

P1.027:Electronic Health Record Underestimation of Smoking History Leads to Missed Lung Cancer Screening During Mammography

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INTRODUCTION

Despite high mammography rates (>70%) among women in the United States, lung cancer screening (LCS) uptake remains low (18%). Integrating LCS eligibility assessment into mammography may increase screening uptake. We evaluated smoking history accuracy across three data sources to assess LCS eligibility among women undergoing screening mammography.

METHODS

- Retrospective, cross-sectional study of women presenting for screening mammography at a large integrated health system in Northern California (May–November 2025)
- Participants completed a paper survey capturing smoking history
- LCS eligibility determined using 2021 US Preventive Services Task Force (USPSTF) criteria
- Compared accuracy and agreement of smoking history across 3 data sources:
 - Patient smoking surveys
 - Social History of electronic health record (EHR)
 - General Chart History of EHR

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Among women presenting for mammography, EHR missed LCS screening for 37% of those who are eligible under 2021 USPSTF guidelines.
- Using surveys as reference, the general chart history outperformed social history.

Future Direction for Research

- Identify more opportunities to provide longitudinal, routine updates to smoking history
- Automated extraction of smoking history from provider notes may improve accuracy

REFERENCES & ACKNOWLEDGEMENTS

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RESULTS

Figure 1. Cohort Selection Flow Diagram (N=1299)

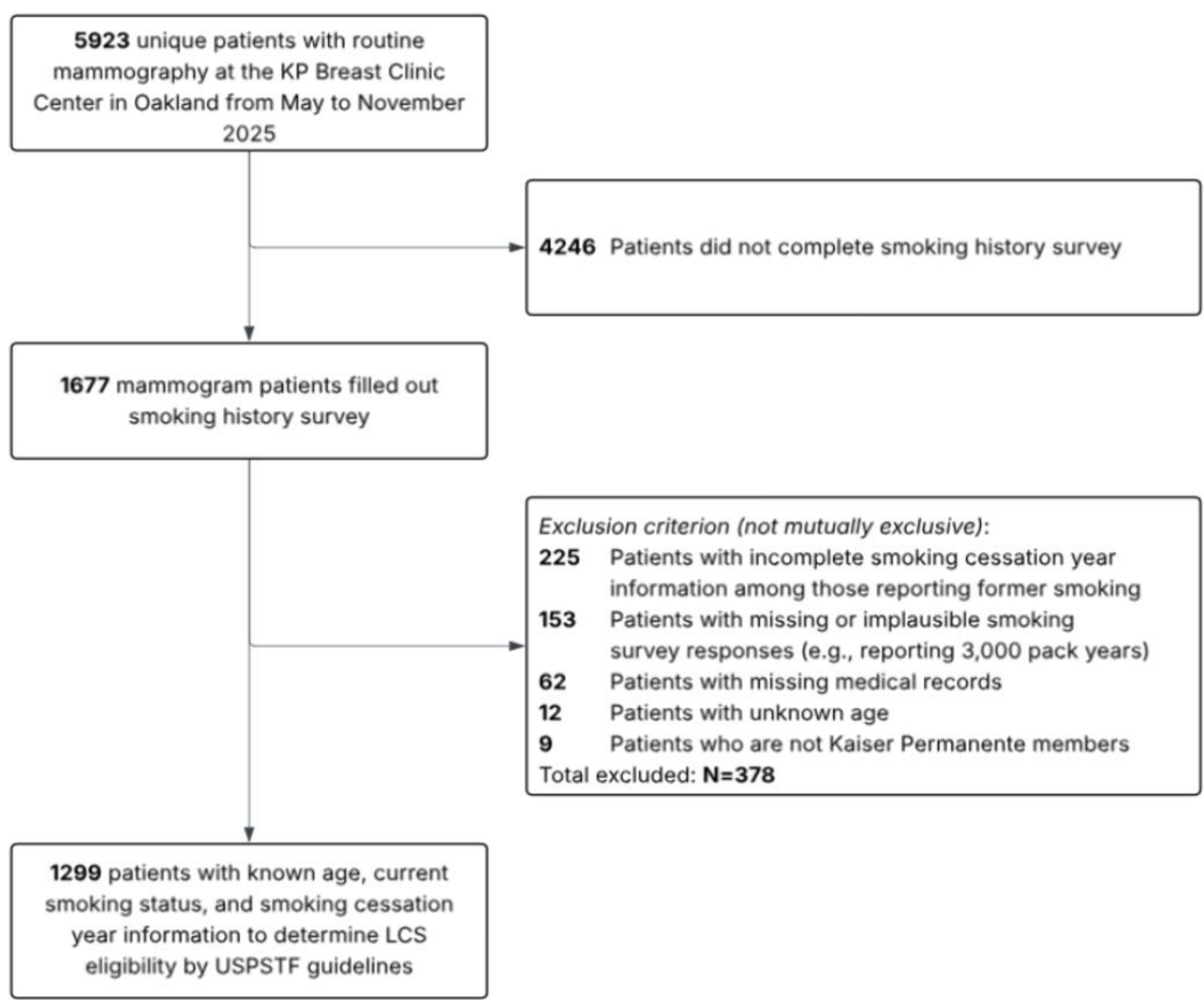


Figure 2. LCS-Eligible Patient Screening Outcomes (N=19)

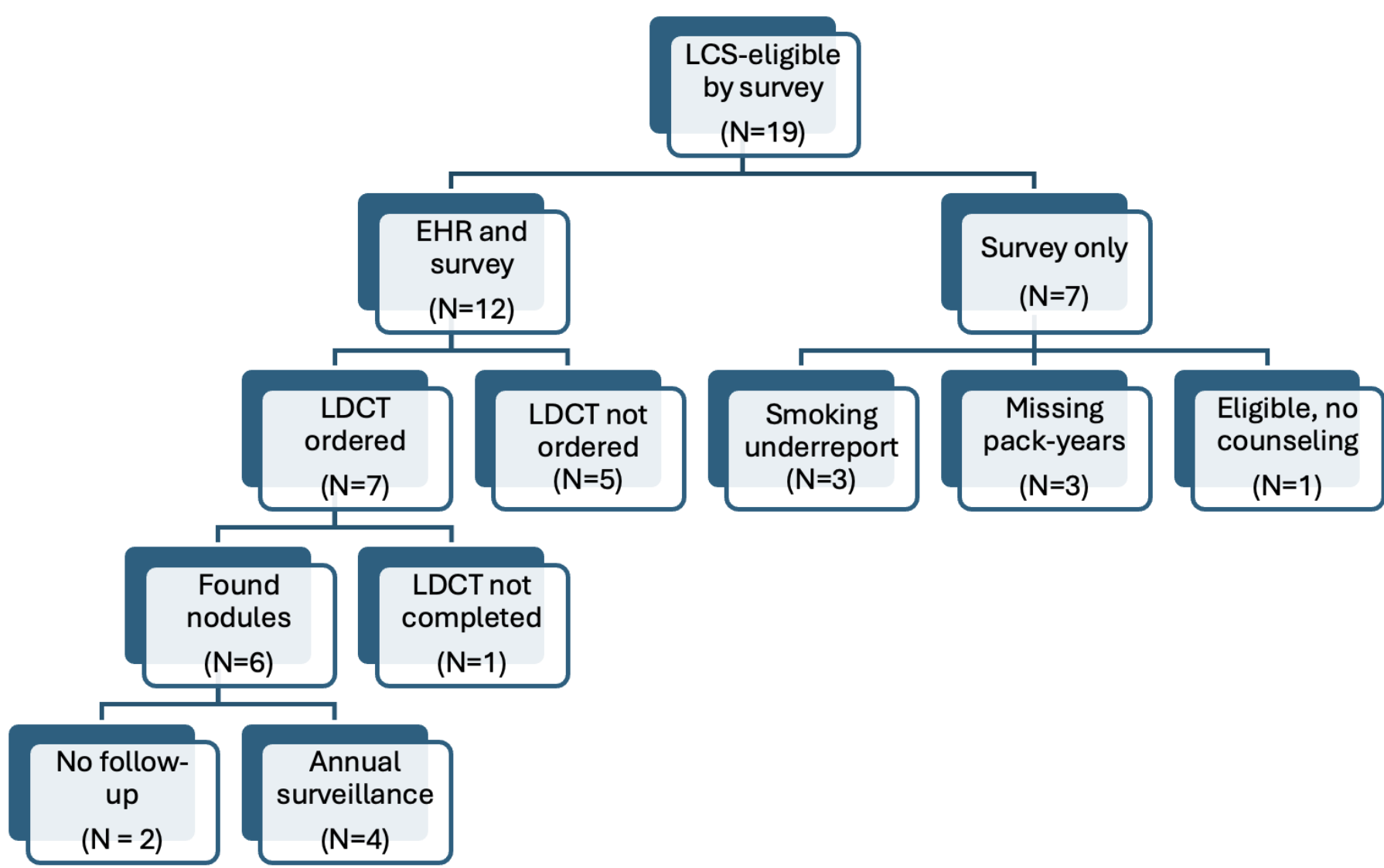


Figure 3. Concordance between Sources (N=1299)

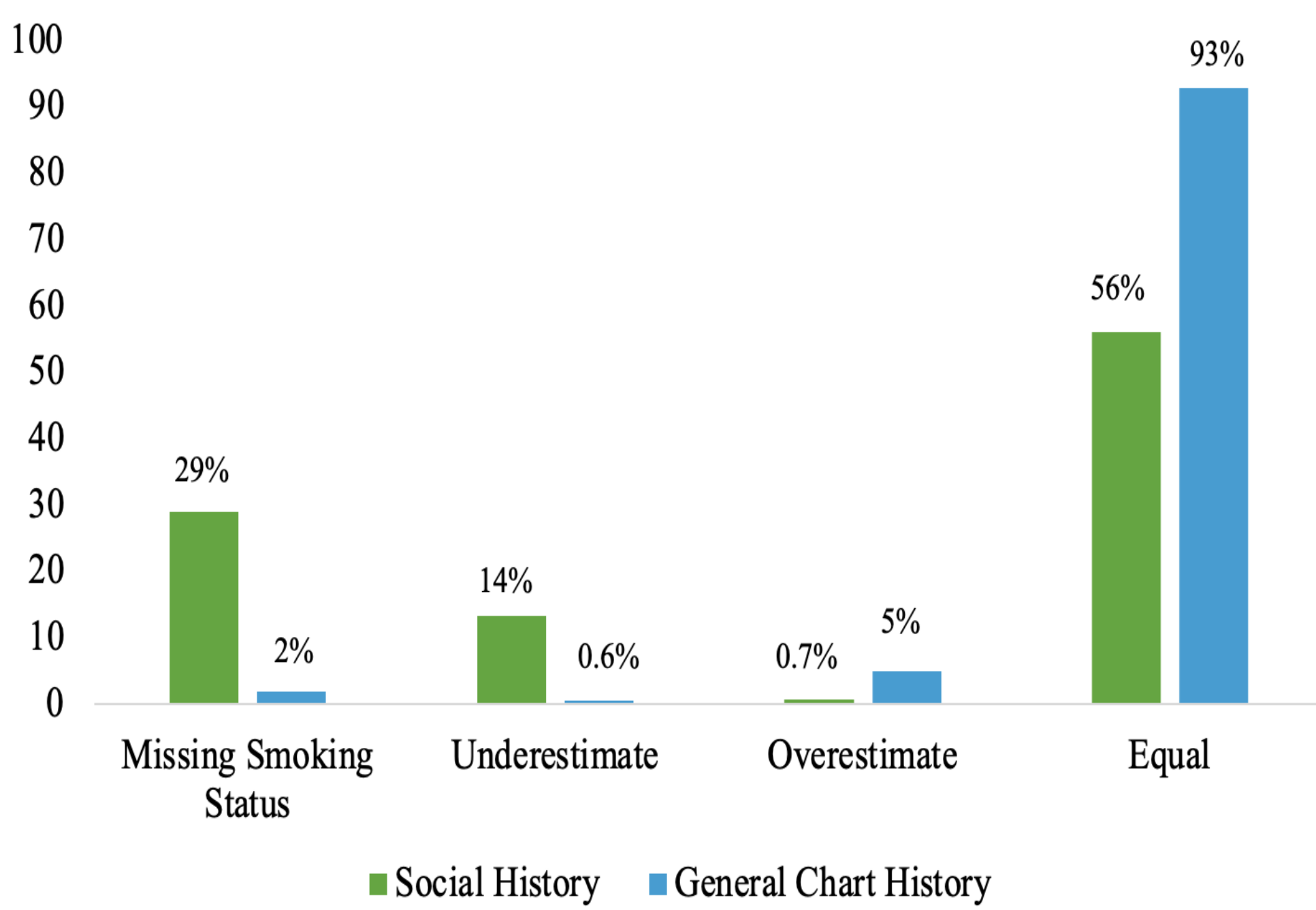


Table 1. Cohort demographic characteristics, stratified by lung cancer screening (LCS) eligibility according to self-reported survey

Characteristic	Overall, N = 1,299	Not LCS Eligible, N = 1280	LCS Eligible, N = 19	p-value
Age				0.015
Median (IQR)	57.0 (47.0, 66.0)	57.0 (47.0,66.0)	62.0 (59.0,67.5)	
Mean ± SD	56.9 ± 11.3	56.8 ± 11.4	62.8 ± 6.1	
Race/Ethnicity (n,%)				0.039
White	620 (47.7%)	610 (47.7%)	10 (52.6%)	
Asian/Native Hawaiian/Other Pacific Islander	226 (17.4%)	226 (17.7%)	0 (0.0%)	
Black/African American	270 (20.8%)	261 (20.4%)	9 (47.4%)	
Hispanic	111 (8.5%)	111 (8.7%)	0 (0.0%)	
Multiracial	24 (1.8%)	24 (1.9%)	0 (0.0%)	
Other/Unknown	48 (3.7%)	48 (3.8%)	0 (0.0%)	
Survey smoking status (n,%)				<0.001
Never	1,024 (78.8%)	1,024 (80.0%)	0 (0.0%)	
Former	237 (18.2%)	226 (17.7%)	11 (57.9%)	
Current	38 (2.9%)	30 (2.3%)	8 (42.1%)	
Smoking Pack-Year among ever-smokers				<0.001
Median (IQR)	0.0 (0.0,0.0)	0.0 (0.0,0.0)	30.0 (23.5,35.0)	
Mean ± SD	1.8 ± 6.0	1.4 ± 4.8	30.2 ± 8.7	
Years since smoking cessation among ever-smokers, n (%)				<0.001
Median (IQR)	20.0 (8.0,30.0)	21.0 (9.0,32.0)	0.0 (0.0,6.0)	
Mean ± SD	20.2 ± 15.2	21.3 ± 15.0	3.2 ± 5.0	
Missing	994	994	0	
History of Lung Cancer				>0.9
No	1,297 (99.8%)	1,278 (99.8%)	19 (100.0%)	
Yes	2 (0.2%)	2 (0.2%)	0 (0.0%)	
History of Breast Cancer				0.6
No	1,172 (90.2%)	1,156 (90.3%)	16 (84.2%)	
Yes	127 (9.8%)	124 (9.7%)	3 (15.8%)	
History of LCS, per general EHR chart				<0.001
No	1,291 (99.4%)	1,276 (99.7%)	7 (36.8%)	
Yes	8 (0.6%)	4 (0.3%)	12 (63.2%)	

Table 2. Accuracy Metrics by Smoking History Source Compared with Survey Reference Standard

Source	Sensitivity, % (n/N)	Specificity, % (n/N)	Positive Predictive Value, % (n/N)	Negative Predictive Value, % (n/N)	Accuracy, % (n/N)	F1, %
Survey	--	--	--	--	--	--
Social history	8.37 (17/203) [5.29–13.00]	99.17 (714/720) [98.19–99.62]	73.91 (17/23) [53.53–87.45]	79.33 (714/900) [76.57–81.85]	79.20 (731/923) [76.46–81.69]	15.04 [8.88–21.37]
General chart history	99.27% (273/275) [97.39–99.80]	95.10 (951/1000) [93.58–96.27]	84.78 (273/322) [80.45–88.29]	99.79 (951/953) [99.24–99.94]	96.00 (1224/1275) [94.78–96.94]	91.46 [89.36–93.70]