## Appendix E1. Search Queries

| | | |
|---|---|---|
| Search strategy performed in Pubmed, Embase and Cochrane libraries on April 26th 2020* | | |
| 1 | COVID-19 | (novel AND coronavirus) OR (coronavirus AND 2) OR (novel AND coronavirus AND 2019) OR (coronavirus AND disease AND 2019) OR (coronavirus AND disease-2019) OR (coronavirus AND disease-19) OR (coronavirus AND 2019) OR COVID-19 OR COVID19 OR SARS-CoV-2 OR 2019-nCoV OR (2019 AND nCoV) OR (COVID AND 2019) OR COVID-2019 OR (2019 AND nCoV) OR (Wuhan AND coronavirus) OR (Wuhan AND pneumonia) |
| 2 | Ultrasound | Echocardiography OR echocardiogram OR echo OR TTE OR TUS OR echography OR ultrasonography OR ultrasound OR US OR sonography OR sonographic OR sonogram |
| 3 | Chest radiography | x-ray OR CXR OR radiography OR radiographic OR radiogram |
| 4 | Computed tomography | CT OR (computed AND tomography) OR (computerized AND tomography) OR (CT AND scan) OR CT-scan |
| 5 | Imaging | Imaging OR radiology |
| 6 | Final syntax | 1 AND (2 OR 3 OR 4 OR 5) |

* In Title/Abstract.

## PubMed

((novel[Title/Abstract] AND coronavirus[Title/Abstract]) OR (coronavirus[Title/Abstract] AND 2[Title/Abstract]) OR (novel[Title/Abstract] AND coronavirus[Title/Abstract] AND 2019[Title/Abstract]) OR (coronavirus[Title/Abstract] AND disease[Title/Abstract] AND 2019[Title/Abstract]) OR (coronavirus[Title/Abstract] AND disease-2019[Title/Abstract]) OR (coronavirus[Title/Abstract] AND disease-19[Title/Abstract]) OR (coronavirus[Title/Abstract] AND 2019[Title/Abstract]) OR COVID-19[Title/Abstract] OR COVID19[Title/Abstract] OR SARS-CoV-2[Title/Abstract] OR 2019-nCoV[Title/Abstract] OR (2019[Title/Abstract] AND nCoV[Title/Abstract]) OR (COVID[Title/Abstract] AND 2019[Title/Abstract]) OR COVID-2019[Title/Abstract] OR (2019[Title/Abstract] AND nCoV[Title/Abstract]) OR (Wuhan[Title/Abstract] AND coronavirus[Title/Abstract]) OR (Wuhan[Title/Abstract] AND pneumonia[Title/Abstract]))

*AND*

(CT[Title/Abstract] OR (Computed[Title/Abstract] AND tomography[Title/Abstract]) OR (Computerized[Title/Abstract] AND tomography[Title/Abstract]) OR (CT[Title/Abstract] AND scan[Title/Abstract]) OR CT-scan[Title/Abstract] OR Echocardiography[Title/Abstract] OR Echocardiogram[Title/Abstract] OR echo[Title/Abstract] OR TTE[Title/Abstract] OR TUS[Title/Abstract] OR echography[Title/Abstract] OR Ultrasonography[Title/Abstract] OR ultrasound[Title/Abstract] OR US[Title/Abstract] OR sonography[Title/Abstract] OR Sonographic[Title/Abstract] OR sonogram[Title/Abstract] OR x-ray[Title/Abstract] OR CXR[Title/Abstract] OR radiography[Title/Abstract] OR radiographic[Title/Abstract] OR Radiogram[Title/Abstract] OR Imaging[Title/Abstract] OR Radiology[Title/Abstract])

## Embase

((novel:ab,ti AND coronavirus:ab,ti) OR (coronavirus:ab,ti AND 2:ab,ti) OR (novel:ab,ti AND coronavirus:ab,ti AND 2019:ab,ti) OR (coronavirus:ab,ti AND disease:ab,ti AND 2019:ab,ti) OR (coronavirus:ab,ti AND disease-2019:ab,ti) OR (coronavirus:ab,ti AND disease-19:ab,ti) OR

(coronavirus:ab,ti AND 2019:ab,ti) OR COVID-19:ab,ti OR COVID19:ab,ti OR SARS-CoV-2:ab,ti OR 2019-nCoV:ab,ti OR (2019:ab,ti AND nCoV:ab,ti) OR (COVID:ab,ti AND 2019:ab,ti) OR COVID-2019:ab,ti OR (2019:ab,ti AND nCoV:ab,ti) OR (Wuhan:ab,ti AND coronavirus:ab,ti) OR (Wuhan:ab,ti AND pneumonia:ab,ti))

*AND*

(CT:ab,ti OR (Computed:ab,ti AND tomography:ab,ti) OR (Computerized:ab,ti AND tomography:ab,ti) OR (CT:ab,ti AND scan:ab,ti) OR CT-scan:ab,ti OR Echocardiography:ab,ti OR Echocardiogram:ab,ti OR echo:ab,ti OR TTE:ab,ti OR TUS:ab,ti OR echography:ab,ti OR Ultrasonography:ab,ti OR ultrasound:ab,ti OR US:ab,ti OR sonography:ab,ti OR Sonographic:ab,ti OR sonogram:ab,ti OR x-ray:ab,ti OR CXR:ab,ti OR radiography:ab,ti OR radiographic:ab,ti OR Radiogram:ab,ti OR Imaging:ab,ti OR Radiology:ab,ti)

## Cochrane

((novel:ab,ti AND coronavirus:ab,ti) OR (coronavirus:ab,ti AND 2:ab,ti) OR (novel:ab,ti AND coronavirus:ab,ti AND 2019:ab,ti) OR (coronavirus:ab,ti AND disease:ab,ti AND 2019:ab,ti) OR (coronavirus:ab,ti AND disease-2019:ab,ti) OR (coronavirus:ab,ti AND disease-19:ab,ti) OR (coronavirus:ab,ti AND 2019:ab,ti) OR COVID-19:ab,ti OR COVID19:ab,ti OR SARS-CoV-2:ab,ti OR nCoV:ab,ti OR (COVID:ab,ti AND 2019:ab,ti) OR COVID-2019:ab,ti OR (2019:ab,ti AND nCoV:ab,ti) OR (Wuhan:ab,ti AND coronavirus:ab,ti) OR (Wuhan:ab,ti AND pneumonia:ab,ti))

*AND*

(CT:ab,ti OR (Computed:ab,ti AND tomography:ab,ti) OR (Computerized:ab,ti AND tomography:ab,ti) OR (CT:ab,ti AND scan:ab,ti) OR CT-scan:ab,ti OR Echocardiography:ab,ti OR Echocardiogram:ab,ti OR echo:ab,ti OR TTE:ab,ti OR TUS:ab,ti OR echography:ab,ti OR Ultrasonography:ab,ti OR ultrasound:ab,ti OR US:ab,ti OR sonography:ab,ti OR Sonographic:ab,ti OR sonogram:ab,ti OR x-ray:ab,ti OR CXR:ab,ti OR radiography:ab,ti OR radiographic:ab,ti OR Radiogram:ab,ti OR Imaging:ab,ti OR Radiology:ab,ti)

## Appendix E2. List of Excluded Studies in Full Text Screening

1. Bernheim A, Mei X, Huang M, et al. Chest CT Findings in Coronavirus Disease-19 (COVID-19): Relationship to Duration of Infection. Radiology 2020;295(3):200463.

2. Bhatnagar T, Murhekar MV, Soneja M, et al. Lopinavir/ritonavir combination therapy amongst symptomatic coronavirus disease 2019 patients in India: Protocol for restricted public health emergency use. Indian J Med Res 2020;151(2 & 3):184–189.

3. Chate RC, Fonseca EKUN, Passos RBD, Teles GBDS, Shoji H, Szarf G. Presentation of pulmonary infection on CT in COVID-19: initial experience in Brazil. J Bras Pneumol 2020;46(2):e20200121.

4. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet 2020;395(10223):507–513.

5. Chen R, Zhang Y, Huang L, Cheng BH, Xia ZY, Meng QT. Safety and efficacy of different anesthetic regimens for parturients with COVID-19 undergoing Cesarean delivery: a case series of 17 patients. Can J Anaesth 2020;67(6):655–663.

6. Cheng Z, Lu Y, Cao Q, et al. Clinical Features and Chest CT Manifestations of Coronavirus Disease 2019 (COVID-19) in a Single-Center Study in Shanghai, China. AJR Am J Roentgenol 2020;215(1):121–126 https://doi.org/10.2214/AJR.20.22959.

7. Chung M, Bernheim A, Mei X, et al. CT Imaging Features of 2019 Novel Coronavirus (2019-nCoV). Radiology 2020;295(1):202–207.

8. Deng L, Li C, Zeng Q, et al. Arbidol combined with LPV/r versus LPV/r alone against Corona Virus Disease 2019: A retrospective cohort study. J Infect 2020;81(1):e1–e5 https://doi.org/10.1016/j.jinf.2020.03.002.

9. Ding Q, Lu P, Fan Y, Xia Y, Liu M. The clinical characteristics of pneumonia patients coinfected with 2019 novel coronavirus and influenza virus in Wuhan, China. J Med Virol 2020. 10.1002/jmv.25781. Published online March 20, 2020.

10. Fang Y, Zhang H, Xie J, et al. Sensitivity of Chest CT for COVID-19: Comparison to RT-PCR. Radiology 2020;296(2):E115–E117.

11. Guan CS, Lv ZB, Yan S, et al. Imaging Features of Coronavirus disease 2019 (COVID-19): Evaluation on Thin-Section CT. Acad Radiol 2020;27(5):609–613.

12. Guan WJ, Ni ZY, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med 2020;382(18):1708–1720.

13. Han R, Huang L, Jiang H, Dong J, Peng H, Zhang D. Early Clinical and CT Manifestations of Coronavirus Disease 2019 (COVID-19) Pneumonia. AJR Am J Roentgenol 2020. 10.2214/AJR.20.22961. Published online March 17, 2020.

14. Hu Z, Song C, Xu C, et al. Clinical characteristics of 24 asymptomatic infections with COVID-19 screened among close contacts in Nanjing, China. Sci China Life Sci 2020;63(5):706–711.

15. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395(10223):497–506 [Published correction appears in Lancet 2020;395(10223):496.].

16. Li K, Fang Y, Li W, et al. CT image visual quantitative evaluation and clinical classification of coronavirus disease (COVID-19). Eur Radiol 2020;30(8):4407–4416.

17. Li K, Wu J, Wu F, et al. The Clinical and Chest CT Features Associated With Severe and Critical COVID-19 Pneumonia. Invest Radiol 2020;55(6):327–331.

18. Dadário AMV, Paiva JPQ, Chate RC, Machado BS, Szarf G. Regarding "Artificial Intelligence Distinguishes COVID-19 from Community Acquired Pneumonia on Chest CT". Radiology 2020. 10.1148/radiol.2020201178. Published online April 3, 2020.

19. Li Y, Xia L. Coronavirus Disease 2019 (COVID-19): Role of Chest CT in Diagnosis and Management. AJR Am J Roentgenol 2020;214(6):1280–1286.

20. Li Y, Yao L, Li J, et al. Stability issues of RT-PCR testing of SARS-CoV-2 for hospitalized patients clinically diagnosed with COVID-19. J Med Virol 2020;92(7):903–908.

21. Liu D, Li L, Wu X, et al. Pregnancy and Perinatal Outcomes of Women With Coronavirus Disease (COVID-19) Pneumonia: A Preliminary Analysis. AJR Am J Roentgenol 2020;215(1):127–132.

22. Liu F, Xu A, Zhang Y, et al. Patients of COVID-19 may benefit from sustained Lopinavir-combined regimen and the increase of Eosinophil may predict the outcome of COVID-19 progression. Int J Infect Dis 2020;95:183–191.

23. Liu H, Liu F, Li J, Zhang T, Wang D, Lan W. Clinical and CT imaging features of the COVID-19 pneumonia: Focus on pregnant women and children. J Infect 2020;80(5):e7–e13.

24. Liu KC, Xu P, Lv WF, et al. CT manifestations of coronavirus disease-2019: A retrospective analysis of 73 cases by disease severity. Eur J Radiol 2020;126:108941.

25. Liu M, He P, Liu HG, et al. Clinical characteristics of 30 medical workers infected with new coronavirus pneumonia [in Chinese]. Zhonghua Jie He He Hu Xi Za Zhi 2020. 10.3760/cma.j.issn.1001-0939.2020.0016. Published online February 17, 2020.

26. Liu W, Tao ZW, Wang L, et al. Analysis of factors associated with disease outcomes in hospitalized patients with 2019 novel coronavirus disease. Chin Med J (Engl) 2020;133(9):1032–1038.

27. Pan F, Ye T, Sun P, et al. Time Course of Lung Changes at Chest CT during Recovery from Coronavirus Disease 2019 (COVID-19). Radiology 2020;295(3):715–721.

28. Pan Y, Guan H, Zhou S, et al. Initial CT findings and temporal changes in patients with the novel coronavirus pneumonia (2019-nCoV): a study of 63 patients in Wuhan, China. Eur Radiol 2020;30(6):3306–3309.

29. Peng L, Liu KY, Xue F, Miao YF, Tu PA, Zhou C. Improved Early Recognition of Coronavirus Disease-2019 (COVID-19): Single-Center Data from a Shanghai Screening Hospital. Arch Iran Med 2020;23(4):272–276.

30. Qian GQ, Yang NB, Ding F, et al. Epidemiologic and clinical characteristics of 91 hospitalized patients with COVID-19 in Zhejiang, China: a retrospective, multi-centre case series. QJM 2020;113(7):474–481.

31. Shi H, Han X, Jiang N, et al. Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. Lancet Infect Dis 2020;20(4):425–434.

32. Shi S, Qin M, Shen B, et al. Association of Cardiac Injury With Mortality in Hospitalized Patients With COVID-19 in Wuhan, China. JAMA Cardiol 2020;5(7):802.

33. Song F, Shi N, Shan F, et al. Emerging 2019 Novel Coronavirus (2019-nCoV) Pneumonia. Radiology 2020;295(1):210–217.

34. Su L, Ma X, Yu H, et al. The different clinical characteristics of corona virus disease cases between children and their families in China - the character of children with COVID-19. Emerg Microbes Infect 2020;9(1):707–713.

35. Tang X, Du RH, Wang R, et al. Comparison of Hospitalized Patients With ARDS Caused by COVID-19 and H1N1. Chest 2020;158(1):195–205.

36. Tian XL, Peng M, Wang HP, et al. The differential diagnosis for novel coronavirus pneumonia and similar lung diseases in general hospitals [in Chinese]. Zhonghua Jie He He Hu Xi Za Zhi 2020;43(5):401–408.

37. Wan S, Xiang Y, Fang W, et al. Clinical features and treatment of COVID-19 patients in northeast Chongqing. J Med Virol 2020;92(7):797–806.

38. Wang H, Wei R, Rao G, Zhu J, Song B. Characteristic CT findings distinguishing 2019 novel coronavirus disease (COVID-19) from influenza pneumonia. Eur Radiol 2020. 10.1007/s00330-020-06880-z. Published online April 22, 2020 https://doi.org/10.1007/s00330-020-06880-z.

39. Wang K, Kang S, Tian R, Zhang X, Zhang X, Wang Y. Imaging manifestations and diagnostic value of chest CT of coronavirus disease 2019 (COVID-19) in the Xiaogan area. Clin Radiol 2020;75(5):341–347 https://doi.org/10.1016/j.crad.2020.03.004.

40. Wang Y, Dong C, Hu Y, et al. Temporal Changes of CT Findings in 90 Patients with COVID-19 Pneumonia: A Longitudinal Study. Radiology 2020;296(2):E55–E64.

41. Wong HYF, Lam HYS, Fong AH, et al. Frequency and Distribution of Chest Radiographic Findings in Patients Positive for COVID-19. Radiology 2020;296(2):E72–E78.

42. Wu J, Li W, Shi X, et al. Early antiviral treatment contributes to alleviate the severity and improve the prognosis of patients with novel coronavirus disease (COVID-19). J Intern Med 2020;288(1):128–138.

43. Wu J, Liu J, Zhao X, et al. Clinical Characteristics of Imported Cases of Coronavirus Disease 2019 (COVID-19) in Jiangsu Province: A Multicenter Descriptive Study. Clin Infect Dis 2020;71(15):706–712.

44. Wu J, Wu X, Zeng W, et al. Chest CT Findings in Patients With Coronavirus Disease 2019 and Its Relationship With Clinical Features. Invest Radiol 2020;55(5):257–261.

45. Xie X, Zhong Z, Zhao W, Zheng C, Wang F, Liu J. Chest CT for Typical Coronavirus Disease 2019 (COVID-19) Pneumonia: Relationship to Negative RT-PCR Testing. Radiology 2020;296(2):E41–E45 https://doi.org/10.1148/radiol.2020200343.

46. Xiong Y, Sun D, Liu Y, et al. Clinical and High-Resolution CT Features of the COVID-19 Infection: Comparison of the Initial and Follow-up Changes. Invest Radiol 2020;55(6):332–339.

47. Xiong Z, Fu L, Zhou H, et al. Construction and evaluation of a novel diagnosis pathway for 2019-Corona Virus Disease [in Chinese]. Zhonghua Yi Xue Za Zhi 2020;100(16):1223–1229.

48. Xu T, Chen C, Zhu Z, et al. Clinical features and dynamics of viral load in imported and non-imported patients with COVID-19. Int J Infect Dis 2020;94:68–71.

49. Xu X, Yu C, Qu J, et al. Imaging and clinical features of patients with 2019 novel coronavirus SARS-CoV-2. Eur J Nucl Med Mol Imaging 2020;47(5):1275–1280.

50. Xu YH, Dong JH, An WM, et al. Clinical and computed tomographic imaging features of novel coronavirus pneumonia caused by SARS-CoV-2. J Infect 2020;80(4):394–400.

51. Yang W, Cao Q, Qin L, et al. Clinical characteristics and imaging manifestations of the 2019 novel coronavirus disease (COVID-19): A multi-center study in Wenzhou city, Zhejiang, China. J Infect 2020;80(4):388–393.

52. Ye G, Pan Z, Pan Y, et al. Clinical characteristics of severe acute respiratory syndrome coronavirus 2 reactivation. J Infect 2020;80(5):e14–e17.

53. Yu F, Yan L, Wang N, et al. Quantitative Detection and Viral Load Analysis of SARS-CoV-2 in Infected Patients. Clin Infect Dis 2020;71(15):793–798.

54. Yuan M, Yin W, Tao Z, Tan W, Hu Y. Association of radiologic findings with mortality of patients infected with 2019 novel coronavirus in Wuhan, China. PLoS One 2020;15(3):e0230548.

55. Zhang X, Cai H, Hu J, et al. Epidemiological, clinical characteristics of cases of SARS-CoV-2 infection with abnormal imaging findings. Int J Infect Dis 2020;94:81–87.

56. Zhang X, Chen X, Chen L, et al. The evidence of SARS-CoV-2 infection on ocular surface. Ocul Surf 2020;18(3):360–362.

57. Zhao D, Yao F, Wang L, et al. A Comparative Study on the Clinical Features of Coronavirus 2019 (COVID-19) Pneumonia With Other Pneumonias. Clin Infect Dis 2020;71(15):756–761 https://doi.org/10.1093/cid/ciaa247.

58. Zhao S, Ling K, Yan H, et al. Anesthetic Management of Patients with COVID 19 Infections during Emergency Procedures. J Cardiothorac Vasc Anesth 2020;34(5):1125–1131.

59. Zhao W, Zhong Z, Xie X, Yu Q, Liu J. Relation Between Chest CT Findings and Clinical Conditions of Coronavirus Disease (COVID-19) Pneumonia: A Multicenter Study. AJR Am J Roentgenol 2020;214(5):1072–1077.

60. Zhao X, Liu B, Yu Y, et al. The characteristics and clinical value of chest CT images of novel coronavirus pneumonia. Clin Radiol 2020;75(5):335–340.

61. Zhou S, Wang Y, Zhu T, Xia L. CT Features of Coronavirus Disease 2019 (COVID-19) Pneumonia in 62 Patients in Wuhan, China. AJR Am J Roentgenol 2020;214(6):1287–1294.

62. Zhou Z, Guo D, Li C, et al. Coronavirus disease 2019: initial chest CT findings. Eur Radiol 2020;30(8):4398–4406.

63. Zhu WJ, Wang J, He XH, et al. The differential diagnosis of pulmonary infiltrates in cancer patients during the outbreak of the 2019 novel coronavirus disease [in Chinese]. Zhonghua Zhong Liu Za Zhi 2020;42(4):305–311.

64. Zhu ZW, Tang JJ, Chai XP, et al. Comparison of heart failure and 2019 novel coronavirus pneumonia in chest CT features and clinical characteristics [in Chinese]. Zhonghua Xin Xue Guan Bing Za Zhi 2020. 10.3760/cma.j.cn112148-20200218-00093. Published online March 4, 2020.

## Appendix E3. QUADAS-2 and STARD Assessment Forms

### Purpose and Role of Test

Has the purpose of imaging been clearly described?

-Screening, Risk assessment, Diagnosis, Prognosis, Staging, Monitoring, Surveillance, Not clearly defined

Has the role of imaging been clearly described?

Replacement, Triage, Add-on, Parallel or combined testing, Not clearly defined

## QUADAS-2: Signaling Questions

## Risk of Bias Assessment

● Yes, No or unclear

*Patient selection-Could the Selection of Patients Have Introduced Bias?*

Was a consecutive or random sample of patients enrolled?

Was a case–control design avoided?

Did the study avoid inappropriate exclusions?

*Index test-Could the Conduct or Interpretation of the Index Test Have Introduced Bias?*

Were the index test results interpreted without knowledge of the results of the reference standard?

If a threshold for a positive index test was used, was it prespecified?

*Reference standard-Could the Reference Standard, Its Conduct, or Its Interpretation Have Introduced Bias?*

Is the reference standard likely to correctly classify the target condition?

Were the reference standard results interpreted without knowledge of the results of the index test?

*Flow and Timing-Could the Patient Flow Have Introduced Bias?*

Did all patients undergo the index test at the same time or before the reference test?

Was there an appropriate interval between the index test and reference standard?

Did all patients receive the same reference standard?

Were all patients included in the analysis?

## Applicability Assessment

● Low, High or unclear concerns about applicability

*Patient selection-applicability assessment*

Are There Concerns That the Included Patients and Setting Do Not Match the Review Question?

*Index test-applicability assessment*

Are There Concerns That the Index Test, Its Conduct, or Its Interpretation Differ From the Review Question?

*Reference standard-applicability assessment*

Are There Concerns That the Target Condition as Defined by the Reference Standard Does Not Match the Question?

**STARD Assessment**

*Title or abstract*

1 Identification as a study of diagnostic accuracy using at least one measure of accuracy (such as sensitivity, specificity, predictive values or AUC)

*Abstract*

2 Structured summary of study design, methods, results and conclusions

*Introduction*

3 Scientific and clinical background, including the intended use and clinical role of the index test

*Methods*

4 Study objectives and hypotheses

5 Whether data collection was planned before the index test and reference standard were performed (prospective study) or after (retrospective study)

6 Eligibility criteria

7 On what basis potentially eligible participants were identified (such as symptoms, results from previous tests, inclusion in registry)

8 Where and when potentially eligible participants were identified (setting, location and dates)

9 Whether participants formed a consecutive, random or convenience series

10a Index test, in sufficient detail to allow replication

10b Reference standard, in sufficient detail to allow replication

11 Rationale for choosing the reference standard (if alternatives exist)

12a Definition of and rationale for test positivity cut-offs or result categories of the index test, distinguishing prespecified from exploratory

12b Definition of and rationale for test positivity cut-offs or result categories of the reference standard, distinguishing prespecified from exploratory

13a Whether clinical information and reference standard results were available to the performers or readers of the index test

13b Whether clinical information and index test results were available to the assessors of the reference standard

14 Methods for estimating or comparing measures of diagnostic accuracy

15 How indeterminate index test or reference standard results were handled

16 How missing data on the index test and reference standard were handled

17 Any analyses of variability in diagnostic accuracy, distinguishing prespecified from exploratory

18 Intended sample size and how it was determined

*Results*

19 Flow of participants, using a diagram

   20 Baseline demographic and clinical characteristics of participants

   21a Distribution of severity of disease in those with the target condition

   21b Distribution of alternative diagnoses in those without the target condition

   22 Time interval and any clinical interventions between index test and reference standard

   23 Cross tabulation of the index test results (or their distribution) by the results of the reference standard

   24 Estimates of diagnostic accuracy and their precision (such as 95% CIs)

   25 Any adverse events from performing the index test or the reference standard

*Discussion*

26 Study limitations, including sources of potential bias, statistical uncertainty and generalizability

   27 Implications for practice, including the intended use and clinical role of the index test

*Other information*

28 Registration number and name of registry

   29 Where the full study protocol can be accessed

   30 Sources of funding and other support; role of funders

## Appendix E4. STARD Items by Lowest and Highest Adherence

| STARD items, 0%–50% reported* | DTA<br>*n* = 10 | All<br>*n* = 13 |
|---|---|---|
| 11 Rationale for choosing the reference standard (if alternatives exist) | 0 (0%) | 0 (0%) |
| 12b Definition of and rationale for test positivity cut-offs or result categories of the reference standard, distinguishing prespecified from exploratory | 0 | 0 |
| 13b Whether clinical information and index test results were available to the assessors of the reference standard | 0 | 0 |
| 16 How missing data on the index test and reference standard were handled | 0 | 0 |
| 18 Intended sample size and how it was determined | 0 | 0 |
| 22 Time interval and any clinical interventions between index test and reference standard | 0 | 0 |
| 25 Any adverse events from performing the index test or the reference standard | 0 | 0 |
| 28 Registration number and name of registry | 0 | 0 |
| 29 Where the full study protocol can be accessed | 0 | 0 |
| 10b Reference standard, in sufficient detail to allow replication | 1 (10%) | 1 (8%) |
| 15 How indeterminate index test or reference standard results were handled | 1 (10%) | 1 (8%) |
| 21a Distribution of severity of disease in those with the target condition | 1 (10%) | 3 (23%) |
| 4 Study objectives and hypotheses | 2 (20%) | 2 (15%) |
| 12a Definition of and rationale for test positivity cut-offs or result categories of the index test, distinguishing prespecified from exploratory | 3 (30%) | 3 (23%) |
| 17 Any analyses of variability in diagnostic accuracy, distinguishing prespecified from exploratory | 3 (30%) | 3 (23%) |
| 21b Distribution of alternative diagnoses in those without the target condition | 3 (30%) | 3 (23%) |
| 19 Flow of participants, using a diagram | 4 (40%) | 5 (38%) |
| 10a Index test, in sufficient detail to allow replication | 5 (50%) | 5 (38%) |

| | | |
|---|---|---|
| 13a Whether clinical information and reference standard results were available to the performers or readers of the index test | 5 (50%) | 5 (38%) |
| 23 Cross tabulation of the index test results (or their distribution) by the results of the reference standard | 5 (50%) | 5 (38%) |
| 26 Study limitations, including sources of potential bias, statistical uncertainty and generalizability | 5 (50%) | 7 (54%) |
| 3 Scientific and clinical background, including the intended use and clinical role of the index test | 6 (60%) | 7 (54%) |
| 20 Baseline demographic and clinical characteristics of participants | 6 (60%) | 9 (69%) |
| 30 Sources of funding and other support; role of funders | 6 (60%) | 6 (46%) |

\* In diagnostic test accuracy studies (DTA).

| STARD items, 100%–50% reported* | DTA *n* = 10 | All *n* = 13 |
|---|---|---|
| 1 Identification as a study of diagnostic accuracy using at least one measure of accuracy (such as sensitivity, specificity, predictive values or AUC) | 10 (100%) | 10 (77%) |
| 2 Structured summary of study design, methods, results and conclusions | 10 (100%) | 13 (100%) |
| 5 Whether data collection was planned before the index test and reference standard were performed (prospective study) or after (retrospective study) | 10 (100%) | 13 (100%) |
| 6 Eligibility criteria | 9 (90%) | 12 (92%) |
| 14 Methods for estimating or comparing measures of diagnostic accuracy | 9 (90%) | 9 (69%) |
| 8. Where and when potentially eligible participants were identified (setting, location and dates) | 8 (80%) | 11 (85%) |
| 27 Implications for practice, including the intended use and clinical role of the index test | 8 (80%) | 10 (77%) |
| 7 On what basis potentially eligible participants were identified (such as symptoms, results from previous tests, inclusion in registry) | 7 (70%) | 10 (77%) |
| 9 Whether participants formed a consecutive, random or convenience series | 7 (70%) | 8 (62%) |
| 24 Estimates of diagnostic accuracy and their precision (such as 95% CIs) | 7 (70%) | 7 (54%) |

\* In diagnostic test accuracy studies (DTA).