

Case study

Scaling IPN management through AI-enabled workflows in Brazil

How a combined screening and IPN programme enabled earlier detection



In Brazil, the earlier detection of lung cancer is slowly gaining momentum. Despite the absence of a national screening programme, a combined IPN and screening model shows how AI-enabled integration can facilitate earlier diagnosis.

Background

First steps: structured IPN management

Unequal access to diagnostic services, and the lack of a national screening programme, hinder the earlier detection of lung cancer in Brazil. Lung cancer is the leading cause of cancer-related deaths in the country, due to late-stage diagnosis.^{1,2} The management of incidental pulmonary nodules (IPNs) is an opportunity for early detection; however, effective management is restricted by the limited availability of essential diagnostic tests.^{3,4} Disparities in access to these tools between public and private hospitals make it difficult to apply guidelines that facilitate effective IPN management.⁴ This highlights the need for context-specific solutions to provide timely and appropriate IPN management based on hospital type and location.⁴

Integrating lung cancer screening with IPN management is a promising approach to improving early detection. Real Hospital Português, in Northeast Brazil, implemented such a scheme in 2023; it aligns clinical care with patient support by using a dedicated nurse navigator to coordinate care for both pathways.⁵ Initial results from the programme show a notable shift in the detection of early-stage (I and II) lung cancer, particularly through IPN management (*Box 1*).⁵

Box 1. Integrated programme results from 2023 to 2026⁵

The programme has supported 441 patients, including 308 people with IPNs and 113 people enrolled in the screening programme.

In total, 108 cases of lung cancer were diagnosed; the vast majority (106 cases) were identified through the IPN pathway; and 53% of cancers were detected at an early stage (I and II), highlighting the programme's role in facilitating timely diagnosis.

Finding, tracking and managing nodules in the IPN clinic

When the programme was launched in 2023, it relied on a nurse navigator model.⁶ The nurse navigator was responsible for reviewing chest CT radiology reports; manually entering patient clinical information (e.g. age, sex, tobacco use) to assess risk as per the Fleischner criteria; and conducting follow-up.⁷ While this approach was effective in the initial phase, it quickly became unsustainable. Within six months of roll-out there was a significant increase in the number of detected nodules, making it difficult for a single nurse navigator to maintain timely and consistent follow-up.⁷ After a year, this capacity challenge prompted the shift to an AI-assisted model (*Box 2*).⁷

Box 2. Structured workflow for identifying, tracking and managing IPNs in a dedicated clinic**Finding**

- **AI software, embedded into a centralised platform, reads chest CT results** to identify IPNs in radiology reports.⁶
 - Nodules larger than 8mm in diameter are referred to the programme's multidisciplinary team, which includes a surgeon, an oncologist, an epidemiologist, a radiation oncologist and a radiologist.⁶
- If a nodule requires management through the IPN programme, a nurse navigator or the programme's lead physician informs the referring physician of the findings, and the nurse navigator helps coordinate the patient's care pathway.⁶

Tracking

- **The nurse navigator contacts people with IPNs** to facilitate follow-up with their referring physician and to streamline care; no clinical findings or test results are disclosed directly to the patient.^{6,7}
- After a person is contacted, they can be seen by a specialist doctor designated by the IPN programme.⁶ Alternatively, they can be seen by a doctor of their choice.⁶ The person is then informed about the IPN, and appropriate follow-up steps are initiated.⁶
- **Navigator software coordinates follow-up care** by sending appointment reminders and notifications to nurse navigators and people with IPNs; this helps ensure that care recommendations are adhered to and that follow-up appointments are not missed.⁷

Managing

- **The multidisciplinary team meets weekly to discuss and assesses cases** as per the Fleischner guidelines.⁶

Crucial elements of the IPN clinic

Modelling impact to secure funding

A simulation tool supported investment decisions by modelling the clinical impact and resource demands of a potential IPN programme. Health system leaders, planners and funders require high-quality data to inform service provision planning and help them allocate resources efficiently.⁸ To demonstrate the potential impact of an IPN management programme to reduce lung cancer mortality rates, a simulation tool was designed and deployed.⁶ The tool used routinely available data – such as the number of CT scans, population served and number lung cancer cases – to estimate how many early lung cancer diagnoses an IPN programme could make, and the potential reduction in mortality this would facilitate.⁶ The presentation of these outcomes to health system leaders resulted in the programme being funded, demonstrating the impact of quantitative data on policy-level uptake of an IPN programme.

A digital platform for coordinated patient navigation

The patient navigation platform helps coordinate and streamline the care pathway, supporting continuity of care. In addition to the AI tool used for report triage, the integrated programme uses a dedicated patient navigation platform to support the nurse navigator's work once a person with an IPN is inducted into the programme.⁷ The platform centralises the patient's pathway, tracking each step from initial contact to scheduling, diagnostic procedures and results, and flagging pending actions (e.g. patients not yet contacted, procedures not yet scheduled, results awaiting review). This allows the nurse navigator to identify next steps.⁷ The platform is also used to manage the care of people who receive a lung cancer diagnosis, allowing the navigator and care team to coordinate the pathway in a single structured workflow rather than relying on fragmented manual records.⁷

The role of AI in the screening workflow

An AI tool helps streamline the review of radiology reports and patient tracking, enabling more efficient and sustainable IPN management. The tool reads chest CT reports, identifies IPNs in radiology reports and improves workflow efficiency.⁶ It improves the scale, speed and consistency of the triage process by standardising the initial review of radiology reports and reducing reliance on manual chart reviews.⁷ This enables higher-volume screening with fewer process-related errors and more consistent referral decisions.⁷ While it does not reduce the inherent false-positive rate of nodule detection itself, it improves the efficiency and reliability of the screening workflow.⁷ The tool uses the programme's navigation software to further streamline patient tracking and data management processes.⁶ The transition to AI has improved follow-up capacity and strengthened the programme's ability to manage the growing number of IPNs detected; the move away from a manual, resource-intensive process led to a more scalable and sustainable approach.⁷

Key takeaways

Embedding structured approaches in IPN management workflows using standardised software mitigates variation in workforce uptake of an IPN programme and reduces the need for resource-intensive education and outreach.

Embedding a dedicated navigation platform enables coordinated, end-to-end patient management by centralising follow-up, treatment and care pathway information.

AI software that reads CT reports and serves as a nurse navigator improves efficiency, reduces manual workload and enables the scalable, timely identification and follow-up of IPNs.

Data-driven impact modelling strengthens funding cases by clearly demonstrating potential diagnoses and resource needs.

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