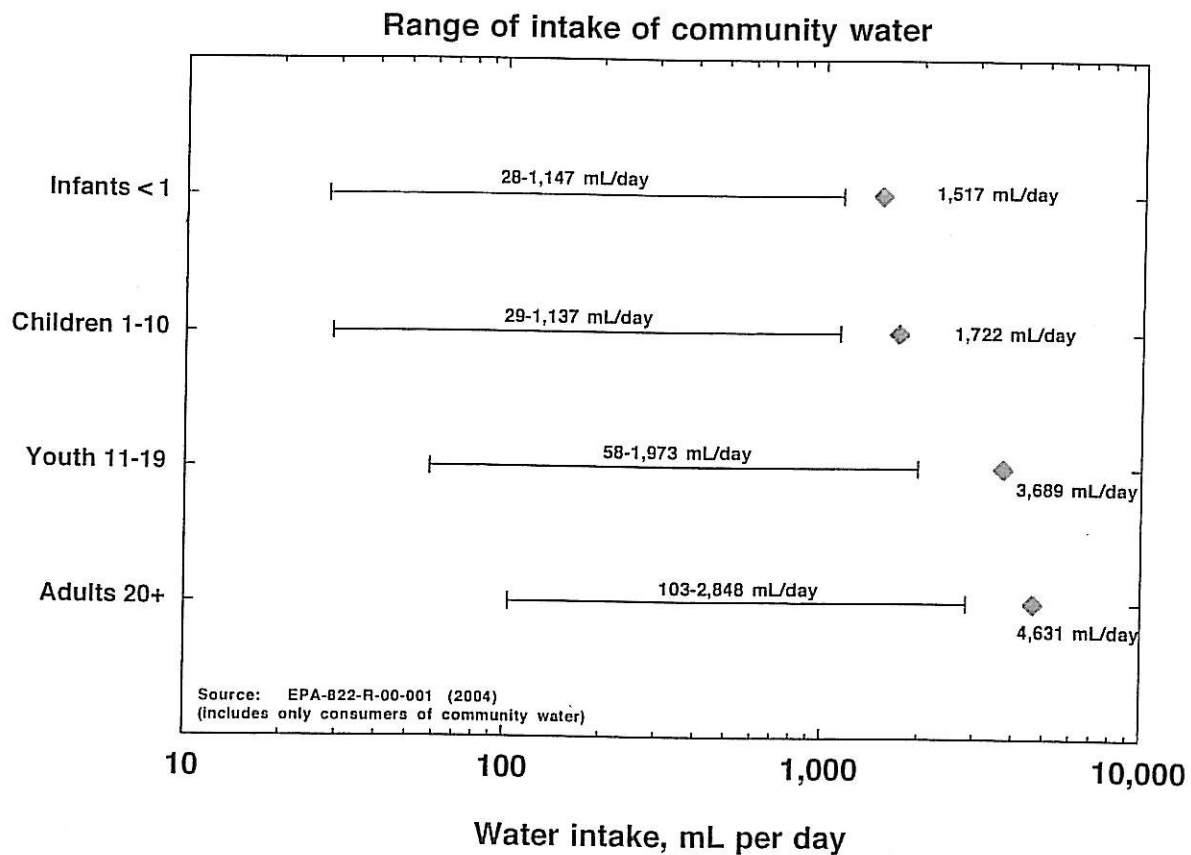


Adverse Health Effects from Fluoride in Drinking Water

Comments to the Metropolitan Water District
Los Angeles, California
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Slide 1

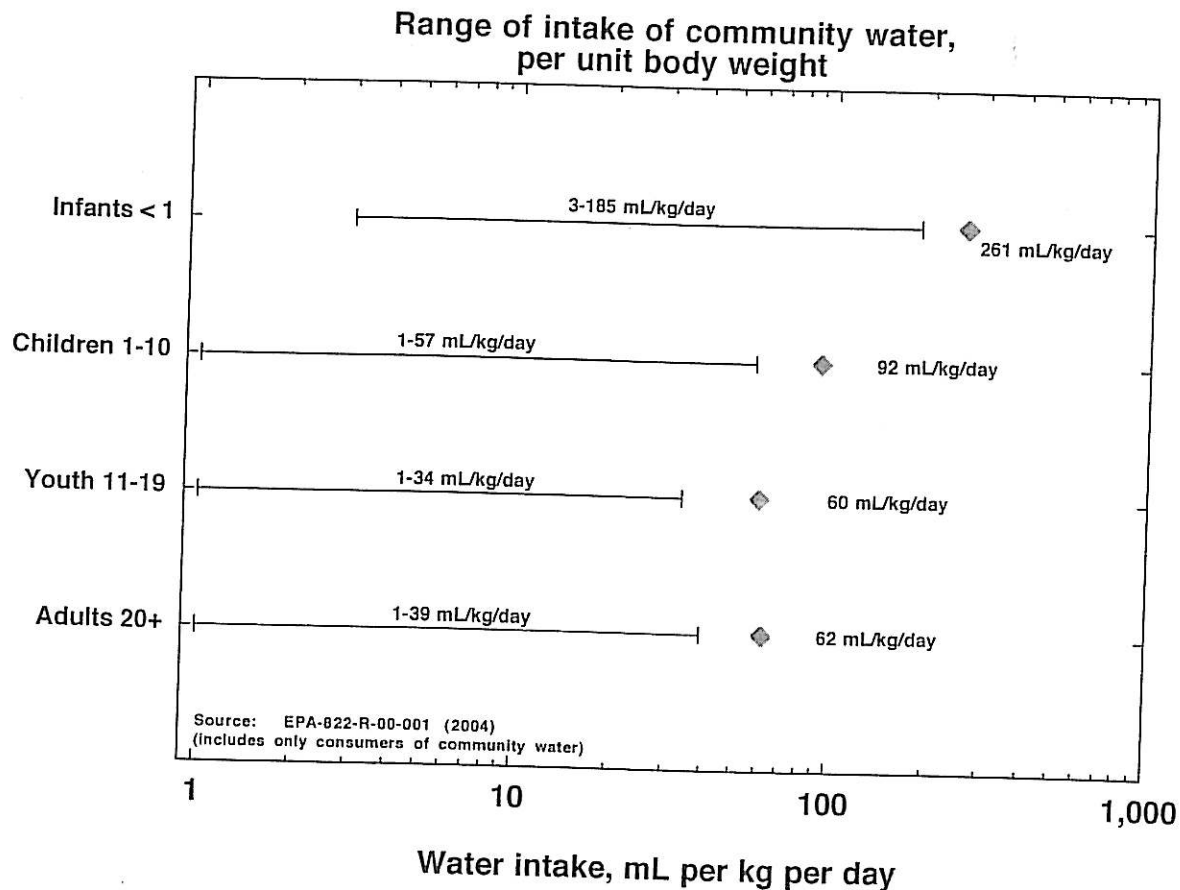


The first graph illustrates the expected range of consumption of community water (public tap water) for various age groups, in quantities of milliliters per day (mL per day). The ranges include only people who actually consume tap water. Note that some people consume substantially more tap water than the usual range. This information is from an EPA report published in 2004.

The total consumption of community water shown here is not to be confused with total fluid consumption or total water consumption. It does not include well water, bottled water, or

commercial beverages. It does include water consumed directly and water used to prepare household or restaurant foods and beverages.

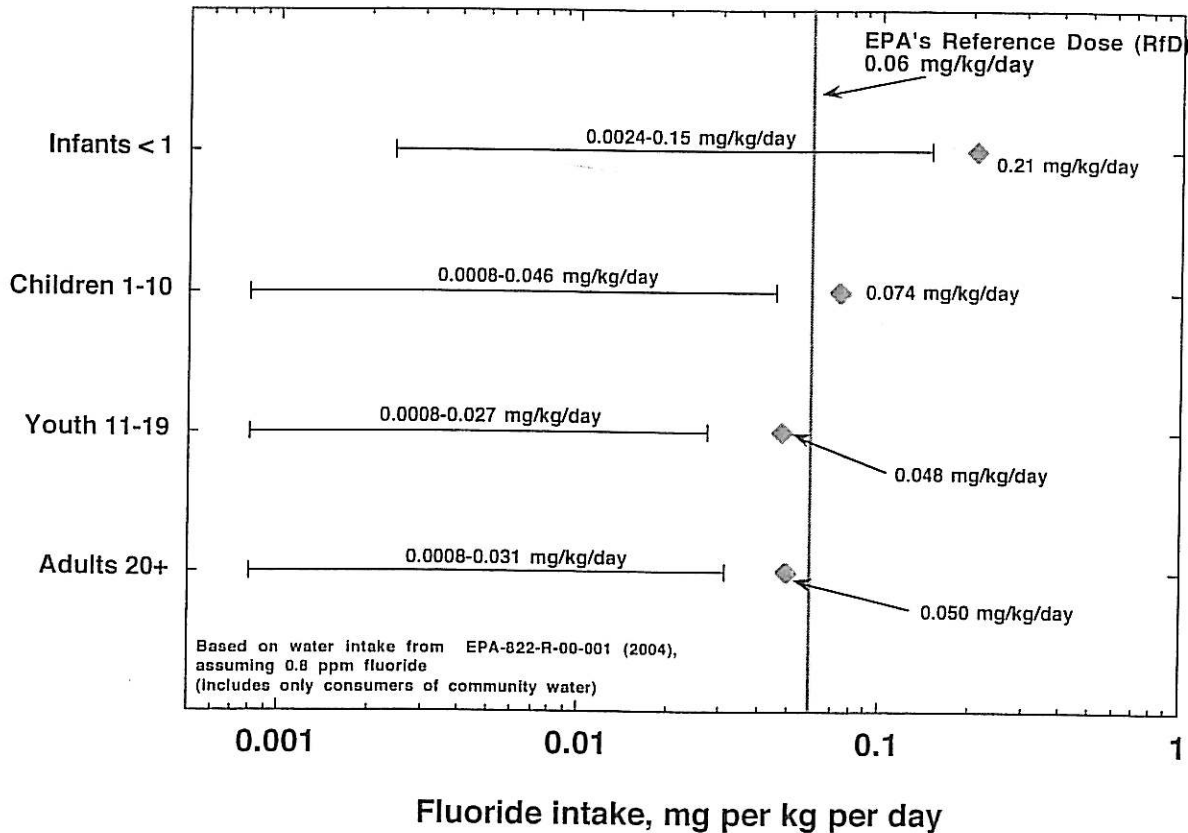
Slide 2



The second graph shows the same information as in the first slide, but in terms of water intake per unit body weight (milliliters of community water intake per kg of body weight, or mL per kg per day). Note that infants have the highest tap water consumption per unit body weight, with some infants reaching more than 250 mL per kg per day.

In general, the people with the highest tap water intakes include babies fed formula made with tap water, people with certain medical conditions (e.g., diabetes insipidus, diabetes mellitus) or taking certain medications (e.g., lithium), people in unairconditioned residences in hot climates, people who work outside in hot climates or do heavy physical labor, and athletes.

Range of fluoride intake from community water,
assuming 0.8 ppm fluoride in the water

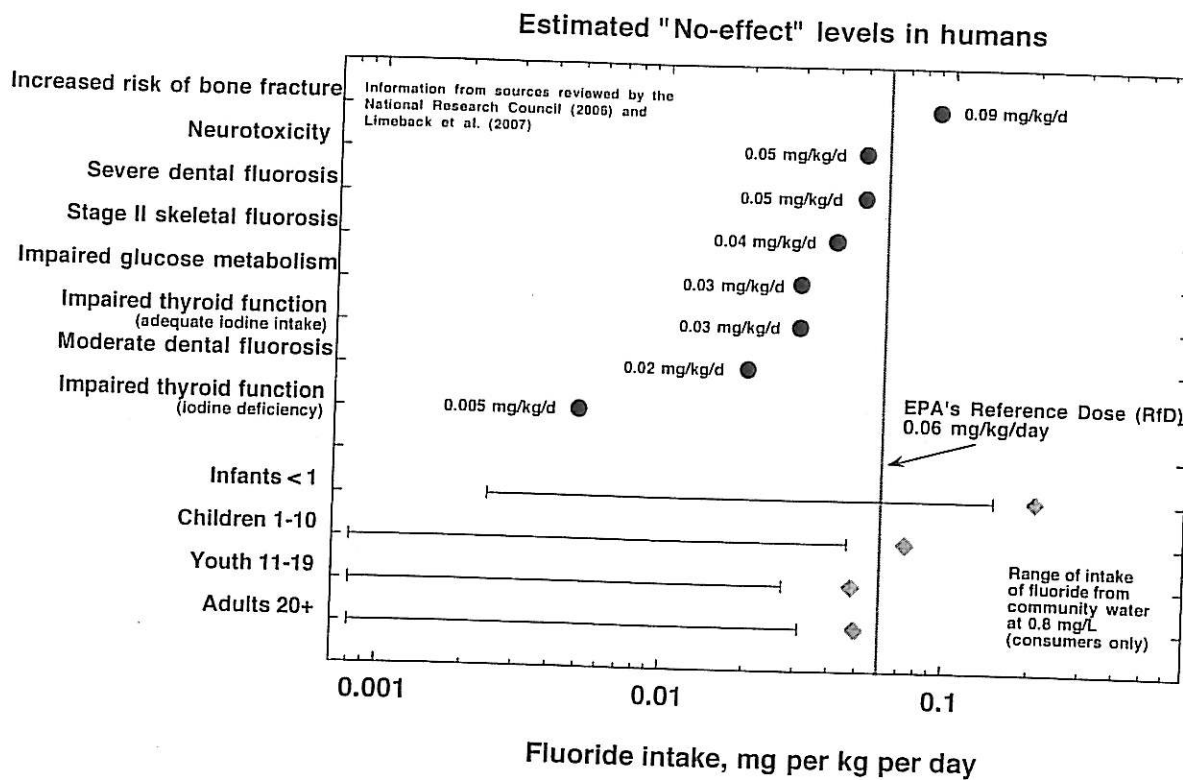


The third graph shows estimated fluoride intakes for each age group (mg of fluoride per kg of body weight per day), assuming the range of tap water intakes shown in Slide 2 and a fluoride concentration in the tap water of 0.8 ppm (0.8 mg fluoride per liter of water). Also shown is EPA's reference dose, which is defined as "an estimate of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime." For fluoride, the reference dose is 0.06 mg per kg per day. As seen in the graph, many infants have a fluoride intake just from tap water that exceeds EPA's reference dose for fluoride. The children (ages 1-10) with the highest water consumption also exceed EPA's reference dose. Older children (youth) and adults with the highest water consumption are very close to EPA's reference dose.

Note that this graph shows estimated fluoride intakes only from tap water. These estimates do not include fluoride intakes from other sources, such as commercial beverages (which are often made with fluoridated tap water), toothpaste, tea, or food. When these other sources of fluoride intake are included, total fluoride intakes for many members of all age groups exceed EPA's reference dose.

Slide 4

F-4



The final graph shows the estimated fluoride intakes from tap water from Slide 3, plus estimates of the "no-effect" levels for various adverse health effects. These "no-effect" levels represent fluoride intakes at or below which most people are not expected to experience any harmful effects. Note that these are estimates based on average exposures of study populations; these estimates do not include any margin of safety, and they might not be protective for all individuals. Intakes above these levels cannot be considered safe.

Note also that most of these "no-effect" levels are lower than EPA's reference dose for fluoride. In other words, EPA's reference dose is not protective for most of these health endpoints.

Note also that most of these "no-effect" levels are exceeded by many members of the population, of all ages, just from fluoride at 0.8 ppm in community drinking water. When other fluoride sources are included, even more people are expected to exceed the "no-effect" levels. In order to be "safe" for all members of the population, fluoride intakes for all people must be kept below the lowest "no-effect" levels, with all sources of fluoride intake are included, and with an adequate margin of safety.

This list of adverse health effects does not include cancer. A carcinogenic (cancer-causing) effect of fluoride cannot be ruled out from the available data, and at the very least, a cancer-promoting effect is likely. For carcinogenic substances, the risk of cancer increases with the amount of exposure, such that even a very low exposure carries with it some cancer risk.