



The Dental Health Crisis and Community Water Fluoridation

Presented by:
The Everyone Deserves Healthy Teeth Coalition

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Dental Director, Neighborhood
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Hidden Epidemic



Rampant Decay



Free Dental Clinic at Convention Center



Why Dental Health?

Dr. David Satcher, former U.S. Surgeon General, called dental health disparities a "silent epidemic"

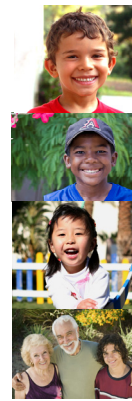


State of Oregon Dental Health

- Over 7% of CareOregon's children 0-5 years sent to hospital due to severity/extent of decay.

1st, 2nd and 3rd grade students

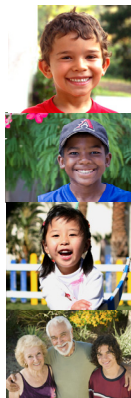
- Almost 1 in 10 of CareOregon's
- 63% have experienced tooth decay
- 35% have untreated tooth decay
- 20% have rampant tooth decay
- 4% have urgent treatment needs



State of Oregon Dental Health

Elderly

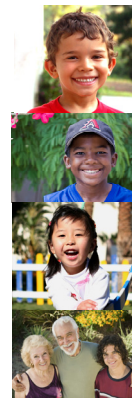
Capacity to treat home bound or institutionalized elderly is sparse at best



It is time to act

Dental Decay is a serious burden on kids and struggling families

We know what works and it is time to implement solutions.





Dr. Eli Schwarz
Professor and Chair,
Dept. of Community Dentistry,
OHSU

How Fluoride Works

- Combines with phosphate and calcium to create a strong barrier to protect teeth from cavities
- Remineralizes tooth enamel to build a strong, cavity-resistant outer surface
- Decreases bacterial activity in the mouth



How Fluoride Works

- Greatest protection is available when children's teeth are developing, but it's beneficial for people of all ages
- Creates a strong tooth surface that resists decay over a lifetime
- Fluoride is most effective when ingested in small amounts throughout the day
- Fluoride prevents decay before it happens, thereby saving money and hardship in costly dental treatment



Reduces Dental Decay by At Least 25%

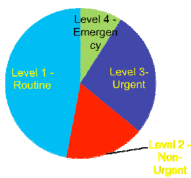
More than 100 studies have demonstrated the effectiveness of optimal fluoridation of community water.

- 2011 Alaska – 32% less dental decay
- 2010 New York – 33% less dental decay
- 2010 Australia – 32% less dental decay
- 2004 Ireland – 32% less dental decay

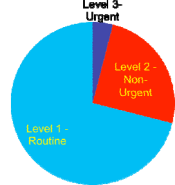


Dental Needs in Head Start Children Non-fluoridated and Fluoridated Communities, Oregon

**Non-Fluoridated
 Oakridge, Lane County**



**Fluoridated
 Florence, Lane County**



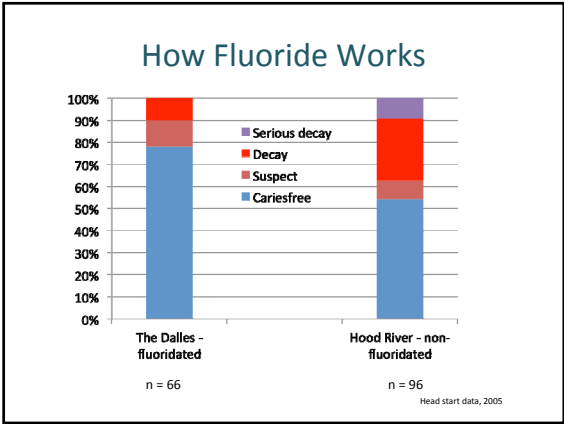
After Valerie Haynes, 2005

2004 Hospital Charges for Severe Cavities

The Dalles	Hood River (No F ⁻)
\$47,561	\$159,613



Hospital billings for operating room treatment of severe cavities in 2004 adjusted for population were 70% less in fluoridated The Dalles compared to non-fluoridated Hood River. 45% of Medicaid costs for pediatric dental services are from operations under general anesthesia for severe cavities.



Mild Dental Fluorosis is not a Health Concern

- Dental fluorosis is a change in the appearance of the teeth caused by intake of higher than optimal amounts of fluoride during tooth formation. In the U.S most is very mild or mild.
- Mild fluorosis is a barely noticeable cosmetic condition with no known adverse health effects.
- National Research Council report (2006) concluded that the potential for adverse effects from fluoride at 2 – 4 mg/L in drinking water do not apply at the lower water fluoride levels commonly experienced by most U.S citizens.

More Effective than any Alternative

- Access: Financial Barrier
- Gaps in school-based dental programs
 - Don't reach kids during the critical period before age 5
 - Fluoride intake inadequate during the summer, weekends and when parents fail to fill out paperwork to enroll kids
- Regular dental care is important, but aimed at treating cavities, not preventing them

Dr. Ken Wright Executive Director, Dental Care Program Kaiser Permanente Northwest

Top Priority for Kaiser Permanente

- We are in an Oral Health Crisis
- Fluoridation aligns with Kaiser Permanente's Mission
 - Spreads and enhances total health where we live, work and play
 - Reflects our total commitment to prevent disease
- Every Child Deserves to Smile!

Prevent Dental Fillings

- Over 70% of dental care provided in Kaiser Permanente is replacing & restoring dental fillings
- A 10-year old child who develops cavities will pay over \$2,000 over a lifetime to take care of the decayed tooth

We Can't Solve the Problem by Simply Filling More "Holes" in Teeth!

Community Costs of Dental Disease

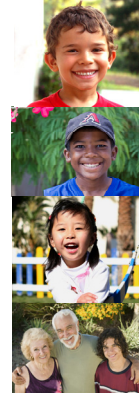
- **Employers/Families**
 - Higher dental insurance
 - Lost work hours, increased absenteeism from school, decreased productivity
- **Government/Schools**
 - School based supplement programs
 - Increased Medicaid costs
 - Increased unemployment insurance
- **Healthcare System**
 - Needless and expensive Emergency Room visits
 - Increased cost for dental fillings and extractions



Cost Savings of Fluoridation

RECENT STATEWIDE STUDIES

- **COLORADO: \$149 million saved** annually in treatment costs
- **NEW YORK: 33% less dental treatments** for Medicaid recipients
- **TEXAS: \$24 saved per child** on Medicaid per year



Cost Savings in Portland

- Every \$1 invested in fluoridation saves cities an estimated \$38 in dental costs (CDC)
- Water fluoridation is estimated to:
 - Save Portland \$18.6 million every year
 - Cost each person \$5 for start up (spread over 25 years, \$5M estimated total)
 - Cost each person 61 cents per year (\$575,000 estimated yearly)



Our Exciting Opportunity

“No amount of regret can make amends for a lifetime of opportunities lost.”
- C. Dickens

Together, we can ensure the total health of our community. Water fluoridation in Portland is an opportunity to shape our future that we will never regret.

Every Child Deserves to Smile.. and Thrive!



Dr. Bill Maas Advisor Pew Charitable Trusts

Former Director
Division of Oral Health
Centers for Disease Control and Prevention (CDC)

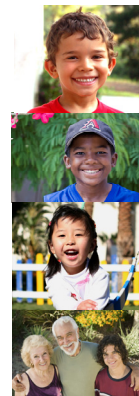
Water Fluoridation is a Basic Public Health Service

U.S Centers for Disease Control & Prevention

“One of the 10 great public health achievements of the 20th century”

World Health Organization

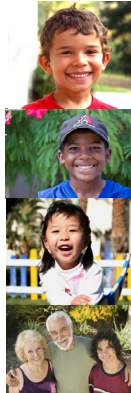
“Fluoride is being widely used on a global scale with much benefit”



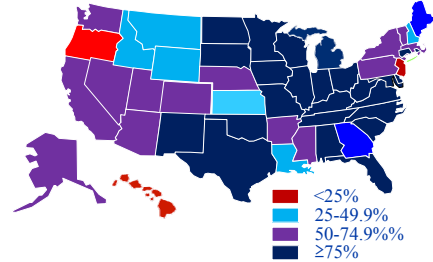
More Have Fluoridated Water than Ever, the Trend Continues Upward

- Percentage of persons on public water supplies in the U.S with optimally fluoridated water

1992:	62.1%
2000:	65.8%
2010:	73.9%
- About 4 million people added per year
- Now at 204 million
- Annual rate of change since 2000 is actually three times greater than the rate of change the decade before 2000.



% Population on Public Water Systems Receiving Fluoridated Water -- 2010



How We Know Fluoridation Prevents Tooth Decay

U.S. Task Force on Community Preventive Services (2001)

- Strongly recommended Community Water Fluoridation
- Based on 21 studies of children
- Median reduction of 29%

A later review found CWF reduces decay 25% in adults, who have decay rates similar to children. (Griffin, et al. J Dent Res. 2007)



Statements of Support

The American Academy of Family Physicians

"Fluoridation of public water supplies is a safe, economical and effective measure to prevent dental [decay]."

The Institute of Medicine

"Evidence continues to reaffirm that community water fluoridation is effective, safe, inexpensive, and is associated with significant cost savings."



Statements of Support

American Academy of Pediatrics

"... fluoridated water is the cheapest and most effective way to deliver anticaries benefits to communities."

American Water Works Association

"... water providers undergo thorough and extensive training to safely apply fluoride in the amount recommended by the world's most respected public health authorities."



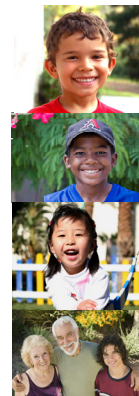
Fluoride: Naturally Occurring Mineral

NATURALLY OCCURRING IN BULL RUN

- Fluoride 0.1ppm
(0.7ppm optimal; ocean: 1.2-1.5ppm)

CURRENTLY ADDED TO BULL RUN

- Chlorine
- Sodium Hydroxide
- Ammonia



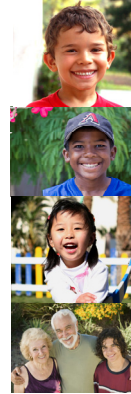
Fluoride: Additive Quickly Dissociates to Ionic Form

- Once added to water, all water fluoridation compounds quickly disassociate to fluoride ions.
- Studies prove natural fluoride and added fluoride have the identical ionic form in water and act the same to improve dental health.



Fluoride Added to Water is Extremely Pure

- National Science Foundation (NSF) Standard 60:
 - purity requirement for water additives
 - testing confirms actual purity exceeds standard
- Most samples show no detectable contaminants at ten times the optimal concentration
- In others, the level of contaminants are miniscule and pose no risk
- For arsenic
 - a cup of tea has 290 times the amount consumed by drinking a glass of fluoridated water.
 - an apple has 250 times the amount

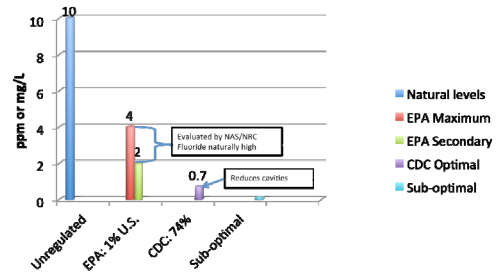


National Research Council (2006): Fluoride in Drinking Water

- Expert panel convened to study adverse health effects of fluoride in drinking water
- Reviewed all evidence for 3 years
- Looked at every possible health effect
- Did not find a single adverse health effect of fluoride at levels used to promote dental health
- None of the conclusions reached by the committee indicate any risks from optimally fluoridated water

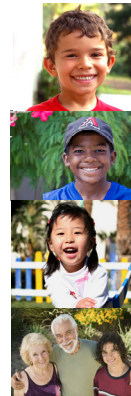


Regulation of Fluoride in Drinking Water



Dr. Phil Wu
Pediatrics and Community Health
Initiatives,
Kaiser Permanente

Nothing that you ingest is
without potential toxicity to
someone under the right
conditions



Who Analyzes and Interprets Scientific Data?

Experts in professional and scientific organizations who are trained and equipped to review analytical studies and arrive at consensus opinions

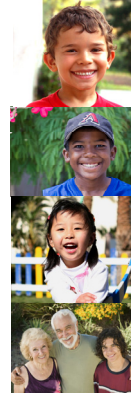
Such organizations have:

- Objectivity**
- Integrity**
- Credibility**



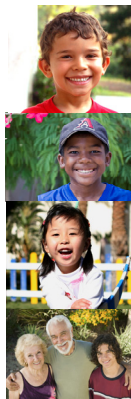
National Research Council Report to EPA on Fluoride 2006

- Reviewed EPA's maximum (4 ppm) and secondary (2 ppm) levels of NATURALLY OCCURRING fluoride in drinking water
 - Not intended to evaluate optimal water fluoridation (0.7 ppm)
- Reviewed all evidence on high levels of fluoride and every possible health effect
 - One unanimous conclusion: Severe dental fluorosis can occur at 4 ppm but is near zero at 2 ppm
 - Recommend lowering the MCLG to < 4 ppm
 - Additional studies recommended for communities with > 1 ppm to address moderate fluorosis
 - Most communities in U.S have optimal level (0.7 ppm)



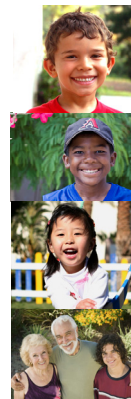
False Claims: Intelligence

- Based on NRC 2006 Report and 2012 report by Choi
 - Neither are new studies but are reviews of pre-existing studies
- Reviewed studies in China, Iran, Mongolia with high naturally-occurring fluoride (up to 11.5 ppm) to low fluoride areas (around 1 ppm)
- Minimally lower IQ at high levels of fluoride compared to "normal" IQ at low fluoride levels
- Multiple study design faults:
 - No controls for parental IQ, income, nutrition and exposures to lead and arsenic
 - Inadequate tests for IQ



False Claims: Cancer

- National Cancer Institute Position Statement (2/2012)
 - "Many studies, in both humans and animals, have shown no association between fluoridated water and cancer risk."
- Public Health Service (1991) and National Academy of Sciences (1993) reviews of the evidence
 - No link between optimal water fluoridation and cancer
- International Assoc. for Dental Research (7/2011)
 - No correlation between fluoride and osteosarcoma



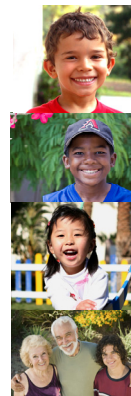
False Claim: Infant Formula

- Breast is best!
- Fluoridated water is endorsed by the American Academy of Pediatrics and the Oregon Pediatric Society
- Optimally fluoridated water can be used to reconstitute powdered formula



False Claim: Toothpaste

- Toothpaste has 1000 times the concentration of fluoride than optimally fluoridated water
 - Young children swallow toothpaste and this is linked to fluorosis
- Product warnings on toothpaste and other OTC products
 - Prevent the consumer from excessive intake
 - Parental supervision for children < 6 years of age
- Toothpaste contains other ingredients
 - Sodium lauryl sulfate
- American Dental Association
 - "A child could not absorb enough fluoride from toothpaste to cause a serious problem"





Dr. H. Stacy Nicholson
Chair, OHSU Department of Pediatrics

Physician-in-Chief, Doernbecher
Children's Hospital

Dental Crisis at OHSU and Doernbecher

- OHSU School of Dentistry
 - Pediatric Dental Clinic
 - Pediatric Dentistry Advanced Training
- Doernbecher Children's Hospital
 - Pediatric Dental & Oral Surgery Service
 - Availability of sedation and anesthesia
 - Developmentally disabled children



Dental Disease and Other Health Conditions

- Oral Health Related to Disease
 - Heart Disease
 - Diabetes
- Poor Oral Health Causes Serious Medical Illnesses
 - Brain abscesses
 - Endocarditis (bacterial infection in heart)
 - Blood clots to lungs
 - Death
- Dental Disease Disrupts Needed Treatments
 - Surgery
 - Chemotherapy



Doernbecher Children's Hospital

- Too often have to delay cancer treatments because kids teeth are a mess
- Serious dental operations expose kids to general anesthesia with potentially serious complications



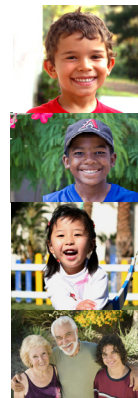
Emergency Room Visits

- Dental conditions are a leading cause of ER visits
- Serious dental conditions can't be treated in the ER
- Patients are just given antibiotics and painkillers
- Each dental ER visit amounts to thousands of dollars of wasted resources



Lifetime Impact of Dental Decay

- \$2,000 lifetime cost of each cavity
- Leading cause of school absences
- Leading cause of missed work days



Childhood Tooth Decay and Adult Employment

- Adults who had poor dental health as kids find it harder to find a good job
- Adults with missing teeth are viewed as less intelligent and less trustworthy



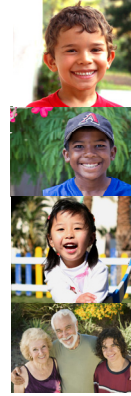
Prevention is Key

Prevention is better than treatment

- Less human suffering
- Less cost to families, government and society

Water fluoridation is a foundational public health measure to prevent tooth decay

Everyone deserves healthy teeth!



**Inge Aldersebaes
Program Manager,
OEA Choice Trust**



**Carmen Rubio
Executive Director,
Latino Network**



**Raquel Bournhonesque, MPH
Co-Director,
Upstream Public Health**



www.everyonedeserveshealthyteeth.org