Recommended Follow-up Completion Rate

Percentage of patients with an actionable recommendation for lung nodule follow-up, who received timely recommended follow-up.

Measure Purpose	Increase the rate of early cancer diagnosis by tracking completion of recommended follow up for patients with indeterminate pulmonary lung nodules found on imaging exams.
Measure Type	Intermediate outcome
Measure Level	System, Facility, Group, Individual
Measure Rationale	Radiology recommendations are very common, occurring in approximately 10% of all radiology reports. In most health systems, about half of these recommended imaging tests are never performed, placing patients at risk for delayed diagnosis of lung cancer. By improving the rate of lung nodule follow-up with tracking systems, health systems have improved the rate of early cancer diagnosis, reduced medical-legal liability, and generated new imaging revenue sufficient to cover the costs of the tracking systems. Separating the few malignant lung nodules from the many benign nodules using current technology primarily relies on assessment of changes in the anatomic features of lung nodules over time utilizing CT or in some instances x-ray. Performing follow-up imaging too soon will reduce the chances that a malignant lesion has grown large enough to detect a change from the initial examination and may provide the false sense of benign nature. Performing follow-up imaging too late after the recommended due date may delay the diagnosis of lung cancer and potentially negatively impact cancer staging at diagnosis.
Measure Description	Percentage of patients having an actionable recommendation for follow-up of one or more lung nodules who received recommended follow-up within the recommended time interval.
Denominator	Patients having an actionable recommendation for follow-up of one or more lung nodules noted on an imaging exam.
Denominator Exceptions/Exclusions	Recommendations arising from a CT lung screening exam (CPT 71271).
Numerator	Patients who received timely recommended follow up.

Measurement Frequency	Automated evaluation: Review all cases on a weekly basis. Manual evaluation: Review a random sample of minimum 20 cases weekly meeting the denominator. Accurate evaluation of timely follow-up cannot be made until the 60-day post recommendation due date window has closed. Cases for both the numerator and denominator should be obtained from the most recent 7-day period in which all dates fall outside of the 60-day post recommendation due date window.
Definitions	**Actionable recommendation** – A definitive (non-conditional) follow-up recommendation that includes a recommended due date (or acceptable due date range). While providing a recommended imaging modality is best practice, if no recommended imaging modality is provided, it is generally assumed that the recommended follow-up modality is the same as the initial exam from which the recommendation was generated. **Indeterminate lung nodules** – Lung nodules with potential to represent undiagnosed lung cancer, i.e. nodules that are not stable and do not demonstrate clearly benign features. **Clearly benign nodule features** – Complete, central, or ring shaped calcification. Macroscopic fat component. Peri-fissural or juxta-pleural linear or triangular shaped nodules / lymph nodes measuring <1 cm. **Timely follow-up** – Follow-up examination is performed at most 30 days before the recommendation due date and no more than 60 days after the recommendation due date. If a range of acceptable recommendation due dates is provided in the report, the acceptable timely completion ranges from 30 days prior to the shortest end of the recommendation range and 60 days after the longest end of the recommendation range (i.e. for a 6-12 month follow up recommendations, timely follow-up may occur approximately 5-14 months after the initial exam from which the recommendation was made).

Guidance

2017 Fleischner Society Guidelines for Management of Incidentally Detected Pulmonary Nodules

A: Solid Nodules*

Nodule Type	Nodules <6 mm (<100 mm³)	Nodules 6–8 mm (100–250 mm³)	Nodules >8 mm (>250 mm³)	Comments
Single				
Low risk	No routine follow-up	CT at 6–12 mo, then consider CT at 18–24 mo	Consider CT at 3 mo, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A)
High risk	Optional CT at 12 mo	CT at 6–12 mo, then at 18–24 mo	Consider CT at 3 mo, PET/CT, or tissue sampling	Certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-mo follow-up (recommendation 1A)
Multiple				
Low risk	No routine follow-up	CT at 3–6 mo, then consider CT at 18–24 mo	CT at 3–6 mo, then consider CT at 18–24 mo	Use most suspicious nodule as guide to management; follow-up intervals may vary according to size and risk (recommendation 2A)
High risk	Optional CT at 12 mo	CT at 3–6 mo, then at 18–24 mo	CT at 3–6 mo, then at 18–24 mo	Use most suspicious nodule as guide to management; follow-up intervals may vary according to size and risk (recommendation 2A)

B: Subsolid Nodules*

Nodule Type	Nodules <6 mm (<100 mm³)	Nodules ≥6 mm (≥100 mm³)	Comments
Single			
Ground glass	No routine follow-up	CT at 6–12 mo to confirm persistence, then CT every 2 y until 5 y	For certain suspicious nodules <6 mm, consider follow-up at 2 y and 4 y; if solid component(s) develops or growth occurs, consider resection (recommendations 3A and 4A)
Partly solid	No routine follow-up	CT at 3–6 mo to confirm persistence; if lesion is unchanged and solid component remains <6 mm, annual CT should be performed for 5 y	In practice, partly solid nodules cannot be defined as such until they are ≥6 mm, and nodules <6 mm usually do not require follow-up; persistent partly solid nodules with a solid component ≥6 mm should be considered highly suspicious (recommendations 4A–4C)
Multiple	CT at 3–6 mo; if lesion is stable, consider CT at 2 y and 4 y	CT at 3–6 mo; subsequent management based on the most suspicious nodule(s)	Multiple <6-mm pure GGNs† usually are benign, but consider follow-up at 2 y and 4 y in select patients at high risk (recommendation 5A)

Note.—Adapted and reprinted, with permission, from reference 4. These recommendations do not apply to lung cancer screening, patients with immunosuppression, or patients with a known primary cancer.
*Dimensions are the average of long and short axes, rounded to the nearest millimeter.
†GGNs = ground-glass nodules.

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Additional Guidance:
Managing Incidental Findings on Thoracic CT: Lung Findings. A White Paper of the ACR Incidental Findings Committee https://www.jacr.org/article/S1546-1440(21)00376-8/fulltext