KANSAS PUBLIC HEALTH ASSOCIATION, INC.

Kansas Public Health Association, Inc.
Promoting and Improving Population Health in Kansas
Affiliated with the American Public Health Association
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Testimony in opposition to HB 2372

AN ACT concerning certain municipalities; relating to disclosures regarding fluoride in water supplies.

I am speaking on behalf of the board of the Kansas Public Health Association which is opposed to HB 2372. My comments specifically address Sections 2(a), 2(b), and 2(d) of the proposed bill.

The phrase "…the latest science confirms that ingested fluoride lowers the I.Q. in children" in Section 2(a) is not supported by virtually all scientists and regulatory bodies at the safe and effective levels of 0.7 to 1.2 ppm (mg/L) fluoride used in drinking water. Toxic levels of fluoride have been set by the U.S. EPA at 4 ppm (mg/L) and above. Similarly, the phrase used in Section 2(d) that "…ingested fluoride lowers the I.Q. in children" does not consider the dose and confers a degree of scientific certainty that is unsupported.

The comments in the bill related to the "…latest science…" are not referenced, but appear to be related to the recent publication by Dr. A.L. Choi, et al of the Harvard School of Public Health*.

Dr. Choi originally identified 39 abstracts for her research and eliminated 12 of them because they included duplicates or otherwise did not meet Dr. Choi's study criteria. This resulted in 27 studies available for meta-analysis, 25 of which were from China. Children ranged in age from 4 to 16 years old. Dr. Choi found that "Children who lived in areas with high fluoride exposure had lower IQ scores than those who lived in low-exposure or control areas." The Chinese studies are not in English.

Weaknesses of the original studies that were mentioned by Dr. Choi include:

- "Misclassification of children in both high and low-exposure groups may have occurred if the children were drinking water from other sources (e.g., at school or in the field)."
- "…most studies did not report age adjustment of the cognitive test scores."
- "Information on the child's sex and parental education were not reported in > 80% of the studies, and only 7% of the studies reported household income."
- "…official reports of lead concentration in the study villages in China were not available…"
- "Although fluoride exposure showed inverse associations with test scores, the available exposure information did not allow a formal dose-response analysis."
- "Our review cannot be used to derive an exposure limit, because the actual exposures of the individual children are not known."

Possible weaknesses in the original studies that were not mentioned by Dr. Choi include:

- The selection of children in many of the original studies was not specified as to sample size, selection criteria, or previous residential history.
- The measurement of fluoride levels in many of the original studies was not specified as to measurement instrument, quality assurance, sample size, selection criteria, location of samples, or source of fluoride.

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- The reliability, validity, and comparability of the various IQ tests were not reported.
- The amount of drinking water ingested by each child was not quantified.
- The educational level of the child was not considered.
- Educational quality of the school, as well as the quantity and quality of meals provided, was not considered.
- Socio-economic status of the comparison communities and families was not reported.
- A possible mechanism of action of ingested fluoride on neurons was not reported. Fluoride is known primarily as a bone seeker.
- The presence of known neurotoxins in the drinking water of the selected homes and communities was not ruled out.

A subsequent statement dated 9/11/12 obtained from Dr. Choi includes:

- "When considering the risks and benefits of fluoride exposure, the level of intake needs to be considered."
- "These results do not allow us to make any judgment regarding possible levels of risk at levels of exposure typical for water fluoridation in the U.S."…
- …"we recommend further research to clarify what role fluoride exposure levels may play in possible adverse effects on brain development…"

It should be pointed out that the fluoride high exposure group levels in Dr. Choi's paper were generally higher than the fluoride levels recommended for U.S. consumption while the reference levels were much closer to the U.S. standards.

Statement 2(b) in HB 2372 that "nothing in this section applies to naturally occurring fluoride community water systems that do not artificially fluoridate their drinking water supply" is questionable. Total fluoride from all sources, both natural and artificial, were included in her analysis. Any prevention strategy aimed at removing all fluoride from drinking water would need to include all sources.

In conclusion, the present practice of fluoridating drinking water to between 0.7 and 1.2 ppm (mg/L) is safe and effective and remains a public health priority among the scientific community. There are significant real and potential weaknesses identified in the original studies. Dr. Choi's meta-analysis of the primarily Chinese literature is preliminary in nature and, as she has indicated, should not be used to set drinking water policy in the U.S.

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*Choi AL, Sun G., Zhang Y, and Grandjean P. Developmental fluoride neurotoxicity: A systematic review and meta-analysis, Environ Health Perspect, 120 (10): 1362-1368 (2012). http://dx.doi.org/10.1289/ehp.1104912 (Online 20 July 2012)