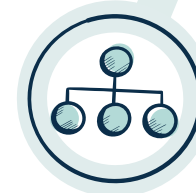


Supporting resource

Identification of suitable guidelines for an IPN management programme



Choosing appropriate guidelines is one of the most important early decisions in establishing an incidental pulmonary nodule (IPN) programme – they shape its design, delivery and day-to-day operation. Guidelines strike a **balance between minimising overdiagnosis and unnecessary medicalisation while ensuring people with IPNs receive timely, appropriate follow-up care**. Guidelines vary in their nodule measurement thresholds, follow-up intervals and measurement techniques, among other elements. **Not all guidelines are applicable in all settings**, and variations in population demographics and local contexts can inform how guidelines are used and applied.¹

Guidelines rely on clinical judgement, and a **person's risk profile can greatly impact how guidelines are interpreted**. Some nodule types and sizes may not require follow-up in certain people, but personal risk factors (such as smoking history, age, sex, family history of lung cancer, location of the nodule, comorbidities, occupational exposures) can mean a more considered approach is taken.²

The **below table outlines some of the principal management guidelines for singular nodules**, and highlights some of the different approaches they take. You can use this to consider **which guidelines would be best for your IPN programme, and to guide programme design**. When comparing guidelines, consider how well each fits your population's risk profile, whether your workforce and imaging capacity can support its follow-up intervals, and how its measurement approach aligns with your available technology.

The guidelines are extensive and the table below does not include all information; please refer to the guidelines in full to support your assessment.

Guidelines	Age threshold	Cancer risk threshold	Nodule type	Size threshold	Follow-up	Nodule measurement approach
<i>Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images.</i> Published in 2017 by the Fleischner Society, an international, multidisciplinary society for thoracic radiology.²	≥35 years	Low-risk nodules are defined as having <5% malignancy risk (calculated based on smoking, history, exposure to carcinogens, presence of emphysema, presence of fibrosis, upper lobe location, family history of lung cancer, age and sex).	Low-risk solid	<6mm (<100mm ³)	No routine follow-up.	Average nodule diameter.
				6–8mm (100–250mm ³)	Computed tomography (CT) scan between 6 and 12 months, then consider another CT scan between 18 months and 2 years.	
				>8mm (>250mm ³)	Consider CT scan at 3 months, a positron emission tomography (PET)/CT scan and/or tissue sampling.	
			High-risk solid	<6mm (<100mm ³)	Optional CT scan at 12 months.	
				6–8mm (100–250mm ³)	CT scan between 6 and 12 months, then again between 18 months and 2 years.	
				>8mm (>250mm ³)	Consider CT scan at 3 months, a PET/CT scan and/or tissue sampling.	
			Ground glass	≥6mm (>100mm ³)	CT scan between 6 and 12 months to confirm growth rate; then CT scan after 2 years and 4 years.	
			Part solid	≥6mm (>100mm ³)	CT scan between 3 and 6 months to confirm growth rate. If no growth, then annual CT scans should be done for 5 years.	

Guidelines	Age threshold	Cancer risk threshold	Nodule type	Size threshold	Follow-up	Nodule measurement approach
<i>BTS Guidelines for the Investigation and Management of Pulmonary Nodules.</i> Published in 2015 by the British Thoracic Society, a professional society representing respiratory specialists in the UK.^{3,4} These are the only guidelines that can be used for people with known malignancies or pre-existing diseases that cause immunosuppression.	≥18 years	People are considered having a low-risk nodule if their risk of malignancy is <10% using the Brock model (although it is noted that younger patients with a large nodule but a lower risk score should have PET/CT follow-up due to the Brock model being developed for 50- to 75-year-olds).	Solid	<5mm (<80mm ³)	No routine follow-up.	The guidelines recommend using volumetry as best practice, but maximum nodule diameter can be used if volumetry is not possible.
				5–6mm	CT scan at 1 year; consider further surveillance (or biopsy and/or work-up) if the nodule is growing at a rate where it is estimated to double in volume in <600 days.	
				≥6mm (≥80mm ³)	CT scan at 3 months. Repeat a CT scan after 9 months if the nodule is not growing; if it is growing, consider further work-up.	
			Low-risk solid	>8mm (>300mm ³)	CT scan at 3 months. Repeat a CT scan after 9 months if the nodule is not growing; if it is growing consider further work-up.	
			High-risk solid	>8mm (>300mm ³)	Repeat PET/CT and use Herder model to recalculate malignancy risk. If risk is <10%, CT scan at 3 months; if the nodule is not growing, repeat a CT scan after 9 months; if it is growing, consider further work-up. If risk is 10–70%, consider biopsy and/or additional work-up and surveillance. If risk >70%, consider resection.	
			Sub-solid (including ground glass and part solid)	<5mm	No follow-up.	
				>5mm	CT scan at 3 months. Consider resection if the nodule is growing; if it is stable and low-risk, repeat CT scan after 1, 2 and 4 years. If the nodule is stable but high-risk, consider biopsy and/or resection as well as surveillance CT scans.	

Guidelines	Age threshold	Cancer risk threshold	Nodule type	Size threshold	Follow-up	Nodule measurement approach
<i>Prävention, Diagnostik, Therapie und Nachsorge des Lungenkarzinoms</i> [Prevention, diagnosis, treatment and follow-up of lung cancer]. Originally published in 2018, and updated in 2026, by Leitlinienprogramm Onkologie – a joint venture of the German Association of Scientific and Medical Societies, the German Cancer Society and German Cancer Aid, who promote and support the development of evidence-based guidelines in oncology. These provide broader recommendations for the prevention, diagnosis, treatment and follow-up of lung cancer, with a subsection for the management of IPNs.⁵	>18 years	People are considered having a low risk nodule if their risk of malignancy is <10% using the Brock model.	Solid	<5mm (<80mm ³)	No follow-up.	Average nodule diameter.
				≥5mm to ≤8mm (≥80mm ³ to ≤250mm ³)	CT scan at 3 months, between 6 and 12 months, and between 18 months and 2 years; discharge if <25% growth per year.	
				≥6mm (≥80mm ³)	CT scan at 3 months. Repeat a CT scan after 9 months if the nodule is not growing; if it is growing, consider further work-up.	
			Low-risk solid	>8mm to <30mm (>250mm ³)	CT scan at 3 months, between 6 and 12 months, and between 18 months and 2 years; discharge if <25% growth per year.	
			High-risk solid	>8mm to <30mm (>250mm ³)	Follow-up PET/CT scan and calculate malignancy risk using Herder model. If risk <10%, CT scan at 3 months, between 6 and 12 months, and between 18 months and 2 years; discharge if <25% growth per year. If risk 10–70%, consider biopsy. If risk >70%, consider resection.	
			Sub-solid (including ground glass and part solid)	>5mm (>80mm ³)	CT scan at 3 months. If nodule is still present use risk calculation (age, smoking status, history of lung cancer, nodule morphology) to decide care. If low risk, annual CT scans needed for 3–5 years. If high risk or growing, consider work-up.	

Guidelines	Age threshold	Cancer risk threshold	Nodule type	Size threshold	Follow-up	Nodule measurement approach
<i>Evaluation of Individuals with Pulmonary Nodules: Diagnosis and Management of Lung Cancer.</i> Published in 2013 by the American College of Chest Physicians, a medical association for healthcare providers who specialise in chest medicine.^{6,7}	n/a	People are considered having a low-risk nodule if their risk of malignancy is <5% using the Mayo Clinic model.	Low-risk solid	≤4mm	Follow-up optional.	Maximum nodule diameter.
				>4mm to ≤6mm	CT scan at 12 months; discharge if stable.	
				>6mm to <8mm	CT scan between 6 and 12 months; repeat CT scan between 18 months and 2 years if stable.	
				≥8mm to ≤30mm	Repeat CT scan at 3, 6, 9, 12, 18 months and 2 years.	
			High-risk solid	≤4mm	CT scan at 12 months; discharge if stable.	
				>4mm to ≤6mm	CT scan between 6 and 12 months. Repeat CT scan between 18 months and 2 years if stable.	
				>6mm to <8mm	CT scan between 3 and 6 months. Repeat between 9 and 12 months, and at 2 years if stable.	
				≥8mm to ≤30mm	Consider biopsy or surgical diagnosis/resection.	
			Ground glass	≤5mm	No follow-up.	
				>5mm	Annual CT scan for at least 3 years.	
			Part solid	≤8mm	CT scan at 3 and 12 months, and 2 years, followed by annual CT scans for 1 to 3 years.	
				>8mm	CT scan at 3 months, consider PET, biopsy and/or resection.	

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