



# **Politics and personal responsibility:**

How the soda tax in Berkeley, CA affects  
parents' knowledge, attitudes and behaviors  
with respect to soda and oral health

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# Agenda

## **Lecture– 30min**

- The importance of oral health
- The beverage tax in Berkeley
- Preliminary results of parent interviews

## **Discussion – 30min**

- The role of tooth decay in the battle against sugary drinks
- The situation in Mexico
- Future opportunities

# **Dental Caries:** omnipresent and ignored

Who has suffered from mouth pain?

Who has children who have suffered from mouth pain?

Who has had a cavity?

How has this experience been for you? How easy and cheap has it been to get treatment?

# **Dental Caries:** omnipresent and ignored



# Untreated Dental Cavities



Image courtesy of Karen Sokal-Gutierrez, MD, MPH, UC Berkeley School of Public Health

# THE EFFECTS OF UNTREATED TOOTH DECAY

**Cardiovascular disease**  
Related to periodontal disease

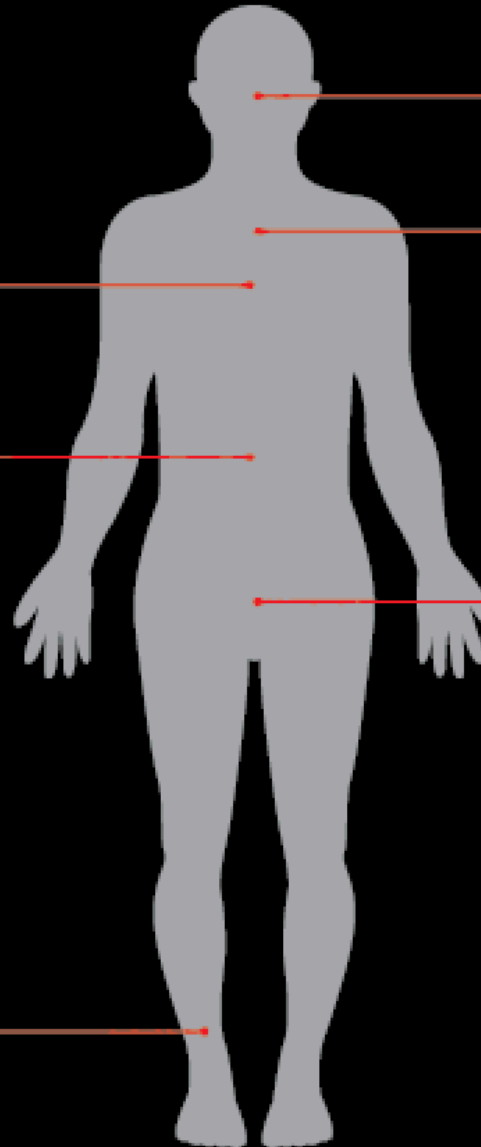
**Organ Infections**  
Oral bacteria are associated with infections of the brain, lung, heart, and other organs.

**Pneumonia**  
Oral infections increase the risk of pneumonia

**Cancer**  
Periodontal disease is associated with pancreatic and gastrointestinal cancer

**Pregnancy Complications**  
Periodontal disease is associated with preterm and low-birth-weight babies

**Diabetes**  
Periodontal disease increases the risk of developing complications from Diabetes



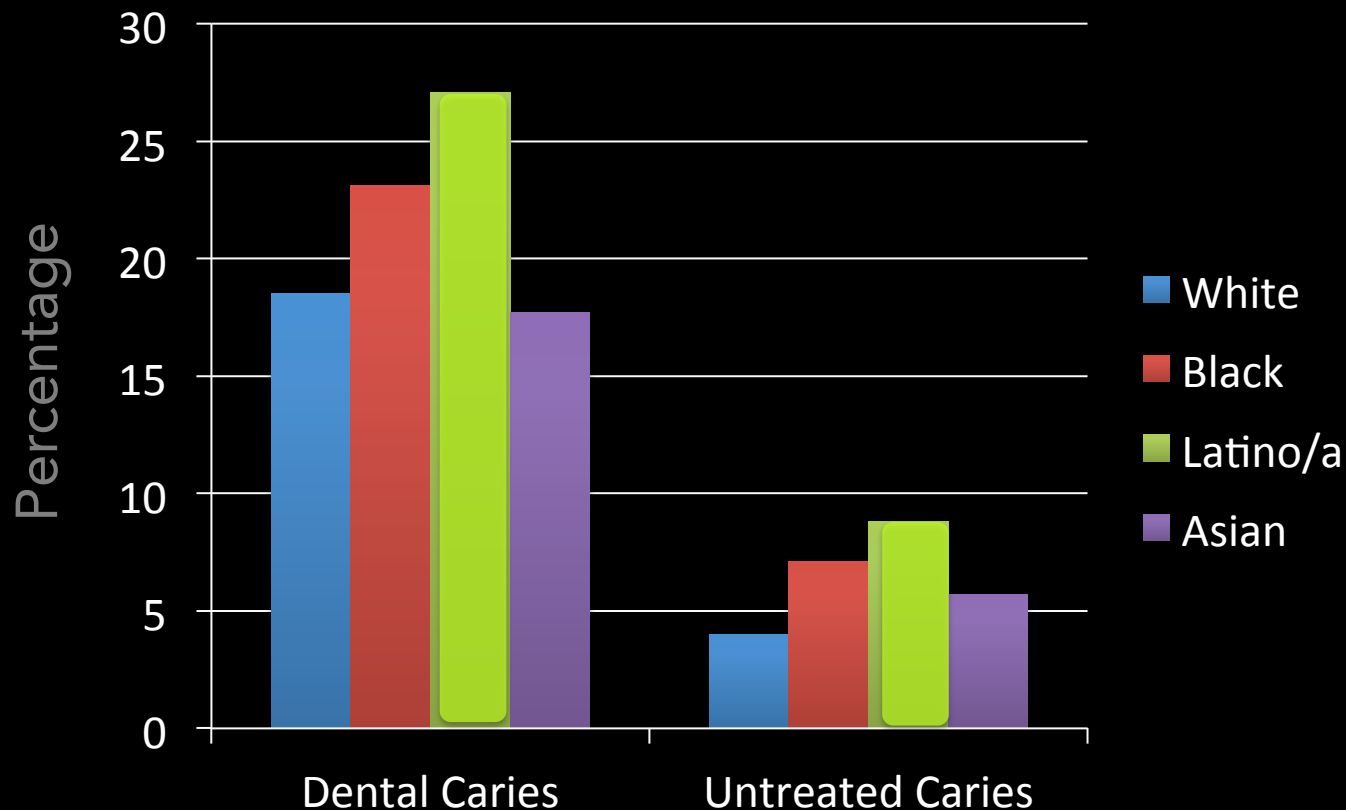
Silk H1, Douglass AB, Douglass JM, Silk L. Oral health during pregnancy. *Am Fam Physician*. 2008 Apr 15;77(8):1139-44.

Li X, Koltveit KM, Tronstad L, Olsen I. Systemic Diseases Caused by Oral Infection. *Clinical Microbiology Reviews*. 2000;13(4):547-558.

El desafío de las enfermedades bucodentales: una llamada a la acción global. *Atlas de salud bucodental*, 2e. FDI World Dental Federation. 2015. [http://www.fdiworldental.org/media/84768/book\\_spreads\\_oh2\\_spanish.pdf](http://www.fdiworldental.org/media/84768/book_spreads_oh2_spanish.pdf)

# Dental caries disproportionately affect Latinos...

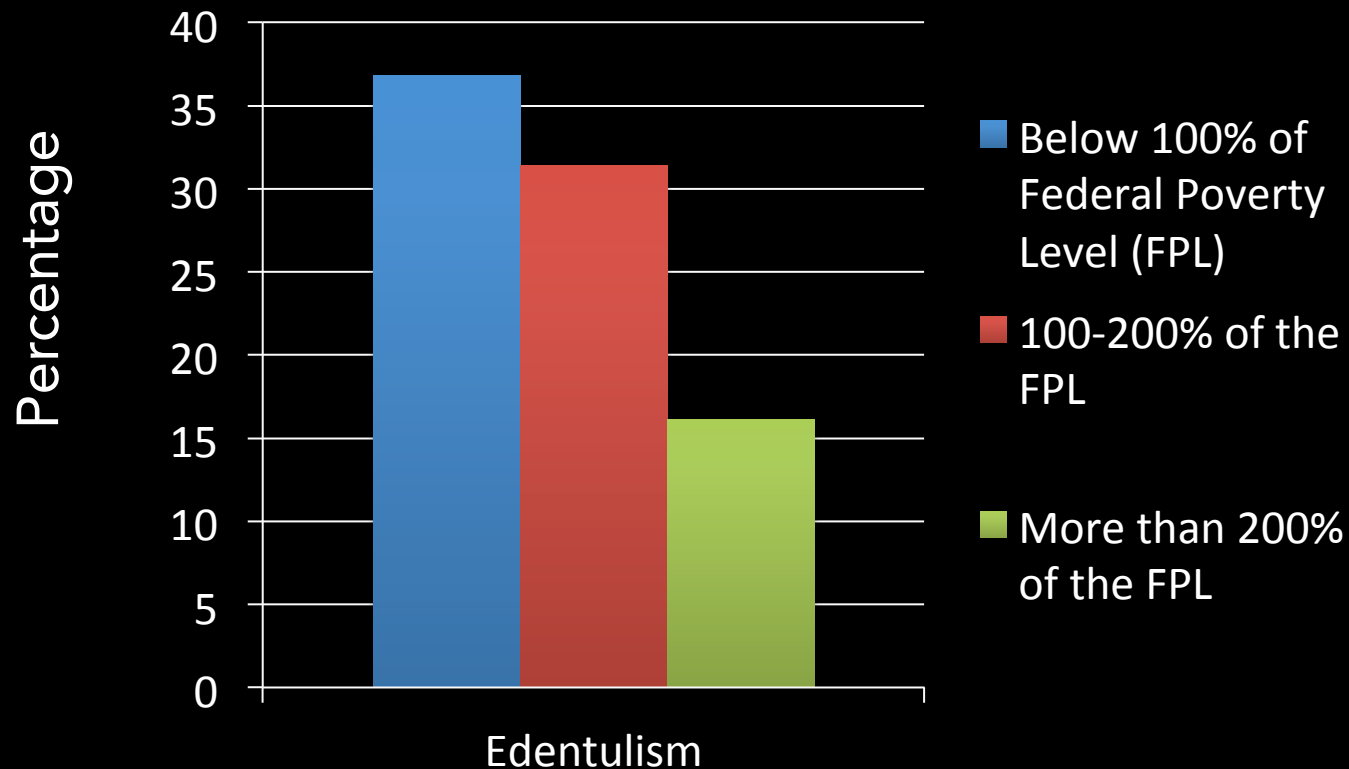
**Prevalence of dental caries by race/ethnicity in the USA, 2005-2008**



# ...and low-income communities

## The prevalence of complete tooth decay (edentulism), by poverty level

Among adults 65 years and older in the USA, 2005-2008



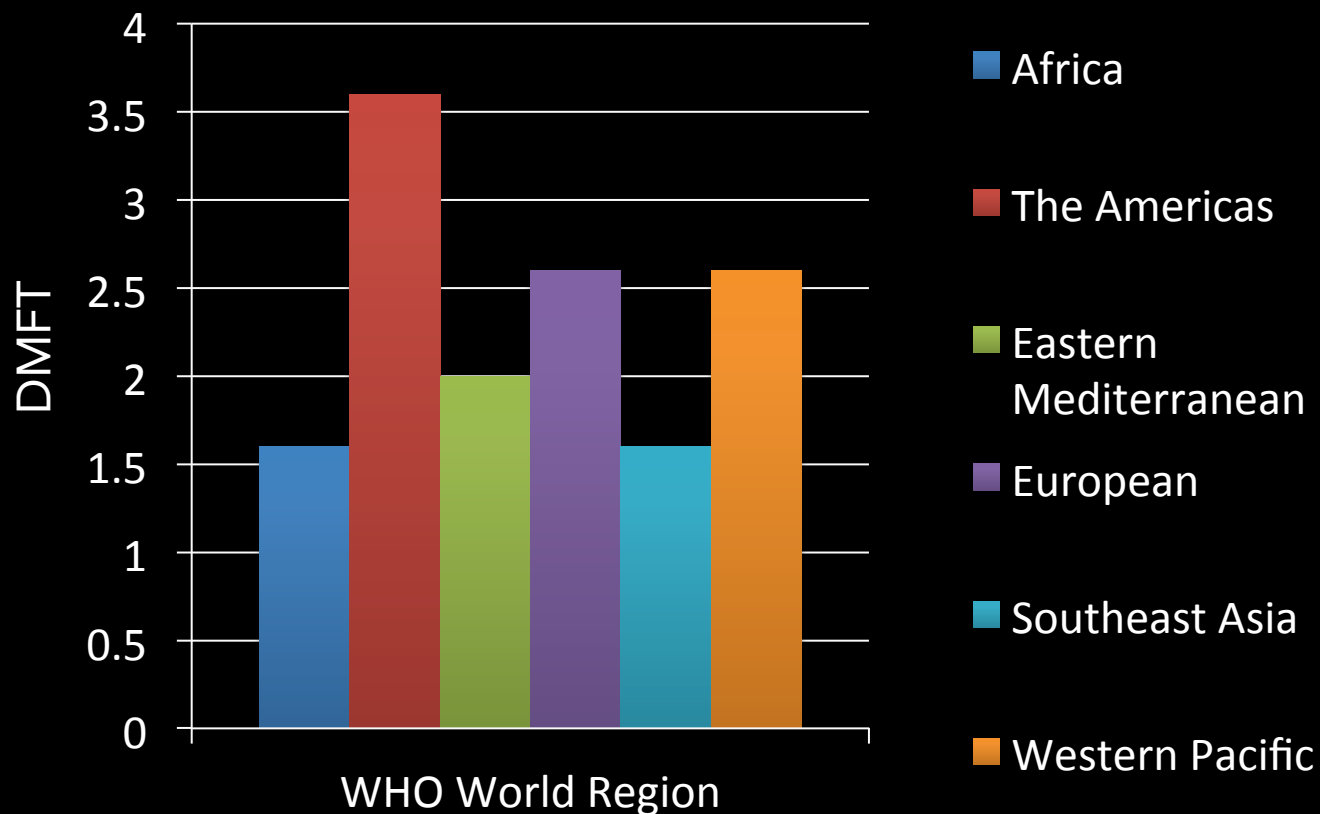
Across the globe, 2.4 billion people have dental caries

Untreated dental caries are the #1 most prevalent illness in the world.

[Kassebaum NJ](#), [Bernabé E](#), [Dahiya M](#), [Bhandari B](#), [Murray C](#), [Marcenes W](#) .Global burden of untreated caries: a systematic review and metaregression. [J Dent Res](#). 2015 May;94(5):650-8. doi: 10.1177/0022034515573272.

# The prevalence of dental caries is higher in the Americas than in any other region of the world

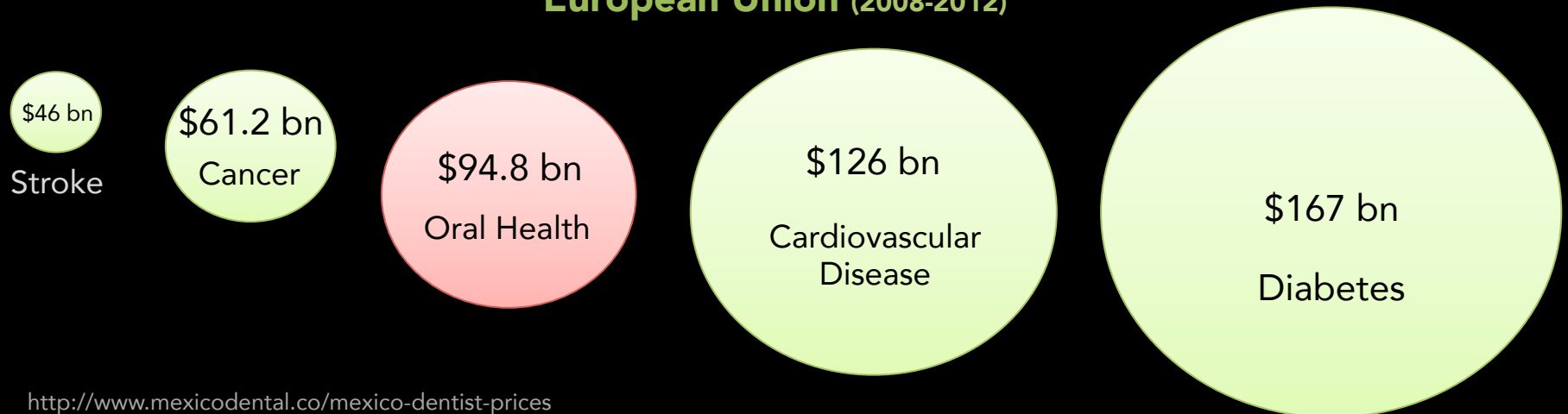
## Dental caries among 12-year-old children



# Tooth Decay is Expensive for Individuals and for Society

	USA	Mexico
Root Canal	\$800-\$1200	\$100-\$200
Dental filling	\$50-200	\$20-50
Tooth extraction	\$100-400	\$25-50

## Direct costs (public and private) associated with different illnesses in the European Union (2008-2012)



<http://www.mexicodental.co/mexico-dentist-prices>

Khazan, Olga. Americans are Going to Juarez for Cheap Dental Care. The Atlantic. Jan 16, 2013.

<http://www.theatlantic.com/health/archive/2014/05/americans-are-getting-dental-care-on-the-cheap-in-juarez/361727/>

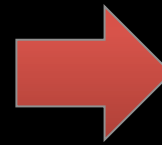
El desafío de las enfermedades bucodentales: una llamada a la acción global. Atlas de salud bucodental, 2e. FDI World Dental Federation. 2015. [http://www.fdiworldental.org/media/84768/book\\_spreads\\_oh2\\_spanish.pdf](http://www.fdiworldental.org/media/84768/book_spreads_oh2_spanish.pdf)



1978

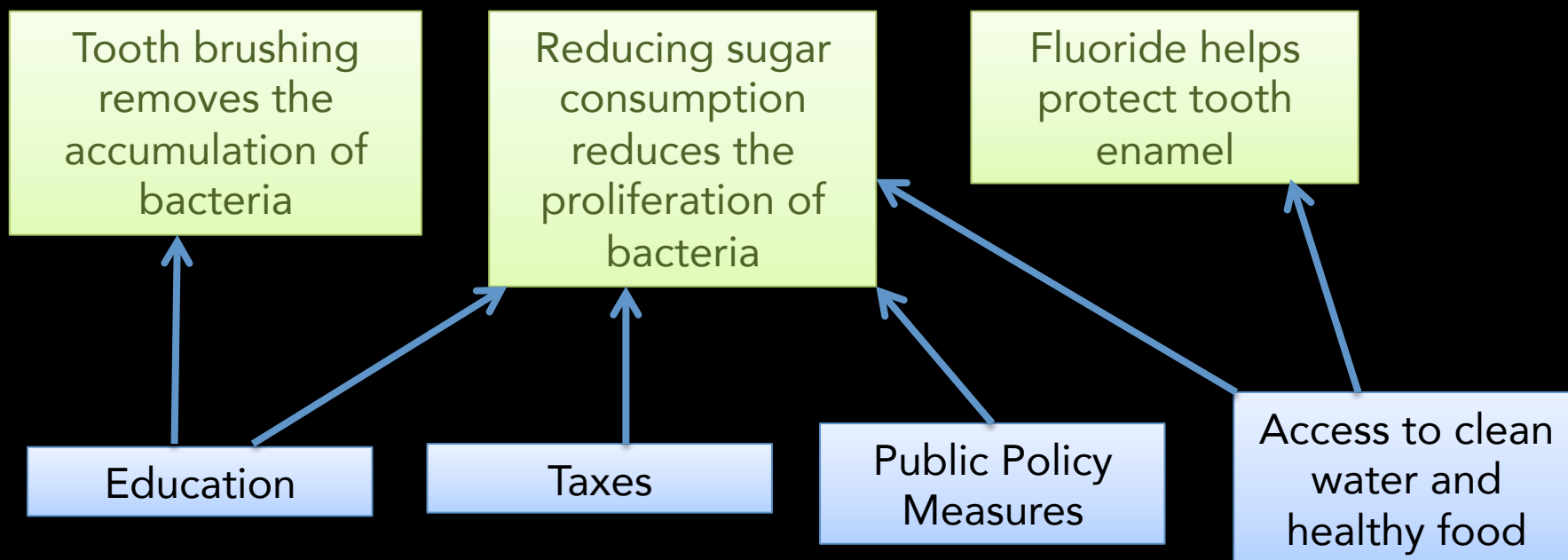
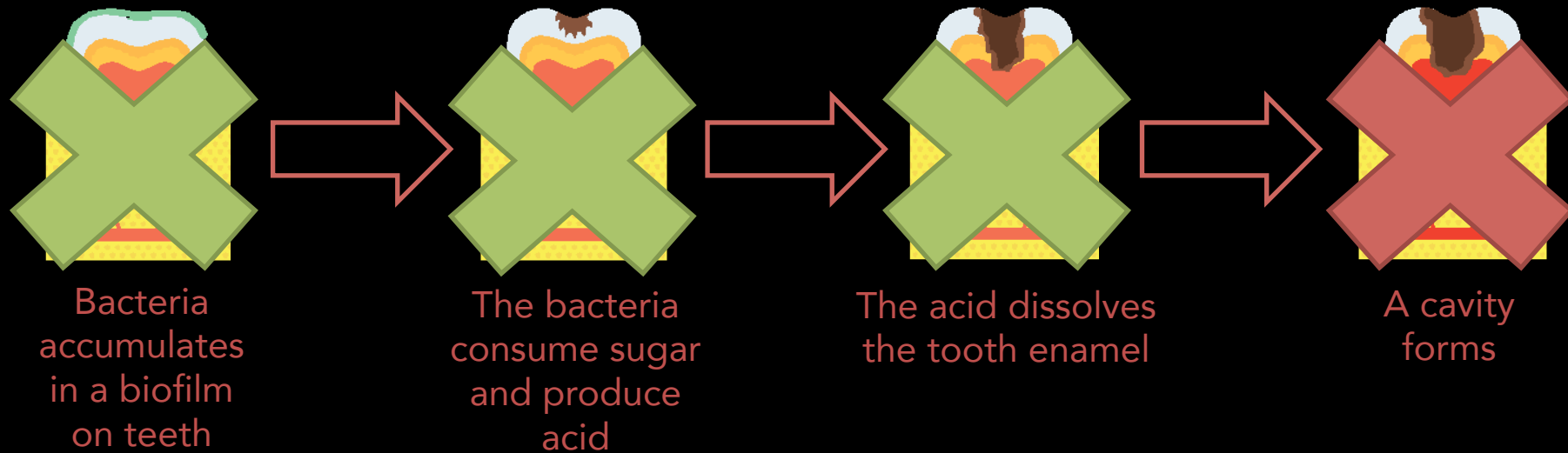


2012





**Dental caries are 100% preventable**



# Changes in oral health happen quickly



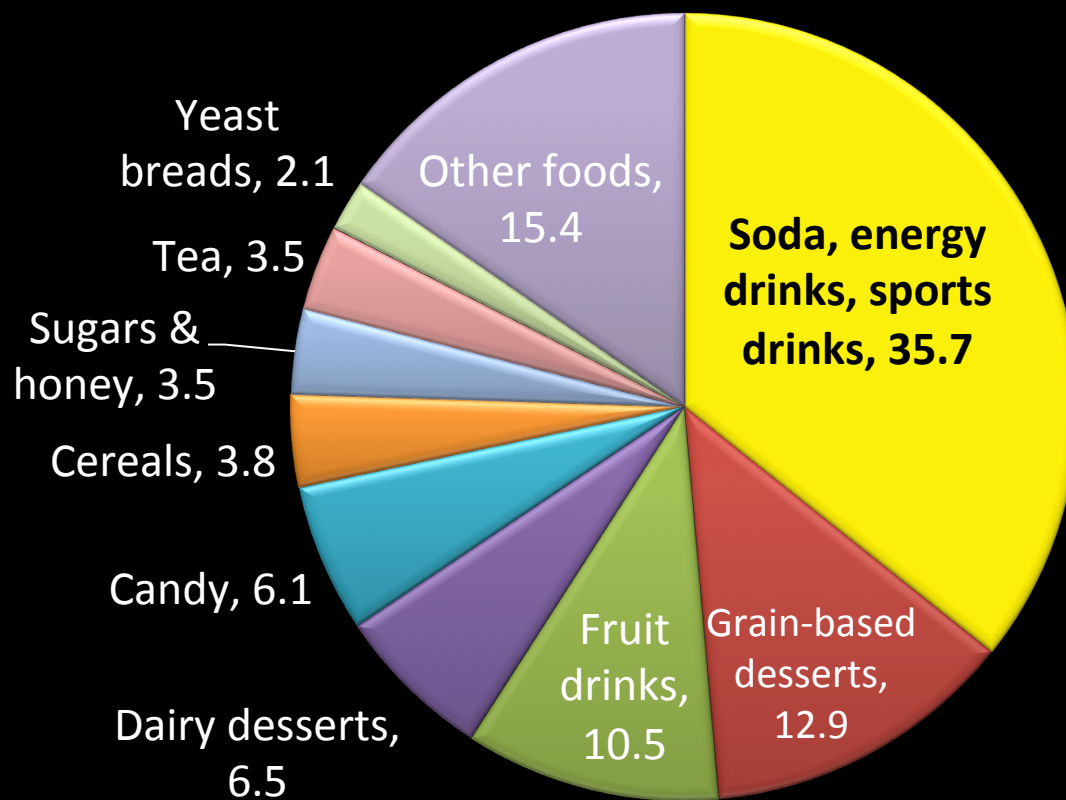
Baby Bottle Tooth Decay

6 months

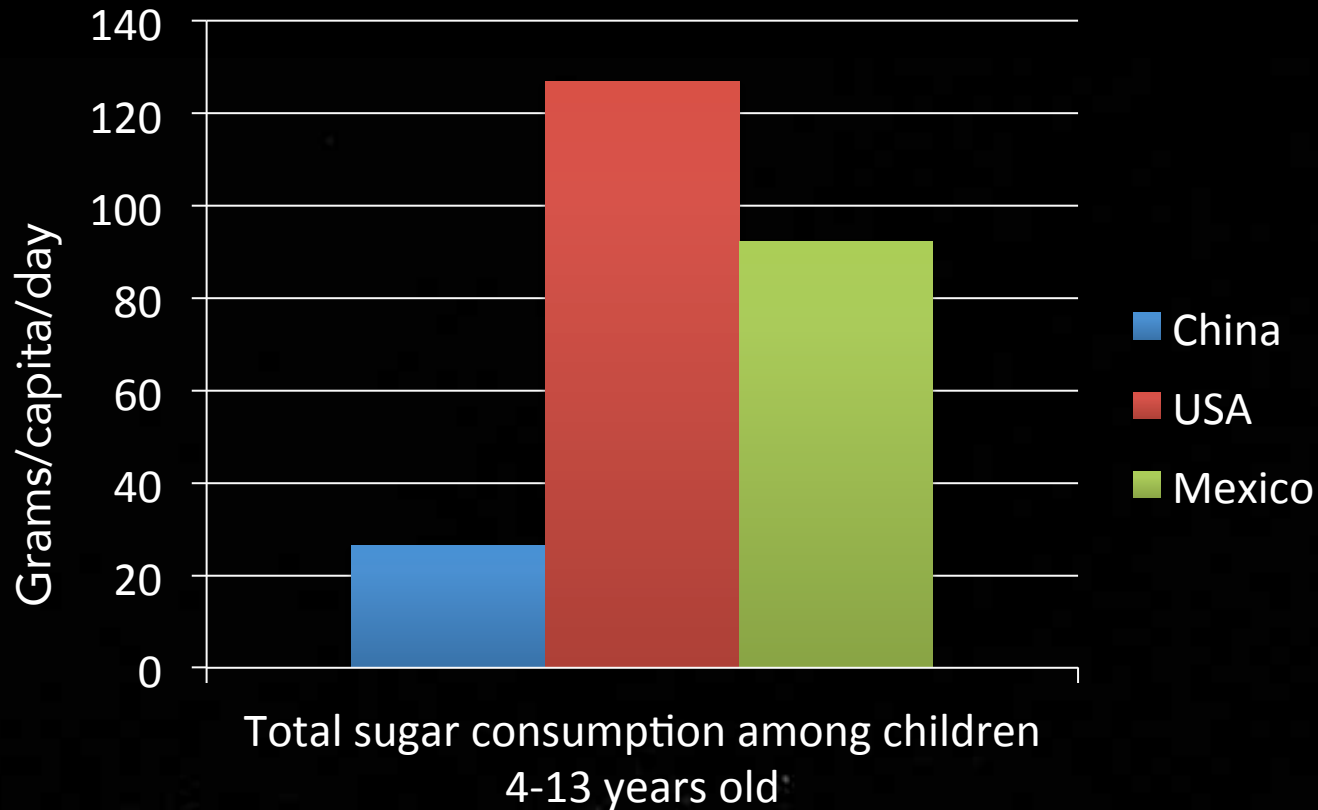
24 months

Preventing cavities is **easy**

# Sources of Added Sugars in the Diets of the U.S. Population Ages 2+ (NHANES 2005-2006)

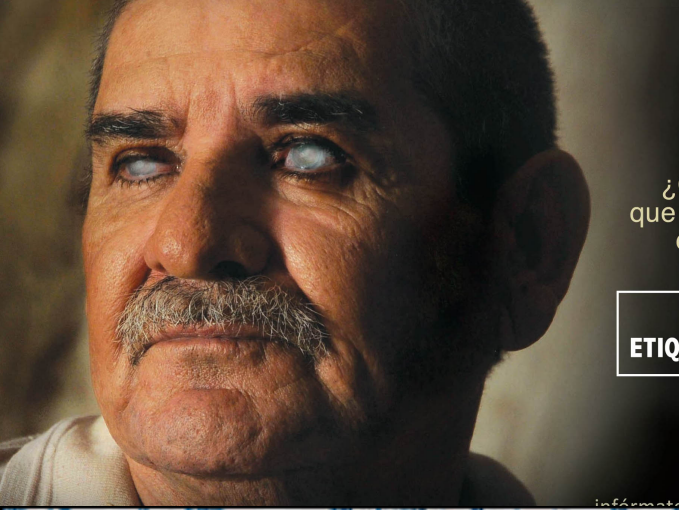


# Consumption of sugar in the US, Mexico and China



Myriam C. Afeiche, Bibi Nadia Shaheen Kivratty, Dantong Wang, Emma Jacquier, Alison L. Eldridge, and Kim-Anne L. Total and added sugar intakes among 4–13 year old children in China, Mexico, and the U.S. FASEB J April 2016 30:429.1





Fue la obesidad,  
después la diabetes...

¿Cuánto contribuyó  
que s  
o

ETIQU

# EL AZÚCAR MUERDE



## ¿ESTÁ TOMANDO LAS LIBRAS?



Soda de 20oz. • Café helado mediano de 24oz.  
• Batido de frutas de 20oz. • Té azucarado de 23oz.

Estás consumiendo **85 PAQUETES DE AZÚCAR** en sólo 4 bebidas azucaradas al día.

Todas esas calorías extras pueden causar obesidad, diabetes tipo 2  
y enfermedades cardíacas. Para obtener más información, llame al 311.

Basado en el Reporte de la OMS sobre la Diabetes.

**NYC**  
Health

Michael R. Bloomberg,  
Alcalde  
Thomas Farley, M.D., M.P.H.,  
Comisionado

# STROKE

**DON'T LET BIG SODA SWEET-TALK YOU  
INTO PREMATURE ILLNESS AND DEATH**

For the first time in more than a century, the current generation  
of children in the U.S. may have shorter life expectancy than  
their parents, primarily as a result of rising rates of obesity and  
diabetes. BE SMART. FIGHT THE FIZZ.

Healthy **NY** initiative

Stroke is a trademark of The Coca-Cola Company. Better, your health and well-being should also be your concern.

YOUR KIDS COULD BE  
**DRINKING  
THEMSELVES  
SICK**



**SUGARY DRINKS** can bring  
on obesity, which can lead  
to **DIABETES** and risk  
factors for **HEART DISEASE.**

**ARE YOU POURING ON THE POUNDS?**  
**CALL 311 FOR YOUR HEALTHY EATING PACKET**  
OR SEARCH "SUGARY DRINKS" ON NYC.GOV #PouringOnThePounds

**NYC**  
Health

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# EL AZÚCAR MUERDE



La soda puede destruir los dientes, causar la obesidad y resultar en la diabetes tipo 2.  
**Protege a tus hijos. Elige agua en lugar de bebidas azucaradas.**

Only 2% of media messages related to Measure D in Berkeley mention oral health



# Measure D in Berkeley



- Implemented 2015
- 1 cent/oz
- \$1.2 million USD raised in 9 months
- 42% designated to the school district

# El IEPS en México



- Implemented in 2014
- 1 peso / liter
- Reduced SSB consumption by 6-12% in the first year
- Raised 18,000 million pesos in the first year

Colchero M Arantxa, Popkin Barry M, Rivera Juan A, Ng Shu Wen. Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study BMJ 2016; 352 :h6704

Lynn, Jessica. City council votes to allocate 'soda tax' revenue to school district, city organizations. The Daily Californian. Jan 20, 2016.

# What is the role of oral health in conversations about SSBs and beverage taxes?



*Photo: Getty Images*

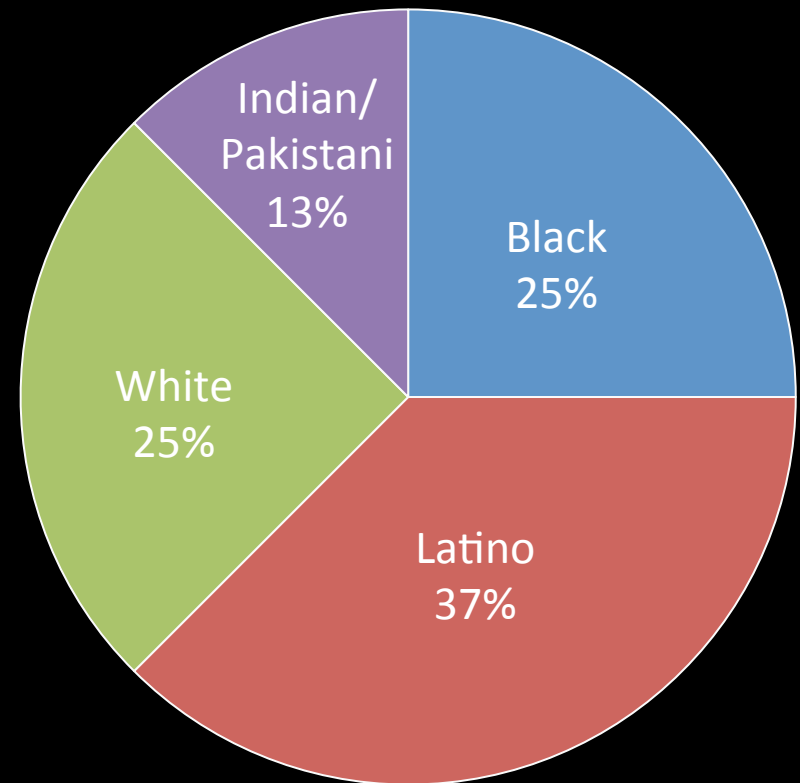
# Methods and Participants

- 4 focus groups
- 16 in-depth interviews

## Participants

- Low income
  - <\$ 24,000 for a family of 4
- University education
- Voters
  - (54% voted in 2014)
  - Of those, 54% voted YES to Measure D
- Majority women

Race/Ethnicity



# Results

- Beverage selection
  - External vs. Internal Influences
    - Price is a key factor in beverage selection
  - Hierarchy of beverages
  - The power of personal experiences
- Taxation works...although people say it doesn't
- Salient health effects
  - Diabetes and obesity dominate the conversation
  - Commonly ignored, oral health is a prevalent concern with surprising potential



# Beverage selection

“Dark soda is bad...like, it's worse than regular soda.”

Imagen: <http://killercoke.org/>

# Beverage Selection

“...the truth of the matter is that the kids, they love whatever it is that the adults around them are offering. Kids love whatever adults are drinking.”





# The power of personal experiences

“Before, I suffered from kidney disease, so now I have a kidney transplant and I think my soda consumption had something to do with it... sometimes I drank 3 sodas per day. So....for me, after my transplant, just water. And for my whole family: water. After my transplant, more nutritious foods and only water. I had to live through that to realize the damages associated with sugar.”

*Translated from Spanish*



# Taxation

"In my opinion, I don't think raising the taxes will get people to stop buying it.  
Raising taxes won't change behavior."



# Taxation

"...this water costs \$1, and this juice *used* to cost \$1...now that they are taxing this juice, it costs \$2. So it was cheaper for me to buy two bottles of water than one juice."



# Price and consumption

"The price! Definitely the price!...The fact that you can buy a soda for \$1 and a water costs \$3... because the majority of us are from low-income communities, and I think that's part of the reason why our communities are most affected."

*(Translated from Spanish)*



# Oral Health

"I just watch people suffer with toothaches. And when it gets to the nerve, it just affects everything, and you can't concentrate or do anything."

**"If your mouth hurts, your whole body hurts"**

*Translated from Spanish*



# Oral Health

“We took our oldest daughter to the dentist... They told me to completely eliminate the juices. Because she had a cavity, and that cavity was going to affect her other teeth. Now she , y esa carie iba a afectar a los otros [dientes]... Now she can't have juice, she can't have candy, she can't have anything [sweet]. Because of that cavity. And that cavity helped motivate her to eat less.”

*Translated from Spanish*

*Imagen: Shutterstock*

# Oral health

“I think that it also **has to do with embarrassment**, because sometimes their teeth break and...they cover their mouth or they don't go outside because they're embarrassed.”

*Translated from Spanish*

# Adults vs. Children

"I would say that it's obesity (in adults)...  
And for kids...I'm not sure what they're  
called, but gray teeth. Unfortunately, I feel  
that children who drink more sugary drinks  
are more affected."



# Implications & Conclusions

Parents know that sugar is bad for health but can't identify sugary beverages

Most parents support a tax, especially when revenue benefits children

The most salient health effects are those that are personally meaningful

Oral health problems are common and visible

Better nutritional labeling and access to healthy foods and beverages

Designating tax revenue for children's programs may help SSB taxes pass in other cities

Design public health campaigns that speak to the experiences of the target population

Integrate oral health into the public health campaigns against SSBs



# Next Steps

Oral health is a relatively unexplored theme in the battle against sugary drinks:

- We need more information about the prevalence of caries and their economic impact
- Possibly incorporating oral health messages into public health campaigns
  - A beautiful smile is a short-term indicator of good health
- Need more collaboration between academic communities

**Something has to change**

“...It’s really important that we change this...soda consumption is a huge problem in our society, and for my daughter and I to have a healthy future we have to solve it. So that she doesn’t develop problems that are so common here; problems that don’t occur in other places but that we choose to have here.”

*(Traducido del inglés)*

# Acknowledgments

- **Research Team:** Karen Sokal-Gutierrez, Kris Madsen, Jen Falbe, Ben Chaffee, Bahar Amanzadeh, Justin Batcheller, Emma Lutz
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# Thank You!

