

ASSESSING THE HEALTH STATUS OF VULNERABLE POPULATIONS FROM EXPOSURE TO PERSISTENT TOXIC SUBSTANCES IN THE U.S. GREAT LAKES REGION: AN OVERVIEW

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Abstract

More than 30,000 chemicals are produced or used in the Great Lakes (GL) basin. Because of the persistence and ubiquitous presence of these chemicals in the environment, toxic effects in GL wildlife have been demonstrated and results from early epidemiologic investigations suggested the potential for adverse human health effects. The overall results of these indicated that for the studied populations that: 1) conception rates and the incidence of a live birth were lower; 2) significant menstrual cycle reductions; 3) neurobehavioral and developmental deficits were observed in newborns, infants and young children; 4) lower scores on several measures of memory and learning were observed in adults; 5) decreased levels of thyroxine (T₄) in women and men; 6) a higher proportion of male children were born to couples, and 7) increase risk of male child having a birth defect. These research findings are of public health concern. The populations identified are at risk because of their elevated exposures and/or their intrinsic sensitivity to PTSs. Body burden levels are 2 to 8 times higher than in the general U.S. population. ATSDR has developed prudent public health interventions and risk communication tools to interdict future exposure to toxic chemicals in these vulnerable populations. The health data will be discussed and intervention strategies will be described.

Introduction

In 1992, ATSDR received funding from the U.S. Congress to initiate the Great Lakes Human Health Effects Research Program (GLHHERP). The GLHHERP is designed to characterize exposure and investigate the potential for short-and long-term adverse health effects from exposure to persistent toxic substances (PTSs) which included PCBs, dioxins, methylmercury, pesticides and others via consumption of contaminated GL fish. The research criteria for this program was published in the U.S. Federal Register Notice and ten grants were funded to implement these studies.