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Estimating the proportion of cases of lung cancer legally attributable to smoking: a novel approach for class actions against the tobacco industry.

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Abstract: The plaintiffs' lawyers for a class action suit, which was launched in Quebec on behalf of all patients with lung cancer whose disease was caused by cigarette smoking, asked us to estimate what proportion of lung cancer cases in Quebec, if they hypothetically could be individually evaluated, would satisfy the criterion that it is "more likely than not" that smoking caused the disease.

The novel methodology we developed is based on the dose-response relationship between smoking and lung cancer, for which we use the pack-years as a measure of smoking, and the distribution of pack-years of smoking among cases.

We estimated that the amount of smoking required to satisfy the "more likely than not" criterion is between 3 and 11 pack-years. More than 90% of the Quebec cases satisfied even the most conservative of these thresholds.

More than 90% of cases of lung cancer in Quebec are legally attributable to smoking. The methodology enhances the ability to conduct class action suits against the tobacco industry.

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