A follow-up study of women in the synthetic rubber industry: study methods.

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**Abstract**

**BACKGROUND:** Concerns about the possible toxic effects of workplace exposures in the synthetic rubber industry have centered on 1,3-butadiene (BD), styrene and dimethylidithiocarbamate (DMDTC). Our previous mortality studies of over 17,000 male synthetic rubber workers found an excess of leukemia that may be due to BD or BD plus other chemicals. Experimental studies have shown that BD produces mammary tumors in female mice and rats and ovarian tumors in female mice.

**AIM:** This paper presents the methods of a follow-up study that evaluates the mortality experience of women employed in the North American synthetic rubber industry.

**METHODS:** Women employed for at least 1 day at any of eight North American styrene-butadiene rubber plants were followed up from 1943 to 2002. Identifying and work history information were obtained from personnel records. Estimated quantitative exposure to BD, styrene and DMDTC, developed for our previous study of men, were used in this study. External analyses use the standardized mortality ratios (SMRs) to compare the cohort's cause-specific mortality rates to the rates of the female general population of the states or the province where the plants are located. Internal analyses use the Poisson regression and Cox proportional hazards models to examine specific cancer mortality rates in relation to BD, styrene and DMDTC exposure, by comparing an exposed cohort subgroup with the rate of unexposed cohort members.