

## Introduction

I am Rich Sagall, a retired family physician and the chair of the Gloucester Board of Health.

Three years ago, the issue of fluoridation of our water supply was debated and there was a referendum question on the ballot. We had a presentation to the City Council, community presentations organized by the Boards of Health in Gloucester and Rockport, and presentations by the anti-fluoridation supporters.

The citizens of Gloucester and Rockport voted on whether to continue supplementing their water supplies with fluoride to attain the currently recommended levels. In Gloucester, 65% of the voters voted to continue community water fluoridation. In Rockport it was 58%.

Since then there haven't been any credible studies that have changed the consensus of opinion of medical, dental, and public health officials. Fluoridation continues to be one of the most cost-effective methods of preventing dental decay.

I will not attempt to summarize all the current information of every aspect of community water fluoridation programs. I have divided the issues into four questions which I will briefly discuss:

1. Is community water fluoridation effective?
2. Is community water fluoridation safe?
3. Is community water fluoridation legal?
4. Is community water fluoridation a question of social justice?

### **Is Community Water Fluoridation Effective? Yes**

Dental decay affects most Americans. About 60% of teenagers have some decay as do 95% of adults.<sup>1</sup>

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<sup>1</sup> <https://www.today.com/health/most-us-have-tooth-decay-study-finds-t20781>

Numerous studies over many years have demonstrated the effectiveness of community water fluoridation programs in preventing tooth decay for people of all ages. It costs pennies per person and saves billions of dollars. One study in 2013 found the estimated savings from community water fluoridation was \$6.8 billion per year.<sup>2</sup> That's \$32.19 per person in a fluoridated community. An older study from 2005 found that each dollar spent in community water fluoridation programs saved \$38 in dental expenses.<sup>3</sup>

About 140 Massachusetts communities fluoridate their water, protecting the teeth of over 4 million people.<sup>4</sup>

Many dental, medical and public health experts, agencies and organizations have issued statements supporting the effectiveness and safety of community water fluoridation in promoting dental health and preventing dental decay.<sup>5, 6</sup>

### **Is Fluoride Safe?**

This is not a simple question that can be answered with “yes” or “no.” There’s a saying in toxicology – “The dose determines the poison.”<sup>7</sup> Any substance can be toxic if the dose is high enough. For example, too much oxygen or too much water can be toxic and may result in death.

Granted, too much fluoride causes harm. That’s why the amount in water supplies are carefully monitored and the desired levels regularly re-evaluated and adjusted.

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<sup>2</sup> <https://www.ncbi.nlm.nih.gov/pubmed/26776927>

<sup>3</sup> <https://www.ncbi.nlm.nih.gov/pubmed/16263039>

<sup>4</sup> <https://www.mass.gov/files/documents/2016/07/xv/fluoride-census.pdf>

<sup>5</sup> <https://ilikemyteeth.org/fluoridation/health-experts-on-fluoride/surgeons-general/>

<sup>6</sup> <https://ilikemyteeth.org/fluoridation/health-experts-on-fluoride/>

<sup>7</sup> <https://www.chemicalsafetyfacts.org/dose-makes-poison-gallery/>

Botulism toxin is considered by many to be the most poisonous biological substance known, yet in very small doses it's safely used medically<sup>8</sup>. It's called Botox.

You may have heard that a tube of toothpaste contains enough fluoride to kill a child. This just isn't true. A 4.5 ounce tube of toothpaste contains around 150 milligrams of fluoride. The lethal dose for a child weighing 45 pounds is 655 milligrams or over 4 tubes of toothpaste.<sup>9</sup>

The toxic dose of fluoride is 5 mg/kilogram of body weight. Put another way, a 150-pound adult would have to drink 350 liters of fluoridated water – that's nearly 93 gallons – within a short period of time – to get a toxic dose.

Many of the studies showing adverse effects of fluoride involve much higher levels of fluoride in the water than found in this country.<sup>10</sup> Comparing these outcomes to community water fluoridation is meaningless.

One recent study frequently cited by anti-fluoridation supporters is a study done in Mexico in communities without community water fluoridation<sup>11</sup>. The anti-fluoridation supporters claim this study bolsters their hypothesis that fluoridation leads to decrease in IQs.

The study wasn't designed to answer questions about fluoridation and IQ and so any such conclusions are not valid. In addition, one of the sources of fluoride was fluoridated salt, not community water fluoridation; there was inadequate control for other factors; and there was no accounting for other sources of dietary fluoride.<sup>12</sup>

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<sup>8</sup> <https://www.medicinenet.com/script/main/art.asp?articlekey=25769>

<sup>9</sup> <https://health.howstuffworks.com/wellness/oral-care/kids/what-if-child-eats-fluoride-toothpaste1.htm>

<sup>10</sup> <https://ehp.niehs.nih.gov/doi/10.1289/ehp655>

<sup>11</sup> <https://www.ncbi.nlm.nih.gov/pubmed/2893795>

<sup>12</sup> <http://ga.dentalresearchblog.org/?p=2896>

The limitations of the study show that it's inappropriate to draw from it any conclusions about optimally fluoridated community water supplies.

## **Is Community Water Fluoridation Legal? Yes**

A related question is whether community water fluoridation is forced medication.

No state court of last resort has determined community water fluoridation to be illegal.<sup>13</sup>

The US Supreme Court has ruled at least a dozen times, saying there are no substantial federal or constitutional questions involved.<sup>14</sup>

The courts have ruled that:

- Fluoride is a nutrient, not a medication
- Fluoride is present naturally in the environment
- No one is forced to drink fluoridated water as alternatives are available
- In cases where a person believes fluoridation interferes with religious beliefs, there is a difference between the freedom to believe, which is absolute, and the freedom to practice beliefs, which may be restricted in the public's interest.<sup>15</sup>

Courts have repeatedly ruled that water fluoridation is not a form of compulsory mass medication or socialized medicine. Water that has been supplemented with fluoride is similar to fortifying salt with iodine, milk with vitamin D, and orange juice with calcium.<sup>16</sup>

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<sup>13</sup> <http://fluidlaw.org>

<sup>14</sup> <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1752-7325.1986.tb03141>

<sup>15</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1256473/pdf/amjphnation00161-0005.pdf>

<sup>16</sup> *Fluoridation Facts*, 2018, page 91

## **Is Community Water Fluoridation a Social Justice Issue?**

### **Yes**

Community water fluoridation helps to reduce the disparities in dental health at the community level. Populations with lower socioeconomic status who live in fluoridated communities have less tooth decay than their peers in non-fluoridated communities.<sup>17</sup>

Numerous studies have found that socioeconomic factors are associated with increased risk of dental caries. A 2012 review of 41 studies found a strong relationship between education, income, occupational status, and socioeconomic status with dental caries.<sup>18</sup>

A study of children in New York concluded "...compared to children in the high-income group, low-income children had more caries experience and untreated caries, fewer dental visits, fewer sealants and lower use of fluoride tablets (applies only to children with a water supply not fluoride supplemented)".<sup>19</sup>

According to the U.S. Census Bureau, 8.2% of the population of Gloucester live at or below the poverty level. That's nearly 2,500 people.<sup>20</sup> For the year ending in July, The Children's Dental Clinic treated 600 children and provided 573 treatments for cavities.<sup>21</sup>

### **Summary**

To summarize:

1. Is community water fluoridation safe – YES
2. Is community water fluoridation effective –YES
3. Is community water fluoridation legal – YES

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<sup>17</sup> *Fluoridation Facts*, 2018, page 88

<sup>18</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3509471/>

<sup>19</sup> [https://www.health.ny.gov/prevention/dental/docs/child\\_oral\\_health\\_surveillance.pdf](https://www.health.ny.gov/prevention/dental/docs/child_oral_health_surveillance.pdf)

<sup>20</sup> <https://www.census.gov/quickfacts/fact/table/gloucestercitymassachusetts/PST045217>

<sup>21</sup> Private communication with center's director

4. Is community water fluoridation a matter of social justice –  
YES

Dental disease causes more harm than just cavities. It can affect a child's overall health, their ability to study and learn, and impacts on self-confidence.

**The Next Step**

The people of Gloucester resoundingly spoke in 2015 with 65% supporting the continuation of community water fluoridation.

Since 2015 there have been no generally accepted research articles demonstrating harm from fluoride at the currently recommended levels. No credible dental or medical experts, agencies or organizations who support community water fluoridation have changed their opinion of its value.

Gloucester should continue supplementing its water supply with fluoride.

I am happy to answer any questions.

A copy of this presentation will be available on the City of Gloucester website.