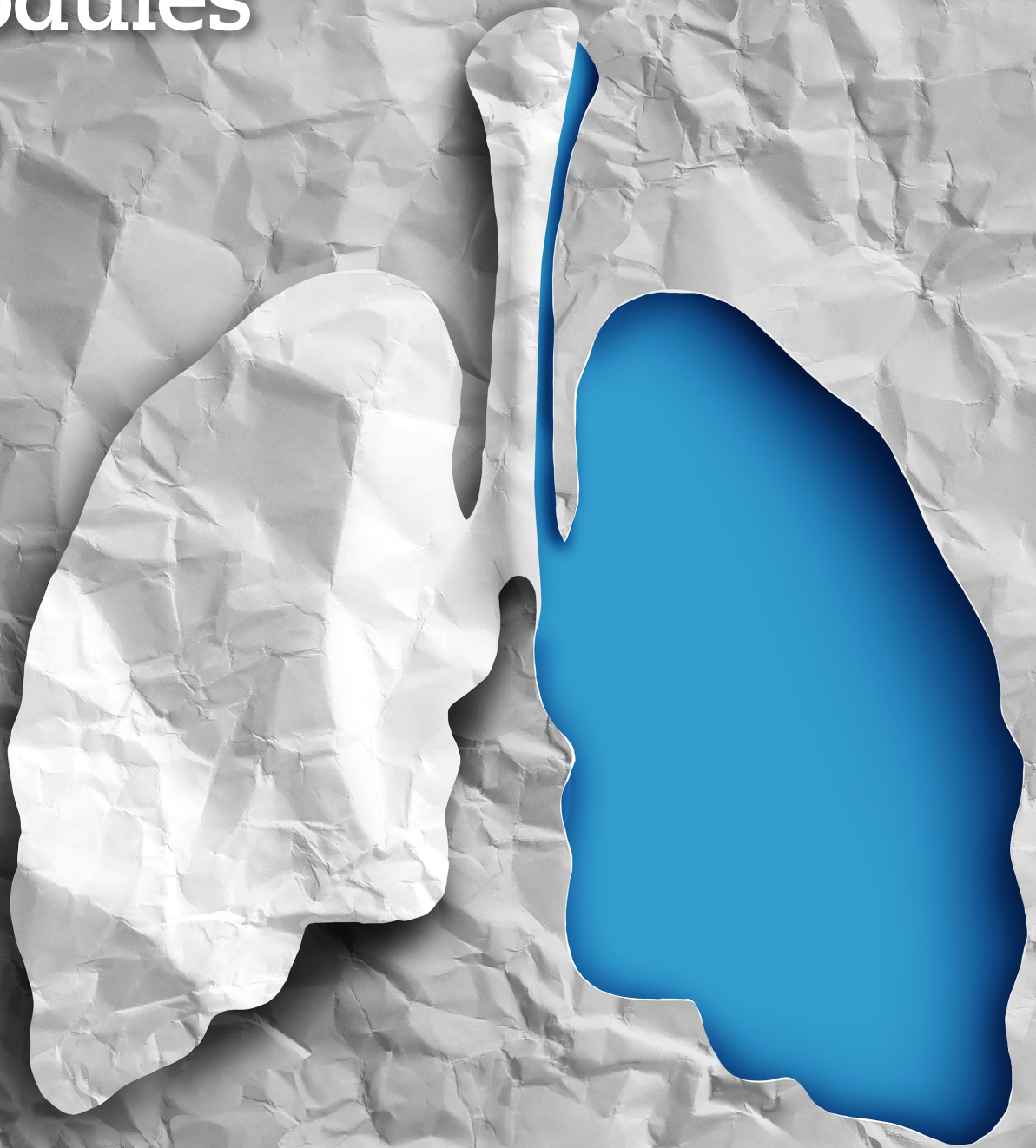


# Reimagining Healthcare for Incidental Lung Nodules



**L**ung cancer, the third most common cancer in the United States, represents 12.3 percent of all new cancer cases and is the leading cause of cancer-related deaths, accounting for 21.4 percent of all U.S. cancer-related deaths annually.<sup>1</sup> Early detection is of paramount importance, as it represents the single most effective tool to improving lung cancer survival.<sup>2</sup>

Early-stage lung cancer can be detected either as incidental lung nodules identified on imaging studies or via annual low-dose computed tomography (LDCT) screening. In 2021, the U.S. Preventative Services Task Force (USPSTF) revised criteria for LDCT screening, extending the upper age limit to 80 years old and lowering the pack-year threshold to 20 years. Current smokers or those who quit within the last 15 years, who are between 50 years and 80 years old and who have amassed at least a 20-pack year smoking history, are eligible for LDCT screening.<sup>2,3</sup> Despite the USPSTF casting a wider net for lung cancer screening and its clear life-saving results, LDCT screening remains underutilized. Moreover, some believe that the expanded inclusion criteria may not capture all individuals at risk.<sup>4</sup> Incidental lung nodule programs complement LDCT screening by expanding access and increasing early lung cancer detection.<sup>4,6</sup>

An estimated 1.6 million incidental lung nodules are identified annually on imaging studies in the U.S.<sup>7</sup> These incidental lung nodules present unique barriers to care coordination, particularly within a large healthcare system.<sup>8</sup> Because these lung nodules are often discovered in acute care settings, such as the emergency department or inpatient setting, the ordering provider is unlikely to follow up with findings or implement next steps in workup or

---

An increasing number of cancer programs and practices have leveraged health information technology to develop incidental lung nodule programs to track nodules and retrospectively communicate findings to PCPs, so they can direct subsequent care.<sup>13, 14</sup>

---

management.<sup>8,9</sup> Instead, those responsibilities typically fall to the primary care provider (PCP).<sup>7,8</sup> Communication of incidental findings may be inadequate during transitions of care, resulting in failure to provide timely follow-up and leading to poor patient outcomes.<sup>8,9</sup>

### The Role of Health Information Technology

Health information technology involves processing, storing, and exchanging of health information in an electronic environment.<sup>10</sup> Utilization of health information technology within the healthcare industry improves medical care, lowers healthcare costs, increases administrative efficiencies, decreases paperwork, reduces errors, and improves patient satisfaction.<sup>11,12</sup> An increasing number of cancer programs and practices have leveraged health information

technology to develop incidental lung nodule programs to track nodules and retrospectively communicate findings to PCPs, so they can direct subsequent care.<sup>13,14</sup>

Despite advances in health information technology, challenges exist in the management of incidental lung nodules. PCPs may not be immediately clear on guideline-driven recommendations for next steps. Moreover, discovery of the lung nodule may elicit concern, confusion, and anxiety for patients who may be awaiting guidance from their PCP.<sup>13-15</sup> Patients without a PCP can have immediate access to personal healthcare information but no one to manage their care. Hence, a strong need emerges for a comprehensive, innovative approach for incidental lung nodule findings that supports both patients and providers.<sup>13,16</sup>

---

**Recognizing the need for better care coordination and prompted by the experience of a patient partner, in 2017, WellSpan Health embarked on a multispecialty effort to reimagine how incidental nodules are managed through the lens of the Quadruple Aim...**

---

**WellSpan Health's Challenges & Solutions**

A nationally recognized, large, and integrated healthcare system located in south central Pennsylvania and northern Maryland, WellSpan Health is comprised of seven hospitals and hundreds of care locations spread across nine counties. This non-profit organization has a mission to improve health through exceptional care for all, lifelong wellness, and healthy communities. Throughout the healthcare system, more than 5,000 new incidental lung nodules are identified annually, with 3 percent to 3.5 percent representing malignancies.

Recognizing the need for better care coordination and prompted by the experience of a patient partner, in 2017, WellSpan Health embarked on a multispecialty effort to reimagine how incidental nodules are managed through the lens of the Quadruple Aim: improving the patient and provider experience, lowering per capita cost of care, and optimizing the health of populations.<sup>17</sup> In a two-day value stream project facilitated by a performance specialist and oncology service line, multiple WellSpan Health team members from primary care, diagnostic, and treatment specialties joined a patient partner to map the journey of a patient with lung cancer from incidental finding to treatment. The resulting map revealed a complex maze of events and communications that patients and families had to navigate on their own. Our patient partner learned that he had a high-risk lung nodule on a chest com-

puted tomography (CT) via the MyWellSpan patient portal. From the moment he saw his findings, the patient partner described his journey as one filled with anxiety, questions, waiting, and self-navigation of a complex landscape with no map. After hearing from this patient, the WellSpan Health team recognized that the map was more than a measure of time; it embodied the patient experience and patient-provider communications throughout the care continuum.

Four improvement goals were established through the value stream mapping:

- Improve patient outcomes with timely and appropriate care
- Improve the patient experience by reducing anxiety
- Lower the cost of care by avoiding inappropriate testing
- Improve the provider experience by providing access to a pathway for well-coordinated care.

To meet these goals, WellSpan Health opened WellSpan Diagnostic Support Specialists (a remote virtual practice) in 2019.

**Designing a New Care Delivery Model**

WellSpan Health hired two certified, registered nurse practitioners (CRNPs) to develop and implement a consistent, well-coordinated lung nodule care experience that supports patients, their families, and their PCPs, while also bridging gaps in care. Working to their full scope of practice, these CRNPs identified the most important roles that impact patients' journey from incidental finding to final diagnosis and treatment, including radiology, thoracic surgery, pulmonology, and medical informatics. These groups then spent three months identifying current state workflows and detailing specific responsibilities of each provider specialty to understand how they fit into the larger patient experience. Re-aligning workflows was foundational to the formation of WellSpan Health's Diagnostic Support Specialists, enabling CRNPs to effectively provide follow-up care to patients with new incidental lung nodules confirmed on a CT chest scan. CRNPs use evidence-based guidelines and malignancy risk assessment tools to create an individualized treatment plan. Patients may or may not require follow-up based on their CT chest finding(s). Those needing follow-up are put into a low-risk or high-risk pathway.

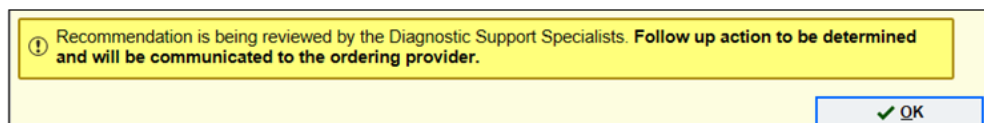
Patients placed into the low-risk CT chest surveillance pathway are managed by Diagnostic Support Specialists for up to three years if 1) they are young, 2) they have a minimal smoking history, and 3) their lung nodules are smoothly marginated, smaller than 8 mm, and not in the upper lobe. If surveillance is required beyond the three-year mark, Diagnostic Support Specialists do a warm handoff to the PCP, transitioning lung nodule follow-up to primary care.

Criteria for the high-risk diagnostic pathway consist of 1) older patients with a heavy smoking history, 2) those with a family history of lung cancer, 3) those with exposure to carcinogens, and 4) those with irregular lung nodules and/or upper

Figure 1. Best Practice Advisory for Non-CT Chest Findings; Pending Order for Follow-Up



Figure 2. Best Practice Advisory for Nodules Confirmed on CT Chest Finding



lobe location, and greater than 8 mm. For these patients, Diagnostic Support Specialists’ CRNPs place a referral to a specialist and order pre-testing as clinically indicated.

A registered nurse (RN) and two office support staff aid with courtesy notification to PCPs for lung nodules identified on non-CT chest studies, patient notification of lung nodules and treatment plans, nodule tracking, scheduling, and obtaining prior authorizations.

The Diagnostic Support Specialists team collaborates with the Diagnostic Physician Advisory Team, which includes specialists who represent interventional radiology, pulmonology, thoracic surgery, family practice, and medical oncology. Biannual meetings with the advisory team are used to review the Fleischner Society’s guideline updates<sup>18</sup> and program performance, and identify opportunities for regional and systemwide improvements. The Diagnostic Physician Advisory Team is available for immediate collaboration and consultation upon CRNP request.

### Technology to Optimize Lung Nodule Care

Leveraging technology to align workflows and implement a process to address identification, documentation, communication, and follow-up of incidental lung nodules was essential to the success of Diagnostic Support Specialists.<sup>19</sup> An in-depth review of our current electronic health record (EHR) identified the tools below, which helped align workflows, optimize lung nodule identification, conduct tracking and documentation, and improve

communication with patients and PCPs so that care is provided in a timely manner.

#### Identification and Tracking

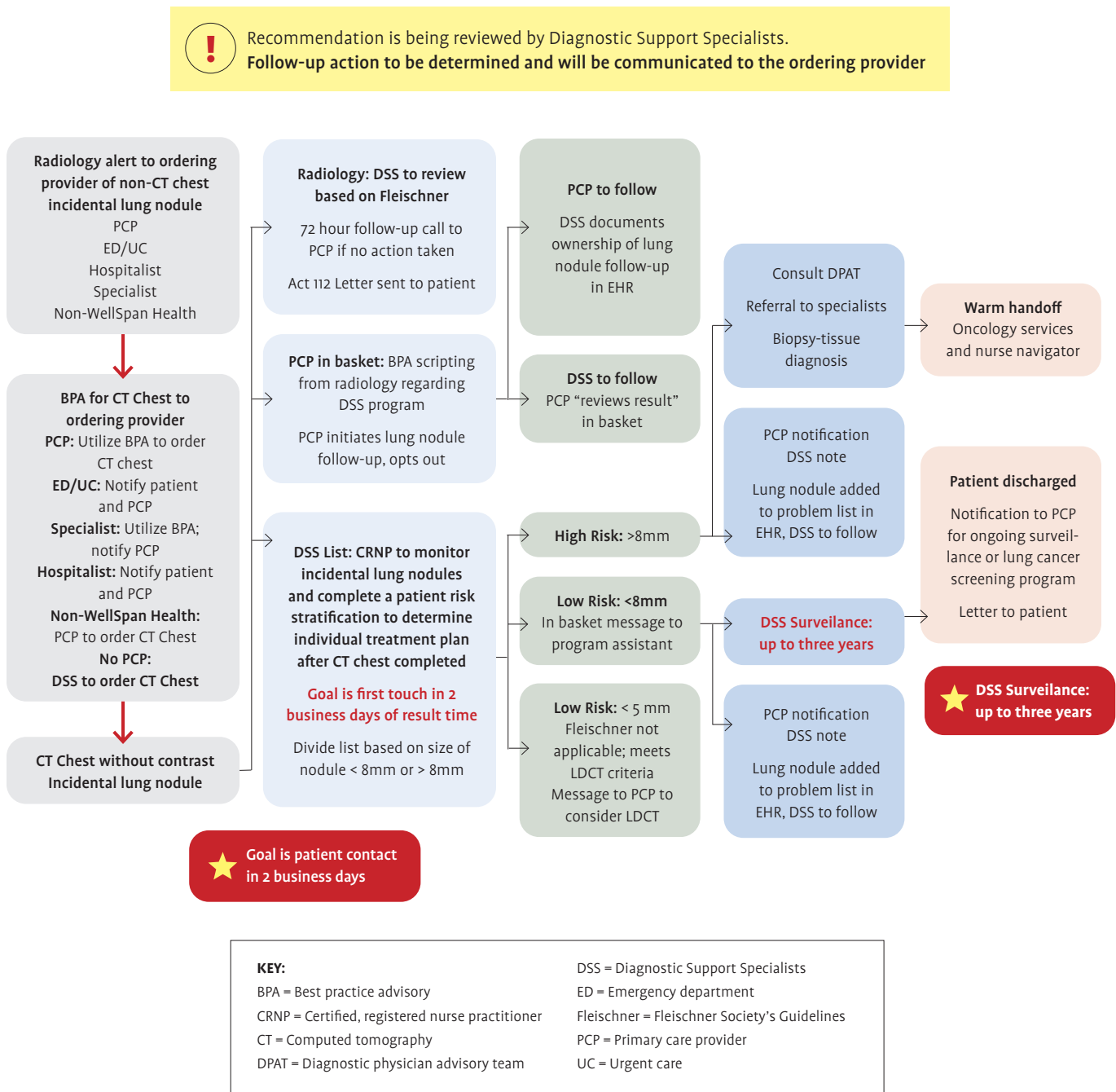
The tools radiologists use within the EHR are customized to automatically communicate incidental lung nodule follow-up recommendations. The method in which radiologists sign the study within the EHR is also modified to document acuity (incidental), identify the suspected lung nodule(s), and enter follow-up recommendations based on the Fleischner Society’s guidelines. The DSS [Diagnostic Support Specialists] prefix was added to the recommendations for confirmed lung nodules on a CT chest scan to route patients’ imaging results to the appropriate recommendation work list at Diagnostic Support Specialists.

#### Documentation and Communication Tools

Diagnostic Support Specialists developed and included these documentation and communication tools:

- “Smart tools” within the EHR to provide structured, consistent documentation. The creation of “DSS reason for encounters” signifies involvement of Diagnostic Support Specialists and is easily identified within the EHR.
- Customized documentation and telephone encounter note templates with embedded smart phrases and links to capture reason for encounter, follow-up plan, personal/family history, smoking history, past imaging, as well as patient and PCP

Figure 3. Best Practice Advisory Coordination: Incidental Lung Nodule Workflow



notification. These templates provide guidance and scripting for staff during patient calls, which expedite efficient documentation in the EHR.

- A “DSS Smart Set” with note templates for documentation of initial and surveillance treatment plans that provide quick, consistent, and efficient care when initiating a treatment plan. Once the Smart Set is opened, the diagnosis, follow-up imaging,

medications, and referrals are available for ordering with a simple click.

- Best practice advisories to facilitate and communicate clear recommendations for next steps to the ordering provider, helping to avoid inappropriate testing. Radiologists electronically deploy these advisories when incidental lung nodules are found in an imaging study (Figures 1 and 2, on page 40).

- Letter templates in English and Spanish to communicate with patients and PCPs. The templates feature drop-down menus that include reminders for scheduling overdue CT chest scans, completion of surveillance, discharge from the program, and (if eligible) referrals to the LDCT program.
- A secure group chat, “WSH [WellSpan Health] Diagnostic Support Specialists,” so that any provider within WellSpan Health can reach out to Diagnostic Support Specialists (through the EHR) with any questions or concerns.

### Clinical Follow-up

Diagnostic Support Specialists created treatment follow-up algorithms based on the Fleischner Society’s guidelines. Vetted annually by the Diagnostic Physician Advisory Team, these algorithms improve the provider experience by enabling access to a pathway for well-coordinated care.

### Metrics

Diagnostic Support Specialists created a patient registry to capture demographic and clinical data, PCP affiliation, and malignancy

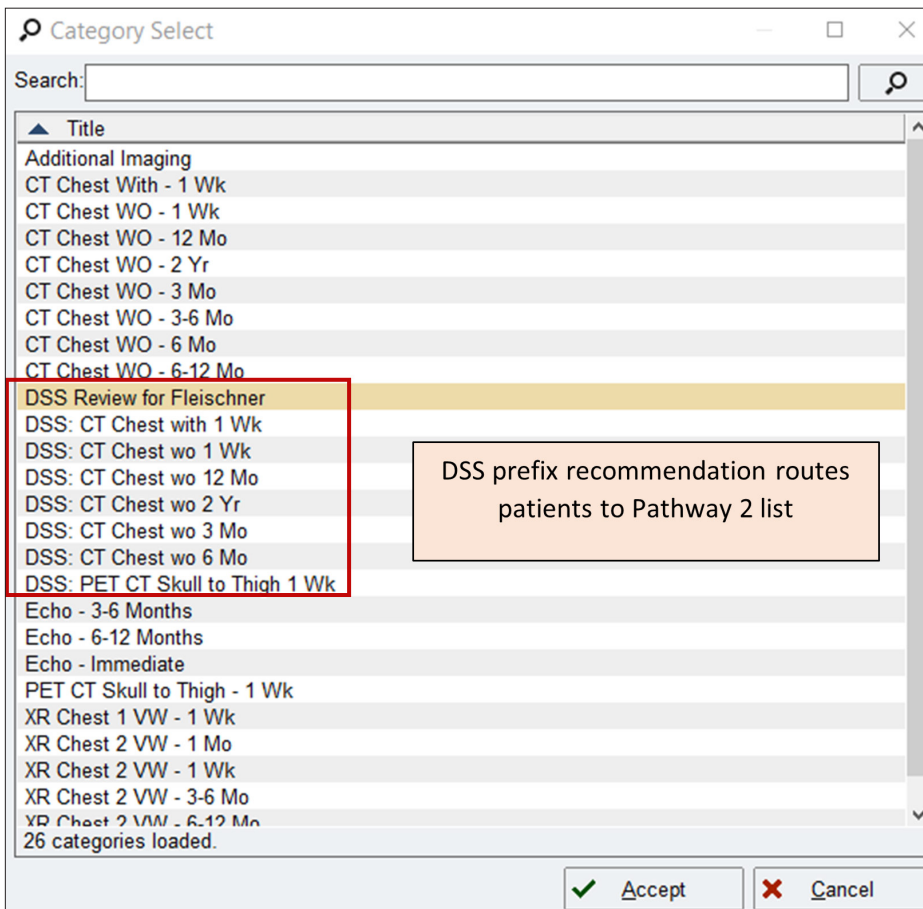
risk score. Three reports in the registry track and quantify patients and capture practice metrics for those under surveillance by Diagnostic Support Specialists and those referred to specialists for high-risk work up.

A diagnostic-risk Excel spreadsheet maps the patient’s journey, capturing the time from initial CT scan sign date to referral to Diagnostic Support Specialists, pretesting and consult completion, and, lastly, final diagnosis. The spreadsheet helped establish baseline metrics and identify areas where resources are needed to optimize lung nodule care within the healthcare system.

### Education and Implementation of Incidental Lung Nodule Workflow

Once Diagnostic Support Specialists established a workflow process, patient care delivery options were explored. Diagnostic Support Specialists deemed telehealth options viable as they are convenient for patients, while also allowing providers to establish a patient relationship and provide quality lung nodule care. In collaboration with WellSpan Health Marketing, Diagnostic Support Specialists developed a systemwide plan to educate key

Figure 4. Follow-up Recommendation Options Available for Radiologists



players and end users, who would receive help from this new lung nodule care delivery model. A computer-based module educated radiologists on how to tag a study to start follow-up through Diagnostic Support Specialists algorithm. Through a coordinated and deliberate rollout plan, Diagnostic Support Specialists introduced its workflow to primary care practices. PCP feedback was then used to refine the workflow (Figure 3, page 41), and the initiative went live in late 2019.

### Evidence-Based Care in Real Time

This novel care delivery model uses technology to align the clinical workflow of the radiologist, CRNP, ordering provider, and PCP to communicate incidental lung nodule findings in real time and provide evidenced-based guidance on next steps in patient management.

#### Step 1. Image Study Completed

The lung nodule workflow begins when an individual obtains an imaging study at any WellSpan Health location.

#### Step 2. Radiologist identification and electronic notification to ordering provider and Diagnostic Support Specialists

The radiologist is critical to the initiation of this workflow. If a lung nodule is found incidentally, the radiologist will identify:

1. The acuity of the study as “incidental”
2. The finding as a “lung nodule or suspected lung nodule”
3. An appropriate “recommendation” for follow-up imaging study.

All three steps must be completed to initiate the Diagnostic Support Specialists workflow.

The radiologist signing the study immediately triggers an electronic best practices advisory notification—with clear recommendations based on clinical guidelines—that is sent to the ordering provider, and the patient is categorized into one of two work lists at Diagnostic Support Specialists.

#### Step 3. Lung Nodules Routed to Diagnostic Support Specialists

The type of study and recommendation for follow-up determines which worklist the patient will populate. Lung nodules identified on non-CT chest studies are routed to pathway 1; lung nodules confirmed on a CT chest are routed to pathway 2. Recommendations with a “Diagnostic Support Specialists: recommendation” prefix route patients to the pathway 2 worklist for CRNP review (Figure 4, page 42).

#### Step 4. Pathway 1 Worklist

For non-CT chest findings, the radiologist marks the finding as incidental lung nodule, or suspected lung nodule, with a recommendation of a “CT chest w/o [without contrast] in 1 week” (Figure 5, below). An electronic best practice advisory notification and preliminary order for nodule confirmation on a CT chest is then sent to the ordering provider (Figure 1, page 40). Simultaneously, the identified patient is routed to the pathway 1 recommendation work list. Program assistants and nurses at Diagnostic Support Specialists monitor this worklist in the EHR to confirm that the ordering provider or PCP is notified. Because Diagnostic Support Specialists has limited EHR access to patients being

Figure 5. Radiologists Workflow to Initiate Pathway 1

X-ray chest 1 view, Exam date: 10/26/2022

Findings & Recommendations

Lung nodule or suspected lung nodule, not clearly benign - Completed after 48m 32s ✕

Incidental

Result acuity: Critical Significant: Delay MyWellSpan Significant **Incidental** Non-Significant None

Finding: Lung nodule or suspected lung nodule, not clearly benign

Patch in Physician Lung nodule or suspected lung nodule, not clearly benign

Finding comment:

Recommendation: CT Chest WO - 1 Wk

XR Chest 1 VW - 1 Wk XR Chest 2 VW - 1 Wk CT Chest With - 1 Wk **CT Chest WO - 1 Wk**

Specify Additional Imaging

+ Add Additional

Figure 6. Radiologist Workflow to Initiate Pathway 2

The screenshot shows a web-based interface titled "Findings & Recommendations". At the top, it says "Finding - Incidental 72h 00m remaining" with a close button. Below this, there are several sections: "Result acuity:" with buttons for "Critical", "Significant: Delay MyWellSpan", "Significant", "Incidental" (which is highlighted in blue), "Non-Significant", and "None"; "Finding:" with a dropdown menu showing "«Non-specific finding»" and a search icon, and a text box containing "Lung nodule or suspected lung nodule, not clearly benign"; "Finding comment:" with a large empty text area; and "Recommendation:" with a dropdown menu showing "DSS: CT Chest w/o 12 Mo" and a search icon, and a button labeled "Specify Additional Imaging". At the bottom right, there is a green button with a plus sign and the text "Add Additional".

treated by independent and/or out-of-network providers, a letter is sent to the PCP for follow-up on the same day the CT is routed to Diagnostic Support Specialists.

WellSpan Health’s medical providers are given one week to use the best practice advisory for lung nodule follow-ups that are routed to them. If no action is taken within seven days, Diagnostic Support Specialists sends a courtesy reminder to WellSpan Health’s medical group PCPs. If a patient has no PCP, Diagnostic Support Specialists’ CRNP orders follow-up testing for lung nodule confirmation.

### Step 5. Pathway 2 Work List

For confirmed nodules on CT chest scans, the radiologist marks the finding as incidental lung nodule or suspected lung nodule with the recommendation of “Diagnostic Support Specialist CT chest w/o [without contrast] in X months.” The follow-up timeframe adheres to the Fleischner Society’s guidelines (Figure 6, above). When the radiologist signs the image report, a best practice advisory is immediately sent to the ordering provider to inform them that a “Diagnostic Support Specialists’ CRNP is reviewing the study and follow-up action will be communicated” (Figure 2, page 40).

Concurrently, the patient’s CT chest results are sent to the Diagnostic Support Specialists pathway 2 worklist. The nature of the finding and a protocol-based approach determines if follow-up is needed and what action is taken by Diagnostic Support Specialists. The CRNP acts on any new incidental lung nodules found on CT chests scans for patients with WellSpan Health medical group providers. To ensure that no patients are lost to follow-up, the Diagnostic Support Specialists treatment plans are sent to the PCPs, so they can assist with coordination of care when necessary. Diagnostic Support Specialists’ services are offered to WellSpan Health independent providers; treatment plans are initiated upon receipt of referral. For patients with out-of-network providers,

Diagnostic Support Specialists sends a courtesy letter to the PCP, so they can provide the needed follow-up.

Diagnostic Support Specialists’ services encompass all steps following discovery of an incidental nodule, from scheduling to obtaining prior authorizations and monitoring patients to ensure that CT surveillance and specialty referrals are completed.

### Step 6. Patient Notification

All patients with new lung nodules confirmed via CT chest scans completed at a WellSpan Health facility—regardless of PCP affiliation—are called within two business days. Video visits are available upon request. If unable to notify patients via telephone, Diagnostic Support Specialists will use WellSpan Health’s patient messaging or mail to relay this information.

If a patient needs to speak to someone right away, a radiologist inserts a statement in the image impression report with a contact number to call Diagnostic Support Specialists directly. As the 21st Century Cures Act requires immediate release of patient information,<sup>20</sup> the ability to contact Diagnostic Support Specialists directly offers access to a medical professional immediately when a patient with a lung nodule finding may be particularly anxious.

Regardless of where in WellSpan Health’s service area the imaging study occurs, this novel approach allows patients to be monitored through transitions of care, minimizing loss to follow-up. If a patient has no PCP, Diagnostic Support Specialists will assume care and provide follow-up as clinically indicated. This approach facilitates the longitudinal surveillance of lung nodules. Subsequent surveillance results are sent directly to the CRNPs, ensuring the lung nodules are not lost to follow-up.

(Continued on page 46)



Figure 7. CT Sign Date to Positron Emission Tomography (PET) Scan

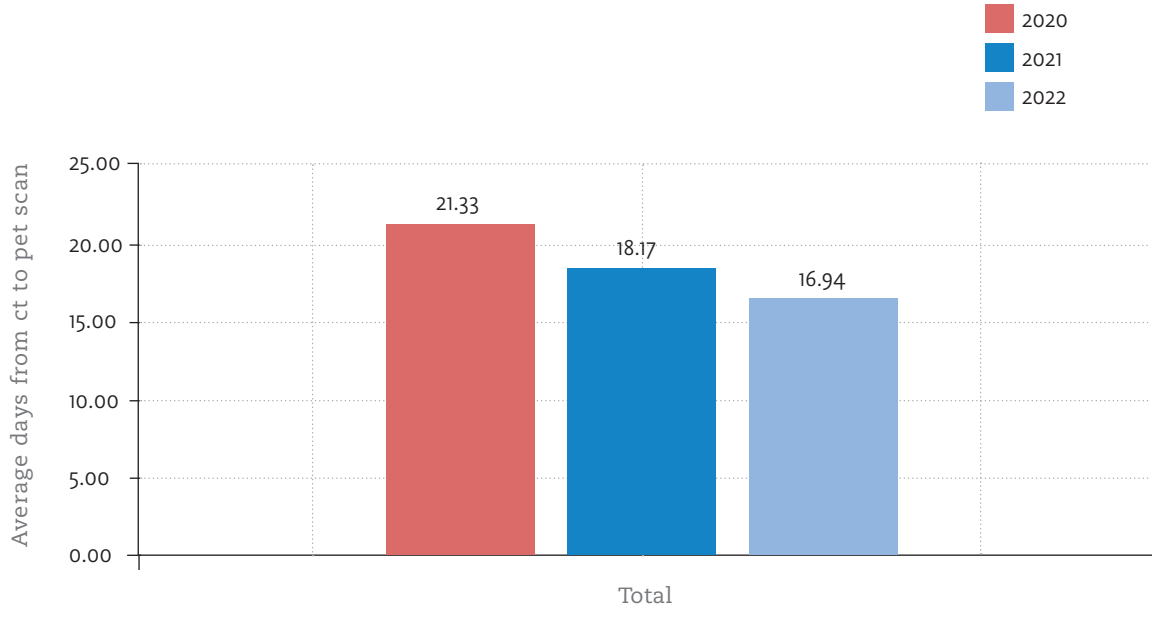
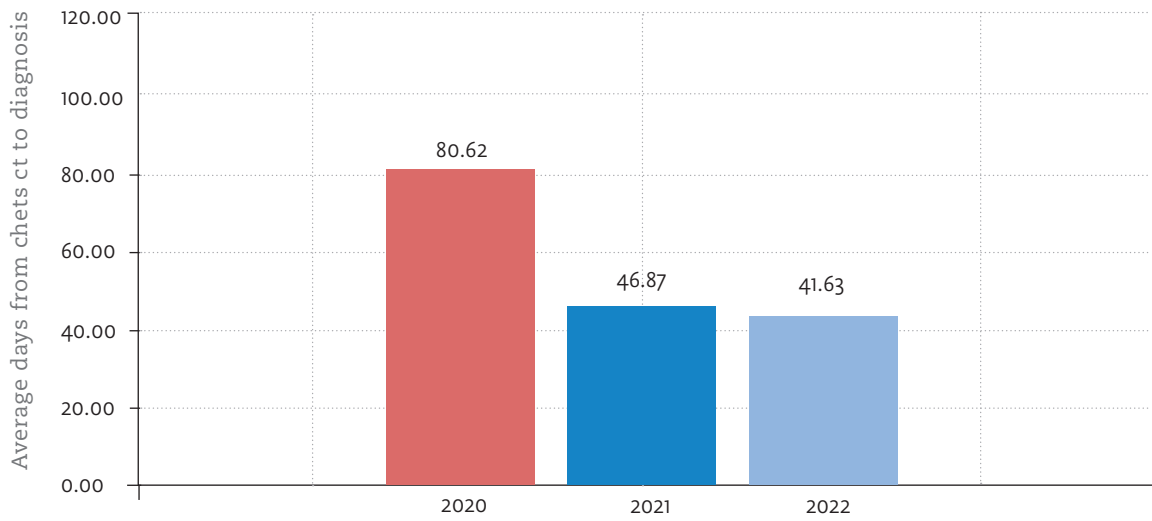


Figure 8. CT Sign Date to Diagnosis



(Continued from page 44)

### Challenges Faced

Inadequate smoking history was a significant barrier to implementing an appropriate treatment plan across the continuum. Diagnostic Support Specialists developed and implemented standard documentation pertinent to obtaining an accurate pack-year history and ensured this information was updated at each patient encounter. Collection of this data was a clinical quality metric, and Diagnostic Support Specialists surpassed the goal, achieving a score of 98 percent completion.

**This care delivery model identifies, implements, and expedites patient lung nodule care in real time and provides consistent follow-up along the continuum of care.**

Accurate documentation of smoking history is foundational—not only to the success of Diagnostic Support Specialists but to patients’ care going forward. Once a patient completes lung nodule surveillance, Diagnostic Support Specialists sends a letter to the patient and their PCP. The patient is informed of their eligibility for future lung cancer screening, and a best practice advisory is set up to trigger ongoing lung cancer screening by the PCP. This simple intervention can significantly impact the identification of lung cancer in these high-risk patients.

Another challenge encountered is when outside radiologists’ (or nighthawks) read WellSpan Health studies. Because these reads are not captured in the EHR, the incidental lung nodule workflow is not triggered. To overcome this challenge, the Diagnostic Support Specialists use artificial intelligence in the form of a Human-in-the-Loop machine learning framework to programmatically identify incidental findings in the narratives of reports signed by outside radiologists. This process was a gap measure until 2022, when the imaging service line implemented a tool within the EHR to capture these outside images.

### Outcomes and Next Steps


More than 900 patients are currently under lung nodule surveillance by Diagnostic Support Specialists, with 235 patients under high-risk surveillance or diagnostic work-up. The implementation of Diagnostic Support Specialists’ workflow has positively impacted the time from CT sign date to final diagnosis.

This care delivery model allowed Diagnostic Support Specialists to achieve a 20 percent reduction from baseline CT sign date to pretesting order completion prior to specialty consult (Figure 7, page 45). Forty patients have undergone a diagnostic procedure. Twenty-seven patients have been diagnosed with lung cancer; 50

percent of those were found at an early stage. The average time from CT sign date to diagnosis decreased by approximately 50 percent since the inception of Diagnostic Support Specialists practice (see Figure 8, page 45). Of the 27 patients with initial CT chest scans, 10 occurred in the hospital and 1 patient had no PCP. These vulnerable patients were at particular risk of being lost to follow-up if not for the workflows developed by Diagnostic Support Specialists.

The ability to diagnose patients at an early stage is greatly enhanced when LDCT and incidental lung nodule programs are used in tandem. Our next step is to formalize the transition of eligible Diagnostic Support Specialists patients into the WellSpan Health LDCT program.

### Final Thoughts

This care delivery model identifies, implements, and expedites patient lung nodule care in real time and provides consistent follow-up along the continuum of care. Thus, patient outcomes are optimized by early intervention of undiagnosed lung cancer. This novel care delivery model for incidental lung nodule findings can serve as a springboard for other incidental findings and help detect other early carcinomas. 

*Linda Farjo, MSN, CRNP, FNP-C, OCN, is Diagnostic Support Specialists: Clinical Co-lead; Sedney Pabon, MSN, CRNP, FNP-C, OCN, is Diagnostic Support Specialists: Clinical Co-Lead; and Nikhilesh Korgaonkar is Vice President, WellSpan Health System and Chief Medical Officer, WellSpan Cancer Institute, York, Pa.*

*The authors would like to thank Catherine Kelly, MLS, for helping to edit this article.*

### References

1. National Cancer Institute Surveillance, Epidemiology, and End Results Program. Cancer stat facts: lung and bronchus cancer. Accessed February 8, 2023. <https://seer.cancer.gov/statfacts/html/lungb.html>
2. LeMense GP, Waller EA, Campbell C, et al. Development and outcomes of a comprehensive multidisciplinary incidental lung nodule and lung cancer screening program. *BMC Pulm Med.* 2020; 20(1):115. doi: 10.1186/s12890-020-1129-7
3. US Preventive Services Task Force, Krist AH, Davidson KW, et al. Screening for lung cancer: US Preventive Services Task Force recommendation statement. *JAMA.* 2021;325(10):962-970. doi: 10.1001/jama.2021.1117
4. VanDewater K. Incidental lung nodule program spots early lung cancer more often than low-dose CT. Published June 26, 2021. Accessed Feb.8, 2023. <https://www.healio.com/news/hematology-oncology/20210625/incidental-lung-nodule-program-spots-early-lung-cancer-more-frequently-than-lowdose-ct>

5. Stenger M. Lung cancer diagnosis with low-dose CT screening and a program for management of incidentally detected lung nodules. Published March 21, 2022. Updated March 21, 2022. Accessed February 8, 2023. <https://ascopost.com/news/march-2022/lung-cancer-diagnosis-with-low-dose-ct-screening-and-a-program-for-management-of-incidentally-detected-lung-nodules/>
6. Osarogiagbon RO, Liao W, Faris NR, et al. Lung cancer diagnosed through screening, lung nodule, and neither program: a prospective observational study of the Detecting Early Lung Cancer (DELUGE) in the Mississippi Delta cohort. *J Clin Oncol*. 2022;40(19):2094-2105. doi: 10.1200/JCO.21.02496
7. Mazzone PJ, Lam L. Evaluating the patient with a pulmonary nodule: a review. *JAMA*. 2022;327(3):264-273. doi: 10.1001/jama.2021.24287
8. Lee JS, Lisker S, Vittinghoff E, et al. Follow-up of incidental pulmonary nodules and association with mortality in a safety-net cohort. *Diagnosis (Berl)*. 2019;6(4):351-359. doi: 10.1515/dx-2019-0008
9. Sloan CE, Chadalavada SC, Cook TS, et al. Assessment of follow-up completeness and notification preferences for imaging findings of possible cancer. *Acad Radiol*. 2014;21(12):1579-1586. doi: 10.1016/j.acra.2014.07.006
10. Office for Civil Rights. Health information technology. Updated December 23, 2022. Accessed February 8, 2023. <https://www.hhs.gov/hipaa/for-professionals/special-topics/health-information-technology/index.html>.
11. Wallask S. Health IT (health information technology). Updated June 2018. Accessed February 8, 2023. <https://www.techtarget.com/searchhealthit/definition/Health-IT-information-technology>
12. Blumenthal D. Implementation of the federal health information technology initiative. *N Engl J Med*. 2011;365(25):2426-2431. doi: 10.1056/NEJMSr1112158. PMID: 22187990.
13. Lim PS, Schneider D, Sternlieb J, et al. Process improvement for follow-up radiology report recommendations of lung nodules. Published 2019. Accessed Feb.8, 2023. <https://bmjopenquality.bmj.com/content/bmjqr/8/2/e000370.full.pdf>
14. Wandtke B, Gallagher S. Reducing delay in diagnosis: multistage recommendation tracking. *AJR Am J Roentgenol*. 2017;209(5):970-975. doi: 10.2214/AJR.17.18332
15. Loverdos K, Fotiadis A, Kontogianni C, et al. Lung nodules: a comprehensive review on current approach and management. *Ann Thorac Med*. 2019;14(4):226-238. doi: 10.4103/atm.ATM\_110\_19
16. Siegmund LA, Hamilton A, Nespeca T. Incidental findings coordinator: a new role for advanced practice registered nurses. Published April 16, 2020. Accessed February 8, 2023. <https://doi.org/10.3912/OJIN.Vol25No02PPT5422>
17. Feeley D. The triple aim or the quadruple aim? Four points to help set your strategy. Published November 28, 2017. Accessed February 8, 2023. <https://www.ihl.org/communities/blogs/the-triple-aim-or-the-quadruple-aim-four-points-to-help-set-your-strategy>
18. MacMahon H, Naidich DP, Goo JM, et al. Guidelines for management of incidental pulmonary nodules detected on CT images: from the Fleischner Society 2017. *Radiology*. 2017;284(1):228-243. doi: 10.1148/radiol.2017161659
19. Lane E, Woodrow L, Choi E. Incidental pulmonary nodules (IPN): hardwire IPN findings and management to support lung cancer detection efforts. Published January 24, 2022. Accessed February 8, 2023. <https://www.advisory.com/sponsored/ipn>
20. The New York District Council of Carpenters Benefit Funds. The 21st Century Cures Act: immediate release of medical test results. Published September 15, 2022. Accessed February 8, 2023. <https://nyccbf.org/the-21st-century-cures-act-immediate-release-of-medical-test-results/#:~:text=This%20is%20due%20to%20a,the%20goal%20of%20the%20law>