REPORT | JULY 2015

# Fluoridation Advocacy

## Pew's Contributions *and* Lessons That Emerge

children's dental health project

*The Children's Dental Health Project (CDHP) was commissioned to prepare this report by The Pew Charitable Trusts. It is intended to summarize Pew's efforts over six years to support and strengthen advocacy for community water fluoridation. CDHP is among the more than 100 local, state and national organizations that comprise the Campaign for Dental Health, a coalition that Pew launched in 2011. CDHP thanks the 26 individuals who work for state health departments, health and medical organizations, foundations or other institutions who participated in lengthy interviews for this report.*

# I. Introduction

The Pew Charitable Trusts created a children's dental campaign in 2008 with a broad mission to improve the oral health of low-income children, focusing on financing for care, oral disease prevention and expanding the dental workforce. Pew is a public charity that has launched dozens of policy initiatives in a variety of fields where there is a clear evidence base, bipartisan support and an opportunity to make a difference.

Each policy initiative is time-delimited. For example, Pew's Pre-K Now campaign published reports and worked with state policymakers over a 10-year period to make significant progress in expanding access to high-quality, voluntary pre-kindergarten for 3- and 4-year-olds; the campaign ended its operations in 2011.

From the beginning of its children's dental campaign, Pew envisioned its role as a catalyst to advance policies for community water fluoridation and other proven, cost-effective forms of oral health prevention. Initially, Pew focused on expanding fluoridation through state and local campaigns, before expanding the fluoridation work to the national level. Pew is concluding its work on local and state fluoridation campaigns, but has continued its investment and partnership with national organizations that are advancing fluoridation efforts.

This report examines the impact that Pew's work has had in advancing community water fluoridation and the lessons that have emerged from these experiences. In order to understand the scope of Pew's impact, CDHP interviewed health professionals, foundation leaders, state officials and other advocates for this report.

# II. A legacy of leadership

Since Pew's dental campaign was launched in 2008, its efforts to advance community water fluoridation have been concentrated in two major areas.

First, Pew provided various forms of direct assistance—such as survey research, communications training, strategic guidance and financial support—to several state and local campaigns that sought to expand fluoridation. Three of these five campaigns were successful in enacting or reaffirming policies to implement this proven health practice.

Marjorie Stocks, a consultant with the California Dental Association Foundation, said Pew's entry into the field was welcomed by local advocates who were campaigning to pass or preserve fluoridation policies. "When Pew stepped onto this stage, it gave us all a real boost," she said. "Something has congealed nationally that wasn't there before."

Stocks has supported local fluoridation campaigns in San Jose and other California communities. She said the network that Pew created has been invaluable to local advocates. "I was grateful that there was some place for people like me to go to talk with others who were working in this field," Stocks said. "It's a small field, so it's easy to feel isolated. It's essential that we learn from what each other is doing or how others are handling certain challenges."

## Fluoridation: What We Know

Fluoride is a mineral that exists naturally in all bodies of water, but usually at a concentration that is too low to prevent tooth decay. For this reason, many U.S. communities adjust the fluoride level in public water systems by fortifying their water with additional fluoride to reach an "optimal" concentration that reduces the rate of tooth decay.[1] This process is called fluoridation.

Approximately three of four Americans who are served by a public water system receive drinking water that is fluoridated.[2] The number of U.S. residents having access to fluoridated water has steadily increased since this health practice was introduced 70 years ago in January 1945.[3]

The Centers for Disease Control and Prevention (CDC) reports that consuming fluoridated water reduces tooth decay by about 25 percent over a person's lifetime.[4] In 2013, the Community Preventive Services Task Force—an independent panel of experts—reviewed 161 studies before recommending fluoridation on the basis of "strong evidence of its effectiveness" in cavity prevention.[5] The Healthy People 2020 objectives, evidence-based goals set by the U.S. Department of Health and Human Services, call for raising to 79.6 percent the portion of Americans who are served by community water systems that are fluoridated.[6]

Fluoride from toothpaste, mouth rinses or other products also prevents cavities, but these forms of fluoride are more expensive than water fluoridation, don't reach all members of a community and require a conscious decision to purchase and use them.[7] In addition, research has shown that teeth need steady, ongoing fluoride exposure for the enamel to remineralize. As the CDC explains, fluoridation "prevents tooth decay mainly by providing teeth with frequent contact with low levels of fluoride throughout each day and throughout life."[8]

Since the earliest days of fluoridation, critics have attacked the practice and raised a variety of concerns about its safety. The only effect associated with fluoridation (other than lower rates of tooth decay) is dental fluorosis, which is a change in the appearance of tooth enamel that can occur while teeth are forming. Fluorosis in the U.S. is typically a mild, cosmetic condition that does not cause pain and does not affect the health or function of the teeth. The optimal level of fluoride is set to reduce tooth decay while minimizing the occurrence of fluorosis.[9]

Opponents of fluoridation have raised a variety of health concerns—including allergies, kidney conditions and cancer—since the 1950s. Studies have consistently found no credible scientific support for these claims.[10] Committees of objective experts convened by the National Research Council have produced five reports about fluoride or fluoridation—three of them since 1993—and none of them expressed concern about the safety of fluoride in the concentration used for community water fluoridation.[11]

Internationally, reports issued in 2014 by expert panels in England and New Zealand reinforced the strong scientific consensus that fluoridation is both safe and effective.[12]

Second, Pew formed a coalition called the Campaign for Dental Health (CDH) that has grown to include more than 100 children's, medical, dental and community-focused organizations at the local, state and national levels that care about improving oral health. The CDH was created after Pew had lengthy discussions with four foundations—the Washington Dental Service Foundation (WDSF), the United Methodist Health Ministry Fund, The Health Trust and the Bower Foundation.

In 2009, Pew and these foundations sought an analysis of fluoridation by William Smith, a social marketing expert and the former executive vice president of the Academy for Educational Development. The following year, SalterMitchell Inc., a social marketing firm, conducted a communications scan to better understand how the topic was being framed in news stories and how it was being discussed online and in social media.

"Through the years, public health advocates have crafted good messages about fluoridation, and Pew has helped to refine and consolidate these messages for a lay audience."

The CDH has established a website (ilikemyteeth.org) that includes a blog, bilingual fact sheets and resources, and numerous pages that explain community water fluoridation in consumer-friendly, nonclinical terms. Smith and SalterMitchell advised the initial development of the website's content. Through the CDH, Pew has sponsored annual conferences that enable public health advocates and practitioners to share information and insights on fluoridation advocacy.

Advocates say the CDH's online presence has helped bring more balance to the web, a landscape that critics of fluoridation have long dominated.[13] Emily Firman, senior program officer with the WDSF, said the CDH website "has been instrumental in changing the conversation and not allowing the anti-fluoride groups to control the internet."[14]

"Through the years, public health advocates have crafted good messages about fluoridation, and Pew has helped to refine and consolidate these messages for a lay audience," said Firman. "Most importantly, the website that Pew launched is regularly updated to reflect new research and developments in fluoridation and oral health."

Jane McGinley, manager for fluoridation activities at the American Dental Association (ADA), cited the CDH's fact sheets and leaflets as some of "the best things that Pew has brought to this issue. I have had a number of our members tell us they found this website called 'I Like My Teeth' and downloaded materials that they used to educate their elected officials and communities about fluoridation."

Robin Miller, who works in Vermont's Office of Oral Health, said the CDH's web portal has filled a gap. "I always refer to the 'I Like My Teeth' website, and that's where we direct selectmen and other

officials who have questions about fluoride," she explained. "I like the plain language that the website uses to explain what fluoridation is and the evidence showing its benefits."[15]

Numerous advocates applauded the national network that Pew created. Judith Feinstein, who served as Maine's oral health director and was the longtime chair of the American Association of State and Territorial Dental Directors' Fluorides Committee, said the network that Pew formed is very important. "Through webinars and conferences, we have become better connected than we used to be," she said. "Pew provided the venture capital for this network."[16]

Shelly Gehshan, former project director for the Pew dental initiative, summed it up well: "The anti-fluoride activists were networked. Now, so are we."

Pew has also helped improve the climate for fluoridation by leveraging its relationships with news media. Talking with reporters, clarifying research and providing added perspective have helped to enhance the depth and accuracy of news articles about community water fluoridation.

"I have appreciated the way Pew has reached out to reporters, editorial writers and others in the media to share accurate information about fluoridation," said Laura Smith, WDSF's president and CEO. "Without that information, these stories could be written in ways that confuse or mislead readers. We have needed that kind of proactive media approach."[17]

Dr. William Bailey, a former Assistant Surgeon General and a professor at the University of Colorado School of Dental Medicine, said that Pew's involvement in fluoridation brought a credible voice to this arena. "There is a tendency for some people to distrust what they hear from government, but Pew has a strong reputation for being an independent analyst on issues, so having them enter this field has been very helpful," said Bailey.[18]

Pew's accomplishments were facilitated by the generous support offered by a number of foundations, including The Bower Foundation, California Dental Association Foundation, Delta Dental of Minnesota Foundation, DentaQuest Foundation, Kansas Health Foundation, New York State Health Foundation, United Methodist Health Ministry Fund, and Washington Dental Service Foundation. Foundations helped provide much of the fuel to support Pew's entry into this field. Moreover, some of these foundations shared valuable insights with Pew that were drawn from their own experiences of working to advance community water fluoridation.

## III. Building a national coalition

Pew established a diverse, national coalition in support of community water fluoridation—the Campaign for Dental Health (CDH)—with support from many key stakeholders from the dental, medical and children's advocacy communities. One of these stakeholders, the American Academy of Pediatrics, currently manages the CDH and its web portal (ilikemyteeth.org).

As part of this effort, Pew funded message testing and focus group research to gain a better understanding of the public's views of water fluoridation and to identify effective strategies for reaching key demographics in the fluoride debate. This research has greatly informed local campaign strategies and altered the manner in which pro-fluoride advocates discuss the issue of water fluoridation. (For example, advocates recognized the need to stress the consequences that tooth decay can have on children and adults.) In addition, the message-testing research was implemented in the second phase of the CDH's development, incorporated in its web content in late 2011 and continues to be rolled out through new online and social media engagement strategies.

> "There really wasn't a national message or national frame around this issue before Pew entered the field."

The work to advance oral health prevention for children is by no means finished, which is why Pew is collaborating and strategizing with diverse stakeholders to ensure the momentum continues at the state and federal level. As Pew winds down its state and local campaign work on fluoridation, these partners will continue to coordinate the movement that Pew helped to reinvigorate. The Children's Dental Health Project, one of more than 100 CDH partners, is providing technical assistance to state and local advocates who are fighting to preserve fluoridation policies.

The CDH's website and activities have served as a hub for oral health advocates around the country, enabling them to clarify the findings of newly released research and access easy-to-digest materials—including fact sheets and posters—that can be shared with elected officials and community organizations. A number of these materials are available in Spanish.

Hollis Russinof, a program manager for the Campaign for Dental Health at the American Academy of Pediatrics, said that Pew filled a gap. "There really wasn't a national message or national frame around this issue before Pew entered the field," she said. "They created the framework that helped to change the way we do this work."

In particular, Russinof praised Pew for engaging experts in social marketing who had experience developing award-winning anti-smoking campaigns that could help inform strategies for promoting fluoridation. After consulting with these experts, Pew took several steps, including:

- Connecting and convening oral health leaders and advocates throughout the country, both in online forums and through annual conferences.
- Creating a Rapid Response Team to alert public health activists who are willing to review online articles and, when appropriate, provide scientifically accurate comments about the benefits of water fluoridation.
- Launching the Fluoride Responders listserv where advocates share research and other information, advise one another on advocacy strategies, and collaborate on responses to anti-fluoride efforts.

"The Rapid Response Team was the most helpful thing that Pew created because it connected me with so many oral health advocates and experts who could brief me on new studies and offer other insights," said Dr. Johnny Johnson, a Florida dentist.[19]

## IV. Pew-assisted campaigns

This section reviews local, state or national campaigns in which Pew played a meaningful role, and provides an analysis of key factors that are believed to have shaped the outcome. Campaigns appear in chronological order, based on the date in which the policy change was adopted or rejected.

### **Arkansas** (March 2011)

Although oral health stakeholders in Arkansas had been working for many years to secure passage of a fluoridation law, the effort was reinvigorated in February 2010, when the Pew children's dental initiative released *The Cost of Delay*, a 50-state report that examined and graded dental policies. Arkansas received an F grade in Pew's report, and one of the eight criteria that shaped the state's grade was community water fluoridation. Pew's report noted that among Arkansans whose homes were served by public water systems, more than one in three residents lacked access to fluoridated water.[20]

State Senator David Johnson, the lead sponsor of the bill that became Act 197, told the *Arkansas Times* that Pew's report inspired him to make a fluoridation law one of his legislative priorities in 2011.[21] Soon after *The Cost of Delay* was released, Dr. Lynn Mouden, then the state's oral health director, spoke with Shelly Gehshan, former director of Pew's dental campaign. "I told Shelly, 'You need to help us change the grade,'" Dr. Mouden recalled. "That's where the conversation started, and some leaders in

the legislature vowed that we were not going to let Arkansas get another F."[22]

Oral health and children's advocates in Arkansas were pleased that the bill was drafted to promote health equity, expanding fluoridation to all water systems that served at least 5,000 residents. Unlike Nebraska's 2008 law, the measure that became law in Arkansas did not include an opt-out provision that would have allowed communities to avoid complying with the legislation.[23]

The political landscape looked daunting when the bill was introduced. Fort Smith, the state's second-largest city, lacked fluoridated water, and critics of fluoridation had convinced voters there to reject earlier proposals to initiate this widely endorsed health practice.[24] In 2005, the Arkansas Senate had approved a fluoridation bill, but the measure died in the state House.[25]

In addition, Sen. Johnson's fluoridation bill was introduced in February 2011—only weeks after federal health officials proposed an updated recommendation for the fluoride concentration that communities use for water fluoridation. Opponents seized on the federal recommendation to question fluoridation's safety, and these critics were quoted widely by news media.[26]

> "Arkansas stakeholders laid the groundwork, but Pew brought to the table their own public health understanding and knowledge."

Proponents had several factors working in their favor, however. First, they had gained strategic insights from trying to advance the legislation years earlier. Second, the state's Office of Oral Health had strengthened training for water personnel in fluoridation and had worked for 12 years to educate the public about fluoridation's role in cavity prevention.[27] Third, a strong coalition of diverse groups—formed in 2000—had remained intact and was able to mobilize support for a fluoridation bill by the time the legislature convened in January 2011. These stakeholders included Arkansas Children's Hospital, Arkansas Advocates for Children and Families, and the Arkansas State Dental Association.

Pew provided advocates with two forms of support that Mouden called "critical." First, Pew sponsored a public opinion survey of Arkansas voters that showed a strong majority supporting water fluoridation. Second, Pew provided funding for the advocates to hire an experienced government affairs firm that actively educated legislators about the bill that Sen. Johnson had drafted.[28] Pew staff also provided fact sheets and technical assistance.

Elisabeth Wright Burak, who then served as health policy director for Arkansas Advocates for Children and Families, said that retaining a government affairs firm was a critical ingredient in the bill's success. "The firm had established positive relationships with key legislators and helped carry our message," she stated. "Their assistance was crucial."[29]

**About 640,000 Arkansans will secure access to fluoridated water once the law is fully implemented. The statute applies to all community water systems that serve at least 5,000 residents.**

A major factor that facilitated passage of the bill was the pledge by Delta Dental of Arkansas Foundation to cover the capital costs—new equipment, for example—required for the 34 affected water systems to begin fluoridation.[30] Delta Dental's decision was significantly shaped by research confirming that fluoridated water saves money by reducing the need for fillings and other procedures to treat tooth decay.[31] Dr. Mouden said the foundation "showed great leadership" by making this financial investment.[32] Burak said this funding commitment was important because it "took a huge issue off the table for many legislators."[33]

The Arkansas Senate approved the fluoridation bill first, voting to support it by a decisive margin of 25-7. The House supported the measure in a 56-35 vote. In each chamber, the measure drew support from both Democrats and Republicans.[34] Governor Mike Beebe signed the bill into law in March 2011.

Referring to Sen. Johnson, Burak observed, "We had an unwavering, dedicated legislative champion. Some legislators will stay away from an issue like that because they think it might be divisive, but Senator David Johnson was willing to take this on because he knew it was the right thing to do."

"Pew played a big role in the passage of this law," said Dr. Mouden. "Arkansas stakeholders laid the groundwork, but Pew brought to the table their own public health understanding and knowledge. The Pew report card shined a new light on this topic, and their staff worked well with state and local stakeholders to help provide momentum for the bill that was signed into law."[35]

➤ **For more details on the Arkansas campaign and the key lessons learned, see the Appendix.**

### **San Jose, California** (November 2011)

Until November 2011, San Jose (population: 950,000) was the largest U.S. city without a policy ensuring that its residents had access to fluoridated drinking water. That month, the board of the Santa Clara Valley Water District (SCVWD) voted 7-0 to support a plan to fund fluoridation of the water it provides to San Jose residents.[37]

The board's vote followed a highly targeted campaign that engaged and educated key stakeholders—usually through face-to-face conversations. This campaign was spearheaded by The Health Trust, a nonprofit based in San Jose. Throughout the effort, the organization spoke with unique credibility because the nonprofit had invested nearly $9 million in improving the area's oral health.

The Health Trust educates local families about oral health through *promotoras*, who are trained community health workers, and it funds two dental clinics for low-income children. Indeed, the organization cited the treatments at these children's clinics—approximately 7,400 root canals and more than 4,500 tooth extractions—to highlight the community's serious oral health problems.[38] "It's always a challenge to put a face on the issue, and these statistics really helped us to do that," said Frederick J. Ferrer, The Health Trust's CEO.

**Frederick J. Ferrer, CEO of The Health Trust, met with and addressed a variety of stakeholders to raise awareness of San Jose's oral health problems.**

A 1995 California law requires public water systems with more than 10,000 customers to fluoridate their water. However, water agencies aren't required to pay for the costs of starting and maintaining fluoridation. Although water systems must fluoridate if a community or foundation provides the funding, the SCVWD was exempted because it is a wholesaler that provides water to cities and large companies, not directly to homes. For this reason, the San Jose campaign focused on two challenges: building the community support and securing the funding.

The Health Trust launched a multiyear dialogue about oral health with key civic and community groups—a process that helped to build a diverse coalition in support of fluoridation. These conversations helped inoculate public officials and stakeholders against the inaccurate, misleading or irrelevant information that critics circulate. Pew provided The Health Trust with funding to create a communications and social marketing strategy for the fluoridation campaign. Some of the funding enabled the campaign to use consumer research on the public's knowledge about oral health and its reaction to messages about fluoridation.

The Health Trust had color-coded maps created that indicated which areas of Santa Clara County were fluoridated and which were not. Ferrer made this map a key visual in many of his presentations. "If you looked at where we had fluoridated water, it was in Los Altos Hills, Palo Alto, Mountain View

and other wealthy communities where a lot of high-income tech executives lived," said Ferrer. "For us, creating this map was a graphic way to quickly present the social justice issue."[39]

One of The Health Trust's allies—PACT San Jose (People Acting in Community Together)—stressed this concern about unequal access to decay prevention. PACT decried the fact that many low-income San Jose residents "are being denied access to very basic health protections that are available to residents" of more affluent communities within Santa Clara County.[40]

The Health Trust secured other key partners to support fluoridation, including the Silicon Valley Leadership Group.[41] Founded by David Packard of Hewlett-Packard, the group represents nearly 400 technology-related employers in Silicon Valley on issues affecting advocacy, business climate, and quality of life issues.[42]

Ferrer said that Pew's support was an essential ingredient in the campaign's success. "My ability to attend several meetings at the national level and get connected with experts at the national level was crucial," he said. "That helped us figure out the pitfalls to avoid and how to frame our campaign. A social marketing firm helped us to localize the work it had done with Pew on the national level."

> "It's always a challenge to put a face on the issue, and these statistics really helped us to do that."

In the end, funding was the major hurdle for fluoridation advocates. Although the annual costs of maintaining fluoridation in the water district were estimated at only 48 cents per resident, the initial expense to install equipment at three treatment plants was projected at $6.6 million. In 2011, not long before the SCVWD was set to vote on fluoridation, its chairman told a local newspaper that the biggest obstacle was "to figure out how to pay for it" because the water district is facing "huge bills" to retrofit dams and upgrade its facilities.[43]

In addition to identifying funding sources, The Health Trust built positive relationships with the press that helped to encourage a pro-fluoridation editorial in the *San Jose Mercury News*. "The media can be your friend if you have a progressive editorial board that understands and respects science," said Ferrer. "We were fortunate to have a newspaper like that."

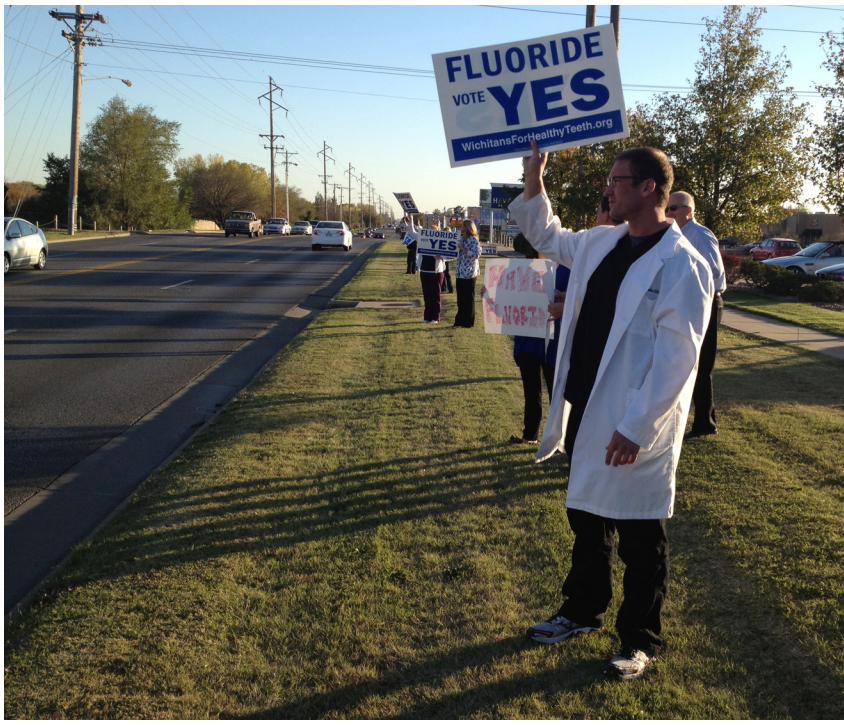
Throughout its campaign, The Health Trust built a close relationship with the Santa Clara County Health Officer. Its efforts were also supported by the California Dental Association Foundation, local dental and dental hygiene societies, and FIRST 5 of Santa Clara County—a group that provides education and other resources to help parents of children ages 0-5. In December 2012, the SCVWD's board voted to seek a funding agreement in which foundations and nonprofits would provide approximately 35 percent of the $6.6 million required to install fluoridation equipment.[44] The wholesale water system should begin fluoridation in 2017 for eastern Santa Clara County and three years later in the county's western part.

➤ **For more details on the San Jose campaign and the key lessons learned, see the Appendix.**

## **Wichita, Kansas** (November 2012)

With a population of more than 385,000, Wichita is one of the largest U.S. cities without a program for community water fluoridation. City voters rejected fluoridation proposals in 1964 and 1978. Advocates began organizing in 2011 to start fluoridating the city's water system and formed a coalition called Wichitans for Healthy Teeth (WHT), which was chaired by Dr. Sara Meng, a pediatric dentist.[45]

Health professionals were the face of WHT. As *The Wichita Eagle* explained, a "broad coalition of local doctors and dentists" collected more than 11,000 signatures on petitions urging the city council to adopt a fluoridation policy. Instead, the council decided unanimously to refer the issue to Wichita voters.[46]




**Health professionals spearheaded the efforts of Wichitans for Healthy Teeth, the coalition that led the campaign in support of community water fluoridation.**

Several Kansas-based foundations worked with Pew to educate the public. Pew assisted WHT by funding public survey research, radio and newspaper advertisements, and in-kind support, which included the brief deployment of Pew staff to Wichita. For example, Dr. William Maas, a Pew consultant who is a former director of the CDC's Division of Oral Health, spent nearly a week in Wichita, speaking with local officials, briefing leaders of the pro-fluoridation coalition, participating in broadcast interviews and meeting with the editorial board of *The Eagle*.

A grassroots organizer was hired to plan and coordinate WHT's outreach. The coalition's efforts were aided by pro-fluoridation resolutions that were adopted by local officials in Derby and Eastborough—two communities whose water is provided by the Wichita water system.[47]

Opponents were bolstered by the Kansas Republican Assembly (KRA), a self-identified Tea Party group that played a leading role in organizing opposition to fluoridation. WHT was unable to secure active support from key business leaders, whose influence and opinions carry significant weight in the city.[48]

The KRA and a group called Fluoride Free Kansas criticized the projected cost of fluoridation, and WHT struggled to identify private organizations or charities that would help cover the initial capital expenses.[49] The Kansas-based United Methodist Health Ministry Fund pledged support for the effort, but Kim Moore, the fund's president, noted that the reluctance of others to publicly commit to a contribution hurt the pro-fluoridation campaign.

"Some of the people who were willing to privately support fluoridation would not publicly put their name behind it or make a firm commitment to helping to fund the capital costs," Moore said. "When we were talking to the media, we couldn't use the names of key people and key organizations, and that was a lost opportunity to lend credibility to the effort."[50]

A few months before the referendum, fluoridation critics in Wichita seized on a research article that reviewed studies—mostly from China—exploring possible links between fluoride and IQ scores in children. A reporter for *The Eagle* contacted two of the article's co-authors and then wrote a news story explaining that two of the scientists who co-authored the article "said it really doesn't address the safety of fluoridation levels typical of American drinking water." In addition, the newspaper added that in one of the Chinese studies, the local well water contained 10 times the concentration of fluoride that would be used in Wichita.[51]

> "We did not create the kind of broad, diverse local coalition that we needed to."

Despite the newspaper's clarification, opponents continued to assert that fluoridation would harm children. In the November 2012 election, 60 percent of the city's voters rejected water fluoridation.[52] The outcome reflected the pro-fluoridation campaign's difficulty in identifying influential supporters in the city's low-income neighborhoods.

"There were a lot of dentists and physicians who spoke out. They were helpful, but that only took us so far," said Chris Power, the Kansas Health Foundation's vice president for administration. "We did not create the kind of broad, diverse local coalition that we needed to. People trust the people they know and see every day—their neighbors, their co-workers. We never really took our campaign to that neighborhood level."[53]

Even after Wichita voters rejected fluoridation, the KRA continued its activism in several ways, including drafting anti-fluoride proposals for the 2013 legislative session and screening a documentary called *Fluoridegate*.[54] Still, in 2014, the KRA failed in its attempt to pass House Bill 2372, which would have required a warning label to be placed on consumer water bills in fluoridated communities. Later that same year, the KRA's president lent his support to a referendum in the city of Salina to end water fluoridation; voters there decided to preserve fluoridation.[55]

Power said, "We were obviously disappointed about the setback in Wichita, but we still came out of that with a better understanding of the dynamics that drive how the public reacts to this issue. It has put us in a better position today."

➤ **For more details on the Wichita campaign and the key lessons learned, see the Appendix.**

## **U.S. Department of Defense** (March 2013)

At the onset of U.S. involvement in World War II, our armed forces discovered how dental disease could impact military readiness. During a 10-month period that ended shortly before the Japanese attacked U.S. forces at Pearl Harbor, the U.S. Army had to disqualify roughly one in 11 inductees because they had too few teeth. According to Army records, the number of inductees disqualified for this reason "far exceeded all expectations."[56] Fluoridation began in 1945 in the U.S., just a few months before the war concluded.

For many years, the U.S. Department of Defense (DOD) had instructed military bases to provide fluoridated water if their water treatment facility served more than 3,300 personnel. However, in the years after the Pentagon initially adopted its policy, the DOD had reorganized and begun allowing water services and other utilities to be contracted out to private firms. By 2009, some military health officials began wondering if compliance had slipped. Many of these civilian water plant operators, it was believed, were not aware of the fluoridation requirement.[57]

**The Defense Department's 2013 directive will ensure that roughly 125,000 active-duty personnel and their dependents gain access to fluoridated water.**

At the 2009 National Oral Health Conference, Col. Gary C. Martin, senior military dental consultant to the assistant secretary of defense for health affairs, met Pew's Shelly Gehshan at a breakfast meeting. The two discussed Col. Martin's concern that some military bases might not be providing fluoridated water. This conversation led to an agreement that Pew would conduct an assessment of water supplied to bases.

Since the push for a reaffirmation of fluoridation had to happen within DOD, Pew contributed research that established the need to act. The charge was to determine how many bases were operating their own water systems, how many were purchasing water from nearby communities, and how many were providing water with an optimal concentration of fluoride. Within two months, Pew's assessment had identified 210 water systems operated by DOD on 158 military installations and obtained the consumer confidence reports (CCRs) for 189 of these systems. CCRs—also known as water quality reports—are required to be sent annually by public water systems to their customers, identifying the sources used for drinking water and indicating whether the system complies with federal drinking water standards.[58] Although many CCRs were posted on websites, some of them weren't easily found, and Pew's research contractor had to place a number of phone calls to acquire these documents.

All of the data obtained through this assessment was recorded on a comprehensive spreadsheet that

Pew shared with Col. Martin. The assessment revealed that 175 military-operated water systems were fluoridating at optimal levels, but 14 systems were not doing so. These 14 non-fluoridated water systems were serving an estimated 125,000 active-duty personnel and their dependents.

An earlier DOD directive required Defense Department officials to support the nation's Healthy People goals and objectives—one of which, Col. Martin reminded his military colleagues, endorses community water fluoridation.[60] Pew's assessment proved to be critical in helping Col. Martin point to the need for a directive reaffirming the DOD's fluoridation policy, which was issued in March 2013.[61]

"The fact that this analysis was independently done gave these findings a lot of weight," said Col. Martin. "It was very valuable data to have. It was great to find an outside organization with the expertise and interest that was willing to play this kind of role."[62]

➤ **For more details on the DOD initiative and the key lessons learned, see the Appendix.**

### **Portland, Oregon** (May 2013)

Oregon and its largest city have a long history of electoral activism around community water fluoridation. Portland voters rejected fluoridation in 1956 during an era when the issue sparked references to communism and conspiracy. A similar referendum failed in 1962.[63] In 1976, a majority of Oregon voters rejected Measure 11, a ballot initiative that would have made it illegal for a city or locality "to add fluoride or fluorine-containing compounds to any community water supply system."[64] In 1978, Portland voters approved a fluoridation program, but two years later—before the program had actually started—voters changed course and voted against fluoridation.[65]

The most recent Portland campaign was actually *two* campaigns—one that preceded the city council's September 2012 vote on a proposal to fluoridate the local water system, and a second campaign that led to a public referendum in May 2013. The first campaign began in early 2012, coordinated by Upstream Public Health, a local organization that advances solutions "backed by science and research" and moves them "into the mainstream dialogue" to create momentum for change.[66]

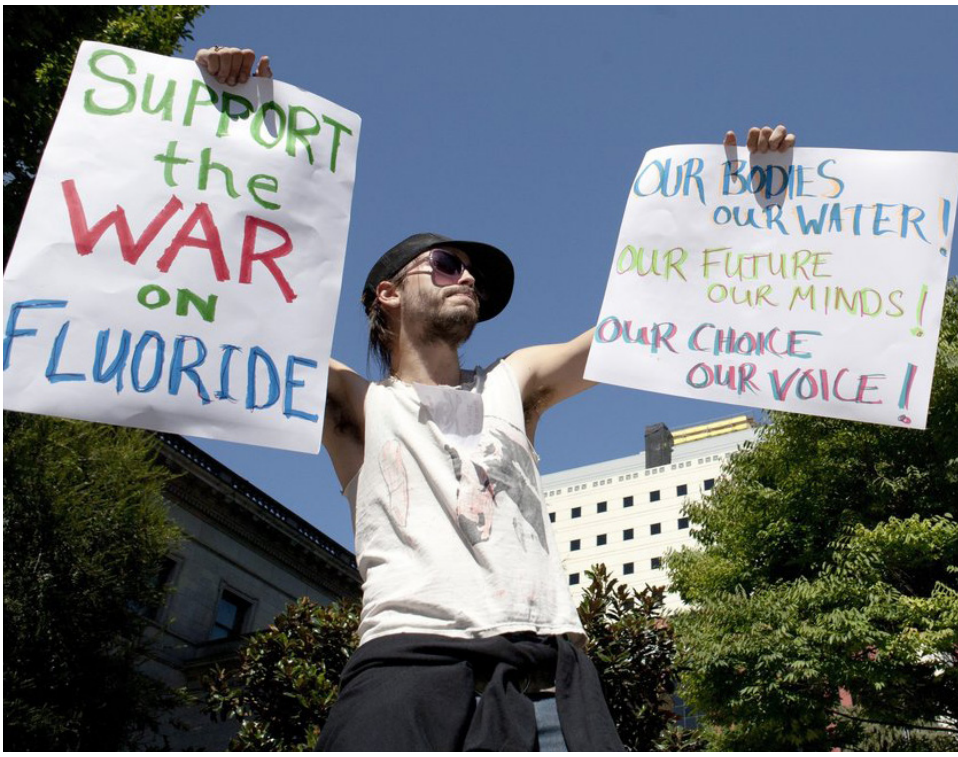
To build this consensus, Upstream formed a diverse coalition of Portland organizations called Healthy Kids, Healthy Portland (HKHP). The coalition included the African Women's Coalition, the Asian Pacific American Network of Oregon, Familias en Acción, Kaiser Permanente Northwest, Lutheran Community Services and the Oregon Business Association.[67] HKHP's core message was that Portland was "in an oral health crisis" that affects all citizen residents.[68]

Pew provided funding to support HKHP's efforts to build the coalition, facilitate communications strategies, fund public survey research, and hire both a campaign manager and a government relations specialist. (During the voter referendum campaign that followed the council's decision, Pew's assistance focused on in-kind support, such as allowing several staff to be deployed for brief periods in Portland, providing advice and recommendations.)

HKHP's lengthy conversations with Portland City Council members—backed by the data it shared—bore fruit in September 2012, when the council voted unanimously to fluoridate the local water

system.[69] The vote came soon after a seven-hour public meeting in which the council heard from both supporters and opponents of the proposal.

The city council's 5-0 vote galvanized fluoridation critics, who launched a grassroots campaign to collect enough signatures to force a public referendum. The petition effort was buoyed by the perception that council members had acted hastily and not allowed for lengthy public debate. A Portland indie rock band organized a concert to benefit the petition drive, and one of the band's leaders shared a sentiment that seemed to speak for many. "Though I personally may be against putting fluoride in the water, I organized this event to protect democracy on a bigger scale. There are a lot of pro-fluoride people signing the petition to get the referendum [who] believe we should vote on something like this."[70]




**The Portland City Council's 5-0 vote galvanized fluoridation critics, who launched a petition campaign to force a public referendum.**

Pew's post-campaign analysis—produced after interviewing local stakeholders—concluded that many residents did not "feel like their community made the choice," either through a public vote or a council decision that followed lengthy public discussion.[71] As *The Oregonian* reported, "Some critics complained that the city council essentially reached a decision before citizens had a chance to weigh in."[72]

The "anti-democratic" message aided signature-gathering efforts that were coordinated by a group called Clean Water Portland. A few months later, HKHP leaders were surprised when opponents submitted over 33,000 valid petition signatures—more than 70 percent above the number required to force a referendum.[73]

Having expected the city council's vote to be the last word, HKHP scrambled to assemble the ingredients needed for a grassroots, referendum-focused campaign, as the public vote was scheduled for only eight months after the council's decision. Until the final month of the referendum campaign, HKHP lacked a full-time communications manager to manage media requests, brief its public spokespersons and handle other tasks.[74] HKHP also struggled to get volunteers for canvassing or other activities. HKHP launched a "friends and family" initiative that encouraged supporters to send personal emails about why they supported water fluoridation, but the program wasn't launched until the final four weeks before the public voted.[75]

Although HKHP had built a coalition of nearly 100 local groups, Dr. Kurt Ferre, a local dentist, noted that "this didn't translate into a huge block of campaign foot soldiers." For this reason, HKHP was unable to achieve its goal of contacting 30,000 registered voters to assess whether they supported or opposed fluoridation.[76] "It was a grass tops campaign, not a grass roots campaign," said Dr. Ferre."[77]

By contrast, passion fueled opponents' organizing efforts. "The pro-fluoridation Healthy Kids, Healthy Portland simply seems to have been out-organized," the online magazine Slate observed weeks before the votes were counted. The coalition's approach, wrote Slate, was too wonky: "They've brought policy papers to a gun fight."[78]

> "In February, roughly three months before the referendum, a public opinion poll commissioned by HKHP showed that 54 percent of voters backed fluoridation."

Local oral health advocates generally concurred with this assessment, and several of them referred to the "passion gap" that persisted during the campaign. A Pew consultant who had met with Portland stakeholders said that "the new media give passion an inordinate amount of power," which is why closing the passion gap should be a priority for oral health advocates. "It is a question of adding outrage and anger to our existing kit of science and truth," he said.[79] This was echoed by Felisa Hagins, political director of one of Portland's largest employee unions, who said the HKHP coalition's approach was "a little too nice."[80] Dr. Ferre observed that while the leadership of the state and county dental societies vocally supported HKHP's efforts, most rank-and-file dentists were not involved in the campaign.

Although nearly every public opinion poll showed majority support for fluoridation in Portland, that support never reached 60 percent, which is widely considered the threshold required for a ballot measure to have a reasonable chance of prevailing.[81] In February, roughly three months before the referendum, a public opinion poll commissioned by HKHP showed that 54 percent of voters backed fluoridation, while 42 percent opposed the health practice.[82]

In the weeks between this survey and the actual vote, two media stories might have undercut public support for fluoridation. First, a draft report on oral health was shared with the state's largest newspaper, showing a drop in the percentages of Oregon children with at least one cavity and with untreated tooth decay. Although the progress in Multnomah County (Portland) trailed the statewide improvement, fluoridation critics capitalized on headlines that downplayed concerns about children's oral health.[83] Second, Portland's water utility proposed an increase of nearly 8 percent in water rates for the next fiscal year.[84] The requested rate hike was unrelated to fluoridation, but some voters might have connected the proposed increase to the ballot measure.

When the final vote was counted, the fluoridation initiative was rejected by a 60-to-40 percent margin.[85] Although fluoridation ultimately was endorsed by every Portland-area newspaper that took a public position, proponents couldn't overcome the seeds of fear and doubt that opponents had planted.[86] Voter turnout was higher than typical for a local special election, but it was significantly lower than the 82 percent of county voters who cast ballots in the 2012 general election.[87]

Today, Portland's 610,000 residents and an additional 290,000 people served by the city's water system continue to lack access to fluoridated water. It is the largest U.S. city that has not approved a policy to implement this health practice.

➤ **For more details on the Portland campaign and the key lessons learned, see the Appendix.**

# V. The best offense is a good defense

Initially, Pew's work concentrated on assisting state or local advocates to pass fluoridation policies. In 2011, three years into its work, Pew expanded its role by providing technical assistance to advocates who were facing "rollback" attempts—efforts by critics to end long-standing state or local fluoridation programs.

This strategic decision reflected Pew's recognition that rollbacks of existing policies are both a setback for public health and a factor that can undermine efforts to expand fluoridation to new communities. For instance, several months before the Portland fluoridation campaign was launched, critics rescinded a fluoridation policy in Philomath, a town 90 miles south of Portland. Although this rollback attempt was later reversed, the challenge it presented could have undercut the Portland effort. This dynamic plays out across the country because a successful rollback can embolden opponents and make it harder to maintain the momentum behind fluoridation.

Working to defeat rollback attempts has also helped build a base of dedicated, educated advocates who can work to both preserve and advance fluoridation.

Over a three-year period, Pew consulted with advocates in dozens of communities who were fighting to defend local fluoridation policies against attacks. Most of these policies were preserved. Matt Crespin, associate director of the Children's Health Alliance of Wisconsin, said Pew's assistance aided a local coalition's efforts to preserve Milwaukee's fluoridation policy in 2012. "It was helpful to have people at Pew who could give us an idea of what to expect and how to handle each of the anti-fluoride arguments," Crespin said.[88]

Columbia, Mo., Bradford, Vt. and Pinellas County, Fla., are among numerous other communities in which fluoridation was successfully defended or reinstated with Pew's assistance. In fact, since 2011, Pew has assisted more than 40 communities in defeating rollback attempts, effectively protecting water fluoridation for more than 5 million people.

Lori Henderson, a pediatric dentist in Columbia, called Pew's assistance vital in the successful defense of the city's fluoridation policy. "The fact sheets and other materials were very helpful, but the conversation and strategizing were the most important to me," she said. "I relied on Pew staff for helping me think more deeply about how to approach the situation and focus on the right things."[89]

> "It was helpful to have people at Pew who could give us an idea of what to expect and how to handle each of the anti-fluoride arguments."

Johnny Johnson, a pediatric dentist in Pinellas County, welcomed Pew's help as he and other stakeholders worked to reinstate fluoridation. "Pew sent a letter to the county board of commissioners that outlined the science behind fluoridation, and it was extremely helpful," he said.

Even public health officials and advocates who have *not* sought Pew's technical assistance in rollback attempts have benefited from the institution's engagement on this issue. From the Iowa Public Health Association to the Board of Health of Reading, Pennsylvania, a number of stakeholders have cited Pew's support for fluoridation—and its reports, web content and infographics—to educate the public and uphold local policies. In doing so, these health advocates have recognized Pew's reputation for high-quality research and analysis.[90]

## VI. Other innovative policy solutions

Besides supporting state and local campaigns to expand fluoridation, Pew has advocated for new policy solutions that advance and protect community water fluoridation through nontraditional means.

In 2009, Mississippi amended an existing funding stream for water projects, the Drinking Water Revolving Loan Fund (DWRLF), to provide financial assistance to communities in the state to add fluoride to their water systems. The fund, established by the Safe Drinking Water Act Amendments of 1996, provides low-interest loans and technical assistance to public water systems to comply with

federal and state drinking water regulations.[91] Once eligibility for this assistance was enacted in Mississippi, Pew helped to educate communities about the opportunity to apply for a loan to create or update their fluoridation systems.

Learning from Mississippi's example, Pew worked with state agencies and local advocates in Colorado and Louisiana to create similar opportunities for communities to fluoridate their water systems as part of the DWRLF. Specifically, Pew advocated for a policy change that allows communities in Louisiana and Colorado to include fluoridation equipment as part of their "intended use plan" for the loan. If a community includes such equipment, it will receive additional points on the application and increase the likelihood that its project will receive funding through the DWRLF.

Following the change to the loan fund in Louisiana, Pew partnered with the Louisiana Rural Water Association to hold local educational meetings with water operators and engineers to increase awareness of the potential fluoridation funding.

In New York, Pew successfully advised the Schuyler Center for Analysis and Advocacy (SCAA) on legislative options for preserving and expanding community water fluoridation. SCAA drafted language—known as the Healthy Teeth Amendment—that was included in the New York state budget and passed by the legislature on March 31, 2015. The language requires a city council or other local body in a fluoridated community to:

- notify local residents at least 90 days before taking a final vote on whether to cease fluoridation;
- identify the health professionals with which it has consulted; and
- specify the alternatives to fluoridation, if any, "that will be made available in the community" if fluoridation is ended.

In addition, the budget language establishes a $5 million grant fund to facilitate equipment purchases, upgrades or other infrastructure costs for initiating or maintaining fluoridation of a local water system.

Pew also worked with SCAA to expand the New York State Oral Health Coalition's membership and engagement. Pew developed a campaign plan that included communications strategy, objectives, timelines, and anticipated obstacles, as well as providing a compendium of materials, including a series of issue briefs outlining the state's oral health challenges and the effectiveness of several prevention strategies. Pew provided New York organizations with training in social media, media relations and developing messaging around community water fluoridation.

# VII. Final thoughts

Interview subjects agreed that fluoridation advocacy at the state or local level must be approached as a political campaign, including slow and carefully planned education and community organizing, communications training and assistance, coalition-building, direct advocacy, and other activities that are part of these efforts.

The Health Trust's Ferrer stressed the importance of allowing ample time for planning and executing the early steps of a local campaign.

"It takes 10 times longer than you think it should to carry out a campaign like this," said Ferrer. "There is a phase where you are gathering the data to help make your case. There is a phase where you are building your coalition. There are other important phases, too. None of them is easy to do. It takes a plan, and it takes discipline to accomplish this. There are no shortcuts."

WDSF's Firman said that experienced advocates should offer guidance to others on effective strategies to expand or preserve fluoridation. "We should be willing to identify best practices and not let local people go into battle without this guidance," said Firman. "Instead of just saying, 'All campaigns are different,' we need to show some leadership. We know there are certain strategies that are important, such as building a coalition that reaches outside of oral health. Let's not be shy about sharing these strategies."

"Whenever you learn there is even a slight possibility that fluoridation could be in jeopardy, don't take it lightly."

Citing his own experience in Wisconsin, Crespin urged health organizations not to assume their local fluoridation policies are safe. "Whenever you learn there is even a slight possibility that fluoridation could be in jeopardy, don't take it lightly," he advised. "When the initial attacks were heard in Milwaukee, many of us told ourselves, 'This is never going to happen.' But, suddenly, we found ourselves in a real battle."

Oral health professionals and advocates strongly agreed that promoting fluoridation takes more than simply circulating research and statistics. The science firmly supports fluoridation, but, as the Kansas Health Foundation's Power observed, this knowledge "can lead advocates to get overconfident and underestimate the opposition. The opponents have an easy road to travel. All they have to do is to raise some doubts; they don't have to prove anything."

# VIII. The Path Forward

The individuals who were interviewed for this report identified a variety of ongoing challenges that fluoridation advocates need to address. The following challenges were among those most frequently cited:

- **Convening meetings to share insights and ideas.** Nearly all of the stakeholders called it a priority to maintain and build the national coalition—the Campaign for Dental Health (CDH). The meeting of health and children's advocates that Pew co-hosted with CDH in 2013 and 2014 was also cited as an important activity. "That meeting recharges you and keeps you abreast of what's happening," said Ferrer.
- **Coalition-building.** Expanding the pro-fluoride coalition to include more organizations representing people of color is necessary for ensuring access to water fluoridation. Pew's current project to translate pro-fluoride education materials into Spanish and test effective fluoridation messages with Latino Americans is an important step toward engaging this community around oral health in general and, more specifically, the benefits of fluoridation. Moreover, because critics of fluoridation have targeted misleading messages to African Americans, efforts to address the needs and concerns of that community are also crucial.
- **Online and social media presence.** Most of those interviewed pointed to the growing importance of the Internet and social media as sources for health information, especially for millennials. Critics of fluoridation were quicker to tap the potential of these vehicles for shaping public attitudes. An analysis published in 2014 shows that the leading anti-fluoride website received five times as many page views as the CDC's fluoridation pages. AAP's Russinof said the web is "a powerful platform" for advocacy. "We all had a steep learning curve, and we learn more every day about how to operate more effectively in that arena," she said. "We've made strides, but we have to build on that."
- **Post-campaign assessments.** A number of those interviewed said that one of the things they've appreciated most about the CDH's annual meetings is hearing directly from people who have coordinated recent fluoridation campaigns. The insights and analysis, interviewees felt, strengthened their own ability to advocate by incorporating new strategies and tactics. Interviewees urged these assessments to continue through both webinars and on-site meetings.
- **Fluoridation costs.** Although water fluoridation is the least expensive way to provide fluoride's benefits to an entire community, the initial capital expenditures can sometimes discourage or delay a town's decision to initiate this health practice. Some interviewees called on the CDH to help develop new funding strategies, including helping to identify foundations that are willing to fund these capital costs or provide other forms of support.

- **Training needs.** Many of those interviewed said it should be a priority to train more health professionals and community activists to both understand the science behind fluoridation and to communicate effectively to lay audiences. Dr. Johnson called the funding of advocacy training "the greatest challenge" for those seeking to preserve fluoridation. "The training presentations that Pew has hosted or co-sponsored have filled a real gap that previously existed," he said.
- **Outreach to water system personnel.** Pew, CDH and others have begun building positive relationships with water operators and engineers, but these nascent efforts must continue. Critics of fluoridation send emails to water-system employees that typically include inaccurate or misleading information. "We need to improve our relationships with water operators," said The Health Trust's Ferrer. "They don't think like people in the public health world think, and we need to take that into account."
- **Research findings.** Although fluoridation is supported by many decades of studies and analyses, several people interviewed for this report encouraged continued research to monitor the impact of this health practice. Stakeholders felt more studies should be encouraged to confirm fluoridation's impact on Medicaid programs—in reducing both tooth decay and its treatment costs. Stakeholders were pleased to know that Pew is funding a project to examine the cost savings of fluoridation.

# Appendix: Campaigns to Initiate or Reaffirm Water Fluoridation

| | |
|---|---|
| **Overarching lessons** | ➤ Don't assume that "sharing the science" behind fluoridation will ensure a campaign's success. It's important to connect the scientific evidence to a community's values.<br>➤ Monitor traditional media and social media. Many attacks on local fluoridation policies initially appear as Facebook pages or manifest themselves through a series of anti-fluoride letters to the editor.<br>➤ Identify individuals who can be effective, passionate public spokespersons and tap into the community's values.<br>➤ Recognize that every campaign is comprised of different phases requiring careful planning and execution. No campaign to initiate fluoridation should be undertaken without allowing ample time for coalition-building, fundraising and the other critical phases.<br>➤ Ensure that campaign roles are appropriately aligned with individuals' skills and knowledge. A particular dentist might be a great choice to brief the campaign on new or existing studies, as well as to review content for scientific accuracy. But this same dentist might not be the ideal spokesperson to engage in media interviews. |

| City / state | Type of campaign | Estimated number of people affected[a] | Key lessons that emerged |
|---|---|---|---|
| **Arkansas** | State legislature | 640,000 | ➤ Identify a highly respected and committed legislator as the bill's chief sponsor.<br>➤ Cite a negative health ranking or report card to instill a sense of urgency, rally supporters and build momentum.<br>➤ Seek and secure funding sources to defray the capital costs of initiating fluoridation.<br>➤ Consider hiring a government affairs firm that has good relationships with legislators of both major parties.<br>➤ Build a strong, diverse coalition of stakeholders to strengthen advocacy efforts. |
| **San Jose, CA** | Local water board vote | 285,000 | ➤ Inform public officials and key stakeholders of the typical arguments that critics use so they are "inoculated" and are far less susceptible to the myths that they will hear as the public dialogue intensifies.<br>➤ Communicate the need for fluoridation in ways that connect with residents' values, such as the "social justice" impact of fluoridation.<br>➤ Allow ample time for key pre-campaign activities, such as meeting with potential partners and choosing the best data for illustrating the community's oral health challenges. |
| **Wichita, KS** | Public referendum | 450,000 | ➤ Don't over-rely on health professionals as spokespersons. Identify parents, teachers, civic leaders, business leaders and other nontraditional stakeholders who can help deliver key messages to target audiences.<br>➤ Reach an understanding on funding commitments or vehicles before moving into a public referendum.<br>➤ Ensure that the campaign's structure and governance enable it to be nimble and to direct funding or resources where they are needed without delay. |

| | | | |
|---|---|---|---|
| **U.S. Department of Defense** (DOD) | Memorandum from senior DOD official | 125,000[b] | ➤ Recognize the important role that data can play in helping to establish the need for policy action or reaffirmation.<br>➤ Connect the importance of oral health and fluoridation's benefits for adults to the organization's mission—in this case, military readiness. |
| **Portland, OR** | City council; Public referendum | 900,000 | ➤ Set 60 percent support (in public opinion surveys) as a minimum threshold before proceeding with a fluoridation campaign that could go to a referendum. This threshold recognizes that support tends to erode for virtually all ballot proposals—regardless of the issue—in the months leading up to Election Day.<br>➤ Lay the groundwork for a "flip the switch" grassroots field operation if there's a chance that the fluoridation proposal could be referred to voters.<br>➤ Use data to demonstrate the need for cavity prevention and consider carefully whether "crisis" or similar terms are accurate ways to describe the community's challenge.<br>➤ Consider citing one or two glaring examples of deceptive messages to illustrate why opponents lack credibility. |

a. The number of people affected by fluoridation decisions in a community is often different from the jurisdiction's population. In many cases, the affected population is larger because many community water systems have contracts to provide drinking water to adjacent communities.

b. This includes active-duty personnel and their dependents.

# Endnotes


1 "Fluoridation Basics, Centers for Disease Control and Prevention, July 25, 2013, http://www.cdc.gov/fluoridation/basics/index.htm;and "2012 Water Fluoridation Statistics," Centers for Disease Control and Prevention, updated Nov. 22, 2013, http://www.cdc.gov/fluoridation/statistics/2012stats.htm

2 The precise percentage is 74.6 percent. See: "2012 Water Fluoridation Statistics."

3 In 2012, the last year in which a comprehensive census of water systems was taken, approximately 210 million Americans had access to fluoridated water. In 2010 and 2008, these numbers were 204 million and 196 million. In 2000, the number of Americans with access to fluoridated water was about 162 million. See: "Reference Statistics on Water Fluoridation Status," Centers for Disease Control and Prevention, updated Nov. 22, 2013, http://www.cdc.gov/fluoridation/statistics/reference_stats.htm.

4 "Fluoridation Basics."

5 "Preventing Dental Caries: Community Water Fluoridation," U.S. Community Preventive Services Task Force, April 2013, http://www.thecommunityguide.org/oral/fluoridation.html.

6 Healthy People 2020, "Oral Health Interventions," OH-13, http://www.healthypeople.gov/2020/topics-objectives/topic/oral-health/objectives.

7 "Preventing Dental Caries: Community Water Fluoridation,"

8 "Fluoridation Basics."

9 "FAQs for Dental Fluorosis," Centers for Disease Control and Prevention, July 10, 2013, http://www.cdc.gov/fluoridation/safety/dental_fluorosis.htm

10 Cancer, kidney ailments and diseases of the circulatory system are examples. For more information, see: Kenneth R. Elwell and Kenneth A. Easlick, "Classification and Appraisal of Objections to Fluoridation," University of Michigan School of Public Health (1960), Ann Arbor, Michigan.

11 "National Academy of Sciences on Fluoride in Drinking Water," Centers for Disease Control and Prevention, July 10, 2013, http://www.cdc.gov/fluoridation/safety/nas.htm.

12 "Water fluoridation: Health monitoring report for England 2014," Public Health England, March 2014, http://www.dentalwatch.org/fl/england.pdf; and "Health effects of water fluoridation: A review of the scientific evidence," Royal Society of New Zealand & Office of the Prime Minister's Chief Science Advisor, August 2014, http://assets.royalsociety.org.nz/media/2014/08/Health-effects-of-water-fluoridation_Aug_2014_corrected_Jan_2015.pdf.

13 Aaron Mertz and Myron Allukian, "Community water fluoridation on the Internet and social media," *Journal of the Massachusetts Dental Society*, Summer 2014, 63, no. 2, 32–36, http://www.ncbi.nlm.nih.gov/pubmed/25230407.

14 Phone interview with Emily Firman, senior program officer at the Washington Dental Service Foundation, Nov. 3, 2014.

15 Phone interview with Robin Miller, Vermont oral health official, Nov. 10, 2014.

16 Phone interview with Judith Feinstein, former ASTDD committee chair, Oct. 31, 2014

17 Phone interview with Laura Smith, president & CEO of the Washington Dental Service Foundation, Nov. 3, 2014.

18 Phone interview with William Bailey, former Assistant Surgeon General, Dec. 22, 2014.

19 Phone interview with Johnny Johnson, Florida pediatric dentist, Nov. 3, 2014.

20 "2010 Water Fluoridation Statistics," Centers for Disease Control and Prevention, May 11, 2011, http://www.cdc.gov/fluoridation/statistics/2010stats.htm.

21 Doug Smith, "The fluoride is coming," *Arkansas Times*, Nov. 23, 2011, http://www.arktimes.com/arkansas/the-fluoride-is-coming/Content?oid=1951470; and *The Cost of Delay: State Dental Policies Fail One in Five Children*, The Pew Charitable Trusts, February 2010, http://www.pewtrusts.org/en/research-and-analysis/reports/0001/01/01/the-cost-of-delay.

22 Phone interview with Lynn Mouden, former oral health director at the Arkansas Department of Health, Nov. 4, 2014.

23 The text of the Nebraska law can be accessed at http://fluidlaw.org/policy/nebraska-statute; the text of Arkansas S.B. 39 of 2011, "An Act to Provide for Certain Water Systems to Maintain a Level of Fluoride to Prevent Tooth Decay," at http://www.arkleg.state.ar.us/assembly/2011/2011R/Bills/SB359.pdf.

24 Chad Hunter, "Fort Smith to Fluoridate Drinking Water," *The Times Record*, Aug. 21, 2014, http://swtimes.com/news/fort-smith-fluoridate-drinking-water.

25 Smith, "The fluoride is coming."

26 Robert Lowes, "HHS Recommends Lower Fluoride Levels in Drinking Water," *Medscape*, Jan. 10, 2011, http://www.medscape.com/viewarticle/735486; and Saundra Young, "Government recommends lowering fluoride levels in U.S. drinking water," CNN, Jan. 7, 2011, http://www.cnn.com/2011/HEALTH/01/07/fluoride.recommendations/.

27 "Oral Health in Arkansas: The Facts," Arkansas Center for Health Improvement and the Arkansas Department of Health, 2009, http://www.achi.net/Content/Documents/ResourceRenderer.ashx?ID=89; *Impact and Value: Telling Your Program's Story*, Centers for Disease Control and Prevention, 2007, 28, http://www.cdc.gov/oralhealth/publications/library/pdf/success_story_workbook.pdf; and Kathryn Lucariello, "Water district manager: Ads are prelude to mandatory fluoridation attempt," *Carroll County News*, June 25, 2008, http://www.carrollconews.com/story/1439583.html.

28 Christine Nathe, "Water fluoridation in Arkansas," *RDH*, 2011, 31, no. 7, http://www.rdhmag.com/articles/print/volume-31/issue-7/columns/water-fluoridation-in-arkansas.html.

29 Phone interview with Elisabeth Wright Burak, health policy director for Arkansas Advocates for Children and Families, Nov. 10, 2014.

30 "Community Water Fluoridation Program," Arkansas Department of Health, accessed Nov. 7, 2014, http://www.healthy.arkansas.gov/programsServices/oralhealth/Pages/WaterFluoridation.aspx.

31 "Savings from Water Fluoridation: What the Evidence Shows," The Pew Charitable Trusts, 2011, http://www.ilikemyteeth.org/wp-content/uploads/2010/11/Savings-from-Fluoridation.pdf.

32 Phone interview with Mouden.

33 Phone interview with Burak.

34 Votes cast by the Arkansas House of Representatives and Senate on S.B. 359. The Senate vote is provided at http://www.arkleg.state.ar.us/assembly/2011/2011R/Pages/Votes.aspx?rcsnum=245&votechamber=Senate; the House of Representatives vote is provided at http://www.arkleg.state.ar.us/assembly/2011/2011R/Pages/Votes.aspx?rcsnum=384&votechamber=House; ( Seven members of the House voted "present" or did not vote on S.B. 359; three members of the Senate did not cast a yes or no vote.)

35 Phone interview with Mouden.

36 Because San Jose residents receive their drinking water from different sources, some residents receive fluoridated water, but an estimated 285,000 city residents do not. For more information, see the San Jose Municipal Water System's *2011 Water Quality Report* at http://www.sanjoseca.gov/DocumentCenter/View/1040.

37 "Fluoride OK'd for San Jose drinking water," Associated Press, Nov. 17, 2011, http://www.utsandiego.com/news/2011/nov/17/fluoride-okd-for-san-jose-drinking-water/.

38 "Oral Health Education and Dental Services," The Health Trust, accessed Jan. 6, 2015 http://healthtrust.org/services/oral-health-education-and-dental-services/.

39 Phone interview with Fred Ferrer, CEO of The Health Trust, Nov. 11, 2014.

40 "Healthy Teeth for All – SCVWD Board Meeting," PACT, accessed Jan. 6, 2015 http://www.pactsj.org/events/healthy-teeth-for-all-scvwd-board-meeting.

41 Paul Rogers, "Santa Clara Valley Water District to vote on fluoridation," *San Jose Mercury News*, Nov. 11, 2011, http://www.mercurynews.com/ci_19318769.

42 "About Us," Silicon Valley Leadership Group, accessed Jan. 6, 2015, http://svlg.org/about-us.

43 Rogers, "Santa Clara Valley Water District to vote."

44 "Water District board moves forward on fluoridation funding agreement," press release by The Health Trust, Dec. 17, 2012, http://healthtrust.org/2012/12/17/water-district-board-moves-forward-on-fluoridation-funding-agreement/.

45 Dion Lefler and Annie Calovich, "Wichita voters reject fluoridated water," *The Wichita Eagle,* November 7, 2012, http://www.kansas.com/news/article1102401.html.

46 Ibid.

47 Annie Calovich, "Surrounding municipal water customers await Wichita's fluoride vote," *The Wichita Eagle*, Oct. 25, 2012, http://www.kansas.com/news/article1101563.html.

48 Although the Wichita Business Coalition on Health Care endorsed fluoridation, the broader business community did not publicly support the ballot initiative to fluoridate the city's water. See: Josh Heck, "Wichita Business Coalition on Health Care urges 'yes' vote on fluoride," *Wichita Business Journal*, Oct. 31, 2012, http://www.bizjournals.com/wichita/news/2012/10/31/wichita-business-coalition-on-health.html?page=all.

49 For an example of how opponents attacked fluoridation's costs, see: "Wichita Anti-Fluoride Electronic Billboards," *Fluoride Free Kansas*, Oct. 22, 2012, http://fluoridefreekansas.org/2012/10/wichita-electronic-billboards/; and Fred Mann, "Private donors commit $1.35 million toward fluoride start-up costs in Wichita," *The Wichita Eagle,* Oct. 26, 2012, http://www.kansas.com/news/article1101613.html.

50 Phone interview with Kim Moore, president of the United Methodist Health Ministry Fund, Jan. 9, 2015.

51 Dion Lefler, "Harvard scientists: Data on fluoride, IQ not applicable in U.S.," *The Wichita Eagle*, Sept. 11, 2012, http://www.kansas.com/news/

article1098857.html.

52 Lefler and Calovich, "Wichita voters reject fluoridated water."

53 Phone interview with Chris Power, vice president of administration for the Kansas Health Foundation, Dec. 15, 2014.

54 "Fluoridation Movie a Game-Changer," Kansas Republican Assembly, Dec. 12, 2012, http://kansasrepublicanassembly.org/2012/12/12/fluoridation-movie-a-game-changer/.

55 John Celock, "Topeka, Kansas, Urged To Remove Fluoride From Drinking Water To Protect Legislators' IQs," *The Huffington Post*, Feb. 16, 2013, http://www.huffingtonpost.com/2013/02/15/topeka-kansas-flouride_n_2697306.html?utm_hp_ref=health-news&ir=Health%20News; and Andy Marso, "Voters in Salina, Kansas vote to keep fluoride in water," KCPT, Nov. 5, 2014, http://www.kcpt.org/health/voters-salina-kansas-vote-fluoride-water/.

56 George F. Jeffcott, *United States Army Dental Service in World War II*, Office of the Surgeon General, U.S. Army Medical Department, Chapter VI, 200-201, http://history.amedd.army.mil/booksdocs/wwii/dental/ch6.htm.

57 William Maas, *Successes and Opportunities: The Department of Defense's Reaffirmation of Water Fluoridation*, The Pew Charitable Trusts, Sept. 15, 2011.

58 For more information, see "Consumer Confidence Reports (CCR)," Environmental Protection Agency, http://water.epa.gov/lawsregs/rulesregs/sdwa/ccr/index.cfm.

59 Email communication by Col. Gary C. Martin to the Children's Dental Health Project, Feb. 1, 2015.

60 For more information, see "Oral Health," HealthyPeople.gov, U.S. Department of Health and Human Services, http://www.healthypeople.gov/2020/topics-objectives/topic/oral-health.

61 Maas, *Successes and Opportunities.*

62 Phone interview conducted with Col. Gary C. Martin, senior military dental consultant to the assistant secretary of defense for health affairs, Jan. 16, 2015.

63 Jake Blumgart, "What's the Matter With Portland?" *Slate*, May 17, 2013, http://www.slate.com/articles/health_and_science/medical_examiner/2013/05/portland_fluoride_vote_will_medical_science_trump_fear_and_doubt.html.

64 For more details on Measure 11 of 1976, see "Initiative, Referendum and Recall: 1972-1978," *Oregon Blue Book*, http://bluebook.state.or.us/state/elections/elections19.htm.

65 Blumgart, "What's the Matter with Portland?"

66 "Mission & Vision," Upstream Public Health, https://www.upstreampublichealth.org/mission-vision.

67 The Healthy Kids, Healthy Portland coalition's website has a complete list of supporters, accessible at http://healthykidshealthyportland.org/supporters.htm.

68 See messages on the home page of Healthy Teeth, Healthy Portland at http://healthykidshealthyportland.org/.

69 Beth Slovic, "Portland City Council approves adding fluoride to drinking water," *The Oregonian*, Sept. 12, 2012, http://www.oregonlive.com/portland/index.ssf/2012/09/portland_city_council_approves_12.html.

70 Jonathan Frochtzwajg, "Local Musicians Pick Sides in Fluoride Fight," *Portland Monthly*, Oct. 2, 2012, http://www.portlandmonthlymag.com/arts-and-entertainment/culturephile-portland-arts/articles/local-musicians-pick-sides-in-fluoride-fight-october-2012.

71 "Post-Referendum Reflections, Portland CWF Campaigns," an assessment by The Pew Charitable Trusts, June 27, 2013.

72 Jeff Mapes, "Portland's high water quality helps boost fluoride opponents to victory," *The Oregonian*, May 21, 2013, http://www.oregonlive.com/mapes/index.ssf/2013/05/portlands_high_water_quality_h.html.

73 Beth Slovic, "Fluoride referendum qualifies for Portland's May 2014 ballot," *The Oregonian*, Nov. 8, 2012, http://www.oregonlive.com/portland/index.ssf/2012/11/fluoride_referendum_qualifies.html.

74 "Healthy Kids, Healthy Portland: Final Report," submitted by the coalition to The Pew Charitable Trusts, 2013.

75 Ibid.

76 Ibid.

77 Phone interview with Kurt Ferre, Oregon dentist, Nov. 24, 2014.

78 Blumgart, "What's the Matter With Portland?"

79 "Post-Referendum Reflections, Portland CWF Campaigns," an assessment by The Pew Charitable Trusts, June 27, 2013.

80 Blumgart, What's the Matter with Portland?"

81 Several political strategists and political columnists have pointed to the 60 percent survey threshold as a good indicator of a ballot initiative's likelihood of being approved. For example, see Rachael Myrow, "Analysis: Gov. Brown's 'Gun to the Head' Campaign for Higher Taxes," KQED News, Aug. 30, 2012, http://blogs.kqed.org/election2012/2012/08/30/analysis-gov-browns-national-lampoon-campaign-for-higher-taxes.

82 "Healthy Kids, Healthy Portland: Final Report."

83 Brad Schmidt, "New report shows across-the-board dental improvements for Oregon kids," *The Oregonian*, April 24, 2013, http://www.oregonlive.com/portland/index.ssf/2013/04/new_report_shows_across-the-bo.html.

84 Brad Schmidt, "Death, taxes and increasing water and sewer rates: Portland City Hall roundup," *The Oregonian*, Feb. 13, 2013, http://blog.oregonlive.com/portlandcityhall/2013/02/death_taxes_and_increasing_wat.html.

85 Peter Weber, "Why Portland refuses to fluoridate its drinking water," *The Week*, May 22, 2013, http://theweek.com/article/index/244512/why-portland-refuses-to-fluoridate-its-drinking-water.

86 "Healthy Kids, Healthy Portland: Final Report."

87 Aaron Mesh, "Fluoride Campaign Spent $889,000 to Lose by 20 Points," *Willamette Week*, May 31, 2013, http://www.wweek.com/portland/blog-30261-fluoride_campaign_spent_$889000_to_lose_by_20_points.html; "November 2012 General Election – Voter Turnout," Multnomah County Elections Division, https://multco.us/elections/november-2012-general-election-voter-turnout.

88 Phone interview with Matt Crespin, associate director of the Children's Health Alliance of Wisconsin, Dec. 15, 2014.

89 Phone interview with Lori Henderson, Missouri pediatric dentist, Oct. 31, 2014.

90 "Community Water Fluoridation," Iowa Public Health Association, http://www.iowapha.org/fluoride; and "Water Fluoridation in the City of Reading," Memorandum by the Board of Health, Reading, Pennsylvania, http://www.readingpa.gov/sites/default/files/boards/environmental_advisory_council/fluoride_health_statement.pdf.

91 "Drinking Water State Revolving Fund (DWSRF)," U.S. Environmental Protection Agency, Nov. 19, 2014, http://water.epa.gov/grants_funding/dwsrf.

92 Mertz and Allukian.

**Children's Dental Health Project**
1020 19th Street NW, Ste. 400 | Washington, DC 20036
O: 202-417-3600 | C: 202-770-6265
cdhp.org | @Teeth_Matter

# The voice for children's dental health.

children's dental health project