Fluoridation of Water Good or Bad?

By Andrew Nassif

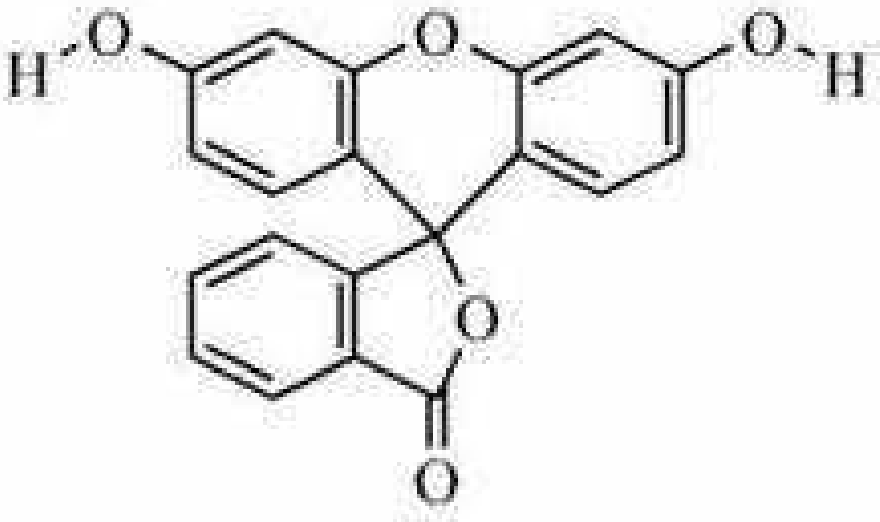
History

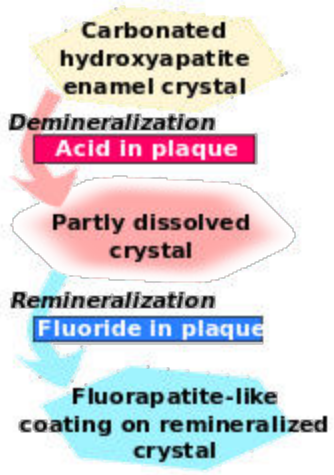
Water Fluoridation is the process of adding fluoride to public water supplies in order to reduce the possibility of tooth decay. Its use began in 1945, as a study of children and the effects of them drinking fluoride in their water. The experiment remained a success, however the use of fluoride in water didn't increase dramatically until 1994 when a world health committee brought the idea of adding .8ml of fluoride/liter of water. The idea then went to congress and passed. Today, over 400 million houses have fluoride in their water.

Creation of Fluoride in Water

It starts by adding a small amount (typically 8-18%) of one of the following into water: sodium fluoride, fluorosilicic acid, or sodium fluorosilicate. Next, they pump it in using a fluoride pump and monitor the levels they put with a special chemical analyzer.

Chemical Representation on Fluorescein





Mechanism of the Idea

The idea only cost a dollar per person and can be used to prevent tooth decay. Fluoride has the ability to interfere with the demineralization process of tooth decay. The idea is giving fluoride the ability to remineralize and protect enamel before it is being damaged. This process also kills a majority or dental bacteria in the mouth. Fluoride is not considered to always prevent cavity but to decrease the rate on how they grow. After this process is done, about 90% of the fluoride is then stored in teeth or bones and othe calcium rich areas. The rest is mineralized in the saliva or between teeth. This process is seen on the diagram above. However the process I just explained are what happens in adults. Now I must explain what happens in infant. The remaining fluoride in an infants body usually is 70 to 80% and is excreted through urine rather then stored in the body.

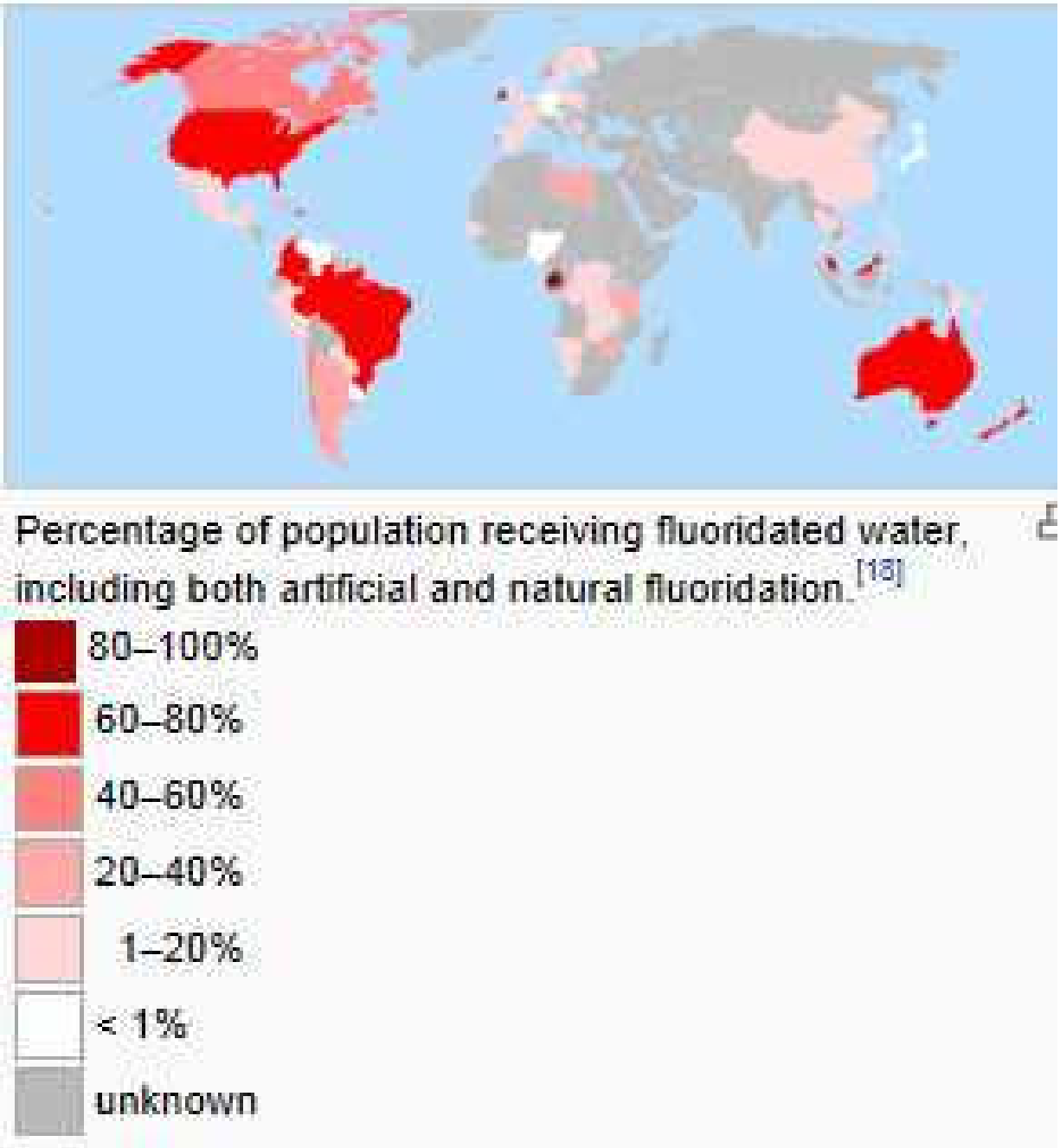
Effectiveness

Earlier studies show that water fluoridation led to a reduce of 50 to 60% of children cavities; most recent studies showed a lower effect of 18 to 40% dues to increasing use of fluoride in other sources such as tooth paste. The effectiveness can vary due to health care of the person.

Safety

Fluoride dosage can be effected by amount of fluoride from other sources. A common effect is dental fluorosis, even I have it. Dental Fluorosis can cause white strikes on the teeth or awkward teeth development. The only way Fluorosis can be prevented is by monitoring all your sources of fluoride. Occasionally there are several long term effects such as skeletal fluorosis or severe dental fluorosis.

Percentage of Those Receiving Fluoridation in Water



Concluding Statement:

I believe overall the fluoridation of water has a positive effect of keeping teeth and enamel more healthier and is one of the most productive government projects our there.

Sources:

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^ ***a b c*** Lamberg M, Hausen H, Vartiainen T. Symptoms experienced during periods of actual and supposed water fluoridation. *Community Dent Oral Epidemiol.* 1997;25(4):291–5. doi:10.1111/j.1600-0528.1997.tb00942.x. PMID 9332806.

^ ***a b c d e f g h i*** Centers for Disease Control and Prevention. Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR Recomm Rep*. 2001;50(RR-14):1–42. PMID 11521913. Lay summary: *CDC*, 2007-08-09.

^ ***a b*** Taricska JR, Wang LK, Hung YT, Li KH. Fluoridation and defluoridation. In: Wang LK, Hung YT, Shammas NK, editors. *Advanced Physicochemical Treatment Processes*. Humana Press; 2006. (Handbook of Environmental Engineering 4). doi:10.1007/978-1-59745-029-4_9. ISBN 978-1-59745-029-4. p. 293–315.

^ ***a b*** WHO Expert Committee on Oral Health Status and Fluoride Use. Fluorides and oral health [PDF]. 1994.

^ ***a b c*** Hobson WL, Knochel ML, Byington CL, Young PC, Hoff CJ, Buchi KF. Bottled, filtered, and tap water use in Latino and non-Latino children. *Arch Pediatr Adolesc Med*. 2007;161(5):457–61. doi:10.1001/archpedi.161.5.457. PMID 17485621