Milwaukee City Council Members May 31, 2012

Greetings to you all. My name is Kevin Boehm, a general dentist and certified nutrition consultant based in the West and Southwest suburbs of Chicago. Sadly, today I am unable to attend this meeting due to my youngest daughter's graduation. However, I wish to help stand in support of Councilman Bohl's petition with respect to removal of fluoride from the city's drinking water supply.

I must tell you that during my years in dental school, and for several years after my graduation, I would have thought that the removal of fluoride from drinking water was an act of lunacy. However, during my eighteen years in practice, I have learned quite a few contradictory things that have changed my entire viewpoint on the forced fluoridation of drinking water issue. Along with a growing number of health professionals, I have looked at the chemicals used in the fluoridation process, their associated risks, and their toxicity profiles with respect to effects on the human body's enzymes and hormones. I no longer believe that the process of fluoridation is in the best interest of the general public and have not for quite some time.

First, I would like to quickly approach the subject from its nutritional aspects. In my study of over fifty different text books and related material, I can find no reference anywhere that remotely pertains to the human body's biologic need for fluoride. The body needs essential vitamins, fatty acids, amino acids, and minerals to continue its life sustaining work, but nowhere does fluoride serve an essential function in the human body's biochemical processes. Your body cannot live without calcium, but it can live without fluoride.

Aside from the fact that fluoride/fluorine is not an essential nutrient, it performs many deleterious functions once inside the body, when ingested systemically. Fluoride reduces Kreb's cycle, or citric acid cycle efficiency, reduces effectiveness of body enzymes, reduces thyroid gland efficiency, and may well increase risk of certain cancers and bone fractures. Fluorine, as part of the periodic table of elements, is similar in its properties to other halides such as bromine, iodine, chlorine, and astatine, except it's much smaller in atomic weight. It is the smallest of the halides and the most aggressive in its binding strength in many ionic forms.

In the citric acid cycle, for example, if fluoride binds to acetyl-coA to form fluoroacetyl-coA this molecule blocks the enzyme Aconitase, which causes citrate to accumulate in the body. Essentially, this halts the normal ATP production in cellular mitochondria, which is how the body produces energy on a cellular level. A second example would be the binding of fluoride instead of iodine in the synthesis of thyroid hormone. Active functioning thyroid hormone consists of a centrally located tyrosine molecule surrounded by four iodine molecules. If fluorine is bound instead of iodine, due to its stronger binding strength properties, a molecule of thyroid hormone will be synthesized and will show up on a blood test. Sadly, it will not bind to the proper receptors in the body, rendering it useless due to its changed molecular size and bond angle discrepancies. These are only two simple examples out of potentially hundreds to thousands of ordinary chemical reactions within the body that can be affected by fluoride.

Consider for a moment the concentrations the human body uses for hormone effectiveness and the concentration of fluoride in a dosage of drinking water. All human hormones are measured

in blood or salivary tests using either picograms, 10^{-12}, or nanograms, 10^{-9}, per cc normally. At these concentrations the hormones are effective on their targets, run their course, and are allowed to dissipate. Fluoride at a concentration as small as one PPM, the normal drinking water concentration of 10^{-6}, is anywhere from one thousand to one million times more concentrated that our own hormones. That certainly seems to be a factor worth consideration.

There are also issues related to the form of fluoride used in water fluoridation methods. The American public has been misled as to what has been added to the water supply. Only about ten percent of the water being fluoridated contains sodium fluoride, and about ninety percent of the water is treated with hexafluorosilicic acid. The latter compound is a toxic by-product of the fertilizer industry that comes from a process that captures two toxic gases, hydrogen fluoride (HF) and silicon tetrafluoride (SiF_4), through water spray during phosphate manufacture. As far back as 1975, the U.S. EPA began mandating reclamation of the phosphate fertilizer industry's waste products noted above, and this became their eventual solution. What is more interesting to note is that these fluoride containing compounds may contain arsenic, and due to their acidic nature may leech lead out of brass fittings or solder used in water fixtures and water lines. The world seems to have a fairly good grip on lead and its effects on brain development in young people, and arsenic has its cancer related issues. This seems to be a very unnecessary health risk. When you consider that likely ninety-eight percent of fluoridated water is used for laundry, bathing, watering lawns, and dishwashing, the obvious conclusion is that very little is actually consumed. So why does this practice continue? There seem to be far better uses for our tax dollars than fluoridating our dishwater.

Some other interesting history of fluoridation came in 1999. The U.S. Centers for Disease Control (CDC) finally conceded that fluoride's main action occurred topically not systemically. A brief excerpt from that CDC report is as follows:

> Fluoride's caries preventing properties were initially attributed to changes in enamel during tooth development because of the association between fluoride and cosmetic changes in enamel and a belief that fluoride incorporated into enamel during tooth development would result in a more acid-resistant mineral. However, laboratory and epidemiologic research suggests that fluoride prevents dental caries predominantly after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children.[1]

There are a couple ideas that come to mind upon closer inspection of data on both sides of this issue. Upon the day of graduation, a physician recites the Hippocratic Oath. One line resonates quite loudly on this subject, which loosely translated says, "First, do thy patient no harm". Others have stated, "If in doubt, leave it out" in relation to fluoride usage. I am not God, and nor would I like to think that I am all seeing and all knowing. I am a concerned physician who tries to look at the big picture and thinks caution would be a better way to look at this subject instead of a rubber stamp. Most people, if they had their choice, would elect to have informed consent

[1] Centers for Disease Control and Prevention. "Achievements in Public Health, 1900-1999: Fluoridation of Drinking Water to Prevent Dental Caries". *Mortality and Morbidity Weekly Review* 48, 41 (Oct. 22, 1999): 933-40. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4841a1.htm

in matters related to their health. It appears that there is a complete lack of informed consent as it relates to the unknown dispensation of hexafluorosilicic acid into their water in concentrations one thousand to one million times more concentrated than a human hormone. One should not be able to conduct such activity against another's wishes. Why should informed citizens be forced to purchase expensive water filtration equipment to remove an unwanted and harmful chemical additive from water systems from which they are forced to purchase water? Should this not be a personal decision freely elected by a consenting individual? If an individual has been made aware of the potential risks and dangers involved with fluoride usage and chooses to use it, that would be perfectly acceptable for that specific individual. However, this should be done by individuals for their own personal consumption topically or systemically with full knowledge of their undertaking prior to consumption. This should not be done as a mass science experiment using by products of questionable safety and expose non-consenting individuals in the process. Freedom of choice should reign in matters such as these.

We should leave the dental aspect of this as a separate issue. The CDC has deemed fluoride's "best" effects to be topical. Drinking water fluoridation is systemic and a very different issue with a huge host of potential biochemical complications. Is it truly worth the risk? In our current situation America spends far more than any nation on Earth on healthcare. More and more drugs are dispensed, all having side effects which, when combined with other drugs, complicate matters even further. Often when drugs are taken in combination, unforeseen complications occur. Could fluoride and bromide usage from industrial applications be creating unforeseen new compounds when combined with prescription drugs, due to its high binding affinity? Could we be creating patients with low thyroid function among a host of other possible imbalances? Is this why we're spending so much more than any other nation on Earth, due to unforeseen drug interactions or changes in drugs due to addition of other compounds, that were never tested together before? A host of concerned physicians ponder that very question now, perhaps more than ever.

I would like to take a moment to thank Dr. Paul Connett, Dr. James Beck, and Dr. Spedding Micklem who have done more research on this subject than I could hope to do in two lifetimes. They made me look harder at the systemic possibilities of fluoridation than I had early in my career. I am grateful for your work.

For those of you who must decide how best to serve Milwaukee's citizens, there are a number of websites where you can educate yourselves about fluoride. One, http://poisonfluoride.com/pfpc/index.html, shows how frighteningly similar fluoride poisoning and hypothyroidism are in presentation. Another, www.fluoridealert.org, covers numerous fluoride related topics and keeps visitors abreast of other communities who have eliminated water fluoridation or are contemplating doing so. The Swedish government and people rejected fluoridation in the 1970's, and their children have not suffered greater incidence of tooth decay. I think it is worth a few hours of your time to do some research for the greater good of your health. I have also enclosed a report prepared for the Department of Health and Human Services by the IAOMT (International Academy of Oral and Maxillofacial Toxicology, www.iaomt.org) from February 2011, by Dr. Kathleen Theissen, PhD, that is well worth the read. It may be a bit technical in jargon, but it is very informative and well written. I wish you all well in your deliberations.

Best Regards,
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President Holistic Dental Association