

Development of a Composite Measure for Cavity Free SF Evaluation

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Background and Aims

- CavityFree SF will evaluate implementation of its 2017-2020 Strategic Plan using 5 key indicators; caries experience, untreated decay, caries experience disparities, untreated decay disparities, and lack of sealants.
- The goal of this project was to develop and pilot one composite evaluation measure, a Strategic Plan Index (SPI).

Specific Aims for the Pilot Analysis:

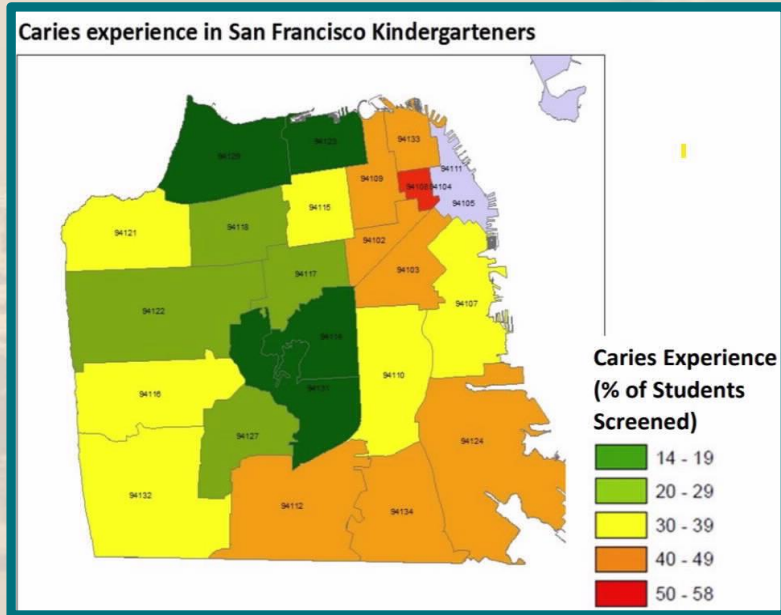
- Determine if the SPI can detect variation of the magnitude that has occurred in the target population (real variation).
- Explore what change the SPI might detect given different scenarios (future potential variation).
 - Explore how much change might be needed in the 5 key indicators to significantly impact the SPI for priority districts.

Methods

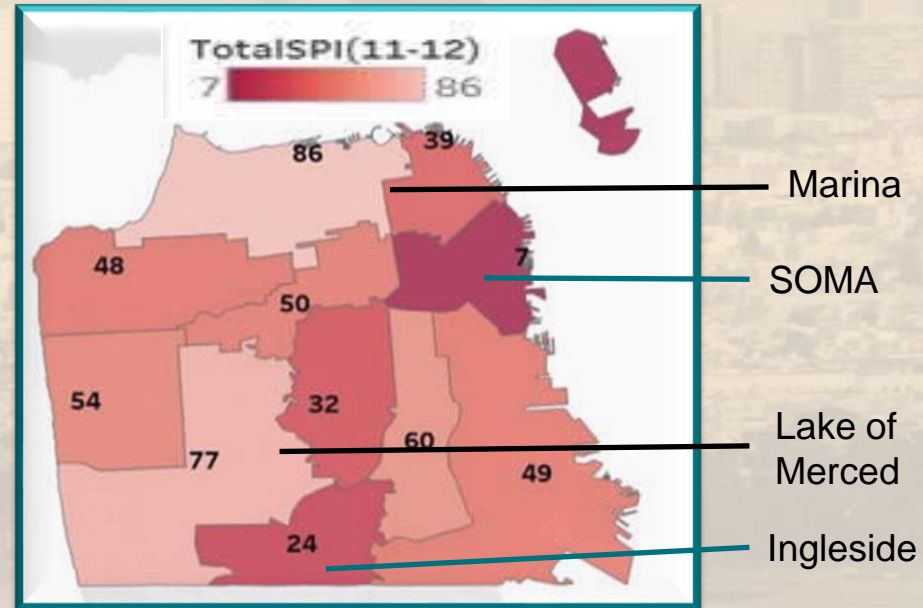
- The SPI was developed as a weighted sum of five Cavity Free SF targets, calculated using min-max normalization (https://www.sfdph.org/dph/files/dentalSvcdocs/CavityFreeSF_Strategic_Plan_Final_2019.pdf).
- The pilot analysis used data from the SFUSD-SFDPH Kindergarten Oral Health Screening program, 2011-2016, including 3,956 kindergartners in 74 public schools in 11 supervisorial districts .
- An SPI score was calculated for each year for each supervisorial district.
- Linear regression models tested for cross-sectional and longitudinal associations between the SPI and each indicator.
- Sensitivity analyses predicted each district's SPI , given scenarios where all indicators increased or decreased by 0-10 percentage points, highlighting districts with lower baseline SPI.

Results

Can the SPI detect variability between districts?



Caries experience among kindergarten children varied by zip code in San Francisco (2011-12)



The SPI score varied by supervisory districts in San Francisco (2011-12)

Results

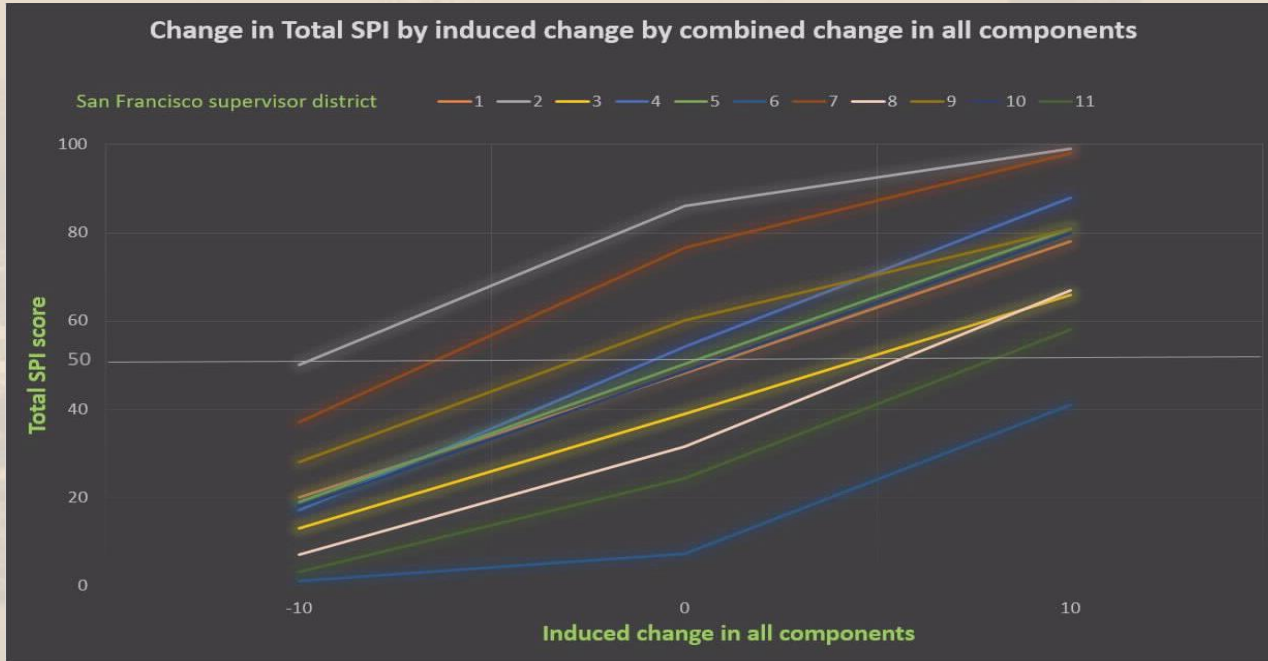
The SPI was significantly cross-sectionally and longitudinally related with 4 out of 5 indicators

	Cross Sectional (2011-12)	Longitudinal (2011-16)
Caries Experience	-0.3 (-0.5,-0.1)*	-0.2 (-0.3,-0.01)*
Untreated Decay	-0.2 (-0.3,-0.2)*	-0.3 (-0.3,-0.01)*
Caries Experience Disparities	-0.6 (-1.0, -0.1)*	-0.8 (-1.4,0.2)*
Untreated Decay Disparities	-0.8(-1.2,-0.2)*	-1.1(-1.5,-0.8)*
Sealants	0.8 (-0.1,2.0)	0.6 (-1.2,2.0)

The SPI detected real variability that occurred in San Francisco districts in 2011-2016

Results

What magnitude of change might the SPI be able to detect if the indicators improve or worsen?



A 10 percentage point improvement in all indicators was associated with a significant increase in the SPI from 33 (17-50) to 65 (50-80) for districts with a baseline SPI below 50

Main Findings

- The SPI detects cross-sectional and longitudinal variation in San Francisco supervisorial districts.
- A significant improvement in SPI is expected in priority districts (with low baseline SPI) if each of the 5 CavityFree SF indicators is improved by at least 10 percentage points.

Limitations

- Further work is needed to improve SPI sensitivity to small change.
- The SPI is designed to track progress towards CavityFree SF 2020 targets, not a state of perfect oral health.

Conclusions

- The SPI can be used to evaluate implementation of the CavityFree SF 2017-2020 Strategic Plan.

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