

H. pylori, smoking trends, and gastric cancer in US men

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Trends in *Helicobacter pylori* (*H. pylori*) and smoking explain a significant proportion of the decline of intestinal-type noncardia gastric adenocarcinoma (NCGA) incidence in US men between 1978 and 2008, and are estimated to continue to contribute to further declines between 2008 and 2040.

These are the conclusions of a study by Jennifer M. Yeh of the Center for Health Decision Science at the Harvard School of Public Health in Boston and colleagues, published in this week's *PLOS Medicine*, that suggest *H. pylori* and smoking trends together accounted for almost half of the observed decline in intestinal-type NCGA between 1978 and 2008. Understanding the combined effects of underlying risk factor trends on health outcomes for intestinal-type NCGA at the [population level](#) can help to predict future cancer trends and burden in the US.

The researchers developed a population-based microsimulation model using risk factor data from two national databases, the National Health and [Nutrition Examination Survey](#) (NHANES) and National [Health Interview Survey](#) (NHIS), and cancer data from the Surveillance, Epidemiology and End Results (SEER) Program. They estimated that the incidence of intestinal-type NCGA in men fell by 60% between 1978 and 2008. Further analysis suggested that *H. pylori* and smoking trends are responsible for 47% of the observed decline, and that *H. pylori* trends alone were responsible for 43% of the decrease in cancer but smoking trends were responsible for only a 3% drop. Finally, the researchers projected the incidence of intestinal-type NCGA to decline

an additional 47% between 2008 and 2040, with *H. pylori* and smoking trends accounting for more than 81% of the observed fall. Key limitations to this study include the assumptions made in the model and that the study only examined one type of [gastric cancer](#) (GC) and focused only on men.

The authors say: "In conclusion, trends in modifiable risk factors explain a significant proportion of the decline of intestinal-type NCGA incidence in the US, and will contribute to future decline."

They add: "Although past tobacco control efforts have hastened the decline, the full benefits will take several decades to be realized, and further discouragement of smoking and reduction of *H. pylori* infection should be priorities for GC control efforts."

More information: Yeh JM, Hur C, Schrag D, Kuntz KM, Ezzati M, et al. (2013) Contribution of *H. pylori* and Smoking Trends to US Incidence of Intestinal-Type Noncardia Gastric Adenocarcinoma: A Microsimulation Model. *PLoS Med* 10(5): e1001451.
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