Pulmonary Nodules Fleischer 2017 - Incidental (Complete version): (Fleischer 2017 guidance for managing incidental pulmonary nodules on CT (Complete version))

Pulmonary nodules are among the most common incidental findings in the body and determining which nodules require follow-up or intervention can substantially affect risk to the patient and healthcare costs. A landmark paper describing guidelines for managing incidental pulmonary nodules was published by the Fleischner Society in 2005, and was updated in 2017, incorporating multiple new concepts, including differences for managing solid, ground-glass and part-solid nodules and for multiple nodules.

This module incorporates these 2017 guidelines for when to follow patients or refer them for management. These recommendations can be inserted directly into the radiology report. Please note that two versions of this module are available. This module has the user enter specific data into multiple fields and the Findings, Impression, Recommendations, and Citation are available to insert. The alternative module provides a graphic table with clickable cells that are converted to text for the Impression and Recommendations only.

(Ref.: 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;284:228–243. https://doi.org/10.1148/radiol.2017161659)

American College of Chest Physicians (ACCP) risk assessment	
Low clinical risk	Young, less smoking, no prior cancer, smaller nodule size, regular margins, and/or non-upper-lobe location
Unknown clinical risk	No clinical data available
High clinical risk	Older, heavy smoking, prior cancer, larger nodule size, irregular/spiculated margins, and/or upper-lobe location

Reference: Gould MK, Donnington J, Lynch WR, et al. Evaluation of individuals with pulmonary nodules: when is it lung cancer? diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest 2013;143(5 Suppl):e93S–e120S.

Additional detail to assess risk
Emphysema, lung fibrosis
Age (increases with each decade of life)
Family history of lung cancer (factor of 1.5 to 1.8 if sibling affected)
Race (higher in black men and native Hawaiian men)
Smoking (10-35 times higher)
Other inhaled carcinogens (asbestos, uranium, radon)
Nodule features (e.g. upper lobe location, multiplicity, growth rate)

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults

A: Solid Nodules*

	Size			
Nodule Type	<6 mm (<100 mm^3)	6–8 mm (100–250 mm^3)	>8 mm (>250 mm^3)	Comments
Single				
Low risk†	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, 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 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-month follow-up (recommendation 1A).
Multiple				
Low risk†	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	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 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).

B: Subsolid Nodules*

	Size		
Nodule Type	<6 mm (<100 mm^3)	≥6 mm (>100 mm^3)	Comments
Single			
Ground glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules < 6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).
Part solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component remains <6 mm, annual CT should be performed for 5 years.	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components ≥6 mm should be considered highly suspicious (recommendations 4A-4C)
Multiple	CT at 3–6 months. If stable, consider CT at 2 and 4 years.	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s).	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).

Note.—These recommendations do not apply to lung cancer screening, patients with immunosuppression, or patients with known primary cancer.

* Dimensions are average of long and short axes, rounded to the nearest millimeter.

† Consider all relevant risk factors (see Risk Factors).