

Testimony of Patrice Pascual, Executive Director Children's Dental Health Project

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Health and Human Services Committee,
Kansas House of Representatives*

My name is Patrice Pascual, and the Children's Dental Health Project (CDHP) welcomes the opportunity to share information with Kansas legislators about community water fluoridation. CDHP is an independent, nonprofit organization that monitors research, provides technical assistance and advises policymakers on oral health issues.

Although America's dental health has improved significantly in recent decades, tooth decay is the most common chronic disease of early childhood—five times more prevalent than asthma.¹ Research shows that children with dental problems are much more likely to be absent from school, and teens with dental pain are four times more likely to struggle academically.²

Prevention is crucial. Community water fluoridation is the most cost-effective public health measure for preventing decay.³ Fluoride exists naturally in drinking water, but usually not at the concentration that is optimal for preventing tooth decay. This explains why so many U.S. communities fortify their water with additional fluoride.⁴ This process of adjusting fluoride to this optimal level is commonly called “fluoridation.”

House Bill 2372 misrepresents what the scientific evidence shows. If approved, this bill would mislead the public and create false fears about fluoridation. HB 2372 claims that “more studies are urgently needed to evaluate and determine the exact effects of fluoride” on various organs of the human body, adding that “modern science indicates that there is valid reason for caution and concern.” These assertions are at odds with the scientific evidence.

Fluoride and fluoridation are among the most thoroughly studied topics in the history of public health. Fluoridation has been practiced in the U.S. for nearly 70 years.⁵ Decades of research have produced a strong consensus that fluoridated water safely and effectively reduces the rate of tooth decay. Indeed, a 2000 report noted that approximately 35,000 research papers had been published “verifying the efficacy and safety of water fluoridation.”⁶

Both children and adults benefit from drinking fluoridated water, which reduces decay by about 25 percent over a person's lifetime.⁷ The solid evidence supporting this health practice explains why the leading health and medical organizations have endorsed fluoridation, including the American Academy of Pediatrics, the American Dental Association, the American Public Health Association and the Institute of Medicine.⁸

Let me begin by addressing HB 2372's claim that fluoride "lowers the I.Q. in children" because this is the bill's focus. Indeed, the bill would mandate that all Kansas communities that fluoridate their water notify customers that "the latest science confirms that ingested fluoride lowers the I.Q. in children." This would be requiring local officials to provide false information to the public.

HB 2372's claim about I.Q.'s rests on studies that are flawed and do not reflect how fluoridation is practiced in the United States. Anti-fluoride activists typically cite 27 studies from China, Iran and Mongolia to support their effort to link fluoride to I.Q. scores. HB 2372 fails to mention that the fluoride concentrations in these foreign studies reached levels as high as 11.5 parts per million—a level that is approximately 10 times higher than the optimal level used by Kansas communities.⁹

The Harvard researchers who reviewed these foreign studies publicly distanced themselves from the way anti-fluoride groups interpreted the results.¹⁰ After communicating with two of these researchers, *The Wichita Eagle* reported that "the data is not particularly applicable here because it came from foreign sources where fluoride levels are multiple times higher than they are in American tap water."¹¹ Even the leader of an anti-fluoride group admitted that critiques of the methodology of these studies were "fair" and reasonable."¹²

Many factors can affect children's intelligence, including nutrition, their participation in early childhood programs, parents' educational levels, and lead exposure.¹³ Researchers noted that these 27 studies were not designed properly to rule out these factors as shaping the I.Q. scores. Keep in mind that 23 of the 27 studies were conducted in China, where lead poisoning among children is such a significant problem that it has sparked public protests by parents.¹⁴

There are other ways in which HB 2372 misrepresents the scientific evidence around fluoride and fluoridation. A case in point is how this bill mischaracterizes the views of the U.S. Centers for Disease Control and Prevention (CDC). According to the bill, "the CDC stated that the benefit of fluoride is predominately topical, not systemic. In other words, fluoride works on the surface of the teeth, not from inside of the body." This language distorts the CDC's conclusions. According to the CDC's website:

Whether in water or toothpaste, fluoride works in two main ways: by slowing the activity of bacteria that cause decay, and by combining with the enamel on the surface of the teeth to make it stronger and more resistant to decay.

... fluoride in water and fluoride in toothpaste work differently to help prevent tooth decay.

In addition to CDC's statement, a peer-reviewed 2003 study found that consuming fluoridated water was important because it "maximized" the preventive benefits of fluoride. The co-authors of this study wrote, "The results supported community water fluoridation as a public health measure in view of the need for continuous (fluoride) exposure for the maximum benefit."¹⁵ Topical fluoride treatments are no more effective and much more expensive on an annual, per-person basis than fluoridated water.¹⁶ Indeed, evidence from Colorado, New York and Louisiana reveals that water fluoridation saves Medicaid dollars by reducing the need for dental fillings or more costly dental treatments.¹⁷

Finally, we ask the Committee to consider what highly respected health and medical experts have said in recent years about fluoridation.

- **Dr. John Doull, professor emeritus at the University of Kansas Medical School:** Dr. Doull, a nationally renowned toxicologist, offered his assessment of fluoridated water in 2013, stating that “I do not believe there is any valid scientific reason for fearing adverse health conditions from the consumption of water fluoridated at the optimal level.”¹⁸ Dr. Doull’s assessment is especially significant because he chaired a National Research Council committee that studied fluoride.¹⁹
- **Dr. Jeffrey Flier, Dean of the Harvard School of Medicine, and Dr. R. Bruce Donoff, Dean of the Harvard School of Dental Medicine:** In a 2013 letter, these Harvard deans wrote, “Numerous reputable studies over the years have consistently demonstrated that community water fluoridation is safe, effective, and practical.”²⁰
- **The American Academy of Family Physicians:** “The American Academy of Family Physicians supports fluoridation of public water supplies as a safe, economical, and effective method to prevent dental [cavities].”²¹
- **The Centers for Disease Control and Prevention (CDC):** The CDC named water fluoridation as one of “10 great public health achievements of the 20th century.”²² The CDC adds, “For many years, panels of experts from different health and scientific fields have provided strong evidence that water fluoridation is safe and effective.”²³
- **American Academy of Pediatrics (AAP), Kansas Chapter:** The AAP’s Kansas chapter has thoroughly reviewed HB 2372 and concluded that the bill “is full of falsehoods and based on junk science.” The organization expresses concern that if approved, the bill “could cause unnecessary public alarm” about community water fluoridation.²⁴
- **Dr. Louis Sullivan, former Secretary of the U.S. Department of Health and Human Services:** In a 2013 speech, Dr. Sullivan, who chairs the National Health Museum, stated that anti-fluoride groups “misrepresent the facts” and “post a lot of inaccurate or misleading information on various websites. Some of these websites also sell expensive water filters or other products.”²⁵

HB 2372 raises concern about the “poison warning label” on fluoride toothpaste, which is another example of how the bill misrepresents the scientific evidence. Toothpaste labels that caution parents against misuse are not a valid reason to question fluoride’s safety. This message advises parents to seek medical assistance or call a poison control center if their child accidentally swallows an excessive amount of toothpaste. The largest newspaper in Wisconsin carefully investigated this issue when it was raised in 2012. The newspaper spoke with officials at one of the state’s busiest hospitals and learned that a physician who had staffed the emergency room for 17 years had never seen a single case

of a fluoride overdose. The newspaper's fact-checkers concluded that it was deceptive for anyone to call fluoride in toothpaste a "poison" and added:²⁶

People generally don't eat and swallow toothpaste. And if they did, it would take a massive amount to be at risk from fluoride poisoning. In fact, experts say a kid would vomit out the toothpaste long before that point.

Health and medical experts continue to firmly endorse fluoridation. For nearly 70 years, drinking water in the U.S. has been fortified with fluoride, and the scientific evidence shows this practice has improved Americans' health and well-being. Fluoridation started in America, but it enjoys the support of scientists, physicians and researchers in many other countries. In 2012, a panel of European health experts called fluoridation a strategy that "is safe, cost-effective and has a demonstrable long term benefit" to people's oral health.²⁷

It would be a tragic mistake to approve a bill that unjustifiably scares the more than 1.7 million Kansans who currently benefit from community water fluoridation.²⁸ We urge the Committee to reject HB 2372. Thank you for giving us the opportunity to share this information.



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Sources:

¹ For data illustrating the decline in tooth decay, see: "Dental Caries (Tooth Decay) in Adolescents (Ages 12-19)," National Institute of Dental and Craniofacial Research, <http://www.nidcr.nih.gov/DataStatistics/FindDataByTopic/DentalCaries/DentalCariesAdolescents12to19>; "Preventing Cavities, Gum Disease, Tooth Loss, and Oral Cancers: At A Glance 2010," Centers for Disease Control and Prevention (2010), <http://www.cdc.gov/chronicdisease/resources/publications/AAG/doh.htm>.

² S.L. Jackson et al., Impact of Poor Oral Health on Children's School Attendance and Performance," *American Journal of Public Health* (October 2011), Vol. 101, No. 10, 1900-1906, <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2010.200915>; "Poor Oral Health Can Mean Missed School, Lower Grades," Ostrow School of Dentistry of USC, August 2012, <http://dentistry.usc.edu/2012/08/10/poor-oral-health-can-mean-missed-school-lower-grades/>.

³ Fluoridation's status as the most-cost effective way to prevent tooth decay was noted by U.S. Surgeon General Richard Carmona in 2004, and it was the conclusion reached in a 2002 report by the National Institute of Dental and Craniofacial Research (NIDCR). For more information, see Dr. Carmona's statement at <http://www.nidcr.nih.gov/OralHealth/Topics/Fluoride/StatementWaterFluoridation.htm>. The NIDCR's conclusion can be accessed at http://drc.hhs.gov/report/2_0.htm.

⁴ "2010 Water Fluoridation Statistics," Centers for Disease Control and Prevention, <http://www.cdc.gov/fluoridation/statistics/2010stats.htm>.

⁵ The city of Grand Rapids, Mich. was the first to fortify its drinking water supply with additional fluoride.

⁶ J.E. Lepo and R. A. Snyder, “Impact of Fluoridation of the Municipal Drinking Water Supply: Review of the Literature,” Center for Environmental Diagnostics and Bioremediation, Univ. of West Florida, May 2000, <http://www.uwf.edu/rsnyder/reports/fluoride.pdf>.

⁷ “Fluoridation Basics,” Centers for Disease Control and Prevention, July 25, 2013, <http://www.cdc.gov/fluoridation/basics/>.

⁸ “Healthy Living: Water Fluoridation,” American Academy of Pediatrics, May 11, 2013 at <http://www.healthychildren.org/English/healthy-living/oral-health/Pages/Water-Fluoridation.aspx>; “Fluoride & Fluoridation,” American Dental Association, accessed on Jan. 12, 2011 at <http://www.ada.org/fluoride.aspx>; “Community Water Fluoridation,” a policy statement of the American Public Health Association, Policy Statement No. 20087, adopted on October 28, 2008, <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1373>; *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*, Institute of Medicine (2011), 63, http://books.nap.edu/openbook.php?record_id=13116.

⁹ A.L. Choi et al., “Developmental Fluoride Neurotoxicity: A Systematic Review and Meta-Analysis,” *Environmental Health Perspectives*, October 1, 2012, <http://ehp.niehs.nih.gov/developmental-fluoride-neurotoxicity-a-systematic-review-and-meta-analysis/>.

¹⁰ Dion Lefler, “Harvard scientists: Data on fluoride, IQ not applicable in U.S.,” *The Wichita Eagle*, September 11, 2012, <http://www.kansas.com/2012/09/11/2485561/harvard-scientists-data-on-fluoride.html>.

¹¹ Dion Lefler, “Harvard scientists: Data on fluoride, IQ not applicable in U.S.,” *The Wichita Eagle*, September 11, 2012, <http://www.kansas.com/2012/09/11/2485561/harvard-scientists-data-on-fluoride.html#storylink=cpy>.

¹² Paul Connett, executive director of the Fluoride Action Network, remarks delivered at the Glaser Center in Santa Rosa, Calif., October 21, 2013. (Note: Connett’s relevant statement was made at approximately 0:59:35 of the video at <http://www.cleanwateronmamarin.org/get-the-facts/the-case-against-fluoride/>.)

¹³ K. Northstone et al., “Are dietary patterns in childhood associated with IQ at 8 years of age? A population-based cohort study,” *Journal of Epidemiology and Community Health*, published online on February 7, 2011, <http://jech.bmj.com/content/early/2011/01/21/jech.2010.111955.abstract>; W.S. Barnett, “Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes,” *The Future of Children*, Winter 1995, Vol. 5, http://www.princeton.edu/futureofchildren/publications/docs/05_03_01.pdf; E. F. Dubow, “Long-term Effects of Parents’ Education on Children’s Educational and Occupational Success: Mediation by Family Interactions, Child Aggression, and Teenage Aspirations,” *Merrill-Palmer Quarterly*, (Wayne State Univ. Press), July 2009, Vol. 55, pp. 224-249, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2853053/>; J. Schwartz, “Low-level lead exposure and children’s IQ: a meta-analysis and search for a threshold,” *Environmental Research*, April 1994, Vol. 65, pp. 42-55, <http://www.ncbi.nlm.nih.gov/pubmed/8162884>; R.G. Lucchini et al., “Inverse association of intellectual function with very low blood lead but not with manganese exposure in Italian adolescents,” *Environmental Research*, October 2012, Vol. 118, pp. 65–71, <http://www.sciencedirect.com/science/article/pii/S0013935112002344>.

¹⁴ “China lead pollution poisons 160 children,” Reuters News Service (Beijing), March 3, 2012, <http://www.reuters.com/article/2012/03/04/china-lead-posion-idUSL4E8E400U20120304>. (Note: In 2011, a human rights organization asserted that millions of Chinese children suffer from lead poisoning. See: Elaine Kurtenbach, “China Hushes Up Lead Poisoning Epidemic,” Associated Press, June 15, 2011, <http://content.time.com/time/nation/article/0,8599,2077814,00.html>.)

¹⁵ K. A. Singh et al., “Relative Effects of Pre- and Posteruption Water Fluoride on Caries Experience of Permanent First Molars,” *Journal of Public Health Dentistry*, Vol. 63, Winter 2003, pp. 11-19, <http://www.ncbi.nlm.nih.gov/pubmed/12597581>.

¹⁶ *Morbidity and Mortality Weekly Report*, August 17, 2001.

¹⁷ “Savings from Water Fluoridation: What the Evidence Shows,” Pew Center on the States (2011), <http://www.dmww.com/upl/documents/library/savings-from-fluoridation.pdf>.

¹⁸ E-mail communication from Dr. John Doull to Matt Jacob of the Pew Charitable Trusts, March 22, 2013 at 6:42 pm (ET). A transcript of the e-mail is available at <http://www.ilikemyteeth.org/wp-content/uploads/2013/03/Doull-Email-on-CWF-March-2013.pdf>.

¹⁹ For a list of the National Research Council’s committee chair and members, see: *Fluoride in Drinking Water: A Scientific Review of EPA’s Standards* (2006), p. v, at:

http://www.nap.edu/catalog.php?record_id=11571; for a biographical sketch of Dr. Doull, *see*:
http://www.kumc.edu/Documents/som/AACTNov_Doull.pdf.

²⁰ Letter from Jeffrey S. Flier, Dean of the Harvard Medical School, and R. Bruce Donoff, Dean of the Harvard School of Dental Medicine, to Myron Allukian, March 22, 2013, <http://www.ilikemyteeth.org/wp-content/uploads/2013/03/Harvard-Med-Dental-School-Deans-March-2013.pdf>.

²¹ “Fluoridation of Public Water Supplies,” American Academy of Family Physicians, statement on clinical policy, accessed on January 27, 2014, <http://www.aafp.org/about/policies/all/fluoride.html>.

²² “Ten Great Public Health Achievements – United States, 1900-1999,” Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report*, April 2, 1999, Vol. 48, No. 12, 241-243, accessed on January 25, 2011 at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm>.

²³ “Fluoridation Safety,” U.S. Centers for Disease Control and Prevention, July 10, 2013, <http://www.cdc.gov/fluoridation/safety/index.htm>.

²⁴ “Action Needed – Fluoride Bill,” Kansas chapter of the American Academy of Pediatrics, January 17, 2014, <http://www.kansasaap.org/wordpress/action-needed-flouride-bill/>.

²⁵ Remarks delivered by Dr. Louis Sullivan to a meeting of the Campaign for Dental Health on April 8, 2013. A transcript of Dr. Sullivan’s remarks is available at <http://www.ilikemyteeth.org/wp-content/uploads/2013/05/Dr-Sullivan-CDH-Speech-April-2013.pdf>.

²⁶ “Milwaukee alderman says fluoride in toothpaste is a poison,” PolitiFact Wisconsin, *The Journal-Sentinel*, July 9, 2012, <http://www.politifact.com/wisconsin/statements/2012/jul/09/jim-bohl/milwaukee-alderman-says-fluoride-toothpaste-poison/>.

²⁷ R. Patel, *The State of Oral Health in Europe*, The Platform for Better Oral Health in Europe, September 2012, p. 13, 38, <http://www.oralhealthplatform.eu/sites/default/files/field/document/Report%20-%20the%20State%20of%20Oral%20Health%20in%20Europe.pdf>.

²⁸ According to the 2012 Fluoridation Census, a total of 2,702,452 residents of Kansas were served by community water systems that provided drinking water at the optimal level for reducing tooth decay. *See*: “2012 Water Fluoridation Statistics,” U.S. Centers for Disease Control and Prevention,” November 22, 2013, <http://www.cdc.gov/fluoridation/statistics/2012stats.htm>.