



Disparities in Genetic Testing and Provider Discussion Among U.S. Adults With a History of Smoking

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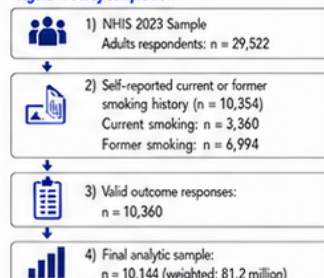
INTRODUCTION

- Adults with a history of smoking frequently intersect with cancer prevention, tobacco treatment, and screening services.
- Smoking history alone is not an indication for hereditary cancer genetic testing, but primary care, tobacco treatment, lung cancer screening, and other cancer prevention settings may help identify personal or family histories suggestive of inherited cancer susceptibility.
- Genomic medicine has not been implemented equitably, and disparities in patient-provider discussion may widen precision prevention gaps.
- Objective:** To examine patient-provider discussion and self-reported completion of genetic testing for future cancer risk among U.S. adults with a history of smoking.

METHODS

- Design:** Cross-sectional analysis of the 2023 National Health Interview Survey (NHIS), a nationally representative U.S. survey.
- Population:** U.S. adults aged 18 years or older with self-reported current or former smoking status.
- Final analytic sample:** $n = 10,144$ (weighted: 81.2 million U.S. adults).
- Outcome:** (1) ever discussed genetic testing for cancer risk with a health care professional; (2) ever completed genetic testing for future cancer risk.
- Covariates:** age, smoking status, sex, race/ethnicity, education, income, poverty ratio, insurance, nativity, family history of cancer, personal history of cancer, and usual place for medical care.
- Analysis:** Survey-weighted estimates and multivariable logistic regression.

Figure 1. Study sample flow

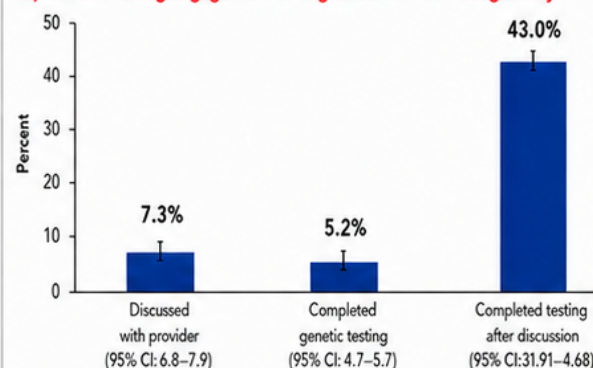


RESULTS

A) Key sample characteristics

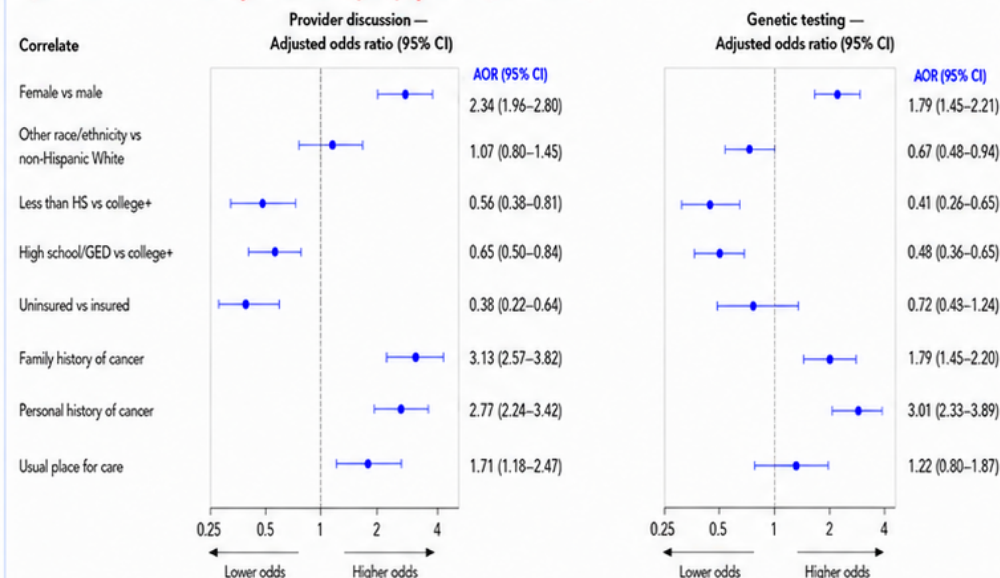
Characteristic	Weighted estimate
Mean age	53.6 years
Former smoking	67.7%
Female	43.9%
Non-Hispanic White	74.0%
College graduate or higher	23.8%
Insured	92.2%
Family history of cancer	46.6%
Personal history of cancer	13.0%
Usual place for medical care	87.9%

B) Genetic testing engagement among adults with a smoking history



The third estimate is conditional on provider discussion.

C) Selected correlates of genetic testing engagement (NHIS 2023)



Points represent adjusted odds ratios; horizontal lines represent 95% confidence intervals.

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Genetic testing engagement was low among adults with a history of smoking.
- Only 7.3% reported discussing testing with a provider, and 5.2% reported ever completing testing.
- Personal and family histories of cancer were strong correlates of engagement, suggesting that family-history-based risk assessment remains central.
- Lower educational attainment was associated with lower odds of both outcomes.
- Lack of insurance was associated with lower odds of provider discussion.
- Smoking-related prevention encounters may offer practical touchpoints for appropriate risk assessment and referral.

Future Direction for Research

- Evaluate whether primary care, tobacco treatment, and lung cancer screening settings can systematically support personal and family history collection and referral for clinically appropriate genetic evaluation.
- Distinguish clinician-ordered hereditary cancer testing from consumer testing in future population surveillance.
- Assess interventions that improve equitable patient-provider discussion in underserved groups.

Conclusion: Equitable precision prevention requires systematic collection of personal and family history and accessible patient-provider discussions about appropriate genetic testing.

REFERENCES & ACKNOWLEDGEMENTS

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- National Center for Health Statistics. 2023 National Health Interview Survey. Questionnaire and codebook. 2024.

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Presenting Author's Disclosure

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Conflict of Interest

None declared.

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