1 Supplementary file 1:

2 CT scan technical conditions and interpretation guidelines

3 A multi-detector CT scanner is required. Unenhanced volumetric acquisition encompassing both lungs

4 from apices to pleural recesses will be performed at full end-inspiration. Native slice thickness less

5 than 0.5 to 0.625 mm and reconstruction of overlapping slices with an overlap between 0-30 % are

6 required. A minimum of two sets of images will be reconstructed with a minimum of 2 reconstruction

7 algorithms, i.e. soft tissue and lung algorithms[1]. A low-dose protocol will be used, but as the

8 definition of a low-dose protocol varies according to the type of scanner and the use of iterative

9 reconstruction algorithms and various algorithms for decreasing dose burden, mainly Automatic

10 Exposure Control (AEC), the Dose-Length-Product (DLP) must be much less than 150 mGy.cm

11 accepted in the NLST trial. Size-specific dose estimate (SSDE) will be calculated for each subject.

12 American College of Radiology (ACR) quality control requirements will be followed[2]. CT scans will be

13 examined by a single senior chest CT radiologist in each centre using at least native axial slices,

14 multiplanar reconstruction and overlapping maximum-intensity-projection (MIP) slabs[3].

15 Nodules will be classified by two-dimensional measurements performed on axial images using lung

16 parenchyma window settings (window level of −600 to −700 HU, window around 1500 HU). When

17 available, previous chest CT scans will be reviewed to facilitate interpretation. The radiologist will fill in

18 a structured CT report form. Interpretation of CT scans will focus on non-calcified lung nodules, but

19 incidental findings will also be reported. All non-calcified measurable nodules will be described and

20 reported on the structured CT report form: anatomical position (side, lobe, slice number, largest axial

21 transverse diameter measured on lung window setting, contour characteristics (regular, spiculated,

22 poorly defined or indeterminate), doubling time when previous examinations are available, attenuation

23 (solid, part-solid, non-solid or pure ground-glass nodules). The size of solid nodules will be determined

24 by measuring the largest diameter and perpendicular diameter on the same slice according to

25 Fleischner society guidelines. [4] In addition, volumetric measurements will be performed according to

26 European paper recommendations derived from British Thoracic Society guidelines. [5, 6] Incidental

27 parenchymal and pleural findings will also be reported on the structured CT report form. Other

28 radiological abnormalities, multiple nodules or masses detected on CT will be referred to the

29 pulmonologist for specific work-up or follow-up.

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