Evidence Table 5: Visual Function Index (VF-14)

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Alonso 1997 #8250	**Geographical location:** Four international sites: Manitoba, Denmark, Barcelona, and U.S. **Dates:** Not specified **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** Patients were eligible if they were seen by an Ophthalmologist participating in the PORT study, ≥ 50 yrs. of age, and scheduled for a first eye cataract surgery that did not involve a combined procedure.	**Population size (n): 1407** Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):**	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked □ Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other (physical exam) **Respondent:** □ Only patient □ Patient or surrogate □ Only surrogate X Unknown **Time points of administration:** Pre surgery and 1year post surgery	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: 0% of patients with floor effects and 3.4% of patients with ceiling effects. Cronbach's alpha .87. Item-total correlations ranged from .29 to .72. The number of patients with all items applicable was 116/766. Construct validity: VF-14 with visual acuity in operative eye .04, visual acuity in better eye .27, cataract symptom score .51, trouble with vision .45, satisfaction with vision .45, VR-SIP .57. Responsiveness: For all cataract patients, the effect size was 1.01. Note: This study, among first-eye cataract surgery patients, was mostly encouraging, although the item-total correlations were unexceptional and the correlations with visual acuity low.	**Quality assessment:** Meaningfully defined study population: - Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Population table:

	Manit.	Denk.	Barc.	U.S.
n	152	291	198	766
Mean age	71.7	73.5	70.1	72.5
% female	67.1	67	60.6	62.8
% married	62.5	46.4	62.6	56.4
Ed ≥ 8 yrs.	86.8	54.8	13.8	92.3
% working	21.1	19	7.7	18.9

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Arm-brecht 2003 #850	**Geographical location:** Edinburgh, UK **Dates:** 1/98-12/99 **Context:** □ Clinical trial X Cohort □ Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Study group was comprised of 40 patients who were scheduled for cataract surgery and had documented in their records presence of ARMD in the eye to be operated on. The control group comprised 43 patients who were diagnosed with ARMD at the clinic or by fluororescein angiography. This group could have	**Population size (n):** 83 <table><tr><td></td><td>Control</td><td>Study</td></tr><tr><td>Mean age</td><td>75</td><td>80</td></tr><tr><td>% female</td><td>660</td><td>67</td></tr><tr><td>% white</td><td>100</td><td>100</td></tr></table> Eye dx: Not reported **AMD:** **AMD Type:** 100% dry **Laterality:** □ Unilateral X Bilateral **Objective Measure(s) of function (e.g., visual acuity):**	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** X Masked □ Unmasked □ Unknown **Mode of administration:** X Phone interview X Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation □ Other **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Pre-op, 4 mo, and 12 mo	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: Cronbach's alpha .90 Reproducibility: test-retest Spearman correlation .77 Responsiveness: The overall VF-14, as well as most items, improved from baseline to 4 months in the surgery groups, whereas controls did not show similar improvement. No change was observed in either group between months 4 and 12. Notes: This poorly-powered study of patients with cataract surgery provides some evidence in favor of the responsiveness of the VF-14.	**Quality assessment:** Meaningfully defined study population: + Protection from bias: + Consideration of statistical power: - **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	cataract but their fundus photographs or fundal view were clear enough to allow grading of underlying maculopathy.				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Arm-brecht 2005 3330	**Geographical location:** Edinburgh, UK **Dates:** 10/00-4/02 **Context:** □ Clinical trial X Cohort □ Cross sectional □ Other **Inclusion/ Exclusion criteria:** Inclusion: Predominantly classic CNV < 5400 microns, AMD, vision >6/36 In study eye Exclusion: other ocular dz (not CNV) from AMD, inability to photograph/ FA, inability to give informed consent, PDT exclusion criteria	**Population size (n):** 51 Age: Mean 72 (range, 51-87) Sex: 48% male Eye dx: Not reported **AMD:** 100% **AMD Type:** 100% wet **Laterality:** 40% unilateral **Objective Measure(s) of function (e.g., visual acuity):** Distance VA @ 1 yr 23% better ≥ 1 line 71% lost ≤ 3 lines 29% lost > 3 lines AVG: lost 2 lines of vision	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** □ Phone interview X Face to face interview □ Mail questionnaire X In office questionnaire □ Observation □ Other **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate **Time points of administration:** Baseline and every 3 months x 1 yr	**Question 1A: Instrument scores in AMD patients**	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power: - **This article is relevant to:** X Question 1A □ Question 1B □ Question 1C □ Question 2 X Question 3

Objective Measure(s) of function table:

Visual function tests	Base-line Mean (SD)	1 yr Mean (SD)	P value
Distance VA	0.61 (0.19)	0.80 (1.6)	<0.01
Near VA	0.92 (0.28)	1.1 (0.35)	<0.02
Contrast sensitivity	1.14 (0.25)	1.11 (0.35)	0.31
CNV (largest linear diam)	3094 (1201)	4088 (1532)	<0.01

Question 1A: Instrument scores in AMD patients

VF-14	Base-line Mean	SD	1 yr Mean	SD	P value
Read small print	1.4	1.7	1.2	1.6	0.79
Read newspaper/ book	1.7	1.7	1.5	1.7	0.38
Large print books	1.8	1.7	1.3	1.7	0.53
Recognize people close	3.5	0.97	3.3	1.1	0.02
See steps/ curb	3.4	0.74	3.3	0.90	0.79
Read street signs	3.0	1.4	2.1	1.7	<.001
Do fine hand-work	1.5	1.6	0.89	1.4	0.24
Fill forms or checks	2.5	1.5	1.9	1.6	<.001
Cook	3.2	1.2	3.3	0.97	0.85
Watch TV	2.4	1.1	2.5	1.3	0.97
Cross roads	3.0	1.2	2.3	1.4	<0.01
Recognize faces across street	1.9	1.7	1.2	1.6	<0.01
Read bus numbers	2.6	1.5	1.9	1.7	0.02
Social activities	3.1	1.4	3.1	1.2	0.17
Getting about indoors	3.8	0.39	3.8	0.41	0.71
Hobbies	2	1.7	2.1	1.7	0.38
Total VF-14 score	68	26	63	25	0.11

Question 3: Relationship between QOL measures (s) and objective measures

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Cas-sard 1995 #8160	**Geographical location:** Columbus, OH; St. Louis, MO; Houston, TX **Dates:** 7/15/91-12/15/91 **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** 1) patient was seen by ophthalmologist on 7/15/91 or later; 2) patient was scheduled to undergo cataract surgery within 3 mos. following initial visit; 3) patient had not undergone previous cataract surgery; 4) patient was ≥ 50 yrs. 5) planned cataract surgery did not involve any	**Population size (n):** 552 	Mean age	72
White %	94
Female %	63
GT H.S. education	29
Married %	58
Living alone %	32	 Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):**	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other (physical exam) **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Pre-op, and 4 and 12 mo post-surgery	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Reproducibility: ICC was .57 to .79 among patients without change in visual acuity. Mean scores dropped by 0.4 to 1.7 units in this subgroup, depending upon how change in visual acuity was measured. Responsiveness: Among patients with notable changes in visual acuity the effect size was 1.07, much larger than the effect size for the SIP. Effect sizes were highest for patients with a great deal of trouble at baseline (1.49) in comparison with patients with a little trouble at baseline (.87), but all were high. Notes: This well-designed study among patients with first-eye cataract surgery provides good support for the reproducibility and responsiveness of the instrument.	**Quality assessment:** Meaningfully defined study population: - Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	other surgical proc.; 6) English speaking; 7) lived within a 50-mile radius of office; 8) lived within 50 miles of interviewer.				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Cas-tells 1998 #8140	**Geographical location:** 3 public hospitals in Barcelona, Spain, where cataract surgery represented 90% of ophthalmology activity **Dates:** 4/93-1/94 **Context:** □ Clinical trial □ Cohort □ Cross sectional □ Longitudinal X Case series **Inclusion/ Exclusion criteria:** Patients were eligible for the study if they were scheduled for cataract surgery that did not involve a combined procedure and they met the inclusion criteria for outpatient surgery: 10 sufficient social and family support	**Population size (n):** 403 <table><tr><td></td><td>1st eye</td><td>2nd eye</td><td>p</td></tr><tr><td>Mean age</td><td>69.8</td><td>70.1</td><td>.23</td></tr><tr><td>% male</td><td>47</td><td>37.9</td><td>.21</td></tr></table> Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** The total number of AMD Patients = 30.	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked □ Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation □ Other clinical exam **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Pre-op and 4 mo post-op	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Responsiveness: Effect sizes for post-surgical improvement (.8 to 1.0) were greater than those for the SIP. Notes: This analysis, part of a randomized trial of cataract surgery, supports the responsiveness of the Spanish version of this instrument.	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	in postoperative period; 2) distance between the hospital and home was less than 1 hour; 3) no medical comorbidity requiring admission; 4) absence of severe ocular comorbidities or background of intraocular surgery.				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Desai 1993-1994 #7240	**Geographical location:** 3 district general hospitals in London, UK **Dates:** 5/93-8/94 **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** Patients admitted for surgery for age-related cataract, for first eye, and subsequently for second eye. Patients having combined procedures or surgery for other types of cataract were excluded.	**Population size (n):** 337 	% ≥ 75 yrs	59.3
% male	38.9	 Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):**	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked X Unmasked □ Unknown **Mode of administration:** □ Phone interview X Face to face interview (at home) □ Mail questionnaire □ In office questionnaire □ Observation □ Other **Respondent:** □ Only patient □ Patient or surrogate □ Only surrogate X Unknown **Time points of administration:** Pre-op, and 4 and 12 mo post surgery	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: Cronbach's alpha .74 Construct validity: VF-14 was significantly correlated with both visual acuity (.48) and the VR-SIP (.70) Responsiveness: Significant improvement was observed at both 4 and 12-months post cataract surgery. However, the VF-14 did not significantly distinguish between those with different magnitude of gains in visual acuity. Notes: A solid study of responsiveness in patients with cataract surgery.	**Quality assessment:** Meaningfully defined study population: - Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Gresset 1997 #8260	**Geographical location:** Ophthalmology Clinic of Maisonneuve-Rosemont Hospital at University of Montreal, Canada **Dates:** 5/95-6/95 **Context:** □ Clinical trial □ Cohort X Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Consecutive patients with ocular media opacities, such as cataracts and corneal opacities were recruited. Only subjects with-out cognitive or hearing impairments who spoke French or both French and English were included. Patients with visual field defects were excluded.	**Population size (n):** 66 		
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Mean age	69.7
% female	43.9
% married	57.6
% living alone	25.8	 Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** Not reported	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation □ Other **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** NA (cross sectional)	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: 17 of 66 patients considered all 14 items to be applicable. Cronbach's alpha was .96, item-total correlations ranged from .51 to .93. Reproducibility: The ICC was .88. Construct validity: Correlations were high with the cataract symptom score (.73), a global measure of trouble with vision (.69), and a global measure of satisfaction with vision (.77), these correlations exceeding the correlations between SF-36 subscales and these same measures. Correlations with the SF-36 subscales were moderate (.19 to .38). Notes: This small cross-sectional study among a cohort of patients within an ophthalmology clinic provides relatively little evidence in support of a foreign-language version of the instrument.	**Quality assessment:** Meaningfully defined study population: Protection from bias: 0 Consideration of statistical power: + but low power **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Javitt 1995 #5450	**Geographical location:** Columbus, OH; St. Louis, MO; Houston, TX **Dates:** 7/15/91-12/15/91 **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** Patients ≥ 50 yrs. of age; have no planned simultaneous surgery for glaucoma, corneal or vitreoretinal disorders; speak English; live within 50 miles of office.	**Population size (n): 669** <table><tr><td></td><td>Eye -1</td><td>Eye -2</td><td>p</td></tr><tr><td>Mean age</td><td>71.8</td><td>73.0</td><td>NS</td></tr><tr><td>Male %</td><td>38</td><td>35.4</td><td>NS</td></tr><tr><td>Married %</td><td>58.5</td><td>54.3</td><td>NS</td></tr><tr><td>Living alone %</td><td>30.8</td><td>36.2</td><td>NS</td></tr><tr><td>White %</td><td>94.3</td><td>94.7</td><td>NS</td></tr></table> Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):**	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other (physical exam) **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** At enrollment, 4 mos. after first surgery; and 12 mos. After first eye surgery.	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Responsiveness: As expected, patients with surgery in 2 eyes had greater improvement in the VF-14 than patients with surgery in a single eye. Notes: A solid study of responsiveness in patients with cataract surgery.	**Quality assessment: -** Meaningfully defined study population: Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Linder 1999 #1940	**Geographical location:** Vancouver, BC **Dates:** 5/1-8/15/98 **Context:** □ Clinical trial □ Cohort X Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Patients attending the Vancouver General Hospital Eye Care Centre retina clinic consecutively between study dates. Age 16 and older who speak English.	**Population size (n):** 546 <table><tr><td>Mean age</td><td>55</td></tr><tr><td>Female %</td><td>48</td></tr><tr><td>White %</td><td>74</td></tr></table> Eye dx: Not reported **AMD:** 13% **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** 71 Patients with AMD included	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked X Unmasked □ Unknown **Mode of administration:** □ Phone interview X Face to face interview □ Mail questionnaire X In office questionnaire □ Observation X Other (physical exam) **Respondent:** □ Only patient X Patient or surrogate (90% self and 10% assisted) □ Only surrogate □ Unknown **Time points of administration:** NA (cross sectional)	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: Cronbach's alpha .91 Construct validity: Significant correlations in the expected direction with Snellen WMAR (.45), quality of vision scales (.50), satisfaction with vision scale (.43) and trouble with vision scale (.63) Scores on the VF-14 decreased with decreasing visual acuity. Notes: Overall, a high-quality validation study among a population of patients with a diverse set of visual problems.	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Mac-Kenzie 2002 #1130	**Geographical location:** Vancouver, BC, retina-only clinic **Dates:** 5/98-8/98 and 5/99-8/99 **Context:** □ Clinical trial □ Cohort □ Cross sectional □ Longitudinal X Case series **Inclusion/ Exclusion criteria:** Consecutive patients with AMD who could communicate in English and provide informed consent were considered eligible for the study. Patients with multiple retinal conditions and patients with branch retinal vein occlusions and diabetic retinopathy in the absence of AMD were excluded from	**Population size (n):** 159 <table><tr><td>Mean age</td><td>75</td></tr><tr><td>% female</td><td>62</td></tr><tr><td>% White</td><td>83</td></tr></table> Eye dx: Not reported **AMD:** 100% **AMD Type:** 84% wet only 11% dry only 8% wet and dry **Laterality:** □ Unilateral X Bilateral **Objective Measure(s) of function (e.g., visual acuity):** Corrected visual acuity: Better eye: 20/30 (20/20 – LP) Worse eye: 20/200 (20/20 – NLP) Weighted logMAR: 0.34	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** □ Phone interview □ Face to face interview □ Mail questionnaire X In office questionnaire □ Observation □ Other **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Enrollment	**Question 1A: Instrument scores in AMD patients:** (see table below)	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power: - **This article is relevant to:** X Question 1A □ Question 1B X Question 1C □ Question 2 X Question 3

VF-14	No diff (%)	Little dif (%)	Mod diff (%)	Great deal (%)	Unable to do (%)
Read small print	20	23	17	23	17
Read newspaper/ book	30	19	16	22	13
Large print books	60	15	12	8	6
Recognize people close	72	12	7	8	1
See steps/curb	56	26	8	9	0
Read street signs	44	29	12	10	6
Do fine handwork	30	26	15	15	15
Fill forms or checks	49	20	11	12	9
Cooking	64	16	13	6	1
Watch TV	50	23	14	12	1

SF-36	Mild (128)	Moderate (62)	Severe (11)	P value
Physical functioning	79	80	79	
Role-physical	67	76	77	
Bodily pain	73	75	82	
General Health	68	68	63	
Vitality	61	59	66	
Social functioning	92	92	99	
Role-emotional	82	87	88	
Mental Health	75	74	73	

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	the study.				

Physical Component	-0.35	-0.23	-0.19
Mental Component	-0.22	0.18	0.32

Question 1C: psychometric properties (validity, reliability, responsiveness)
Internal consistency: Cronbach's alpha .95 (in the subset of patients that rated all 14 items as applicable)

Construct validity: VF-14 total score was most strongly correlated (.62 to .67) with 3 global items (trouble with vision, satisfaction with vision, and overall quality of vision), well-correlated with visual acuity (.49) and also strongly correlated with weighted visual acuity (.69). The correlations were notably higher than those between SF-36 subscales and other vision scores. There was a strong bivariate relationship between AMD severity and VF-14 total score [manuscript table 6]. It was not possibly to definitively disentangle the effects of AMD severity from those of visual acuity.

Notes:This study of clinic patients, including those with AMD, provides moderate support for the cross-sectional validity of the VF-14, and continued support for the notion that condition-specific measures are preferable to general measures among patients with AMD.

Question 3: Relationship between QOL measures (s) and objective measure

	Mild AMD (#54) Gps 1/2	Moderate AMD (#62) Gps3/4	Severe (#43) Gps 5/6/7	P value (adjusted for visual acuity)
VF-14 mean	86/81	74/71	71/62/45	0.54
Weighted Visual Acuity, mean	0.12/0.26	0.43/0.41	0.52/0.70/ 1.09	-----
SF-36, mean				
Physical functioning	80/71	76/74	57/66/59	0.28
Role- physical	67/70	71/65	45/44/51	0.34

Study	Study Design	Study Population	Instrument Characteristics	Results					Quality Scoring/ Comments
				Bodily pain	69/74	70/80	72/61/81	0.12	
				General Health	64/73	65/69	55/69/68	0.18	
				Vitality	57/57	58/61	56/58/52	0.41	
				Social functioning	81/85	82/90	60/79/71	0.26	
				Role-emotional	75/86	74/80	40/63/76	0.44	
				Mental Health	21/22	21/15	22/16/18	0.44	
				Physical Component	47/46	46/47	44/41/42	0.84	
				Mental Component	49/53	50/52	38/52/51	0.70	

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Nij-kamp 2000 #4470	**Geographical location:** The Netherlands Inpatient, outpatient facilities **Dates:** 1/98 **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** Patients consisted of 3 subgroups based on the institution (inpatient and outpatient) at which the cataract surgery was performed. Inclusion criteria were first-eye cataract surgery to prevent bias from earlier experiences and age older than 50 years.	**Population size (n):** 150 <table><tr><td></td><td>UHM</td><td>MCMA</td><td>AMCH</td></tr><tr><td>Mean age</td><td>77.4</td><td>74.6</td><td>72.3</td></tr><tr><td>% male</td><td>41.2</td><td>46.6</td><td>39</td></tr><tr><td>Education (primary)</td><td>37.3</td><td>44.8</td><td>48.8</td></tr><tr><td>Lives alone</td><td>39.2</td><td>48.3</td><td>51.2</td></tr></table> UHM=University Hospital Maastricht AMCH=Atrium Medical Center Heerlen MCMA=Medical Center Maastricht Annadal Eye dx: Not reported **AMD:** 6% Glaucoma: 9% Diabetic retinopathy: 4% Corneal disease: 8% Other 2% Other central vision loss (by type): Cataract 100% **AMD Type:** Not reported **Laterality:** X Unilateral □ Bilateral **Objective Measure(s) of function (e.g., visual acuity):** 41/150=27.3% 58/150=39% 51/150=34% Mean postoperative logMAR 0.16±26	**Instrument/ Technique Name:** VF-14, Dutch **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** □ Phone interview □ Face to face interview X Mail questionnaire □ In office questionnaire □ Observation □ Other **Respondent:** □ Only patient □ Patient or surrogate X Only surrogate □ Unknown **Time points of administration:** 6 mos post surgery	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Construct validity: **Question 3: Relationship between QOL measures (s) and objective measure** Reliability: Cronbach's alpha for 3 factor solution were 0.84, 0.88, 0.59. Validity score correlate with visual function (r=-0.283) Responsiveness: not evaluated	**Quality assessment:** Meaningfully defined study population: Protection from bias: + Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 X Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Riusala 2003 #940	**Geographical location:** Finland **Dates:** 6/90-12/94 **Context:** □ Clinical trial □ Cohort □ Cross sectional □ Longitudinal X Case series **Inclusion/ Exclusion criteria:** Consecutive patients with recent neovascular AMD.	**Population size (n):** 62 	Mean age	76

% female	65	
		
		Eye dx: Not reported
		
		AMD: 100%
		
		AMD Type: 100% wet
		
		Laterality:
		X Unilateral
		□ Bilateral
		
		Objective Measure(s) of function (e.g., visual acuity):
		Corrected visual acuity:
		  Better eye: 0.3 logMAR
		  Worse eye: 0.04 logMAR
			Instrument/ Technique Name: VF-14
			
			Method of administration:
			
			By whom:
			□ Masked
			□ Unmasked
			X Unknown
			
			Mode of administration:
			□ pphone interview
			X Face to face interview
			□ Mail questionnaire
			□ In office questionnaire
			□ Observation
			□ Other
			
			Respondent:
			X Only patient
			□ Patient or surrogate
			□ Only surrogate
			□ Unknown
			
			Time points of administration: At enrollment
				see tables below	**Quality assessment:** Meaningfully defined study population:+ Protection from bias: 0 Consideration of statistical power: -
					
					This article is relevant to:
					X Question 1A
					□ Question 1B
					□Question 1C
					□ Question 2
					X Question 3

Question 1A: Instrument scores in AMD patients

VF-14 Wet AMD in better eye	No diff (%)	Little dif (%)	Mod diff (%)	Great deal (%)	Unable to do (%)
Read small print	0	4	7	0	89
Read newspaper/ book	4	12	8	0	77
Large print books	21	4	11	18	46
Recognize people close	43	7	14	21	14
See steps/curb	46	7	14	25	7
Read street signs	18	13	7	14	54
Do fine handwork	4	0	15	12	69
Fill forms or checks	14	0	0	11	75
Cooking	33	8	29	20	8
Watch TV	18	11	11	40	21
Playing table games	20	7	7	13	53
Sports involvement	0	20	20	0	60
Driving Daytime	0	0	0	0	0
Driving Nighttime	0	0	0	0	0

VF-14 Wet AMD in worse eye	No diff (%)	Little dif (%)	Mod diff (%)	Great deal (%)	Unable to do (%)
Read small print	27	24	24	12	15
Read newspaper/ book	74	6	12	3	6
Large print	94	3	0	3	0

Study	Study Design	Study Population	Instrument Characteristics	Results						Quality Scoring/ Comments
				books						
				Recognize people close	100	0	0	0	0	
				See steps/curb	65	18	12	6	0	
				Read street signs	71	15	3	9	3	
				Do fine handwork	40	10	27	10	13	
				Fill forms or checks	73	15	0	3	9	
				Cooking	77	10	7	7	0	
				Watch TV	71	9	15	6	0	
				Playing table games	89	6	6	0	0	
				Sports involvement	78	11	0	11	0	
				Driving Daytime	100	0	0	0	0	
				Driving Nighttime	27	46	9	18	0	

Question 3: Relationship between QOL measures (s) and objective measure

Correlation between VF-14 and visual acuity (p<.05 = +)	Wet AMD better eye Best eye	Wet AMD in better eye (worse eye)	Wet AMD in worse eye (better eye)	Wet AMD in worse eye (worse eye)
Read small print	+		+	
Read newspaper /book	+		+	
Large print books	+		+	
Recognize people close	+			
See steps/curb	+	+		

Study	Study Design	Study Population	Instrument Characteristics	Results				Quality Scoring/ Comments
				Read street signs	+		+	+
				Do fine handwork			+	
				Fill forms or checks	+	+	+	+
				Cooking	+	+		
				Watch TV	+		+	+
				Playing table games		+	+	
				Sports involve-ment				
				Driving Daytime				
				Driving Nighttime				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Sharma 2002 #1110	**Geographical location:** Philadelphia, PA, retina clinic **Dates:** 2001 **Context:** □ Clinical trial □ Cohort X Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Patients were eligible if they had 20/40 vision or worse in at lest one eye and were deemed competent to answer the required questions. Patients were excluded for communication barriers, developmental disability and psychiatric illness.	**Population size (n):** 323 <table><tr><td>61-70 yrs.</td><td>29.1</td></tr><tr><td>71-80 yrs.</td><td>36.2</td></tr><tr><td>≥ 80 yrs age</td><td>10.5</td></tr><tr><td>% female</td><td>63.5</td></tr><tr><td>% white</td><td>96.3</td></tr><tr><td>> H.S educ.</td><td>42.2</td></tr><tr><td>Retired %</td><td>50.8</td></tr><tr><td>Employed %</td><td>39.6</td></tr></table> Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** □ Unilateral X Bilateral **Objective Measure(s) of function (e.g., visual acuity):** Vision in better seeing eye 20/25 or better: 23% 20/30-20/50: 42% 20/60-20/100: 18% 20/200-20/400: 11% CF to NLP: 5%	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** X Masked □ Unmasked □ Unknown **Mode of administration:** □ Phone interview X Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation □ Other **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** NA (cross sectional)	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Construct validity: The VF-14 was correlated with vision in the better eye. | Vision in better seeing eye	VF – 14 score
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20/25	90.7 (88.3-93.1)
20/30-20/50	79.28 (76.14-82.41)
20/60-20/100	51.01 (45.55-56.48)
20/200-20/400	34.03 (27.44-40.62)
CF to NLP	18.25 (5.49-31.02)	 Notes: This study of a diverse cohort of patients including those with AMD supports the construct validity of the VF-14, as well as the time trade-off and standard gamble.	**Quality assessment:** Meaningfully defined study population: Protection from bias: + Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Stein-berg 1994 #8240	**Geographical location:** Columbus, OH; St. Louis, MO; Houston, TX **Dates:** 7/15/91-12/15/91 **Context:** □ Clinical trial □ Cohort X Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Medicare beneficiaries and met the following: 1) patient was seen by ophthalmologist on 7/15/91 or later; 2) patient was scheduled to undergo cataract surgery within 3 mos. following initial visit; 3) patient had not undergone previous cataract surgery; 4) patient was ≥ 50 yrs.	**Population size (n):** 772 <table><tr><td>Mean age</td><td>72</td></tr><tr><td>Range</td><td>50-95</td></tr><tr><td>Female %</td><td>63</td></tr><tr><td>White %</td><td>94</td></tr><tr><td>Education > H.S. %</td><td>28</td></tr><tr><td>Married %</td><td>56</td></tr><tr><td>Living alone %</td><td>33</td></tr></table> Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** Pre-operative best corrected visual acuity in each eye	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** X Phone interview X Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other (physical exam) **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** NA (cross sectional)	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: Median number of applicable items 12 of 14. Factor analysis supported a single scale. Cronbach's alpha was .85, item-total correlations ranged from .32 to .61. Construct validity: Correlations with visual acuity were modest (.03 to .27); correlations with self-reported global items were moderate (.39 for satisfaction with vision, .45 for trouble with vision), correlation with VR-SIP was .57. The VF-14 had higher correlations with the global items than did the VR-SIP. Notes: This study provides a moderate level of support from the cross-sectional validity of the instrument.	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	5) planned cataract surgery did not involve any other surgical proc.; 6) English speaking; 7) lived within a 50-mile radius of office; 8) lived within 50 miles of interviewer.				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Tielsch 1995 #8120	**Geographical location:** Columbus, OH; St. Louis, MO; Houston, TX **Dates:** 7/15/91-12/15/91 **Context:** □ Clinical trial □ Cohort □ Cross sectional X Longitudinal **Inclusion/ Exclusion criteria:** 1) patient was seen by ophthalmologist on 7/15/91 or later; 2) patient was scheduled to undergo cataract surgery within 3 mos. following initial visit; 3) patient had not undergone previous cataract surgery; 4) patient was ≥ 50 yrs. 5) planned cataract surgery did not involve any	**Population size (n):** 552 	Mean age	72
Male %	37.1
White %	94.4
> H.S. educ.	29.5	 Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** Included 55 Patients with AMD	**Instrument/ Technique Name:** VF-14 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** X Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other (physical exam) **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Pre-operatively; at 4 mos.	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Construct validity: At baseline, patients with good vision in their better eye had better scores than others. No such trend was observed in the operated eye. At baseline, the VF-12 was correlated with global items on trouble with vision (.43) and satisfaction with vision (.31). Notes: Most of this article, taken from the patient population in a study of cataract surgery, is focused on patient expectations for improved quality of life, which are outside the scope of this review.	**Quality assessment:** Meaningfully defined study population: - Protection from bias: 0 Consideration of statistical power: + **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
	other surgical proc.; 6) English speaking; 7) lived within a 50-mile radius of office; 8) lived within 50 miles of interviewer.				

Evidence Table 5: Visual Function Index (VF-14) – continued

Study	Study Design	Study Population	Instrument Characteristics	Results	Quality Scoring/ Comments
Velozo 2000 #8440	**Geographical location:** Two surgical centers **Dates:** 2000 **Context:** □ Clinical trial X Cohort □ Cross sectional □ Longitudinal **Inclusion/ Exclusion criteria:** Patients who were about to undergo extracapsular cataract removal at one of two surgical centers.	**Population size (n):** 61 <table><tr><td>Mean age</td><td>73.7</td></tr><tr><td>% male</td><td>31</td></tr><tr><td>First eye surgery</td><td>51</td></tr><tr><td>Second eye sugery</td><td>28</td></tr></table> Eye dx: Not reported **AMD:** Not reported **AMD Type:** Not reported **Laterality:** Not reported **Objective Measure(s) of function (e.g., visual acuity):** Not reported	**Instrument/ Technique Name:** VF-14 +10 items or VF-24 **Method of administration:** **By whom:** □ Masked □ Unmasked X Unknown **Mode of administration:** □ Phone interview □ Face to face interview □ Mail questionnaire □ In office questionnaire □ Observation X Other administered in clinic, method not specified **Respondent:** X Only patient □ Patient or surrogate □ Only surrogate □ Unknown **Time points of administration:** Prior to surgery	**Question 1C: psychometric properties (validity, reliability, responsiveness)** Internal consistency: Cronbach's alpha ranged from .83 to .91. Scaling consistency: A Rasch analysis of the VF-14 suggested that a number of potential limitations, including too many response categories, ceiling effects, redundant items and missing items. A 10-item version of the instrument exhibited better scaling properties.	**Quality assessment:** Meaningfully defined study population: + Protection from bias: 0 Consideration of statistical power:+ but low power **This article is relevant to:** □ Question 1A □ Question 1B X Question 1C □ Question 2 □ Question 3