Increasing Lung Cancer Screening through Opportunistic Referrals

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Abstract

Lung cancer is the leading cause of cancer-related deaths in the United States and the second-most diagnosed cancer. Although lung cancer screenings can reduce lung cancer mortality by up to 20%, national screening rates remain around 16%—far lower than other common cancer screenings. Our research group found that many patients who receive another type of screening for coronary artery calcium (CAC) may be eligible for lung cancer screening but have not yet been screened, illustrating an opportunity to increase lung cancer screening rates within routine healthcare encounters. This article explores how screening referrals made outside of traditional lung cancer screening programs—which we refer to as 'opportunistic referrals'—can serve as a strategy to improve early detection. We aim to highlight practical strategies and resources that can improve awareness and access. We also discuss how policy changes and system-level strategies can support more equitable screening practices, particularly in underserved populations.

Background

Lung cancer has been the leading cause of cancer death in the United States for men since the early 1950s and for women since 1987 and accounted for 135,720 deaths in 2020 (American Lung Association, 2025). It is the second-most prevalent cancer type for both men and women (American Lung Association, 2025). The five-year survival rate for all lung cancer is 27%, but only 9% for patients diagnosed at a late stage (American Cancer Society, 2025). Despite low-dose computed tomography (LDCT) scans for lung cancer screening (LCS) reducing mortality by 20% (Aberle et al., 2011), only 16% of eligible individuals are screened in the United States (Gunderman et al., 2025). This is significantly lower than rates for other cancer screenings, such as mammography (National Cancer Institute, n.d.).

There are numerous barriers to completing LCS, including patient lack of awareness, fear of diagnosis, absence of symptoms, and cost concerns (Jung et al., 2025). Primary care providers, who routinely manage screening, report challenges with shared decision-making, difficulty identifying eligible patients, limited EMR notification systems, and time constraints [6-7]. Smoking is the predisposing factor most associated with lung cancer, and it is known that smokers are less likely to engage in guideline-concordant screenings for other cancers, including breast, prostate, and colorectal (Sanford et al., 2019).

What does our research show?

Our research focuses on identifying untapped opportunities to connect patients who are potentially eligible for lung cancer screening to screening programs. We refer to screening referrals made outside of traditional lung cancer screening programs as 'opportunistic referrals' and believe these referrals can serve as a strategy to improve early detection. We suspected that patients receiving coronary artery calcium scoring (CACS) may be eligible for lung cancer screening because there is considerable overlap between the inclusion criteria for CACS exams at IU Health and the United States Preventive Services Task Force LCS criteria.

After analyzing over 14,000 CACS- exams from 2022 to 2023, we found that 15.8% to 23.4% of patients screened for coronary artery disease may have been eligible for lung cancer screening. A more precise measurement could not be made as electronic health records often lacked adequate smoking histories, making it difficult to definitively determine a patient's eligibility for lung cancer screening.

We also found disparities in CACS utilization. In our sample, 91.8% of the patients who received a CACS exam were white, compared to the state average of 83.7%, underscoring disparities in access (U.S. Census Bureau, 2024). This overrepresentation of white patients reflects how self-pay preventive services disproportionately benefit higher-income, insured populations. Without intentional strategies, opportunistic referrals may widen disparities by primarily reaching those already advantaged.

What are other examples of opportunistic referrals?

Our research highlights the potential to improve lung cancer screening through opportunistic referrals. Some opportunistic referral strategies that have gained attention involve linking lung cancer screening to other established screening tests. For example, some institutions attempt to address this issue by offering dual screening for CACS and LCS, though published data are limited. Others have examined retrospectively scoring coronary artery calcium from LCS exams, though this approach has limitations (Berzingi et al., 2024).

CT-based approaches show feasibility of combined imaging for multiple cancers. For example, while colonoscopy remains the most common method of colorectal cancer screening, the FDA approved CT colonography as an alternative in 2006 (Bryce & Bucaj, 2021). Although not yet widely implemented, combining lung cancer and colorectal cancer screening in a single CT appointment faces few practical barriers (Mascalchi et al., 2022).

A successful example of screening innovation comes from pairing breast and lung cancer screenings. In one study of 892 patients identified as potentially eligible for lung cancer screening, 54 went on to complete shared decision-making appointments and subsequently underwent a screening CT (Yue et al., 2025). Although not a single-session model, this pilot study demonstrated the potential of adding LCS for patients already undergoing other cancer screenings.

What are some provider level solutions to improving lung cancer screening?

A common misconception is that lung cancer screening requires out-of-pocket payment (Mascalchi et al., 2022). Medicare and most other public and private insurances cover lung cancer screening, so this simple education at other screening evaluations can provide impetus for patients already willing to be screened for other cancers.

Providers can also connect patients with supportive resources like the American Lung Association's Lung Cancer Screening Assistance Program and the Color Health Lung Cancer Screening Tool [14–15]. These programs offer user-friendly websites where patients enter personal data to identify screening eligibility and local resources. Both include free lung health navigator services; Color Health also allows patients to indicate financial hardship and links them with available regional support (Color Health & American Cancer Society, 2025).

What are some potential policy and systems-based solutions?

Policy changes. Federally Qualified Health Centers (FQHCs) are excellent resources for low-income patients. Currently, FQHCs report cervical, breast, and colorectal cancer screening metrics through the HRSA Uniform Data System (UDS). Lung cancer screening, despite being USPSTF-recommended and fully covered by CMS, is not included as a quality metric for Medicare, Medicaid, or FQHCs (Kao et al., 2025). Adding LCS would align it with existing cancer screenings, ensure systematic identification of high-risk patients, and reduce disparities in populations served by FQHCs, including as those seen at Eskenazi Health, HealthNet, and the Jane Pauley Community Health Center in Indianapolis. Embedding lung cancer screening into national quality frameworks would transform it from an underutilized option into a routine expectation of preventive care. Without LCS as a quality metric, FQHCs struggle to cover the cost for self-pay patients who cannot afford it (Kao et al., 2025).

CATEGORY	CURRENT UDS CANCER SCREENING METRICS (REQUIRED FOR FQHCS)	PROPOSED ADDITION
CERVICAL CANCER	% of women ages 21–64 screened with Pap test (past 3 yrs) OR Pap + HPV co-test (past 5 yrs)	–
BREAST CANCER	% of women ages 50–74 with a mammogram in the past 2 years	–
COLORECTAL CANCER	% of adults ages 45–75 screened (via FOBT/FIT annually, FIT-DNA every 3 yrs, sigmoidoscopy every 5 yrs, or colonoscopy every 10 yrs)	–
LUNG CANCER (NOT CURRENTLY INCLUDED)	–	% of adults ages 50–80 with ≥20 pack-year smoking history, current smokers or those who quit within 15 yrs, who received annual low-dose CT scan

Figure 1: *Lung cancer screening is not yet a UDS quality measure for FQHCs, unlike cervical, breast, and colorectal screening.*

System changes. Health systems have successfully expanded cancer screening by embedding new tests into existing workflows. A compelling precedent is HPV co-testing, which began as an unfamiliar add-on to Pap smears but quickly became standard practice once incorporated into routine cervical cancer screening (Saslow et al., 2012). This example shows how pairing a new screening with an established encounter can normalize adoption and drive population-level impact. That is precisely the principle behind opportunistic referrals for lung cancer screening.

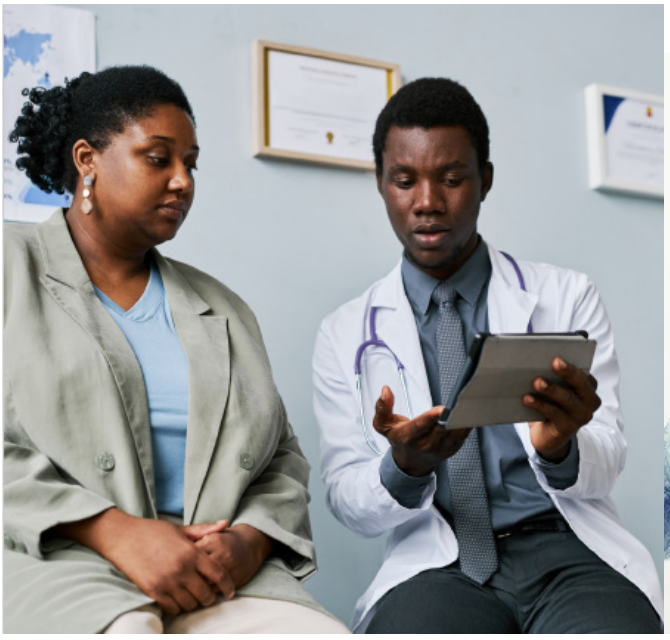
Another strategy is to offer free screening services as "anchors," creating more opportunities for referrals. University Hospitals (UH) system in Northeast Ohio began offering no-cost coronary artery calcium scoring (CACS) to eligible individuals in 2017, becoming one of the only health systems in the Americas to eliminate patient fees for CACS exams. This change resulted in a 546% increase in utilization across all demographic groups (Al-Kindi et al., 2020).

While no Indianapolis health system currently provides free CACS on a routine basis, several institutions, such as IU Health, Ascension St. Vincent, and Community Health Network, offer self-pay price points in the $49–$100 range.

Adapting the UH model locally could entail piloting subsidized or no-cost CACS program, especially in collaboration with Federally Qualified Health Centers (FQHCs) like Eskenazi Health, to reduce financial barriers, enable dual-screening opportunities (such as combined CACS and lung cancer screening by embedding automated LCS prompts into CACS ordering), and support equitable preventive care access among underserved populations.

Summary

While lung cancer remains the leading cause of cancer death in the U.S., less than 16% of eligible patients undergo screening. This is far below other cancers despite clear survival benefits. “Opportunistic referrals” linking lung cancer screening to existing services like CACS exams, CRC screening, or mammography show promise in boosting uptake but are limited by cost, access, and current policy. By designing opportunistic referral pathways that prioritize underserved groups through cost reduction, embedding screening into trusted settings like FQHCs, and linking to services patients already use, we can ensure that lung cancer screening becomes not only more common, but more equitable.



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