NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1536 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Cataracts: Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery
De.2 **Brief description of measure:** Percentage of patients aged 18 years and older who had cataract surgery and had improvement in visual function achieved within 90 days following the cataract surgery
1.1-2 **Type of Measure:** Outcome De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Composite measure including existing PQRI measures Measures 191 – 20/40 or better visual acuity within 90 days following cataract surgery and 192 – complications within 30 days of cataract surgery requiring additional surgical procedures, and another new measure: Cataracts: Patient Satisfaction within 90 Days Following Cataract Surgery
De.4 **National Priority Partners Priority Area:** Patient and family engagement De.5 **IOM Quality Domain**: Patient-centered De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission	**A** Y☐ N☐

A.4 **Measure Steward Agreement attached:** txNQFMeasureStewardAgreement_020309_Final.pdf	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Payment Program, Public Reporting, Quality Improvement (Internal to the specific organization), Quality Improvement with Benchmarking (external benchmarking to multiple organizations)	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Cataracts are the leading cause of blindness worldwide and remain an important cause of blindness and visual impairment in the United States, accounting for approximately 50% of visual impairment in adults over the age of 40. Cataracts are the leading cause of treatable blindness among Americans of African descent age 40 and older and are the leading cause of visual impairment among Americans of African, Hispanic/Latino, and European descent. Cataract surgery with IOL implantation was the most frequently performed operation and the single largest expenditure for any Part B surgical procedure in the Medicare program, calculated by Part B procedure codes based on allowed charges. In 2008 (latest year available), payment for cataract was $2.1 billion, which is 1.8% of total allowed charges. 1a.4 **Citations for Evidence of High Impact:** 1. Congdon N, O´Colmain B, Klaver CC, et al. Causes and prevalence of visual impairment among adults in the United States. Arch Ophthalmol 2004;122:477-85. 2. Cotter SA, Varma R, Ying-Lai M, et al. Causes of low vision and blindness in adult Latinos: the Los Angeles Latino Eye Study. Ophthalmology 2006;113:1574-82.	**1a** C☐ P☐ M☐ N☐

3. Centers for Medicare and Medicaid Services. Medicare leading Part B procedure codes based on allowed charges: calendar year 2010. Available at: www.cms.hhs.gov/datacompendium/. Accessed December 10, 2010.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** The benefits are to enhance improvement of visual function of patients receiving cataract surgery. The primary indication for surgery is visual function that no longer meets the patient's needs and for which cataract surgery provides a reasonable likelihood of improved vision.

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
This is an outcome of surgery indicator of direct relevance and import to patients, their families and referring providers. The available evidence suggests that cataract surgery achieves this in about 90% of patients. While the potential for improvement is seemingly small, the volume of cataract surgery in the U.S. of over 2.8 million surgeries means that the impact could affect more than 280,000 patients per year. Ideally, performance on this indicator would be as high as possible, with lower rates suggestive of opportunities for improvement.

1b.3 **Citations for data on performance gap:**
1. Monestam E, Wachtmeister L. Impact of cataract surgery on visual acuity and subjective functional outcomes: a population-based study in Sweden. Eye 1999; 13:711-19.
2. Steinberg EP, Tielsch JM, Schein OD, et al. National study of cataract surgery outcomes. Variation in 4-month postoperative outcomes as reflected in multiple outcome measures. Ophthalmology 1994; 101:1131-40; discussion 1140-1.
3. Lundström M, Brege KG, Florén I, et al. Impaired visual function after cataract surgery assessed using the Catquest questionnaire. J Cataract Refract Surg 2000; 26:101–8.
4. Lum F, Schein O, Schachat AP, et al. Initial two years of experience with the AAO National Eyecare Outcomes Network (NEON) cataract surgery database. Ophthalmology 2000; 107:691-7.
5. Lum F, Schachat AP, Jampel HD. The development and demise of a cataract surgery database. The Joint Commission Journal on Quality Improvement 2202; 28:108-114.
6. Mozaffarieh M, Krepler K, Heinzl H et al. Visual function, quality of life and patient satisfaction after ophthalmic surgery: a comparative study. Ophthalmologica 2004; 218:26-30.

1b.4 **Summary of Data on disparities by population group:**

1b.5 **Citations for data on Disparities:**

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1c. Outcome or Evidence to Support Measure Focus

1c.1 **Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** The multiple components of visual function include central near, intermediate, and distance visual acuity; peripheral vision; visual search; binocular vision; depth perception; contrast sensitivity; perception of color; adaptation; and visual processing speed. Visual function also can be measured in terms of functional disability caused by visual impairment. Many activities of daily living require function of more than one of these visual components. Improved function and quality of life are the treatment outcomes that are most critical and applicable to the patient.

1c.2-3. **Type of Evidence:** Evidence-based guideline

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
In well-designed observational studies, cataract surgery consistently has been shown to have a significant impact on vision-dependent function; up to 90% of patients undergoing first-eye cataract surgery note improvement in functional status and satisfaction with vision. Several studies have reported an association

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between improved visual function after cataract surgery and an improved health-related quality of life. Visual function plays an important role in physical function and well-being, particularly in terms of mobility. The loss of visual function in the elderly is associated with a decline in physical and mental functioning as well as in independence in activities of daily living, including night-time driving, daytime driving, community activities, and home activities. A long-term (10-year) evaluation of patients in the Blue Mountain Study found that cataract surgery patients had a significant improvement in the mental health domain scores with SF-36 evaluation. Cataract surgery may also improve insomnia.

Visual impairment is an important risk factor for falls and for hip fracture; poor depth perception and decreased contrast sensitivity has been found to increase independently the risk of hip fracture. In a randomized controlled trial, first-eye cataract surgery was found to reduce the rate of falling and fracture over a 12-month period. Similar improvement following second eye surgery has also been confirmed. Visual impairment, in particular a decrease of visual acuity and contrast sensitivity, has been shown to be associated with difficulties in driving. Drivers with visually significant cataracts were 2.5 times more likely to have had an at-fault involvement in a motor vehicle crash over a 5-year period compared with drivers without cataracts. When older adults with cataracts who have undergone surgery are compared with those who did not undergo surgery, motor vehicle crash rates in the 4 to 6 years of follow-up were halved in the surgery group.

One large study found that in visual function assessment pre- and postoperatively, the largest improvements were noted for “driving during the day,” “self-care activities,” and “driving during the night.”

In summary, there are numerous studies showing that physical function, emotional well-being, safety and overall quality of life can be enhanced when visual function is restored by cataract extraction

Improved visual function as a result of cataract surgery includes the following:

The multiple components of visual function include central near, intermediate, and distance visual acuity; peripheral vision; visual search; binocular vision; depth perception; contrast sensitivity; perception of color; adaptation; and visual processing speed.93-95 Visual function also can be measured in terms of functional disability caused by visual impairment. Many activities of daily living require function of more than one of these visual components.

Improved function and quality of life are the treatment outcomes that are most critical and applicable to the patient. In well-designed observational studies, cataract surgery consistently has been shown to have a significant impact on vision-dependent function; up to 90% of patients undergoing first-eye cataract surgery note improvement in functional status and satisfaction with vision. Several studies have reported an association between improved visual function after cataract surgery and an improved health-related quality of life. Visual function plays an important role in physical function and well-being, particularly in terms of mobility. The loss of visual function in the elderly is associated with a decline in physical and mental functioning as well as in independence in activities of daily living, including night-time driving, daytime driving, community activities, and home activities. A long-term (10-year) evaluation of patients in the Blue Mountain Study found that cataract surgery patients had a significant improvement in the mental health domain scores with SF-36 evaluation. Cataract surgery may also improve insomnia.

Visual impairment is an important risk factor for falls and for hip fracture122; poor depth perception and decreased contrast sensitivity has been found to increase independently the risk of hip fracture. In a randomized controlled trial, first-eye cataract surgery was found to reduce the rate of falling and fracture over a 12-month period. Similar improvement following second eye surgery has also been confirmed. Visual impairment, in particular a decrease of visual acuity and contrast sensitivity, has been shown to be associated with difficulties in driving. Drivers with visually significant cataracts were 2.5 times more likely to have had an at-fault involvement in a motor vehicle crash over a 5-year period compared with drivers without cataracts. When older adults with cataracts who have undergone surgery are compared with those who did not undergo surgery, motor vehicle crash rates in the 4 to 6 years of follow-up were halved in the surgery group.

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In summary, there are numerous studies showing that physical function, emotional well-being, safety and overall quality of life can be enhanced when visual function is restored by cataract extraction

Improved visual function as a result of cataract surgery includes the following:

- Better optically corrected vision
- Better uncorrected vision with reduced spectacle dependence
- Increased ability to read or do near work
- Reduced glare
- Improved ability to function in dim levels of light

- Improved depth perception and binocular vision by elimination of anisometropia and achievement of good functional acuity in both eyes
- Improved color vision

Improved physical function as a critical outcome of cataract surgery includes the following:

- Increased ability to perform activities of daily living
- Increased ability to continue or resume an occupation
- Increased mobility (walking, driving)
- Reduced mortality

Improved mental health and emotional well-being as a second critical outcome of cataract surgery includes the following benefits:

- Improved self-esteem and independence
- Increased ability to avoid injury
- Increased social contact and ability to participate in social activities
- Relief from fear of blindness

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Not rated in guideline because it does not serve as a treatment recommendation

1c.6 Method for rating evidence: The panel rated each recommendation on the strength of evidence in the available literature to support the recommendation made. The "ratings of strength of evidence" also are divided into three levels.
Level I includes evidence obtained from at least one properly conducted, well-designed, randomized controlled trial. It could include meta-analyses of randomized controlled trials.
Level II includes evidence obtained from the following:

- Well-designed controlled trials without randomization
- Well-designed cohort or case-control analytic studies, preferably from more than one center
- Multiple-time series with or without the intervention

Level III includes evidence obtained from one of the following:

- Descriptive studies
- Case reports
- Reports of expert committees/organizations (e.g., PPP panel consensus with peer review)

The I, II and III can also be correlated with the USPSTF system of high, moderate and low.

1c.7 Summary of Controversy/Contradictory Evidence:

1c.8 Citations for Evidence (*other than guidelines***):**
1.Brenner MH, Curbow B, Javitt JC, et al. Vision change and quality of life in the elderly. Response to cataract surgery and treatment of other chronic ocular conditions. Arch Ophthalmol 1993;111:680-5.
2. Sloane ME, Ball K, Owsley C, et al. The Visual Activities Questionnaire: developing an instrument for assessing problems in everyday visual tasks. Technical Digest, Noninvasive Assessment of the Visual System 1992;1:26-9.
3. Datta S, Foss AJ, Grainge MJ, et al. The importance of acuity, stereopsis, and contrast sensitivity for health-related quality of life in elderly women with cataracts. Invest Ophthalmol Vis Sci 2008;49:1-6.
4 Steinberg EP, Tielsch JM, Schein OD, et al. The VF-14. An index of functional impairment in patients with cataract. Arch Ophthalmol 1994;112:630-8.
5. Bilbao A, Quintana JM, Escobar A, et al. Responsiveness and clinically important differences for the VF-14 index, SF-36, and visual acuity in patients undergoing cataract surgery. Ophthalmology 2009;116:418-24.
6. Ishii K, Kabata T, Oshika T. The impact of cataract surgery on cognitive impairment and depressive mental status in elderly patients. Am J Ophthalmol 2008;146:404-9.
7. Lundstrom M, Pesudovs K. Catquest-9SF patient outcomes questionnaire: nine-item short-form Rasch-scaled revision of the Catquest questionnaire. J Cataract Refract Surg 2009;35:504-13.
8. Gothwal VK, Wright TA, Lamoureux EL, Pesudovs K. Visual Activities Questionnaire: assessment of subscale validity for cataract surgery outcomes. J Cataract Refract Surg 2009;35:1961-9.
9. Schein OD, Steinberg EP, Javitt JC, et al. Variation in cataract surgery practice and clinical outcomes. Ophthalmology 1994;101:1142-52.

10. Mangione CM, Phillips RS, Lawrence MG, et al. Improved visual function and attenuation of declines in health-related quality of life after cataract extraction. Arch Ophthalmol 1994;112:1419-25.
11. Desai P, Minassian DC, Reidy A. National cataract surgery survey 1997-8: a report of the results of the clinical outcomes. Br J Ophthalmol 1999;83:1336-40.
12. McGwin G, Jr, Scilley K, Brown J, Owsley C. Impact of cataract surgery on self-reported visual difficulties: comparison with a no-surgery reference group. J Cataract Refract Surg 2003;29:941-8.
13. Monestam E, Wachtmeister L. Impact of cataract surgery on visual acuity and subjective functional outcomes: a population-based study in Sweden. Eye 1999;13 (Pt 6):711-9.
14. Steinberg EP, Tielsch JM, Schein OD, et al. National study of cataract surgery outcomes. Variation in 4-month postoperative outcomes as reflected in multiple outcome measures. Ophthalmology 1994;101:1131-40; discussion 40-1.
15. Harwood RH, Foss AJ, Osborn F, et al. Falls and health status in elderly women following first eye cataract surgery: a randomised controlled trial. Br J Ophthalmol 2005;89:53-9.
16. Gray CS, Karimova G, Hildreth AJ, et al. Recovery of visual and functional disability following cataract surgery in older people: Sunderland Cataract Study. J Cataract Refract Surg 2006;32:60-6.
17. Lee P, Smith JP, Kington R. The relationship of self-rated vision and hearing to functional status and well-being among seniors 70 years and older. Am J Ophthalmol 1999;127:447-52.
18. Lee PP, Spritzer K, Hays RD. The impact of blurred vision on functioning and well-being. Ophthalmology 1997;104:390-6.
19. Lundstrom M, Fregell G, Sjoblom A. Vision related daily life problems in patients waiting for a cataract extraction. Br J Ophthalmol 1994;78:608-11.
20. Broman AT, Munoz B, Rodriguez J, et al. The impact of visual impairment and eye disease on vision-related quality of life in a Mexican-American population: proyecto VER. Invest Ophthalmol Vis Sci 2002;43:3393-8.
21. Salive ME, Guralnik J, Glynn RJ, et al. Association of visual impairment with mobility and physical function. J Am Geriatr Soc 1994;42:287-92.
22. Foss AJ, Harwood RH, Osborn F, et al. Falls and health status in elderly women following second eye cataract surgery: a randomised controlled trial. Age Ageing 2006;35:66-71.
23. Laforge RG, Spector WD, Sternberg J. The relationship of vision and hearing impairment to one-year mortality and functional decline. J Aging Health 1992;4:126-48.
24. Klein BE, Klein R, Knudtson MD. Lens opacities associated with performance-based and self-assessed visual functions. Ophthalmology 2006;113:1257-63.
25. Chandrasekaran S, Wang JJ, Rochtchina E, Mitchell P. Change in health-related quality of life after cataract surgery in a population-based sample. Eye (Lond) 2008;22:479-84.
26. Asplund R, Ejdervik Lindblad B. The development of sleep in persons undergoing cataract surgery. Arch Gerontol Geriatr 2002;35:179-87.
27. Asplund R, Lindblad BE. Sleep and sleepiness 1 and 9 months after cataract surgery. Arch Gerontol Geriatr 2004;38:69-75.
28. Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly persons living in the community. N Engl J Med 1988;319:1701-7.
29. De Coster C, Dik N, Bellan L. Health care utilization for injury in cataract surgery patients. Can J Ophthalmol 2007;42:567-72.
30. Felson DT, Anderson JJ, Hannan MT, et al. Impaired vision and hip fracture. The Framingham Study. J Am Geriatr Soc 1989;37:495-500.
31. Cummings SR, Nevitt MC, Browner WS, et al. Risk factors for hip fracture in white women. Study of Osteoporotic Fractures Research Group. N Engl J Med 1995;332:767-73.
32. McGwin G, Jr, Chapman V, Owsley C. Visual risk factors for driving difficulty among older drivers. Accid Anal Prev 2000;32:735-44.
33. Owsley C, Stalvey BT, Wells J, et al. Visual risk factors for crash involvement in older drivers with cataract. Arch Ophthalmol 2001;119:881-7.
34. Subzwari S, Desapriya E, Scime G, et al. Effectiveness of cataract surgery in reducing driving-related difficulties: a systematic review and meta-analysis. Inj Prev 2008;14:324-8.
35. Wood JM, Carberry TP. Bilateral cataract surgery and driving performance. Br J Ophthalmol 2006;90:1277-80.
36. Owsley C, Stalvey B, Wells J, Sloane ME. Older drivers and cataract: driving habits and crash risk. J Gerontol A Biol Sci Med Sci 1999;54:M203-11.
37. Owsley C, McGwin G, Jr, Sloane M, et al. Impact of cataract surgery on motor vehicle crash involvement by older adults. JAMA 2002;288:841-9.

38. Bassett K, Noertjojo K, Nirmalan P, et al. RESIO revisited: visual function assessment and cataract surgery in British Columbia. Can J Ophthalmol 2005;40:27-33.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
Cataract in the Adult Eye, 2005, American Academy of Ophthalmology
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Function and quality of life are the outcomes of treatment that are most critical and applicable to the patient.
In summary, these studies show that physical function, emotional well-being, safety, and overall quality of life can be enhanced when visual function is restored by cataract extraction.

1c.10 Clinical Practice Guideline Citation: American Academy of Ophthalmology. Cataract in the Adult Eye, Preferred Practice Pattern. San Francisco: American Academy of Ophthalmology, 2006. Available at: www.aao.org/ppp.
1c.11 National Guideline Clearinghouse or other URL:
http://www.guideline.gov/content.aspx?id=10173&search=cataract+and+cataract+2005+and+cataract+2006

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
The panel rated each recommendation according to its importance to the care process. This "importance to the care process" rating represents care that the panel thought would improve the quality of the patient's care in a meaningful way. The ratings of importance are divided into three levels.
- Level A, defined as most important
- Level B, defined as moderately important
- Level C, defined as relevant but not critical

The A, B, C ratings can be correlated with the USPSTF system of A, B, C for strength of recommendation.

1c.14 Rationale for using this guideline over others:
This guideline is the only United States guideline on cataract surgery contained in the National Guideline Clearinghouse.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*

1

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met?
Rationale:

1
Y☐
N☐

2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)

Eval Rating

2a. MEASURE SPECIFICATIONS

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):**
Patients 18 years and older in sample who had improvement in visual function achieved within 90 days following cataract surgery, based on completing a pre-operative and post-operative visual function instrument

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N☐

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator***):**
One year

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**
Patients 18 years and older in sample who had an improvement in their visual function achieved within 90 days following cataract surgery

Patients in sample who completed a pre-operative and post-operative visual function instrument, and with the CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
All patients aged 18 years and older in sample who had cataract surgery

2a.5 Target population gender: Female, Male
2a.6 Target population age range: 18 years and older

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
One year

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Denominator (Eligible Population): All patients aged 18 years and older in sample who had cataract surgery

- CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):**

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
This measure can be stratified into two major groups: those patients with ocular co-morbidities and those patients without ocular co-morbidities. An improvement in visual function after cataract surgery would be expected in both groups, however the magnitude of the difference would vary by group. The Cataract Patient Outcomes Research Team found that an important preoperative patient characteristic that was independently associated with failure to improve on one of the outcomes measured (including the VF-14) was ocular comorbidity. The authors explained that this was expected, because it is reasonable to assume that other diseases that impair visual function would be correlated with a reduced improvement in functional status. The National Eye Care Outcomes Network also found that there were differences in the mean postooperative VF-14 scores across groups of patients with and without ocular co-morbidities, as seen in the table below. The study involving the Rasch-scaled short version of the VF-14 also found differences between the preoperative and postoperative visual function test scores and differences between preoperative and postoperative visual function tests, as seen below.

National Eyecare Outcomes Network

Mean VF-14 (postoperative)
- Total 92.7
- With ocular comorbidity 89.9
- Without ocular comorbidity 94.6

Rasch-Scaled Short Version of the VF-14

Patients without Ocular Comorbidity - Preop VF-8R - 68.87
Postop VF-8R - 86.22
Mean Diff = 17.35
Patients with Ocular Comorbidity - Preop VF-8R - 67.71
Postop VF-8R - 81.58
Mean Diff = 13.87

A list of codes for comorbidities can be found in the AMA PCPI measure for 20/40 visual acuity after cataract surgery:

Acute and subacute iridocyclitis	364.00
Acute and subacute iridocyclitis	364.01
Acute and subacute iridocyclitis	362.02
Acute and subacute iridocyclitis	364.03
Acute and subacute iridocyclitis	364.04
Acute and subacute iridocyclitis	364.05
Amblyopia	368.01
Amblyopia	368.02
Amblyopia	368.03
Burn confined to eye and adnexa	940.0
Burn confined to eye and adnexa	940.1
Burn confined to eye and adnexa	940.2
Burn confined to eye and adnexa	940.3
Burn confined to eye and adnexa	940.4
Burn confined to eye and adnexa	940.5
Burn confined to eye and adnexa	940.9
Cataract secondary to ocular disorders	366.32
Cataract secondary to ocular disorders	366.33
Certain types of iridocyclitis	364.21
Certain types of iridocyclitis	364.22
Certain types of iridocyclitis	364.23
Certain types of iridocyclitis	364.24
Certain types of iridocyclitis	364.3
Choroidal degenerations	363.43
Choroidal detachment	363.72
Choroidal hemorrhage and rupture	363.61
Choroidal hemorrhage and rupture	363.62
Choroidal hemorrhage and rupture	363.63
Chorioretinal scars	363.30
Chorioretinal scars	363.31
Chorioretinal scars	363.32
Chorioretinal scars	363.33
Chorioretinal scars	363.35
Chronic iridocyclitis	364.10
Chronic iridocyclitis	364.11
Cloudy cornea	371.01
Cloudy cornea	371.02
Cloudy cornea	371.03
Cloudy cornea	371.04
Corneal edema	371.20
Corneal edema	371.21
Corneal edema	371.22
Corneal edema	371.23
Corneal edema	371.43
Corneal edema	371.44
Corneal opacity and other disorders of cornea	371.00
Corneal opacity and other disorders of cornea	371.03

Corneal opacity and other disorders of cornea	371.04
Degenerative disorders of globe	360.20
Degenerative disorders of globe	360.21
Degenerative disorders of globe	360.23
Degenerative disorders of globe	360.24
Degenerative disorders of globe	360.29
Degeneration of macula and posterior pole	362.50
Degeneration of macula and posterior pole	362.51
Degeneration of macula and posterior pole	362.52
Degeneration of macula and posterior pole	362.53
Degeneration of macula and posterior pole	362.54
Degeneration of macula and posterior pole	362.55
Degeneration of macula and posterior pole	362.56
Degeneration of macula and posterior pole	362.57
Disseminated chorioretinitis and disseminated retinochoroiditis	363.10
Disseminated chorioretinitis and disseminated retinochoroiditis	363.11
Disseminated chorioretinitis and disseminated retinochoroiditis	363.12
Disseminated chorioretinitis and disseminated retinochoroiditis	363.13
Disseminated chorioretinitis and disseminated retinochoroiditis	363.14
Disseminated chorioretinitis and disseminated retinochoroiditis	363.15
Diabetic retinopathy	362.01
Diabetic retinopathy	362.02
Diabetic retinopathy	362.03
Diabetic retinopathy	362.04
Diabetic retinopathy	362.05
Diabetic retinopathy	362.06
Diabetic macular edema	362.07
Disorders of optic chiasm	377.51
Disorders of optic chiasm	377.52
Disorders of optic chiasm	377.53
Disorders of optic chiasm	377.54
Disorders of visual cortex	377.75
Focal chorioretinitis and focal retinochoroiditis	363.00
Focal chorioretinitis and focal retinochoroiditis	363.01
Focal chorioretinitis and focal retinochoroiditis	363.03
Focal chorioretinitis and focal retinochoroiditis	363.04
Focal chorioretinitis and focal retinochoroiditis	363.05
Focal chorioretinitis and focal retinochoroiditis	363.06
Focal chorioretinitis and focal retinochoroiditis	363.07
Focal chorioretinitis and focal retinochoroiditis	363.08
Glaucoma	365.10
Glaucoma	365.11
Glaucoma	365.12
Glaucoma	365.13
Glaucoma	365.14
Glaucoma	365.15
Glaucoma	365.20
Glaucoma	365.21
Glaucoma	365.22
Glaucoma	365.23
Glaucoma	365.24
Glaucoma	365.31
Glaucoma	365.32
Glaucoma	365.51
Glaucoma	365.52
Glaucoma	365.59
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.41
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.42

Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.43
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.44
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.60
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.61
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.62
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.63
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.64
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.65
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.81
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.82
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.83
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.89
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.9
Hereditary corneal dystrophies	371.50
Hereditary corneal dystrophies	371.51
Hereditary corneal dystrophies	371.52
Hereditary corneal dystrophies	371.53
Hereditary corneal dystrophies	371.54
Hereditary corneal dystrophies	371.55
Hereditary corneal dystrophies	371.56
Hereditary corneal dystrophies	371.57
Hereditary corneal dystrophies	371.58
Hereditary choroidal dystrophies	363.50
Hereditary choroidal dystrophies	363.51
Hereditary choroidal dystrophies	363.52
Hereditary choroidal dystrophies	363.53
Hereditary choroidal dystrophies	363.54
Hereditary choroidal dystrophies	363.55
Hereditary choroidal dystrophies	363.56
Hereditary choroidal dystrophies	363.57
Hereditary retinal dystrophies	362.70
Hereditary retinal dystrophies	362.71
Hereditary retinal dystrophies	362.72
Hereditary retinal dystrophies	362.73
Hereditary retinal dystrophies	362.74
Hereditary retinal dystrophies	362.75
Hereditary retinal dystrophies	362.76
High myopia	360.20
High myopia	360.21
Injury to optic nerve and pathways	950.0
Injury to optic nerve and pathways	950.1
Injury to optic nerve and pathways	950.2
Injury to optic nerve and pathways	950.3
Injury to optic nerve and pathways	950.9
Keratitis	370.03
Moderate or severe impairment, better eye, profound impairment lesser eye	369.10
Moderate or severe impairment, better eye, profound impairment lesser eye	369.11
Moderate or severe impairment, better eye, profound impairment lesser eye	369.12
Moderate or severe impairment, better eye, profound impairment lesser eye	369.13
Moderate or severe impairment, better eye, profound impairment lesser eye	369.14
Moderate or severe impairment, better eye, profound impairment lesser eye	369.15
Moderate or severe impairment, better eye, profound impairment lesser eye	369.16
Moderate or severe impairment, better eye, profound impairment lesser eye	369.17
Moderate or severe impairment, better eye, profound impairment lesser eye	369.18
Nystagmus and iother irregular eye movements	379.51
Open wound of eyeball	871.0
Open wound of eyeball	871.1
Open wound of eyeball	871.2

Open wound of eyeball	871.3
Open wound of eyeball	871.4
Open wound of eyeball	871.5
Open wound of eyeball	871.6
Open wound of eyeball	871.7
Open wound of eyeball	871.9
Optic atrophy	377.10
Optic atrophy	377.11
Optic atrophy	377.12
Optic atrophy	377.13
Optic atrophy	377.14
Optic atrophy	377.15
Optic atrophy	377.16
Optic neuritis	377.30
Optic neuritis	377.31
Optic neuritis	377.32
Optic neuritis	377.33
Optic neuritis	377.34
Optic neuritis	377.39
Other background retinopathy and retinal vascular changes	362.12
Other background retinopathy and retinal vascular changes	362.16
Other background retinopathy and retinal vascular changes	362.18
Other corneal deformities	371.70
Other corneal deformities	371.71
Other corneal deformities	371.72
Other corneal deformities	371.73
Other disorders of optic nerve	377.41
Other disorders of sclera	379.11
Other disorders of sclera	379.12
Other endophthalmitis	360.11
Other endophthalmitis	360.12
Other endophthalmitis	360.13
Other endophthalmitis	360.14
Other endophthalmitis	360.19
Other retinal disorders	362.81
Other retinal disorders	362.82
Other retinal disorders	362.83
Other retinal disorders	362.84
Other retinal disorders	362.85
Other retinal disorders	362.89
Other and unspecified forms of chorioretinitis and retinochoroiditis	363.20
Other and unspecified forms of chorioretinitis and retinochoroiditis	363.21
Other and unspecified forms of chorioretinitis and retinochoroiditis	363.22
Prior penetrating keratoplasty	371.60
Prior penetrating keratoplasty	371.61
Prior penetrating keratoplasty	371.62
Profound impairment, both eyes	369.00
Profound impairment, both eyes	369.01
Profound impairment, both eyes	369.02
Profound impairment, both eyes	369.03
Profound impairment, both eyes	369.04
Profound impairment, both eyes	369.05
Profound impairment, both eyes	369.06
Profound impairment, both eyes	369.07
Profound impairment, both eyes	369.08
Purulent endophthalmitis	360.00
Purulent endophthalmitis	360.01
Purulent endophthalmitis	360.02

Purulent endophthalmitis	360.03
Purulent endophthalmitis	360.04
Retinal detachment with retinal defect	361.00
Retinal detachment with retinal defect	361.01
Retinal detachment with retinal defect	361.02
Retinal detachment with retinal defect	361.03
Retinal detachment with retinal defect	361.04
Retinal detachment with retinal defect	361.05
Retinal detachment with retinal defect	361.06
Retinal detachment with retinal defect	361.07
Retinal vascular occlusion	362.31
Retinal vascular occlusion	362.32
Retinal vascular occlusion	362.35
Retinal vascular occlusion	362.36
Retinopathy of prematurity	362.21
Scleritis and episcleritis	379.04
Scleritis and episcleritis	379.05
Scleritis and episcleritis	379.06
Scleritis and episcleritis	379.07
Scleritis and episcleritis	379.09
Separation of retinal layers	362.41
Separation of retinal layers	362.42
Separation of retinal layers	362.43
Uveitis	360.11
Uveitis	360.12
Visual field defects	368.41

References:
1. Schein OD, Steinberg EP, Cassard SD et al. Predictors of outcome in patients who underwent cataract surgery. Ophthalmology 1995; 102:817-23.
2. Lum F, Schachat AP, Jampel HD.The development and demise of a cataract surgery database. Jt Comm J Qual Improv. 2002 Mar;28(3):108-14.
3. Gothwal VK, Wright TA, Lamoureux EL, Pesudovs K. Measuring outcomes of cataract surgery using the Visual Function Index-14. J Cataract Refract Surg 2010; 36:1181-8.

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
A risk adjustment methodology is not necessary if the stratification schema is utilized, as described above.

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
The calculation of the measure would be determination of the number of patients in the sample who demonstrated improvement in visual function based on the pre-operative and post-operative visual function instrument over the number of patients in the sample who had cataract surgery.

Currently in the scientific literature, there is no well-established method to define a threshold or interval that indicates improvement on the VF-8R. The Rasch scale has found to be more sensitive to change than the VF-14 in longitudinal studies and has a different scale for scoring than the VF-14. The VF-14 is based on summative scoring, which has no rationale for how numerical values are assigned and how a summary score is produced, and does not give a sense of the degree of change. The Rasch model is based on Item Response theory,which is based on item difficulty in relationship to an individual´s ability and weighs the overall score accordingly, providing a gain in precision. Thus any difference between the pre-operative and post-operative scores on the VF-8R would indicate an improvement in functional activities. The average difference found between pre-operative and post-operative assessment on the VF-8R was 15.39 (Standard

error = 2.66).

In the literature, there have been two studies looking at the clinically important differences for the VF-14 index. One study found that the minimal clinically important difference was 15.57; another study found that the minimally clinically important difference was 5.5.

References:
1. Bilbao A, Quintana JM, Escobar A et al. Responsiveness and Clinically Important Differences for the VF-14 Index, SF-36 and Visual Acuity in Patients Undergoing Cataract Surgery. Ophthalmology 2009; 116:418-424.
2. Las Hayas C, Bilbao A, Quintana J et al. A comparison of standard scoring versus Rasch scoring of the Visual Function-14 in patients with cataracts. IOVS 2011 in press.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)*:
Methods would include comparison of means and percentiles, and analysis of variance against established benchmarks in the literature.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For this physician-level measure, it is anticipated to be used as a group or composite measure. Utilizing a sample, work in the field has indicated that a sample size of 30 patients would be adequate for typical practice sizes. Based on the Central Limit Theorem, the distribution of an average will tend to be normal with a sample size of 30. This is also the sample size utilized for CMS measure group reporting in PQRS. Therefore, a sample size of 30 patients is proposed. This would make the burden manageable on physicians´ practices and patients and optimize the response rates. The American Academy of Ophthalmology has a registry for PQRS measures. This survey instrument could be incorporated into the registry and patients could access the web portal in order to enter their results of the visual function instrument. other options could be provided for mail and phone administered surveys. This would alleviate any concerns of bias being introduced by having the patient fill it out in the physician´s office.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Patient Reported Data/Survey

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*):
The data collection instrument is specified as an assessment tool that has been appropriately validated for the population for which it being used. Examples of tools for visual function assessment include, but are not limited to: National Eye Institute-Visual Function Questionnaire (VFQ), the Visual Function (VF)-14, the modified VF-8, the Activities of Daily Vision Scale (ADVS), the Catquest and the modified Catquest-9. For this measure, we are proposing the Rasch-scaled short version of the VF-14, otherwise referred to as the VF-8R hereafter.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment VF8 Pesudovs.pdf

2a.29-31 Data dictionary/code table web page URL or attachment:

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Clinician : Individual

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinic/Urgent Care, Ambulatory Care : Clinician Office

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS	
2b. Reliability testing **2b.1 Data/sample** *(description of data/sample and size)*: There are several validated instruments to measure visual function that are available for use. We are proposing use of one such instrument, the Rasch-scaled Short Version of the VF-14 is described here for which reliability and validity testing have been performed. The VF-14 is a health status measurement listed by the Agency for Healthcare Research and Quality (www.ahrq.gov/clinic/out2res/outcom5.htm#/) as an instrument tested for reliability and validity in their Patient Outcomes Research Team studies and identified as a discriminative and evaluative health status measurement instrument. If there is greater detail needed on the reliability and validity testing of the VF-14 itself, please let us know. References are listed below. In the following, we describe the testing performed on the Rasch-scaled Short Version, otherwise referred to as the VF-8R. In this study, the purpose was to determine which version of the Visual Function Index-14 most precisely measured cataract surgery outcomes, to rescale the VF-14 using Rasch analysis and to create a short-form version. Participants were selected from the cataract surgery waiting list at the Flinders Medical Centre, Adelaide, Australia. All patients had cataract surgery performed using phacoemulsification with intraocular lens placement. The eligibility criteria were age 18 years or older, ability to provide written informed consent, and English-speaking. There were two patient populations. The first cohort were preoperative cataract patients, whose data were used for the Rasch analysis to refine the VF-14, called the development group. The second cohort were patients whose results were used to measure the outcomes of cataract surgery, called the outcomes group. The instrument was mailed to 414 patients, of whom 210 returned the completed questionnaire preoperatively (development group), and 51 of the 81 patients postoperatively returned the questionnaire (outcomes group). In the development group (n= 210), the mean age was 74.3 years, 42% were male, and 58% were female, 48% had a ocular comorbidity and 84% had a systemic comorbidity. In the outcomes group (n = 51), the mean age was 73.0 years, 57% were male and 43% were female, 59% had ocular comorbidity, and 78% had a systemic comorbidity. The reference for the visual function instrument described here (VF-8R)is: 1. Gothwal VK, Wright TA, Lamoureux EL, and Pesudovs K. Measuring outcomes of cataract surgery using the Visual Function Index-14. J Cataract Refract Surg 2010; 36:1181-1188. A reference describing more of the Rasch analysis is: 1. Lamoureux EL, Pesudovs K, Thumboo J, Saw S-M, and Wong T.Y. An evaluation of the reliability and validity of the Visual Functioning Questionnaire (VF-11) Using Rasch Analysis in an Asian population. Invest Ophthalmol Vis Sci 2009; 50:2607-13. Original references for the VF-14 include: 1. Steinberg EP, Tielsch JM, Schein OD, Javitt JC, Sharkey P, Cassard SD, Legro MW, Diener-West M, Bass EB, Damiano AM, et al. The VF-14. An index of functional impairment in patients with cataract. Arch Ophthalmol. 1994 May;112(5):630-8.1. 2. Cassard SD, Patrick DL, Damiano AM, Legro MW, Tielsch JM, Diener-West M, Schein OD, Javitt JC, Bass EB, Steinberg EP. Reproducibility and responsiveness of the VF-14. An index of functional impairment in patients with cataracts. Arch Ophthalmol. 1995 Dec;113(12):1508-13. 3. Schein OD, Steinberg EP, Cassard SD, Tielsch JM, Javitt JC, Sommer A. Predictors of outcome in patients who underwent cataract surgery. Ophthalmology. 1995 May;102(5):817-23. 4. Damiano AM, Steinberg EP, Cassard SD, Bass EB, Diener-West M, Legro MW, Tielsch J, Schein OD, Javitt J, Kolb M. Comparison of generic versus disease-specific measures of functional impairment in patients with cataract. Med Care. 1995 Apr;33(4 Suppl):AS120-30. 5. Steinberg EP, Tielsch JM, Schein OD, Javitt JC, Sharkey P, Cassard SD, Legro MW, Diener-West M, Bass	**2b** **C**☐ **P**☐ **M**☐ **N**☐

EB, Damiano AM, et al. National study of cataract surgery outcomes. Variation in 4-month postoperative outcomes as reflected in multiple outcome measures. Ophthalmology. 1994 Jun;101(6):1131-40; discussion 1140-1.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
In summary, Rasch analysis was used to re-define the VF-14 into two valid forms, the VF-11R and VF-8R form. Then, the ability of the different versions of the VF-14 to discriminate outcomes of cataract surgery was compared with the standard VF-14, using the relative precision method.

Rasch analysis: The Rasch model, where the total score summarizes completely a person´s standing on a variable, arises from a more fundamental requirement: that the comparison of two people is independent of which items may be used within the set of items assessing the same variable. Thus the Rasch model is taken as a criterion for the structure of the responses, rather than a mere statistical description of the responses. For example, the comparison of the performance of two students´ work marked by different graders should be independent of the graders.

In this case it is considered that the researcher is deliberately developing items that are valid for the purpose and that meet the Rasch requirements of invariance of comparisons.

Analyzing data according to the Rasch model, that is, conducting a Rasch analysis, gives a range of details for checking whether or not adding the scores is justified in the data. This is called the test of fit between the data and the model. If the invariance of responses across different groups of people does not hold, then taking the total score to characterize a person is not justified. Of course, data never fit the model perfectly, and it is important to consider the fit of data to the model with respect to the uses to be made of the total scores. If the data do fit the model adequately for the purpose, then the Rasch analysis also linearises the total score, which is bounded by 0 and the maximum score on the items, into measurements. The linearised value is the location of the person on the unidimensional continuum - the value is called a parameter in the model and there can be only one number in a unidimensional framework. This parameter can then be used in analysis of variance and regression more readily than the raw total score which has floor and ceiling effects. Relative precision is a ratio of pairwise F statistics. The extent to which the relative precision ratio differs from 1.0 indicates the extent to which scoring methods differed in their ability to detect change in scores; values greater than 1.0 indicate an increase in precision.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Results for the VF-8R: Mean item location = 0; mean person location = 1.97 and principal components analysis (eigenvalue) = 1.6; relative precision to the VF-14 = 2.25;

Results for the VF-14: (based on 552 patients who underwent cataract surgery in one eye and completed a 4 month postoperative survey) Highly reproducible,w ith an intraclass correlation coefficient of 0.79 when patient-rated criteria were used to define stable patients.

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: The VF-14 was mailed to 414 patients, of whom 210 returned the completed questionnaire, and 51 returned the VF-15 postoperatively. The mean age of the patients submitting preoperative VF-14 scores was 74.3 years. In this group, 42% were male, and 58% were female, 48% had a ocular comorbidity and 84% had a systemic comorbidity.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Content validity was evaluated by using person and item fit residual statistics. It is expected that the mean and SD values approximate 0 and 1, respectively. An estimate of overall scale functioning is the person separation reliability (PSR) index. This is linked to the targeting of the scale, because it differentiates the number of statistically distinct groups of respondents that can be identified by this trait. In other words, this can demonstrate if an instrument can discriminate among different levels of the patient´s visual functioning.

Also, ANOVA was used to see if the change in preoperative to postoperative score for the original VF-14 and the shortened version differed significantly from zero. The F statistic with a P < 0.05 was then considered

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significant. Then relative precision as described above was used to evaluate how well the different versions of VF-14 discriminated between visual functioning in the preoperative period compared with the postoperative period.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
Person separation = 2.29 (the minimum acceptable value is 2.0) ; Misfitting items = 0; (ideal value = 0)

Overall, the VF-8R showed the following results for cataract surgery patients:

Mean preoperative score and standard error - 67.75, SE = 2.36
Mean postoperative score and standard error - 83.15, SE = 2.43
Mean difference preop vs. postop and standard error - 15.39, SE = 2.66
F statistic 20.67
Relative precision 2.25

The overall results of the testing found these benefits of using the VF-8R over the original VF-14: 1) all items measure a single construct of visual functioning, which is a desirable measurement property and unlike the original VF-14 which has more than a single construct; 2) it has better measurement precision for distinguishing outcomes (125% gain in relative precision) than the original VF-14; 3) it has other similar psychometric properties to the original VF-14.

Testing Results for the VF-14 (from the original VF-14 publications): (based on 552 patients who underwent cataract surgery in one eye and completed a 4 month postoperative survey): high internal consistency with a Cronbach´s a = 0.85, with item-to-total correlations ranging from 0.32 to 0.61. It was also found to be three times more responsive to a change in vision than a generic health status measure (Sickness Impact Profile) with an impact size of approximately 1.00 to 0.30, respectively. The criterion validity was assessed by examining the correlation between the VF-14 scores and several other measures of vision. The correlation between the VF-14 score and self-reported trouble with vision and overall satisfaction with vision (0.45 and 0.34, respectively) were higher than correlations between several measures of visual acuity and trouble or satisfaction with vision.

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

2d.2 **Citations for Evidence:**

2d.3 **Data/sample** *(description of data/sample and size)*:

2d.4 **Analytic Method** *(type analysis & rationale)*:

2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:

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2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 **Data/sample** *(description of data/sample and size)*: There is no risk adjustment strategy necessary given that a stratification of results is proposed.

2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*:

2e.3 **Testing Results** *(risk model performance metrics)*:

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NA☐

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: The VF-14 was mailed to 414 patients, of whom 210 returned the completed questionnaire, and 51 returned the VF-15 postoperatively. The mean age of the patients submitting preoperative VF-14 scores was 74.3 years. In this group, 42% were male, and 58% were female, 48% had a ocular comorbidity and 84% had a systemic comorbidity.

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
The VF-8 preoperative and postoperative scores for patients with ocular comorbidity (30) and for patients without ocular comorbidity (20) were compared in terms of mean scores and standard errors.

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
The group with ocular comorbidity had a mean preoperative and postoperative + SE score of 67.71 + 3.29 and 81.58 + 3.57, respectively. The mean difference preop vs. postop was 13.87 + 3.81. The F Statistic was 8.15. The group without ocular comorbidity had a mean preoperative and postoperative + SE score of 68.87 + 3.36 and 86.22 + 3.03, respectively. The mean difference preop vs. postop was 17.35 + 3.72 and the F Statistic was 14.70.

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2g. Comparability of Multiple Data Sources/Methods

2g.1 Data/sample *(description of data/sample and size)*: The VF-14 can be interviewed-administered, and self-administered. There don´t appear to be peer-reviewed reports comparing the interviewed-administered and the self-administered versions of the VF-14. However, there are at least two peer-reviewed reports demonstrating the validity and responsiveness of the self-administered VF-14 in the literature.

One study evaluated the validity and responsiveness of two self-administered instruments, the VF-14 and the Quality of Well-Being Scale. This was performed in 233 adults who had small-incision phacoemulsification cataract surgery in a Southern California Health Maintenance Organization. The mean age of patients was 72.5 years old, and 60.5% were men. Approximately 50% of the patients had ocular morbidities and 82% had at least one chronic illness.

A second study tested the validity of the self-administered VF-14 in a group of patients with retinal disease. The patient population were 547 patients attending the Vancouver General Hospital Eye Care Centre. 48% were female and 52% were male. The mean age of the group was 55 years, ranging from 16 to 95 years old.

References
1. Rosen PN, Kaplan Rn, David K. Measuring outcomes of cataract surgery using the Quality of Well-Being Scale and VF-14 Visual Function Index. J Cataract Refract Surg 2005; 31:369-78.
2. Linder M, Chang TS, Scott IU et al. Validity of the Visual Function Index (VF-14) in Patients with Retinal Disease. Arch Ophthalmol 1999; 117:1611-16.

2g.2 Analytic Method *(type of analysis & rationale)*:
One study evaluated the validity and responsiveness of two self-administered instruments, the VF-14 and the Quality of Well-Being Scale. Bivariate analysis was performed on the effect of cataract surgery on the VF-14 score using Pearson correlations and independent and paired t tests. One-way analysis of variance was used to test the VF-14 in discriminating between categories of satisfaction and trouble with vision.

A second study tested the validity of the self-administered VF-14 in a group of patients with retinal disease. Criterion validity was evaluated through measurement of the Spearman correlation coefficients between VF-14 score and the global self-assessments scales within the VF-14: amount of trouble with vision, level of satisfaction with vision and overall quality of vision. Also, the Spearman correlations between the VF-14

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score and the global scores were compared with the correlation of visual acuity scores and the global scales.

2g.3 Testing Results *(e.g., correlation statistics, comparison of rankings)*:
One study evaluated the validity and responsiveness of two self-administered instruments, the VF-14 and the Quality of Well-Being Scale. The VF-14 was found to correlate significantly with self-reported satisfaction and trouble with vision, and responsive to improvements in quality of life after cataract surgery. The postoperative correlations of the VF-14 were as follows:
Trouble with vision r = .520 (p<.01)
Self vision rating r = .497 (p<.01)
Satisfaction with vision r = .462 (p<.01)
Satisfaction with surgery result r = .460 (p<.01)
Visual symptoms r = .465 (p<.01)
Visual acuity of operated eye r = .157 (p<.05)

A second study tested the validity of the self-administered VF-14 in a group of patients with retinal disease. The Cronbach alpha coefficient for the sample was 0.91, indicating high internal consistency. The results showed that the VF-14 had a moderately strong association with patient self-rating of the amount of trouble with vision, satisfaction with vision and overall quality of vision. This was stronger than the associations found with a more general health status instrument, the Short-Form Health Survey. The VF-14 was also correlated with visual acuity. The correlations were as follows:

VF-14 score - Visual acuity better eye -0.34 (p= .001)
Visual acuity worse eye -0.43 (p= .001)
Average visual acuity -0.45 (p= .001)
WMAR (weighted average logMar) visual acuity -0.45 (p = .001)
Overall quality of vision scale 0.50 (p = .001)
Satisfaction with vision scale 0.43 (p = .001)
Trouble with vision scale -0.63 (p = .001)

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*: The stratified results are as follows:

Rasch-Scaled Short Version of the VF-14

Results by Stratification

Group with Ocular Comorbidity:
The group with ocular comorbidity had a mean preoperative and postoperative + SE score of 67.71 + 3.29 and 81.58 + 3.57, respectively. The mean difference preop vs. postop was 13.87 + 3.81. The F Statistic was 8.15.

Group without Ocular Comorbidity:
The group without ocular comorbidity had a mean preoperative and postoperative + SE score of 68.87 + 3.36 and 86.22 + 3.03, respectively. The mean difference preop vs. postop was 17.35 + 3.72 and the F Statistic was 14.70.

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:

2h
C☐ P☐ M☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*

2

Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met?
Rationale:

2
C☐ P☐ M☐

	N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** Not in use but testing completed 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** The plans are to have this used in a public reporting initiative within the next 3 years: the Centers for Medicare and Medicaid Services Physician Quality Reporting System. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years*)**:** The plan is to use this with the American Academy of Ophthalmology´s Ophthalmic Patient Outcomes Database for quality improvement purposes within 3 years´ time. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:**	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐

	N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Survey	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** A web-based survey instrument could be used and results uploaded into a data registry. Paper survey instruments could be scanned and incorporated into a data registry. The registry could calculate the results and provide these results as feedback to the physicians and as quality measures to the CMS PQRS.	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** This is reliant on patient´s assessment of their status prior to and after cataract surgery, and therefore, any errors or biases in their self-evaluations. Also, there could be unintended consequences that surgeons would tend to avoid operating on candidate patients likely not to report improved visual function because of pre-existing ocular diseases. To mitigate the risk of the latter unintended consequence, we are proposing a sample size of 30. There is also the potential for biases introduced if the patient fills out the survey in the physician´s office or is contacted by the physician´s office to follow up on the survey. One strategy to minimize this bias is to have the visual function instrument administered through a third party, e.g., the Academy´s data registry which could provide a web portal for patients to fill out the visual function instruments or other options such as a mail or phone administered survey.	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** There is a burden upon the office practice to survey patients pre and post cataract surgery. The majority of these patients are elderly, and they may require assistance/prompting in responding to the surveys. This then will entail time taken out by the practice staff. The follow-up survey also requires close attention. Therefore, we have proposed a minimal sampling size of 30, which will reduce the burden on physicians´ practice and optimize the response rates. The survey would be administered by a third party (a registry for reporting of PQRS measures sponsored by the American Academy of Ophthalmology) to prevent or minimize bias which might be introduced if it is an in-office paper survey with questions asked by the office staff. Options would be provided to the patient, either online survey, mail survey or phone survey, depending on their preferences and abilities, because these patients are elderly and have visual impairment.	4e C☐ P☐ M☐ N☐

4e.2 Costs to implement the measure (*costs of data collection, fees associated with proprietary measures*)**:** There are costs of data collection and follow up of patients who haven´t filled out the surveys. There are no fees associated with proprietary measures. Therefore, we have proposed a sample size of 30, which will reduce the burden of these costs. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
American Academy of Ophthalmology and Hoskins Center for Quality Eye Care, 655 Beach Street, San Francisco, California, 94109-1336

Co.2 Point of Contact
Flora, Lum, M.D., flum@aao.org, 415-561-8592-

Measure Developer If different from Measure Steward
Co.3 Organization
American Academy of Ophthalmology and Hoskins Center for Quality Eye Care, 655 Beach Street, San Francisco, California, 94109-1336

Co.4 Point of Contact
Flora, Lum, M.D., flum@aao.org, 415-561-8592-

Co.5 Submitter If different from Measure Steward POC
Flora, Lum, M.D., flum@aao.org, 415-561-8592-, American Academy of Ophthalmology and Hoskins Center for Quality Eye Care

Co.6 Additional organizations that sponsored/participated in measure development
American Society of Cataract and Refractive Surgery

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
Priscilla Arnold, MD; David Chang, MD, Kevin Miller, MD, John Thompson, MD, Leon Herndon, MD

The group developed and reviewed the measure specifications

Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2010 **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** Every 3 years **Ad.9 When is the next scheduled review/update for this measure?** 12, 2013
Ad.10 Copyright statement: Copyright by the American Academy of Ophthalmology 2010
Ad.11 Disclaimers:
Ad.12 -14 Additional Information web page URL or attachment: Attachment visual functionand patient satisfaction measure Nov 2010.doc
Date of Submission (*MM/DD/YY*)**:** 12/14/2010

Measuring outcomes of cataract surgery using the Visual Function Index-14

Vijaya K. Gothwal, PhD, Thomas A. Wright, Ecosse L. Lamoureux, PhD, Konrad Pesudovs, PhD

PURPOSE: To determine which version of the Visual Function Index-14 (VF-14) most precisely measured cataract surgery outcomes, rescale the VF-14 using Rasch analysis, and create a short-form version for comparison.

SETTING: Flinders Medical Centre, Adelaide, South Australia, Australia.

METHODS: In this cohort study incorporating questionnaire development, participants were drawn from the cataract surgery waiting list at Flinders Medical Centre. There were 2 cohorts: a preoperative cohort used for questionnaire development and an outcomes cohort. All patients had cataract surgery by phacoemulsification with intraocular lens implantation. Rasch analysis was used to refine the VF-14 into valid long-form (VF-11R) and short-form (VF-8R) versions. The ability of 8 versions (original; 2 proposed versions; 5 previously proposed versions) of the VF-14 to discriminate cataract surgery outcomes was compared with that of the standard VF-14 using the relative precision method.

RESULTS: The preoperative cohort comprised 210 patients and the outcomes cohort, 51 patients. Large gains in visual functioning occurred with cataract surgery, and these were detectable with all versions of the VF-14. The largest gain in precision, 125% (relative precision. 2.25), occurred for VF-8R. Short forms that were not Rasch scaled showed gains in precision, from 23% to 80%. The VF-8R also showed the largest gains in precision in 2 subgroups: with ocular comorbidity (relative precision, 2.14) and without ocular comorbidity (relative precision, 2.48).

CONCLUSIONS: Results show an unequivocal advantage to using Rasch-scaled scores for assessing cataract surgery outcomes. The 8-item, Rasch-scaled VF-8R appears ideally suited for measuring cataract surgery outcomes given its high precision and short test time.

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A patient's perspective is critical in evaluating the need for, and outcomes of, cataract surgery.[1–3] Questionnaires are increasingly being required for these evaluations. One such questionnaire is the Visual Function Index-14 (VF-14), which was developed to assess functional impairment in cataract patients.[4] The VF-14 is a popular questionnaire. It possesses adequate traditional psychometric properties,[5,6] has a concise format, is easy to administer, and has been validated internationally.[3,7] However, researchers have suggested it is too time consuming for routine use and therefore have proposed shortened versions.[8–10] Uusitalo et al.[8] proposed a VF-7, derived by selecting items that best correlated with patient satisfaction. Pager[9] also advocated a VF-7, which included items (different from Uusitalo et al.) that closely correlated with the overall preoperative VF-14 score. Moghimi et al.[10] advocated a VF-9 for use in specific conditions, including cataract surgery outcomes in traumatic aniridia.

The most recent short-form of the VF-14 is the VF-9, a Rasch-scaled version proposed by Lamoureux et al.[11] for use in a population-based study. Before this, Mallinson et al.[12] had used the VF-14 as an illustrative example to show the benefits of using Rasch analysis to shorten questionnaires. In contrast, Friedman et al.[13] proposed a shortened VF-11 but questioned the advantages of shortening the original VF-14.

Given there are many short forms of the VF-14, each varying in item content and number, which version best measures cataract surgery outcomes is unclear. To bring clarity to this problem, we aimed to compare the precision (ie, usefulness in making comparisons between preoperative and postoperative participants)[14] of current short-form versions of the VF-14

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in assessing cataract surgery outcomes to determine the preferred version for future use.

Furthermore, questionnaires reexamined using Rasch analysis have shown more sensitivity to change postoperatively[2]; therefore, we hypothesized that Rasch-scaled versions of the VF-14 may improve the precision of outcomes measurement. Although this has been done in a population-based setting, the high rate of normal visual functioning may make such a population unsuitable for refining the instrument. Therefore, we evaluated a cataract population to revise the VF-14 using Rasch analysis and included this version in our comparison.

PATIENTS AND METHODS

Study Group and Protocol

Since 2005, as part of a long-term Cataract Outcomes Assessment Study, data on a number of cataract-specific questionnaires (including the VF-14) were collected. This assessment was implemented by routinely mailing packs of questionnaires (10) to consecutive patients on the waiting list for cataract extraction surgery at Flinders Medical Centre, Adelaide, South Australia. Inclusion criteria were English speaking, aged 18 years or older, and ability to provide written informed consent. Patients self-administered the questionnaires and returned them in a prepaid envelope. Patients chose to complete as many questionnaires as they wished. A demographic data form was included in the pack to obtain information regarding ocular and systemic status, which was subsequently confirmed from the patient's medical record at the time of data entry.

During a single 6-month data-collection window, the same pack was mailed 6 months after cataract surgery. Patients had coexisting systemic and ocular conditions, which is typical of an elderly cataract patient cohort in Australia.[15] Ethics approval for this research was obtained from the Flinders Clinical Ethics Committee. This research adhered to the tenets of the Declaration of Helsinki.

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From NH&MRC Centre for Clinical Eye Research (Gothwal, Wright, Pesudovs), Department of Optometry and Vision Science, Flinders Medical Centre and Flinders University of South Australia, Bedford Park, South Australia; Centre for Eye Research Australia (Lamoureux), Department of Ophthalmology, University of Melbourne, Victoria; Vision CRC (Lamoureux), Sydney, New South Wales, Australia; Meera and LB Deshpande Centre for Sight Enhancement (Gothwal), Vision Rehabilitation Centres, LV Prasad Eye Institute, Hyderabad, India; Singapore Eye Research Institute (Lamoureux), Singapore National Eye Centre, Singapore.

Corresponding author: Konrad Pesudovs, PhD, NH&MRC Centre for Clinical Eye Research, Department of Optometry and Vision Science, Flinders Medical Centre, Bedford Park, South Australia, 5042, Australia. E-mail: konrad.pesudovs@flinders.edu.au.

There were 2 patient populations. The first cohort comprised preoperative cataract patients whose data were used to refine the VF-14 with Rasch analysis (development group). The second cohort comprised patients whose data were used to measure cataract surgery outcomes (outcomes group).

Standardized eye examinations were performed before and after (minimum 21 days) cataract surgery. Habitual monocular and binocular visual acuity assessments were performed using computerized testing based on the logMAR principles with screen illumination of 150 candelas/m^2.[16] The visual acuity in the operated and fellow eyes of patients who had cataract surgery is presented here.

Questionnaires

Visual Function Index-14 The VF-14 contains questions (items) related to the degree of difficulty in performing 14 vision-dependent activities (eg, reading, watching television).[4] Table 1 shows the activities the VF-14 addresses and the response categories. Responses were coded as recommended by the developers. "Not applicable" responses were treated as missing data in the analysis. Higher scores represent better visual functioning (ie, less difficulty) and, therefore, greater ability in performing the activity.

Short-Form Versions of the Visual Function Index-14 Five studies that proposed short-form versions of the VF-14 were identified. They were Friedman et al.'s VF-11 (11 items),[13] Uusitalo et al.'s VF-7 (VF-7U; 7 items),[8] Pager's VF-7 (VF-7P; 7 items), [9] Moghimi et al.'s VF-9 for women (VF-9MF; 9 items) and for men (VF-9MM; 10 items),[10] and Lamoureux et al.'s Rasch-analyzed VF-9 (VF-9L).[11] Each shortened version contains a different set of the original VF-14 items.

The response options used in all short-form versions were similar to the original VF-14. Although Lamoureux et al.[11] proposed a reduction in categories from 5 to 4 for their VF-9L, in this study the original 5 categories for data collection were retained as that was how Lamoureux et al. collected their data.

Outcome Measures

Change in overall visual functioning with cataract surgery was the primary outcome measure. This outcome was also tested for 2 subgroups: with ocular comorbidity and without ocular comorbidity. Change in visual acuity was the secondary outcome measure.

Assessment of the Psychometric Properties of Visual Function Index-14 by Rasch Analysis

The native scoring system of the VF-14 is an ordinal (Likert) scale (ie, numerical values in an increasing order are assigned to categories of increasing difficulty) that uses summary scoring. This approach falsely assumes the spacing between response categories is equal and that all the items have the same level of difficulty. Ordinal scores are not a measurement; thus, they are inappropriate for measuring the degree of difference between patients or between preoperative and postoperative periods.[17] Therefore, before using the VF-14, it was imperative to assess its psychometric properties using Rasch analysis. A series of analyses was performed that included assessment of the following: (1) behavior of response categories (ie, whether higher

Table 1. Item content for VF-14 and the 2 Rasch-scaled versions of the VF-14 (VF-11R and VF-8R).*

Item	Item Description in VF-14	Items in VF-11R	Items in VF-8R
1	Reading small print, such as labels on medicine bottles, a telephone book, food labels	Retained	Retained
2	Reading a newspaper or a book	Retained	Retained
3	Reading a large-print book or large-print newspaper or numbers on a telephone	Retained	Eliminated
4	Recognizing people when they are close to you	Retained	Eliminated
5	Seeing steps, stairs, or curbs	Retained	Retained
6	Reading traffic signs, street signs, or store signs	Retained	Retained
7	Doing fine handwork, such as sewing, knitting, crocheting, carpentry	Retained	Retained
8	Writing checks or filling out forms	Retained	Retained
9	Playing games, such as bingo, dominos, card games, mahjong	Retained	Retained
10	Taking part in sports, such as bowling, handball, tennis, golf	Eliminated	Eliminated
11	Cooking	Retained	Eliminated
12	Watching television	Retained	Retained

*For items 1 through 12, the frame question was, "Do you have any difficulty, even with glasses?"; there were 5 scoring response options (no = 4; a little = 3; a moderate amount = 2; a great deal = 1; unable to do the activity = 0). Items 13 through 18 are driving items. Two are scoring items with 5 response options, and there are different frame question for these items; these were eliminated from the Rasch-scaled versions (VF-11R and VF-8R).

categories represented better visual functioning), (2) measurement precision (represented by person separation; minimum acceptable value of 2.0[18]), (3) unidimensionality (ie, whether all the items contribute and measure a single underlying latent trait of visual functioning measured by infit mean square statistic with acceptable range of 0.7 to 1.3 and also by principal components analysis,), and (4) whether items match the patient's visual functioning (represented by targeting; ideal <0.5 logits). If all the items did not measure visual functioning (representing lack of unidimensionality), the goal was to provide remedial measures. As in other studies, this one considered shortening the VF-14 without compromising its original properties. Details about applying Rasch analysis to the questionnaires for this purpose have been described[2,19,20] and are reported in brief here. In the context of Rasch analysis, an item (activity) is considered difficult if a high level of visual functioning is required to complete it. In Rasch analysis, item difficulty and patient ability are calibrated on the same scale and are expressed in logit units.[18,21]

Using the data from all preoperative cataract patients, Rasch analysis was performed using the Andrich rating scale model for polytomous data (ie, multiple response options for an item) in the Winsteps software (version 3.68).[22,23] In contrast to the need to combine categories, as reported by Lamoureux et al.[11] for the VF-9L, the patients in this study used the response options as they were intended to and, therefore, the original 5 response categories were retained. The VF-14 showed adequate stratification of visual functioning evidenced by a person separation of 2.45 (minimum acceptable value, 2.0) indicating that it was able to discriminate between 3 strata of patient's visual functioning (Table 2). Targeting was suboptimum (1.86 logits), indicating that the items were mismatched to the patient's visual functioning. This result indicated that, overall, the items were too easy for patients.[12]

Two items did not fit. This indicated a lack of unidimensionality (ie, these 2 items measured a construct different than the remaining 12 items [not visual functioning]). Principal component analysis further confirmed the lack of unidimensionality by revealing the presence of a secondary dimension, which could be described as relating to driving.

Taken together, the above findings suggested that the VF-14 required revision. Specifically, unidimensionality had to be restored and item misfit minimized. Unidimensionality was restored by deleting the 2 driving items. However, after deletion of the items, a further item (playing games) showed misfit and therefore was also deleted. The remaining 11 items then fit the Rasch model. That is, these items formed a unidimensional measure of visual functioning that could be used in the comparisons along with previously proposed short-form versions. This new version is referred to here as the VF-11R (R for Rasch) (Table 2).

In the VF-11R, certain items possessed the same difficulty level as others. This suggested redundancy in the measure and that further items in the VF-11R could be removed. The following criteria were used to drive the selection of items to be retained in the short-form: (1) maintain a minimum person separation value of 2.0 and (2) maintain targeting.

Two further items were removed from the VF-11R. In this process, an additional item also misfit and was deleted. Thus, 8 items remained in this unidimensional short-form version, which is referred to here as the VF-8R (Table 1). In terms of being a unidimensional measure of visual functioning, the VF-8R was superior to the VF-14, although person separation and targeting were marginally lower than for the VF-11R (Table 2). Nevertheless the VF-8R was shorter than the original scale by 6 items. The reliability of these short-form versions was not tested.

To fulfill the study's main aim of determining the best version of VF-14 for assessing the change in visual functioning after cataract surgery, the VF-11R and VF-8R were appended to the existing list of the 5 shortened versions of the VF-14.[8–11, 13]

Statistical Analysis

For the Rasch analysis of the outcomes, the data obtained from the preoperative patients and postoperative patients were combined; that is, all data were assembled in a single data set, with the postoperative data treated as "new patients".[24] Preoperative and postoperative visual functioning scores (in logits) were then estimated for each patient. This

Table 2. Overall performance of the VF-14 and the included short-form versions of the VF-14.

Parameter	VF-14	VF-11R*	VF-8R*	VF-11†	VF-7U†	VF-7P†	VF-9MF†	VF-9MM†	VF-9L*
Misfitting items (n)	2	0	0	1	1	1	0	2	1
Person separation	2.45	2.46	2.29	2.29	1.86	2.07	2.31	2.18	2.73
Mean item location	0	0	0	0	0	0	0	0	0
Mean person location	1.86	2.57	1.97	1.39	1.53	1.75	2.64	1.67	2.26
Principal components analysis (eigenvalue)	2.3	1.6	1.6	2.2	1.6	1.6	1.7	2.3	1.7

VF-14 = Visual Functioning Index 14 (14 items[4]; VF-11R = 11 items (Rasch scaled version from present study); VF-8R = 8 items (Rasch scaled version from present study); VF-11 = 11 items (Friedman et al.[13]); VF-7U = 7 items (Uusitalo et al.[8]); VF-7P = 7 items (Pager[9]); VF-9MF = 9 items for females (Moghimi et al.[10]); VF-9MM = 9 items for males (Moghimi et al.[10]); VF-9L = 9 items (Lamoureux et al.[11])
*Rasch-scaled versions
†Non Rasch–scaled versions

was done so that the preoperative and postoperative scores were derived on the same scale and would therefore provide an accurate measure of outcomes.

A 1-way analysis of variance (ANOVA) was used to determine whether the change in preoperative to postoperative score for the original VF-14 and each shortened version differed significantly from zero. The F statistic with a *P* value less than 0.05 was considered significant. Relative precision was then used to examine how well each version of the VF-14 distinguished visual functioning between preoperative and postoperative periods, relative to the Likert scoring of the original VF-14.[25] Relative precision is a ratio of pairwise F statistics (F for each version versus F for the Likert scoring of VF-14). The extent to which the relative precision ratio differed from 1.0 indicated the degree to which the 2 scoring methods differed in their ability to detect the change in scores; values greater than 1.0 indicated increased precision.

To maximize comparability, the ordinal raw scores (from VF-14, VF-11, VF-7U, VF-7P, VF-9MF, and VF-9MM) and Rasch measures (from VF-11R, VF-8R, and VF-9L) were transformed from their original scale to a 0 to 100 metric; minimum visual functioning (maximum difficulty) was set at 0 and maximum visual functioning (minimum difficulty), at 100.[26]

SPSS for Windows software (version 15.0, SPSS, Inc.) was used for all general descriptive statistics. A paired *t* test was used to compare improvements in visual acuity within the group for those with ocular comorbidity and without ocular comorbidity. Independent-samples *t* tests were used to compare the improvement in visual acuity between these groups. A *P* value less than 0.05 was considered statistically significant.

RESULTS

Response and Patient Characteristics

The VF-14 was mailed to 414 patients, of whom 210 (50.7% response rate) returned the completed questionnaire. Postoperatively, 51 of the 81 patients who were mailed the VF-14 returned it (62.9% response rate). Table 3 shows the baseline characteristics of the patients by group.

Clinical Outcomes

Combining the data of the preoperative patients and postoperative patients for Rasch analysis of the outcomes yielded 102 patient records. Table 4 shows the mean preoperative and postoperative visual acuity values in the operated eyes and fellow eyes. Visual acuity improved significantly from preoperatively to postoperatively overall ($P < .0001$) and in the comorbidity subgroup ($P < .0001$) and no-comorbidity subgroup ($P = .02$). The final postoperative visual acuity was not significantly different between the 3 groups ($F = 2.69$ and $P = .08$, ANOVA).

Relative Precision: Clinical Discrimination

Tables 5, 6, and 7 show the mean preoperative and postoperative scores (and mean change) for the VF-14 and the various short-form versions in the overall group, the ocular comorbidity subgroup, and the no-ocular comorbidity subgroup, respectively. Overall, regardless of the scoring method used, the mean postoperative scores were consistently higher than the preoperative scores across all versions (Table 5). The

Table 3. Baseline sociodemographic and clinical characteristics of the cataract patients who completed the VF-14.

Characteristic	Group	
	Development	Outcomes
Patients (n)	210	51
Mean age (y) ± SD	74.3 ± 9.3	73.0 ± 7.5
Sex, n (%)		
Male	88 (42)	29 (57)
Female	122 (58)	22 (43)
Ocular comorbidity,* n (%)		
Present	98 (48)	30 (59)
Absent	106 (52)	21 (41)
Systemic comorbidity,† n (%)		
Present	142 (84)	40 (78)
Absent	27 (16)	11 (22)

*Includes age-related macular degeneration, glaucoma, diabetic retinopathy, etc. Data were missing for 6 cases in the development group.
†Includes hypertension, diabetes, angina, etc. Data were missing for 41 cases in the development group.

Table 4. Preoperative and postoperative visual acuity of 51 patients who had cataract surgery and completed the VF-14.

Group/Exam Time	Visual Acuity
Operated eyes	
All (n = 51)	
Preoperative*	
Mean logMAR ± SD	0.52 ± 0.40
Range	0.00 to 2.00
Snellen	$6/19^{-1}$
Postoperative*	
Mean logMAR ± SD	0.18 ± 0.21
Range	−0.12 to 0.80
Snellen	$6/7.5^{-1}$
With comorbidity (n = 30)	
Preoperative*	
Mean logMAR ± SD	0.41 ± 0.32
Range	0.00 to 1.30
Snellen	6/15
Postoperative*	
Mean logMAR ± SD	0.23 ± 0.21
Range	−0.10 to 0.80
Snellen	$6/9.5^{-1}$
With no comorbidity (n = 20)	
Preoperative (better eye)	
Mean logMAR ± SD	0.69 ± 0.45
Range	0.10 to 2.00
Snellen	$6/30^{-1}$
Postoperative (better eye) †	
Mean logMAR ± SD	0.07 ± 0.17
Range	−0.12 to 0.44
Snellen	$6/7.5^{+1}$
Fellow eyes	
All	
Mean logMAR ± SD	0.20 ± 0.20
Range	−0.30 to 0.80
Snellen	6/9.5
With comorbidity	
Mean logMAR ± SD	0.18 ± 0.18
Range	−0.30 to 0.50
Snellen	$6/9.5^{+1}$
Without comorbidity	
Mean logMAR ± SD	0.22 ± 0.24
Range	−0.1 to 0.80
Snellen	$6/9.5^{-1}$

Notes on logMAR values: 1.3 represents visual acuity of 3/60 or 6/120; 2.00 represents light perception, 0 represents 6/6, negative logMAR values indicate visual acuity of better than 6/6.
Snellen notation: Minus sign in the superscript indicates patient could not read the line completely and missed letters, for example, $6/19^{-2}$ indicates patient missed 2 letters from this line. Plus sign indicates patient read this line completely correctly and read 2 more letters correctly in the subsequent smaller line
*$P < 0.0001$ (Paired t test)
†$P = 0.02$ (Paired t test)

largest improvement in scores occurred for the VF-8R. Figure 1 shows the relative distribution of the VF-14 and VF-8R scores preoperatively and postoperatively in the overall group.

As hypothesized, all Rasch-scaled versions achieved significantly greater gains in precision in discriminating between visual functioning of preoperative and postoperative patients (Table 5). The gain in precision compared with the original Likert scored VF-14 was 98% for the VF-11R, 125% for the VF-8R, and 98% for the VF-9L.

Similar to the overall group, the mean postoperative scores were significantly higher than the preoperative scores in both subgroups (Tables 6 and 7). The gain in precision was consistently the largest for VF-8R with ocular comorbidity (114%) and without ocular comorbidity (148%). In the subgroup without ocular comorbidity, 2 Likert-scored versions (VF-11 and the VF-9MM) had less precision (12% and 22%, respectively) than the VF-14.

DISCUSSION

After cataract surgery, visual acuity improved significantly overall (by a mean of 3.4 lines) and in both subgroups, with the largest gains in eyes without ocular comorbidity (6.2 lines). Visual acuity is, of course, a surrogate for visual functioning, albeit limited to the high contrast acuity spectrum of function. More important, visual functioning also improved significantly overall and in both subgroups. For example, postoperatively, patients in the overall group had a mean VF-8R Rasch-score of 83.15 logits (15.39-logit improvement from preoperative assessment), while the ocular comorbidity subgroup had a mean VF-8R Rasch score gain of 13.87 logits, and the no comorbidity subgroup gained 17.35 logits. Similar improvements, albeit smaller in magnitude by comparison, were observed for the VF-14 and the other 7 short-form versions.

The main objective of our study was to determine the best short-form version of the VF-14 by comparing the relative precision of 8 short-form versions against the original VF-14 in measuring the outcomes of cataract surgery. We found larger gains in precision for Rasch-scoring (range of relative precision 98% to 125% increase) in discriminating the visual functioning in the overall group; the largest gain of 125% was for the VF-8R (relative precision, 2.25). Similar large gains were observed for Rasch-scoring across both subgroups. In fact, the largest gain in precision (relative precision = 2.48) was for the VF-8R in discriminating the visual functioning for those who did not have ocular comorbidity. That is, the precision of VF-8R in this subgroup was 2.48 times better than that of the original VF-14. Thus, the results in our study provide strong evidence of the benefits of Rasch-scaling questionnaires. These results are consistent with those of other researchers, who have also showed the benefits

Table 5. Mean preoperative and postoperative scores for cataract surgery patients (overall, n = 51) and relative precision for the VF-14 and the included short-form versions of the VF-14.

Version	Mean ± SE		Mean Differences* ± SE: Preop Vs Postop	F Statistic†	Relative Precision‡
	Preoperative	Postoperative			
VF-14/Likert	82.49 ± 1.99	90.61 ± 1.79	8.12 ± 1.87	9.18	1.00
VF-11R/Rasch	79.59 ± 1.50	88.92 ± 1.59	9.33 ± 1.61	18.14	1.98
VF-8R/Rasch	67.75 ± 2.36	83.15 ± 2.43	15.39 ± 2.66	20.67	2.25
VF-11/Likert	78.68 ± 2.20	89.43 ± 2.07	10.75 ± 2.31	12.66	1.38
VF-7U/Likert	78.17 ± 2.10	88.37 ± 1.96	10.20 ± 2.00	12.57	1.37
VF-7P/Likert	77.26 ± 2.38	90.17 ± 2.10	12.91 ± 2.43	16.53	1.80
VF-9MF/Likert	83.18 ± 1.95	92.14 ± 1.73	8.95 ± 1.68	11.77	1.28
VF-9MM/Likert	81.34 ± 2.03	90.50 ± 1.82	9.16 ± 1.85	11.27	1.23
VF-9L/Rasch	79.49 ± 1.55	89.17 ± 1.66	9.68 ± 1.68	18.14	1.98

SE = standard error
*The follow-up time for self-administration of the VF-14 postoperatively was a minimum of 6 months from the date of surgery. The mean difference was calculated by subtracting the postoperative score from the preoperative score, with a positive result indicating a gain postoperatively.
†$P < .05$
‡Relative precision was calculated by dividing the F statistic for each version by that of the VF-14 (as baseline).

of Rasch-scaled versions over Likert scores for ophthalmic and nonophthalmic questionnaires.[25–28]

The main reason the Rasch-scaled versions had relatively greater precision in measuring outcomes is the reduction in error in estimating the measurement of visual disability, as evidenced by reduced standard errors of the measures.[25,29] Smaller standard errors, typical of Rasch scaling, were noted in the present study for the VF-11R and VF-9L, but not for the VF-8R.[28] Second, as a result of logistic transformation, Rasch-scaling increases measurement precision by expanding the range of measurement. It is the larger range of measurement for the VF-8R that probably caused its increased standard errors, although further reliability testing of this version could be informative. In contrast, Likert-scaled scores are constrained at each end of the scale. The larger range of measurement in the Rasch-scaled versions implies reduced ceiling and floor effects (ie, patients with extreme scores), as was evidenced with the use of VF-8R. Patients with

Table 6. Mean preoperative and postoperative scores for cataract surgery patients who had ocular comorbidity (n = 30) and relative precision for the VF-14 and the included short-form versions of the VF-14.

Version	Mean ± SE		Mean Differences* ± SE: Preop Vs Postop	F Statistic	Relative Precision¶
	Preoperative	Postoperative			
VF-14/Likert	81.54 ± 2.78	89.21 ± 2.76	7.66 ± 2.36	3.81†	1.00
VF-11R/Rasch	79.45 ± 2.13	87.69 ± 2.35	8.24 ± 2.26	6.73‡	1.77
VF-8R/Rasch	67.71 ± 3.29	81.58 ± 3.57	13.87 ± 3.81	8.15‡	2.14
VF-11/Likert	77.87 ± 2.94	88.60 ± 2.99	10.73 ± 2.77	6.54‡	1.72
VF-7U/Likert	76.11 ± 2.91	86.73 ± 2.99	10.62 ± 2.83	6.48‡	1.70
VF- 7P/Likert	77.54 ± 3.17	88.21 ± 3.33	10.66 ± 3.33	5.37‡	1.41
VF-9MF/Likert	82.51 ± 2.79	90.18 ± 2.74	7.67 ± 2.22	3.84‡	1.01
VF-9MM/Likert	80.01 ± 2.74	89.39 ± 2.74	9.31 ± 2.14	5.77‡	1.51
VF-9L/Rasch	79.59 ± 2.18	88.30 ± 2.46	8.71 ± 2.35	7.02‡	1.84

SE = standard error
*The follow-up time for self-administration of the VF-14 postoperatively was a minimum of 6 months from the date of surgery. The mean difference was calculated by subtracting the postoperative score from the preoperative score, with a positive result indicating a gain postoperatively.
†$P > .05$ for VF-14 only
‡$P < .05$
¶Relative precision was calculated by dividing the F statistic for each version by that of the VF-14 (as baseline).

Table 7. Mean preoperative and postoperative scores for cataract surgery patients who did not have ocular comorbidity (n = 20) and relative precision for the VF-14 and the included short-form versions of the VF-14.

Version	Mean ± SE		Mean Differences* ± SE: Preop Vs Postop	F statistic†	Relative Precision‡
	Preoperative	Postoperative			
VF-14/Likert	84.97 ± 2.71	92.97 ± 1.86	8.00 ± 3.20	5.92	1.00
VF-11R/Rasch	80.50 ± 2.03	91.20 ± 1.94	10.70 ± 2.31	14.44	2.44
VF-8R/Rasch	68.87 ± 3.36	86.22 ± 3.03	17.35 ± 3.72	14.70	2.48
VF-11/Likert	81.09 ± 3.29	91.02 ± 2.82	9.93 ± 4.17	5.26	0.89
VF-7U/Likert	82.49 ± 2.69	91.70 ± 1.97	9.21 ± 2.92	7.62	1.29
VF- 7P/Likert	78.21 ± 3.59	93.46 ± 1.79	15.25 ± 3.54	14.42	2.43
VF-9MF/Likert	85.29 ± 2.49	95.15 ± 1.46	9.86 ± 2.53	11.63	1.96
VF-9MM/Likert	84.43 ± 2.92	92.39 ± 2.14	7.96 ± 3.39	4.84	0.82
VF-9L/Rasch	80.04 ± 2.16	91.04 ± 2.02	11.03 ± 2.47	13.90	2.35

SE = standard error
*The follow-up time for self-administration of the VF-14 postoperatively was a minimum of 6 months from the date of surgery. The mean difference was calculated by subtracting the postoperative score from the preoperative score, with a positive result indicating a gain postoperatively.
†$P < .05$
‡Relative precision was calculated by dividing the F statistic for each version by that of the VF-14 (as baseline).

high visual functioning scored at the upper end of the VF-8R, while those with low visual functioning scored at the lower end. Although it appears as though there was some truncation of measurement in the postoperative samples, the truncation seemed to be less with the VF-8R (Figure 1).

Nevertheless, the overarching question is which version(s) of VF-14 should be used for assessing outcomes of cataract surgery? Our results clearly indicate that the Rasch-scaled VF-8R is the most appropriate. There are many potential benefits to using it. First, it provides interval-level measurement, making comparison between patients meaningful. Second, all items measure a single construct of visual functioning (implying unidimensionality, which is an essential measurement property); this is unlike the original VF-14, which is confounded by more than 1 construct. Third, it has better measurement precision for discriminating outcomes, indicating a smaller sample size will be required to find significant differences. Finally, with only 8 items, respondent burden and administration time are minimal.

The proposed VF-8R version is not without limitations. It has suboptimum targeting, marginally lower than the original VF-14. Except for the Catquest-9SF,[2] problems with targeting (ie, items being too easy) have been evident for cataract patients with all other questionnaires.[1,19,20] There may also be marginal differences in patient response if the questionnaire were administered in an 8-item format instead of a 14-item format[30]; however, this has not been tested.

In conclusion, our results show that Rasch-scaled versions of VF-14 perform better than Likert-scored versions. In particular, the VF-8R measures cataract surgery outcomes with high precision, possesses psychometric properties comparable to those of the original VF-14, and performs even better than VF-14 in terms of measuring a single construct. Given these benefits, we believe the VF-8R would prove to be a superior tool in cataract outcomes assessment.

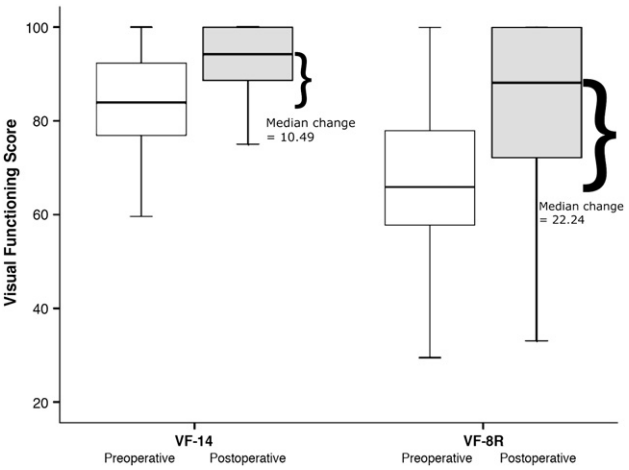

Figure 1. Box-and-whisker plot of preoperative scores (*empty boxes*) and postoperative scores (*solid boxes*) of visual functioning in the overall group of patients (n = 51) using the VF-14 and the Rasch-scaled version, the VF-8R. The boxes contain the interquartile range, and the line running across the center of each box represents the median. The change in the median score was statistically significantly larger for the VF-8R than for the VF-14 (both $P < .0001$, paired *t* test).

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First author
Vijaya K Gothwal, PhD

Department of Ophthalmology, Flinders Medical Centre and Flinders University of South Australia, Bedford Park, South Australia

American Academy of Ophthalmology

Eye Care III
Physician Performance Measurement Set

Eye Care Work Group *(specialty)*
Priscilla P. Arnold, MD (Co-Chair) (ophthalmologist)

Surgical Management Subgroup:
David Chang, MD (ophthalmologist**)**
Leon W. Herndon, MD (ophthalmologist)
Kevin Miller MD (ophthalmologist)
John T. Thompson, MD (ophthalmologist)

Staff:

American Academy of Ophthalmology
Flora Lum, MD

Purpose of Measures:
These clinical performance measures, developed by the American Academy of Ophthalmology, are designed for individual quality improvement. Unless otherwise indicated, the measures are also appropriate for accountability if appropriate methodological, statistical, and implementation rules are achieved.

The proposed measures seek to advance performance measures for eye care by including explicit measures of patient visual function and patient satisfaction so as to more directly connect process measures to issues of patient interest, satisfaction, and empowerment.

Accountability Measures:
Measure #1 Cataracts: Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery
Measure #2 Cataracts: Patient Satisfaction within 90 Days Following Cataract Surgery

Intended Audience and Patient Population:
Ophthalmologists may implement these measures if and when they provide the cataract surgery addressed in the measures. The measures are designed for calculating reporting or performance measurement at the individual level.

Measure Specifications
Draft specifications to report on these measures for eye care using administrative (claims) data are included in this document. We have identified codes for these measures, including ICD-9 and CPT (Evaluation & Management Codes, Category I and where Category II codes would apply). Specifications for additional data sources, including EHRs, will be fully developed at a later date.

Measure Exclusions:
For ***process measures***, there exist three categories of reasons for which a patient may be excluded from the denominator of an individual measure:

- **Medical reasons**

Includes:
- not indicated (absence of organ/limb, already received/performed, other)
- contraindicated (patient allergic history, potential adverse drug interaction, other)

- **Patient reasons**

Includes:
- patient declined
- economic, social, or religious reasons
- other patient reasons

- **System reasons**

Includes:
- resources to perform the services not available
- insurance coverage/payor-related limitations
- other reasons attributable to health care delivery system

These measure exclusion categories are not available uniformly across all measures; for each measure, there must be a clear rationale to permit an exclusion for a medical, patient, or system reason. The exclusion of a patient may be reported by appending the appropriate modifier to the CPT Category II code designated for the measure:

- **Medical reasons**: modifier 1P

- **Patient reasons**: modifier 2P

- **System reasons**: modifier 3P

Although this methodology does not require the external reporting of more detailed exclusion data, physicians should document the *specific* reasons for exclusion in patients' medical records for purposes of optimal patient management and audit-readiness. Also, each physician's exclusions data could be self-assessed to identify practice patterns and opportunities for quality improvement.

For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exclusion.

Please refer to documentation for each individual measure for information on the acceptable exclusion categories and the codes and modifiers to be used for reporting.

For ***outcome measures***, there are acceptable reasons for which a patient may be excluded from the denominator. Each specified reason is reportable with a CPT Category II code or CPT Category I code designated for that purpose.

Data Capture and Measure Calculation
This is intended for physicians to collect data on each patient eligible for a measure. Feedback on measures should be available to physicians by patient to facilitate patient management and in aggregate to identify opportunities for improvement across a physician's patient population.

Measure calculations will differ depending on whether a rate is being calculated for performance or reporting purposes.

The method of calculation for performance follows these steps: first, identify the patients who meet the eligibility criteria for the denominator (PD); second, identify which of those patients meet the numerator criteria (A); and third, for those patients who do not meet the numerator criteria, determine whether an appropriate exclusion applies and subtract those patients from the denominator (C). (see examples below)

The methodology also enables implementers to calculate the rates of patient exclusions and to further analyze both low and high rates, as appropriate (see examples below).

The method of calculation for reporting differs. One program which currently focuses on reporting rates is the Centers for Medicare and Medicaid Services (CMS) Physician Quality Reporting Initiative (PQRI). Currently, under that program design, there will be a reporting denominator determined solely from claims data (CPT and ICD-9), which in some cases result in a reporting denominator that is much larger than the eligible population for the performance denominator. Additional components of the reporting denominator are explained below.

The components that make up the numerator for reporting include all patients from the eligible population for which the physician has reported, including: the number of patients who meet the numerator criteria (A), the number of patients for whom valid exclusions apply (C) and also the number of patients who do not meet the numerator criteria (D). These components, where applicable, are summed together to make up the inclusive reporting numerator. The calculation for reporting will be the reporting numerator divided by the reporting denominator. (see examples below).

Examples of calculations for reporting and performance are provided for each measure.

Calculation for Performance

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

Numerator (A) Includes:
Number of patients meeting numerator criteria

Performance Denominator (PD) Includes:
Number of patients meeting criteria for denominator inclusion

Denominator Exclusions (C) Include:
Number of patients with valid medical, patient or system exclusions (where applicable; will differ by measure)

Performance Calculation

A (# of patients meeting numerator criteria) PD (# patients in denominator) – C (# patients with valid denominator exclusions)

It is also possible to calculate the percentage of patients excluded overall, or excluded by medical, patient, or system reason where applicable**:**

Overall Exclusion Calculation

C (# of patients with any valid exclusion) PD (# patients in denominator)

OR

Exclusion Calculation by Type

C_1 (# patients with medical reason) **PD** (# patients in denominator) C_2 (# patients with patient reason) **PD** (# patients in denominator) C_3 (# patients with system reason) **PD** (# patients in denominator)

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator

Reporting Numerator includes each of the following components, where applicable. (There may be instances where there are no patients to include in A, C, D, or E).

A. Number of patients meeting additional denominator criteria (for measures where true denominator cannot be determined through ICD-9 and CPT Category I coding alone) AND numerator criteria
C. Number of patients with valid medical, patient or system exclusions (where applicable; will differ by measure)
D. Number of patients not meeting numerator criteria and without a valid exclusion
E. All other patients not meeting additional denominator criteria (for measures where true denominator cannot be determined through ICD-9 and CPT Category I coding alone)

Reporting Denominator (RD) Includes:
RD. Denominator criteria (identifiable through ICD-9 and CPT Category I coding)

Reporting Calculation

A(# of patients meeting additional denominator criteria AND numerator criteria) + **C**(# of patients with valid exclusions) + **D**(# of patients NOT meeting numerator criteria) + **E**(# of patients not meeting additional denominator criteria) **RD** (# of patients in denominator)

Eye Care

Measure #1 Cataracts: Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery

This measure may be used as an Accountability measure.

Clinical Performance Measure
Numerator: Patients who had improvement in visual function achieved within 90 days following cataract surgery **Denominator:** All patients aged 18 years and older who had cataract surgery **Denominator Exclusions:** The patient refuses to participate or the patient is unable to complete the questionnaire, or there is a medical reason **Measure:** Percentage of patients aged 18 years and older who had cataract surgery and had improvement in visual function achieved within 90 days following the cataract surgery
The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: **This is an outcomes measure.** As such, no statements in the guideline are specific to this measurement topic.
Rationale for the measure: 1. Scientific basis for measuring visual function outcomes after cataract surgery. Visual function has been described as having multiple components, including central near, intermediate, and distance visual acuity; peripheral vision;[1] visual search; binocular vision; depth perception; contrast sensitivity; perception of color; adaptation; and visual processing speed.[2] Visual function also can be measured in terms of functional disability caused by visual impairment.[3] Many activities are affected by more than one of these visual components. Health services researchers have increasingly emphasized function and quality of life as the outcomes of treatment that are most critical and applicable to the patient. As previously stated, the primary purpose in managing a patient with cataract is to improve functional vision and the quality of life. In well-designed observational studies, cataract surgery consistently has been shown to have a significant impact on vision-dependent function. The Cataract Patient Outcomes Research Team (PORT) reported that 90% of patients under-going first-eye cataract surgery noted improvement in functional status and satisfaction with vision.[4] The Activities of Daily Vision Study of elderly patients with a high prevalence of coexisting ocular and medical diseases reported improved visual function in 80% of patients at 12 months after surgery.[5] A National Cataract Study conducted in England of 1,139 patients who had cataract surgery found that preoperative functional impairment varied in relation to gender, age, and visual acuity. Men were more likely to have trouble with driving, glare, and employment, and women

were more likely to have difficulties with activities of daily living and recreational activities.[6] Studies have found that regardless of the preoperative visual acuity in the better eye, most patients reported improvement in their ability to perform visually dependent tasks after undergoing cataract surgery.[4-6]

Several studies have reported an association between improved visual function after cataract surgery and improved health-related quality of life.[1,5,7-8] Visual function plays an important role in physical function, particularly in terms of mobility.[9] The loss of visual function in the elderly is associated with a decline in physical and mental functioning as well as in independence in activities of daily living,[10] including night-time driving, daytime driving, community activities, and home activities. Elderly patients with visual impairment only (and no other physical or mental impairments) were 2.5 times as likely to experience functional decline than elderly patients without visual impairment.

Improved visual function following cataract surgery can ameliorate the progressive deterioration of quality of life seen in elderly patients.[1,5] In a cohort of 464 patients 65 years old and older, cataract extraction improved visual function and health-related quality of life. Patients with an improvement in their Activities of Daily Vision Scale (ADVS), a brief measure of vision-specific functional status,[11] had from 10% to 59% less decline in nearly all Short Form (SF)-36 dimensions.[5] The SF-36 is a generic global measure of multidimensional health-related quality of life.[12] A nationally representative population of 7,114 persons who were 70 years old and older showed that limitations in vision correlated with decreased functional status.[13] The unadjusted functional score of a person with reported poor vision was four times worse than the score for a person with excellent vision.[13] This difference was comparable with the differences found in other chronic conditions such as arthritis. This relationship with vision persisted, even after adjustment for health, demographics, and economic status. Individuals who rated their vision as other than excellent reported worse functional status, even when controlled for the presence of other medical conditions, education, income, general health status, and other symptoms. By improving visual function, cataract surgery may play an important role in preserving overall functional status, reducing associated injuries and accidents, and preventing disability in at-risk elderly patients.[10]

An analysis of the Medical Outcomes Study found that having blurred vision more than once or twice a month has a significant impact on functional status and well-being, particularly on problems with work or other daily activities as a result of physical health.[14] This impact was found to be greater than the impact of several other chronic conditions, such as hypertension, history of myocardial infarction, type 2 diabetes mellitus, indigestion, trouble urinating, and headache. In one study, patients planning to undergo cataract surgery assigned a mean preoperative preference value of 0.68 on a scale ranging from 0 to 1 (where 0 is death and 1 is excellent health), indicating that the visual impairment from cataracts had a substantial impact on their quality of life.[11] Visual impairment is an important risk factor for falls[15] and for hip fracture.[16] Specifically, the Study for Osteoporotic Fractures Research Group found that poor depth perception and decreased contrast sensitivity independently increased the risk of hip fracture.[17]

Visual impairment, in particular a decrease of visual acuity and contrast sensitivity, has been shown to be associated with difficulties in driving.[18] In one study, older drivers with visually significant cataract were twice as likely as older drivers without cataract to report reduction in days driven and four times as likely to report difficulties in challenging driving situations.[19] Drivers with visually significant cataract were 2.5 times more likely to have had an at-fault involvement in a motor vehicle crash in the past 5 years compared with drivers without cataract.[19] This association was significant, even after accounting for other factors such as impaired general health, age, mental status deficit or depression. In this study, visually significant cataract was determined by reviewing the participant's medical record and most recent eye examination by an eye care specialist. The study required that cataract in both eyes was the cause of the visual impairment, based on the medical record; an additional inclusion criterion was best-corrected visual acuity in one eye of 20/40 or worse. A further study in the same group demonstrated that drivers with a history of crash involvement were eight times more likely to have a serious contrast

sensitivity deficit (defined as a Pelli-Robson score of 1.25 or less) in the worse eye than those who had no history of crash involvement.[20] A severe contrast sensitivity deficit in only one eye was still significantly associated with crash involvement.[20]

Binocular vision is better than the vision of a single eye. The simultaneous use of the two eyes is complex and requires the integration of disparate images from each eye. A study demonstrated that binocular vision resulted in better perception of form, color, and the relationship of the body to the environment, which facilitated manipulation, reaching, and balance, particularly under dim illumination.[21] However, if the vision of one eye is reduced due to cataract, visual performance can fall below the level of monocular vision by a mechanism known as binocular inhibition,[22] which reduces patients' visual acuity and contrast sensitivity.[23] A study of the Framingham Study Cohort found that poor vision in one or both eyes was associated with an increased risk of hip fracture. It also found that patients with good vision in one eye and moderately impaired vision in the other eye had a higher risk of fracture than those with similar visual impairment in both eyes.[24] A study of 150 patients before and after cataract surgery found that poor binocular visual acuity was related to more problems in activities of daily living.[25] Another study, based on patients who reported no beneficial outcomes after first-eye cataract surgery in the National Swedish Cataract Outcome register, found that anisometropia was the reason for the poor outcome in one-third of cases.[26] These studies have shown that second-eye surgery is important to visual and physical function.

In summary, these studies demonstrate that physical function, emotional well-being, and overall quality of life can be enhanced when visual function is restored by cataract extraction.[27]

Improved visual function as a result of cataract surgery includes the following:

- Better optically corrected vision.
- Better uncorrected vision with reduced spectacle dependence.
- Increased ability to read or do near work.
- Reduced glare.
- Improved ability to function in dim levels of light.
- Improved depth perception and binocular vision.
- Improved color vision.

Improved physical function as a critical outcome of cataract surgery includes the following:

- Increased ability to perform activities of daily living.
- Increased opportunity to continue or resume an occupation.
- Increased mobility (walking, driving).

Improved mental health and emotional well-being as a second critical outcome of cataract surgery includes the following benefits:

- Improved self-esteem and independence.
- Increased ability to avoid injury.
- Increased social contact and ability to participate in social activities.
- Relief from fear of blindness.

Most patients achieve improved visual function after cataract surgery. This outcome is achieved consistently through careful attention through the patient selection process, accurate measurement of axial length and corneal power, appropriate selection of an IOL power calculation formula, etc. As such, it reflects the care and diligence with which the surgery is assessed, planned and executed. Failure to achieve this after surgery would reflect patterns of patient selection or treatment that should be

assessed for opportunities for improvement.

Sometimes cataract surgery is performed for other medical reasons other than to improve impaired visual function caused by cataract. These circumstances include the following: clinically significant anisometropia in the presence of a cataract; when the lens opacity interferes with optimal diagnosis or management of posterior segment conditions, when the lens causes inflammation (phacolysis, phacoanaphylaxis) and when the lens induces angle closure (phacomorphic or phacotopic). In these situations, improved visual function as a result of the removal of the cataract is not expected, because of the pre-existing comorbid conditions.

2. Evidence of a gap in care

This is an outcome of surgery indicator of direct relevance and import to patients, their families and referring providers. The available evidence suggests that cataract surgery achieves this in about 90% of patients. While the potential for improvement is seemingly small, the volume of cataract surgery in the U.S. of over 2.8 million surgeries means that the impact could affect more than 100,000 patients per year. Ideally, performance on this indicator would be as high as possible, with lower rates suggestive of opportunities for improvement.

Definitions:

Standardized Tool – An assessment tool that has been appropriately validated for the population for which it being used. Examples of tools for visual function assessment include, but are not limited to: National Eye Institute-Visual Function Questionnaire (VFQ), the Visual Function (VF)-14, the modified VF-8, the Activities of Daily Vision Scale (ADVS), the Catquest and the modified Catquest-9.

Vision Function Assessment – Questionnaires designed to measure a patient's ability to perform the everyday tasks requiring vision.

Data Capture and Calculations:

Calculation for *Performance*

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:

- Patients who had an improvement in their visual function achieved within 90 days following cataract surgery

Performance Denominator (PD) Includes:

- All patients aged 18 years and older

AND

- Had cataract surgery

Performance Denominator Exclusions (C) Includes:

A patient is excluded if the following condition(s) exist:

Medical reasons:

When cataract surgery was performed for these indications:

- Clinically significant anisometropia in the presence of a cataract
- The lens opacity interferes with optimal diagnosis or management of posterior segment conditions
- The lens causes inflammation (phacolysis, phacoanaphylaxis)
- The lens induces angle closure (phacomorphic or phacotopic)

Patient reasons:

- The patient refuses to participate
- The patient is unable to complete the questionnaire

Performance Calculation

$$\frac{\text{A (\# of patients meeting measure criteria)}}{\text{PD (\# of patients in denominator)} - \text{C (\# of patients with valid denominator exclusions)}}$$

Components for this measure are defined as:

A	# of patients who had an improvement in their visual function achieved within 90 days following cataract surgery
PD	# of patients aged 18 years and older who had cataract surgery

C	# of patients with documented patient reason for not completing their visual function assessment within 90 days following cataract surgery

Calculation for Reporting:
For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:

A. Patients who had an improvement in their visual function achieved within 90 days following cataract surgery

C. Patients who did not complete their visual function assessment within 90 days following cataract surgery but for whom there is a documented medical or patient reason for not doing so

D. Patients who did not have an improvement in their visual function achieved within 90 days following cataract surgery and there is no documented medical or patient reason for not doing so

Reporting Denominator (RD) includes:

- Patients aged 18 years and older AND
- Had cataract surgery

Reporting Calculation

$$\frac{\text{A (\# of patients meeting measure criteria) + C (\# of patients with valid exclusions) + D (\# of patients NOT meeting numerator criteria)}}{\text{RD (\# of patients in denominator)}}$$

Components for this measure are defined as:

A	# of patients who had an improvement in their visual function achieved within 90 days following cataract surgery
C	# of patients who did not complete their visual function assessment within 90 days following cataract surgery but for whom there is a documented medical or patient reason for not doing so
D	# of patients who did not have an improvement in their visual function achieved within 90 days following cataract surgery and there is no documented medical or patient reason for not doing so
RD	# of patients aged 18 years and older who had cataract surgery

Measure Specifications - Measure #1 Cataracts: Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery

Measure specifications will be provided for multiple data sources.

A. Administrative claims data

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

(Note: The specifications listed below are those needed for performance calculation)

Denominator (Eligible Population): All patients aged 18 years and older who had cataract surgery

- CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984

Numerator: Patients who had an improvement in their visual function achieved within 90 days following cataract surgery

Report the following CPT Category II code:

_____ - Improved visual function achieved within the 90 days following cataract Surgery

Denominator Exclusions: Documentation of medical reason for not improving visual function within 90 days of cataract surgery

- Append modifier to CPT Category II Code: -1P

Documentation of patient reason for not improving visual function within 90 days of cataract surgery

- Append modifier to CPT Category II Code: -2P

B. Registry

Registry reporting requires users to identify the eligible population (denominator) using CPT codes and patient demographics. The numerator options as described in the CPT Category II codes are used to report the numerator of the measure. The CPT Category II codes listed do not need to be submitted for registry-based submissions, however these codes may be submitted for those registries that utilize claims data.

C. Electronic Health Record System (in development)

D. Paper Medical Record (in development)

Eye Care

Measure #2 Cataracts: Patient Satisfaction within 90 Days Following Cataract Surgery

This measure may be used as an Accountability measure.

Clinical Performance Measure
Numerator: Patients who were satisfied with their care within 90 days following cataract surgery **Denominator:** All patients aged 18 years and older who had cataract surgery **Denominator Exclusions:** The patient refuses to participate or the patient is unable to complete the questionnaire **Measure:** Percentage of patients aged 18 years and older who had cataract surgery and were satisfied with their care within 90 days following the cataract surgery
The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: **This is an outcomes measure.** As such, no statements in the guideline are specific to this measurement topic.
Rationale for the measure: 1. Scientific basis for measuring patient satisfaction after cataract surgery. Patient satisfaction is a valuable performance indicator for measuring the quality of care delivered by ophthalmologists providing cataract surgery. In the broadest sense, patient satisfaction is an assessment of the patient's experience with the care process delivered by health plans, clinicians, health systems, hospitals, etc. This experience can cover domains as diverse as information/education, interpersonal manner, emotional support, accessibility, convenience, outcomes or results, environment, personalization, involvement in care, finances, etc. In 1996, The American Academy of Ophthalmology launched the National Eyecare Outcomes Network (NEON) database. [28,29] From January 1, 1996 through March 30, 2001, 249 ophthalmologists at 114 different practice sites submitted data to the NEON cataract surgery database. Post-operative patient satisfaction responses were collected for 6,154 patients, or about 34.5% of all patients who had pre-operative forms submitted. This assessment was performed at a median of 4.1 weeks postoperatively for all patients enrolled in the database. A 12-item questionnaire was used to assess patient satisfaction. Patient satisfaction was associated with younger age and absence of ocular comorbidity. Other studies of patient satisfaction after cataract surgery in Austria and in Spain. One study found that patients with pre-existing eye disease, including those patients with improved visual acuity after surgery, were the least satisfied with the results of surgery. [30] In these cases, improved patient

education prior to surgery could be helpful in improving patient satisfaction. Another study found that patient satisfaction was associated with expectations prior to surgery.[31]

Most patients are satisfied with their care and results after cataract surgery. This outcome is achieved consistently through careful attention through the patient selection process, accurate measurement of axial length and corneal power, appropriate selection of an IOL power calculation formula, etc. As such, it reflects the care and diligence with which the surgery is assessed, planned and executed. Failure to achieve this satisfaction after surgery would reflect patterns of patient selection or treatment that should be assessed for opportunities for improvement.

Use of this indicator in the PQRI program in the claims reporting method would require some modification to the current reporting of post-operative care for patients undergoing cataract surgery, since this indicator would be operative during the 90 day global period. However, there is a strong and practical precedent for such modifications in that reporting arrangements have previously been made to accommodate co-management of care by different providers during the post-operative period. A similar adjustment to allow for filing of a claim of meeting this goal at one point in the 90 day global period would be sufficient, potentially drawing upon the methods to demarcate the onset of co-management transfer of post-operative care.

Various patient satisfaction instruments exist, but an instrument developed by the program, Consumer Assessment of Healthcare Providers and Systems (CAHPS), Agency for Healthcare Research and Quality develops and supports the use of a comprehensive and evolving family of standardized surveys that ask consumers and patients to report on and evaluate their experiences with health care. These surveys cover topics that are important to consumers, such as the communication skills of providers and the accessibility of services. AHRQ first launched the CAHPS program in October 1995 in response to concerns about the lack of good information about the quality of health plans from the enrollees' perspective. At that time, numerous public and private organizations collected information on enrollee and patient satisfaction, but the surveys varied from sponsor to sponsor and often changed from year to year.

The CAPHS Surgical Care Survey asks adult patients to report on surgical care, surgeons, their staff, and anesthesiologists. It was developed by the American College of Surgeons and the Surgical Quality Alliance to assess patients' experiences before, during, and after surgery. In early 2010, the CAHPS Consortium voted to adopt the Surgical Care Survey as an official CAHPS survey. The Surgical Care Survey expands on the current CAHPS Clinician & Group Survey, which focuses on primary and specialty care, by incorporating domains that are relevant to surgical care, such as informed consent, anesthesia care, and post-operative follow-up. The survey is unique in that it assesses patients' experiences with surgical care in both the inpatient and outpatient settings by asking respondents about their care before, during, and after surgery

The main purpose of the CAHPS Surgical Care Survey is to address the need to assess and improve the experiences of surgical patients. Like other CAHPS surveys, this questionnaire focuses on aspects of surgical quality that are important to patients and for which patients are the best source of information. The survey results are expected to be useful to everyone with a need for information on the quality of surgeons and surgical care, including patients, practice groups, health plans, insurers, and specialty boards. Patients can use the information to help make better and more informed choices about their surgical care. Practices, health plans, and insurers can use the survey results for quality improvement initiatives and incentives. Specialty boards may use the survey for maintenance of certification.

https://www.cahps.ahrq.gov/content/products/sc/PROD_SC_Surgical_Care.asp?p=1021&s=213

2. Evidence of a gap in care

This is an outcome of surgery indicator of direct relevance and import to patients , their families and referring providers. The available evidence suggests that cataract surgery achieves this in about 90% of patients. While the potential for improvement appears seemingly small, the volume of cataract surgery in the U.S. of over 2.8 million surgeries means that the impact could affect more than 100,000 patients per year. Ideally, performance on this indicator to be as high as possible, with rates lower than 95-100% suggestive of opportunities for improvement.

Definitions:

Standardized Tool – An assessment tool that has been appropriately validated for the population for which it being used. Examples of tools for patient satisfaction include, but are not limited to: Surgical Consumer Assessment of Health Plans and Systems, which is also approved by the Agency for Health Care Research and Quality.

Patient Satisfaction Assessment – Questionnaires designed to measure a patient's satisfaction with the care that they received from their surgeon.

Data Capture and Calculations:

Calculation for *Performance*

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:

- Patients who were satisfied with their care within 90 days following cataract surgery

Performance Denominator (PD) Includes:

- All patients aged 18 years and older

AND

- Had cataract surgery

Performance Denominator Exclusions (C) Includes:

A patient is excluded if the following condition(s) exist:

- The patient refuses to participate
- The patient is unable to complete the questionnaire

Performance Calculation

$$\frac{\text{A (\# of patients meeting measure criteria)}}{\text{PD (\# of patients in denominator)} - \text{C (\# of patients with valid denominator exclusions)}}$$

Components for this measure are defined as:

A	# of patients who were satisfied with their care within 90 days following cataract surgery
PD	# of patients aged 18 years and older who had cataract surgery
C	# of patients with documented patient reason for not performing the patient satisfaction assessment within 90 days following cataract surgery

Calculation for Reporting:

For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:

A. Patients who were satisfied with their care within 90 days following cataract surgery

C.Patients who did not complete a patient satisfaction assessment within 90 days following cataract surgery but for whom there is a documented patient reason for not doing so

D. Patients who did not complete a patient satisfaction assessment within 90 days following cataract surgery and there is no documented patient reason for not doing so

Reporting Denominator (RD) includes:

- Patients aged 18 years and older AND
- Had cataract surgery

Reporting Calculation

$$\frac{\text{A (\# of patients meeting measure criteria) + C (\# of patients with valid exclusions) + D (\# of patients NOT meeting numerator criteria)}}{\text{RD (\# of patients in denominator)}}$$

Components for this measure are defined as:

A	# of patients who were satisfied with their care within 90 days following cataract surgery
C	# of patients who did not complete a patient satisfaction assessment within 90 days following cataract surgery but for whom there is a documented patient reason for not doing so
D	# of patients who did not complete a patient satisfaction assessment within 90 days following cataract surgery and there is no documented patient reason for not doing so
RD	# of patients aged 18 years and older who had cataract surgery

Measure Specifications - Measure #2 Cataracts: Patient Satisfaction within 90 Days Following Cataract Surgery

Measure specifications will be provided for multiple data sources.

A. Administrative claims data

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

(Note: The specifications listed below are those needed for performance calculation)

Denominator (Eligible Population): All patients aged 18 years and older who had cataract surgery

- CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984

Numerator: Patients who were satisfied with their care within 90 days following cataract surgery

Report the following CPT Category II code:
_____ - Patient satisfaction achieved within the 90 days following cataract Surgery

Denominator Exclusions: Documentation of patient reason for not completing patient satisfaction assessment within 90 days of cataract surgery

- Append modifier to CPT Category II Code: -2P

B. Registry

Registry reporting requires users to identify the eligible population (denominator) using CPT codes and patient demographics. The numerator options as described in the CPT Category II codes are used to report the numerator of the measure. The CPT Category II codes listed do not need to be submitted for registry-based submissions, however these codes may be submitted for those registries that utilize claims data.

C. Electronic Health Record System (in development)

D. Paper Medical Record (in development)

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