Overview of Processes for Ontario’s Lung Cancer Screening Pilot for People at High Risk
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Pilot Objective and Site Locations
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Pilot organized lung cancer screening for people at high risk using low-dose computed tomography (LDCT) to inform design and implementation of provincial program.

LHIN = Local Health Integration Network
Screening Pathway Overview
Key Aspects of Pilot Design

Provider and public recruitment strategies
Eligibility based on a risk prediction model
Navigation
Radiology quality assurance
Lung-RADS™ Seamless transition to diagnostic assessment

Recruitment

RECRUITMENT → RISK ASSESSMENT → SMOKING CESSATION → RADIOLOGY → DIAGNOSIS
Recruitment Objectives

• Recruit potentially eligible people through primary care providers and community-based recruitment strategies (e.g., culturally relevant print materials, local media)

• Support equitable access to screening through recruitment activities targeted at hard-to-reach eligible populations (e.g., First Nations, Inuit, Métis and urban Indigenous, lower socio-economic status)
Target Population for Recruitment

Exclusion criteria:
- Diagnosed with lung cancer
- Under surveillance for lung nodules
- Unexplained hemoptysis or weight loss of more than 5 kg in past year
- Undergoing diagnosis, treatment or surveillance for life-threatening conditions

Smoking history
- Smoked cigarettes daily for at least 20 years

Referral inclusion criteria
- Ages 55 to 74
Risk Assessment

- Recruitment
- Risk Assessment
- Smoking Cessation
- Radiology
- Diagnosis
Eligibility for Screening

- Risk assessment to determine eligibility conducted over the phone by screening navigator
- Eligibility based on Tammemägi risk prediction model\(^1\), which is different from eligibility criteria in National Lung Screening Trial (NLST)
  - Model is more efficient in selecting people who may benefit from screening
  - People with \( \geq 2\% \) risk of developing lung cancer over next 6 years are eligible for screening

# Data Required to Determine Eligibility

<table>
<thead>
<tr>
<th>NLST-like and Tammemägi model criteria</th>
<th>Current age</th>
<th>Smoking status</th>
<th>Age of smoking initiation</th>
<th>Number of years elapsed since quitting smoking</th>
<th>Duration of quit periods between smoking</th>
<th>Average number of cigarettes smoked daily</th>
<th>Years smoked</th>
<th>Pack-years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Tammemägi model criteria</td>
<td>Height</td>
<td>Weight</td>
<td>Level of education</td>
<td>Personal history of chronic obstructive pulmonary disease</td>
<td>Personal history of cancer</td>
<td>Family history of lung cancer</td>
<td>Body mass index</td>
<td></td>
</tr>
</tbody>
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[Source: Ontario Health Cancer Care Ontario]
Smoking Cessation

RECRUITMENT → RISK ASSESSMENT → SMOKING CESSATION → RADIOLOGY → DIAGNOSIS
Smoking Cessation Support

- Offered to all smokers who interact with pilot

<table>
<thead>
<tr>
<th>Accept screening</th>
<th>Decline screening</th>
<th>Ineligible for screening</th>
</tr>
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</table>
| • Automatically scheduled for smoking cessation counselling (minimum of 10 minutes) with trained counselor at pilot site hospital, using opt-out approach  
  • provides behavioural counselling  
  • recommends or prescribes pharmacotherapy, if appropriate  
  • arranges for proactive follow-up supportive contact  
• Can still screen if decline counselling | • Offered choice of:  
  • hospital-based counselling, or  
  • referral to Telehealth Ontario (free counselling services) | • Offered:  
  • referral to Telehealth Ontario (free counselling services) |
Informed Participation
Conversation (In-person)
• At first screening visit, person is given an information sheet before their LDCT scan to facilitate a conversation about:
  • Their lung cancer risk
  • LDCT scan
  • Possible results and next steps
  • Benefits and risks of screening
  • Smoking cessation

LDCT Scan
• Uses much less radiation than a diagnostic CT and does not require contrast
• Each LDCT scan is conducted and interpreted in the same way, using a highly structured, standardized reporting template
• Lung-RADS™ scoring system is used for nodule management

Results Communication
• Results and next steps are communicated to the participant over the phone by the screening navigator
• Next steps are based on the participant’s Lung-RADS™ score
Radiology Quality Assurance Resources

The objective of Radiology Quality Assurance Program is to ensure that LDCT scans are performed safely, and interpreted in a consistent, standardized way across pilot sites to support high-quality imaging that informs next steps for participants.

Key resources for Radiology Quality Assurance Program:
- Radiology Quality Assurance Program Manual
- LDCT Lung Cancer Screening Reporting Template
- LDCT Lung-RADS Version 1.1 Assessment Categories
- Lung Cancer Screening Reporting Template Explanatory Notes

Available at: cancercareontario.ca/highrisklungscreening
# Radiology Quality Assurance

<table>
<thead>
<tr>
<th>Radiology Quality Assurance Program</th>
<th>• Establishes standards, processes, and accountability for high quality LDCT lung cancer screening, summarized in the <a href="#">RadQA manual</a></th>
</tr>
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<tbody>
<tr>
<td>Radiologist Continuing Professional Development Workshops</td>
<td>• Provide radiologists the tools and education to read and report LDCT lung cancer screening scans – standardizing image interpretation and reporting</td>
</tr>
<tr>
<td>Standardized LDCT Technical Protocol</td>
<td>• Adapted from the American Association of Physicists in Medicine to ensure that dose is minimized while maintain image quality</td>
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<tr>
<td></td>
<td>• All sites are required to follow the same protocol</td>
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<tr>
<td>LDCT Lung Cancer Screening Reporting Template</td>
<td>• Supports complete and consistent reporting for all LDCT scans and is implemented in all pilot site Voice Recognition systems</td>
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<tr>
<td></td>
<td>• Is mandatory to use when interpreting LDCTs for the pilot</td>
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<tr>
<td>Standardized Follow-up of Nodules</td>
<td>• Lung-RADS™ is used to standardize the identification and follow-up of nodules</td>
</tr>
<tr>
<td>Continual Quality Assurance</td>
<td>• Peer Review</td>
</tr>
<tr>
<td></td>
<td>• Double Reads</td>
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<td></td>
<td>• Complex Case Webinars</td>
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Diagnosis
Diagnosis

- Participants with a Lung-RADS™ score of 4B* or 4X are referred for diagnostic assessment

- Participants may return to screening if physician who conducts lung diagnostic assessment recommends it because participant is clearly negative for lung cancer or lung nodules are indeterminate

*For new nodules identified on an annual repeat screening CT, a 1 month LDCT may be recommended to address potentially infectious or inflammatory conditions
Navigation

RECRUITMENT → RISK ASSESSMENT → SMOKING CESSATION → RADIOLOGY → DIAGNOSIS
Screening Navigators in the Pilot

- Screening navigators play pivotal role by facilitating screening pathway process end-to-end, from recruitment to required follow-up:
  - Risk assessments for screening eligibility
  - Informed decision-making about participating in screening
  - Smoking cessation support to current smokers
  - Communication of screening results and next steps
  - Facilitated recall and follow-up
  - Seamless transition for lung diagnostic assessment of suspicious scans
Screening Navigators in the Pilot

• Screening navigators can have significant impact on participant experience, especially through:
  – Informed participation
  – Results communication
Pilot Resources Available

- Recruitment tool for primary care providers (one page pilot design summary)
- Recruitment brochure
- Referral form and frequently asked questions (used by physicians to authorize the use of low-dose computed tomography for screening)
- Navigator and clerk scripts (guides interactions with participants)
- Participant information sheet (facilitates informed participation discussions)
- High-level screening pathway
More Information


- Pilot processes or to request pilot resources: cancerscreening@ontariohealth.ca

- Risk prediction calculator: https://brocku.ca/lung-cancer-screening-and-risk-prediction/risk-calculators/; email Professor Tammemägi at martin.tammemagi@brocku.ca