

Toxic metal concentrations in cigarettes obtained from U.S. smokers in 2009: results from the International Tobacco Control (ITC) United States survey cohort.

Caruso, R., O'Connor, R.J., Stephens, W.E., Cummings, K.M., Fong, G.T.

Abstract

Smoking-related diseases can be attributed to the inhalation of many different toxins, including heavy metals, which have a host of detrimental health effects. The current study reports the levels of arsenic (As), cadmium (Cd), chromium (Cr), nickel (Ni), and lead (Pb) in cigarettes obtained from adult smokers participating in the 2009 wave of the ITC United States Survey (N = 320). The mean As, Cd, Cr, Ni, and Pb levels were 0.17, 0.86, 2.35, 2.21, and 0.44 µg/g, respectively. There were some differences in metal concentrations of cigarette brands produced by different manufacturers, suggesting differences in the source of tobaccos used by different companies. For Ni, there were significant pairwise differences between Philip Morris U.S. (PMUSA) and R.J. Reynolds (RJR) brands (PMUSA higher; $p < 0.001$), PMUSA and other manufacturer (OM) brands (PMUSA higher; $p < 0.001$), and RJR and OM brands (RJR higher; $p = 0.006$). For Cr, RJR brands had higher levels than did OM brands ($p = 0.02$). Levels of As, Cd, and Pb did not differ significantly across manufacturer groups ($p > 0.10$). Because of the variety of toxic heavy metals in cigarette tobacco, and their numerous negative health effects, metal content in cigarette tobacco should be reduced.

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