

State Standards Vary for Community Water Fluoridation

What State Laws and Regulations Require



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Introduction

Fluoride is a mineral that exists naturally in public water supplies, but usually at a concentration that is too low to prevent tooth decay. For this reason, many U.S. communities adjust the fluoride level to reach an “optimal” concentration that reduces the rate of dental cavities while minimizing the incidence of dental fluorosis, which is a change in the appearance of tooth enamel.¹ Local communities usually accomplish this by fortifying their water with additional fluoride.

The Centers for Disease Control and Prevention (CDC) reports that consuming fluoridated water reduces tooth decay by about 25 percent over a person’s lifetime.²

Within the coming months, the U.S. Department of Health and Human Services (HHS) is expected to finalize a recommendation for the optimal fluoride level that all public water systems should use to fluoridate drinking water.

Accordingly, a number of states are likely to change existing statutes or regulatory codes to reflect this new recommendation. State laws vary significantly in this area, largely because the original guidance by health officials recommended fluoride concentrations that were based on the regional climate.

In 1962, the U.S. Public Health Service recommended that local water systems engaging in fluoridation do so within a range of 0.7 to 1.2 milligrams per liter. The range was based on the scientific understanding that Americans residing in warmer climates generally drank more water than those living in cooler climates.³

Communities were expected to use a fluoride concentration that reflected their average annual air temperatures. For example, since Phoenix began fluoridating in 1990, its local water system has added fluoride to reach a level of 0.7 mg/L, while Minneapolis has fluoridated its drinking water at a level of 1.1 mg/L.⁴

New Federal Guidance

In the years since the 1962 recommendation, Americans have gained access to more sources of fluoride. Although fluoride toothpaste was introduced to U.S. consumers in the 1950s, it did not secure the overwhelming majority of the market until decades later.⁵ Besides toothpaste, mouth rinses and other fluoride-enriched products have also become available since the original fluoride recommendation.

Additionally, researchers produced an analysis of 1999-2004 data showing that the children’s water consumption rates did not vary

**This policy brief is solely authored by the Children’s Dental Health Project and does not necessarily represent the official position of the Centers for Disease Control and Prevention.*

significantly by climate.⁶ This finding indicated that a fluoride range was unnecessary.

These developments prompted HHS in January 2011 to propose a new recommendation—closing the range and instructing local water systems to fluoridate at a level of 0.7 milligrams per liter. If the department finalizes this recommendation, it will replace federal health officials’ previous guidance, which recommended a range of 0.7-1.2 mg/L.

The HHS recommendation was also shaped by the desire to reduce the incidence of dental fluorosis, which is not a disease but, rather, a change in the appearance of tooth enamel. The vast majority of fluorosis in the U.S. is a mild, cosmetic condition that leaves faint white streaks on teeth that are so subtle that it typically takes a dental practitioner to notice it. Mild fluorosis doesn’t cause pain, and it doesn’t affect the health or function of the teeth. Fluorosis can result if an excessive amount of fluoride is consumed by children during the tooth-forming years—through the age of 8.⁷

Three years ago, a senior HHS official described the proposed recommendation of 0.7 mg/L as “part of our ongoing support of appropriate fluoridation” and a recognition of “its effectiveness in preventing tooth decay throughout one’s lifetime.”⁸ Indeed, community water fluoridation continues to have the support of the nation’s leading health and medical organizations, including the American Academy of Pediatrics, the American Dental Association, the Institute of Medicine and the American Public Health Association.⁹

Updating State Laws

Although fluoridation is generally initiated by city councils or other local entities, some states have strongly encouraged or even required this health practice. State laws guaranteeing

access to fluoridated water apply to localities that exceed a specific population threshold. For example, Connecticut’s law applies to community water systems serving at least 20,000 residents, while the threshold in Arkansas’ statute is 5,000 people.¹⁰

State-Designated Fluoride Levels

Thirteen states have statutes or regulations requiring community water systems to fluoridate drinking water to a specific concentration or range. These states are:

- Arkansas
- California
- Connecticut
- Delaware
- Georgia
- Illinois
- Kentucky
- Louisiana
- Minnesota
- Nebraska
- Nevada
- Ohio
- South Dakota

Because most of the laws or regulations in these 13 states reflect the 1962 Public Health Service recommendation, they are likely to be amended if HHS finalizes its 0.7 mg/L recommendation.¹¹ This brief reviews which states have optimal levels written into their current statutes and/or regulations.

Two states, **Connecticut** and **Ohio**, would need to amend statutes in order to align with the anticipated HHS recommendation. Both states currently have statutes that require a minimum fluoride concentration of 0.8 mg/L.¹²

Seven states would need to revise their current regulations, but not their statutes, to conform to HHS’s anticipated recommendation for the optimal fluoride concentration:

- Five of these seven states—**Delaware, Illinois, Kentucky, Minnesota** and **South Dakota**—have regulations requiring community water systems to fluoridate at a level above 0.7 mg/L.¹³
- In the other two states—**California** and **Nebraska**—some water systems might be able to follow the anticipated HHS recommendation, but others that tried to adjust to a new level would likely fall out of compliance with current state laws or rules. In California, water systems in communities whose maximum daily air temperatures reach an average of 79.3 degrees or higher are allowed to fluoridate their water at 0.7 mg/L, but water systems with cooler climates are directed to use higher fluoride concentrations.¹⁴ In Nebraska, local water systems that have natural fluoride levels of 0.7 mg/L do not need to add fluoride. All other water systems, however, must fluoridate at 0.8 mg/L or above.¹⁵

Four of the 13 states that specify a fluoride concentration might not need to update their statutes or regulatory code.

- Two of these states—**Georgia** and **Louisiana**—have fluoridation regulations that set optimal levels above 0.7 mg/L but appear to allow water systems to maintain a concentration as low as 0.7 mg/L. For example, Georgia’s regulatory code states that concentrations “should be maintained at 0.85 ppm ... with a lower limit of 0.7 ppm and an upper limit of 1.0 ppm.”¹⁶ Similarly, the relevant Louisiana

regulation states that the optimal fluoride level is 0.8 mg/L but that “the acceptable range is 0.7 to 1.2 mg/L.”¹⁷ These two states might not choose to revise their regulations because these provisions appear to allow for a lower limit of 0.7 mg/L.

- The language in the **Arkansas** and **Nevada** fluoridation laws does not hinder any water systems from following the anticipated HHS recommendation. Arkansas’ law sets an optimal concentration of 0.7 mg/L and a “control range” of 0.6 to 0.12 mg/L.¹⁸ Nevada’s statute and regulation, by contrast, set 0.7 mg/L as a *minimum* level, but since they do not set a higher optimal level (unlike Georgia and Louisiana), they clearly allow water systems in Nevada to follow the anticipated recommendation.¹⁹

For more details on state laws and regulatory language, visit the Fluoride Legislative User Information Database at www.fluidlaw.org.



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Table 1

State	Relevant Law/Regulation	Required Fluoridation Level (parts per million) ²⁰
Arkansas	Ark. Code Ann, § 20-7-136 (2011)	Local water systems are required to maintain a fluoride concentration at 0.7 mg/L, but the concentration can vary within a control range of 0.6 mg/L to 1.2 mg/L. ²¹
California	Cal. Code Regs. tit. 22, § 64433.2	Local water systems are instructed to maintain a fluoride concentration between 0.7 mg/L to 1.2 mg/L, but the concentration can vary within a control range of 0.6 mg/L to 1.7 mg/L. However, the concentration of fluoride is adjusted to reflect each community's average daily temperature.
Connecticut	Conn. Gen. Stat. § 19a-38 (2013)	Local water systems are required to maintain a fluoride concentration between 0.8 mg/L and 1.2 mg/L.
Delaware	Code Del. Regs. 4462 6	Local water systems are required to maintain a fluoride concentration within a range of 0.8 and 1.2 mg/L.
Georgia	GA Adm. Code 511-5-2-.01 (2013)	Local water systems are instructed to maintain a fluoride concentration of 0.85 mg/L within a control range that is no lower than 0.7 mg/L and no higher than 1.0 mg/L.
Illinois	Ill. Admin. Code tit. 35, § 611.125	Local water systems are required to maintain a fluoride concentration of 0.9 to 1.2 mg/L.
Kentucky	902 Ky. Admin. Reg. s 115:010 (Section 1(1)) 2013)	Local water systems are required to maintain a fluoride concentration within a control range of 0.8 to 1.4 mg/L in the treated water, but a fluoride concentration of no less than 0.9 mg/L is recommended.
Louisiana	La. Admin. Code Tit. 48, § 1101	Local water systems are instructed to maintain a fluoride concentration of 0.8 mg/L, but the control range is from 0.7 to 1.2 mg/L.
Minnesota	Minn. R. 4720.0030	Local water systems are required to maintain an average fluoride concentration of 1.2 milligrams per liter. The concentration shall be neither less than 0.9 mg/L nor more than 1.5 mg/L.
Nebraska	Neb. Admin. Code tit. 179, § 003	Local water systems are required to maintain a fluoride concentration in the control range of 0.8 to 1.5 mg/L, and the recommended range for the optimal level is 1.0 to 1.3 mg/L.
Nevada	Nev. Rev. Stat. Ann. § 445A.055 (West 2011); Nev. Admin. Code 445A.6682	Local water systems are required to maintain a fluoride concentration that is no less than 0.7 mg/L and not more than 1.2 mg/L.
Ohio	Ohio Rev. Code Ann. § 6109.20 (West 2012)	Local water systems are required to maintain a fluoride concentration in the range of 0.8 mg/L to 1.3 mg/L.
South Dakota	S.D. Admin. R. 74:04:01:03	Local water systems are required to maintain a fluoride concentration in the range of 0.9 mg/l to 1.7 mg/l, with an optimal level of 1.2 mg/l.

Sources & Explanations

- ¹ “2012 Water Fluoridation Statistics,” Centers for Disease Control and Prevention, <http://www.cdc.gov/fluoridation/statistics/2012stats.htm>; “FAQs for Dental Fluorosis,” Centers for Disease Control and Prevention, July 10, 2013, http://www.cdc.gov/fluoridation/safety/dental_fluorosis.htm.
- ² “Fluoridation Basics,” Centers for Disease Control and Prevention, July 25, 2013, <http://www.cdc.gov/fluoridation/basics/index.htm>
- ³ “Community Water Fluoridation: Frequently Asked Questions,” Centers for Disease Control and Prevention, December 6, 2013, <http://www.cdc.gov/fluoridation/faqs/>.
- ⁴ “Q&A: Fluoride,” City of Phoenix Water Services Department, July 5, 2012, <https://www.phoenix.gov/waterservicessite/Documents/wsdfluoride070512b.pdf>; “City of Minneapolis: 2011 Water Quality Report,” <http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/wcms1p-093798.pdf>.
- ⁵ “How Crest Made Business History,” Working Knowledge (Harvard Business School), January 17, 2005, <http://hbswk.hbs.edu/archive/4574.html>.
- ⁶ E.D. Beltrán-Aguilar, L. Barker and W. Sohn, “Total Water Intake: Lack of association between daily temperature and children’s water intake in the United States — 1999–2004,” Centers for Disease Control and Prevention, updated on July 10, 2013, <http://www.cdc.gov/fluoridation/factsheets/totalwaterintake.htm>.
- ⁷ “Oral Health Topics: Fluorosis,” American Dental Association, <http://www.ada.org/en/member-center/oral-health-topics/fluorosis>, accessed August 12, 2014; “Dental Fluorosis,” Centers for Disease Control and Prevention, July 10, 2013, http://www.cdc.gov/fluoridation/faqs/dental_fluorosis/index.htm. The ADA’s assessment of mild fluorosis is reinforced by a 2002 study, which noted that the faint streaks on teeth form mild fluorosis are typically “not noticed by most people or, indeed, by the individual himself or herself.” See: W.H. Bowen, “Fluorosis: Is it really a problem?” *Journal of the American Dental Association*, (October 2002), Vol. 133, 1406.
- ⁸ “EPA and HHS Announce New Scientific Assessments and Actions on Fluoride,” joint press release by the U.S. Department of Health and Human Services and the Environmental Protection Agency, January 7, 2011, <http://yosemite.epa.gov/opa/advpress.nsf/6427a6b753>

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- ⁹ “Water Fluoridation,” American Academy of Pediatrics, accessed on Oct. 8, 2014 at <http://www.healthychildren.org/English/healthy-living/oral-health/Pages/Water-Fluoridation.aspx>; “ADA Fluoridation Policy & Statements,” American Dental Association, accessed on Oct. 8, 2014 at <http://bit.ly/1pyjLJE>; *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; and a press release by the American Public Health Association, January 18, 2011, <http://www.apha.org/about/news/pressreleases/2011/water+fluoridation+response.htm>.
- ¹⁰ Ark. Code Ann. § 20-7-136 (2011); Conn. Gen. Stat. § 19a-38 (1965).
- ¹¹ Many of these 13 states exempt communities under a certain size, and a few of the states have other types of exemptions for certain water systems.
- ¹² Conn. Gen. Stat. § 19a-38 (2013); Ohio Rev. Code Ann. § 6109.20 (West 2012)
- ¹³ Code Del. Regs. 4462 6; Ill. Admin. Code tit. 35, § 611.125; 902 Ky. Admin. Reg. s 115:010 (Section 1(1)) (2013); Minn. R. 4720.0030; S.D. Admin. R. 74:04:01:03; Illinois, for example, enacted a 2011 law directing that rules governing fluoridation “shall incorporate the recommendations on optimal fluoridation ... as proposed and adopted by the U.S. Department of Health and Human Services.” As of October 2014, the guidance from Illinois [Public Act 097-0043](#) had not yet been translated into regulatory language.
- ¹⁴ Cal. Code Regs. tit. 22, § 64433.2.
- ¹⁵ Neb. Admin. Code tit. 179, § 003.
- ¹⁶ Ga. Comp. R. & Regs. § 15-5-175 (2013).
- ¹⁷ La. Admin. Code tit. 48, § 1101.
- ¹⁸ Ark. Code Ann, § 20-7-136 (2011); Code Ark. R. § 007.18.2-VII.
- ¹⁹ Nev. Rev. Stat. Ann. § 445A.055 (West 2011); Nev. Admin. Code 445A.6682.
- ²⁰ State requirements for fluoride concentration only apply to water systems that reach specific thresholds of customers; thresholds vary by state. See fluidlaw.org for information on each state’s law or regulatory code.
- ²¹ At any point in time, fluoride levels can vary slightly in the water that is distributed to customers. Some states designate a “control range” within which the fluoride level should be maintained. For more information, see <http://www.cdc.gov/mmwr/preview/mmwrhtml/00039178.htm>.