Dr. Chester W. Douglass DMD, PhD
Professor and Chair, Harvard School of Dental Medicine Department of Oral Health Policy and Epidemiology

Chester W, Douglas, DMD, PhD, is Professor and Chair of the Department of Oral Health Policy and Epidemiology in the Harvard School of Dental Medicine and Professor of Epidemiology in the Harvard School of Public Health where he is Director of the Harvard University Oral Epidemiology Doctoral Training Program. Currently, Dr. Douglass is the principal investigator of an NIH study relating water fluoridation and topical fluoride use to the occurrence of osteosarcoma. This national collaborative study is coordinating data collection efforts in ten orthopedic surgery departments throughout the United States. Other major epidemiological studies in which this program is participating include the International Collaborative Study of Children's Dental Caries. Dr. Douglass also presently serves as the Chief of Service for Dentistry and Oral Surgery in the Cambridge (Massachusetts) Health Alliance which includes 3 hospitals, 2 health departments, and 21 ambulatory care centers in Cambridge, Somerville, and Everett, Massachusetts.

ABSTRACT

WATER FLUORIDATION AND OSTEOSARCOMA: UPDATE ON US CASE CONTROL STUDY

Two Case Control Studies of Fluorides and Osteosarcoma:
An Interim Report: Robert Hoover, National Cancer Institute; Chester W. Douglass, Harvard University

Over 162 million persons currently drink fluoridated water in the U.S. A previous study by the National Toxicology Program reported an association in male rats between extremely high (79 ppm) doses of fluoride in their drinking water and osteosarcoma. A Harvard study of 164 prevalent cases and 346 controls from ten US, teaching hospitals was conducted between 1989 and 1992. Hospital based controls were matched by age, gender, and distance from hospital at time of diagnosis. As percent of life lived in communities with F $\leq$0.7 ppm increased, the odds ratio of osteosarcoma increased but was not significant for people who live 100% of their lives in fluoridated communities. Topical fluoride use appeared to be null (OR = 0.69; 95% CI; 0.35 - 1.3). Use of well water may be a risk factor (OR = 2.44; 95% Cl: 0.26 - 4.72) and bottled water use appears to be a protective factor (OR - 0.50; 95% Cl: 0.22 - 1.15).

The National Cancer Institute has conducted a prospective study of 189 incident cases, 108 tumor controls, and 167 non cancer orthopedic controls from the same group of hospitals between 1994 and 2000 using similar matching criteria. Preliminary analysis, using the matching criteria only, shows no association between fluoride exposure and osteosarcoma. For tumor controls, the odds ratio of osteosarcoma comparing the highest quintile of average lifetime exposure to the lowest quintile was null end there was no consistent trend. The odds ratio comparing 100% to 25% of life lived in communities with fluoride $\geq$ 0.7 ppm also appears to be null. Results for orthopedic controls were similarly null. A full analysis is ongoing. The investigators are analyzing the fluoride content of the bone and toenail specimens taken from 150 cases, 65 tumor controls and 87 orthopedic controls. These markers of exposure will be used to further assess whether there is any evidence of an association between fluoridation and osteosarcoma in the NCI study.