

Madigan Army Medical Center

Referral Guidelines

Solitary Pulmonary Nodule to include Multiple Pulmonary Nodules

Diagnosis/Definition

A Solitary Pulmonary Nodule (SPN) is a rounded radiographic density of 3 cm or less in diameter surrounded by pulmonary parenchyma and is often asymptomatic. Most pulmonary nodules are found incidentally; i.e. a CT scan was obtained for other clinical reasons and the pulmonary nodule was discovered during the course of this evaluation. As these lesions may represent early bronchogenic carcinoma, their timely management is important. A SPN is a lesion that has distinct borders and is not a ground glass opacity which requires different management. The terminology “solitary pulmonary nodule” focuses on the dominant or largest nodule; however, in many patients there may be multiple pulmonary nodules. Multiple pulmonary nodules, in the absence of known malignancy are almost always due to an infectious process. They required evaluation similar to a SPN. The ongoing management of these cases is determined in almost all instances by the largest nodule.

Initial Diagnosis and Management

- History: to include smoking status, diagnosis of chronic obstructive pulmonary disease, TB/fungal risks and occupational exposures.
- Physical exam.
- Evaluation process for the chest radiograph (CXR) or CT Scan: Search for old CXR/CT Scans of the Chest for comparison with current film (this step often saves an unnecessary work-up)
- If lesion is stable in size for 2 or more years, or is clearly calcified in a benign pattern, the probability of malignancy is very low, and no further evaluation or follow-up is mandatory.
- If the lesion is new and found on CXR an ASAP CT Scan should be ordered prior to any referrals.
- If lesion is a new 8 mm or larger lesion or enlarging, a Consult to the Pulmonary Service is required. Lesions smaller than 8 mm in low risk patients (see page 2) can be managed by the PCM according to the guidelines below.
- For lesions that are 4 mm to less than 8 mm they should be managed according to the Fleischner criteria. The web link for the Fleischner criteria is: <http://www.med.umich.edu/rad/res/Fleischner-nodule.htm> and they are annotated at the bottom of the Radiology Report.

Nodule Size (mm)	Low Risk Patient*	High Risk Patient**
≤ 4 mm	No follow-up needed	Follow-up CT at 12 months, if unchanged, no further follow-up
>4-6 mm	Follow-up CT at 12 months, if unchanged, no further follow-up	Initial follow-up at 6-12 mo then at 18-24 mo if no change
>6-8 mm	Initial follow-up at 6-12 mo then at 18-24 mo if no change	Initial follow-up CT at 3-6 mo then at 9-12 mo and 24 mo if no change***
>8 mm	Follow-up CT around 3, 9 and 24 mo, PET scan and/or biopsy***	Same as for low risk patient***

Note: Newly detected indeterminate nodule in persons 35 years of age or older

***Minimal or absent history of smoking or other risk factors for lung cancer**

****History of smoking or other known risk factors for lung cancer**

*****Patients in these categories should have a consultation for Pulmonary Medicine**

Ongoing Management and Objectives

- To ensure timely, consistent follow up of pulmonary nodules.
- Madigan Nodule Case Management:
 - Currently maintained by Ms. Martha Race
 - Tracks all pulmonary nodules which are found on CT scans at Madigan
 - Notifies Primary Care Managers when patients assigned to them are found to have an incidental nodule on a CT scan (this CT scan may have been ordered by other Madigan Care Portals, such as the Emergency Department).
 - Provides a quarterly list of patients who require on-going management of their pulmonary nodules.
 - Providers are responsible for reviewing quarterly lists and sending Outlook Email to Ms. Martha Race regarding review and management of nodule; i.e. nodule stable, follow up CT scan ordered for 1 year with date; nodule with long-term stability, discharge from nodule data base.
- Prompt referral for further evaluation and management of lesions that are progressive or new

Indications for Specialty Care Referral

- All pulmonary nodules 8 mm in size or greater or those that are 6 mm in size or greater in higher risk patients.

- Risk factors include:
 - Increasing age (especially > 40 years).
 - Prior smoking history > 10 pack/years.
 - Chronic obstructive pulmonary disease.
 - Concurrent interstitial lung disease.
 - Asbestos exposure.

Criteria for Return to Primary Care

- Nodules that do not meet referral criteria for Pulmonary Medicine will be managed by the patient's primary care manager with tracking through Madigan Nodule Case Management.
- Patients with nodules determined to be benign or of sufficient stability by Pulmonary Medicine will be referred back to their primary care manager, noting no further follow-up of the nodule is required.
- For patients in whom the lesion was resected, follow-up will be maintained in Pulmonary for varying lengths of time for this issue only. After these patients are released from Pulmonary in these cases, generally no special follow up is required.

Last Review for this Guideline: February 2012

Referral Guidelines require review every three years.

Maintained by the Madigan Army Medical Center - Quality Services Division
Clinical Practice and Referral Guidelines Administrator