

# Utility of PET-CT for nodal staging in a lung cancer screening cohort: the SUMMIT study

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## INTRODUCTION

Lung cancer screening with annual low-dose CT (LDCT) allows early diagnosis in high-risk asymptomatic individuals, with subsequent reduction in lung cancer mortality (1, 2).

Positron emission tomography/computed tomography (PET-CT) is routinely used as a non-invasive method of mediastinal nodal staging of confirmed lung cancers, and exclusion of metastases in suspected early-stage clinically detected lung cancer; however, its role has yet to be fully evaluated in a screening cohort.

## METHODS

The SUMMIT Study (NCT03934866) aims to assess implementation of LDCT lung cancer screening in a high-risk population and validate a multi-cancer early detection blood test.

Participants with suspected malignant nodules were referred for further investigation, and outcomes captured via study and National Cancer Registry databases and patient record review. Provisional TNM 8th edition nodal stage on PET-CT was compared to nodal outcome, with pathological staging as gold standard; clinical staging and CT follow-up (>6 months) were used for non-surgical cases.

## DISCUSSION

We demonstrate a low sensitivity and PPV for PET-CT in evaluating nodal disease in screen detected nodules without metastases. This will have a negative impact on the patient, as well as economic implications, and it emphasises the importance of EBUS in accurate staging of lung cancer patients. The full role of PET-CT in the management of screen detected nodules is still to be clarified.

## REFERENCES

1. National Lung Screening Trial Research T, Aberle DR, Adams AM, Berg CD, Black WC, Clapp JD, et al. Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med*. 2011;365(5):395-409.
2. Reduced Lung-Cancer Mortality with Volume CT Screening in a Randomized Trial. H.J. de Koning et al. *N Engl J Med* 2020;382:503-13.

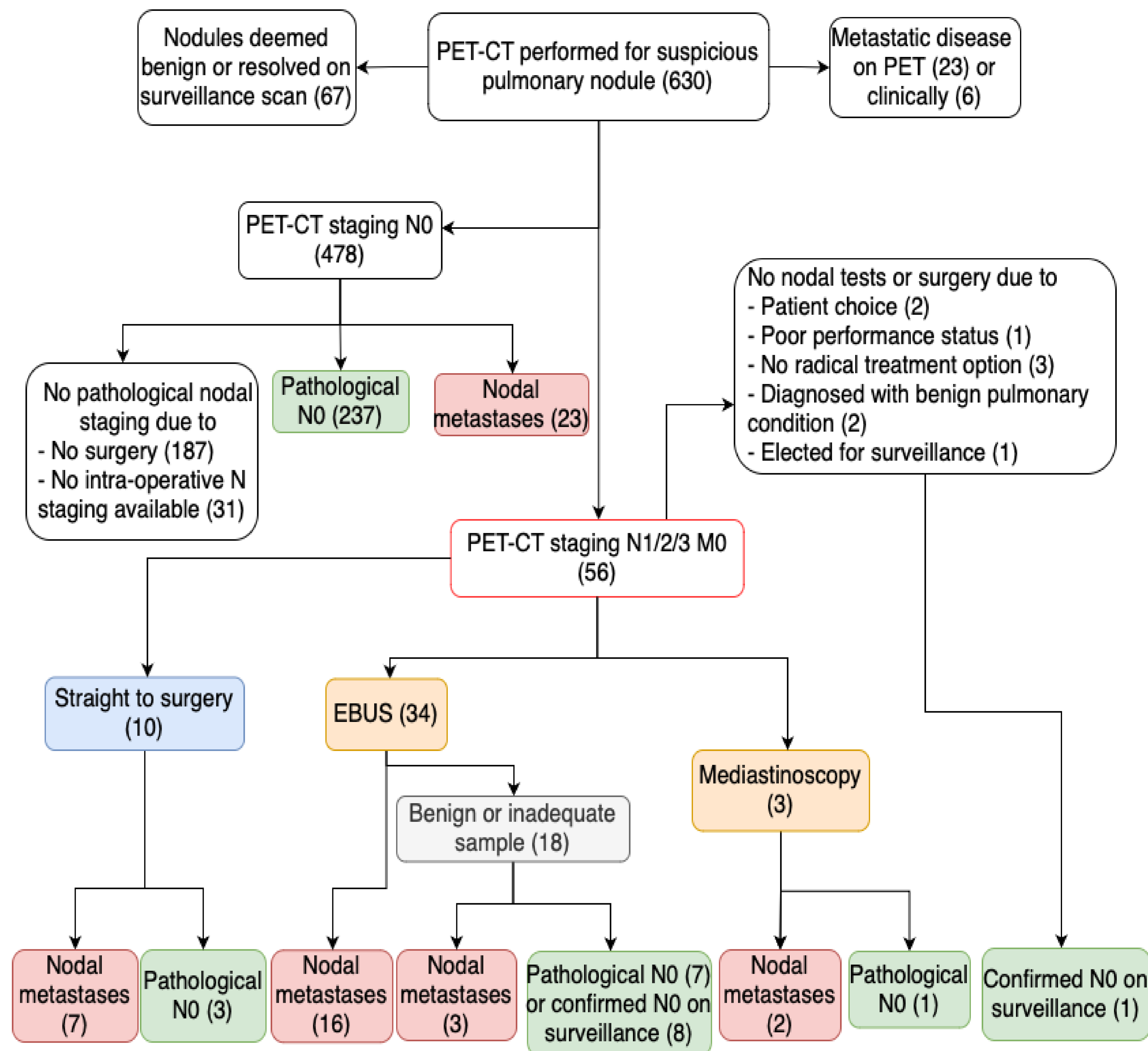


Figure 1. Flowchart of nodal staging for participants undergoing PET-CT for suspected lung cancer.

## RESULTS

We report 630 patients who underwent PET-CT. 26 patients had M1 disease (PET or clinically), leaving 478 who were provisionally staged as N0M0 on PET-CT. 23 of these had confirmed pathological nodal disease. In total, 380/630 (60%) were diagnosed with lung cancer.

Of the 56 consecutive cases with PET positive lymph nodes and M0 staging, 47 (83.9%) were diagnosed with lung cancer, and 40 nodal staging procedures were performed in 37 patients (37 EBUS; 3 mediastinoscopy). Nodal metastases were identified in 28/56 patients (50%) with an overall prevalence of 8% (51/630). The sensitivity, specificity, PPV and NPV of PET-CT in identifying nodal disease was 55%, 96%, 58% and 95% respectively.

