Rousseau et al. (1), in their case-control study of exposure to lead compounds and 11 cancers, reported a positive association between organic lead and stomach cancer. They found little evidence of an association between inorganic lead or lead in gasoline and any of the 11 cancers. These results are in contrast both with the International Agency for Research on Cancer (IARC) classification of organic lead compounds as group 3, “not classifiable as to carcinogenicity to humans” based on inadequate evidence in both humans and experimental animals, and with the IARC classification of inorganic lead compounds as group 2A, “probably carcinogenic to humans” (2).
In their Journal article, Rousseau et al. (1) provided a thorough discussion of the general limitations of their methodological approach. In interpreting the positive association between organic lead and stomach cancer in particular, they further emphasized that the number of exposed cases was small (n = 14 of 136 cases) and that they did not examine “exposure-response” because subjects were homogeneous with respect to degree of exposure: all subjects classified as exposed to organic lead were judged to have had nonsubstantial levels of exposure, attributable mainly to exposure to uncombusted liquid motor vehicle gasoline, with lead content due to tetraethyl and tetramethyl lead used as additives.

Other issues important to interpreting the results for stomach cancer were less clearly discussed. Rousseau et al. (1) suggested that their positive result for stomach cancer could be due to confounding by, or interaction with, coexposure to monoaromatic and polyaromatic hydrocarbons, alkanes, solvents, and carbon monoxide and indicated that this interpretation is not supported by evidence that these agents are risk factors for stomach cancer. The extent to which these agents overlap with metal-working fluids, associated with stomach cancer in some previous studies (3, 4), was not discussed. Nearly 50% of subjects classified as exposed to organic lead experienced this exposure as mechanics, an occupation that could entail contact with constituents of metalworking fluids. The authors did not mention another potential confounder, history of Helicobacter pylori infection (5), which might vary by occupation. It is not clear whether the omission of discussion of this agent stemmed from a belief that H. pylori infection is implausible as a confounder or was controlled adequately by adjusting for family income, cultural origin, and birthplace.

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REFERENCES