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LUNG CANCER SCREENING IMPLEMENTATION CHANGE PACKAGE

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WHAT IS THE LUNG CANCER SCREENING IMPLEMENTATION CHANGE PACKAGE?

The **Lung Cancer Screening Implementation Change Package** (Change Package) is a toolkit of information that can inform the planning, implementation, and evaluation of a lung cancer screening program. It contains a checklist summarizing key lung cancer screening program components and development considerations, guidance and resources for each checklist item, and fillable worksheets for hands-on planning.

WHO SHOULD USE THIS CHANGE PACKAGE?

The Change Package is for health care settings interested in starting, expanding, improving, or supporting a lung cancer screening program. Though designed primarily with community settings in mind, the Change Package is flexible, with content relevant to a variety of settings and program models.

WHY WAS THE CHANGE PACKAGE CREATED?

The Change Package was created to address the need for an easy-to-use tool for busy health care workers in search of guidance on the nuts and bolts of building a lung cancer screening program. It helps users think through important planning and implementation steps while consolidating and pointing users to guidelines and existing resources. The goal of the Change Package is to support you in envisioning and creating a lung cancer screening program that is impactful, high quality, adherent to best practices and guidelines, equity focused, patient centered, responsive to local needs, and sustainable.

HOW SHOULD THE CHANGE PACKAGE BE USED?

Users can assess current progress towards lung cancer screening program development by completing the summary checklist and referring to guidance and resources for items of interest. **Enclosed are blank worksheets to help users get started.**

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SUMMARY CHECKLIST

Use this checklist to assess current progress for the lung cancer screening program.

	Yes	No	In Progress
1. Program groundwork			
1.1 Identify catchment area and assess epidemiological profile			
1.2 Identify and anticipate barriers to screening with patient-centered strategies			
1.3 Assess current program and determine desired program model			
2. Data collection and evaluation			
2.1 Establish program priorities and desired program metrics			
2.2 Establish electronic health record (EHR) and data-collection capabilities			
2.3 Establish baseline data for program			
2.4 Develop plan for program monitoring and reporting			
2.5 Consider data submission with registry			
3. Budget and sustainability			
3.1 Establish program costs and plan for sustainability			
4. Key personnel and partners			
4.1 Identify the multidisciplinary team			
4.2 Identify and engage key partners			
4.3 Identify provider and staff training, education, and resource needs			
5. Screening eligibility			
5.1 Establish screening eligibility criteria			
5.2 Determine how eligible individuals will be identified			
5.3 Define path for proper diagnosis codes for reimbursement			
5.4 Establish protocols to exclude ineligible individuals and disenroll patients			
6. Shared decision-making			
6.1 Establish shared decision-making protocols and resources			
6.2 Establish method/process for documenting shared decision-making in EHR/progress note			
7. Radiology operations			
7.1 Establish appropriate low-dose computed tomography (LDCT) technical specifications			
7.2 Establish structured results reporting			
7.3 Establish lung nodule management algorithm			
7.4 Establish nodule review board or process			
7.5 Establish protocols for addressing incidental findings			
8. Ongoing annual screening services and patient tracking			
8.1 Establish strategies for tracking patients and encouraging ongoing adherence			
9. Lung cancer prevention services			
9.1 Establish strategies to address tobacco cessation			
9.2 Establish strategies to address environmental exposures			
10. Community outreach			
10.1 Establish program marketing strategies			
10.2 Establish education and outreach strategies for referring providers			

CHECKLIST RESOURCES AND GUIDANCE

Refer to corresponding sections in this portion of the Change Package for additional details, guidance, and resources on any checklist item.

1 PROGRAM GROUNDWORK

1.1 IDENTIFY CATCHMENT AREA AND ASSESS EPIDEMIOLOGICAL PROFILE

Identify and assess the lung cancer screening program's catchment area and priority patient population(s). A solid understanding of catchment area characteristics and needs will provide a foundation for maximizing the program's success and ability to be responsive to the local landscape. Here are some key questions, that when answered, can provide an informative picture of the catchment area's lung cancer statistics, sociodemographic profile, and patterns of disparities.

The table below will guide you through these questions and where to find each data point. If the program is affiliated with a cancer center or larger umbrella organization, check to see if they already have epidemiological or other descriptive information compiled about the catchment area.

Question	Where to find the answer
Which counties comprise the majority of the patient population served by your screening program?	Discuss among cancer screening program leadership and service teams; perform a review of EHRs.
For the following questions, find epidemiological data for each county in your catchment area.	
What is the lung cancer incidence rate?	**Option 1:** Go to National Institutes of Health (NIH)/Centers for Disease Control and Prevention (CDC)'s State Cancer Profiles: select state, "county" as the area type, "Lung & Bronchus" as the cancer type, desired population, and "All stages." **Option 2:** Go to National Lung Cancer Roundtable's (NLCRT) Lung Cancer Atlas and uncheck all boxes except "Lung & Bronchus Cancer Incidence Rate." Zoom in and click on the counties of interest.
What is the late-stage lung cancer incidence rate?	Go to State Cancer Profiles, and select "Late Stage."
What is the lung cancer mortality rate?	**Option 1:** Go to NIH/CDC's State Cancer Profiles mortality page select the state, "county" as the area type, "Lung & Bronchus" as the cancer type, and desired population. **Option 2:** Go to NLCRT Lung Cancer Atlas, uncheck all boxes except "Lung & Bronchus Cancer Mortality Rate." Zoom in and click on the counties of interest.
What percentage of adults smoke?	**Option 1:** Go to CDC Places and click on the "Interactive Map" image. Click, "Health Risk Behaviors" at the top, then "Current Smoking." Zoom into your area of interest and click on each county to obtain estimated prevalence. **Option 2:** Go to NLCRT Lung Cancer Atlas, uncheck all boxes except "Percent Adults Smoking by County" (under "Demographics & Risk Factors"). Zoom in and click on your counties of interest.
What is the demographic makeup of the catchment area (eg, sex, age, race, ethnicity)?	Go to StatsAmerica: type in the county name or click on the county of interest on the map. Scroll down and click, "Demographics" to see counts and percentages for overall population, race and ethnicity, and median age.
What is the poverty rate? What is the median household income?	Go to StatsAmerica, type in the county name or click on the county of interest on the map. Scroll down and click "Income & Poverty."
What is the level of educational attainment?	Go to StatsAmerica, type in the county name or click on the county of interest on the map. Scroll down and click "Education."

What percentage lacks health insurance?	See County Health Rankings & Roadmaps, enter county, state, or zip code of interest, and select desired year.
Which demographic groups experience the greatest disease burden?	Revisit the State Cancer Profiles pages for incidence and mortality, and examine rates by sex and race/ethnicity by changing drop-down selections. Talk to local experts about what they are seeing: consider community conversations, focus groups, or key informant interviews.
What is the screening rate for the catchment area? Which groups have especially low screening rates?	State-level lung cancer screening rates are available from American Lung Association (ALA). Identify local sources for more granular data (eg, county, hospital system screening rates) if available. Consider EHR review, conversations with local experts, focus groups, or key informant interviews.

ACTIVITY

Complete **Part 1 of Worksheet 1: Catchment Area Landscape**, to create a concise epidemiological and socioeconomic snapshot of the catchment area. This snapshot can help the lung cancer screening program identify which counties or demographic groups have the greatest lung cancer risk, disease burden, and socioeconomic barriers, to inform outreach and resource allocation.

Use narrative to describe the program's catchment area and population served in **Worksheet 4: Program Description**.

RESOURCES

State Cancer Profiles
Dynamic views of cancer statistics for prioritizing cancer control efforts across the nation, created by the National Institutes of Health and Centers for Disease Control and Prevention.

Lung Cancer Atlas
Presented by the National Lung Cancer Roundtable and the American Cancer Society. This atlas offers an interactive geographic view of data pertaining to lung cancer in the United States.

Cancer Prevention & Early Detection Facts & Figures
An educational companion for "Updated Review of Major Cancer Risk Factors and Screening Test Use in the United States, with a Focus on Changes During the COVID-19 Pandemic," a scientific paper published in Cancer Epidemiology, Biomarkers, and Prevention.

County Health Rankings & Roadmaps
Presented by the University of Wisconsin Population Health Institute. Provides the ability to measure the health of nearly every county in all 50 states, complemented by guidance, tools, and resources.

Rural Health Information Hub
The Rural Data Explorer provides a wide range of data on health disparities, workforce, demographics, and more at nationwide, state, and county levels. Select the desired indicator and state from the drop-down menus.

StatsAmerica
Actionable data from federal, state, commercial, and private sources in the form of indexes, rankings, calculations, graphs, maps and more. Click on the county topic of interest.

PLACES: Local Data for Better Health
Provides health data for small areas across the country. Provides model-based, population-level analysis and community estimates of health measures to all counties, places, census tracts, and Zip Code Tabulation Areas across the US. Click on the "Interactive Map" image and topics of interest.

1.2 IDENTIFY AND ANTICIPATE BARRIERS TO SCREENING WITH PATIENT-CENTERED STRATEGIES

A strong understanding of the priority patient population and its community context is necessary to design a patient-centered lung cancer screening program and encourage uptake and ongoing adherence. The epidemiological assessment from section 1.1 Identify Catchment Area and Assess Epidemiologic Profile offers insight toward identifying populations experiencing disparate lung cancer burden that may require extra attention and resources, and potential barriers to screening, such as lack of health insurance, low education, or low literacy. Consider gathering additional data points describing access to health care and lung cancer screening for each county in the catchment area:

Question	Where To Find The Answer
How many primary care physicians are there per 10,000 people?	Go to Rural Health Information Hub, zoom in on map and click county of interest.
How many thoracic surgeons, radiation oncology physicians, and pulmonary disease physicians are there?	Go to NLCRT Lung Cancer Atlas, uncheck all boxes except "# of Thoracic Surgeons," "# of Radiation Oncology Physicians," or "# of Pulmonary Disease Physicians" (under "Physicians"). Zoom in and click on the counties of interest. Talk to local health care providers who may have the most current and accurate information about specialist supply in your local area.
What percentage lacks access to ACR lung cancer screening facility within X miles?	Go to NLCRT Dashboard, click the layers icon on the upper right of the map, deselect everything except "Access to Lung Cancer Screening Study…" and submenu item "% Aged 50-80 with No Access… ." Click county of interest, and hover over bars in bar graph to see percent without access to screening within 10, 20, 40, 50, and 100 miles.

Deepen your understanding of the attitudes, cultures, needs and barriers to care among the priority population(s) by interviewing clinic staff with face-to-face patient experience, holding community conversations or focus groups, and conducting key informant interviews with local community leaders.

For both initial and follow-up screenings, patients may face substantial barriers that discourage adherence. Patient navigation is a key strategy for addressing barriers.[1-5] Common screening barriers and potential solutions are listed below for consideration, as the lung cancer screening program assesses its own patient population barriers and brainstorms patient-centered approaches to addressing them.

Barrier	Possible solutions
Distance, transportation[2,4,6-11]	• Bundle visits, scheduling multiple services for a single encounter • Partner to enable satellite locations or mobile lung screening options • Leverage telehealth • Identify sources of free, low-cost, or donated transportation services; identify ride-share opportunities • Patient navigation (either in-house or through referral to local or national advocacy organizations)
Cost concerns[2,12-15]	• Designate staff to answer insurance-related questions and educate about covered (and not covered) lung cancer screening services and anticipated costs • Have patient navigators prescreen for insurance coverage, enroll in insurance, and identify financial support • Offer patient education materials that answer common questions • Preidentify strategies and local resources for free or low-cost lung cancer screening

Time, convenience[13,14,16,17]	• Bundle visits, scheduling multiple services for a single encounter • Offer clinic services at hours and locations convenient to patients • Educate patients about paid sick leave for screenings if available in your state, city, or county • Offer scheduling assistance and automated reminders via email, voice, or text
Informational and psychological barriers[2,4,11,14,17-20]	• Train providers to anticipate common knowledge gaps and psychological barriers to screening • Enlist trusted individuals with long-standing relationships with patients, such as primary care providers and community leaders, to deliver messages about lung cancer screening • Leverage community health workers and patient navigators to establish rapport, address concerns, and educate patients • Approach conversations about smoking history and lung cancer screening with sensitivity and non-judgmental attitudes

ACTIVITY

Use the **Part 2 of Worksheet 1: Catchment Area Landscape** to describe health care access and **Part 3** to record important insights about culture, attitudes towards lung cancer screening, community context, needs, and barriers to screening for the priority patient population(s).

Use **Worksheet 2: Barriers Resource List** to list common barriers and strategies/resources for addressing each. This worksheet can be a starting draft to create a simple 1-page reference sheet for navigators or other staff to refer to when serving patients.

RESOURCES

Lung Cancer Screening: Patient Navigator Roadmap
A toolkit providing patient navigators with tools to improve lung cancer screening rates among their clients.

Lung cancer screening: Coverage in health insurance plans*
Table summary of health insurance coverage.

Is Lung Cancer Screening Covered Under Your Insurance?*
Tool to understand lung cancer screening coverage by health insurance plan type.

Medicare Coverage For Lung Cancer Screening Frequently Asked Questions*
Frequently asked questions about Centers for Medicare and Medicaid Services' (CMS) updated determination of low-dose CT lung cancer screening.

Questions To Ask Your Insurance Company About Coverage For Lung Cancer Screening
A patient guide to navigating conversations with their insurance company about lung cancer screening.

State Lung Cancer Screening Coverage Toolkit with links to state-specific Medicaid coverage guidance

Paying for Biomarker Testing
Patient handout developed by the Association of Cancer Care Centers and LUNGevity with common financial questions about biomarker testing and associated resources.

State Policies on Paid Family and Sick Leave*
Describes the status of paid sick leave laws in each state; see footnotes below the table for protections adopted by counties and municipalities.

See resource in section 6.1 Establish Shared Decision-Making Protocols and Resources for additional patient education materials to address informational and psychological barriers.

*Current as of January 2024. Please check for most recent updates.

1.3 ASSESS CURRENT PROGRAM AND DETERMINE DESIRED PROGRAM MODEL

Next, we want to have a clear picture of where we currently are and where we plan to go. In assessing the program's current state, consider resource capacity, readiness to implement lung cancer screening, and baseline metrics (to be discussed in section 2.3 Establish Baseline Data for Program).

Several models of screening programs exist: centralized, decentralized, and hybrid. Decentralized programs handle only the screening procedure and interpretation, tasking the referral provider or others with everything else. At the other end of the spectrum, centralized programs handle everything related to screening (eg, including shared decision-making visits, tobacco cessation, etc). Hybrid programs cover some functions but not others.[21]

If you do not have an established program, determine what model will be used. If you have an established program, review the current model to determine if it is working or if adjustments are needed.

ACTIVITY

Assess the current state of lung cancer screening at your facility by completing **Worksheet 3: SWOT Analysis** (Strengths, Weaknesses, Opportunities, and Threats).

Describe your program model and workflow using **Worksheet 4: Program Description**.

RESOURCES

SWOT Analysis
Minnesota Department of Health offers the SWOT Analysis in its QI Toolkit and provides guidance on how to use it.

Screening Program Structure Models
GO2 for Lung Cancer's downloadable program models present key steps in the screening process workflow under a centralized, decentralized, and hybrid structure.

Lung Cancer Screening Implementation Guide
American Thoracic Society (ATS) and ALA's pragmatic guide and toolkit of how to design, implement, and conduct a lung cancer screening program based on a survey of experts representing a diversity of institutions in the United States.

Field Guide for Assessing Readiness to Implement Evidence-Based Cancer Screening Interventions
CDC's guide that provides resources for collecting, evaluating, interpreting, and using assessment data to develop practical implementation plans. Adaptable to other screening programs.

2 DATA COLLECTION AND EVALUATION

2.1 ESTABLISH PROGRAM PRIORITIES AND DESIRED PROGRAM METRICS

Though people often think of data collection and evaluation as steps to worry about post hoc and secondary to direct patient care, it is important to consider them from the outset.

Early clarity on program goals and data collection capabilities lays the foundation for the program's ability to demonstrate key outcomes and return on investment (ROI) and make solid data-informed decisions regarding the ongoing direction of your program. Consider articulating SMARTIE (specific, measurable, attainable, relevant, time-based, inclusive, equitable) objectives to measure the program.[22]

In a 2015 policy statement, the American College of Chest Physicians (CHEST) and the ATS recommend that programs collect data on:[23,24]

1. Who is offered lung cancer screening (eg, percent of screened patients meeting program's eligibility criteria)?
2. How often, and for how long to screen (ie, is there a policy about how often and how long to screen)?
3. How the CT scan is performed (eg, percent of CT scans compliant with American College of Radiology [ACR] specifications)?

4. Lung nodule identification (eg, number of lung nodules of by size or characteristic)
5. Structured reporting (eg, percent of low-dose CT [LDCT] scans using structured reporting system)
6. Lung nodule management algorithms (eg, number of surveillance imaging tests, number of surgical biopsies)
7. Smoking cessation (eg, percent of patients with active tobacco use offered cessation services, percent of patients with active tobacco use participating in cessation interventions)
8. Patient and provider education (eg, are standardized patient/provider education materials available?)
9. Testing outcomes (eg, number of complications, number of cancer diagnoses)
10. Description of the cancers diagnosed (eg, number of cancers detected at which stage, number of cancers detected of which histology)

The choice of which program metrics to collect will also depend on the internal program priorities and objectives, and possibly external factors. For instance, is the program interested in:

- Becoming an ACR-designated Lung Cancer Screening Center?
- Becoming a GO2 for Lung Cancer Center of Excellence?
- Participating in the ACR Lung Cancer Screening Registry?
- Demonstrating return on investment (ROI) to institutional leadership or external funders?
- Meeting future Healthcare Effectiveness Data and Information Set (HEDIS) quality measures for lung cancer screening?

Establish the data source for each metric, how the metric will be used, how often it will be collected, and who will be responsible for collecting and analyzing. For example, a program may decide to track the number of patients overdue for annual lung cancer screening by insurance type and race/ethnicity, collected from the EHR by a nurse navigator on a monthly basis with the purpose of minimizing delays, addressing disparities, and ensuring equitable care.

ACTIVITY

Complete **Worksheet 5A: Program Objectives and Action Plan** if you wish to establish objectives, target benchmarks, and associated actions.

Complete **Worksheet 5B: Evaluation Plan** with the lung cancer screening program's chosen metrics. The metrics should be able to support the objectives from worksheet 5A as well as any other program priorities or external goals.

RESOURCES

National Breast and Cervical Cancer Early Detection Program—Writing Effective Objectives
Guidance to write effective SMARTIE objectives.

How to Write SMART Goals in 5 Steps (with Examples)
Discusses the 5 elements of creating SMART goals and offers examples through each step of the process.

Components Necessary for High-Quality Lung Cancer Screening
CHEST and ATS policy statement that identifies components of screening that should be a part of all lung cancer screening programs.

Lung Cancer Screening Implementation Guide
ATS and ALA's pragmatic guide and toolkit of how to design, implement, and conduct a lung cancer screening program based on a survey of experts representing a diversity of institutions in the United States. See sections on quality metrics and associated guidance.

ACR Designated Lung Cancer Screening Center (Revised 06-29-2023)
Requirements for the Lung Cancer Screening Center designation through the American College of Radiology.

Become a Center of Excellence
GO2 for Lung Cancer's criteria to receive screening and treatment Center of Excellence designations.

New Measure Coming for Lung Cancer Screening
National Committee for Quality Assurance HEDIS blog post, dated November 1, 2022, discussing the new HEDIS quality measure for lung cancer screening.

The Kentucky LEADS Collaborative
Progress and results from the Kentucky LEADS Collaborative Quality Implementation of Lung Cancer Screening Study.

2.2 ESTABLISH ELECTRONIC HEALTH RECORD AND DATA COLLECTION CAPABILITIES

There are many ways EHRs and other systems can facilitate day-to-day lung cancer screening operations, improve adherence to guidelines, and enable program monitoring and reporting. Assess the facility's current EHR capabilities and other assets and consider what features will be important to have in the lung cancer screening program.

To get started, here are some ideas for how EHR features can be used to support the screening program: [7,12,25-28]

- Accurately document smoking history and calculate pack-years to determine screening eligibility
- Generate lists of screening-eligible patients, or otherwise flag screening-eligible patients
- Remind or prompt providers when lung cancer screening is due
- Document all elements of shared decision-making in a standardized way
- Create work queues, and track or document steps in the screening process
- Provide point-of-care reference information (eg, guidelines), clinical decision support, and best practice alerts for primary care providers and radiologists
- Provide appropriate printable patient education materials
- Facilitate communication among members of the health care team
- Facilitate communication between providers and patients, including automated patient reminders, communication templates, and standardized screening results letters
- Collect data on key screening program metrics and generate reports for monitoring and evaluation

Implementing EHR changes may be challenging, time-consuming, or expensive. Consider potential implementation strategies. For example:

- Coordinate with your Information technology department
- Coordinate with your EHR vendor about builds, smart sets, or other features
- Purchase software outside of the EHR system (eg, Excel, Access, more sophisticated client tracking databases, scheduling software)
- Hire staff dedicated to data entry, patient tracking, chart abstraction, or reminders

As much as possible, look for ways to save staff time and encourage data quality by making everything as user-friendly as possible, avoiding double-documentation, and providing prompts and information at the point that they are needed.

ACTIVITY

Use **Worksheet 6: Electronic Health Record and Information Technology Needs** to list information technology and data tracking capabilities important to your program, account for which are in place, and note planned strategies and progress toward obtaining each.

2.3 ESTABLISH BASELINE DATA FOR PROGRAM

After establishing program priorities and desired program metrics and ascertaining data sources for each, establish what the lung cancer screening program's baseline values are for those metrics. This will be the starting point from which future progress can be measured and will be necessary to establish to set realistic program targets. If the program is part of a larger organization, find out whether there is an in-house tumor registry as a potential source of baseline data on the number of lung cancers and stages at diagnosis, to enable detection of possible stage shifts following implementation of the program. You may wish to create a report providing a snapshot of your program at baseline.

A common problem is that some desired metrics are unavailable or very cumbersome to obtain, especially if data and technology-related resources are not immediately in place. **Imperfect, partial, or slightly delayed baseline data is still better than no baseline data at all.** Brainstorm how metrics might be ascertained with creative use of existing data sources; for instance, a program could obtain counts of LDCTs from scheduling software and crosswalk them with records from the billing department to establish the volume of LDCTs scheduled and completed. Consider temporary or one-time workarounds, such as hiring an intern to conduct manual chart abstractions or reviewing administrative documents, to help obtain baseline data while longer-term strategies are being put into place.

ACTIVITIES

Complete **Worksheet 7A: Baseline Program Data** to create a snapshot reporting the baseline metrics for the lung cancer screening program. To choose which metrics to include, revisit **Worksheet 5B Evaluation Plan** and assess which baseline data are readily attainable.

Update **Worksheet 6: Electronic Health Record and Information Technology Needs** to include data capabilities needed to collect metrics from **Worksheet 5B: Evaluation Plan** that are considered essential but are not yet readily attainable.

Revise **Worksheet 5A: Program Objectives and Action Plan** if baseline program data suggests setting more realistic targets for your objectives.

Add narrative to **Worksheet 4: Program Description** using basic baseline metrics to describe the program.

2.4 DEVELOP PLAN FOR PROGRAM MONITORING AND REPORTING

Ongoing program monitoring and reporting can keep your lung cancer screening program on track, maintaining quality, motivation, and progress towards goals. Regular review of program reports (ie, ideally quarterly, but at a minimum yearly) can:[8]

- Provide staff with audit feedback for ongoing performance
- Encourage ownership of patient outcomes and maintain motivation for screening initiatives
- Offer the opportunity to discuss issues and process improvements (eg, workflow inefficiencies or the need for greater outreach among certain patient populations)
- Allow the steering committee and/or staff to nimbly adjust the program to best meet patient needs and program goals

Consider what format(s) for reporting will be most feasible and effective, and tailor reporting to the audience(s). Different groups may be interested in different sets of metrics, have different uses for the data, and expect program updates via different channels or with different regularity. You may wish to create automated dashboards, or perhaps reports with simple tables or trend graphs. Determine which staff member(s) will be responsible for reporting and monitoring tasks, and who will be the audience receiving program updates (eg, steering committee, internal screening program staff or leadership, referring providers, external registry, funding partner).[21]

ACTIVITIES

Use **Worksheet 7B: Program Report Template** to set up a simple report for your lung cancer screening program.

Revisit **Worksheet 5B: Evaluation Pla**n and decide which metrics to include. Determine whether multiple versions of reports are necessary for different audiences and set up a template for each desired report that can be easily updated with new values on an ongoing basis.

2.5 CONSIDER DATA SUBMISSION WITH REGISTRY

The ACR allows screening programs to participate in their registry. ACR uses data to return facility- and physician-level reports, comparing metrics to those of peers.

For additional information about the process, visit the ACR Lung Cancer Screening Registry **website.**

3 BUDGET AND SUSTAINABILITY

3.1 ESTABLISH PROGRAM COSTS AND PLAN FOR SUSTAINABILITY

Calculate expected lung cancer screening program costs and revenue generated and establish a sustainable business model early on. Anticipated program costs include as follows:[24]

- Personnel
- Equipment
- Information technology
- Training and education resources
- Marketing
- Smoking cessation support
- Downstream management of screen-detected nodules

It is important to demonstrate strong programmatic outcomes and ROI to make the case for continued dedication of money and resources towards the lung cancer screening program. For example, on a smaller scale, demonstrated ROI for a lung cancer screening navigator role may justify future salary support for that and additional positions (S. Grubbs, personal communication, October 5, 2022).

Lessons learned from other lung cancer screening programs:[26,29,30]

- Obtain administrative leadership buy-in and understand the screening program's ability to generate downstream revenue
- Obtain grants and use the money towards long-term investments (eg, staff training, marketing) rather than funding finite positions
- Partner with other organizations to expand capacity and reach
- Use a gradual step-wise approach to rolling out the screening program while soliciting feedback and improving processes along the way, rather than attempting to implement everything at once.

RESOURCES

LungPLAN Overview
A collection of resources, including the LungPLAN modeling tool to help you to build a new lung cancer screening and nodule management program or to expand your existing program. The model will create a 5-year projection of an early-detection program.

Thoracic Oncology Business Model Tool
A free fillable tool from GO2 for Lung Cancer for teams looking to start or grow an early detection program that creates the business case.

Clinical Sustainability Assessment Tool
Online tool to rate the sustainability capacity of the clinical practice to help plan for the future.

Paying for Colorectal Cancer Screening Patient Navigation Toolkit: Strategies for Payment and Sustainability
Suite of resources that provide advice on paying for and sustaining colorectal cancer screening patient navigation. Strategies may be applicable to other cancer types.

4 KEY PERSONNEL AND PARTNERS

4.1 IDENTIFY THE MULTIDISCIPLINARY TEAM

The lung cancer screening process requires a multidisciplinary team. The structure and composition of lung cancer screening program teams may vary depending on context, but often consist of: [4,12,21,23,25,28]

- Multiple medical specialties: diagnostic and interventional radiology, pulmonary medicine, thoracic surgery, medical oncology, radiation oncology, and pathology, possibly in the form of a nodule review board, tumor board, or oncology disease management team. Expertise in lung nodule management, nonsurgical biopsies, minimally invasive surgical biopsies, and lung cancer treatment are valuable.
    - If a radiologist or other important specialist is not available at your location, explore creative solutions, such as partnerships, training, and development of a remote team of specialists able to review patient results via teleconferencing.[21]
- A nurse navigator (or other clinical coordinator) as a linchpin for coordinating care across team members and guiding patients through all the steps of lung cancer screening. Navigators may also have important roles in outreach to referring providers, eligibility screening, patient tracking, and removing barriers to care.
- A provider champion with expertise in an area such as pulmonary medicine, thoracic surgery, or diagnostic radiology, to spearhead efforts.
    - Consider a second leader to work with the champion to avoid overreliance on a single individual in case they change roles or move on from the practice.[8]
- Other clinic staff (eg, advanced practice providers such as nurse practitioners or physician assistants, nursing staff, medical assistants, radiology assistants, CT technicians, front desk staff).
- Tobacco treatment specialists
- Administrative and executive support

Think through each team member's roles and responsibilities, and the frequency and channels of communication for the group. For example, if there are multiple nurse navigators, it may be beneficial to have a monthly navigator meeting to share lessons learned and to troubleshoot issues as a group. If you have chosen a decentralized lung cancer screening program model or practice in a setting that lacks some of the above-mentioned specialists, consider linking with area facilities with desired disciplines.

ACTIVITIES

Brainstorm your program's team roster using **Worksheet 8: Lung Cancer Screening Program Team Roster** and add a brief description of the team to **Worksheet 4: Program Description.**

RESOURCES

Lung Cancer Screening: Patient Navigator Roadmap
Provides patient navigators with tools to improve lung cancer screening rates among their clients.

Lung Cancer Screening for Patient Navigators
A free e-course focusing on core responsibilities of identifying eligible community members and coordinating services and follow-up, and tracking performance indicators to access lung cancer screening, early detection, and treatment services.

4.2 IDENTIFY AND ENGAGE KEY PARTNERS

Partner engagement is a critical planning step to paving the way for success for a lung cancer screening program. Consider convening a steering committee with varied relevant expertise to guide the direction and implementation of the program.

You may wish to include the following partners on your steering committee or in some other advisory capacity: [8,24,25]

- Multiple medical specialties including: pulmonology, radiology, thoracic surgery, interventional radiology, medical oncology, and radiation oncology
- Primary care, or other types of providers referring to screening programs. It is critical to engage referring providers early on to establish relationships, identify and address workflow issues and concerns, provide education, and encourage appropriate referrals. Primary care providers often have long-standing relationships with patients as trusted providers and will be critical to engage to encourage lung cancer screening uptake.
  - Refer to section 10.2 Establish Education and Outreach Strategies for referring providers for engagement strategies, and section 4.3 Identify Provider and Staff Training, Education, and Resource Needs for provider training and education resources
- Patients, especially from priority populations experiencing disparities
- Local hospital and health system leadership

Other ideas for partners that you may wish to engage, whether as additional steering committee members, organized into additional formal groups (eg, research committee, radiology working group, etc.), or in less formal planning or coordinating conversations: [8,21,31]

- Internal organizational administrators
- Information technology (IT) staff
- Program evaluators, researchers, biostatisticians, implementation scientists, or other academic partners—this is especially important for program evaluation
- Existing internal or external cancer screening programs (eg, breast, cervical, colorectal)
- Partners that give or receive referrals
- State-based programs and initiatives
- State tumor/cancer registry
- Other local lung cancer screening programs
- Local nonprofit organizations, businesses, or other organizations relevant to outreach (eg, foodbanks, hairdressers, churches, Veteran's Administration, fire department, lodges, shelters, etc). People eligible for screening may be more willing to accept messages around screening from trusted community leaders and sources.
- Accrediting organizations and registries
- Marketing, business development, philanthropy
- Government policymakers
- Cancer survivorship groups or advocates

ACTIVITY

Brainstorm your program's list of key partners using **Worksheet 9: Partner Engagement**. Consider identifying key people in each organization, exchanging contact information, extending Steering Committee invitations or invitations for other formal involvement with the program, establishing memoranda of understanding (MOUs), or identifying mutually beneficial opportunities such as cross-referrals and data sharing. Briefly describe your program's governance structure, procedures, and partnerships in **Worksheet 4: Program Description**.

RESOURCES

National Comprehensive Cancer Control Program (NCCCP)
CDC's program that provides funding, guidance, and technical assistance that states, tribes, US territories can use to design and implement plans to prevent and control cancer. Find your local program.

State-Based Initiative Planning Tool
A tool to help you succeed in building a state-based coalition.

ACR Lung Cancer Screening Locator Tool
A tool developed by the ACR to help find a lung cancer screening program.

Screening Centers
List of GO2 for Lung Cancer–designated Centers of Excellence screening centers.

4.3 IDENTIFY PROVIDER AND STAFF TRAINING, EDUCATION, AND RESOURCE NEEDS

Ensure that your lung cancer screening program team is familiar with:

- Lung cancer basics
- General lung cancer screening process and best practices
- US Preventive Services Task Force (USPSTF) and other relevant lung cancer screening eligibility guidelines; how to identify eligible patients
- Centers for Medicare and Medicaid (CMS) or other insurance reimbursement requirements, including billing codes (eg, ICD-10 or Current Procedural Terminology codes), prior authorization, and documentation
- Managing findings from lung cancer screening, including nodules and extrathoracic findings
- Patient-centered, non-stigmatizing, culturally-responsive communication

Shared decision-making is an important area for provider training and education and should be covered if it will be the responsibility of the screening program's clinicians. If it is performed by external providers, consider it as an area for education when conducting outreach to referring providers.

Ask the screening program team about where they feel they have knowledge gaps and anticipate and address areas of confusion (eg, slight discrepancies across guidelines) with training and resources. Advocate for leadership to clearly communicate the high priority of lung cancer screening and provide adequate time in primary care settings to help address concerns around competing demands and identify multiple leaders that staff can turn to when uncertain about procedures.[29] Encourage participation in communities of practice and learning collaboratives.

RESOURCES

National Lung Cancer Roundtable
The Roundtable's resource center offers links to extensive provider-oriented resources on a variety of topics.

GO2 for Lung Cancer
Provides a variety of resources for health care professionals with additional tools currently under development.

ACR
Access free lung cancer screening education for providers.

Lung Cancer Screening for Patient Navigators
A free e-course focusing on core responsibilities of identifying eligible community members and coordinating services and follow-up, and tracking performance indicators to access lung cancer screening, early detection, and treatment services.

Communication in Cancer Care (PDQ)—Health Professional Version
Summarizes key points related to effective communication in cancer care.

Academy of Oncology Nurse & Patient Navigators: Lung Screening Navigator Network
Provides local networking and education opportunities for lung cancer screening navigators and coordinators across the nation, promoting best practices related to the early detection of lung cancer.

Council for Tobacco Treatment Training Programs
Directory of accredited tobacco treatment specialist training programs.

Tobacco Treatment Specialist Training
Online training offered by the University of Kentucky's College of Nursing.

5 SCREENING ELIGIBILITY

5.1 ESTABLISH SCREENING ELIGIBILITY CRITERIA

Establish clear criteria that determine which patients are eligible for lung cancer screening, including a policy detailing the frequency and duration of screening.[23]

Key organizations have developed lung cancer screening eligibility recommendations based on a review of evidence, with implications for insurance coverage. Lung cancer screening has received a "B" grade from USPSTF; thus, per the Affordable Care Act (ACA), most private insurance plans are required to cover the service without cost-sharing for the population specified in USPSTF's recommendation. The CMS uses slightly different eligibility criteria to determine patients for whom lung cancer screening is covered by Medicare. For additional details on eligibility and insurance coverage, including for Medicaid (which varies by state), see resources in section 1.2 Identify and Anticipate Barriers to Screening With Patient-Centered Strategies.

Be aware that guidelines have changed. It is important to participate in ongoing education to ensure the program uses the most up to date guidelines and clear up possible confusion among patients or providers around changes. See section 4.3 Identify Provider and Staff Training, Education, and Resource Needs for Educational Resources.

Determine how the lung cancer screening program will handle eligibility for potentially complicated cases, such as patients who are medically inoperable, have had prior malignancies, have had a recent diagnostic CT scan, or develop respiratory symptoms.[12,21] Consider collecting data about the risk of developing lung cancer for patients enrolled in the screening program.[23]

ACTIVITY

Refer to **Worksheet 10: Eligibility Screening Protocol** for a template with questions to help draft the program's screening protocol. Refer to this worksheet throughout section 5.

RESOURCES

Final Recommendations Statement, Lung Cancer: Screening
United States Preventative Services Task Force lung cancer screening recommendation, as of May 2021.

National Coverage Determination for Lung Cancer Screening with Low Dose Computer Tomography
Medicare coverage determination as of February 10, 2022.

Lung Cancer Screening Implementation Guide
Section 4 summarizes responses from other lung cancer screening programs on how they handle potentially ambiguous eligibility scenarios.

Affordable Care Act (ACA) Implementation Frequently Asked Questions
Describes ACA rules including details around coverage of USPSTF "A" and "B"-rated services. New FAQs are released when there are updates and changes.

5.2 DETERMINE HOW ELIGIBLE INDIVIDUALS WILL BE IDENTIFIED

Depending on your program model, patients eligible for screening may enter your program through various routes. They may be referred by primary care providers, identified through manual chart review (by screening coordinator, nurse, navigator, or other staff), screened using intake questionnaires, self-referred by a hotline or website, or flagged using EHR-generated lists.

It is important to determine up front: [24]

- What processes will your program use to identify eligible individuals?
- What steps can be taken to avoid missing eligible individuals (eg, ensuring accurate documentation of smoking history in EHR)?
- What steps can be taken to limit screening to individuals who meet screening criteria (eg, EHR prompts requiring providers to confirm patient eligibility upon ordering screening LDCTs)?

5.3 DEFINE PATH FOR PROPER DIAGNOSIS CODES FOR REIMBURSEMENT

Ensure that relevant program staff are familiar with appropriate billing codes so that errors do not inadvertently make patients ineligible for screening, result in out-of-pocket costs, or fail to trigger code-based EHR workflows. For example, screening LDCT should not be billed as "diagnostic." Consult lung cancer screening billing guides.

Be on the lookout for code revisions. Consider what strategies the program will have in place (eg, nurse navigator review, EHR alert for regular-dose chest CT order for patient undergoing a lung cancer screening) to ensure that initial and recommended follow-up screenings are correctly ordered.[21,32]

RESOURCES

Lung Cancer Screening Economics & Billing Quick Reference Guide

A guide from the ACR that is intended to answer commonly asked questions about lung cancer screening logistics, program requirements, economics, and billing issues.

Lung Cancer Screening & Billing Guide*

A billing guide from the ALA that includes current coverage requirements for lung cancer screening, coding and documentation requirements, implementation challenges, and recommended resources for additional information.

*Current as of January 2024. Please check for most recent updates.

5.4 ESTABLISH PROTOCOLS TO EXCLUDE INELIGIBLE INDIVIDUALS AND DISENROLL PATIENTS

Create clear protocols that manage patients who do not meet established eligibility criteria.

Some patients may still be at elevated risk for developing lung cancer and benefit from screening despite falling outside of standard USPSTF or CMS eligibility criteria. Potential harms and benefits of screening must be weighed carefully for cases that fall outside of populations established in guidelines. Consider using lung cancer screening and risk prediction calculators to determine whether screening is appropriate. Think about what services at what price points can be offered to these patients who may incur out-of-pocket costs but for whom screening may be appropriate.

Screening done outside of evidence-based guidelines has the potential to cause more harm than benefit. Patients may be inappropriately referred to or seek out screening despite being at low risk for lung cancer. How will these patients be quickly identified and routed away from screening? In these cases, what educational resources can be used to reassure patients and referring providers that screening is not needed?

It is important to avoid inconvenience and incurred cost for ineligible patients. Some strategies to consider include as follows: [12,24,33]

- Staff review to confirm screening eligibility
- Educational brochures
- Verbal counseling
- Personalized letters

When and how will patients exit the lung cancer screening program? How will disenrollment be communicated? Reasons for disenrollment may include patient refusal of services, moving away, becoming ineligible, lack of order from referring provider, seeking services elsewhere, or loss of follow-up. Depending on reason, decide how, and how often, contact attempts will be made to patients and their primary care providers before discharge, and how the program could help facilitate continuity of services for the patient if appropriate.[21]

RESOURCES

Lung Cancer Risk Calculators

Brock University offers a free risk calculator based on the Tammemägi 2012 (PLCOm2012) lung cancer risk prediction model.

6 SHARED DECISION-MAKING

6.1 ESTABLISH SHARED DECISION-MAKING PROTOCOLS AND RESOURCES

Low dose CT (LDCT) is a powerful tool for early detection of lung cancer and reduced mortality, but also carries the potential for harms in the forms of radiation exposure, overdiagnosis, emotional distress, and possible complications related to resultant invasive procedures. Benefits and risks of LDCT will balance differently depending on an individual's clinical risk profile and personal preferences.

To reach a screening decision that is right for the patient, the patient and provider engage in a shared decision-making process, often using a decision aid, collaboratively discussing: [24,34,35]

- Information about lung cancer screening including eligibility, benefits, harms, risks, and possible complications
- Patient's personal lung cancer risk profile
- Likelihood of finding nodules (and the usually benign nature of such nodules)
- Role of comorbidities, ability and willingness to undergo diagnosis and treatment
- Ongoing nature of lung cancer screening and importance of adherence to annual screenings
- Importance of smoking cessation and/or abstinence
- Patient values and preferences

A shared decision-making encounter about screening is recommended as a best practice by many key organizations, and as of this writing in 2024, is required by CMS on the initial or baseline LDCT lung cancer screening for reimbursement. Become familiar with CMS's guidance and be aware of ongoing policy changes such as this February 2022 decision memo affecting the "who" and "how" of shared decision-making requirements.

Revisit the screening program model and intake flow; determine how patients are offered shared decision-making, and by whom.

Reflect on the screening program's catchment populations and identify whether tools and processes in use need to be tailored to accommodate patient needs around language, culture, literacy, or mental health concerns.[5] Consider tracking and collecting data on rates at which shared decision-making is offered to eligible patients and rates of screening acceptance.[24]

High-quality shared decision-making should empower patients and respect their desired role in decision-making, include accurate screening information needed and desired by the patient to make an informed decision, and be communicated sensitively in a way that does not worsen smoking-related stigma. In practice, it has been difficult to achieve for many, given insufficient time and competing priorities during primary care visits, unmet provider training needs around screening and shared decision-making, and restrictive requirements around reimbursement.[34,36,37]

Use strategies to preemptively avoid and address shared decision-making related challenges: [21,24,33,38-40]

- Provide adequate training and education about screening, common psychological barriers, and shared decision-making best practices to providers responsible for completing shared decision-making encounters.
- Consider enlisting nurse navigators or health educators who can dedicate time to high-quality shared decision-making conversations. If these health care staff are ineligible to conduct shared decision-making encounters per reimbursement requirements, they can still prepare patients for shared decision-making visits with eligible providers.
- Support the conversation by using shared decision-making tools such as risk calculators, decision-aids, patient education materials, and checklists or dictation templates to help providers remember key points to cover.

ACTIVITY

Complete **Worksheet 11: Shared Decision-Making** to describe the details of how shared decision-making will be executed for patients in the program, and brainstorm ways to encourage high-quality interactions and CMS-compliant documentation.

RESOURCES

Lung Cancer Screening Should I Get Screened?
A decision tool and risk calculator offered by the University of Michigan.

Lung Cancer Screening Decision Tool
Offered by Memorial Sloan Kettering Cancer Center.

Strengthening Adherence in Lung Cancer Screening
Appendix A provides a Medicare-compliant dictation template for providers.

CT Lung Cancer Screening Shared Decision Making Visit Requirements
Summary of CMS guidance for billing lung cancer screening counseling and shared decision-making visits.

Intermountain Medical Imaging "What Happens Next?" Infographic
Patient handout for shared decision-making in lung cancer screening.

What to Expect from a Lung Cancer Screening
ALA's resource to help patients understand the steps in lung cancer screening.

Frequently Asked Questions About Screening
GO2 for Lung Cancer's patient resource about lung cancer screening.

Language Guide
Developed by members of the IASLC to provide guidance on best practices with common phrases used during IASLC conferences and within publications. Suggested language can be used in other settings that respects the dignity of people diagnosed with lung cancer and their families.

LUNGevity Educational Materials Order Form for Providers
Printed copies of educational materials available for bulk order for health care providers to distribute to patients.

6.2 ESTABLISH METHOD/PROCESS FOR DOCUMENTING SHARED DECISION-MAKING IN ELECTRONIC HEALTH RECORD/PROGRESS NOTE

As of this writing, CMS requires several required elements of shared decision-making that must be documented for successful determination of screening eligibility and reimbursement.[42] Ensure that all providers responsible for shared decision-making are familiar with these required elements in addition to the **appropriate billing code.**

Establish protocols to ensure consistently correct and complete documentation of shared decision-making. Consider facilitating strategies, such as standardized shared decision-making sets in the EHR that automatically populate progress notes or use of navigators to ensure correct documentation.[33]

7 RADIOLOGY OPERATIONS

7.1 ESTABLISH APPROPRIATE LDCT TECHNICAL SPECIFICATIONS

The ACR has set minimum technical specifications for lung cancer screening and personnel qualifications for facilities seeking ACR Lung Cancer Screening Center designation.

In a decision memo, dated February 10, 2022, CMS simplified radiology imaging facility eligibility, eliminating technical specification requirements, and requiring only that the facility use a standardized lung nodule identification, classification, and reporting system (ie, Lung-RADS).

The program should collect data determining compliance with recommendations and have protocols and training of CT technicians.[21,23]

7.2 ESTABLISH STRUCTURED RESULTS REPORTING

The lung cancer screening program should have clear policies that define a "positive" screen and collect data on lung nodule characteristics. LDCT scan results should be consistently reported using a structured format, such as the ACR-developed Lung-RADS reporting system.[23] These risk categories reflect the size and characteristics of lung nodules.

Use of a structured system creates a common language that facilitates clear communication of results among team members and standardization of nodule management.

Consider tracking compliance with utilization of structured reporting. Especially if working with radiologists new to reading screening LDCTs, consider dedicated training and conducting an early quality check to ensure correct and consistent application of structured reporting.[23,24]

7.3 ESTABLISH LUNG NODULE MANAGEMENT ALGORITHM

Care Pathways

The program should have clear evidence-based care pathways for managing nodules with different risk levels for becoming malignant.[23] Several nodule management guidelines exist, such as ACR Lung-RADS v2022 for screening detected nodules and Fleischner Society for incidental and symptomatic nodules.

These care pathways will describe when screening is due, and whether additional interventions such as tissue sampling are warranted. Risk-based protocols can also help ensure that highest-risk patients receive appropriate specialist attention in a timely manner.

Risk stratification may also be used to inform which clinical teams are responsible for additional patient follow-up (ie, the screening program staff or the patient's primary care provider), to ensure that patients do not fall through the cracks with next steps.[12]

Communication of Screening Results

Your program can use risk categories to determine by when, through which channels, and by whom patients and referring providers are notified of results.[8] Screening results should be communicated to patients in a timely, sensitive, and jargon-free way. Patients should be given a clear understanding of what was found, and the clinical significance of the finding.[24]

Patients should be made aware of the need for ongoing lung cancer screening even when results are favorable and can be informed about when they are due back for their next screening. It should also be clearly stated when medical attention is warranted for incidental findings. The results touchpoint is an additional opportunity to emphasize the importance of tobacco cessation.

Low-risk patients are often informed of screening results via letter; consider using templates or even automating communication via EHR to standardize use of most appropriate language and reduce staff burden.[24]

Patients with abnormal findings should receive their communication in person, so that they can ask questions and receive emotional support from providers or other professionals.[24] Providers should also be familiar with resources to support patients who receive a cancer diagnosis.

Patient tracking and follow-up strategies, relevant to both annual screenings and ongoing nodule management, will be discussed under Section 8 Ongoing Annual Screening Services And Patient Tracking.

ACTIVITY

Complete **Worksheet 12: Nodule Management Algorithm** to draft the program's plan for communication and clinical management of lung nodules.

RESOURCES

Lung CT Screening Reporting & Data System (Lung-RADS)
A quality assurance tool designed to standardize lung cancer screening CT reporting and management recommendations, including Lung-RADS v2022 assessment categories.*

Fleischner Society For Thoracic Imaging and Diagnosis
White papers on incidental and symptomatic nodules .

Strengthening Adherence in Lung Cancer Screening
Appendix C offers sample letter templates for communicating results to patients and referring providers, and reminders for subsequent appointments.

Patient education materials and resources for patients with lung cancer:

- LUNGevity offers education materials and a helpline
- GO2 Foundation offers education materials and a helpline
- CancerCare offers events, support groups, educational materials, and a helpline
- Cancer Support Community offers educational materials and a helpline

*Current as of January 2024. Please check for most recent updates.

7.4 ESTABLISH NODULE REVIEW BOARD OR PROCESS

Who will review which nodules? Higher-risk nodules (eg, Lung-RADS categories 3 and 4) typically require evaluation by a pulmonologist and/or other specialists, often in the form of a tumor board or other separate multidisciplinary review board, to make management decisions.[24]

Some screening programs use primary care providers or trained screening coordinators to evaluate lower-risk nodules.[24] Define whether the your organization has the capacity and clinical expertise to manage lung nodules internally or if patients will be referred to a separate lung nodule program for management.

7.5 ESTABLISH PROTOCOLS FOR ADDRESSING INCIDENTAL FINDINGS

Though LDCTs are performed by the screening program for the primary purpose of detecting lung cancers, other clinically significant findings may be discovered.

Have protocols in place for assessing and communicating these incidental findings to ensure that patients and primary care providers are aware and follow-up appropriately.[24]

RESOURCES

ACR Lung Cancer Screening Incidental Findings Quick Reference Guide
Intended for use by lung cancer screening (LCS) program coordinators and nurse navigators as they assist in the care coordination of patients undergoing LCS in collaboration with referring providers.

8 ONGOING ANNUAL SCREENING SERVICES AND PATIENT TRACKING

8.1 ESTABLISH STRATEGIES FOR TRACKING PATIENTS AND ENCOURAGING ONGOING ADHERENCE

Lung cancer screening is an ongoing, at least annual, process until the patient becomes ineligible due to age, smoking history, or other criteria. Low patient adherence to recommended follow-up after initial screening reduces the mortality benefit of screening.

A meta-analysis estimated rates of adherence to screening intervals recommended by Lung-RADS to be 57%, with better rates among those with higher Lung-RADS scores (3-4) and worse among those with lower Lung-RADS scores (1-2).[43] Studies have also found disparities in ongoing follow-up screening with worse rates among men, Black patients, single patients, those who currently smoke, and by other sociodemographic and health care characteristics.[44-51]

Questions to consider as your program grows its base of patients who have undergone initial screening: [24]

- What personnel, technology, and strategies will your lung cancer screening program need to support patient tracking and adherence to recommended follow-up?
- Who will be responsible for tracking patients who are due for additional screening or other care, and reminding them to come back?
- How will tracking data be collected, updated, stored, reviewed, and used?
- Will there be separate databases to track patients who need annual lung cancer screening vs higher risk patients who need more frequent monitoring and/or tracking of follow-up steps through diagnosis of lung cancer?
- What will the protocols be for contacting patients and primary care providers about additional care?

Consider the following ideas to promote adherence to ongoing lung cancer screening and follow-up care: [1,2,4,7,18,24,53-55]

- Designate staff (eg, navigator, screening coordinator) to maintain a registry of screened patients to keep track of when patients are due for recommended follow-up. Consider whether lung cancer screening can piggyback or adapt from existing tracking systems for colorectal or other cancer screening programs.
- Remind patients and referring providers when screenings or follow-up are due, whether in the form of letters, text messages, patient portal messages, or phone calls. Establish a reminder schedule. Consider EHR prompts or other automated reminder systems, as well as follow-up communication if appointments are missed.
- Frame screening as an ongoing process and not a one-time event from the very outset of broaching lung cancer screening with patients. Reiterate the need for ongoing follow-up at every communication touchpoint.
- When communicating screening results, reiterate that normal findings or low Lung-RADS scores do not signify a clean bill of health with no additional screening needed. Instead, take the opportunity to schedule the next screening appointment and restate the importance of additional screening.
- Employ navigators to encourage adherence through patient outreach, rapport, education, emotional management, and help with barriers to care.
- Identify and address patient barriers to care, and make screening as convenient, simple, and accessible as possible (eg, scheduling assistance, convenient clinic hours). Refer to section 1.2 Identify and Anticipate Barriers to Screening With Patient-Centered Strategies.
- Engage in continuous program monitoring with open lines of communication among screening program staff. Regularly review program metrics on adherence rates and have staff discussions to understand reasons for low rates and opportunities for process improvement.
- Some evidence suggests that a centralized approach in which the screening program is responsible for follow-up may yield better adherence rates than decentralized models.

ACTIVITY

Brainstorm tracking and follow-up strategies and draft reminder protocols using **Worksheet 13: Patient Tracking and Ongoing Screening Services.**

Revisit **Worksheet 6: Electronic Health Record** and Information Technology Needs and update with tracking, communication, and reminder capabilities needed.

Revisit **Worksheet 8: Lung Cancer Screening Program Team Roster** to specify staff responsibilities around patient tracking and follow-up if not already included.

RESOURCES

Strengthening Adherence in Lung Cancer Screening
Appendix F offers several reminder letter templates.

Lung Cancer Screening Implementation Guide
Section 6 offers examples of follow-up communication protocols.

9 LUNG CANCER PREVENTION SERVICES

9.1 ESTABLISH STRATEGIES TO ADDRESS TOBACCO CESSATION

Screening encounters offer the opportunity to broach tobacco cessation with patients who currently smoke or have only recently stopped smoking. Programs should ideally be integrated with smoking cessation services, whether provided in-house or through referrals.

There are several occasions potentially well-suited for offering cessation interventions, such as: [24,55]

- During the shared decision-making conversation
- Initial screening referral
- Discussion of screening results
- Several weeks following receipt of results

Establish protocols for when and to whom cessation services will be offered. Consider collecting data and reporting on rates at which smoking cessation services are offered and utilized by patients with active tobacco use.[23] Many cessation interventions exist ranging from counseling to medications.

Tobacco treatment services should be responsive to the patient populations' cultural backgrounds, languages, and literacy levels.[5]

Here are some select strategies for incorporating tobacco cessation services into the program: [8,16,55-57]

- Utilizing navigators, training staff to perform cessation counseling, considering Tobacco Treatment Specialist certification
- Referring patients to Quitline's text-to-quit programs and cessation mobile apps
- Creating prompts, order sets, or other supporting functionality in the EHR to remind providers to address cessation, automatically generate appropriate education materials and clinical decision support, and facilitate documentation of cessation services
- Offering patient education and print materials
- Partnering with local organizations that offer tobacco cessation services

ACTIVITY

Complete **Worksheet 14: Lung Cancer Prevention Services** to assess your program's current capacity to provide services, create a list of resources for different tobacco cessation and environmental exposure-related patient needs, and establish a protocol describing when and how prevention services are offered.

RESOURCES

Quitlines and Other Cessation Support Resources
List of patient resources on the Center for Disease Control and Prevention's website.

Patient Cessation Materials
Resources to help start conversations with patients about quitting tobacco use.

Help Your Patients Quit Tobacco Now
American Academy of Family Medicine tools and resources for tobacco cessation.

Tobacco Education Resource Library Offers Free Tobacco Education Materials
Free print materials, web content, and social media posts to help keep communities informed about tobacco-related issues.

Tobacco Control Evidence-Based Programs Listing
Programs directory provided by the National Cancer Institute.

Language Guide
Developed by members of the International Association for the Study of Lung Cancer (IASLC) to provide guidance on best practices with common phrases used during IASLC conferences and within publications. Suggested language can be used in other settings that respects the dignity of people diagnosed with lung cancer and their families.

Council for Tobacco Treatment Training Programs
Directory of accredited Tobacco Treatment Specialist training programs

Tobacco Treatment Specialist Training
Online training offered by the University of Kentucky's College of Nursing.

Guide to Integrating Smoking Cessation into Lung Cancer Screening Programs
Chapter 5 reviews integrating smoking cessation into lung cancer screening programs for patient navigators.

9.2 ESTABLISH STRATEGIES TO ADDRESS ENVIRONMENTAL EXPOSURES

Think about how and when assessment and interventions around other relevant environmental exposures will be addressed. Elevated lung cancer risk may come from secondhand smoke exposure at home or at work, occupational hazards, or radon in the home.

Consider offering education about radon basics, exposure reduction, and radon testing resources. Also look for opportunities to participate in policy, systems, and environmental change initiatives at a local, state, or national level that seek to reduce secondhand smoke or other harmful environmental exposures.

RESOURCES

Find a Radon Test Kit or Measurement and Mitigation Professional
The US Environmental Protection Agency's resource for acquiring radon test kits and who to hire to fix your home.

10 COMMUNITY OUTREACH

10.1 ESTABLISH PROGRAM MARKETING STRATEGIES

The goal of program marketing is to make the public and referring providers aware of the screening program. It is important to start with a deep understanding of the local catchment population as well as specific groups that may need specific outreach, such as those experiencing especially high disease burden or disproportionately low screening uptake.

It is critical to identify which entities are considered trusted messengers for priority populations in the community.

Some marketing strategy ideas, from the academic literature, lung cancer screening initiatives, and S. Grubbs (personal communication, October 5, 2022), include:[5,7,11,12,16,17,21,39,58-65]

- Collaborating with community partners and leveraging existing outreach infrastructure (eg, from other cancer screening programs or health initiatives) with reach into priority communities
- Launching media campaigns, including television, radio, newspaper, or billboard advertisements, and flyers, floor clings, and posters around local businesses, public transit, and other community locations
- Participating in health fairs, community events, or giving presentations at local venues, especially those servicing populations at high risk (eg, churches, community centers, group homes)
- Creating an online presence, such as social media outreach or a website to allow for self-referral.
- Contacting potentially eligible patients via in-language mailings and phone calls to increase awareness, assess eligibility, and schedule appointments
- Conducting focus groups to inform development of culturally tailored messaging and appropriate channels for priority populations. For example, qualitative work in eastern Kentucky suggested that compelling messages would emphasize family and prolonged life and include a picture and testimony from someone who survived lung cancer after screening[61]
- Working with a marketing firm or department
- Engaging patient navigators, community health workers, or citizen scientists in outreach work
- Reaching friends, family members, and caregivers of eligible patients
- Leaving educational materials in medical offices and waiting rooms
- Meeting with legislators

Messages about lung cancer screening must be carefully crafted to communicate clearly and effectively with the priority population while avoiding misleading claims.[24]

ACTIVITY

Use **Worksheet 15: Outreach Plan** to describe the program's planned outreach and program marketing efforts. Refer to your Worksheet 1 Catchment Area Landscape snapshot from the "Program Groundwork" step and the list of partners from **Worksheet 9: Partner Engagement** to brainstorm outreach strategies appropriate to your priority populations.

Revisit **Worksheet 8: Lung Cancer Screening Program Team Roste**r and **Worksheet 9 Partner Engagement** to specify staff and partner responsibilities around program marketing.

RESOURCES

Saved by the Scan Campaign Toolkit
Marketing toolkit developed by the ALA to help extend the reach of the campaign in your community.

10.2 ESTABLISH EDUCATION AND OUTREACH STRATEGIES FOR REFERRING PROVIDERS

Lung cancer screening programs have an important role in engaging and educating the providers (often primary care) responsible for shared decision-making conversations and ordering screening.[36,66-68]

Lessons learned from other programs highlight the importance of obtaining primary care provider buy-in, opening channels of communication, and minimizing burden.

Some strategies highlighted in literature as well as a personal interview from S. Grubbs (October 5, 2022), include:[7,8,12,16,21,23,55,69]

- Conduct face-to-face outreach (eg, by nurse navigator or other respected program liaison) to introduce the program and what will be offered, make personal connections, and explain how to refer patients
- Market through local medical journals, provider email blasts, hospital-based newsletters, and annual practice meetings
- Offer screening and shared decision-making education through grand rounds, webinars, videos, or lunch-and-learns convenient to primary care providers' schedules, including patient success stories. Offer free continuing education credits, if possible
- Include primary care providers on the screening program steering committee and involve them in program planning from the outset
- Take steps to reduce the administrative burden of screening on primary care providers as much as possible, such as using simple standardized electronic and printed LDCT ordering forms and handling all steps following initial patient referral
- Share facilitating materials, such as shared decision-making talking points, key literature, and preprinted ordering forms
- Create a protocol for communicating screening results/ patient updates back to primary care providers and ensuring that they are kept in the loop about their patients

Refer to section 4.3 Identify Provider and Staff Training, Education, and Resource Needs for additional information on provider training and education resources.

ACTIVITY

Use **Worksheet 15: Outreach Plan** to describe the program's planned outreach and education efforts.

Revisit **Worksheet 8: Lung Cancer Screening Program Team Roster** and **Worksheet 9 Partner Engagement** to specify staff and partner responsibilities around outreach to referring providers.

REFERENCES

Interested in seeing examples of other lung cancer screening programs and reading about their experiences and lessons learned? Refer to the orange references in this list.

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