Manuscript #176

1. Title:
Tap Water Chlorination

2. Writing Group:
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3. Timeline:
Analyses are in progress. Expected date of completion is spring, 1993.

4. Rationale:
Animal research, human experiments, and observational epidemiologic studies have provided conflicting
evidence of an association between the ingestion/use of chlorinated tap water/food stuffs and a variety of
cardiovascular effects, including hypercholesterolemia. The Forsyth Co. ARIC cohort provides an
opportunity to study this association in a cost-efficient manner by providing data on blood pressure, blood
lipids, lipoproteins, and markers or carotid artery atherosclerosis for secondary data analysis, while data
from public and private drinking water suppliers enable the classification of ARIC participants with respect
to home tap water chlorination status.

5. Main Hypotheses:
1) Individuals with exposure to chlorinated tap water in the home have a higher mean level of plasma total-
cholesterol than those without such an exposure.
2) Individuals with exposure to chlorinated tap water in the home have a thicker mean carotid artery far wall
than those without such an exposure.

6. Data:
Primary data collection: Home tap water chlorine status and variability of free chlorine levels within the
Winston-Salem city water system. This information is obtained from public records. No ARIC participants
are contacted.

ARIC Database: Visit 1, excluding those less than 45 yrs and those other than white or black race
(n=3983). Dependent variables include plasma T-C, LDL-C, HDL-C, Tg, Apo-A, and Apo-B, mean
carotid far wall thickness, and diastolic and systolic BP. Covariates include age, gender, race, body mass,
education, smoking, drinking, use of medications affecting lipids or blood pressure, dietary calcium intake,
and Key's score.

This work is proposed as a single-site analysis, limited to Forsyth Co., NC. In this study community the
ARIC cohort was selected as an area probability sample of the county, stratified by census tract. This
allows us to address the study question by contrasting members of the ARIC cohort who were sampled
from sub-urban areas supplied with non-chlorinated tap water, with those residing in areas supplied with chlorinated tap water.