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Health Effect of Emissions from Residential Dry Cleaners

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Background. A number occupational studies have shown that the emissions from dry cleaner (PERC) has adverse health effect, such as damages in renal, hepatic or neurological system. However, there is no study regarding health effect of dry cleaners in residential buildings. This Study evaluates how living in a building with coexisting dry cleaner will affect the hospitalization of kidney and renal cancer in New York City, from 1993 to 2004.

Method. In this study, we used the density of dry cleaners in a zip code as exposure level. A negative binomial regression is applied for best model fit. Several confounders such as age, gender, race, population density and medium household income are controlled. Main effect and interaction model are both investigated.

Results. Study indicates statistically significant elevation in the discharge rate for the zip codes with higher dry-cleaners density. The elevation is quite substantial: rate ratios range from 1.14-1.27. The rate ratios for different exposure level defined have different effect modifiers, which may suggest a complex etiology in the mechanism of exposure that needs to be better understood. We also used permutation test to prove the use of dry cleaner's density in a zip code, as exposure level, was important to the finding of significant increase in hospital discharges.

Conclusion. We conclude that living in the building with coexisting dry cleaner will increase the discharge rate of kidney and renal cancer.

Keywords: density of Dry cleaner, PERC, hospital discharge, kidney cancer, renal cancer.