Table S1 Quality assessment of each study using QUADAS-2

Study ID	QUADAS Signaling Questions																
	Patients selection			Index test		Reference standard		Flow and timing			Risk of bias				Concerns regarding applicability		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Bursell 2001	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Fransen 2002	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No*	Unclear	Low	Low	Low	Low	Low	Low
Lin 2002	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No#	No#	Low	Low	Low	High	Low	Low	Low
Massin 2003	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Boucher 2003	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	High	Low	Low	Low	Low	Low	Low
Hansen 2004	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	High	Low	Low	Low	Low	Low	Low
Schiffman 2005	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No¢	Low	Low	Low	High	Low	Low	Low
Rudnisky 2007	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No⊗	No⊗	Unclear	Low	Low	Low	Low	Low	Low
Li 2010(1)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Li 2010(2)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No~	Unclear	Low	Low	Low	Low	Low	Low
Li 2010(3)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Li 2010(4)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Li 2011(1)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No¬	Unclear	Low	Low	Low	Low	Low	Low
Gangaputra 2011	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Low	Low	Low	Low	Low	Low
Hubbard 2011	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No£	Unclear	Low	Low	Low	Low	Low	Low
Kernt 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No∂	Low	Low	Low	High	Low	Low	Low
Maker 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	High	Low	Low	Low	Low	Low	Low
Silva2012(1)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No§	Unclear	Low	Low	Low	Low	Low	Low
Silva2012(2)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No$	No$	Unclear	Low	Low	Low	Low	Low	Low
Kernt 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low	Low	Low	Low	Low	Low	Low

1. Was a consecutive or random sample of patients enrolled?
2. Was a case-control design avoided?
3. Did the study avoid inappropriate exclusions?
4. Was the index test results interpreted without knowledge of the results of the reference standard?
5. If a threshold was used, was it prespecified?
6. Is the reference standard likely to correctly classify the target condition?
7. Were the reference standard results interpreted without knowledge of the results of the index test?
8. Was there an appropriate interval between index test and reference standard?
9. Did all patients receive the same reference standard?
10. Were all patients included in the analysis?
11. Could the selection of patients have introduced bias?
12. Could the conduct or interpretation of the index test have introduced bias?
13. Could the reference standard, its conduct, or its interpretation have introduced bias?
14. Could the patient flow have introduced bias?
15. Is there concern that the included patients do not match the review question?
16. Is there concern that the index test, its conduct, or interpretation differ from the review question?
17. Is there concern that the target condition as defined by the reference standard does not match the review question?

Notes:

* Of 307 patients enrolled, 17 patients with ungradeable film sets were excluded.

[#] Of 403 patients recruited, 197 patients who underwent all three diagnostic examinations and with gradable standard seven-field color photography were analyzed.

[¢] Eyes (>10%) with ungradeable images were not included in the analysis.

[⊗] 114 subjects were eligible, 3 refused enrolment, and 9 were excluded because they were unable to tolerate the photographing process.

[~] Three eyes with ungradeable monoscopic digital images were excluded.

[¬] One eye with ungradeable monoscopic mosaic digital image was excluded.

[£] 319 subjects were enrolled. 310 subjects with gradable photographs in both eyes were included in person-level analysis. 628 eyes with gradable photographs were included in eye-level analysis.

[∂] 18 eyes which were not adequately assessed on the basis of digital images or 7F-ETDRS were excluded from the analysis.

[§] 4 subjects（8 eyes) that did not complete the study were excluded from the analysis.

[$] 206 eyes of 103 subjects were enrolled, 200 eyes completed the ETDRS photographing process.

Table S2 Results of threshold effect analysis

Clinical level	Spearman correlation coefficient	*P*-value
Absence of DR	0.020	0.935
Mild NPDR	-0.028	0.909
Moderate NPDR	0.024	0.923
Severe NPDR	0.559	0.013
Low-risk PDR	0.551	0.022
High-risk PDR	0.691	0.006
DME	0.464	0.294
CSME	0.111	0.732

Notes: DR: diabetic retinopathy; NPDR: nonproliferative diabetic retinopathy; PDR: proliferative diabetic retinopathy; DME: diabetic macular edema; CSME: clinically significant macular edema.

Table S3 Subgroup analyses of telemedicine in DR and DME detection

Measure of test accuracy		Pooled summary measure (95% CI)	Inconsistency (I-square)	*P*-value	Measure of test accuracy		Pooled summary measure (95% CI)	Inconsistency (I-square)	*P*-value
Mydriatic, 7-field, 30°, stereoscopic, color, noncompressed (n=3)					Mydriatic, 7-field, 30°, stereoscopic, color, compressed (n=2)				
Absence of DR	Se	92%(88%-95%)	92.8%	<0.001	Absence of DR	Se	83% (74%-90%)	57.4%	0.1253
	Sp	95%(93%-97%)	84.1%	0.0019		Sp	94% (92%-96%)	73.9%	0.0502
	PLR	22.63(8.72-58.73)	70.6%	0.0334		PLR	19.56(6.05-63.31)	76.1%	0.0410
	NLR	0.11(0.02-0.65)	95.5%	<0.001		NLR	0.16(0.06-0.40)	50.6%	0.1547
	DOR	201.01(56.55-714.50)	65.4%	0.0557		DOR	141.40(17.83-1121.40)	78.2%	0.0323
Mild NPDR	Se	73% (67%-77%)	52.0%	0.1244	Mild NPDR	Se	82% (78%-86%)	2.6%	0.3109
	Sp	96% (94%-97%)	33.2%	0.2237		Sp	82% (78%-86%)	95.7%	<0.001
	PLR	15.61(8.46-28.82)	56.9%	0.0982		PLR	7.23(1.56-33.55)	91.4%	0.0006
	NLR	0.29(0.21-0.40)	61.2%	0.0758		NLR	0.23(0.18-0.28)	0.0%	0.7395
	DOR	56.06(22.40-140.30)	70.0%	0.0357		DOR	29.16(7.04-120.75)	82.2%	0.0177
Moderate NPDR	Se	70% (61%-78%)	38.9%	0.1944	Moderate NPDR	Se	60% (52%-68%)	86.0%	0.0076
	Sp	94% (92%-95%)	94.0%	<0.001		Sp	94% (9%1-95%)	12.6%	0.2849
	PLR	9.59(2.69-34.17)	92.4%	<0.001		PLR	9.06(6.50-12.63)	0.0%	0.8651
	NLR	0.36(0.22-0.57)	67.2%	0.0476		NLR	0.38(0.21-0.69)	80.6%	0.0231
	DOR	27.15(5.34-137.99)	89.0%	0.0001		DOR	21.24(13.44-33.57)	0.0%	0.3213
Severe NPDR	Se	64% (35%-87%)	0.0%	0.8308	Severe NPDR	Se	67% (22%-96%)	62.0%	0.1046
	Sp	98% (97%-99%)	90.0%	<0.001		Sp	99% (98%-99%)	96.2%	<0.001
	PLR	29.21(4.97-171.75)	81.6%	0.0044		PLR	28.33(2.95-271.63)	57.3%	0.1261
	NLR	0.39(0.20-0.77)	0.0%	0.7862		NLR	0.45(0.08-2.49)	69.3%	0.0712
	DOR	80.09(8.14-787.60)	66.8%	0.0492		DOR	85.59(12.10-605.62)	0.0%	0.5492
Low-risk PDR	Se	75% (60%-86%)	58.2%	0.0914	Low-risk PDR	Se	91% (83%-96%)	66.9%	0.0820
	Sp	99% (99%-100%)	46.3%	0.1553		Sp	99% (98%-99%)	0.0%	0.8312
	PLR	88.88(31.89-247.70)	19.7%	0.2877		PLR	68.33(35.59-131.19)	0.0%	0.6811

	NLR	0.29(0.14-0.58)	50.0%	0.1354		NLR	0.11(0.03-0.37)	73.9%	0.0503
	DOR	425.79(126.87-1429.02)	2.9%	0.3569		DOR	637.74(153.86-2643.33)	46.5%	0.1716
High-risk PDR	Se	95% (74%-100%)	50.2%	0.1342	High-risk PDR	Se	83% (52%-98%)	90.8%	0.0010
	Sp	99% (98%-99%)	92.9%	<0.001		Sp	100% (99%-100%)	0.0%	0.5396
	PLR	60.02(6.03-597.27)	87.6%	0.0003		PLR	75.31(18.77-302.13)	0.0%	0.6119
	NLR	0.15(0.04-0.62)	20.1%	0.2859		NLR	0.21(0.00-268.13)	96.3%	<0.001
	DOR	601.77(100.22-3613.38)	0.5%	0.3661		DOR	315.79(6.34-15731.93)	65.0%	0.0911
CSME	Se	73% (61%-83%)	88.1%	0.0037	CSME	Se	70% (58%-80%)	83.0%	0.0152
	Sp	98% (96%-99%)	0.0%	0.4545		Sp	98% (96%-99%)	0.0%	0.7347
	PLR	38.64(6.71-222.62)	61.1%	0.1089		PLR	25.24(10.71-59.51)	22.3%	0.2565
	NLR	0.31(0.09-1.06)	90.6%	0.0011		NLR	0.34(0.14-0.83)	85.3%	0.0092
	DOR	131.58(9.02-1919.78)	78.4%	0.0312		DOR	80.07(14.81-432.72)	67.8%	0.0780
Nonmydriatic, 1-field, 100-200^{o}, nonstereoscopic, color, noncompressed (n=3)					Nonmydriatic, 5-field, 45^{o}, nonstereoscopic, color, noncompressed (n=2)				
Absence of DR	Se	94% (84%-99%)	0.0%	0.6403	Absence of DR	Se	84% (76%-90%)	76.9%	0.0376
	Sp	99% (98%-100%)	24.7%	0.2650		Sp	89% (83%-93%)	81.0%	0.0219
	PLR	95.82(30.97-296.40)	0.0%	0.7689		PLR	7.77(2.30-26.26)	84.9%	0.0101
	NLR	0.07(0.03-0.19)	0.0%	0.9655		NLR	0.12(0.01-0.98)	78.9%	0.0294
	DOR	1343.43(279.51-6456.95)	0.0%	0.7838		DOR	67.05(3.69-1217.21)	84.2%	0.0120
Mild NPDR	Se	83% (74%-90%)	37.0%	0.2046	Mild NPDR	Se	55% (44%-65%)	91.4%	0.0006
	Sp	95% (92%-97%)	0.0%	0.5297		Sp	88% (82%-92%)	0.0%	0.3648
	PLR	15.44 (9.52-25.04)	0.0%	0.7167		PLR	4.12(2.61-6.49)	0.0%	0.4823
	NLR	0.17(0.09-0.34)	28.5%	0.2467		NLR	0.51(0.23-1.12)	89.9%	0.0016
	DOR	99.86(44.93-221.92)	0.0%	0.8048		DOR	8.01(2.81-22.87)	63.0%	0.1000
Moderate NPDR	Se	86% (79%-91%)	0.0%	0.3963	Moderate NPDR	Se	73% (54%-87%)	90.0%	0.0016
	Sp	95% (91%-97%)	0.0%	0.5603		Sp	94% (91%-97%)	0.0%	0.3985
	PLR	16.21(9.52-27.60)	0.0%	0.6549		PLR	13.79(8.09-23.49)	0.0%	0.9905
	NLR	0.16(0.10-0.23)	0.0%	0.4224		NLR	0.17(0.01-3.67)	80.5%	0.0235
	DOR	129.97(58.94-286.62)	0.0%	0.9239		DOR	72.26(7.17-728.30)	56.3%	0.1305

Severe NPDR	Se	57% (34%-77%)	61.4%	0.0750	Severe NPDR	Se	59% (36%-79%)	0.0%	0.4633
	Sp	97% (95%-99%)	64.1%	0.0616		Sp	100% (98%-100%)	47.6%	0.1670
	PLR	15.07(7.76-29.25)	0.0%	0.9867		PLR	79.44(15.59-404.77)	0.0%	0.4049
	NLR	0.55(0.27-1.13)	72.6%	0.0262		NLR	0.43(0.26-0.69)	0.0%	0.5734
	DOR	40.24(13.20-122.73)	0.0%	0.8491		DOR	188.80(30.28-1177.20)	0.0%	0.3592
Low-risk PDR	Se	82% (71%-90%)	84.1%	0.0019					
	Sp	97% (94%-98%)	55.9%	0.1035					
	PLR	20.83(11.93-36.39)	0.0%	0.3755					
	NLR	0.11(0.02-0.71)	64.0%	0.0623					
	DOR	191.18(45.13-809.98)	20.5%	0.2841					
High-risk PDR	Se	67% (30%-93%)	78.8%	0.0297					
	Sp	100% (98%-100%)	7.8%	0.2977					
	PLR	123.75(21.72-705.19)	0.0%	0.4949					
	NLR	0.32(0.03-3.10)	67.1%	0.0811					
	DOR	384.77(22.74-6509.83)	32.3%	0.2241					
DME	Se	71% (57%-83%)	87.8%	0.0042					
	Sp	93% (87%-96%)	55.5%	0.1338					
	PLR	7.05(3.85-12.90)	0.0%	0.3915					
	NLR	0.29(0.08-1.05)	79.4%	0.0275					
	DOR	20.36(8.24-50.30)	0.0%	0.4487					
CSME	Se	67% (53%-79%)	87.3%	0.0051					
	Sp	94% (89%-97%)	0.0%	0.4982					
	PLR	11.40(4.39-29.59)	22.9%	0.2548					
	NLR	0.21(0.03-1.65)	78.5%	0.0310					
	DOR	65.83(3.53-1226.60)	74.8%	0.0462					