

To: Kathie Grinzinger, City Manager and  
Mt. Pleasant City Commissioners

From: Kathy Ling, Chair of the Fluoride Task Force

Date: May 24, 2010

The packet for the May 24 meeting includes the conclusions and recommendation of the Fluoride Task Force. The Task Force is asking that the Commission simply receive the report at the meeting on the 24<sup>th</sup> and then list it as an action item at the June 14<sup>th</sup> meeting. We would also request that the report be made available to the public on the city's website and that hard copies be available in the City Manager's office. While we don't think it is necessary to have a public hearing on the report, we would like to encourage those who wish to comment to speak during the General Public Comment section of the meeting the June 14.

While four of the five members of the Task Force supported all four of the major recommendations, Larry Collins disagreed with the first recommendation and submitted a minority report explaining his rationale. The major difference of opinion concerns whether fluoridation should be temporarily suspended immediately or continued until the EPA issues its final health and safety analysis. While the report itself provides some explanation of the reasons the majority feels that it is preferable to suspend fluoridation immediately, I will include some further material on this specific issue in the packet for the meeting on June 14.



# **CITY OF MT. PLEASANT FLUORIDE TASK FORCE**

## **Recommendation on the Future of Water Fluoridation**

**May 24, 2010**

**Presented by:  
Kathy Ling, Chair**

**Carolyn Carr  
Larry Collins  
Sharyl Majorski  
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## **OVERVIEW OF FLUORIDE TASK FORCE CONCLUSIONS AND RECOMMENDATIONS**

In August, 2008 the Mt. Pleasant City Commission adopted a resolution calling for the establishment of a Fluoride Task Force to review the policy of adding fluoride to the city's municipal water system. The Task Force was asked to address the Effectiveness, Safety and Ethical/legal issues related to water fluoridation and to make a recommendation on whether to continue to fluoridate the water system.

The Task Force began meeting in June, 2009. Over the course of the last 10 months, the Task Force has reviewed a great deal of material and listened to presentations from local and state experts on both sides of the issue. After careful consideration the Task Force has reached the following conclusions:

**I. EFFECTIVENESS ISSUES: Does water fluoridation play a role in the reduction of tooth decay?**

**Conclusion:** The dramatic results that appeared to justify the introduction of fluoride into municipal water systems in the 1950's and 60's are no longer apparent in any recent comparisons of fluoridated versus non-fluoridated cities. The majority of the Task Force believes that the current role of water fluoridation in fighting tooth decay appears to be relatively small.

**II. SAFETY/HEALTH ISSUES: Does water fluoridation pose significant safety/health risks?**

**Conclusion:** The majority of the Task Force has concluded that water fluoridation may pose some potential health risks for at least some subgroups within the population.

**III. ETHICS/LEGAL ISSUES: Does the addition of fluoride to the municipal water system create potential ethical and legal issues?**

**Conclusion:** The majority of the Task Force concluded that the identification of an increasing number of potential health risks for at least some subgroups within society significantly increases the legal/ethical questions related to the use of the municipal water system as a delivery mechanism for fluoride.

## TASK FORCE RECOMMENDATIONS

After reviewing written materials and listening to experts on both sides of this issue and based on the analysis included in this report, the majority of the Fluoride Task Force has concluded that artificial fluoridation of the City's water system represents an **unnecessary risk** to at least some subgroups within our population. It is **unnecessary** because topical fluoride protection is readily available at relatively low cost through fluoridated toothpaste. It is also available through oral rinses, which are relatively inexpensive, and through treatment at dental offices. The fact that the difference between dental decay rates in fluoridated and nonfluoridated cities is relatively small and that tooth decay rates in most of Europe, which does not have water fluoridation, are as low as rates in the United States, suggests that these other methods for providing topical application of fluoride are effective.

In addition the Task Force believes that **potential risk** exists for at least some subgroups. Those subgroups would include infants using reconstituted baby formula, adults who consume large quantities of water and those with medical conditions such as diabetes and renal disease

**Therefore, the Majority of the Task Force makes the following recommendations:**

1. The City of Mt. Pleasant should temporarily suspend artificially fluoridating its municipal water system.
2. When the Environmental Protection Agency issues its new health and risk assessment, the Task Force should review those assessments and make a final recommendation to the City Commission on the future of water fluoridation in Mt. Pleasant.
3. Meanwhile, the Task Force should continue to meet quarterly to review any new information on the issue of water fluoridation.
4. The City Commission should inform our Congressional representatives of this decision and ask them to urge the EPA to respond in a timely fashion to the National Research Council's recommendation for a reassessment of the safety of fluoride.

The following report provides the rationale for these conclusions and recommendations.

## **Minority Report**

I acknowledge the majority report as developed and presented as a very thorough summary of the issues addressed by the task force over the previous twelve month period.

I endorse Recommendations 2, 3 and 4 in the majority report. I do not endorse the temporary cessation of the fluoridation of the Mt. Pleasant water supply at this time.

My reasons for a more cautious approach are as follows:

- 1) The city should withhold consideration of such action until the EPA response to the NRC is completed and considered.
- 2) Mt. Pleasant reinstated fluoridation less than four years ago, following a referendum.
- 3) The City did take the action in 2008 to use sodium fluoride as the agent to achieve a reduced fluoride concentration of 0.7mg/L.
- 4) Among the organizations strongly supporting the fluoridation of municipal water supplies are:
  - a. Center for Disease Control and Prevention (CDC)
  - b. American Medical Association (AMA)
  - c. U. S. Public Health Service
  - d. American Dental Association (ADA)
- 5) The water supplies are currently fluoridated in approximately ninety one percent of Michigan communities.

Submitted by Larry Collins

## INTRODUCTION

In August, 2008 the City Commission voted to temporarily reduce the amount of fluoride being added to the municipal water supply from approximately 1ppm to 0.7ppm and to appoint a task force to study the issue and make a recommendation to the City on what, if any change should be made in the City's water fluoridation policy.

That action came after years of controversy on the issue and three different ballot proposals, the last two in 2004 (removing artificial fluoridation) and 2005 (restoring fluoridation). One might well ask why the City Commission would choose to revisit the issue so soon. The action was prompted by several developments that occurred shortly after the 2005 vote. The most important was the release in March, 2006 of the National Research Council's review of fluoride in drinking water conducted for the Environmental Protection Agency (EPA).

The NRC said: "In light of the collective evidence on the adverse health effects and total exposure to fluoride, the committee concludes that EPA's drinking water standard of 4 mg/L (4 ppm) is not adequately protective of health. Lowering it will prevent children from developing severe enamel fluorosis and will reduce the lifetime accumulation of fluoride into bone that the majority of the committee concludes is likely to put individuals at increased risk of bone fracture and possibly skeletal fluorosis."

The NRC report was especially concerned that infants and young children have approximately three to four times greater exposure to fluoride than do adults and that other groups such as above average water drinkers, diabetics, people with poor kidney function and other vulnerable sub-groups may exceed recommended levels. The NRC called on the EPA to conduct new risk assessments to determine what level (if any) would adequately protect all individuals exposed to fluoride in water.

While the NRC report did not directly address the 1 mg/L (1 ppm) recommended for water fluoridation (because the EPA does not make that determination), Dr. John Doull, professor emeritus of pharmacology and toxicology at the University of Kansas Medical Center, who chaired the NRC committee stated that "its analyses suggest that lower water fluoridation levels may pose risks, too. What the committee found is that we've gone with the status quo for many years—for too long, really—and

now we need to take a fresh look...when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this [fluoridation] has been going on. (*Scientific American*, January, 2008, pg. 80-81)

As a result of the NRC report as well as earlier studies discussing the overexposure of infants to fluoride, in November, 2006 the American Dental Association revised its recommendations on water fluoridation to include the recommendation that infant formula should not be mixed with fluoridated water because of the risk of overexposure.

The City Commission viewed the NRC report and the ADA recommendation on baby formula as major developments that warranted a reexamination of the City's fluoridation policy.

The Task Force was directed to examine information on the effectiveness, safety and ethical/legal issues associated with water fluoridation and to make recommendations on any changes in the City's fluoridation policy.

Before turning to an examination of those three issues, it is important to address several related issues.

First, the Task Force was not asked to assess the use of fluoride in general as a factor in fighting tooth decay. It was only asked to assess the issue of the fluoridation of the municipal water system. As will be apparent in the report, most members of the Task Force believe that fluoride does play a role in reducing cavities. The issue is how that occurs and whether **ingesting** fluoride that has been introduced into the municipal water system plays a significant role.

Second, the Task Force wishes to make it clear that they respect the opinion of experts on both sides of this issue. Over the years, fluoridation has been very controversial and there are undoubtedly some extremists on both sides. This Task Force has not concerned itself with the past history of this issue. We have tried to concentrate on the most recent developments. Experts from both sides who spoke to the Task Force were all knowledgeable, well prepared and extremely helpful.

Finally, it should be mentioned that some of the health risks associated with water fluoridation are related to the use of inorganic silicofluorides, which are byproducts of industrial waste. The Mt. Pleasant Water Department made the decision in 2005, when artificial fluoridation was restarted, to use sodium fluoride and, therefore, avoid the problems sometimes associated with the industrial waste products.

The Fluoride Task Force spent almost a year reviewing relevant written material (see Appendix A) and listening to experts on the issue of water fluoridation. The speakers who appeared before the committee were:

1. Malcolm Fox, Superintendent of the Mt. Pleasant Water Treatment facility and Duane Ellis, the Director of the Department of Public Works
2. Susan Deming, Oral Health Education and Fluoridation Coordinator, Division of Family and Community Health, MDCH
3. Dr. Dan Kane, Mt. Pleasant dentist
4. Dr. Calvin Tormenan, professor of Chemistry at Central Michigan University

In addition, several members of the Task Force read Christopher Bryson's book The Fluoride Deception (2005) and the more recent book, The Fluoride Wars (2009) by Alan Freeze and Jay Lehr. Both books received very positive reviews and were viewed as constructive and well researched additions to the fluoride debate. In addition, the chairperson of the Task Force attended a 2-day conference in Toronto of the International Society of Fluoride Research.

All the members of the Task Force have at some time in the past supported water fluoridation. Most of the members voted at least once in support of its use. The early experiments done in Grand Rapids beginning in 1945 and later in other cities seemed promising and the rapid decline in tooth decay during the 50's and 60's seemed to indicate that water fluoridation was very successful. When Mt. Pleasant made the decision in 1956 to begin fluoridating the water system it was joining many other cities in following the recommendation of most of the medical, dental and public health community.

Attitudes and knowledge about the impact of chemicals and other toxic substances have changed considerably in the last 60 years. In the 1950's

paint contained lead, glass thermometers used mercury, asbestos was used in buildings and refrigeration units contained chlorofluorocarbons. Government regulations on those products and many others have changed radically as the potential risks have become better known. It is not surprising that some of the same concerns are now being raised about the continued use of water fluoridation.

After careful examination of the most recent research, the majority of the Task Force has concluded that, at this time, water fluoridation presents an **unnecessary risk** to at least some subgroups of the population. The reasons for that conclusion are discussed in the next section of this report.

**ANALYSIS: Effectiveness, Safety and Legal/Ethical issues associated with the fluoridation of the city water supply:**

**EFFECTIVENESS ISSUES: Does water fluoridation play a role in the reduction of tooth decay?**

**Conclusion:** The dramatic results that appeared to justify the introduction of fluoride into municipal water systems in the 1950's and 60's are no longer apparent in any recent comparisons of fluoridated versus non-fluoridated cities. The current role of water fluoridation in fighting tooth decay appears to be less significant than it appeared to be at one time.

The majority of the Task Force believes that fluoride does play a role in fighting tooth decay by strengthening the enamel of teeth and helping to counteract the impact of bacteria and acid on the tooth surface. However, most members of the Task Force have concluded that with the proliferation of other sources of fluoride such as fluoridated toothpaste and oral rinses, the use of sealants and one time topical applications in the dentist's offices and other improvements in general dental hygiene, there now appears to be a relatively insignificant difference in the caries rates of fluoridated and non-fluoridated communities. This conclusion is based on several factors:

- 1. The difference in tooth decay experience between fluoridated and non-fluoridated communities in studies done over the last 30 years appears much less than it once was.**

There are several ways to assess caries experience. One way is to determine the total number of children below 18 who have experienced at least one cavity. This was the method used in a study conducted by the National Institute for Dental Research (NIDR) in 1986-87. As the graph in Appendix B illustrates, the information gathered in this national study showed little to no difference in caries rate in permanent teeth in communities with a natural fluoride level of less than 0.3 ppm and those communities that added fluoride to the water supply in order to achieve the Center for Disease Control and Prevention (CDC) and American Dental Association (ADA) recommended level of 0.7-1.2 ppm. Communities with fluoride levels of 0.4-0.7ppm showed approximately 54% of the population with at least one cavity. That percentage appears to be virtually the same as the percentage in those communities at the ideal recommended levels. Mt. Pleasant has a natural fluoride rate of 0.4ppm.

Another way of assessing dental health is to look at the total number of cavities that children experience. The Michigan Department of Community Health uses this method when it surveys third graders throughout Michigan. In its 2006 report called COUNT YOUR SMILES, the Department included a graph showing the average number of teeth affected by caries among all third grade Michigan children and among third grade Michigan children with any cavities experience, comparing fluoridated and non-fluoridated communities (see Appendix C). The graph shows that among children with some caries experience, children in non-fluoridated areas experience an average of approximately 4.2 caries and children in fluoridated areas experience an average of approximately 3.75. That is a difference of less than ½ cavity per child. The bottom part of the graph shows the average number of cavities among all third graders. That graph shows approximately 2.75 caries for children in non-fluoridated areas compared with approximately 2.25 in fluoridated areas; again a difference of about ½ cavity.

It should be noted that in discussing the effectiveness of fluoridation in the reducing caries, Task Force has relied on figures provided by groups that have been the most supportive of water fluoridation.

When comparing differences in dental decay experience, those who support water fluoridation tend to look at percentages in comparing

fluoridated and nonfluoridated communities. However, as a March 23, 2006 *Wall Street Journal* article pointed out:

“Overall, drinking fluoridated water cuts the rate of tooth decay 18-40% according to the U.S. Center for Disease Control and Prevention—which translates into fewer than one decayed tooth surface per person.”

Those who support water fluoridation also argue that it is difficult to find differences between fluoridated and non-fluoridated communities because of what is called the “halo” effect. Products bottled or processed in large cities with fluoridated water supplies are distributed throughout the country. Therefore, even cities that don’t fluoridate benefit indirectly from fluoridated water supplies and that blurs the difference. While this argument may have some validity, the experience in Europe (in which a vast majority of the countries have rejected water fluoridation) discussed below would seem to suggest that is not a sufficient explanation.

- 2. While the dramatic decrease in the number of caries experienced by the average American child over the last 60 years would seem to suggest that water fluoridation during that period must have played a key role, the fact that most European countries have experienced a similar decline without the use of water fluoridation makes that conclusion questionable.**

An article in the summer 2005 issue of the *Journal of American Physicians and Surgeons* says:

“Over a 20 year period from 1965-1985, the average number of decayed, missing or filled teeth (DMFT) in 12-year-old children dropped by 50% in the U.S...However, the following non-fluoridated countries had even greater reductions in DMFT during similar 20 year periods: the Netherlands, 72%, Sweden, 82%, Finland, 98%.”

Using material provided by the World Health Organization, Chris Neurath created a graph showing that tooth decay rates in countries without fluoridated water systems have declined at about the same rate as in countries with fluoridated water systems. That graph has been included as Appendix E.

There is widespread use of fluoridated toothpaste, oral rinses and other fluoridated products in Europe, but not fluoridated municipal water systems.

Since virtually none of the countries in mainland Europe have fluoridated water, it would be difficult to conclude that the “halo” effect explains these dramatic declines.

- 3. There appears to be little evidence to show that communities that discontinue water fluoridation experience an increase in caries.**

The 2009 book *FLUORIDE WARS* by Freeze and Lehr concludes: “In recent years, with caries rates falling precipitously across the board, communities that stop their fluoridation programs continue to benefit from the declining national trend even after they turn off their fluoridation equipment.”

- 4. The benefits from fluoride come from the topical application, not from ingesting (drinking) the fluoride.**

When fluoride was first added to water supplies, it was believed that ingesting the fluoride would strengthen the teeth during development before they erupted and make the enamel more resistant to cavities; however, even the strongest supporters of water fluoridation (ADA and CDC) now acknowledge that is not true. The benefit is primarily from topical application to the erupted teeth.

Therefore, the issue facing us is whether water fluoridation is the best method for topical application. The studies sighted above suggest that if there is a benefit to water fluoridation, it is relatively small. That small benefit must be weighed against those apparent risks, which are associated with ingesting fluoridated water over a lifetime.

That brings us to the second issue addressed by this report:

**SAFETY/HEALTH ISSUES: Does water fluoridation pose significant safety/health risks?**

**Conclusion:** The majority of the Task Force has concluded that water fluoridation may pose some potential health risks for at least some subgroups within the population.

In reviewing the most recent studies on the potential health risks associated with over exposure to fluoride in drinking water, the Task Force felt that there were several reasons to be concerned. Those concerns are summarized below:

**1. The lack of high quality, long-term studies on the risks of drinking fluoridated water over a lifetime.**

Comprehensive reviews of the studies on the safety of fluoridation conducted in Great Britain, Canada and the United States over the last ten years all concluded that there are major gaps in research that make it very difficult to determine the potential risk factors. The 2006 report of the National Research Council done for the EPA on the safety of the current Maximum Containment Level (MCL) for fluoride said:

“As noted above, gaps in information on fluoride prevented the committee from making some judgments about the safety or the risks of fluoride at concentrations between 2 and 4 mg/L and below. The report makes several recommendations for future research to fill those gaps (those included skeletal risk, dental effects and cancer risk), as well as recommendations to pursue lines of evidence on other potential health risk (e.g. endocrine effects and brain function).”

The Centre for Reviews and Dissemination for the University of York, which conducted the British review, made this statement in October 2003 about the quality of studies done:

“An association with water fluoride and other adverse effects such as cancer, bone fracture and Down’s syndrome was not found. However, we felt that not enough was known because the quality of the evidence was poor.... As emphasized in the report, only high-

quality studies can fill the gaps in knowledge about these and other aspects of fluoridation.”

In the original executive summary, the York Report stated: “Given the level of interest surrounding the issue of public water fluoridation, it is surprising to find that little high quality research has been undertaken.”

The Mt. Pleasant Task Force unanimously agreed that the poor quality of research is surprising after more than 60 years of public water fluoridation.

## **2. Fluorosis:**

As the NRC report indicates, exposure to fluoride can cause a condition known as enamel fluorosis which can range from mild discoloration of the tooth surface to severe staining, enamel loss and pitting. The NRC concluded that the current EPA standard does not protect against severe fluorosis, which the majority of the committee concluded, was an adverse health effect. There continues to be disagreement about the significance of mild to moderate fluorosis. Some consider it a dental problem requiring significant and expensive treatment, while others view it as a minor cosmetic problem.

The CDC has acknowledged that more than one-third of American children now experience at least mild dental fluorosis. The chart in Appendix “B” shows the direct correlation between water fluoridation and the increase in fluorosis. Appendix “D” includes pictures of the impact of mild fluorosis.

THE FLUORIDE WARS researchers Allen Freeze and Jay Lehr draw this conclusion: “It is clear from the evidence available that dental fluorosis is more prevalent in fluoridated than in nonfluoridated communities, and that it has increased over time across the United States in incidence and severity. Arguments still rage as to the dental, medical and psychological importance of this trend, but there are few knowledgeable observers who are not worried about it to some degree.”

### 3. **Infants and baby formula:**

In November, 2006, the strongest supporter of water fluoridation, the American Dental Association sent a notice to its members that included the following statement: “If using a (baby formula) product that needs to be reconstituted, parents and caregivers should consider using water that has no or low levels of fluoride.”

The ADA was responding to a number of studies that had concluded that infants were consuming too much fluoride. The National Research Council report, which was released in March 2006 made the following statement about fluoride consumption by infants:

“On a per-body-weight basis, infants and young children have approximately three to four times greater exposure than do adults...At EPA’s current secondary maximum contaminant level of 2 mg/L, between 25% and 50% of infants up to one year of age in EPA’s 2004 water intake survey consumed enough water to exceed the tolerable upper intakes for their age groups.”

### 4. **Other potential health risks:**

In addition to the fluorosis and infant formula concerns raised in the NRC report, there were several other health related issues that lead the NRC to reject the current MCL for fluoride. These include:

- a. **Skeletal fluorosis and bone fractures:** The NRC report said that lowering the current MCL for fluoride will “reduce the lifetime accumulation of fluoride into bone that the majority of the committee concludes is likely to put individuals at increased risk of bone fracture and possibly skeletal fluorosis, which are particular concerns for those of the public who are prone to accumulating fluoride in their bones.”

Dr. Hardy Limeback, a Canadian dentist and dental researcher who was one of the 12 members of the NRC review committee explains further: “Drinking on average 1 liter/day of naturally fluoridated water at 4 parts per million increases your risk for bone pain and bone fractures...Since fluoride accumulates in bone, the same risk occurs in people who drink 4 liters/day of

artificially fluoridated water at 1 part per million, or people with renal disease. Additionally...since tea itself contains fluoride, using fluoridated tap water puts many tea drinkers dangerously close to threshold for bone fractures.”

- b. **Bone cancer:** The *Wall Street Journal* article summarizing the NRC report provides a succinct statement on this important issue: “the national science panel called the evidence of osteosarcoma “tentative and mixed,” because the studies as a whole do ‘not clearly indicate that fluoride either is or is not carcinogenic in humans.’ But because the hypothesis is biologically plausible—fluoride is known to accumulate in bone tissue and causes bone cells to proliferate, and animal data suggest it is carcinogenic—the committee concludes that ‘fluoride appears to have the potential to initiate or promote cancers, particularly of the bone.’”

In a statement issued by the Canadian Association of Physicians for the Environment reference is made to a peer-reviewed, published study conducted by Elise Bassin, a doctoral student at the Harvard University, which appeared to show a “potential association ...with osteosarcoma in boys, which appears to have been loosely associated with age of exposure to fluoride...the original researcher acknowledged that current data are tentative, but a further larger-scale study is pending from the Harvard School of Dentistry. At the very least such data are grounds for caution.”

- c. **Endocrine/thyroid:** The NRC report included the following statement on endocrine effects: “The chief endocrine effects of fluoride exposures in experimental animal and in humans include decreased thyroid function, increased calcitronin activity, increased parathyroid hormone activity, secondary hyperparathyroidism, impaired glucose tolerance and possible effects on timing of sexual maturity. Some of these effects are associated with fluoride intake that is achievable at fluoride concentrations in drinking water of 4 mg/L or less, especially for young children or for individuals with high water intake.”
- d. **Neurological/brain development:** again turning to the *Wall*

*Street Journal* summary of the report: “In a surprise to even some longtime fluoridation opponents, the committee expressed concern about the effect of fluoride on IQ, noting that the ‘consistency of study results appears significant enough to warrant additional research’ on the question. IQ deficits, the committee noted, have been strongly associated with dental fluorosis, in which teeth become scarred and weakened and develop yellow and brown mottling during the years teeth are forming. But the existing data are ‘not adequate’ to say for sure whether fluoride can impair IQ.”

In addition to highlighting these potential health risks for the general population, the NRC report indicates that some groups are at potentially higher risks either because they drink unusually large quantities of water (such as athletes) or people with certain medical conditions such as diabetes or renal disease. That may explain why some groups that previously endorsed water fluoridation have now withdrawn their support.

Those groups, identified in the summer, 2005 *Journal of American Physicians and Surgeons*, include:

**American Academy of Allergy and Immunology,  
American Academy of Diabetes,  
American Cancer Society,  
American Diabetes Association  
American Nurses Association,  
American Psychiatric Association,  
National Kidney Foundation  
Society of Toxicology**

**ETHICS/LEGAL ISSUES: Does the addition of fluoride to the municipal water system create potential ethical and legal issues?**

**Conclusion:** The majority of the Task Force concluded that the identification of an increasing number of potential health risks for at least some subgroups within society significantly increases the legal/ethical questions related to the use of the municipal water system as a delivery

mechanism for fluoride.

The Task Force considered the following ethical/legal issues:

**1. The inability to control the specific dosage of fluoride delivered through the municipal water system.**

While it is possible for water treatment operators to control the concentration of fluoride in municipal water, the dosage consumed by individual users is based on factors outside the control of the water operators. The ethical questions raised by this problem were addressed by Dr. Avril Carlson, the winner of the 2000 Nobel Prize in Medicine, who was quoted in an October, 2008 issue of *Integrated Health Practitioners (IHP)*. He said:

“Water fluoridation also goes against leading principles of pharmacotherapy, which is progressing from a stereotyped medication—of the type 1 tablet three times a day—to a much more individualized therapy as regards both dosage and selection of drugs. The addition of drugs to the drinking water means exactly the opposite of an individualized therapy. Not only in that the dose cannot be adapted to individual requirements. It is, in addition, based on a completely irrelevant factor, namely consumption of drinking water, which varies greatly between individuals and is, moreover, very poorly surveyed.”

The NRC report explains that the current MCL of 4 ppm established by the EPA is based on the assumption that the average adult consumes 2 liters of water-based beverages a day. The NRC report points out that people who are likely to be exposed to higher concentrations than the ‘average adult’ include “those who drink unusually large volumes of water, such as athletes or people with certain medical conditions. In addition, the NRC report says that “infants and young children have approximately three to four times greater exposure than do adults.”

**2. The removal of personal choice on the use of fluoride as a means to fight tooth decay.**

The relative importance of this issue is hard to assess. Obviously, in

any society individuals are sometimes required to sacrifice their own individual choice for the good of the majority. The initial decision to promote water fluoridation was based on the assumption that it was a general public health measure that was justified by the apparent reduction in tooth decay and was supported by most of the medical, dental and public health community. Many cities made the same decision as Mt. Pleasant in concluding that the public benefit outweighed personal choice. However, as other means became available to provide that benefit (such as fluoridated toothpaste) and the risks to particular individuals seemed to be greater than originally assumed, the question of individual choice became more problematic.

Does the City have the right to force citizens who should avoid fluoride to buy bottled water rather than using the municipal water, which they are paying for already? Dr. Brian McLean, a Canadian dentist addressed this issue in the October 2008 issue of *IHP*: “By endorsing fluoridation, are we not, in effect, “prescribing” it to everyone, without taking a medical history, ignoring the principles of informed consent, and insisting that the prescription gets filled and taken more (not less, it seems) than directed?”

### **3. The impact of fluoridation on low-income families.**

The strongest argument presented by those who support fluoridation is that it provides the benefits of fluoride to everyone regardless of socio-economic level or ability to afford dental care. This is undoubtedly one of the main reasons so many cities chose to fluoridate their water supplies and most would agree that it was a strong justification. However, over the last 60 years the actual benefit to low-income children has been hard to verify.

In the review of fluoridation done for the Ontario Ministry of Health, David Locker concluded that while there are some indications that the children with the most cavities are those from low-socio-economic families who live in non-fluoridated cities and that the differences between fluoridated and non-fluoridated cities are usually the greatest at the lower end of the socio-economic scale, the studies themselves are “equivocal and interpretations difficult.” (THE FLUORIDE WARS, page 204)

Dr. Bill Osmunson, a dentist from Washington State who also has a master's degree in public health points out that the socio-economic status itself contributes to cavities and that fluoridation has little affect:

“I will not attack the people supporting fluoridation because as a dentist I supported fluoride supplements and fluoridation of water. I thought I could see the difference in my patients, but I was looking at socioeconomics not fluoridation. The rich are healthier, the poor have more cavities.”

In an email received by Commissioner Ling from Dr. Osmunson on the issue of benefits for low-income families, Dr. Osmunson says:

Many inner cities have been fluoridating for 40 and 50 years and report a crisis of dental decay. Kentucky was given an award by the ADA for 50 years of 100% fluoridation and at the same time had the highest rate of people without teeth. Why are all these poor people losing their teeth when they have fluoridation? (November, 2009)

The issue that makes the impact on low-income families even more difficult to evaluate is the fact that the ADA and CDC now suggest that baby formula should not be mixed with fluoridated water because infants are overexposed and at higher risk of fluorosis. Low-income families who are part of the WIC program administered by the Michigan Department of Community Health are given powdered formula that must be mixed with water. They are now forced to spend money on fluoride free bottled water or ignore the advise of the ADA and use municipal fluoridated water.

#### **4. Potential liability for the City**

While there have been many attempts to use the courts to force the end of fluoridation, none have been successful. However, the initial decisions in several of those cases suggest that at some point legal action may be successful. Dr. Joel Kauffman, a retired professor of Chemistry in his article in the *Journal of American Physicians and Surgeons* (summer, 2005) says:

“In fact, lawsuits have met with some success...in non jury trials in

Pittsburgh, Pa, in 1978, Alton, Ill, in 1980 and Houston, Tex, in 1982...the judges found for the plaintiffs and issued injunctions against fluoridation on the grounds that it caused cancer and other ailments in humans. Based on the injunction in the Pittsburgh case, the Province of Quebec, Canada stopped fluoridating. However, all three cases were overturned on appeal on trivial legalistic grounds. In spite of the appellate actions, however, the judicial findings of fact, namely that fluoridation is an unreasonable risk to public health, remain on the record and unchallenged.”

The phrase “trivial, legalistic grounds” is obviously a subjective judgment by Dr. Kauffman. Basically, the courts tend to defer to legislative bodies on policy questions unless the proof of harm is overwhelming. In an earlier 1965 case the appellate judge said: “while the judiciary does not have the power to impose fluoridation on anyone, it does have the power to overrule legislation authorizing acts that are not in the public interest if convincing proof of harm is offered.” It would be very difficult to predict at what point the courts may conclude that “convincing proof of harm” has been presented.

A legal challenge at the federal level may come from the contention that adding fluoride should be considered a violation of the Safe Drinking Water Act (SDWA). Robert Carton, an environmental scientist who worked at the EPA from 1972-92 argues that the SDWA “requires the EPA to determine ‘whether any adverse effects can be reasonably anticipated, even though not proved to exist.’” He contends that the NRC report identified potential adverse health effects in the following areas: “moderate dental fluorosis, stage I skeletal fluorosis...decreased thyroid function and detrimental effects on the brain.

He claims that the amount of fluoride necessary to cause these effects to susceptible members of the population is at or below the dose received from current levels of fluoride recommended for water fluoridation. (*Fluoride, July-August, 2006, page 163*).

THE FLUORIDE WAR authors refer to the 1990 case *Washington v Harper* as a potential basis for future litigation. In that case the U.S. Supreme Court ruled that “the forcible injection of medication into a nonconsenting person’s body represents a substantial interference

with that person's liberty." The authors conclude that "It will undoubtedly be used as a basis for future fluoridation challenges, but has not been so to date." (Page 321)

This overview of potential legal issues is provided for information only. As non-lawyers, the Task Force does not feel qualified to judge the potential for future lawsuits. The recommendations that follow are not based on fear of imminent legal action.

### **TASK FORCE RECOMMENDATION**

After reviewing written materials and listening to experts on both sides of this issue and based on the analysis included in this report, the majority of the Fluoride Task Force has concluded that artificial fluoridation of the City's water system represents an **unnecessary risk** to at least some subgroups within our population. It is **unnecessary** because topical fluoride protection is readily available at relatively low cost through fluoridated toothpaste. It is also available through oral rinses, which are relatively inexpensive, and through treatment at dental offices. The fact that the difference between dental decay rates in fluoridated and nonfluoridated cities is relatively small and that tooth decay rates in most of Europe, which does not have water fluoridation, are similar to rates in the United States, suggests that these other methods for providing topical application of fluoride are effective.

In addition the Task Force believes that **potential risk** exists for at least some subgroups. Those subgroups would include infants using reconstituted baby formula, adults who consume large quantities of water and those with medical conditions such as diabetes and renal disease.

#### **Therefore, the Task Force makes the following recommendation:**

1. The City of Mt. Pleasant should temporarily suspend artificially fluoridating its municipal water system.
2. When the Environmental Protection Agency issues its new health and risk assessment, the Task Force should review those assessments and make a final recommendation to the City Commission on the future of water fluoridation in Mt. Pleasant.
3. Meanwhile, the Task Force should continue to meet quarterly to review any new information on the issue of water fluoridation.

4. The City Commission should inform our Congressional representatives of this decision and ask them to urge the EPA to respond in a timely fashion to the National Research Council's recommendation for a reassessment of the safety of fluoride.

As Sharyl Majorski, a member of the Task Force put it, "We believe that elected officials have an obligation to be 'good custodians' of the public water system. The 'precautionary principle' dictates that we err on the side of safety."

Until we feel that we can say with a high degree of certainty that water fluoridation is doing no harm, we believe it is prudent to stop using it until the safety issues raised in the most recent reports are addressed.

## **APPENDIX A**

### Partial list of materials reviewed by Task Force

#### **General Background**

1. City Commission Resolution (August, 2008)
2. Brief history of fluoride ballot proposals
3. Relevant material from most recent Mt. Pleasant Water Quality Report.
4. *Fluoride in Drinking Water: A Scientific Review of EPA's Standards*, National Research Council (NRC), National Science Foundation, March, 2006.

#### **Pro-fluoridation materials:**

1. Executive Summary of Health Canada proposed Guidelines for continuation of recommendation for water fluoridation (Sept. 2009)
2. Ontario Minister of Health and Minister of Federal Economic Development response to citizen petition calling for an end to water fluoridation.
3. Letter from Shelia Semlar, Head of Oral Health Division MDCH supporting fluoridation and responding to recent concerns.
4. Handouts from Michigan Department of Community Health on benefits of fluoridation
5. COUNT YOUR SMILES, publication of the Michigan Department of Community Health, 2006
6. Materials prepared by the Mt. Pleasant Water Department
7. "Current Fluoride Facts and Issues," report prepared by Dr. Dan Kane, February 1, 2010.

#### **Anti-fluoridation materials:**

1. Statement from Canadian Association of Physicians for the Environment calling for end to fluoridation, September, 2008.
2. Professional Statement calling for end to water fluoridation (Fluoride Action Network, January, 2009)
3. ADA memo on mixing baby formula with fluoridated water
4. Video Tape "Professional Perspectives" prepared by Fluoride Action Network
5. Statement of Dr. William Hirzy, National Treasury Employees Union, Chapter 280, Subcommittee on Wildlife, Fisheries and Drinking Water, U.S. Senate, June 29, 2000.

## **Books:**

Bryson, Christopher, The Fluoride Deception, Seven Stories Press, New York, April, 2006.

Freeze, R. Allen and Lehr, Jay H., The Fluoride Wars, John Wiley and Sons, Inc., New Jersey, 2009.

## **Magazines and Newspaper Articles:**

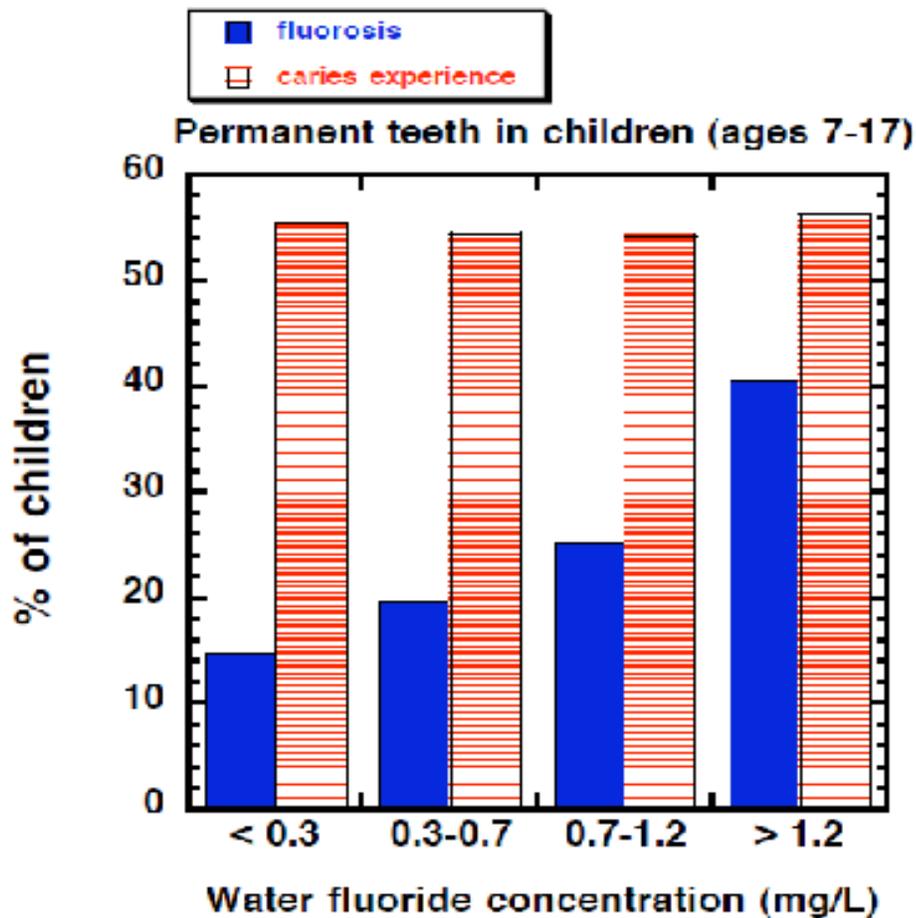
1. Bassin, Elise B. et al, "Age-specific Fluoride Exposure in Drinking Water and Osteosarcoma (United States), Cancer Causes and Control, 2006, pp 421-428.
2. Begley, Sharon, "Fluoridation, Cancer: Did Researchers Ask The Right Questions?" Wall Street Journal, July 22, 2005, page B 1.
3. Begley, Sharon, "Government Panel Raises Concerns about Fluoride," Wall Street Journal, March 23, 2006.
4. Carton, Robert, "Review of the 2006 United States National Research Council Report: Fluoride in Drinking Water," Fluoride, July-September 2006, page 163.
5. Center for Reviews and Dissemination, "What the 'York Review' on Fluoridation of Drinking Water Really Found," October 28, 2003, [www.york.ac.uk/inst/crd/fluoridnew.htm](http://www.york.ac.uk/inst/crd/fluoridnew.htm).
6. "Environmental Toxins," TIME special edition, April, 2010.
7. Fagin, Dan, "Second Thoughts on Fluoride," Scientific American, January, 2006, pp 74-81.
8. Kaufmann, Joel M., "Water Fluoridation: A Review of Recent Research and Actions," Journal of American Physicians and Surgeons, Summer, 2005, pp 38-44.
9. McLean, Brian, "Motherhood, Apple Pie and Fluoridation," Integrated Health Practices, October, 2008, pp 51-55.
10. Van Caulart, Peter, "Canadian Water Providers Ceasing Artificial Fluoridation," Environmental Science and Engineering, July, 2008.
11. Van Sant, Will, "Warning by the American Dental Association About Giving Babies Fluoridated Water," St. Petersburg Times, June 4, 2007.

## APPENDIX B

### Artificial Water Fluoridation – No Benefit – Definite Harm

National data set collected in the U.S. in 1986-1987 (more than 16,000 children, ages 7-17, with a history of a single continuous residence). No difference in caries rates in the permanent teeth of children is seen with different water fluoride levels. Fluorosis prevalence and caries prevalence with water fluoride concentration for children ages 7-17 with a history of a single continuous residence is provided. Data are shown as % of total children having fluorosis (very mild, mild, moderate, or severe, but not questionable) or caries experience.

Source: Iida, H., and Kumar, J.V. 2009. The association between enamel fluorosis and dental caries in U.S. schoolchildren. JADA 140:855-862.

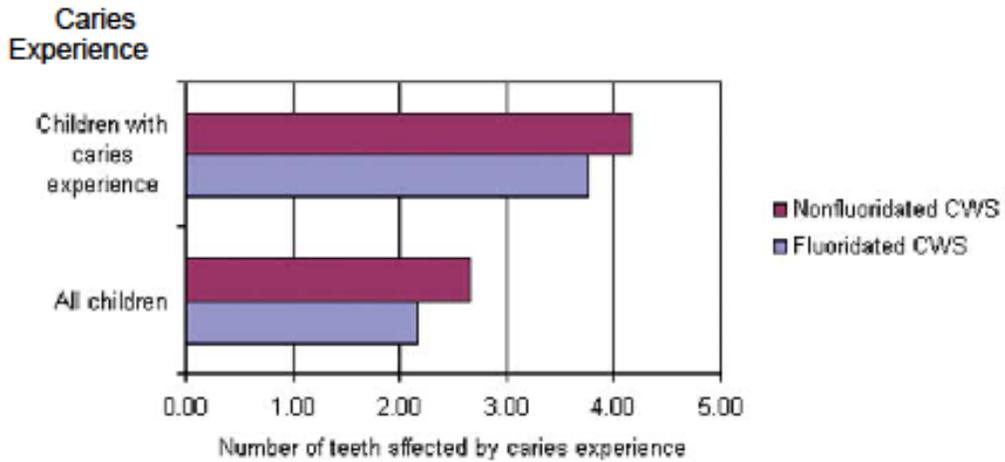


**Prepared by:** Kathleen M. Thiessen, Ph.D., SENES Oak Ridge, Inc., Center for Risk Analysis, professional in the field of risk analysis, including exposure assessment, toxicity evaluation, and risk assessment. She has recently served on two subcommittees of the National Research Council's Committee on Toxicology, including the NRC's Committee on Fluoride in Drinking Water.

# APPENDIX C

From Michigan Department of Community Health Count Your Smiles 2006

**Figure 3:** Average number of teeth affected by caries among all third grade Michigan children and among third grade Michigan children with any caries experience, by community water supply (CWS) fluoridation status, 2005-06



# APPENDIX D

## Dental Fluorosis

4/14/2010



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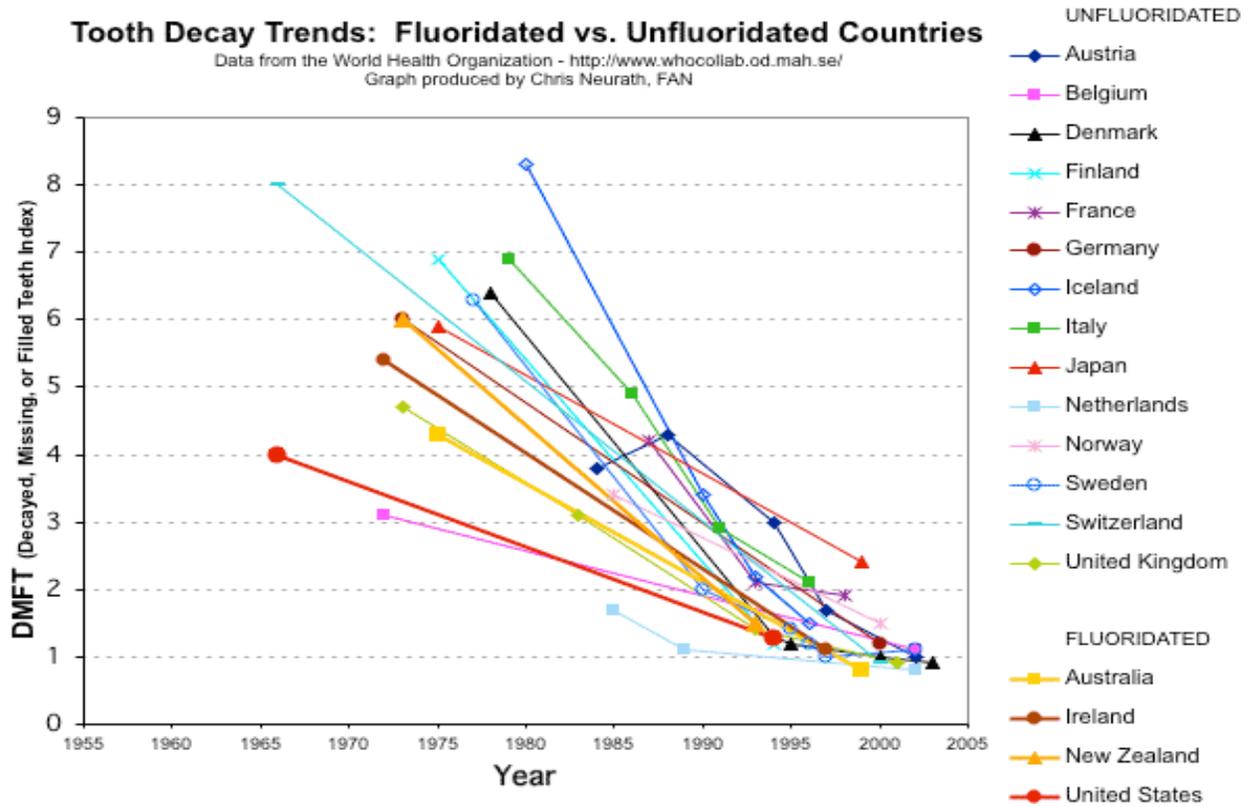
Photo by David Kennedy, DDS



[Moderate/Severe Fluorosis](#)

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# APPENDIX E



## APPENDIX F

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