Overview of Processes for Ontario's Lung Cancer Screening Pilot for People at High Risk

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Cancer Care Ontario

CITATION

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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

The Ottawa Hospital with Renfrew Victoria Hospital and Cornwall Community Hospital

Lakeridge Health

University Health Network

Health Sciences North

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[1]	Navigation	Radiology quality assurance	Lung-RADS™	Seamless transition to diagnostic assessment

RECRUITMENT → RISK ASSESSMENT → SMOKING CESSATION → RADIOLOGY → DIAGNOSIS

1. Tammemägi MC, Katki HA, Hocking WG, Church TR, Caporaso N, Kvale PA, et al. Selection criteria for lung-cancer screening. New England Journal of Medicine. 2013 Feb 21;368(8):728-36.

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Recruitment

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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

Referral inclusion criteria

Smoking history

Smoked cigarettes daily for at least 20 years

Age

0–54   55–74   75+

Ages 55 to 74

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

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Risk Assessment

RECRUITMENT   RISK ASSESSMENT   SMOKING CESSATION   RADIOLOGY   DIAGNOSIS

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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 ≥ 2% risk of developing lung cancer over next 6 years are eligible for screening

1. Tammemägi MC, Katki HA, Hocking WG, Church TR, Caporaso N, Kvale PA, et al. Selection criteria for lung-cancer screening. New England Journal of Medicine. 2013 Feb 21;368(8):728-36.c

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Data Required to Determine Eligibility

NLST-like and Tammemägi model criteria	Current age			
	Smoking status			
	Age of smoking initiation		Years smoked	Pack-years
	Number of years elapsed since quitting smoking			
	Duration of quit periods between smoking			
	Average number of cigarettes smoked daily			
Additional Tammemägi model criteria	Height		Body mass index	
	Weight			
	Level of education			
	Personal history of chronic obstructive pulmonary disease			
	Personal history of cancer			
	Family history of lung cancer			

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Smoking Cessation

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Smoking Cessation Support

- Offered to all smokers who interact with pilot

Accept screening	Decline screening	Ineligible for screening

• 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)

Radiology

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LDCT Scan Process

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

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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

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Radiology Quality Assurance

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

Diagnosis

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Diagnosis

- Participants with a Lung-RADS^{TM} 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

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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

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More Information

- Pilot and importance of organized lung cancer screening, see Frequently Asked Questions for Healthcare Providers: cancercareontario.ca/en/guidelines-advice/cancer-continuum/screening/lung-cancer-screening-pilot-people-at-high-risk/faqs-healthcare-providers

- 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

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