Canon

LCS Expert Column

Striving for Patient-Centered Lung Cancer Screening:

How Rapid Management, Screening Program Design, and Technology Impact the Patient Experience

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Introduction

Lung cancer screening and the rapid management is deceptively simple in theory: identify cancer early in high-risk individuals and treat it promptly. Lung cancer screening also often conjures images of machines, protocols, and rapid diagnostics. Yet at its heart, effective screening is about people—their fears, their understanding, and the confidence they bring with them into the imaging or operation suite. Our lung cancer screening program helped us to understand that. The program works across different sites including — Eastern Newfoundland and Labrador centered in St. John's and the Central Zone centered in Grand Falls Windsor, including the Miawpukek First Nation. The lung cancer screening program is supported by a multidisciplinary review panel, the Thoracic Triage Panel (TTP). The TTP was created to rapidly manage suspected cases of lung cancer discovered on imaging studies, such as a chest x-ray or CT. In addition, it was created with the vision of aiding a lung cancer screening program. Since its inception in 2014, 2278 patients have been managed through the Thoracic Triage Panel (TTP). In recent years, we are helping almost 300 new patients annually. At the same time, a patient can feel some relief knowing their suspicious findings are being dealt with quickly, especially in a multi-disciplinary formal process such as the Thoracic Triage Panel. Beyond these numbers, the program provided us insight into what it means to make lung cancer screening patient centered.

The psychology of rapid management

Patients entering the rapid management and screening pathways for lung cancer carry a mixture of curiosity, fear, and hope. Anxiety is inevitable when a test can reveal something life-changing. What became clear in our Newfoundland and Labrador program was that rapid diagnostic pathways can be a double-edged sword: while early detection is critical, moving too fast can overwhelm patients. A short buffer—typically one week—between notification and next step – PET-CT and biopsy, allowed patients to absorb the news, notify their families, and prepare emotionally. Working at an expedited but controlled pace has improved the overall patient experience.

Studies across Canada, including insights from the Pan-Canadian Lung Cancer Screening Study, echo this observation[1]. Anxiety is present, but with clear communication, timely reporting, and structured pathways, it can be mitigated. Patients' curiosity about their health often outweighs fear, particularly when they feel that they are supported and understood.

> ***"Screening programs operate in the human domain. Anxiety is inevitable when a test can reveal something life changing."***

Importance of human touch in a technologically advanced world

Overall, trial evidence suggests no clinically meaningful negative psychosocial impact from lung cancer screening (LCS), aside from short-term distress following indeterminate or suspicious results[2,3]. However, qualitative studies indicate that psychological burden during screening is more complex and may occur at multiple points throughout the screening pathway[4–6].

Additionally, several studies demonstrated that strong support and effective communication between patients and healthcare professionals are essential for improving psychological outcomes[7,8].

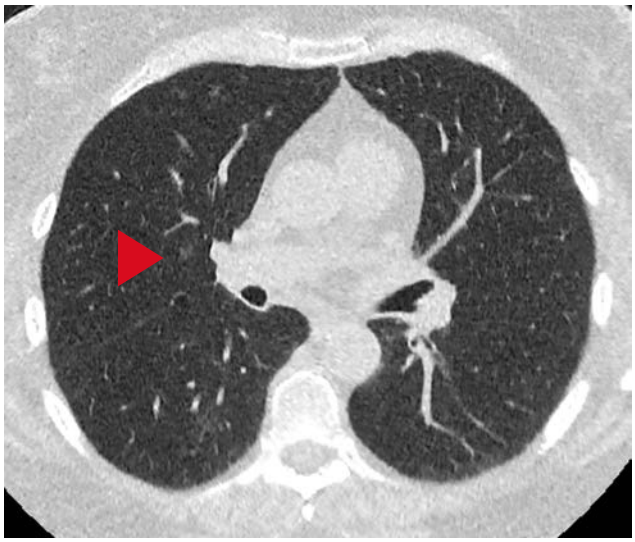
A cornerstone of our Newfoundland and Labrador program is the integration of nurse navigators and a nurse practitioner. These professionals serve as constant touchpoints, answering questions, explaining imaging results, and coordinating follow-up care. They are instrumental for patients who are self-referred or lack a primary care provider, ensuring that no one falls through the cracks.

Smoking status and perceived stigma may also affect psychological outcomes[9]. Smoking cessation is embedded into the pathway as standard practice for the lung screening program. Recognizing that all eligible patients for screening are current or former smokers, our program strives to offer immediate access to cessation support. Our staff does not dwell on past behaviors or induce guilt; instead, the emphasis is on forward-looking care, providing patients with tools to improve their long-term health.

Technology as a tool to foster confidence

Modern low-dose CT technology is crucial to our program's success. Since the start of the program in 2014, we have been using high-resolution imaging at low dose approaching ultra lose dose radiation levels. This practice provides diagnostic accuracy while simultaneously alleviating patient concerns regarding radiation exposure. For many patients living in remote areas, seeing the modern scanners firsthand can be reassuring, reinforcing that their care matches the standards of larger urban centers. In practice, the technology allows our radiologists to detect abnormalities effectively without compromising safety. Some expressed surprise at how low the radiation dose was—typically between 0.3 and 0.6 mGy, well below the recommended 3 mGy for CT lung screening. This transparency and attention to safety contribute to the overall patient confidence in our program.

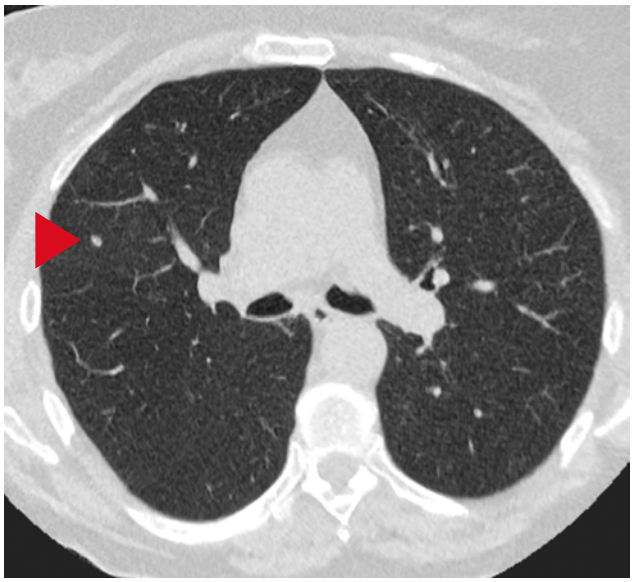
Scans taken in



2014

CTDIvol **0.6 mGy**
Aquilion ONE

VS



2023

CTDIvol **0.3 mGy**
Aquilion ONE Prism

Figure 1

Consistent use of high-resolution, ultra-low-dose imaging since the start of the program—combined with transparent communication about radiation and a strong focus on safety—helped build patient confidence in our program.

*Scan images courtesy of the author. ** Low dose being defined as <3mGy and ultra low-dose as < 1mGy.

Thoracic Triage Panel to close organizational gaps

Our Newfoundland and Labrador program uses the Thoracic Triage Panel which meets weekly to review all suspected lung cancer cases picked up during routine diagnostic studies and through the screening program. Composed of radiologists, nuclear medicine physicians, pathologists, respirologists, thoracic surgeons, medical and radiation oncologists, nurse navigators and a nurse practitioner, the panel ensures not only appropriate clinical management but also smooth and efficient patient navigation through the system. The panel was originally established in 2014 following years of research as outlined in the 2015 and 2018 publications[10, 11].

The studies together aimed to:

a) identify the time from first abnormal lung imaging to follow-up confirmatory imaging, biopsy and treatment for non-small cell lung cancer (NSCLC);
b) record tumor size for T classification at each imaging point;
c) identify major gaps in patient flow and determine whether delays resulted in stage progression—in other words, whether CT wait times were compromising patient care.

Initially we found that the time from first abnormal imaging to biopsy was 81 days, with tumor growth, and thus T stage advancement, occurring when patients waited a median of 19 days. The study concluded that:

a) patients were waiting longer than desirable,
b) there were long delays between discovery of a suspect lesion and follow up confirmatory imaging and the eventual biopsy, and
c) these delays negatively impacted prognosis, with significant T-stage advancement while patients were on waitlists for the next step of their care.

To address these issues, several changes were implemented, including hiring six new technologists, and extending CT scanner operating hours from 8 hours per day to 16 hours per day. However, the most impactful improvement was the establishment of the volunteer multidisciplinary Thoracic Triage Panel (TTP).

This approach reduced delays, ensured appropriate follow-up testing, and minimized patient anxiety. The time from first abnormal imaging to biopsy Initially was a median of 81 days and this reduced to 36 days after implementation of corrective measures including the oversight of the TTP. The time from first abnormal imaging to treatment initiation as a result decreased—from a median of 118.0 days (70.5–186.0) to 80.0 days (55.0–110.8), $p<0.001$ [2].

Beyond improving timelines, the TTP has strengthened continuity of care and patient trust. The system now tracks every referral, scan, treatment decision, and follow-up action, ensuring accountability across the care pathway. Patients benefit from knowing that a dedicated multidisciplinary team—not a single physician—is overseeing their care throughout diagnosis, treatment, and recovery. Notably, patients continue to engage with the program long after treatment completion; one patient contacted the nurse navigator more than a year post-treatment to share that the Thoracic Triage Panel was “the best thing Eastern Health has ever done,” underscoring the program’s lasting clinical and human impact.

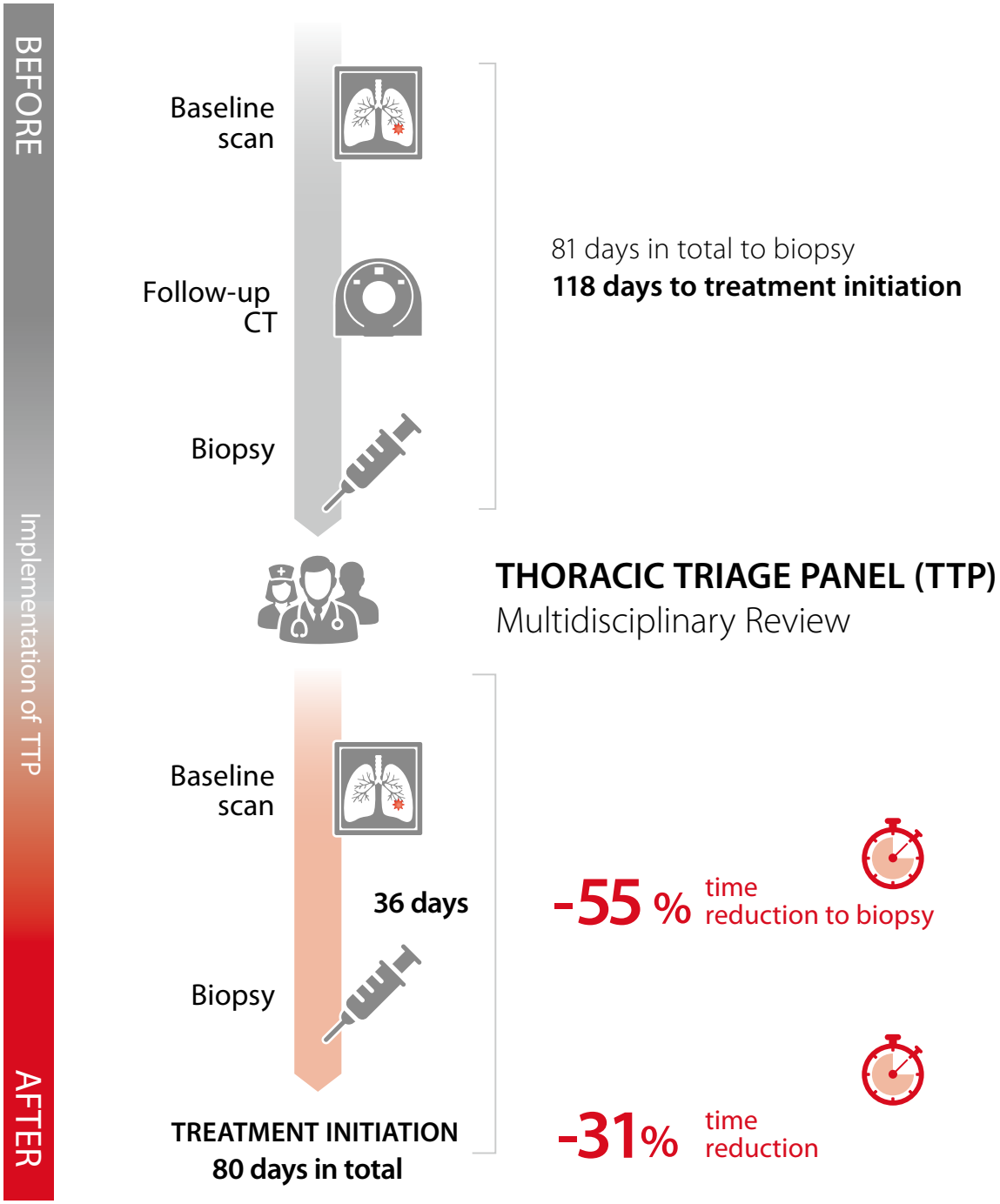


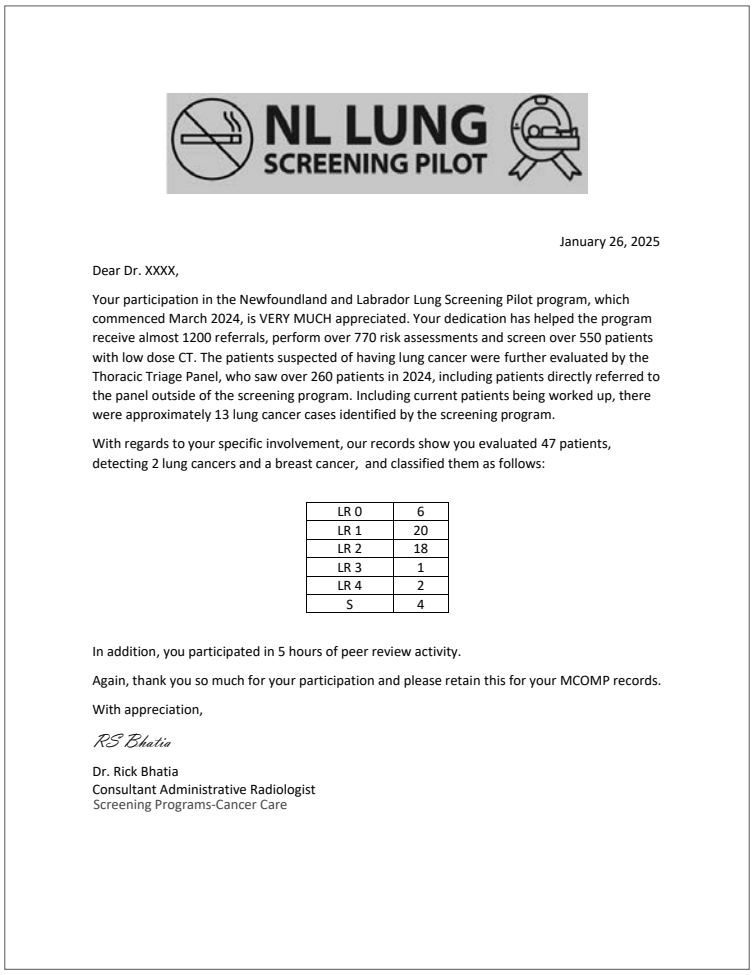
Figure 2

Impact of Thoracic Triage Panel (TTP). Implementation of a multidisciplinary Thoracic Triage Panel significantly reduced diagnostic and treatment delays in suspected lung cancer, shortening the median time from abnormal imaging to biopsy (81.0 to 36.0 days) and to treatment initiation (118.0 to 80.0 days; $p<0.001$), while improving care coordination.

Quality assurance: the invisible backbone

Rigorous quality assurance is fundamental in our screening program. Standardized reporting, double-reading, radiation monitoring, and structured follow-up intervals created a safety net for both patients and clinicians. Radiologists receive annual performance feedback, and metrics such as interval cancers and follow-up timelines are closely tracked.

This commitment to quality reassures patients that their care is accurate, timely, and consistent. It also demonstrates that structured, accountable systems can reduce patient anxiety while maintaining clinical excellence.



NL LUNG SCREENING PILOT

January 26, 2025

Dear Dr. XXXX,

Your participation in the Newfoundland and Labrador Lung Screening Pilot program, which commenced March 2024, is VERY MUCH appreciated. Your dedication has helped the program receive almost 1200 referrals, perform over 770 risk assessments and screen over 550 patients with low dose CT. The patients suspected of having lung cancer were further evaluated by the Thoracic Triage Panel, who saw over 260 patients in 2024, including patients directly referred to the panel outside of the screening program. Including current patients being worked up, there were approximately 13 lung cancer cases identified by the screening program.

With regards to your specific involvement, our records show you evaluated 47 patients, detecting 2 lung cancers and a breast cancer, and classified them as follows:

LR 0	6
LR 1	20
LR 2	18
LR 3	1
LR 4	2
S	4

In addition, you participated in 5 hours of peer review activity.

Again, thank you so much for your participation and please retain this for your MCOMP records.

With appreciation,

RS Bhatia

Dr. Rick Bhatia
Consultant Administrative Radiologist
Screening Programs-Cancer Care

Figure 3

Example of an annual radiologist performance report. This report helps reassure the quality of the screening program at the individual staff level.

Personalized diagnostics and care

In recent years, medical care is increasingly becoming more personalized. Personalized diagnostics are also a part of our program and allowed us to further reinforce patient confidence. Biopsies include reflex molecular testing, enabling treatments tailored to tumor subtype. This not only influences clinical decisions but also reassures patients that their care is specific to their condition rather than generalized assumptions.

Patients often appreciate this level of attention. When informed that the biopsy would examine multiple aspects of the tumor, including its molecular profile, many reported feeling a sense of control and understanding. In our experience, the combination of precise diagnostics and human guidance transformed what could have been a frightening experience into one where patients felt actively supported and involved.

AI and the LCS screening

We are currently exploring better integration of AI to support reporting and standardization. While the potential is clear—reducing variability, enhancing efficiency, and assisting radiologists—successful implementation requires robust IT infrastructure and workflow alignment. Even with vendor support and software licenses, internal resources must be available to integrate AI into clinical workflows.

> ***“AI has promise—but without infrastructure and workflow integration, potential remains unrealized.”***

Nevertheless, AI represents a promising avenue to augment human oversight, reinforce quality assurance, and ultimately enhance patient experience. The key is thoughtful integration that complements, rather than replaces, the human touch.

Lessons learned: empathy, timing, and trust

Our Newfoundland and Labrador experience makes clear that a rapid management pathway integrated with lung cancer screening is not simply a clinical exercise. It requires balancing quick assessment with empathy, technology with human oversight, and early detection with preventive care. Patients benefit from structured, transparent pathways, timely diagnostics, personalized treatment, and proactive support for lifestyle modification.

For many patients, participation in such a program is profoundly gratifying. They see that their care is tailored, that their concerns are heard, and that support is available at every stage. Our program demonstrates that rapid management along with screening is an investment—not merely in individual outcomes, but in the health of the community.

Conclusion

Lung cancer screening and integration with a rapid management program (TTP) for suspected cases of lung cancer detected on routine diagnostic studies, is not just about speed. It is about sensitivity timing, and understanding an individuals experience behind every scan. Our Newfoundland and Labrador program illustrates that when a program integrates patient-centered design, advanced technology, multidisciplinary collaboration, and preventive care, patients feel informed, supported, and confident.

From the first consultation to follow-up diagnostics, the structured and personal approach allows patients to engage meaningfully with their care. The satisfaction, reassurance, and gratifying sense of security experienced by patients underscore the true value of investing in screening programs and rapid management programs—benefiting both individuals and the broader community.

> ***"Ultimately, effective lung cancer screening is a human-centered endeavor, where early detection and technology meet compassion and understanding."***

About the author

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Dr. Bhatia completed his undergraduate medical education at McMaster University in 1991. He then pursued postgraduate training in Diagnostic Radiology at Memorial University, earning Fellowship designation from the Royal College of Physicians and Surgeons of Canada in 1996. Following residency, he completed a fellowship in Thoracic and Mammographic Imaging at McMaster University (1996–1997).

Dr. Bhatia currently serves as Clinical Chief of the Diagnostic Imaging Program in the Eastern Health Zone. He practices at the General Hospital site, providing care to both urban and rural communities across the province. He is also a Clinical Professor in the Discipline of Radiology at Memorial University and is actively involved in pulmonary research.

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