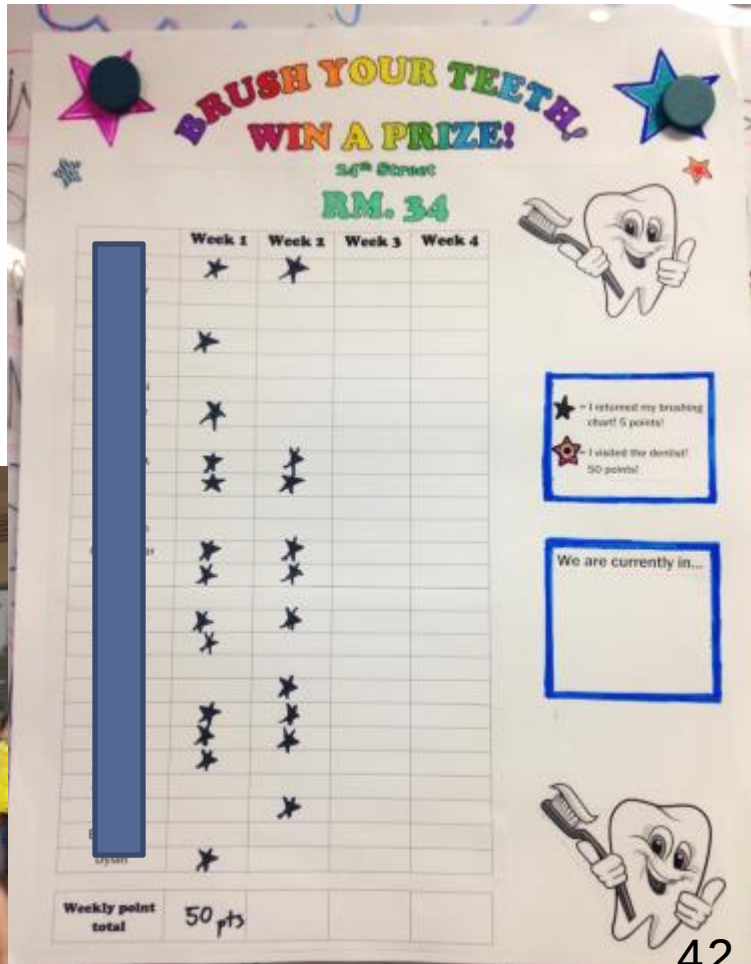
- Dental caries can be prevented with positive oral health behaviors such as brushing twice a day and visiting the dentist regularly
- The USFV program has decreased untreated dental disease but has not changed oral health behaviors
  - 32% of participants in the USFVP brush their teeth less than twice a day
  - 39% have not seen the dentist in the last 6 months
- Qualitative interviews with parents suggest that children's resistance to regular tooth brushing and dental visits are substantial barriers.

The Program

- All students received oral health education and a toothbrush/toothpaste at the beginning of the program.
- Parents received a letter home explaining the program and their role.
- Students completed weekly dental charts tracking morning and evening tooth-brushing. Charts were turned in for small prizes (stickers) and points.
- Students received larger prizes (coloring books/markers) and more points for returning dentist-visit certificates and oral health assessment forms.
- Oral health messages were reinforced weekly when prizes were awarded.

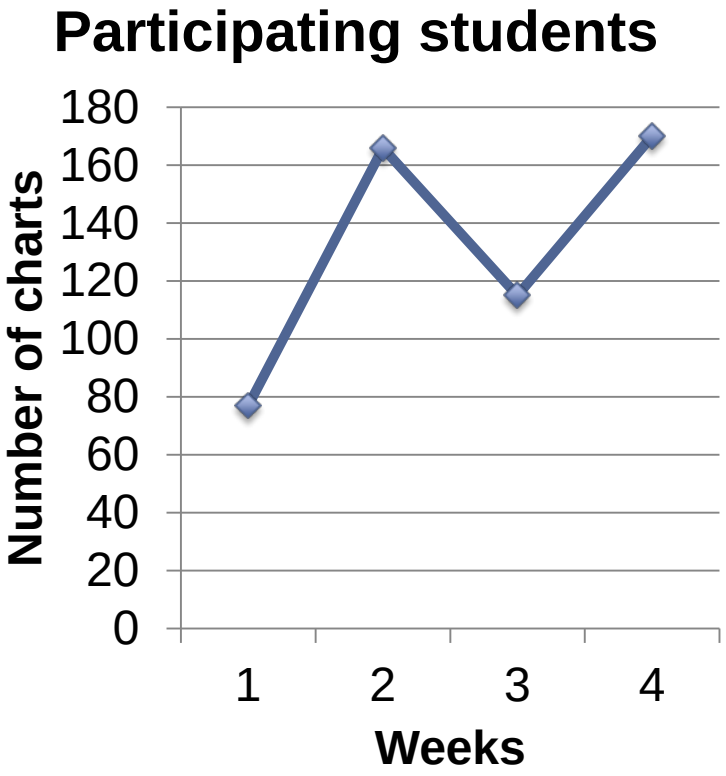
The Program

- Points displayed publically on a poster.
- The class with the most points after 4 weeks received a prize (e.g. class bubble-party)
- This inter-class competition was designed to encourage positive peer pressure for healthy behaviors.



Participation

- Program piloted in 3 schools (15 classrooms)



	Student Participation
Total students, N	350
Total students participated*	263 (75.1%)
Total brushing charts returned	588
Average charts returned per participating student	2.2
Total dental certificates	27

*Students were recorded as having participated if they returned in one or more brushing chart or dental certificate that week. Data from special education classes were not included in the figure.

Program Evaluation

- Semi-structured interviews were conducted with 16 participating teachers
- Focus groups in English and Spanish with parents at all 3 schools (28 participants)
  - Students were excited to brush their teeth and go to the dentist.
  - Suggestions for improvement included integrating the program into the regular classroom practices, beginning earlier in the school year, and greater parent engagement.
  - Most teachers felt they could sustain the program if provided with the materials and a system for accountability.

Teacher & Parent Perspectives

- “The kids see their progress, see the points, see who’s brought it in and who’s, ‘Oh, hey, you don’t have any stars. Uh-oh’…because I don’t want any of my friends telling me, ‘Hey, are you brushing your teeth?’”--Teacher
- “And then the thing was, just the parents all of sudden started taking their kids to the dentist.”--Teacher
- “Well, I know the kids were really motivated by the logs. They were really upset if they left their logs at home. And they seemed to nag their parents about going to the dentist, which is a good thing.” --Teacher
- “I think what also helped was that it didn’t come from me…. When their teachers tell them and all their little friends participate too, that also kind of hypes them up.” -- Parent
- “Yes, [the program] got [my son] excited, he would say to me, “Do not forget to sign, if not, I will not get a prize.” And …he also said, “I do not want the teacher to think I do not like to brush my teeth.”-- Parent

Future Plans

- Institutionalize screening events at schools
  - Goal is for annual screening to be routine
- Refine process for data entry of screening results for kindergarten students
  - Goal is 100% compliance with Kindergarten Oral Health Mandate
- Determine case management success rate and benefits outside oral health
  - Many families receive referrals to other services
- Disseminate & evaluate Kindergarten Classroom Behavior Change Program

Ultimate Goal

- Every child has a healthy mouth so they can come to school ready learn!

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