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197468 Relationship between municipal water fluoridation and preterm birth in Upstate New York

### Monday, November 9, 2009

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The annual incidence of preterm birth (PTB) (<37 weeks gestation) in the United States is approximately 10% and is associated with considerable morbidity and mortality. Current literature suggests an association between periodontal disease and PTB. Domestic water fluoridation is thought to have lessened the burden of dental disease. Theoretically, one would expect water fluoridation to be protective against PTB. The aim of our study was to examine the relationship between municipal water fluoridation and PTB. A retrospective, cohort study was conducted using the Statewide Planning and Research Cooperative System (SPARCS) database. Inclusion criteria were 1) women with live singleton births between 1993 and 2002 (ICD-9-CM); 2) residence in Upstate New York State; 3) residence in a zip code fully contained within a county; and 4) residence in a county where municipal water fluoride content was uniformly therapeutic ( $\geq 1.0$  mg/L) or sub-therapeutic (<1.0 mg/L).

Domestic water fluoridation was associated with an increased risk of PTB (9545 (6.34%) PTB among women exposed to domestic water fluoridation versus 25278 (5.52%) PTB among those unexposed,  $p < 0.0001$ ). This relationship was most pronounced among women in the lowest SES groups (>10% poverty) and those of non-white racial origin. Domestic water fluoridation was independently associated with an increased risk of PTB in logistic regression, after controlling for age, race/ethnicity, neighborhood poverty level, hypertension, and diabetes.

Additional studies that assess patient level ingestion of fluoride and other competing factors associated with PTB are required before health policy decisions can be made about the proposed relationship.

#### Learning Objectives:

1. Assess whether domestic water fluoridation levels are associated with a decline in preterm birth under the assumption that water fluoridation improves oral health.
2. Describe the usefulness and limitations of population-based studies of water fluoridation levels and preterm birth rates.

**Keywords:** Water Quality, Pregnancy Outcomes

#### Presenting author's disclosure statement:

**Qualified on the content I am responsible for because:** Extensive course training in epidemiological methods as well as previous research in the field of maternal and child health.

**Any relevant financial relationships?** No

I agree to comply with the American Public Health Association Conflict of Interest and Commercial Support Guidelines, and to disclose to the participants any off-label or experimental uses of a commercial product or service discussed in my presentation.

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