

The following is a list of studies excluded at the full-paper-screening stage of the review, along with the reasons for their exclusion. Studies listed in submissions from manufacturers of NGCCT are labelled 'M'.

The reasons for study exclusion are coded as follows:

- **population** The study did not include difficult-to-image CAD patients or patients with congenital heart disease, *or* data for these patients were not reported separately, *or* categories of difficult-to-image patients (e.g. obese, HHR, HCS) were not defined, as specified in *Chapter 4* (see *Search strategy*).
- **index test** The study did not assess the effectiveness of one of the four assessed technologies specified in *Chapter 4* (see *Search strategy*).
- **reference standard** The study was a diagnostic test accuracy study, which did not use ICA as the reference standard.
- **outcomes** The study did not report any of the outcomes specified in *Chapter 4* (see *Search strategy*) *or* for diagnostic test accuracy studies, insufficient data were reported to allow the construction of 2 × 2 contingency tables (numbers of TP, FN, FP and TN test results).
- **study design** The study design was not one of those specified in *Chapter 4* (see *Search strategy*) *or* the study included fewer than 10 participants in the relevant patient groups.

List of studies

1. Achenbach S, Marwan M, Schepis T, Pflederer T, Bruder H, Allmendinger T, *et al.* High-pitch spiral acquisition: a new scan mode for coronary CT angiography. *J Cardiovasc Comput Tomogr* 2009;3:117–21. – **outcomes, M**
2. Achenbach S, Ropers U, Kuettner A, Anders K, Pflederer T, Komatsu S, *et al.* Randomised comparison of 64-slice single- and dual-source computed tomography coronary angiography for the detection of coronary artery disease. *JACC Cardiovasc Imaging* 2008;1:177–86. – **population**
3. Anan I, Sakumu T, Fukuda K. [Diagnostic accuracy of dual-source CT cardiac imaging in patients with coronary artery disease.] *Jpn J Clin Radiol* 2009;54:170–5. – **outcomes**
4. Arnoldi E, Ramos-Duran L, Abro JA, Zwerner PL, Nikolaou K, Reiser MF, *et al.* Coronary CT angiography using prospective ECG triggering. *Radiologe* 2010;50:500–6. – **population**
5. Baumuller S, Leschka S, Desbiolles L, Stolzmann P, Scheffel H, Seifert B, *et al.* Dual-source versus 64-section CT coronary angiography at lower heart rates: comparison of accuracy and radiation dose. *Radiology* 2009;253:56–64. – **population**
6. Ben Saad M, Rohnean A, Sigal-Cinqualbre A, Adler G, Paul J-F. Evaluation of image quality and radiation dose of thoracic and coronary dual-source CT in 110 infants with congenital heart disease. *Pediatr Radiol* 2009;39:668–76. – **outcomes**

7. Bezerra HG, Loureiro R, Sarwar A, Rocha J, Pflederer T, Marwan M, *et al.* Defining the best approach for stenosis quantification by dual-source CT: a comparative study involving intravascular ultrasound and invasive coronary angiography. *Circulation* 2008;**118**:S845. – **reference standard**
8. Bradacova P, Zemanek D, Adla T, Veselka J. Dual-source computed tomography has a high negative predictive value in the evaluation of restenosis after the left main coronary artery stenting. *Am J Cardiol* 2010;**105**:8B. – **reference standard**
9. Burgstahler C, Brodoefel H, Reimann A, Tsiflikas I, Heuschmid M, Uysal I, *et al.* Dual-source CT in non-invasive coronary artery angiography: effect of heart rate, heart rate variability and calcification on image quality and diagnostic accuracy in an unselected patient population. *Circulation* 2007;**116**:1901. – **population**
10. Burgstahler C, Reimann A, Drosch T, Heuschmid M, Brodoefel H, Tsiflikas I, *et al.* Cardiac dual-source computed tomography in patients with severe coronary calcifications and a high prevalence of coronary artery disease. *J Cardiovasc Comput Tomogr* 2007;**1**:143–51. – **population** (HCS not defined as >400)
11. Busch S, Nikolaou K, Johnson T, Rist C, Knez A, Reiser M, *et al.* [Quantification of coronary artery stenoses. Comparison of 64-slice and dual source CT angiography with cardiac catheterisation.] *Radiologe* 2007;**47**:295–300. – **population**
12. Chan J, Du L, Sarwar S, Khosa F, Kataoka M, Paicopolis M, *et al.* Whole heart coronary artery evaluation in one single heart beat using 320-slice multi-detector computed tomography. Presented at Royal Australian and New Zealand College of Radiologists, Australian Institute of Radiography, Faculty of Radiation Oncology, Australasian College of Physical Scientists and Engineers in Medicine Combined Scientific Meeting; Brisbane, Australia, 22–25 October 2009. *J Med Imaging Radiat Oncol* 2009;**53**:A105. – **population**
13. Chan J, Sarwar S, Khosa F, Kataoka M, Paicopoilis MC, Laham R, *et al.* Diagnostic accuracy of 320-slice multi-detector row computed tomography to detect coronary artery disease: a direct comparison to invasive coronary angiography. Presented at American College of Cardiology 58th Annual Scientific Session and i2 Summit: Innovation in Intervention, Orlando, USA, 29–31 September 2009. *J Am Coll Cardiol* 2009;**53**:A267–8. – **population**
14. Chang Gung Memorial Hospital. *The correlation of heart hemodynamic status between 320 multidetector computed tomography, echocardiography and cardiac catheterisation in patients with coronary artery disease. NCT01083134 (ongoing trial)*. 2010. URL: <http://ClinicalTrials.gov/show/NCT01083134> (accessed 11 May 2011) – **outcomes**
15. Chao SP, Law WY, Kuo CJ, Hung HF, Cheng JJ, Lo HM, *et al.* The diagnostic accuracy of 256-row computed tomographic angiography compared with invasive coronary angiography in patients with suspected coronary artery disease. *Eur Heart J* 2010;**31**:1916–23. – **outcomes** (2×2 data could not be extracted), **M**
16. Chen BX, Ma FY, Wen ZY, Luo W, Zhao XZ, Kang F, *et al.* [Diagnostic value of 128-slice CT coronary angiography in comparison with invasive coronary angiography.] *Zhonghua Xin Xue Guan Bing Za Zhi* 2008;**36**:223–8. – **population**
17. Chen HW, Fang XM, Hu XY, Bao J, Hu CH, Chen Y, *et al.* Efficacy of dual-source CT coronary angiography in evaluating coronary stenosis: initial experience. *Clin Imaging* 2010;**34**:165–71. – **population**
18. Chen S-Y, Su Y-S, Xie P-Y, Xu S-L, Fang Y-Q, Huang A-R. [Clinical value of dual-source CT in evaluating coronary artery disease.] *Nan Fang Yi Ke Da Xue Xue Bao* 2010;**30**:2125–7. – **population**

19. Chinnaiyan KM, McCullough PA, Flohr TG, Wegner JH, Raff GL. Improved noninvasive coronary angiography in morbidly obese patients with dual-source computed tomography. *J Cardiovasc Comput Tomogr* 2009;**3**:35–42. – **outcomes**
20. de Graaf FR, Schuijf JD, van Velzen JE, Kroft LJ, de Roos A, Reiber JH, *et al.* Diagnostic accuracy of 320-slice multi-slice computed tomography in the non-invasive assessment of obstructive atherosclerosis. *Circulation* 2009;**120**:S334. – **population**
21. de Graaf FR, Schuijf JD, van Velzen JE, Kroft LJ, de Roos A, Reiber JHC, *et al.* Diagnostic accuracy of 320-row multidetector computed tomography coronary angiography in the non-invasive evaluation of significant coronary artery disease. *Eur Heart J* 2010;**31**:1908–15. – **population**
22. Dewey M, Oncel D, Oncel G, Tastan A. Coronary CT angiography in patients with atrial fibrillation. *Radiology* 2008;**248**:701–2. – **study design**
23. Dewey M, Vavere AL, Arbab-Zadeh A, Miller JM, Sara L, Cox C, *et al.* Patient characteristics as predictors of image quality and diagnostic accuracy of MDCT compared with conventional coronary angiography for detecting coronary artery stenoses: core-64 multicenter international trial. *AJR Am J Roentgenol* 2010;**194**:93–102. – **index test**
24. Dewey M, Zimmermann E, Deissenrieder F, Laule M, Dbel HP, Rutsch W, *et al.* 320-slice computed tomography for detection of coronary artery stenoses. Presented at American College of Cardiology 58th Annual Scientific Session and i2 Summit: Innovation in Intervention, Orlando, FL, USA, 29–31 March, 2009. *J Am Coll Cardiol* 2009;**53**:A265. – **population**
25. Dewey M, Zimmermann E, Deissenrieder F, Laule M, Dubel HP, Schlattmann P, *et al.* Non-invasive coronary angiography by 320-row computed tomography with lower radiation exposure and maintained diagnostic accuracy: Comparison of results with cardiac catheterisation in a head-to-head pilot investigation. *Circulation* 2009;**120**:867–75. – **study design, M**
26. Dewey M, Zimmermann E, Laule M, Rutsch W, Hamm B. Three-vessel coronary artery disease examined with 320-slice computed tomography coronary angiography. *Eur Heart J* 2008;**29**:1669. – **population**
27. Dikkers R, Willems TP, Piers LH, de Jonge GJ, Tio RA, van der Zaag-Loonen HJ, *et al.* Coronary revascularisation treatment based on dual-source computed tomography. *Eur Radiol* 2008;**18**:1800–8. – **population**
28. Domachevsky L, Gaspar T, Peled N, Shnapp M, Halon DA, Lewis CBS, *et al.* Non-invasive cardiac imaging of morbidly obese patients using the brilliance iCT. *MedicaMundi* 2010;**54**:29–34. – **study design, M**
29. Duan H, San K-j, Wang J, Han D. [Analysing the correlation between coronary artery stenosis and left ventricular function and myocardial ischaemia using dual-source computed tomography.] *Zhongguo Yi Xue Ke Xue Yuan Xue Bao* 2010;**32**:683–9. – **population**
30. Earls JP, Schrack EC. Prospectively gated low-dose CCTA: 24 months experience in more than 2,000 clinical cases. *Int J Cardiovasc Imaging* 2009;**25**(Suppl. 2):177–87. – **study design, M**
31. Fang XM, Chen HW, Hu XY, Bao J, Chen Y, Yang ZY, *et al.* Dual-source CT coronary angiography without heart rate or rhythm control in comparison with conventional coronary angiography. *Int J Cardiovasc Imaging* 2010;**26**:323–31. – **population**

32. Far Eastern Memorial Hospital. Effects of heart rates and variability of heart rates on image quality of dual-source CT coronary angiography. NCT00632918 (completed trial). 2008. URL: <http://ClinicalTrials.gov/show/NCT00632918> (accessed 11 May 2011) – **outcomes**
33. Fareed A, Oraby M, Nasr GM, Maklady F, Dupouy P. Evaluation of Coronary CT scans radiation dose and image quality using different scanning protocol on a 256-slice CT scanner. *Eur Heart J Suppl* 2010;**12**:F59. – **population**
34. George RT, Kitagawa K, Laws K, Lardo AC, Lima JA. Combined adenosine stress perfusion and coronary angiography using 320-row detector dynamic volume computed tomography in patients with suspected coronary artery disease. *Circulation* 2008;**118**:S936. – **population**
35. George RT, Lardo AC, Kitagawa K, Yousuf O, Chang HJ, Arbab-Zadeh A, *et al.* Combined perfusion and non-invasive coronary angiography in patients with suspected coronary disease using 256 row, 0.5 mm slice thickness non-helical multi-detector computed tomography. *Circulation* 2007;**116**:2589. – **population**
36. Gutstein A, Wolak A, Lee C, Dey D, Ohba M, Suzuki Y, *et al.* Predicting success of prospective and retrospective gating with dual-source coronary computed tomography angiography: development of selection criteria and initial experience. *J Cardiovasc Comput Tomogr* 2008;**2**:81–90. – **population, M**
37. Haraldsdottir S, Gudnason T, Sigurdsson AF, Gudjonsdottir J, Lehman SJ, Eyjolfsson K, *et al.* Diagnostic accuracy of 64-slice multidetector CT for detection of in-stent restenosis in an unselected, consecutive patient population. *Eur J Radiol* 2010;**76**:188–94. – **index test**
38. Hausleiter J, Gramer B, Meyer T, Bischoff B, Hadamitzky M, Spiegel S, *et al.* Myocardial CT perfusion with a high-pitch low-dose protocol. Presented at European Society of Cardiology (ESC) Congress, Stockholm, Sweden, 28 Aug to 1 September 2010. *Eur Heart J* 2010;**31**:581. – **population**
39. Herzog BA, Husmann L, Burkhard N, Gaemperli O, Valenta I, Tatsugami F, *et al.* Accuracy of low-dose computed tomography coronary angiography using prospective electrocardiogram-triggering: first clinical experience. *Eur Heart J* 2008;**29**:3037–42. – **population**
40. Heuschmid M, Burgstahler C, Reimann A, Brodoefel H, Mysal I, Haeberle E, *et al.* Usefulness of noninvasive cardiac imaging using dual-source computed tomography in an unselected population with high prevalence of coronary artery disease. *Am J Cardiol* 2007;**100**:587–92. – **population**
41. Ho KT, Chua KC, Klotz E, Panknin C. Stress and rest dynamic myocardial perfusion imaging by evaluation of complete time-attenuation curves with dual-source CT. *JACC Cardiovasc Imaging* 2010;**3**:811–20. – **population**
42. Hope SA, Crossett M, Nasis A, Seneviratne S. Early experience with the Aquilion One 320 slice computed tomography scanner in paediatric and congenital heart disease. Presented at 5th World Congress of Paediatric Cardiology and Cardiac Surgery, 16–21 June 2010; Cairns, Australia. *Cardiol Young* 2010;**20**:37. – **outcomes, M**
43. Hosch W, Heye T, Schulz F, Lehrke S, Schlieter M, Giannitsis E, *et al.* Image quality and radiation dose in 256-slice cardiac computed tomography: comparison of prospective versus retrospective image acquisition protocols. *Eur J Radiol* 2011;**80**:127–35. – **outcomes, M**
44. Hou Y, Yue Y, Guo W, Feng G, Yu T, Li G, *et al.* Prospectively versus retrospectively ECG-gated 256-slice coronary CT angiography: image quality and radiation dose over expanded heart rates. *Int J Cardiovasc Imaging Epub* 15 December 2010. – **reference standard, M**
45. Izumi M, Fujiwara R, Ono Y, Ito H. First impact of 320-slice area detector computed tomography for evaluation of coronary images as compared with 64-slice spiral detector

computed tomography. Presented at 9th International Conference of Non-Invasive Cardiovascular Imaging, Barcelona, Spain, 10–13 May 2009. *Eur Heart J* 2009;**11**:S3.

– **population**

46. Johnson TR, Nikolaou K, Busch S, Leber AW, Becker A, Wintersperger BJ, *et al.* Diagnostic accuracy of dual-source computed tomography in the diagnosis of coronary artery disease. *Invest Radiol* 2007;**42**:684–91. – **population**
47. Kepka C, Pregowski J, Kruk M. Dual source computed tomography in coronary imaging. *Postepy Kardiologii Interwencyjnej* 2008;**4**:31–4. – **study design**
48. Klepzig H. Diagnostic accuracy of dual-source multi-slice CT-coronary angiography in patients with an intermediate pretest likelihood for coronary artery disease. *Eur Heart J* 2008;**29**:680. – **study design**
49. Ko B, Cameron J, Leung M, Lehman S, Hope S, Crossett M, *et al.* Adenosine stress perfusion imaging and coronary angiography using 320 slice computed tomography: a comparison with quantitative coronary angiography and fractional flow reserve. Presented at New Zealand Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand, Adelaide, Australia, 5–8 August 2010. *Heart Lung Circ* 2010;**19**:S163. – **population**
50. Ko B, Cameron JD, Leung M, Lehman SJ, Hope S, Crossett M, *et al.* Adenosine stress perfusion imaging and coronary angiography using 320 slice cardiac CT: a comparison with quantitative coronary angiography and fractional flow reserve. Presented at European Society of Cardiology (ESC) Congress, Stockholm, Sweden, 28 Aug to 1 September 2010. *Eur Heart J* 2010;**31**:152. – **population**
51. Korosoglou G, Mueller D, Lehrke S, Steen H, Hosch W, Heye T, *et al.* Quantitative assessment of stenosis severity and atherosclerotic plaque composition using 256-slice computed tomography. *Eur Radiol* 2010;**20**:1841–50. – **population, M**
52. Kroft LJM, Roelofs JJH, Geleijns J. Scan time and patient dose for thoracic imaging in neonates and small children using axial volumetric 320-detector row CT compared to helical 64-, 32- and 16-detector row CT acquisitions. *Pediatr Radiol* 2010;**40**:294–300. – **population, M**
53. Leber A, Ovrehus K, Tittus J, Johnson T, Becker C, Becker A. Noninvasive coronary angiography by dual source computed tomography in patients with an intermediate pretest likelihood for coronary artery disease. *Circulation* 2007;**116**:2593. – **population**
54. Leber AW, Becker A, Tittus J, von Ziegler F, Becker C, Knez A. Noninvasive heart rate-independent coronary angiography using a new dual X-ray source CT. *Circulation* 2006;**114**:448. – **population**
55. Leschka S, Scheffel H, Desbiolles L, Plass A, Gaemperli O, Stolzmann P, *et al.* Combining dual-source computed tomography coronary angiography and calcium scoring: added value for the assessment of coronary artery disease. *Heart* 2008;**94**:1154–61. – **population**
56. Maluenda G, Goldstein MA, Lemesle G, Weissman G, Weigold G, Landsman MJ, *et al.* Perioperative outcomes in reoperative cardiac surgery guided by cardiac multidetector computed tomographic angiography. *Am Heart J* 2010;**159**:301–6. – **population, M**
57. Massachusetts General Hospital. Comparison of DSCT With IB-IVUS and angiography in the assessment of coronary artery disease. NCT00622167 (terminated trial). 2010. URL: <http://ClinicalTrials.gov/show/NCT00622167> (accessed 11 May 2011) – **reference standard**
58. Motoyama S, Anno H, Sarai M, Sato T, Inoue K, Sanda Y, *et al.* Noninvasive coronary angiography using 256-slice multislice computed tomography. *Circulation* 2006;**114**:384. – **population**

59. Motoyama S, Anno H, Sarai M, Sato T, Sanda Y, Ozaki Y, *et al.* Noninvasive coronary angiography with a prototype 256-row area detector computed tomography system comparison with conventional invasive coronary angiography. *J Am Coll Cardiol* 2008;**51**:773–5. – **population**
60. Nance JW Jr, Bastarrrika G, Kang DK, Ruzsics B, Vogt S, Schmidt B, *et al.* High-temporal resolution dual-energy computed tomography of the heart using a novel hybrid image reconstruction algorithm: initial experience. *J Comput Assist Tomogr* 2011;**35**:119–25. – **population**
61. Nasis A, Leung MC, Antonis PR, Cameron JD, Lehman SJ, Hope SA, *et al.* Diagnostic accuracy of noninvasive coronary angiography with 320-detector row computed tomography. *Am J Cardiol* 2010;**106**:1429–35. – **study design** (< 10 participants), **M**
62. Nasis A, Leung MC, Antonis PR, Cameron JD, Meredith IT, Moir WS, *et al.* Diagnostic performance of 320-detector row CT coronary angiography: a comparison with invasive angiography. Presented at Transcatheter Cardiovascular Therapeutics Symposium, San Francisco, USA, 21–25 September 2009. *Am J Cardiol* 2009;**104**:68D. – **population**
63. Nieman K, Galema T, Neefjes L, Weustink A, Musters P, Moelker A, *et al.* Head-to-head comparison of coronary calcium imaging, computed tomography coronary angiography and exercise testing in real-world patients with stable chest pain. Presented at American College of Cardiology's 59th Annual Scientific Session and i2 Summit: Innovation in Intervention, Atlanta, GA, USA, 14–16 March 2010. *J Am Coll Cardiol* 2010;**55**:A78, E729. – **population**
64. Opolski MP, Kepka C, Pregowski J, Kruk M, Dzielinska Z, Michalowska I, *et al.* Dual-source computed tomography angiography for assessment of native coronary circulation and bypass grafts in patients after bypass surgery. Presented at 5th Annual Scientific Meeting of the Society of Cardiovascular Computed Tomography, SCCT 2010, Las Vegas, NV, USA, 15–18 July 2010. *J Cardiovasc Comput Tomogr* 2010;**4**:S49. – **outcomes**
65. Opolski MP, Pregowski J, Kepka C, Kruk M, Pracon R, Ruzyllo W. Dual source computed tomography in visualisation of coronary artery anomalies. *Postepy Kardiologii Interwencyjnej* 2008;**4**:133–45. – **outcomes**
66. Ou S-x, Li X-r, Peng G-m, Zhang L, Li S-n. [Imaging of congenital coronary artery anomalies by dual-source computed tomography angiography.] *Zhongguo Yi Xue Ke Xue Yuan Xue Bao* 2010;**32**:690–4. – **outcomes**
67. Ovrehus KA, Jensen JK, Jensen JM, Bottcher M, Larsen HM, Botker HE, *et al.* Impact of dual source CT angiography on the number of unnecessary invasive coronary angiographies. *Am J Cardiol* 2008;**102**:971. – **population**
68. Ovrehus KA, Munkholm H, Bottcher M, Botker Hans E, Norgaard BL. Coronary computed tomographic angiography in patients suspected of coronary artery disease: impact of observer experience on diagnostic performance and interobserver reproducibility. *J Cardiovasc Comput Tomogr* 2010;**4**:186–94. – **outcomes**
69. Peng Z-h, Huang J-y, Pu H, Bai L, Chen J-y, Li G, *et al.* [Comparison of coronary angiography with myocardial perfusion imaging in assessment of functionally relevant coronary artery lesion.] *Zhonghua Xin Xue Guan Bing Za Zhi* 2010;**38**:601–5. – **population**
70. Piers LH, Dijkers R, Willems TP, de Smet B, Oudkerk M, Zijlstra F, *et al.* Computed tomographic angiography or conventional coronary angiography in therapeutic decision-making. *Eur Heart J* 2008;**29**:2902–7. – **population**
71. Qin J, Liu L-Y, Meng X-C, Dong Y-X, Zhu J-M, Zheng Z-d, *et al.* [Clinical application of prospective electrocardiogram-gated 320-detector computed tomography coronary angiography.] *Zhonghua Yi Xue Za Zhi* 2010;**90**:3079–83. – **population**

72. Qin J, Zhu KS, Liu LY, Chen JW, Chen XZ, Shan H. [Initial application of coronary images from 320-slice dynamic volume MDCT.] *Zhonghua Yi Xue Za Zhi* 2010;**90**:478–81. – **population, M**
73. Reimann AJ, Tsiflikas I, Brodoefel H, Scheuering M, Rinck D, Kopp AF, *et al.* Efficacy of computer aided analysis in detection of significant coronary artery stenosis in cardiac using dual source computed tomography. *Int J Cardiovasc Imaging* 2009;**25**:195–203. – **population**
74. Rocha JA, Blankstein R, Shturman LD, Bezerra HG, Okada DR, Rogers IS, *et al.* Incremental value of adenosine-induced stress myocardial perfusion imaging with dual-source CT at cardiac CT angiography. *Radiology* 2010;**254**:410–19. – **population**
75. Rocha-Filho JA, Shturman L, Rogers IS, Blankstein R, Okada DR, Mamuya WS, *et al.* Incremental value of adenosine-induced stress myocardial perfusion imaging using dual source computed tomography on coronary computed tomography angiography. Presented at American College of Cardiology 58th Annual Scientific Session and i2 Summit: Innovation in Intervention, Orlando, FL, USA, 29–31 March 2009. *J Am Coll Cardiol* 2009;**53**:A259. – **population**
76. Ropers D. Heart rate-independent dual-source computed tomography coronary angiography: growing experience. *J Cardiovasc Comput Tomogr* 2008;**2**:115–16. – **study design**
77. Ropers U, Karakaya S, Wechsel M, Anders K, Ropers D, Kuettner A, *et al.* Randomised comparison of dual source computed tomography and 64-slice multi-detector computed tomography for the detection of coronary artery stenoses. *Circulation* 2006;**114**:448. – **population**
78. Rosenblum D, Kutoloski K, Diaz PJ, Tamarkin S, Friedman D, Milner B. Brilliance iCT: initial experiences with the new generation of cardiovascular computed tomography. *MedicaMundi* 2008;**52**:25–30. – **study design, M**
79. Ruehm S, Lohan D, Krishnam M, Panknin C, Lell MM. Dual-source CT in congenital heart disease. *AJR Am J Roentgenol* 2007;**188**:A4. – **outcomes**
80. Ruzsics B, Gebregziabher M, Schoepf UJ, Lee H, Abro JA, Costello P, *et al.* Dual-energy CT of the heart for diagnosing coronary artery stenosis and myocardial ischaemia: comparison with SPECT. *Circulation* 2008;**118**:S838. – **population**
81. Ruzsics B, Lee H, Zwerner PL, Gebregziabher M, Costello P, Schoepf UJ. Dual-energy CT of the heart for diagnosing coronary artery stenosis and myocardial ischaemia-initial experience. *Eur Radiol* 2008;**18**:2414–24. – **population**
82. Ruzsics B, Schwarz F, Schoepf UJ, Lee YS, Bastarrrika G, Chiaramida SA, *et al.* Comparison of dual-energy computed tomography of the heart with single photon emission computed tomography for assessment of coronary artery stenosis and of the myocardial blood supply. *Am J Cardiol* 2009;**104**:318–26. – **population**
83. Scheffel H, Stolzmann P, Karlo C, Trigo-Trindade P, Marincek B, Luescher TF, *et al.* Tako-tsubo phenomenon: dual-source computed tomography and conventional coronary angiography. *Cardiovasc Intervent Radiol* 2008;**31**:226–7. – **study design**
84. Schoenhagen P, Nagel E. Noninvasive assessment of coronary artery disease anatomy, physiology, and clinical outcome. *JACC Cardiovasc Imaging* 2011;**4**:62–4. – **study design**
85. Shyu KG, Chao SP, Law WY. The diagnostic accuracy of 256-row computed tomographic angiography compared with conventional coronary angiography in patients with suspected coronary artery disease. *Circulation* 2009;**120**:S381. – **population**

86. Stolzmann P, Scheffel H, Leschka S, Plass A, Baumuller S, Marincek B, *et al.* Influence of calcifications on diagnostic accuracy of coronary CT angiography using prospective ECG triggering. *AJR Am J Roentgenol* 2008;**191**:1684–9. – **population** (HCS not defined as > 400)
87. Sun ML. Diagnostic accuracy of dual-source CT coronary angiography with prospective ECG triggering on different heart rate patients. Presented at International Heart Forum, Beijing, China, 11–13 August 2010. *Cardiology* 2010;**117**:114–15. – **outcomes**
88. Thai WE, Harper RW, Seneviratne S. Dynamic volume 320-slice CT in the assessment of patent ductus arteriosus for percutaneous closure. *Heart* 2010;**96**:321. – **study design**
89. Thomas C, Brodoefel H, Tsiflikas I, Bruckner F, Reimann A, Ketelsen D, *et al.* Does clinical pretest probability influence image quality and diagnostic accuracy in dual-source coronary CT angiography? *Acad Radiol* 2010;**17**:212–18. – **population**
90. Tsiflikas I, Brodoefel H, Reimann AJ, Thomas C, Ketelsen D, Schroeder S, *et al.* Coronary CT angiography with dual source computed tomography in 170 patients. *Eur J Radiol* 2010;**74**:161–5. – **population**
91. Uehara M, Funabashi N, Ueda M, Murayama T, Takaoka H, Sawada K, *et al.* Quality of coronary arterial 320-slice computed tomography images in subjects with chronic atrial fibrillation compared with normal sinus rhythm. *Int J Cardiol* 2011;**150**:65–70. – **population, M**
92. University Medical Centre Groningen. *Computed tomographic angiography or conventional coronary angiography in clinical decision-making*. NCT00566059 (completed trial). 2007. URL: <http://ClinicalTrials.gov/show/NCT00566059> (accessed 11 May 2011) – **population**
93. University of Aarhus, Danish Research Agency, Philips Medical Systems, Danish Heart Foundation. *Imaging of vulnerable plaques in coronary artery disease by multidetector computed tomography*. NCT00482651 (ongoing trial). 2011. URL: <http://ClinicalTrials.gov/show/NCT00482651> (accessed 11 May 2011)– **index test**
94. Wagdi P, Alkadhi H. The impact of cardiac CT on the appropriate utilisation of catheter coronary angiography. *Int J Cardiovasc Imaging* 2010;**26**:333–44. – **population**
95. Wang Y, Zhang Z, Kong L, Song L, Merges RD, Chen J, *et al.* Dual-source CT coronary angiography in patients with atrial fibrillation: comparison with single-source CT. *Eur J Radiol* 2008;**68**:434–41. – **study design** (< 10 participants)
96. Wang YN, Kong LY, Zhang ZH, Chen LB, Song L, Zhang SY, *et al.* [Diagnostic value of dual-source CT coronary angiography on the detection of coronary artery disease with myocardial perfusion defect.] *Zhongguo Yi Xue Ke Xue Yuan Xue Bao* 2009;**31**:160–5. – **population**
97. Weininger M, Nance J, Henzler T, Schmidt B, Costello P, Schoepf UJ. High temporal resolution dual-energy CT of the heart using a novel hybrid image reconstruction algorithm: initial experience. Presented at 5th Annual Scientific Meeting of the Society of Cardiovascular Computed Tomography, SCCT2010, Las Vegas, NV, USA, 15–18 July 2010. *J Cardiovasc Comput Tomogr* 2010;**4**:s1. – **population**
98. Weustink AC, Mollet NR, Meijboom WB, Krestin GP, de Feyter PM. Diagnostic accuracy of dual source computed tomography coronary angiography in patients referred for conventional angiography. *Circulation* 2006;**114**:448. – **population**
99. Weustink AC, Mollet NR, Meijboom WB, Otsuka M, Pugliese F, van Mieghem C, *et al.* Diagnostic accuracy of dual source coronary tomography coronary angiography in patients referred for conventional angiography. *J Am Coll Cardiol* 2007;**49**:114A. – **population**

100. Weustink AC, Schinkel AFL, van der Ent M, de Feyter PJ. Pre-procedural dual source 64-slice computed tomography in unprotected left main intervention. *JACC Cardiovasc Interv* 2009;**2**:470–1. – **study design**
101. Yang X, Gai L-y, Li P, Chen Y-d, Li T, Yang L. Diagnostic accuracy of dual-source CT angiography and coronary risk stratification. *Vasc Health Risk Manag* 2010;**6**:935–41. – **population**
102. Zemanek D, Adla T, Bradacova P, Hajek P, Veselka J. The role of the dual-source computed tomography in evaluation of restenosis after the left main coronary artery stenting, a comparison with coronary angiography and intravascular ultrasound. Presented at 22nd Annual Symposium of the Transcatheter Cardiovascular Therapeutics, Washington, USA, 21–25 September 2010. *J Am Coll Cardiol* 2010;**56**:B90. – **reference standard**
103. Zemanek D, Bradacova P, Adla T, Veselka J. The comparison of dual-source computed tomography, coronary angiography and intravascular ultrasound in the evaluation of restenosis after the left main coronary artery stenting. Presented at European Society of Cardiology, ESC Congress, Stockholm, Sweden, 28 August to 1 September 2010. *Eur Heart J* 2010;**31**:289. – **reference standard**
104. Zheng M, Li J, Xu J, Chen K, Zhao H, Huan Y. Dual-source computed tomographic coronary angiography: image quality and stenosis diagnosis in patients with high heart rates. *Tex Heart Inst J* 2009;**36**:117–24.

The following is a list of those studies provided in submissions from manufacturers of NGCCT, which were excluded at the title and abstract screening stage, along with the reasons for their exclusion.

1. Abdelkarim MJ, Ahmadi N, Gopal A, Hamirani Y, Karlsberg RP, Budoff MJ. Noninvasive quantitative evaluation of coronary artery stent patency using 64-row multidetector computed tomography. *J Cardiovasc Comput Tomogr* 2010;**4**:29–37. – **index test**
2. Achenbach S, Marwan M, Ropers D, Schepis T, Pflederer T, Anders K, *et al.* Coronary computed tomography angiography with a consistent dose below 1 mSv using prospectively electrocardiogram-triggered high-pitch spiral acquisition. *Eur Heart J* 2010;**31**:340–6. – **outcomes**
3. Bardo DME, Asamoto J, Mackay CS, Minette M. Low-dose coronary artery computed tomography angiogram of an infant with tetralogy of fallot using a 256-slice multidetector computed tomography scanner. *Pediatr Cardiol* 2009;**30**:824–6. – **study design**
4. Choi SI, George RT, Schuleri KH, Chun EJ, Lima JAC, Lardo AC. Recent developments in wide-detector cardiac computed tomography. *Int J Cardiovasc Imaging* 2009;**25**:23–9. – **study design**
5. Dewey M, Zimmermann E, Wollenberg U, Rief M, Greupner J, Hamm B. Reduction of radiation dose of 320-row coronary computed tomography angiography through prior coronary calcium scanning. Presented at American College of Cardiology's 59th Annual Scientific Session and i2 Summit: Innovation in Intervention, Atlanta, GA, USA, 14–16 May 2010. *J Am Coll Cardiol* 2010;**55**:A67, E627. – **study design**
6. Earls JP, Berman EL, Urban BA, Curry CA, Lane JL, Jennings RS, *et al.* Prospectively gated transverse coronary CT angiography versus retrospectively gated helical technique: improved image quality and reduced radiation dose. *Radiology* 2008;**246**:742–53. – **outcomes**

7. Efstathopoulos EP, Kelekis NL, Pantos I, Brountzos E, Argentos S, Grebac J, *et al.* Reduction of the estimated radiation dose and associated patient risk with prospective ECG-gated 256-slice CT coronary angiography. *Phys Med Biol* 2009;**54**:5209–22. – **outcomes**
8. Einstein AJ. Radiation risk from coronary artery disease imaging: how do different diagnostic tests compare? *Heart* 2008;**94**:1519–21. – **study design**
9. Faletra FF, D'Angeli I, Klersy C, Averaimo M, Klimusina J, Pasotti E, *et al.* Estimates of lifetime attributable risk of cancer after a single radiation exposure from 64-slice computed tomographic coronary angiography. *Heart* 2010;**96**:927–32. – **index test**
10. Gaudio C, Evangelista A, Pasceri V, Pannarale G, Varrica S, Romitelli S, *et al.* Visualisation of coronary arteries and coronary stents by low dose 320-slice multi-detector computed tomography in a patient with atrial fibrillation. *Int J Cardiol Epub* 20 March 2010. – **study design**
11. Gerber TC, Carr JJ, Arai AE, Dixon RL, Ferrari VA, Gomes AS, *et al.* Ionising radiation in cardiac imaging: a science advisory from the American Heart Association Committee on Cardiac Imaging of the Council on Clinical Cardiology and Committee on Cardiovascular Imaging and Intervention of the Council on Cardiovascular Radiology and Intervention. *Circulation* 2009;**119**:1056–65. – **study design**
12. Gosling O, Loader R, Venables P, Roobottom C, Rowles N, Bellenger N, *et al.* A comparison of radiation doses between state-of-the-art multislice CT coronary angiography with iterative reconstruction, multislice CT coronary angiography with standard filtered back-projection and invasive diagnostic coronary angiography. *Heart* 2010;**96**:922–6. – **outcomes**
13. Hameed TA, Teague SD, Vembar M, Dharaiya E, Rydberg J. Low radiation dose ECG-gated chest CT angiography on a 256-slice multidetector CT scanner. *Int J Cardiovasc Imaging* 2009;**25**:267–78. – **population**
14. Heilbron BG, Leipsic J. Submillisievert coronary computed tomography angiography using adaptive statistical iterative reconstruction: a new reality. *Can J Cardiol* 2010;**26**:35–6. – **study design**
15. Hein F, Meyer T, Hadamitzky M, Bischoff B, Albrecht W, Hendrich E, *et al.* Prospective ECG-triggered sequential scan protocol for coronary dual-source angiography: initial experience. *Int J Cardiovasc Imaging* 2009;**25**:231–9. – **study design**
16. Hsieh J, Londt J, Vass M, Li J, Tang X, Okerlund D. Step-and-shoot data acquisition and reconstruction for cardiac x-ray computed tomography. *Med Phys* 2006;**33**:4236–48. – **study design**
17. Husmann L, Valenta I, Gaemperli O, Adda O, Treyer V, Wyss CA, *et al.* Feasibility of low-dose coronary CT angiography: first experience with prospective ECG-gating. *Eur Heart J* 2008;**29**:191–7. – **study design**
18. Kitagawa K, Lardo AC, Lima JAC, George RT. Prospective ECG-gated 320 row detector computed tomography: implications for CT angiography and perfusion imaging *Int J Cardiovasc* 2009;**25**:201–8. – **study design**
19. Klass O, Walker M, Siebach A, Stuber T, Feuerlein S, Juchems M, *et al.* Prospectively gated axial CT coronary angiography: comparison of image quality and effective radiation dose between 64- and 256-slice CT. *Eur Radiol* 2010;**20**:1124–31. – **outcomes**
20. LaBounty TM, Earls JP, Leipsic J, Heilbron B, Mancini GBJ, Lin FY, *et al.* Effect of a standardised quality-improvement protocol on radiation dose in coronary computed tomographic angiography. *Am J Cardiol* 2010;**106**:1663–7. – **index test**

21. LaBounty TM, Leipsic J, Min JK, Heilbron B, Mancini GBJ, Lin FY, *et al.* Effect of padding duration on radiation dose and image interpretation in prospectively ECG-triggered coronary CT angiography. *AJR Am J Roentgenol* 2010;**194**:933–7. – **outcomes**
22. Law WY, Yang CC, Chen LK, Huang TC, Lu KM, Wu TH, *et al.* Retrospective gating vs. prospective triggering for noninvasive coronary angiography: assessment of image quality and radiation dose using a 256-slice CT scanner with 270 ms gantry rotation. *Acad Radiol* 2011;**18**:31–9. – **outcomes**
23. Lehman S, Malaiapan Y, Antonis P, Zhang M, Cameron J, Meredith I, *et al.* Assessment of coronary plaque presence and composition by 320-slice cardiac computed tomography: a comparative study using intravascular ultrasound. Presented at New Zealand Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand, Adelaide, Australia, 5–8 August 2010. *Heart Lung Circ* 2010;**19**:s164. – **reference standard**
24. Leipsic J, Labounty TM, Heilbron B, Min JK, Mancini GBJ, Lin FY, *et al.* Estimated radiation dose reduction using adaptive statistical iterative reconstruction in coronary CT angiography: the ERASIR study. *AJR Am J Roentgenol* 2010;**195**:655–60. – **outcomes**
25. Leipsic J, Labounty TM, Heilbron B, Min JK, Mancini GBJ, Lin FY, *et al.* Adaptive statistical iterative reconstruction: assessment of image noise and image quality in coronary CT angiography. *AJR Am J Roentgenol* 2010;**195**:649–54. – **outcomes**
26. Lell M, Marwan M, Schepis T, Pfloderer T, Anders K, Flohr T, *et al.* Prospectively ECG-triggered high-pitch spiral acquisition for coronary CT angiography using dual source CT: technique and initial experience. *Eur Radiol* 2009;**19**:2576–83. – **outcomes**
27. Lembcke A, Hein PA, Borges AC, Rogalla P. One-stop-shop cardiac diagnosis in a single heart beat using 320-slice computed tomography: ascending aortic aneurysm, hypertrophic cardiomyopathy and mixed valvular heart disease. *Eur J Cardiothorac Surg* 2009;**35**:726. – **study design**
28. Leschka S, Stolzmann P, Desbiolles L, Baummueller S, Goetti R, Schertler T, *et al.* Diagnostic accuracy of high-pitch dual-source CT for the assessment of coronary stenoses: first experience. *Eur Radiol* 2009;**19**:2896–903. – **population**
29. Mowatt G, Cummins E, Waugh N, Walker S, Cook J, Jia X, *et al.* Systematic review of the clinical effectiveness and cost-effectiveness of 64-slice or higher computed tomography angiography as an alternative to invasive coronary angiography in the investigation of coronary artery disease. *Health Technol Assess* 2008;**12**(17). – **index test**
30. Perisinakis K, Seimenis I, Tzedakis A, Papadakis AE, Damilakis J. Individualised assessment of radiation dose in patients undergoing coronary computed tomographic angiography with 256-slice scanning. *Circulation* 2010;**122**:2394–402. – **population**
31. Rybicki FJ, Melchionna S, Mitsouras D, Coskun AU, Whitmore AG, Steigner M, *et al.* Prediction of coronary artery plaque progression and potential rupture from 320-detector row prospectively ECG-gated single heart beat CT angiography: Lattice Boltzmann evaluation of endothelial shear stress *Int J Cardiovasc Imaging* 2009;**25**:289–99. – **study design**
32. Schuijf JD, Delgado V, Van Werkhoven JM, de Graaf FR, Van Velzen JE, Boogers MM, *et al.* Novel clinical applications of state-of-the-art multi-slice computed tomography *Int J Cardiovasc Imaging* 2009;**25**:241–54. – **study design**
33. Uehara M, Funabashi N, Komuro I. Predictors of various artefacts in coronary arterial images in subjects with chronic atrial fibrillation by 320 slice computed tomography considering reconstruction method. Presented at American College of Cardiology's 59th

Annual Scientific Session and i2 Summit: Innovation in Intervention, 2010 14–16 Mar; Atlanta, GA, USA. *J Am Coll Cardiol* 2010;**55**:A67, E626. – **study design**

34. Walker MJ, Olszewski M, Desai MY, Halliburton SS, Flamm SD. New radiation dose saving technologies for 256-slice cardiac computed tomography angiography. *Int J Cardiovasc Imaging* 2009;**25**:189–99. – **study design**
35. Weigold WG, Olszewski ME, Walker MJ. Low-dose prospectively gated 256-slice coronary computed tomographic angiography. *Int J Cardiovasc Imaging* 2009;**25**:217–30. – **study design**
36. Wink O, Hecht HS, Ruijters D. Coronary computed tomographic angiography in the cardiac catheterisation laboratory: current applications and future developments. *Cardiol Clin* 2009;**27**:513–29. – **study design**