

P1.036: Comparative Analysis of Lung Cancer Screening Eligibility Applying Five Different Criteria on Age and Smoking History

Janet Song¹, Raymond Liu^{2,3}, Sabrina Zhong², Shiyun Zhu², Lori C. Sakoda^{2,4}

¹ Department of Internal Medicine, Kaiser Permanente, Northern California, Santa Clara, CA, USA; ² Division of Research, Kaiser Permanente Northern California, Pleasanton, CA, USA; ³ Department of Hematology/Oncology, Kaiser Permanente Northern California, San Francisco, CA, USA; ⁴ Department of Health Systems Science, Kaiser Permanente Bernard J. Tyson School of Medicine, Pasadena, CA, USA



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INTRODUCTION

As population smoking patterns shift, identifying individuals most likely to benefit from lung cancer screening is increasingly challenging.¹

We evaluated longitudinal trends in the proportion of patients with lung cancer who would have been eligible for screening under multiple age- and smoking history-based criteria.

SCREENING CRITERIA

Table 1. Summary table of five screening criteria evaluated

Criteria	Age Range	Smoking Exposure	Years Since Quit
ACS	50–80	≥20 pack-years	Not specified
NCCN Category 1	≥50	≥20 pack-years	Not specified
NCCN Category 2B	≥50	≥20 pack-years or ≥20-year smoking duration	Not specified
Potter et al. ²	50–80	≥20-year smoking duration	≤15 years since quit
USPSTF	50–80	≥20 pack-years	≤15 years since quit

METHODS

Setting: Kaiser Permanente Northern California

Data: Electronic health records linked with cancer registry data

Population: Adults with diagnosed with primary lung cancer over a 9-year period from 2014 to 2022

Analysis: Proportions eligible for lung cancer screening under five criteria (Table 1) calculated for three-year intervals, 2014–2016, 2017–2019, 2020–2022, stratified by smoking status, race and ethnicity, sex, and stage.

Table 2. Demographics of our cohort for each time interval

Diagnosis Year	2014-2016 N = 4018	2017-2019 N = 4022	2020-2022 N = 3698
No. (%)	No. (%)	No. (%)	No. (%)
Age 50-80	3152 (78.4%)	3106 (77.2%)	2925 (79.1%)
Ever Smoked	2748 (68.4%)	2702 (67.2%)	2438 (65.9%)
By Race/Ethnicity			
Non-Hispanic White	2573 (64.0%)	2564 (63.7%)	2258 (61.1%)
Non-Hispanic Black	342 (8.5%)	359 (8.9%)	304 (8.2%)
Asian or Pacific Islander	657 (16.4%)	692 (17.2%)	799 (21.6%)
Hispanic	160 (4.0%)	146 (3.6%)	156 (4.2%)
By Sex			
Male	1902 (47.3%)	1815 (45.1%)	1642 (44.4%)
Female	2113 (52.6%)	2207 (54.9%)	2054 (55.5%)

CONCLUSION

Among individuals diagnosed with lung cancer, the proportion eligible for lung cancer screening across five different criteria has decreased over time.

Eligibility criteria that incorporate cumulative smoking duration, rather than pack-year history, may help mitigate existing disparities in who qualifies for screening.

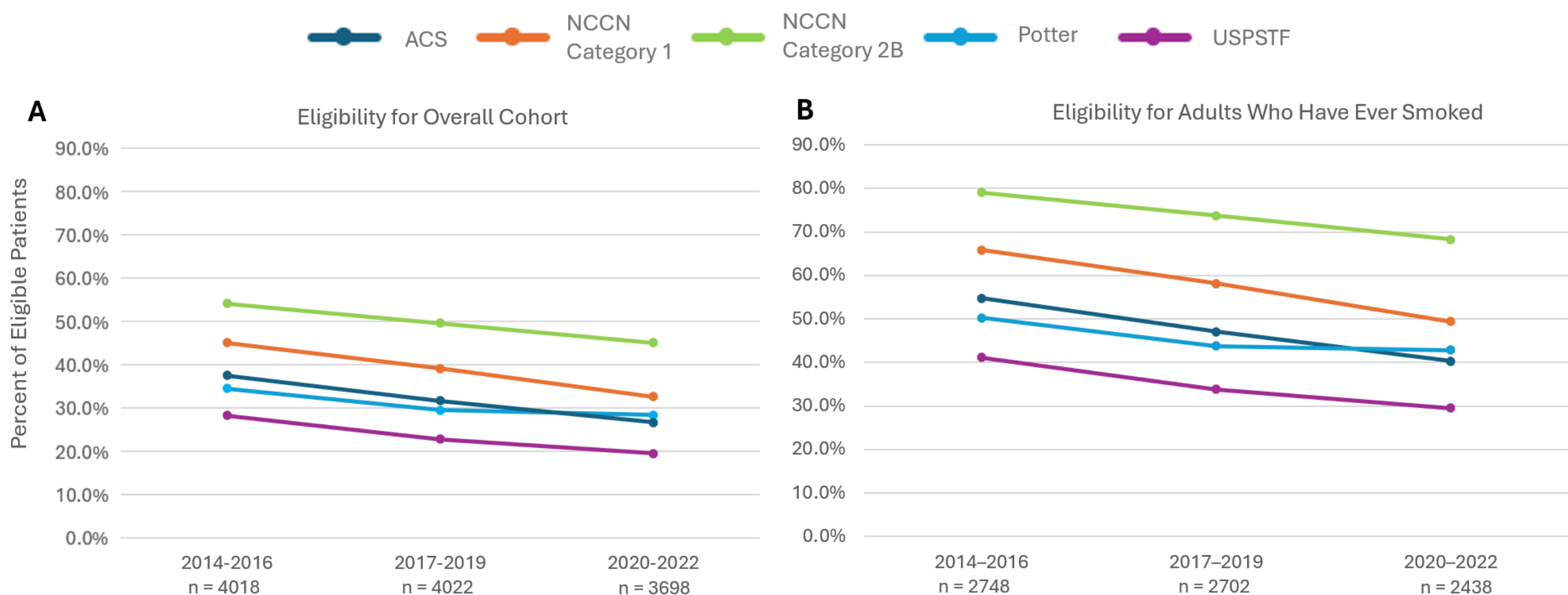
Future Directions

There is an emerging need to develop screening guidelines that more effectively capture the evolving population at risk for lung cancer.

Evaluation of the potential benefits and harms of using these alternative criteria are warranted in the intended population beyond those diagnosed with lung cancer.

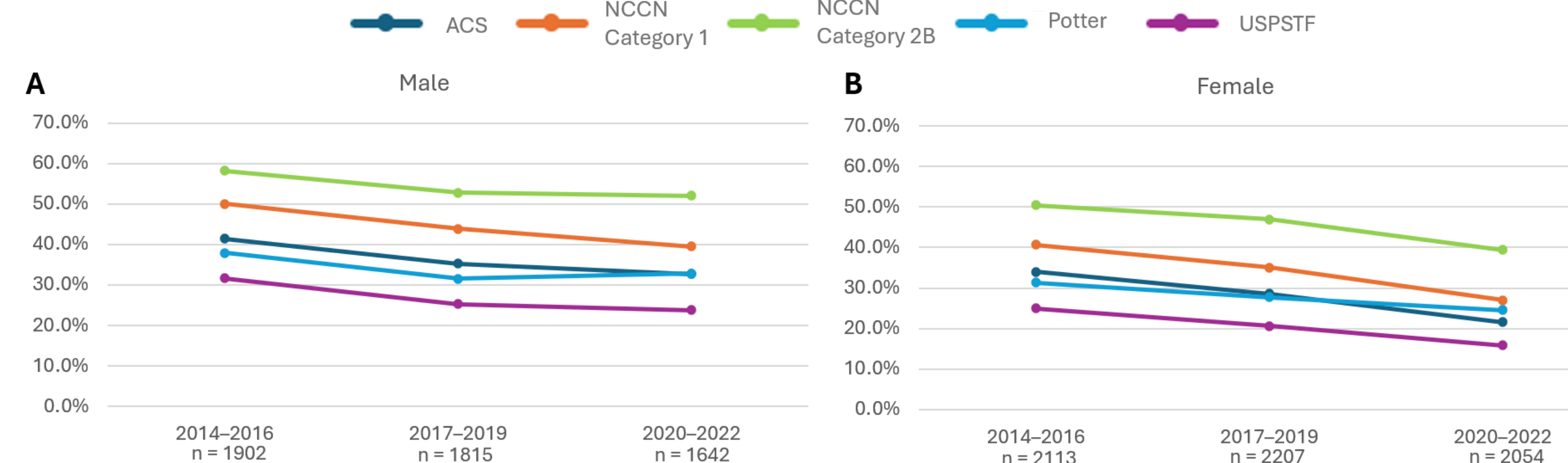
RESULTS

Figure 1. Trends of lung cancer screening eligibility using different criteria, overall and among those with a smoking history



Across 11,738 patients, eligibility for lung cancer screening declined across all criteria over time. The highest eligibility proportions were consistently observed with the more inclusive NCCN criteria. Similar trends were noted for individuals who had ever smoked (n = 7,888).

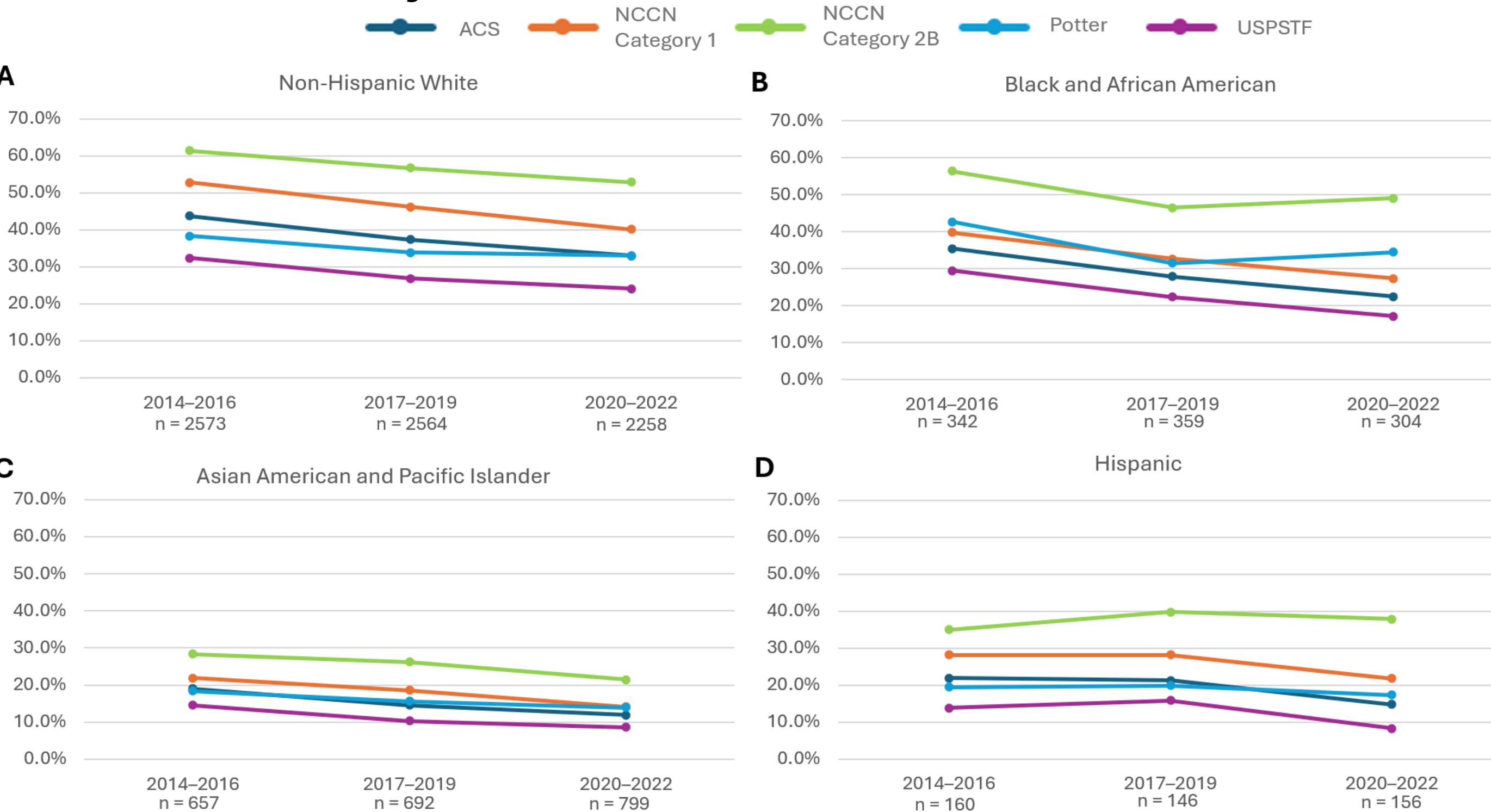
Figure 2. Trends of lung cancer screening eligibility using different criteria among individuals with lung cancer, stratified by sex



Lung cancer screening eligibility was consistently higher for male than female individuals across all screening criteria with greater declines in proportions eligible observed for female individuals over time.

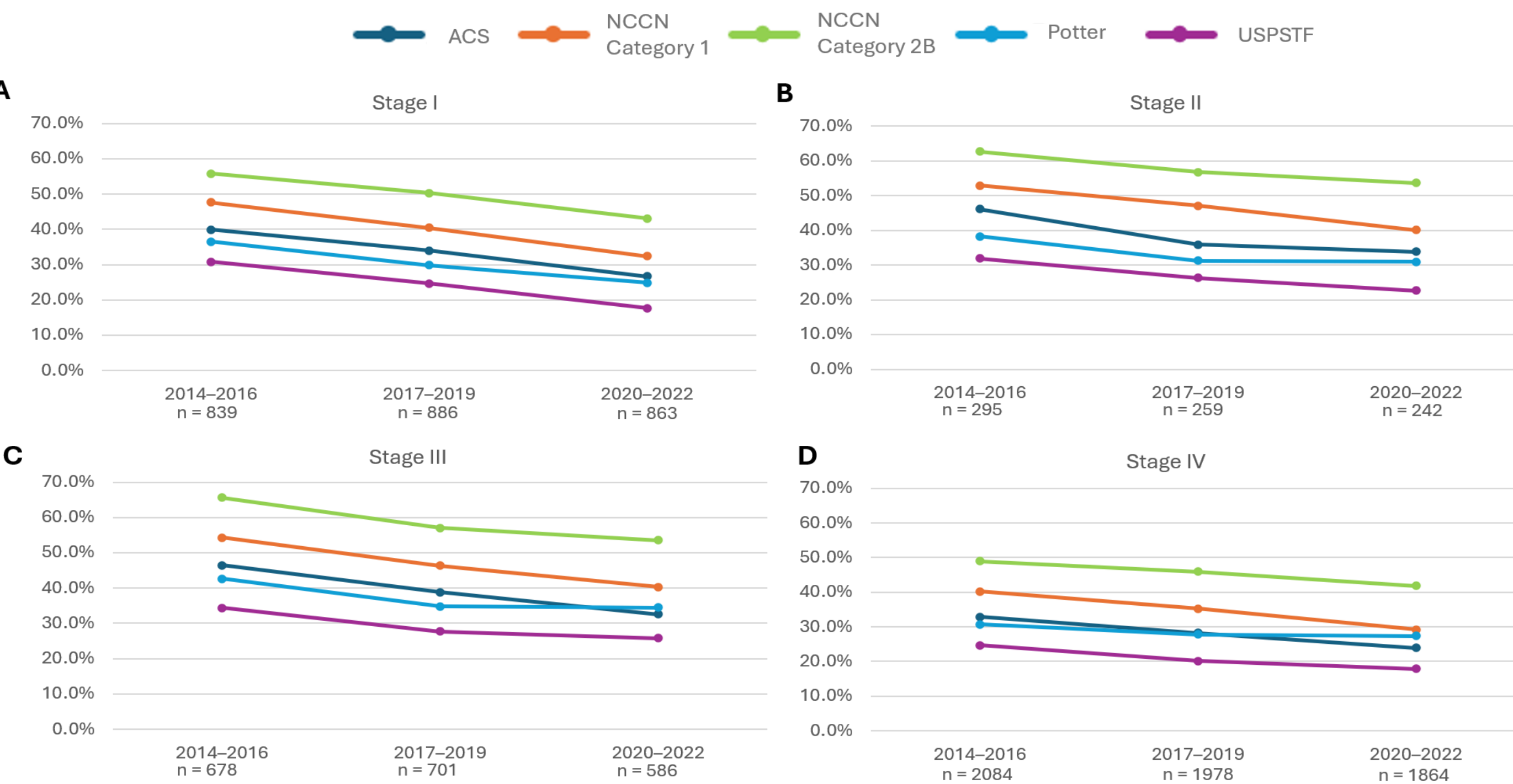
RESULTS

Figure 3. Trends of lung cancer screening eligibility using different criteria among individuals with lung cancer, stratified by race and ethnicity



Asian American/Pacific Islander and Hispanic individuals were consistently less likely to meet eligibility across all criteria. Black individuals experienced the greatest declines in eligibility (7.4% to 13.0%), although this reduction was least pronounced under Potter's and NCCN Category 2B criteria.

Figure 4. Trends of lung cancer screening eligibility using different criteria among individuals with lung cancer, stratified by stage



Individuals with stage I lung cancer showed the greatest decline in screening eligibility over time, ranging from 11.6% to 15.3% absolute decreases. Among patients with late-stage lung cancer, the Potter criteria showed the smallest decrease in the proportion eligible over time.

REFERENCES

- LoPiccolo J, Gusev A, Christiani DC, Jänne PA. Lung cancer in patients who have never smoked — an emerging disease. *Nat Rev Clin Oncol.* 2024;21(2):121-146.
- Potter AL, Xu NN, Senthil P, et al. Pack-Year Smoking History: An Inadequate and Biased Measure to Determine Lung Cancer Screening Eligibility. *J Clin Oncol.* 2024;42(17):2026-2037.