

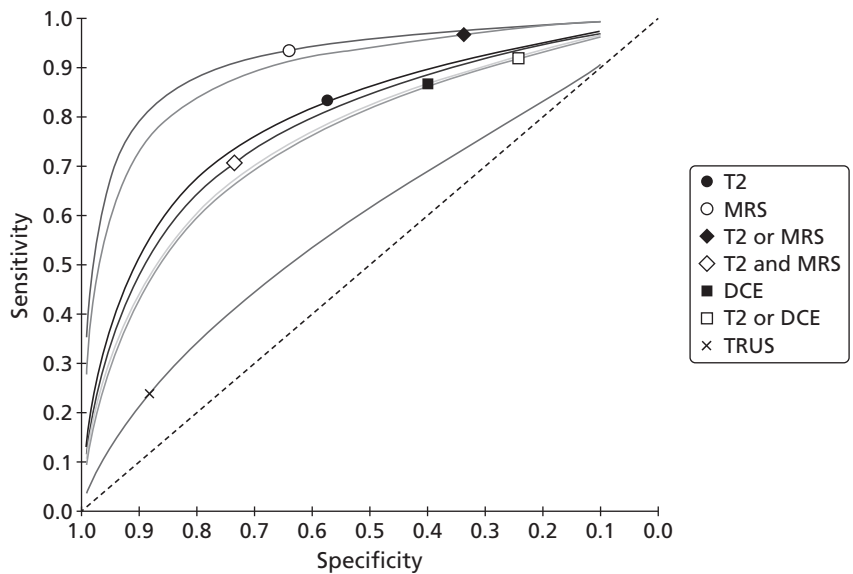
Appendix 13.1: Biopsy-level pooled estimates from indirect comparison: comparing the sensitivity and specificity of T2-weighted magnetic resonance imaging with the other tests

Parameter	Estimate, % (95% CI)	Ratio (95% CI)	p-value
Sensitivity for T2-MRI	83 (75 to 89)	1	
Sensitivity for DCE	87 (74 to 94)	1.04 (0.93 to 1.17)	0.499
Sensitivity for MRS	93 (87 to 97)	1.12 (1.03 to 1.22)	0.008
Sensitivity for T2 and MRS	71 (50 to 85)	0.85 (0.67 to 1.07)	0.172
Sensitivity for T2 or DCE	92 (81 to 97)	1.10 (1.00 to 1.21)	0.046
Sensitivity for T2 or MRS	97 (91 to 99)	1.16 (1.07 to 1.26)	0.001
Sensitivity for TRUS	24 (13 to 39)	0.28 (0.16 to 0.50)	< 0.001
Specificity for T2-MRI	57 (47 to 67)	1	
Specificity for DCE	40 (25 to 56)	0.70 (0.49 to 0.98)	0.041
Specificity for MRS	64 (52 to 75)	1.12 (0.95 to 1.32)	0.194
Specificity for T2 and MRS	73 (58 to 85)	1.28 (1.06 to 1.55)	0.011
Specificity for T2 or DCE	24 (13 to 39)	0.42 (0.26 to 0.68)	< 0.001
Specificity for T2 or MRS	34 (23 to 46)	0.59 (0.44 to 0.78)	< 0.001
Specificity for TRUS	88 (79 to 94)	1.54 (1.27 to 1.86)	< 0.001

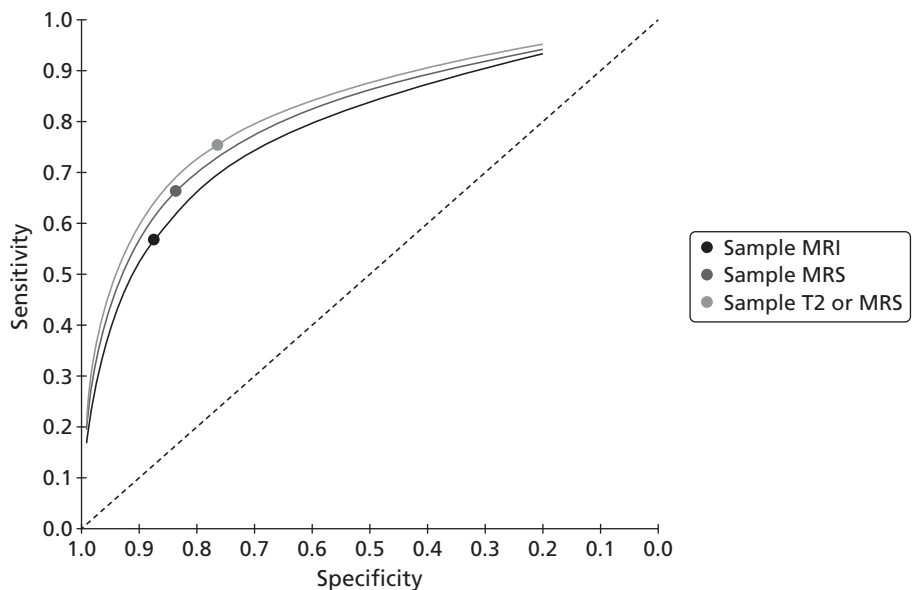
Appendix 13.2: Patient-level pooled estimates from indirect comparison: comparing the sensitivity and specificity of T2-weighted magnetic resonance imaging with the other tests

Parameter	Estimate, % (95% CI)	Ratio (95% CI)	p-value
Sensitivity for MRI	57 (43 to 69)	1	
Sensitivity for MRS	66 (53 to 78)	1.23 (1.02 to 1.49)	0.03
Sensitivity for T2 or MRS	75 (61 to 86)	1.35 (1.15 to 1.60)	0.00
Specificity for MRI	87 (78 to 93)	1	
Specificity for MRS	84 (72 to 91)	0.98 (0.94 to 1.03)	0.40
Specificity for T2 or MRS	76 (62 to 86)	0.86 (0.77 to 0.95)	0.00

Appendix 13.3: Hierarchical summary receiver operating characteristic plot comparing tests at patient level, assuming no underlying difference in the shape parameter



Appendix 13.4: Hierarchical summary receiver operating characteristic plot comparing tests at biopsy level, assuming no underlying difference in the shape parameter



Appendix 13.5: Sensitivity analysis of the patient-level pooled estimate from the indirect comparison, assuming there is no common underlying shape

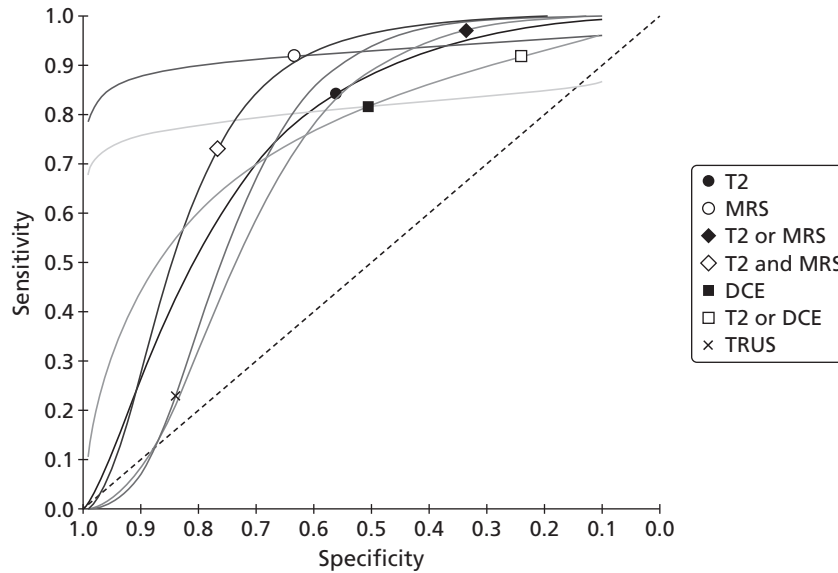
Parameter	Estimate	95% CI	
		Lower	Upper
Sensitivity for T2-MRI	0.84	0.75	0.90
Sensitivity for DCE	0.82	0.70	0.89
Sensitivity for MRS	0.92	0.86	0.95
Sensitivity for T2 and MRS	0.73	0.44	0.90
Sensitivity for T2 or DCE	0.92	0.78	0.97
Sensitivity for T2 or MRS	0.97	0.91	0.99
Sensitivity for TRUS	0.23	0.11	0.42
Specificity for T2-MRI	0.56	0.48	0.64
Specificity for DCE	0.50	0.24	0.77
Specificity for MRS	0.63	0.45	0.78
Specificity for T2 and MRS	0.77	0.65	0.85
Specificity for T2 or DCE	0.24	0.09	0.49
Specificity for T2 or MRS	0.33	0.25	0.42
Specificity for TRUS	0.84	0.76	0.89
DOR for MRI	6.78	3.58	12.84
DOR for DCE	4.49	1.23	16.43
DOR for MRS	19.51	7.51	50.69
DOR for T2 and MRS	8.85	2.23	35.06
DOR for T2 or DCE	3.51	1.05	11.74
DOR for T2 or MRS	16.55	4.80	57.04
DOR for TRUS	1.53	0.55	4.29
LR+ for MRI	1.92	1.57	2.33
LR+ for DCE	1.64	0.90	2.99
LR+ for MRS	2.50	1.58	3.96
LR+ for T2 and MRS	3.11	1.77	5.48
LR+ for T2 or DCE	1.21	0.95	1.53
LR+ for T2 or MRS	1.46	1.28	1.66
LR+ for TRUS	1.41	0.63	3.17
LR- for MRI	0.28	0.17	0.46
LR- for DCE	0.36	0.12	1.06
LR- for MRS	0.11	0.05	0.23
LR- for T2 and MRS	0.42	0.12	1.42
LR- for T2 or DCE	0.37	0.12	1.10
LR- for T2 or MRS	0.08	0.02	0.29
LR- for TRUS	1.44	0.24	8.84

Appendix 13.6: Patient-level comparative estimates from indirect comparison model, comparing estimates of T2-weighted magnetic resonance imaging with other tests

Parameter	Estimate	p-value	95% CI	
			Lower	Upper
TP odds ratio DCE vs T2	0.83	0.65	0.38	1.83
TP odds ratio MRS vs T2	2.14	0.06	0.97	4.69
TP odds ratio T2 and MRS vs T2	0.51	0.26	0.16	1.66
TP odds ratio T2 or DCE vs T2	2.11	0.22	0.64	6.91
TP odds ratio T2 or MRS vs T2	6.21	0.00	1.94	19.89
TP odds ratio TRUS vs T2	0.06	< 0.0001	0.02	0.16
TN odds ratio DCE vs T2	0.80	0.68	0.27	2.33
TN odds ratio MRS vs T2	1.35	0.35	0.72	2.51
TN odds ratio T2 and MRS vs T2	2.56	0.00	1.41	4.65
TN odds ratio T2 or DCE vs T2	0.25	0.01	0.08	0.73
TN odds ratio T2 or MRS vs T2	0.39	< 0.0001	0.26	0.60
TN odds ratio TRUS vs T2	4.06	< 0.0001	2.30	7.18
Relative sensitivity DCE vs T2	0.97	0.65	0.85	1.11
Relative sensitivity MRS vs T2	1.09	0.08	0.99	1.20
Relative sensitivity T2 and MRS vs T2	0.87	0.38	0.63	1.19
Relative sensitivity T2 or DCE vs T2	1.09	0.14	0.97	1.23
Relative sensitivity T2 or MRS vs T2	1.15	0.00	1.06	1.26
Relative sensitivity TRUS vs T2	0.27	0.00	0.13	0.55
Relative specificity DCE vs T2	0.90	0.70	0.52	1.54
Relative specificity MRS vs T2	1.13	0.30	0.90	1.42
Relative specificity T2 and MRS vs T2	1.37	0.00	1.15	1.62
Relative specificity T2 or DCE vs T2	0.43	0.04	0.18	0.98
Relative specificity T2 or MRS vs T2	0.60	< 0.0001	0.46	0.76
Relative specificity TRUS vs T2	1.50	< 0.0001	1.27	1.76
RDOR DCE vs T2	0.66	0.53	0.19	2.37
RDOR MRS vs T2	2.88	0.04	1.05	7.86
RDOR T2 and MRS vs T2	1.30	0.70	0.34	4.99
RDOR T2 or DCE vs T2	0.52	0.27	0.16	1.66
RDOR T2 or MRS vs T2	2.44	0.15	0.73	8.16
RDOR TRUS vs T2	0.23	0.01	0.07	0.75

RDOR, relative diagnostic odds ratio.

Appendix 13.7: Hierarchical summary receiver operating characteristic plot comparing tests at patient level



Appendix 13.8: Biopsy-level pooled estimates from indirect comparison model

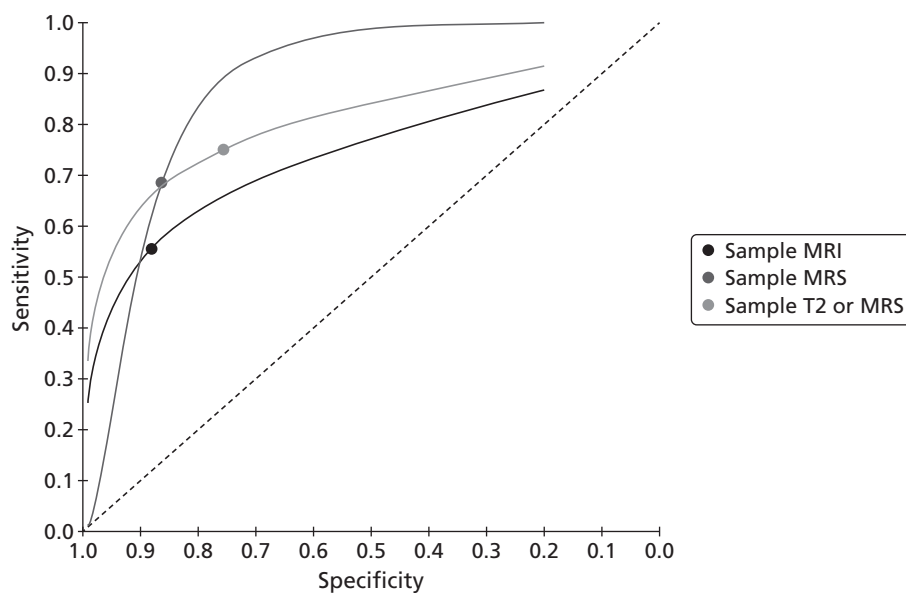
Parameter	Estimate	95% CI	
		Lower	Upper
Sensitivity for MRI	0.55	0.45	0.66
Sensitivity for MRS	0.68	0.49	0.83
Sensitivity for T2 or MRS	0.75	0.63	0.84
Specificity for MRI	0.88	0.78	0.94
Specificity for MRS	0.86	0.81	0.90
Specificity for T2 or MRS	0.75	0.59	0.87
DOR for MRI	9.04	4.53	18.05
DOR for MRS	13.52	6.27	29.17
DOR for T2 or MRS	9.23	4.21	20.24
LR+ for MRI	4.58	2.53	8.32
LR+ for MRS	4.96	3.48	7.06
LR+ for T2 or MRS	3.05	1.79	5.20
LR- for MRI	0.51	0.41	0.63
LR- for MRS	1.79	0.31	10.26
LR- for T2 or MRS	0.34	0.21	0.54

Appendix 13.9: Biopsy-level comparative estimates from indirect comparison model, comparing estimates of T2-weighted magnetic resonance imaging with other tests

Parameter	Estimate	p-value	95% CI	
			Lower	Upper
TP odds ratio MRS vs T2	1.74	0.07	0.95	3.20
TP odds ratio T2 or MRS vs T2	2.42	0.00	1.48	3.95
TN odds ratio MRS vs T2	0.86	0.47	0.57	1.30
TN odds ratio T2 or MRS vs T2	0.42	<0.0001	0.33	0.54
Relative sensitivity MRS vs T2	1.23	0.03	1.02	1.49
Relative sensitivity T2 or MRS vs T2	1.35	0.00	1.15	1.60
Relative specificity MRS vs T2	0.98	0.40	0.94	1.03
Relative specificity T2 or MRS vs T2	0.86	0.00	0.77	0.95
RDOR MRS vs T2	1.50	0.34	0.66	3.40
RDOR T2 or MRS vs T2	1.02	0.94	0.59	1.76

RDOR, relative diagnostic odds ratio.

Appendix 13.10: Hierarchical summary receiver operating characteristic plot comparing tests at biopsy level



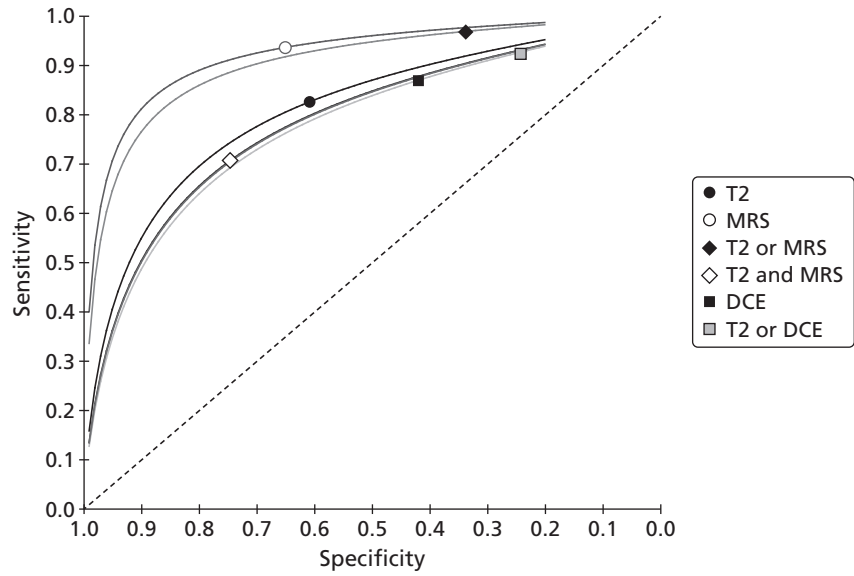
Appendix 13.11: Patient-level pooled estimates from indirect comparison after removing the Franiel study⁸⁴

Parameter	Estimate	95% CI	
		Lower	Upper
Sensitivity for T2-MRI	0.85	0.74	0.92
Sensitivity for DCE	0.82	0.70	0.90
Sensitivity for MRS	0.92	0.85	0.96
Sensitivity for T2 and MRS	0.76	0.45	0.92
Sensitivity for T2 or DCE	0.95	0.69	1.00
Sensitivity for T2 or MRS	0.98	0.91	0.99
Sensitivity for TRUS	0.35	0.18	0.58
Specificity for T2-MRI	0.57	0.48	0.65
Specificity for DCE	0.52	0.24	0.79
Specificity for MRS	0.63	0.44	0.79
Specificity for T2 and MRS	0.77	0.64	0.86
Specificity for T2 or DCE	0.21	0.09	0.44
Specificity for T2 or MRS	0.33	0.24	0.44
Specificity for TRUS	0.90	0.81	0.95
DOR for MRI	7.54	3.25	17.51
DOR for DCE	4.97	1.22	20.23
DOR for MRS	19.26	6.61	56.16
DOR for T2 and MRS	10.20	2.18	47.79
DOR for T2 or DCE	5.75	0.93	35.46
DOR for T2 or MRS	21.31	4.44	102.37
DOR for TRUS	4.91	1.37	17.60
LR+ for MRI	1.97	1.55	2.52
LR+ for DCE	1.71	0.89	3.30
LR+ for MRS	2.49	1.51	4.10
LR+ for T2 and MRS	3.23	1.78	5.85
LR+ for T2 or DCE	1.21	1.01	1.46
LR+ for T2 or MRS	1.47	1.26	1.72
LR+ for TRUS	3.53	1.34	9.27
LR- for MRI	0.26	0.14	0.50
LR- for DCE	0.34	0.11	1.06
LR- for MRS	0.11	0.05	0.26
LR- for T2 and MRS	0.35	0.12	1.02
LR- for T2 or DCE	0.21	0.03	1.68
LR- for T2 or MRS	0.07	0.01	0.33
LR- for TRUS	0.64	0.14	2.89

Appendix 13.12: Patient-level pooled estimates from indirect comparison after removing the Franiel study⁸⁴ and also TRUS as test

Parameter	Estimate	95% CI	
		Lower	Upper
Sensitivity for T2-MRI	0.83	0.73	0.89
Sensitivity for DCE	0.87	0.73	0.94
Sensitivity for MRS	0.94	0.87	0.97
Sensitivity for T2 and MRS	0.71	0.50	0.85
Sensitivity for T2 or DCE	0.92	0.80	0.97
Sensitivity for T2 or MRS	0.97	0.90	0.99
Specificity for T2-MRI	0.61	0.49	0.72
Specificity for DCE	0.42	0.26	0.59
Specificity for MRS	0.65	0.52	0.76
Specificity for T2 and MRS	0.75	0.59	0.86
Specificity for T2 or DCE	0.26	0.14	0.44
Specificity for T2 or MRS	0.34	0.22	0.48
DOR for MRI	7.31	3.70	14.41
DOR for DCE	4.78	1.64	13.93
DOR for MRS	26.76	10.90	65.71
DOR for T2 and MRS	7.05	2.34	21.24
DOR for T2 or DCE	4.31	1.14	16.33
DOR for T2 or MRS	15.11	4.31	53.02
LR+ for MRI	2.10	1.56	2.83
LR+ for DCE	1.50	1.10	2.03
LR+ for MRS	2.67	1.88	3.79
LR+ for T2 and MRS	2.77	1.56	4.95
LR+ for T2 or DCE	1.25	1.00	1.57
LR+ for T2 or MRS	1.46	1.20	1.78
LR- for MRI	0.29	0.18	0.46
LR- for DCE	0.31	0.14	0.72
LR- for MRS	0.10	0.05	0.21
LR- for T2 and MRS	0.39	0.21	0.75
LR- for T2 or DCE	0.29	0.09	0.92
LR- for T2 or MRS	0.10	0.03	0.31

Appendix 13.13: Hierarchical summary receiver operating characteristic plot comparing tests at patient level, assuming no underlying difference in the shape parameter

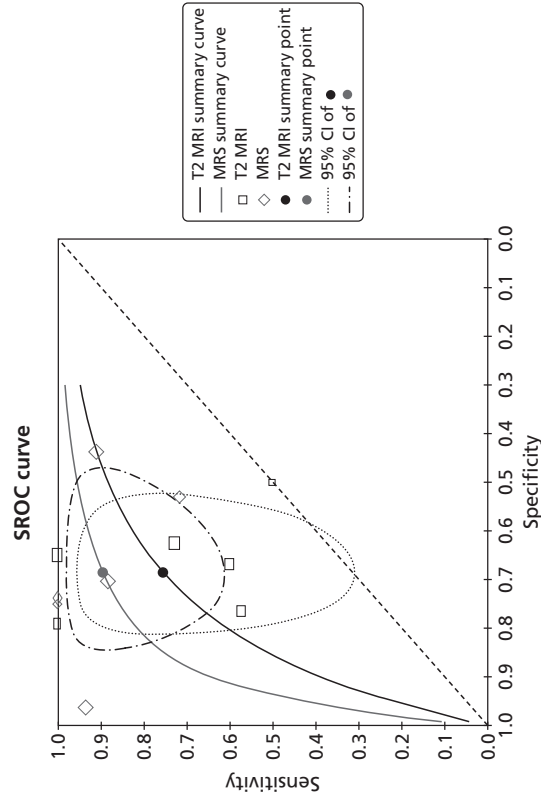
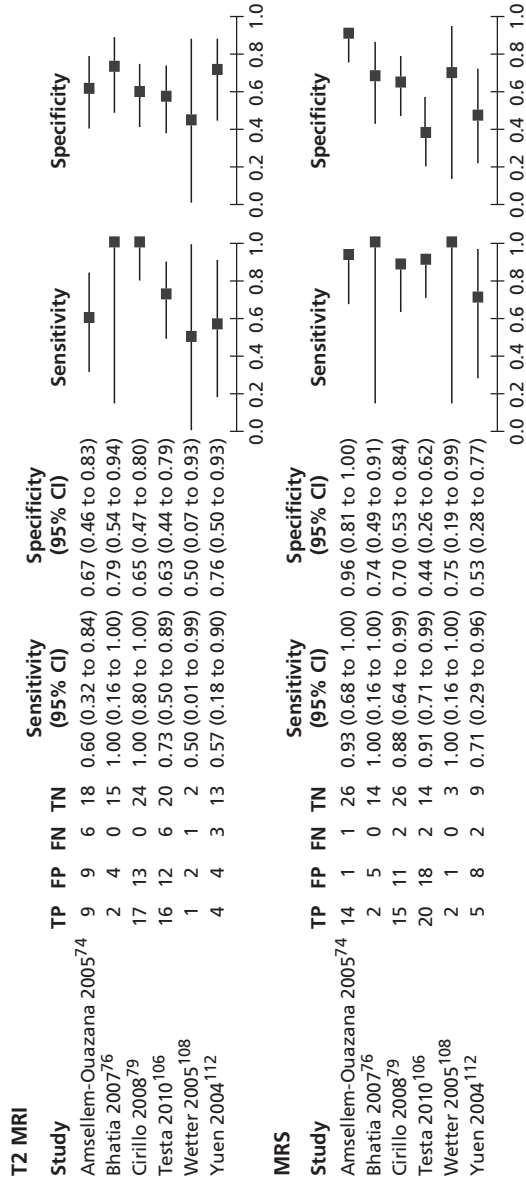


Appendix 13.14: Patient-level pooled estimates from indirect comparison after removing the Franiel study⁸⁴ and also TRUS as test, assuming accuracy does not vary with threshold

Parameter	Estimate	95% CI	
		Lower	Upper
Sensitivity for T2-MRI	0.84	0.73	0.91
Sensitivity for DCE	0.82	0.71	0.90
Sensitivity for MRS	0.92	0.86	0.96
Sensitivity for T2 and MRS	0.76	0.45	0.92
Sensitivity for T2 or DCE	0.94	0.65	0.99
Sensitivity for T2 or MRS	0.97	0.90	0.99
Specificity for T2-MRI	0.58	0.49	0.66
Specificity for DCE	0.51	0.24	0.78
Specificity for MRS	0.65	0.47	0.79
Specificity for T2 and MRS	0.77	0.65	0.86
Specificity for T2 or DCE	0.20	0.07	0.44
Specificity for T2 or MRS	0.33	0.25	0.44
DOR for MRI	7.29	3.56	14.96
DOR for DCE	4.95	1.33	18.39
DOR for MRS	22.13	8.37	58.53
DOR for T2 and MRS	10.26	2.37	44.48
DOR for T2 or DCE	4.14	0.77	22.15
DOR for T2 or MRS	18.26	4.34	76.77
LR+ for MRI	2.00	1.62	2.48
LR+ for DCE	1.69	0.91	3.14
LR+ for MRS	2.61	1.63	4.15
LR+ for T2 and MRS	3.25	1.86	5.66
LR+ for T2 or DCE	1.18	0.99	1.41
LR+ for T2 or MRS	1.46	1.26	1.70
LR- for MRI	0.27	0.16	0.49
LR- for DCE	0.34	0.11	0.99
LR- for MRS	0.10	0.04	0.21
LR- for T2 and MRS	0.37	0.13	1.08
LR- for T2 or DCE	0.29	0.04	2.02
LR- for T2 or MRS	0.08	0.02	0.34

Appendix 13.15: Magnetic resonance spectroscopy compared with T2-weighted magnetic resonance imaging patient-level analysis: sensitivity, specificity, pooled estimates and summary receiver operating characteristic curve, assuming an underlying common shape

Sensitivity and specificity – individual study results



MRS pooled estimates (95% CI)	
Sensitivity	0.89 (0.78 to 0.95)
Specificity	0.69 (0.57 to 0.78)
DOR	18.37 (6.80 to 49.59)
LR+	2.84 (1.67 to 3.44)
LR-	0.15 (0.07 to 0.35)
T2-MRI pooled estimates (95% CI)	
Sensitivity	0.75 (0.60 to 0.86)
Specificity	0.69 (0.57 to 0.78)
DOR	6.66 (2.92 to 15.15)
LR+	2.39 (1.67 to 3.44)
LR-	0.36 (0.21 to 0.61)