# When programmatic lung cancer screening is not available; a quality assurance analysis of guideline adherence.

P. Iles, L. Latham, C. Crocker, E. Tonkopi, D. Manos

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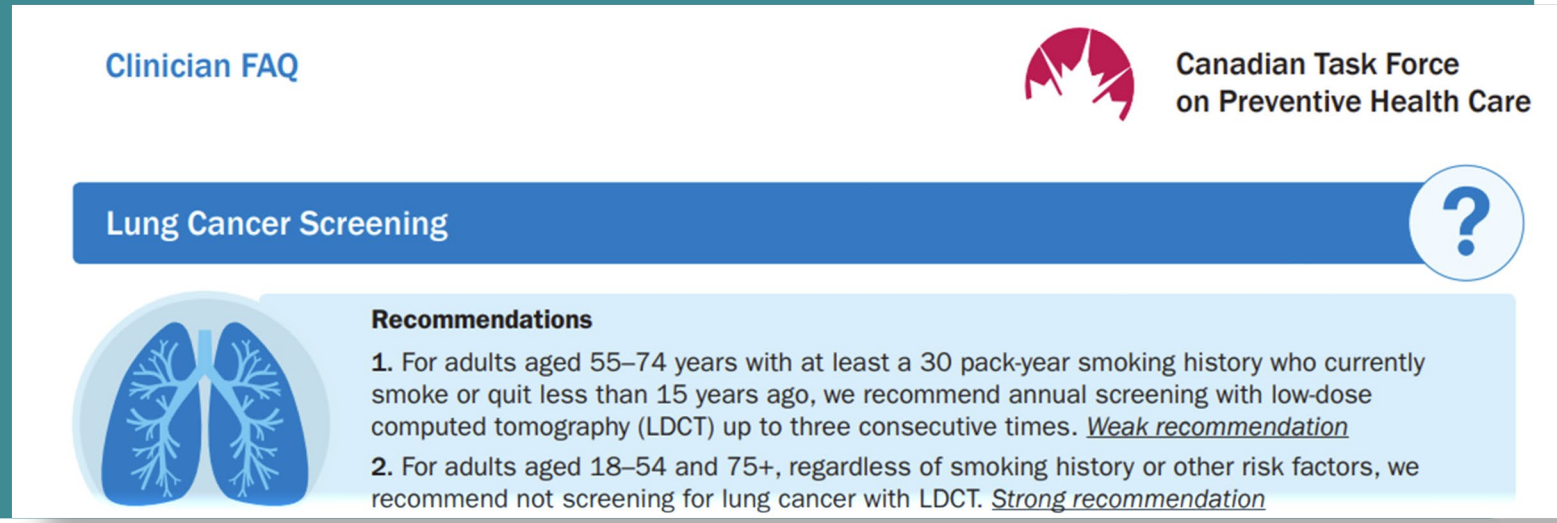
# Background

- Lung Cancer is the leading cause of cancer related death in Canada, including in our province, Nova Scotia.
- April 2016: Canadian Task Force on Preventative Health Care (CTFPHC) released Lung Cancer Screening Guidelines in favour of lung cancer screening.
- Each individual Canadian province is responsible for the administration and delivery of health care to its residents leading to variations in health care policies.
- Until recently, there was no organized Lung Cancer screening program in Nova Scotia



# Objectives

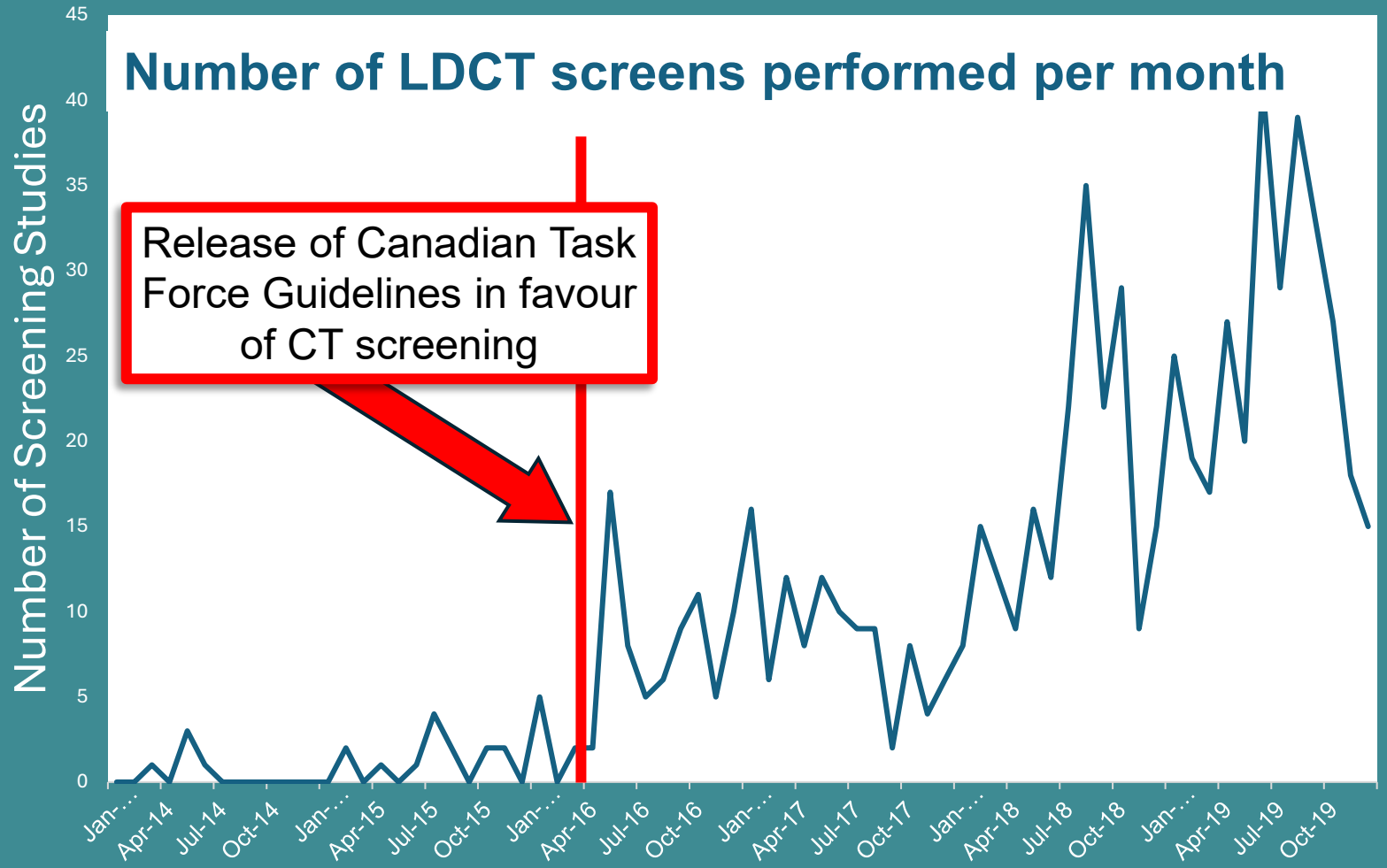
- Evaluate lung screening prior to a formal program
  - All health care institutions in NS central zone (pop. 500k)
  - Number of screening CTs performed
  - Eligibility of patients being screened (based on Canadian Task Force age and packyear criteria)
  - Adequacy of CT reports:
    - Using LungRADs templates
    - Using specific terms to convey degree of concern
    - Providing  specific recommendations
      - Follow-up, No follow-up needed, Referral to Thoracic Surgery, etc.

# Methods: Design, Population, Variables

- Design:
  - Quality Assurance in a retrospective cohort
- Data Source/Population:
  - All Lung Cancer screening CTs:
    - Jan 2014 - Dec 2019
  - Manually reviewed to ensure purpose was lung cancer screen, not assessment of symptoms or staging.
- Privacy impact assessment approved, REB not required.

- Administrative Variables
  - ✓ Patient Age
  - ✓ Reporting Radiologist
  - ✓ Hospital
- Referral Variables
  - ✓ Pack-Year History
    - ✓ On CT requisition
    - ✓ By questionnaire given to patients at time of CT
- Reporting Variables:
  - ✓ Specific terms regarding degree of suspicion
  - ✓ Specific Follow-up recommendations

# Results:




**715 Total Screens**

Mean Age: 63.1

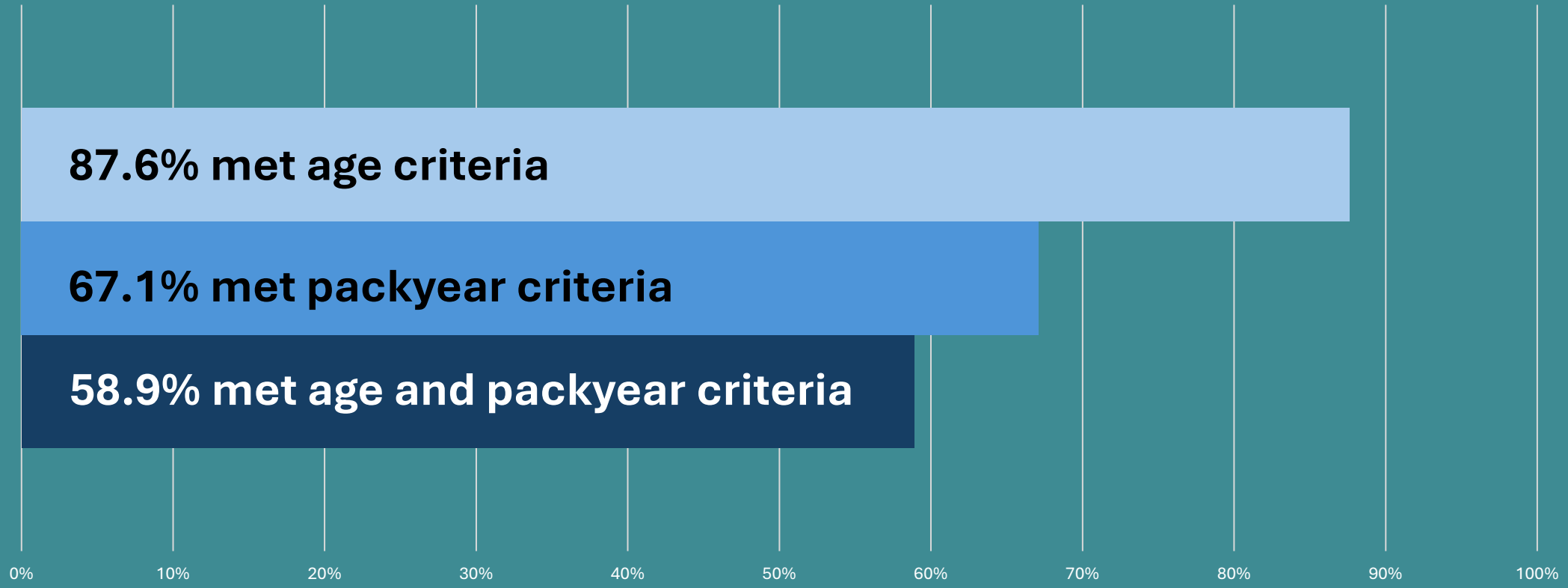
Range: 39-82

SD: 6.65

Male: 53.6%

Female: 46.4%

# Results




Proportion of LDCT screening scans performed for patients who responded to the smoking questionnaire (N=715) who met high risk criteria for age, smoking history, and both age and smoking history according to the Canadian Task Force on Preventive Health Care recommendations.

# Results

| | Centres with Thoracic Radiology (N=460) | Centres without Thoracic Radiology (N=255) | Total (N=715) |
|---|---|---|---|
| **Degree of Concern included in report** | 92.0% (N=423) | 64.6% (N=165) | 82.2% (N=588) |
| **Recommendation Included in report** | 85.7% (N=394) | 39.7% (N=101) | 69.2% (N=495) |

Chi-Squared test showed significant difference with $p<0.05$.

# Discussion

- Screening for patients not meeting guidelines for eligibility
  - Patients may not reap benefits of screening while experiencing harms
  - Other studies:
    - Newfoundland[1]: 49.3% of screening CTs on ineligible patients
    - American study[2]: 30% of screening referrals were ineligible
- Reporting Requirements not met:
  - Screening studies at centres with Thoracic Radiology were more likely to included specific recommendations and degree of concern ($p<0.05$)

1: Linehan V, Harris S, Bhatia R. An Audit of Opportunistic Lung Cancer Screening in a Canadian Province. J Prim Care Community Health. 2021 Jan-Dec;12:21501327211051484. doi: 10.1177/21501327211051484. PMID: 34663119; PMCID: PMC8529306.
2: McKee BJ, McKee AB, Flacke S, Lamb CR, Hesketh PJ, Wald C. Initial experience with a free, high-volume, low-dose CT lung cancer screening program. J Am Coll Radiol. 2013 Aug;10(8):586-92.

# Discussion

- Screening outside a formal organized program may result in inappropriate use of resources
- Expansion of formal, organized screening program is recommended:
  - Ensure eligibility
  - Specialized templates to meet minimum reporting criteria:
    - LungRADS
    - Specific terms for degree of concern
    - Specific follow-up recommendations provided in impression
  - Reported in specialized centres by radiologists trained to report screens

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