



# Evaluation of the San Francisco School-Based Fluoride Varnish Program Consent Rates, 2022-2023

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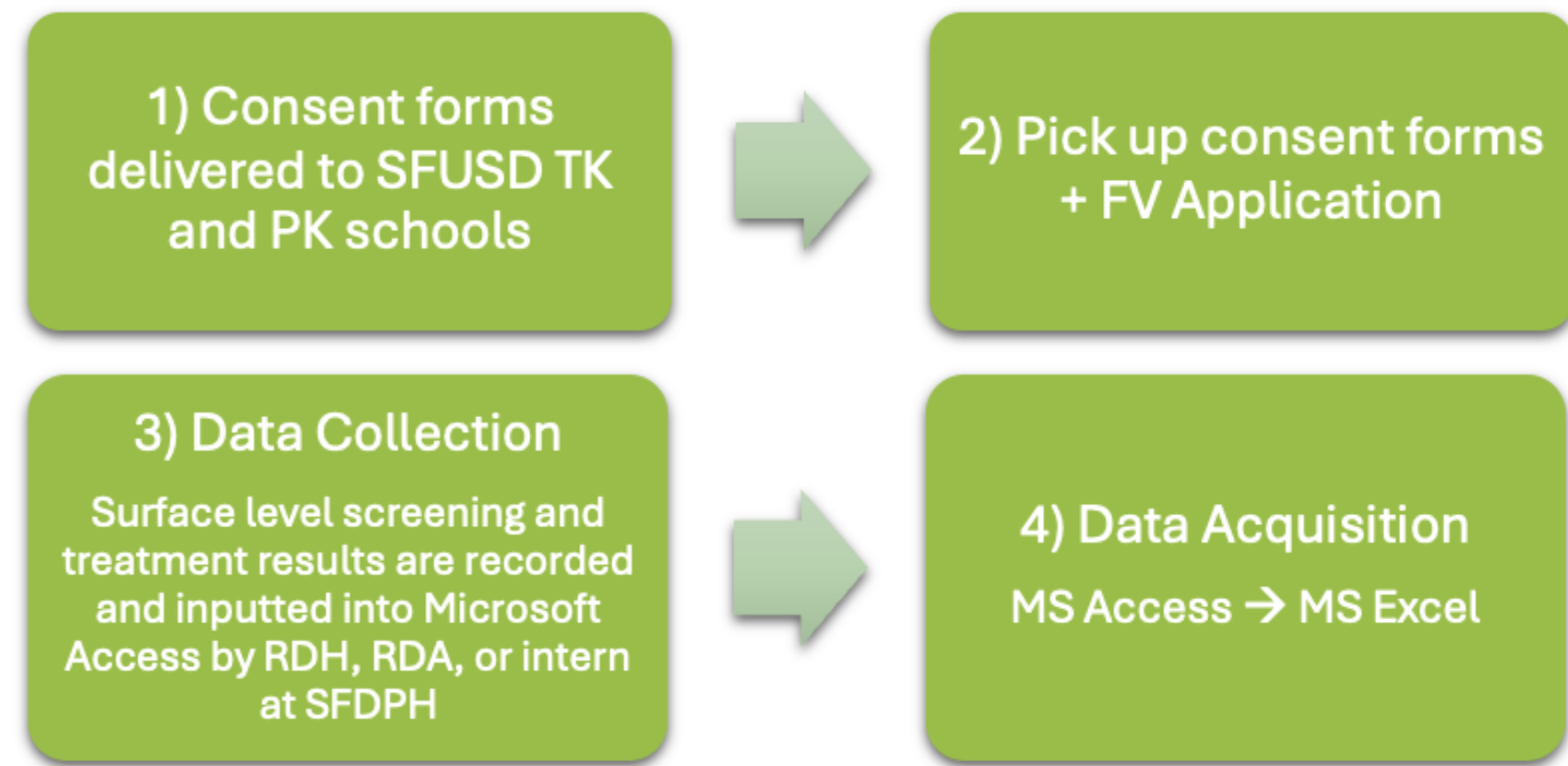
## Introduction

- Fluoride varnish (FV) re-mineralizes weakened tooth enamel, helping to prevent dental caries. It is recommended that infants and children receive regular fluoride varnish applications beginning with the eruption of their first tooth.<sup>1</sup>
- San Francisco Department of Public Health (SFDPH) has partnered with SFUSD (San Francisco Unified School District) since 2016 to provide FV to transitional kindergarteners (TK) and preschoolers (PK) at no cost, given active parental permission.
- As disparities exist in oral health outcomes, so too do differences in participation rates across race-ethnicity in public health intervention programs.<sup>2</sup>

## Study Objectives

- Describe the demographics of families who returned FV consent forms in the TK and PK population
- Determine if there are disparities in FV consent by race-ethnicity
- Determine if there are disparities in FV consent by school income

## Study Data & Analysis Methods

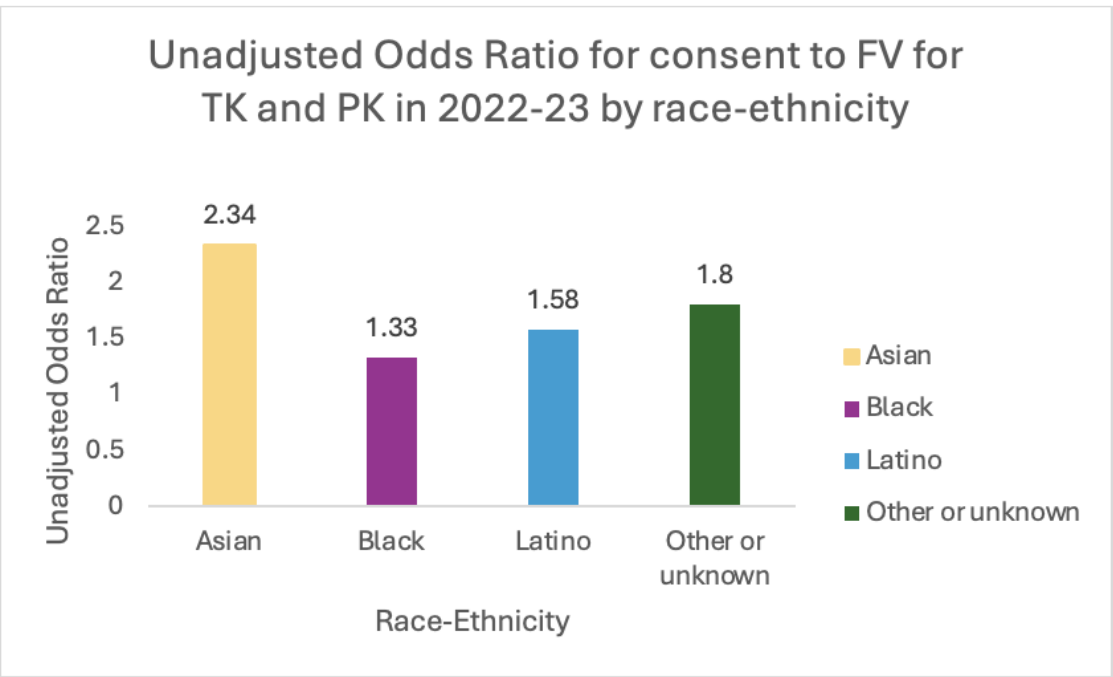


- Descriptive statistics for 2022-2023 was used for total number of children at TK or PK schools where FV service was offered, total number of TK or PK who did not return the consent form, total number of TK or PK who consented and were screened, and total number of TK or PK who consented and received FV.

## Results

### Consent and Application of FV by Race-Ethnicity

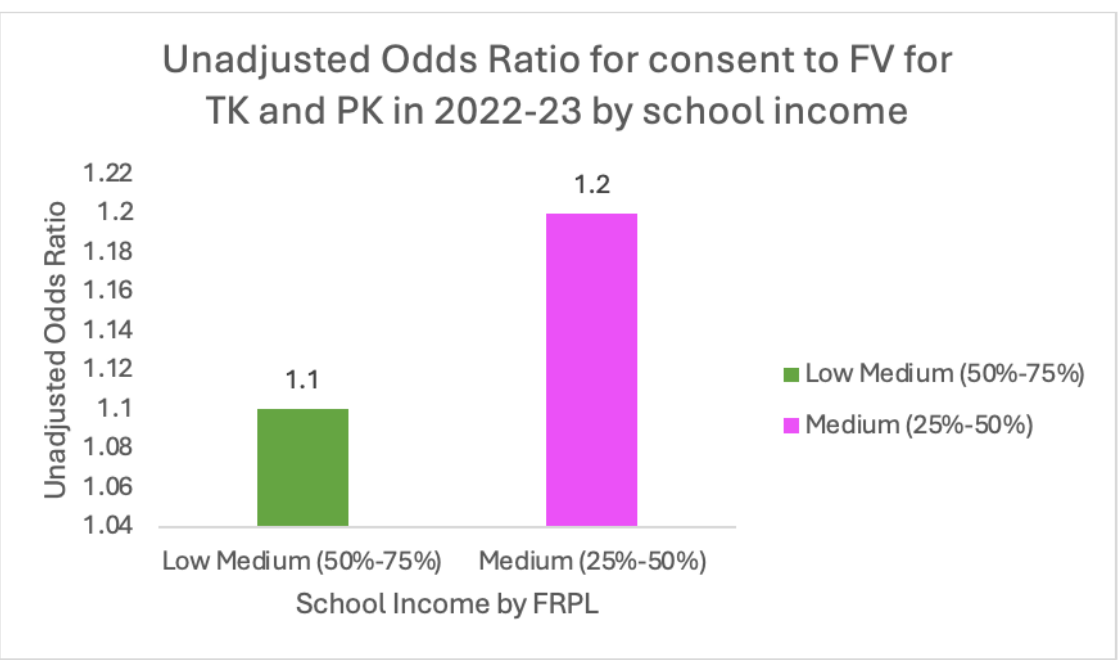
2022-2023	Number of children who	Number of children who did not	% of number of children who	Unadjusted Odds ratio	95% CI
Total population = 1899					
CONSENTED TO FV					
Asian	507	80	86.37	2.34	1.5,3.66
Black	151	42	78.24	1.33	0.8,2.21
Latino	512	120	81.01	1.58	1.03,2.42
Pacific Islander	<20	<20			
White	100	37	72.99	1.00	
Other or unknown	273	56	82.98	1.80	1.12,2.9
TOTAL	1559	340	82.10		
RECEIVED FV					
Asian	357	230	60.82	2.73	1.95,3.82
Black	70	123	36.27	1.00	
Latino	244	388	38.61	1.11	0.79,1.54
Pacific Islander	<20	<20			
White	52	85	37.96	1.07	0.68,1.69
Other or unknown	132	197	40.12	1.18	0.85,1.76
TOTAL	863	1036	45.44		



- Caucasian children are used as the reference group with the lowest percentage of consent to fluoride varnish. Pacific Islander children are not included due to a small sample size. Asian children had the highest unadjusted odds of consent to fluoride varnish by over 2-fold (OR, 95% CI: 2.34, 1.5,3.66). The finding was not statistically significant.

### Consent and Application of FV by School Income

2022-2023	Number of children who	Number of children who did not	% of number of children who	Unadjusted Odds ratio	95% CI
Total population = 1899					
CONSENTED TO FV					
Lowest Income	239	59	80.20	1.00	
Low Medium	598	134	81.69	1.10	0.78,1.55
Medium	690	142	82.93	1.20	0.86,1.68
Highest Income	<20	<20			
TOTAL	1559	340	82.10		
RECEIVED FV					
Lowest Income	118	180	39.60	1.00	
Low Medium	298	434	40.71	1.05	0.8,1.38
Medium	440	392	52.88	1.71	1.31,2.24
Highest Income	<20	<20			
TOTAL	863	1036	45.44		



- School income is based upon the percentage of children that qualify for free or reduced-price meal (FRPL) data. The categories are lowest (>75%), low-medium (50%-75%), medium (25%-50%), and highest (0%-25%).
- Lowest income schools are used as the reference group with the lowest percentage of consent to fluoride varnish. Highest income schools are not included due to a small sample size. Children in medium income schools had the highest unadjusted odds of consent to fluoride varnish (OR, 95% CI: 1.2, 0.86,1.68). The finding was not statistically significant.

## Limitations

- Data entry errors by school-based team, later assessed by a statistician, may have occurred due to multiple data handlers. Real-world data was used without formal validation checks.
- These results are specific to the participating school district, SFUSD. Further research is needed to generalize the findings.

## Conclusion

- Further work is needed to understand why 50% of the children that consented to fluoride varnish did not receive fluoride varnish.
- Further work is needed to understand how the relationship between race-ethnicity and school income influences active consent rates.
- When comparing race-ethnicity, the Asian children had the highest unadjusted odds ratio of consenting to fluoride varnish. This finding was not statistically significant; however, from an equity perspective, efforts should be made to increase consent rates amongst all race-ethnicity categories.
- When comparing school income, the children in medium income schools had the highest unadjusted odds ratio of consenting to fluoride varnish. This finding was not statistically significant.
- The objective of school-based interventions is to achieve equity for all children. Utilizing SFDPH and SFUSD surveillance data allows for evidence-based enhancements to be implemented annually, thereby expanding the impact of these public health programs.

## References & Acknowledgments

- Centers for Disease Control and Prevention. (2015, May 29). *Preventing Tooth Decay*. U.S. Department of Health and Human Services. <https://www.cdc.gov/policy/statestrategies/oralhealth/index.html>
- Stookey, J. D., Fisher, M., Chung, L. H., Stuart A. Gansky, DrPh, MI, Mary Jue, RN, MS, Susan A. Fisher-Owens, MD, MPH, Deborah Elam, MS, CAE, Christine E. Miller, RDH, MHS, MA, Claire Sit, RDH, Prasanthi Patel, MPH, & Irene V. Hilton, DDS, MPH. (2017). School-based oral health screening in San Francisco as an essential public health service. *CDA Journal*, 45(8), 405–406.

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