

SENATE BILL 1642

By Campfield

AN ACT to amend Tennessee Code Annotated, Title 47, Chapter 18, Part 1; Title 53, Chapter 1, Part 1 and Title 68, relative to the effects of fluoride on various aspects of endocrine function.

WHEREAS, information is particularly needed on fluoride plasma and bone concentrations in people with small-to-moderate changes in renal function as well as in those with serious renal deficiency; and

WHEREAS, the effects of fluoride on various aspects of endocrine function should be examined particularly with respect to a possible role in the development of several diseases or mental states in the United States. Major areas for investigation include the following:

Thyroid disease (especially in light of decreasing iodine intake by the U.S. population);

Nutritional (calcium-deficiency) rickets; and

Calcium metabolism (including measurements of both calcitonin and PTH); pineal function (including, but not limited to, melatonin production); and development of glucose intolerance and diabetes; and

WHEREAS, more research is needed to clarify fluoride's biochemical effects on the brain; and

WHEREAS, a systematic study of clinical stage II and stage III skeletal fluorosis should be conducted to clarify the relationship between fluoride ingestion, fluoride concentration in bone, and clinical symptoms; and

WHEREAS, the possibility has been raised by the studies conducted in China that fluoride can affect intellectual abilities. Thus, studies of populations exposed to different

concentrations of fluoride in drinking water should include measurements of reasoning ability, problem solving, IQ, and short- and long-term memory; and

WHEREAS, studies of populations exposed to different concentrations of fluoride should be undertaken to evaluate neurochemical changes that may be associated with dementia.

Consideration should be given to assessing effects from chronic exposure, effects that might be delayed or occur late-in-life, and individual susceptibility; and

WHEREAS, the concentrations of fluoride in human bone as a function of exposure concentration, exposure duration, age, sex, and health status should be studied; and

WHEREAS, it is paramount that careful biochemical studies be conducted to determine what fluoride concentrations occur in the bone and surrounding interstitial fluids from exposure to fluoride in drinking water at up to 4 mg/L, because bone marrow is the source of the progenitors that produce the immune system cells; and

WHEREAS, more studies of communities with drinking water containing fluoride at 2 mg/L or more are needed to assess potential bone fracture risk at these higher concentrations; and

WHEREAS, carefully conducted studies of exposure to fluoride and emerging health parameters of interest (e.g., endocrine effects and brain function) should be performed in populations in the United States exposed to various concentrations of fluoride; and

WHEREAS, in addition, studies could be conducted to determine what percentage of immunocompromised subjects have adverse reactions when exposed to fluoride in the range of 1-4 mg/L in drinking water; and

WHEREAS, better characterization of exposure to fluoride is needed in epidemiology studies investigating potential effects. Important exposure aspects of such studies would include the following: collecting data on general dietary status and dietary factors that could influence exposure or effects, such as calcium, iodine, and aluminum intakes; now, therefore,

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. To the extent funds are specifically provided in the general appropriations act, the department of health is encouraged to conduct a study as detailed in the preamble concerning exposure to fluoride. Any study conducted by the commissioner, to the greatest extent possible, should include utilizing the research personnel and tools available through the public and private teaching hospitals located in this state.

SECTION 2. This act shall take effect upon becoming a law, the public welfare requiring it.