

study focusing on NTDs has also found an association with chlorination disinfection by-products. A study in Iowa found an association between chloroform and SGA. Chemical contaminants in public drinking water systems, such as chlorinated and aromatic solvents, herbicides, and nitrates have also been studied. The New Jersey study found associations between NTDs and trichloroethylene (TCE), carbon tetrachloride, the dichloroethylenes, and benzene. Oral clefts were associated with perchloroethylene, TCE, carbon tetrachloride and the dichloroethylenes. In a study at Woburn, Massachusetts, TCE was linked to excess NTDs and cleft lip. A study in Tucson, Arizona, linked TCE with cardiac defects. An Iowa study of triazine contaminated drinking water found excesses of SGA, oral clefts, cardiac defects, and limb reductions. Two studies of nitrates in drinking water have found excesses of central nervous system defects. The presentation will discuss the difficulties of conducting studies of drinking water contamination and birth outcomes and the limitations of the studies conducted so far.

Disinfection by-products and bladder and colorectal cancer: a quantitative analysis of published results from interview studies

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Since the formation of chlorination by-products (CBPs) was first recognized, many studies have investigated possible associations between exposure to CBPs and cancer. Many studies have reported elevated relative risks for specific cancer sites, but the degree to which these associations reflect the role of chance or bias remains controversial.

This study examined the association between exposure to CBPs and both bladder and colorectal cancer using interview studies published up to the end of 1997. The general population risk associated with exposure to chlorinated surface water was estimated for each study together with a dose-response relationship based on combination of time and concentration as THM ppm-years of exposure. These results were pooled to generate an overall estimate of risk using both fixed effects and random effect models. The dose-response data were combined using a generalized additive model (GAM). The influence of study characteristics on results was examined and the effect modification by sex and smoking was considered.

For bladder cancer, these results were highly consistent with a pooled relative risk of 1.31 (95% CI: 1.19, 1.45). These risks increase monotonically and the dose-response curve is concave upwards. The results for colorectal cancer were less consistent. Some studies reported elevated risks for colon cancer and others reported elevated risks for rectal cancer. The nature of this risk appears to be modified by gender and by water source characteristics.
