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# Acceptability of Personalized Lung Cancer Screening Program Among Primary Care Providers

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## Abstract

Current lung cancer screening (LCS) guidelines rely on age and smoking history. Despite its benefit, only 5–15% of eligible patients receive LCS. Personalized screening strategies select individuals based on their lung cancer risk and may increase LCS's effectiveness. We assess current LCS practices and the acceptability of personalized LCS among primary care providers (PCP) in Texas. We surveyed 32,983 Texas-based PCPs on an existing network (Protocol 2019–1257; PI: Dr. Shete) and 300 attendees of the 2022 Texas Academy of Family Physicians (TAFP) conference. We analyzed the responses by subgroups of interest. Using nonparametric bootstrap, we derived an enriched dataset to develop logistic regression models to understand current LCS practices and acceptability of personalized LCS. Response rates were 0.3% (n=91) and 15% (n=60) for the 2019–1257 and TAFP surveys, respectively. Most (84%) respondents regularly assess LCS in their practice. Half of the respondents were interested in adopting personalized LCS. The majority (66%) of respondents expressed concerns regarding time availability with the personalized LCS. Most respondents would use biomarkers as an adjunct to assess eligibility (58%), or to help guide indeterminate clinical findings (63%). There is a need to enhance the engagement of Texas-based PCPs in LCS. Most of the respondents expressed interest in personalized LCS. Time availability was the main concern related to personalized LCS. Findings

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The authors declare no potential conflicts of interest.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

from this project highlight the need for better education of Texas-based PCPs on the benefits of LCS, and the development of efficient decision tools to ensure successful implementation of personalized LCS.

## Introduction

Lung cancer (LC) remains the leading cause of cancer-related mortality across the United States despite being the third most diagnosed cancer.[1] The US Preventive Services Task Force (USPSTF) has developed lung cancer screening (LCS) recommendations that select individuals for screening based on categorical age and smoking history eligibility criteria.[2,3] The most recent USPSTF guidelines, published in 2021, endorse annual screening using thoracic low-dose computed tomography (LDCT) for individuals aged between 50 to 80 years, who have a cumulative smoking history of at least 20 pack years, and who currently smoke or have quit within the past 15 years.[2]

Adherence to annual LCS is low. Even though screening with LDCT has been proven beneficial in reducing lung cancer morbidity and mortality in large prospective clinical trials,[4,5] it remains underutilized with a variety of barriers to screening. LCS barriers include patients' lack of awareness and social stigma barriers, physician time constraints and screening skepticism, and system-wide screening accessibility and insurance coverage concerns.[6] Nationwide, approximately 5–20% of eligible people undergo LCS with screening rates trending upwards.[6–9] However, discrepancies in LCS rates exist among states with some studies reporting contradictory state estimates of LCS uptake.[6–9] For example, for the state of Texas, Fedewa and colleagues found that about 2% of the eligible individuals in Texas underwent LCS,[8] whereas a study by Narayan and colleagues found that Texas displays one of the highest uptake of LCS in the country (28.5%)[6].

In an effort to improve the overall lung cancer screening program, there has been an increased drive to tailor screening programs to the individual patient through personalized risk assessments of primarily ever-smoked individuals (henceforth we use the term "personalized LCS programs" to refer to such programs).[10–13] Risk assessment is typically facilitated by validated risk calculators that are specifically developed to predict the lung cancer risk of individuals based on established risk factors that include sociodemographic factors, clinical information, medical history, biological data, family and personal medical histories.[14–20] Supporting developments in LCS suggest that personalized approaches may enhance the overall effectiveness, cost-effectiveness, and efficiency of the screening program.[11–13,21] Notably, personalized LCS appears acceptable among the public, has the potential to improve screening uptake,[22] and may overcome several of the barriers to existing LCS programs. Recent advancements in the development of non-invasive biomarker tests may offer an addition tool to enhance the sensitivity of the risk assessment in selecting high risk individuals for LCS.[23–25] Primary care clinicians will play a central role in implementation of risk assessment for LCS, yet their perspectives about a personalized LCS program are not well understood.

In this study, we assessed the current LCS practices among primary care providers (PCP) and ascertained their perspectives on the utility and acceptability of a personalized LCS program as well as a hypothetical blood-based biomarker as part of the LCS program.

## Materials and Methods

We developed and administered a cross-sectional survey to PCPs to gain insight on the current LCS practices and the acceptability of a personalized LCS program, including potential benefits and barriers to the new method. The questionnaire was designed in REDCap and administered either electronically or in paper format. The study was approved by the institutional review board (IRB) of The University of Texas MD Anderson Cancer Center, Houston, Texas, prior to the survey dissemination and data collection (Protocol ID: 2021–1002, PI: Toumazis). The study was conducted in accordance with the U.S. Common Rule ethical guidelines.

We surveyed all PCPs included in two groups of providers. The first was a group of 32,983 PCPs on a registry of contact information of Texas-based providers (RTP), who are participating and contributing to the LCS program. This group was emailed an invitation to participate in the survey electronically, asking if they would like to be a part of a study focused on lung cancer screening and the acceptability of a personalized screening program. Two additional reminders were sent to non-responders 2 and 4 weeks after the initial invitation. PCPs who consented to participate and contribute to the study followed the email prompts and anonymously self-administered the online questionnaire.

The second group was derived from attendees of the 2022 Texas Academy of Family Physicians (TAFP) Primary Care Summit. 300 paper copies of the survey were prepared and distributed to physicians, PAs, and NPs throughout the conference that took place in Grapevine, Texas from Oct 28–30, 2022. Conference attendees were provided with the paper survey as part of their registration packet which included a QR code that directed them to an electronic version of the survey.

The survey consists of 26 questions and was designed to take approximately 5–10 minutes to complete (Supplemental Methods 1). The first 7 questions collected demographic indicators. The next set of 9 questions assessed current practices of the PCP’s practice and thoughts about the 2021 USPSTF lung cancer recommendations. The final 10 questions investigated physician opinions on personalized lung cancer screening, including the use of risk calculators and biomarkers. The survey was pilot tested with members of the research team for clarity and flow and was refined iteratively until approved by all the team members.

Anonymous responses from both groups (RTP and TAFP) were deidentified, pooled, and analyzed by subgroup of interest (including sex, profession, age, etc.) using comparative statistics. We derived an enriched dataset using nonparametric bootstrap and utilized it to develop logistic regression models. The nonparametric bootstrap method, which is based on random sampling with replacement from the survey data to estimate the distribution of sample estimates, was used to create a data set with 10 times the sample size of the original data in order to further understand respondent tendencies related to current LCS

practices, the acceptability of personalized LCS, the most significant barrier to personalized LCS, and acceptability of biomarkers. The LCS practices of interest include assessment of patient eligibility for LCS (Q14a) and the recommendation of LCS to eligible people (Q14b). Acceptability of personalized LCS was determined by self-reported interest in implementing a personalized LCS framework in the provider's practice (Q20), whereas the most significant barrier to personalized LCS program was based on the responses to the related question (Q22).

A subset analysis was completed from the TAFP survey surrounding the use of biomarkers as adjuncts or standalone modalities for LCS. A subgroup analysis was performed on just the respondents from the TAFP group who responded to the biomarker-related questions of the survey (Q23–25). The analyzed questions surrounded the use of biomarker tests either as adjuncts to LCS, or as a standalone LCS methodology, or as an aid to guide indeterminate clinical findings.

### Data Availability:

All data generated for the purposes of this study are included in the manuscript and supplemental materials.

## Results

A total of 151 PCPs completed the survey. Ninety-one (0.3%) individuals responded to the RTP electronic survey, and sixty (20%) individuals responded to the TAFP survey. The demographics of the respondents (Supplemental Table 1) were as follows: 71% female, 29% male; 71% white, 14% black, and 9% Asian; 53% physicians, 26% nurse practitioners, and 14% physician assistants.

### Current Practices of Lung Cancer Screening

The majority of respondents (84%) indicated that they regularly assess LCS eligibility in their practice. PAs and NPs were less likely to assess eligibility for LCS than physicians (OR 0.07, CI 0.04–0.12, $p < 0.001$) (Table 1). Specifically, 25% of respondent PAs and NPs, versus 4% of respondent physicians, reported never assessing individuals' eligibility for LCS. Provider age and experience were also strongly associated with assessing individuals' eligibility for LCS. Providers who were 40–49 years old, and those with less than 10 years of experience, were both more likely to assess for LCS eligibility among their patients (p-values $< 0.05$). Additionally, provider work setting was important, showing that the providers seeing greater than 50 patients/week, and providers who do not work at residency training sites were more likely to assess for LCS eligibility (p-values $< 0.05$). Provider demographics played a role, with female and non-Black providers more likely to assess for LCS eligibility (p-values $< 0.05$). Finally, whether the healthcare system was centralized (i.e., there are dedicated NPs available for LCS) or decentralized, does not significantly affect LCS eligibility assessment. We found that PAs and NPs were less likely to recommend LCS screening for eligible patients when compared to physicians (OR 0.05, CI 0.03–0.09, $p < 0.001$) (Supplemental Table 2).

### Interest in Personalized Lung Cancer Screening

Half (50%) of the respondents were interested in adopting a personalized LCS framework while an additional 40% responded that they were unsure and required more information regarding the personalized LCS program. PAs and NPs were more interested in a personalized LCS program as compared to physicians (OR 1.81, CI 1.37–2.40, $p < 0.001$) (Table 1). Provider age was significant, such that the providers under 60 years were more likely to be interested in a personalized LCS framework (p-values < 0.05). The setting of the provider's practice was significant in three areas: providers seeing fewer than 100 patients per week were less likely to be interested in personalized screening; residency training sites and practices with dedicated nurse navigators were also associated with decreased interest in personalized screening (p-values < 0.05).

### Benefits and Barriers to Personalized Lung Cancer Screening

Respondents were asked about several potential benefits and barriers to personalized LCS (Table 2). Most respondents indicated that personalized screening would maximize the benefits of screening (62%), and that such program will include more patients at high risk that otherwise would have been ineligible for screening (54%).

While considering barriers associated with personalized LCS, the majority (66%) of respondents expressed concerns regarding time availability, with PAs and NPs less concerned than physicians about time constraints (OR 0.75, CI 0.56–0.99, $p < 0.044$) (Supplemental Table 3). Additionally, providers seeing fewer than 100 patients were less concerned about time constraints when compared to providers seeing more than 100 (p-values < 0.001). Secondary concerns of the providers include lack of patient adherence to LCS recommendations (24%), increased difficulty in conveying personalized risk (23%), insufficient personalized risk assessment accuracy (17%), and decreased patient trust in personalized risk (9%) (Table 2).

### Biomarkers

Over half (58%) of the respondents would use an FDA-approved blood-based biomarker as an adjunct to assess individuals' eligibility for lung cancer screening, while 35% were unsure (Supplemental Table 4). Few respondents (5%) indicated that they were against using a biomarker as an adjunct to LDCT screening. Providers who worked in residency training sites or practices with dedicated nurse navigators were less likely to respond that they would use a blood-based biomarker as an adjunct (p-values < 0.001) (Table 3).

When considering whether they would use an FDA-approved blood-based biomarker as a standalone screening modality, only 23% noted that they would, over half (55%) were unsure, and 22% responded that they would not use the biomarker (Supplemental Table 4). Providers with over 10 years of experience, who worked in residency training sites or practices with dedicated nurse navigators were less likely to indicate they would use the biomarker as a standalone screening modality (p-values < 0.005) (Table 3).

Finally, 63% of respondents would use the biomarker as an aid to guide indeterminate clinical findings (e.g., small nodules of unknown clinical significance detected via

screening). Among respondents, 30% were unsure if they would use it, and 5% were against using it for this purpose (Supplemental Table 4). Providers who worked in residency training sites or practices with dedicated nurse navigators were less likely to respond that they would use a blood-based biomarker to guide indeterminate imaging findings, while providers with between 11–20 years of experience were more likely to respond that that would use it (p-values < 0.001) (Table 3).

## Discussion

This study assessed clinicians' perspectives about the acceptability of personalized lung cancer screening along with the current status of LCS in their practice.

In general, among respondents, PCPs report high levels of completion of LCS eligibility assessment and referral of eligible individuals to screening per the existing LCS recommendations. Improvement in the current lung cancer screening programs may come from increased engagement of PAs and NPs, practitioners who have a decreased patient volume (less than 50 patients each week), and those who practice in residency training sites. Providers with 1–10 years of experience were more likely to engage in these LCS practices, hopefully indicating a growing population of providers who are receiving improved education on LCS. Training older providers through primary care conferences or other medium may increase utility of LCS among this population.

Half of the respondents indicated that they would be willing to adopt a personalized lung cancer screening program into their practice, whereas an additional 40% of the respondents wanted to learn more information regarding the program, indicating that the majority of providers are open to the prospect of implementing a personalized LCS program. The low percent (10%) of respondents who are against the idea of personalized LCS indicate that very few providers are adamantly averse to the idea of learning and implementing personalized approaches for lung cancer screening. Recent studies continue to support that risk-based models not only lead to decreased morbidity and mortality,[3,5] but that they are also more cost-effective than the current recommendation, thus improving the quality-adjusted life-years of screening per dollar spent.[11] Acceptability among all providers may increase significantly and could potentially reach up to 90%, if enhanced educational efforts focus on the benefits and harms of implementing a personalized LCS program.

Between the perceived benefits and the barriers to personalized LCS, the most significant is the concern of little to no time availability to perform and communicate the findings from the personalized risk assessment for patients (67%). Physicians, PAs, and NPs are all challenged by time constraints, and if a risk calculation tool is time-consuming, it is unlikely to be acceptable and utilized by providers. A potential path to increase acceptability of personalized LCS would rely on a simple and quick decision tool to facilitate risk assessment. Time requirements may be further reduced if the decision aid tool is integrated within the electronic medical records of individuals which will allow the collection of related risk factors and the risk assessment to be completed in the background in an automated fashion, thus alleviating the time-consuming task of data collection from PCPs.

If LCS screening tools are designed to be efficient, they will have a lesser impact on the time.[26]

When considering the utility of biomarkers for LCS, providers seem to be aware of the potential benefits of biomarker use in the diagnosis of lung cancer. While most find it acceptable to use such a method as an adjunct to existing screening modalities, few are willing to use it as a complete replacement for the current accepted methods of screening. In general, there is some uncertainty regarding the use of biomarkers, specifically for their use as a replacement for LCS. For biomarkers to become more widely acceptable, they have to offer meaningful clinical data demonstrating their superiority over the current LCS methods in sensitivity, specificity, and/or cost.[27]

Personalized lung cancer screening programs are generally acceptable among primary care providers, especially if these programs manage physician's time efficiently. Biomarker tests are also acceptable as adjuncts to existing screening modalities, but concerns exist for their use as standalone screening modality. Findings from this project highlight the need for better PCP education on the benefits of personalized LCS, and the development of time-efficient decision tools to facilitate shared decision-making sessions to ensure its successful implementation.

### Limitations:

In this study, we acknowledge the possibility of selection bias which may limit the generalizability of our conclusions. Contributors to possible selection bias include low response rate for the surveys adding a high proportion of non-responses to our surveys. Additionally, because of the small sample, it was not possible to explore differences in perceptions across clinician characteristics such as age, race/ethnicity, and types of practice settings.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Prevention Relevance:**

Personalized lung cancer screening facilitated by a risk model and/or a biomarker test is proposed as an alternative to existing programs. Acceptability of personalized approach among primary care providers in unknown. The goal of this study is to assess the acceptability of personalized lung cancer screening among primary care providers.

**Table 1.**

**Logistic regression models to ascertain the associations between PCP's characteristics and assessment of LCS eligibility and interest in personalized LCS.**

Provider characteristics and the association of these characteristics related to the provider's assessment of LCS eligibility and the provider's interest in utilizing personalized screening in their practice are shown.

| | Complete Assessment of LCS Screening Eligibility (Q14a) | | | Interest in Utilizing Personalized Screening in Practice (Q20) | | |
|---|---|---|---|---|---|---|
| **Raw Responses:** | **125 (83%) assess** | | | **74 (50%) interested** | | **59 (40%) unsure** |
| **Age** | **Odds Ratio** | **95% CI** | **P value** | **Odds Ratio** | **95% CI** | **P value** |
| 60 and above | 1.00 | -- | | 1.00 | -- | |
| Less than 40 | **0.12** | **0.05 – 0.30** | **<.001** | **3.95** | **2.23 – 6.98** | **<.001** |
| 40 – 49 | **2.40** | **1.11 – 5.18** | **0.026** | **1.70** | **1.05 – 2.76** | **0.032** |
| 50 – 59 | 0.68 | 0.37 – 1.25 | 0.210 | **3.22** | **2.19 – 4.73** | **<.001** |
| **Gender** | | | | | | |
| Male | 1.00 | -- | | 1.00 | -- | |
| Female | **7.52** | **3.92 – 14.42** | **<.001** | 0.91 | 0.66 – 1.24 | 0.529 |
| **Race** | | | | | | |
| NH White | 1.00 | -- | | 1.00 | -- | |
| Hispanic | **2.51** | **1.15 – 5.48** | **0.021** | **1.57** | **1.06 – 2.32** | **0.024** |
| NH Black | **0.22** | **0.13 – 0.39** | **<.001** | **2.16** | **1.39 – 3.34** | **0.001** |
| NH Other | **6.21** | **2.72 – 14.2** | **<.001** | **2.34** | **1.63 – 3.36** | **<.001** |
| **Profession/Roles** | | | | | | |
| Physician | 1.00 | -- | | 1.00 | -- | |
| Nurse Practitioner/Physician Assistant | **0.07** | **0.04 – 0.12** | **<.001** | **1.81** | **1.37 – 2.4** | **<.001** |
| **Years in Practice** | | | | | | |
| 1 – 10 | 1.00 | -- | | 1.00 | -- | |
| 11 – 15 | **0.33** | **0.15 – 0.72** | **0.005** | 0.79 | 0.52 – 1.2 | 0.261 |
| 16 – 20 | **0.14** | **0.06 – 0.33** | **<.001** | 0.86 | 0.55 – 1.35 | 0.509 |
| More than 20 | **0.34** | **0.15 – 0.78** | **0.011** | 0.97 | 0.59 – 1.6 | 0.908 |
| **Patients per Week** | | | | | | |
| 100 or more | 1.00 | -- | | 1.00 | -- | |
| Less than 10 | **0.28** | **0.11 – 0.71** | **0.008** | **0.14** | **0.07 – 0.26** | **<.001** |
| 10 – 49 | 0.54 | 0.27 – 1.07 | 0.078 | **0.14** | **0.09 – 0.22** | **<.001** |
| 50 – 99 | **9.09** | **3.75 – 22.03** | **<.001** | **0.12** | **0.08 – 0.18** | **<.001** |
| **Residency Training Site** | | | | | | |
| No | 1.00 | -- | | 1.00 | -- | |
| Yes | **0.32** | **0.2 – 0.49** | **<.001** | **0.56** | **0.42 – 0.75** | **<.001** |
| **Setting** | | | | | | |
| Centralized | 1.00 | -- | | 1.00 | -- | |
| Decentralized | 1.29 | 0.82 – 2.01 | 0.272 | **1.88** | **1.42 – 2.48** | **<.001** |

[*] Odds ratios higher than 1 represent stronger association of the corresponding variable to the outcome of interest.

[†] These results have had a nonparametric 10x bootstrap applied to the dataset to improve recognition of significant variates using logistic regression models.

**Table 2.**

**Benefits and Barriers to Personalized Lung Cancer Screening**

Providers indicated if they agreed with the prompt. Providers indicated if the item presented was perceived as a benefit or barrier to screening or not.

| **Benefits of Personalized LCS (Q21)** | **agreed** | **(n)** |
|---|---|---|
| Maximize benefits of LCS | 62% | (95) |
| Increased Patient Adherence | 40% | (61) |
| Minimize Harms of LCS | 35% | (54) |
| Increase Patient Comfort | 37% | (57) |
| Include More Patients | 54% | (82) |
| **Barriers to using Personalized LCS (Q22)** | **agreed** | **(n)** |
| Time Consuming | 66% | (100) |
| Physicians | 71% | (57) |
| PAs and NPs | 62% | (37) |
| Decreased Patient Adherence | 24% | (36) |
| Decreased Patient Trust | 9% | (13) |
| Difficulty Communicating Risk | 23% | (34) |
| Insufficient Accuracy | 17% | (25) |

**Table 3.**

Logistic regression model to understand the associations between PCP's characteristics and utility of a theoretical FDA-approved biomarker in personalized LCS. Provider characteristics and the association of these characteristics with relation to the utility of a biomarker as an adjunct, as a standalone modality, or as an aid in decision making with indeterminate findings.

| **Biomarker Utility:** | **as Adjunct to Screening (Q23)** | | | **as Standalone Screening Modality (Q24)** | | | **to Guide Indeterminate Findings (Q25)** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Raw Responses (out of 60 responses):** | **35 (58%) would use** | | | **14 (23%) would use** | | | **38 (63%) would use** | | |
| **Age** | **Odds Ratio** | **95% CI** | **P value** | **Odds Ratio** | **95% CI** | **P value** | **Odds Ratio** | **95% CI** | **P value** |
| **60 and above** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Less than 40** | 0.74 | 0.20 – 2.70 | 0.648 | **0.07** | **0.02 – 0.29** | **<.001** | 2.43 | 0.54 – 10.9 | 0.247 |
| **40 – 49** | 2.32 | 0.80 – 6.74 | 0.121 | 0.78 | 0.27 – 2.19 | 0.632 | 0.94 | 0.32 – 2.77 | 0.905 |
| **50 – 59** | **2.18** | **1.08 – 4.41** | **0.030** | 0.90 | 0.41 – 1.97 | 0.793 | 1.86 | 0.91 – 3.78 | 0.089 |
| **Gender** | | | | | | | | | |
| **Male** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Female** | 0.95 | 0.57 – 1.56 | 0.833 | **0.23** | **0.13 – 0.42** | **<.001** | **0.34** | **0.20 – 0.60** | **<.001** |
| **Race** | | | | | | | | | |
| **NH White** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Hispanic** | 1.66 | 0.84 – 3.29 | 0.146 | **1.89** | **1.00 – 3.57** | **0.049** | 1.02 | 0.52 – 2.03 | 0.950 |
| **NH Black** | 2.49 | 0.95 – 6.51 | 0.063 | **4.80** | **2.06 – 11.2** | **<.001** | 1.80 | 0.58 – 5.59 | 0.308 |
| **NH Other** | 1.13 | 0.57 – 2.24 | 0.734 | **0.27** | **0.11 – 0.69** | **0.006** | **0.36** | **0.17 – 0.73** | **0.005** |
| **Profession/Roles** | | | | | | | | | |
| **Physician** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Nurse Practitioner/Physician Assistant** | 1.28 | 0.35 – 4.68 | 0.709 | -- | -- | -- | 1.41 | 0.40 – 5.02 | 0.597 |
| **Years in Practice** | | | | | | | | | |
| **1 – 10** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **11–15** | **4.84** | **1.89 – 12.4** | **0.001** | **0.19** | **0.07 – 0.52** | **0.001** | **28.50** | **7.47 – 109** | **<.001** |
| **16 – 20** | **4.06** | **1.57 – 10.5** | **0.004** | **0.20** | **0.06 – 0.62** | **0.005** | **9.20** | **2.62 – 32.3** | **<.001** |
| **More than 20** | 2.08 | 0.65 – 6.67 | 0.216 | **0.04** | **0.01 – 0.13** | **<.001** | 3.85 | 0.93 – 15.9 | 0.063 |
| **Patients per Week** | | | | | | | | | |
| **100 or more** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Less than 50** | 0.87 | 0.42 – 1.79 | 0.710 | 1.39 | 0.58 – 3.33 | 0.460 | **0.47** | **0.23 – 0.99** | **0.046** |

| Biomarker Utility: | as Adjunct to Screening (Q23) | | | as Standalone Screening Modality (Q24) | | | to Guide Indeterminate Findings (Q25) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Raw Responses (out of 60 responses):** | **35 (58%) would use** | | | **14 (23%) would use** | | | **38 (63%) would use** | | |
| **Age** | **Odds Ratio** | **95% CI** | **P value** | **Odds Ratio** | **95% CI** | **P value** | **Odds Ratio** | **95% CI** | **P value** |
| **50 – 99** | **0.15** | **0.08 – 0.30** | **<.001** | **3.54** | **1.76 – 7.10** | **<.001** | 0.51 | 0.24 – 1.06 | 0.071 |
| **Residency Training Site** | | | | | | | | | |
| **No** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Yes** | **0.05** | **0.02 – 0.09** | **<.001** | **0.27** | **0.10 – 0.74** | **0.011** | **0.29** | **0.14 – 0.60** | **<.001** |
| **Setting** | | | | | | | | | |
| **Centralized (with nurse navigator)** | 1.00 | -- | | 1.00 | -- | | 1.00 | -- | |
| **Decentralized** | **4.02** | **2.09 – 7.76** | **<.001** | **9.71** | **3.60 – 26.2** | **<.001** | **21.90** | **10.6 – 45.3** | **<.001** |

*Odds ratios higher than 1 represent stronger association of the corresponding variable to the outcome of interest.

†These results have had a nonparametric 10x bootstrap applied to the dataset to improve recognition of significant variates using logistic regression models.