

Enough of a 'Nudge' or too much: Impact on patient engagement in Lung Cancer Screening

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Background

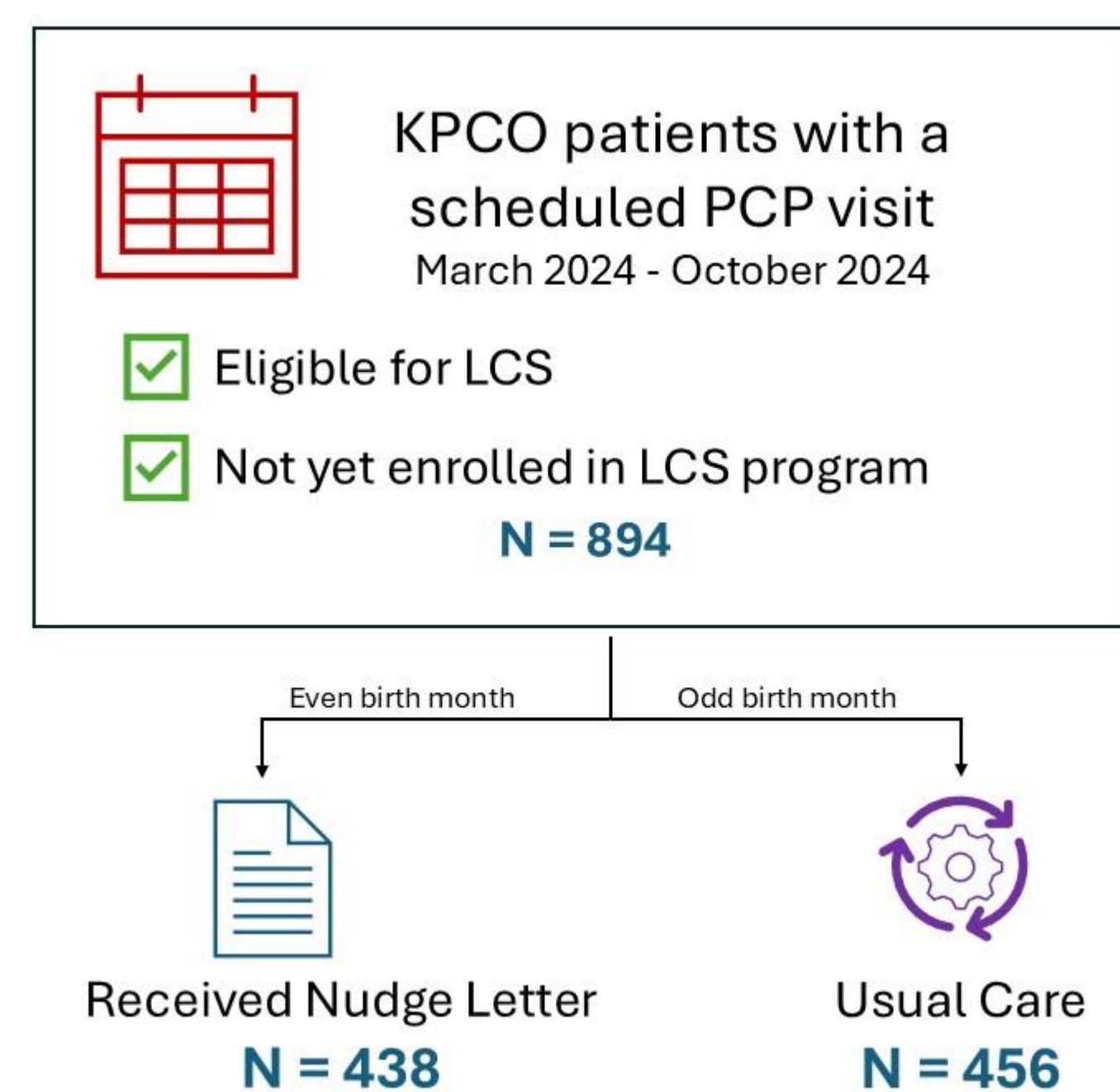
- Lung cancer remains the leading cause of cancer deaths in the U.S., but the proportion of eligible individuals who participate in lung cancer screening (LCS) falls well below estimates for other cancer screening services.
- Kaiser Permanente Colorado (KPCO) established a robust centralized LCS program 10 years ago, however, proportion of eligible individuals who are up-to-date with LCS remain below 50%.
- "Behavioral nudges" are frequently used to encourage individuals to get screened for cancer by subtly influencing patients' initiation of decision-making by tailoring screening messages, reminders or invitations to an individual's risk factors or health history.
- Currently at KPCO, providers are passively "nudged" via the EHR noting the individual is LCS eligible but is unscreened
- The goal of our study was to assess whether a patient "nudge" would increase LCS orders and increase the uptake of completed LCS.**

Methods

- A 2-arm pragmatic randomized trial was conducted within KPCO on members:
 - Aged 50- 80 years
 - ≥ 20 pack-year smoking history
 - Currently smoking or quit within the past 15 years
 - No history of receiving LCS Low-dose CT
 - With a scheduled primary care provider visit within the upcoming 14 days
 - Study period: 3/5/2024 - 10/8/2024
- Randomization base on birth month.
 - Patients with odd birth month received usual care
 - Patients with even birth month received intervention
- Intervention: electronic or mailed Nudge Letter sent prior to appointment that informed patients of eligibility, outlined benefits of LCS, and invited patients to discuss LCS with their provider at their upcoming appointment.
- Using an Intent-To-Treat analysis, we compared the proportion of visits with an LCS order and proportion of orders with a completed scan among those who received the Nudge Letter versus Usual Care.
- We evaluated factors associated with receipt of an order using multivariable-adjusted logistic regression and 95% confidence intervals.

Results

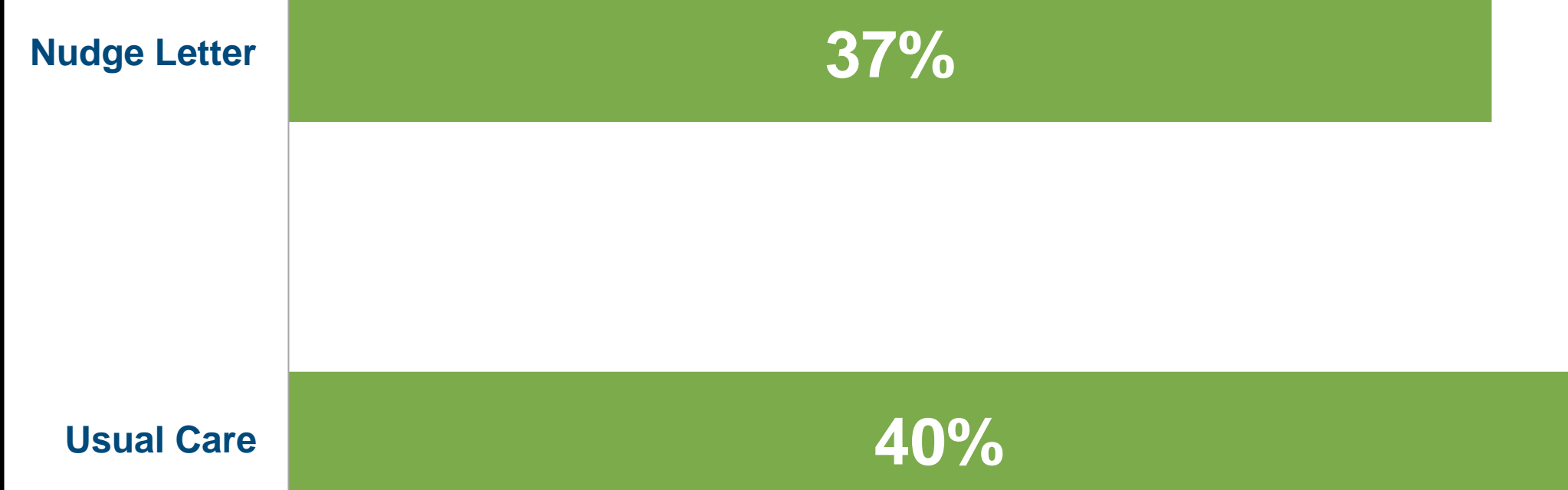
Study Population



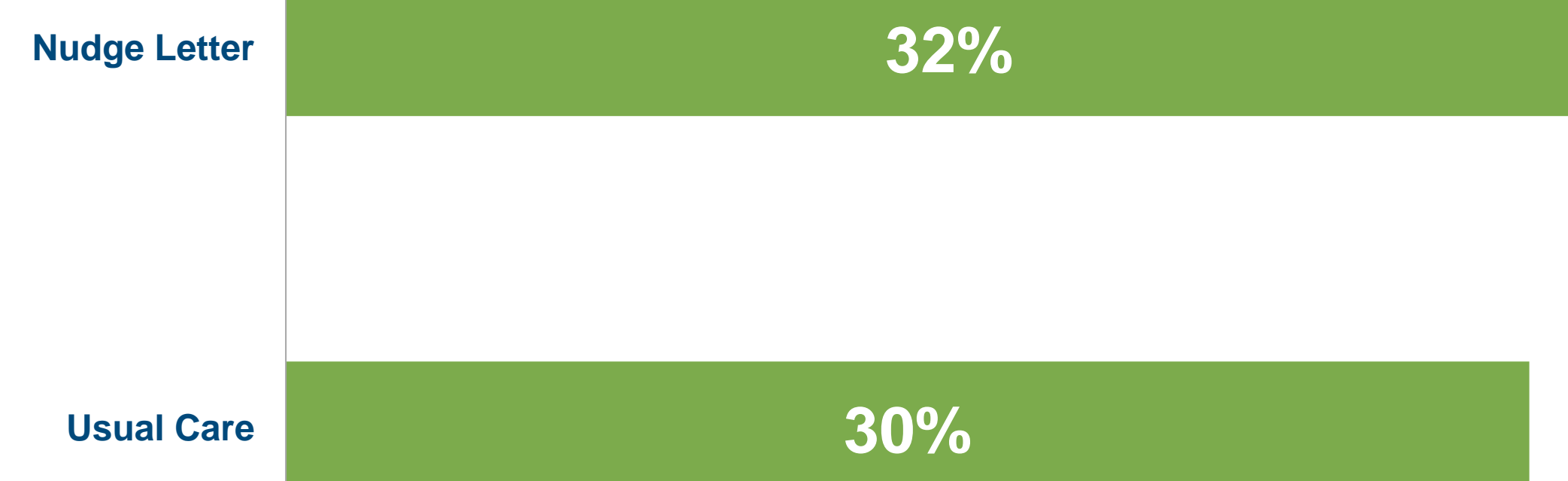
Demographics

| <u>Nudge Letter</u> | | <u>Usual Care</u> |
|---------------------|-------------------|-------------------|
| 69% | White | 70% |
| 56% | Male | 58% |
| 53% | Currently Smoked | 53% |
| 36% | 65 - 69 Years old | 43% |

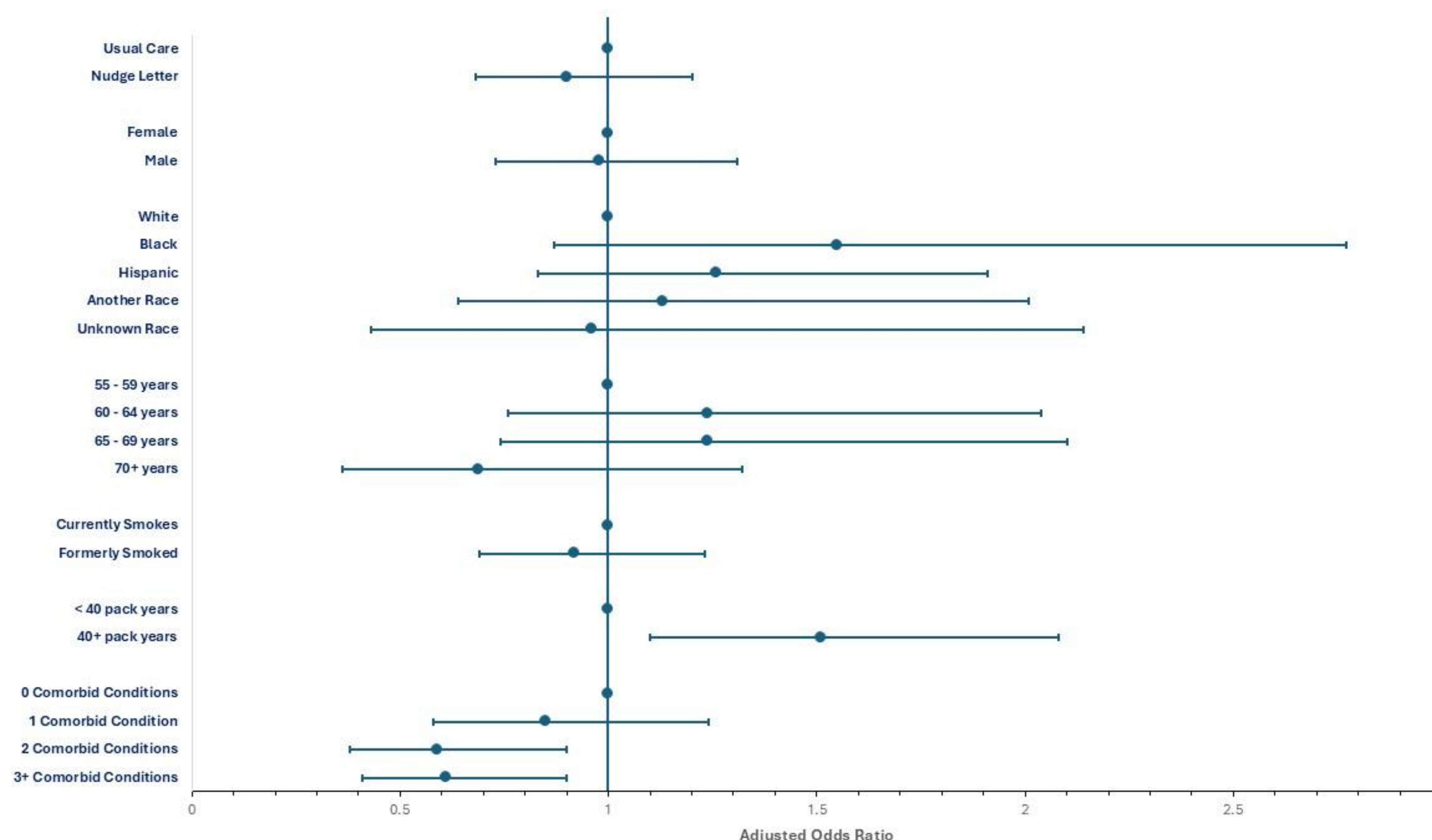
Received an Order for LCS



Completed LCS Scan



Characteristics Associated With Receiving an LCS Order



Conclusions

- We did not generate evidence that patient "nudges" can improve patient-provider engagement and/or orders for LCS.**
- Randomization by birth month resulted in well-balanced Nudge Letter vs Usual Care cohorts.
- Similar proportions received an LCS order.
- Similar proportions completed LCS scan.
- Patients with higher smoking intensity were more likely to receive LCS order.
- Patients with higher comorbid burden were less likely to receive LCS order.
- Barriers and unknown factors still exist:
 - Unable to know if Nudge Letter was opened
 - 19% of cohort did not complete originally scheduled visit while other patients had multiple visits during study period
 - Inadequate adjustment for virtual visits

Implications

- This low-resource intervention did not appear to improve LCS patient and provider engagement related to LCS.
- More communication may not necessarily be better.
- Need to investigate if a better tailored communication would impact outcomes.
- We may have already plucked the "low hanging fruit" and screened those willing to follow through.
- Next steps
 - Refine "nudge" implementation strategy and develop alternate methods to optimize tools for provider-patient engagement.
 - Investigate capturing the nuances of more orders for heavier tobacco uses and fewer orders for patients with more comorbidities.
 - Combine our data with other healthcare systems to provide greater statistical power.

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