

# Patient Reported Outcomes for Cataract Surgery

## ASSESSING VISUAL DISTURBANCES

Oliver Schein\*, M.D., M.P.H.  
Wilmer Eye Institute, JHU

\*Bausch + Lomb, Alcon, VisionCare

# Patient Reported Outcomes for Cataract Surgery

## Why Measure Them?

- Logic of assessing outcome from patient perspective
- Visual acuity does not express full impact of cataract, surgery, or IOL technology
- A way to help interpret “objective” vision tests
- A way to capture and reduce adverse symptoms

# Patient Reported Outcomes for Cataract Surgery

## How to Measure Them?

- Consensus re use of Rasch analysis
- Continuous inter-level measurement, unidimensionality, questionnaire precision
- 16 Rasch designed/re-engineered questionnaires \*
- All robust, some performance variability related to specific construct

\* McAlinden et al, Ophthalmology 2011;118:2374-2381

# Patient Reported Outcomes for Cataract Surgery

- NEI VFQ – multiple versions/revisions
- Quality of Life and Vision Function Questionnaire
- Cataract TyPE Specification Questionnaire
- Visual Activities Questionnaire
- Visual Disability Assessment
- Visual Function and Quality of Life Questionnaire
- VF-14 and VF-8
- Catquest 9SF Questionnaire
- Visual Symptoms and Quality of Life Questionnaire
- Cataract Outcomes Questionnaire

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Challenges re visual function questionnaires:

- Designed to assess effect of cataract and cataract surgery
- Need to separate effect of IOL from surgery
- Overall scores may mask specific concerns
- Function  $\neq$  adverse visual symptoms
- Function not assessed across range of vision

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Near Activity Visual Questionnaire (NAVQ)\*:

- Specifically to assess near vision function
- Subjects with monofocal and premium IOLs, MF contacts, progressive spectacles
- Rasch analysis, Reliable and valid
- 10 item questionnaire
- Function not disturbances

\* Buckhurst et al, J Cataract Refract Surg 2012;38:74-79

# Patient Reported Outcomes for Cataract Surgery and IOLs

## “Visual Disturbance”:

- An unwanted side-effect or limitation related to quality of vision
- Not all “disturbances” will yield a significant drop in self-reported visual function
- Patient reported visual disturbances do not correlate well with “objective” measures

# Patient Reported Outcomes for Cataract Surgery and IOLs

## “Objective Measures” of Visual Disturbance:

- Visual acuity at varying distances
- Residual refractive error
- Contrast sensitivity measures
- Glare disability measures
- Straylight levels
- Halometry
- Other



# Patient Reported Outcomes for Cataract Surgery

## Patient-Reported Visual Disturbances:

- Glare/halo
- Other photic phenomena
- Hazy/"smeared" vision
- Inconsistent vision
- Degraded vision in low light
- Other

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Pseudophakic Dysphotopsia Questionnaire\*

(0-10) since my surgery:

- Oncoming headlights a problem
- Bothered by halos around bright lights
- A dark or grey shadow to the side of my vision
- Bright lights off/to the side are annoying
- Looking at lights, a moving flickering shadow
- A semi-circular shadow in my vision

\* Kinard et al, J Cataract Refract Surg 2013;39:590-597

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Efficacy Study \*:

- 70 patients 1 year post-op, single **monofocal** IOL
- No comorbidity, 20/20 -1 or better
- No complications or documented complaints in standard medical record
- Standardized BCVA, mesopic contrast with and without glare, straylight, Rasch-modified NEI VFQ, Pseudophakic dysphotopsia survey, overall satisfaction

\* Kinard et al, J Cataract Refract Surg 2013;39:590-597

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Efficacy Study:

- No visual acuity parameter, refractive error/astigmatism correlated with satisfaction or NEI VF-11R
- Straylight not correlated with PDQ or NEI VF-11R
- Best correlation with satisfaction was PDQ
- PDQ also correlated with NEI VF-11R
- Mean PDQ 11.4 SD: 14.5
- ~ 30% had complaints rated 5 or higher
- NB: patients with known complaints had been excluded

# Patient Reported Outcomes for Cataract Surgery and IOLs

## Implications of Efficacy Study on monofocal IOL:

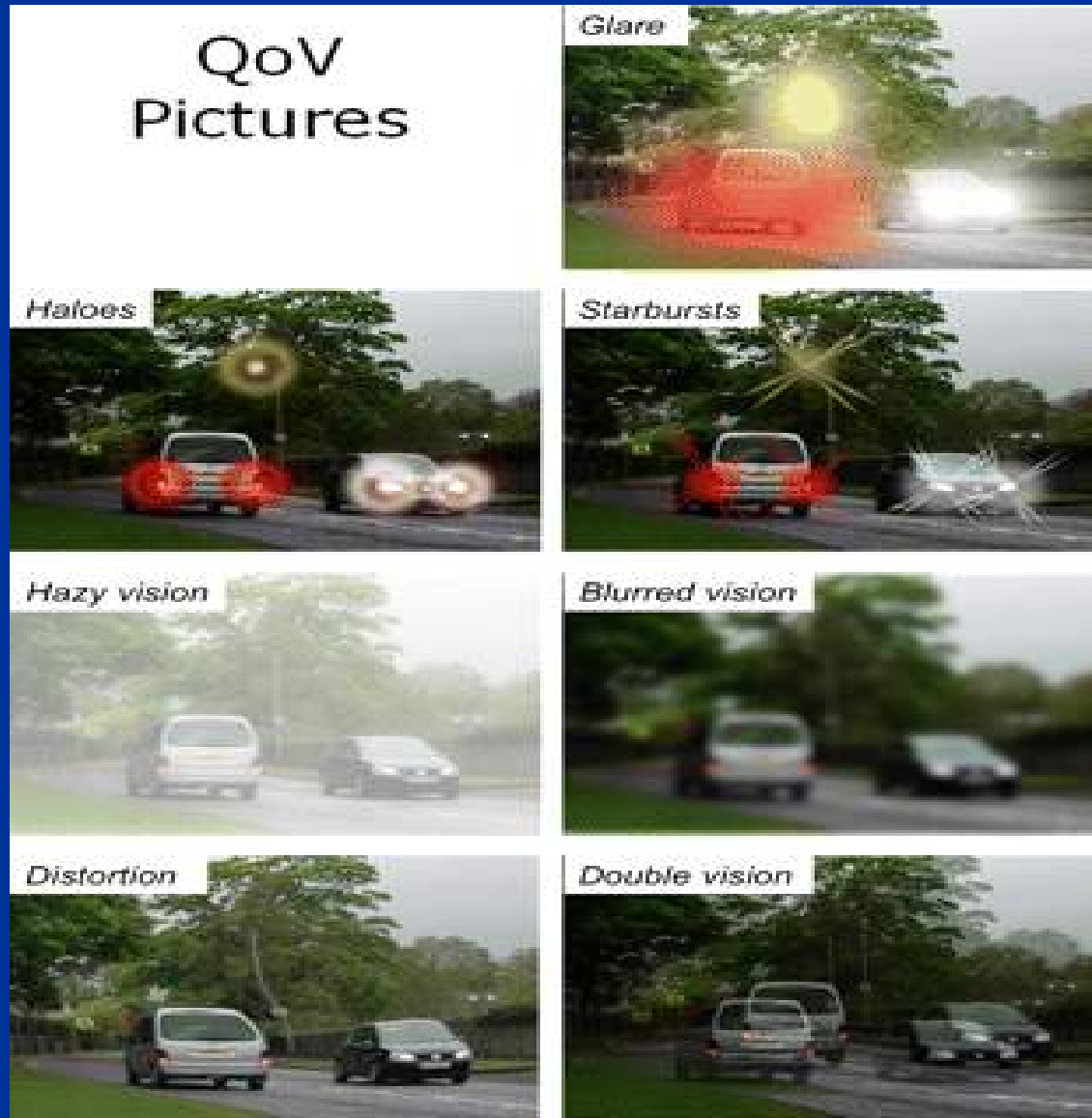
- Ask and you will find!
- Reported “visual disturbances” are common, even with conventional IOLs
- Adverse symptoms are complementary to other outcomes – measure different things!
- Questions about glare  $\neq$  glare testing
- Glare/ straylight correlate poorly with PRO's.

# Patient Reported Outcomes for Cataract Surgery and IOLs

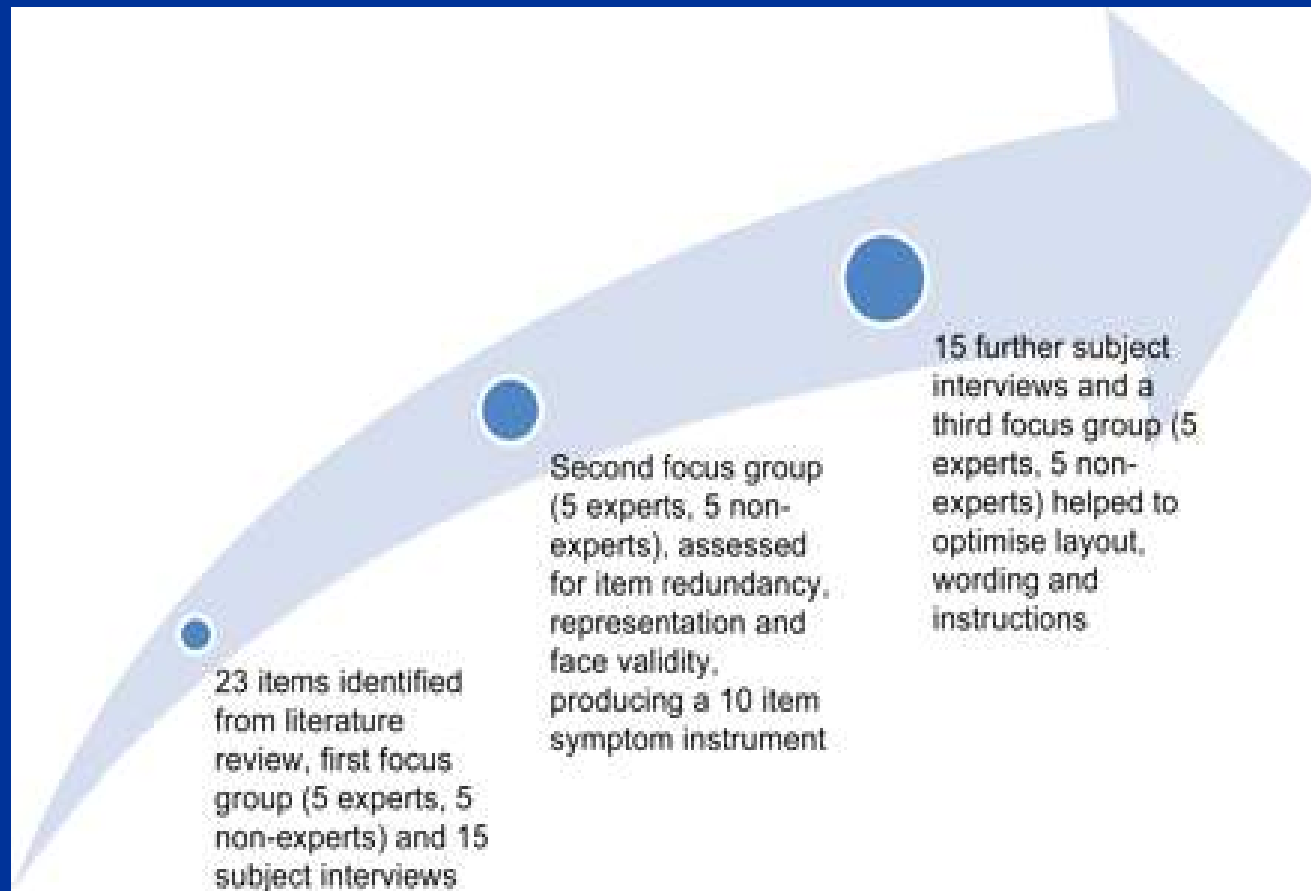
Quality of Vision Questionnaire

QOV

McAlinden et al;  
Invest Ophthalmol Vis Sci.  
2010;51



# Patient Reported Outcomes for Cataract Surgery



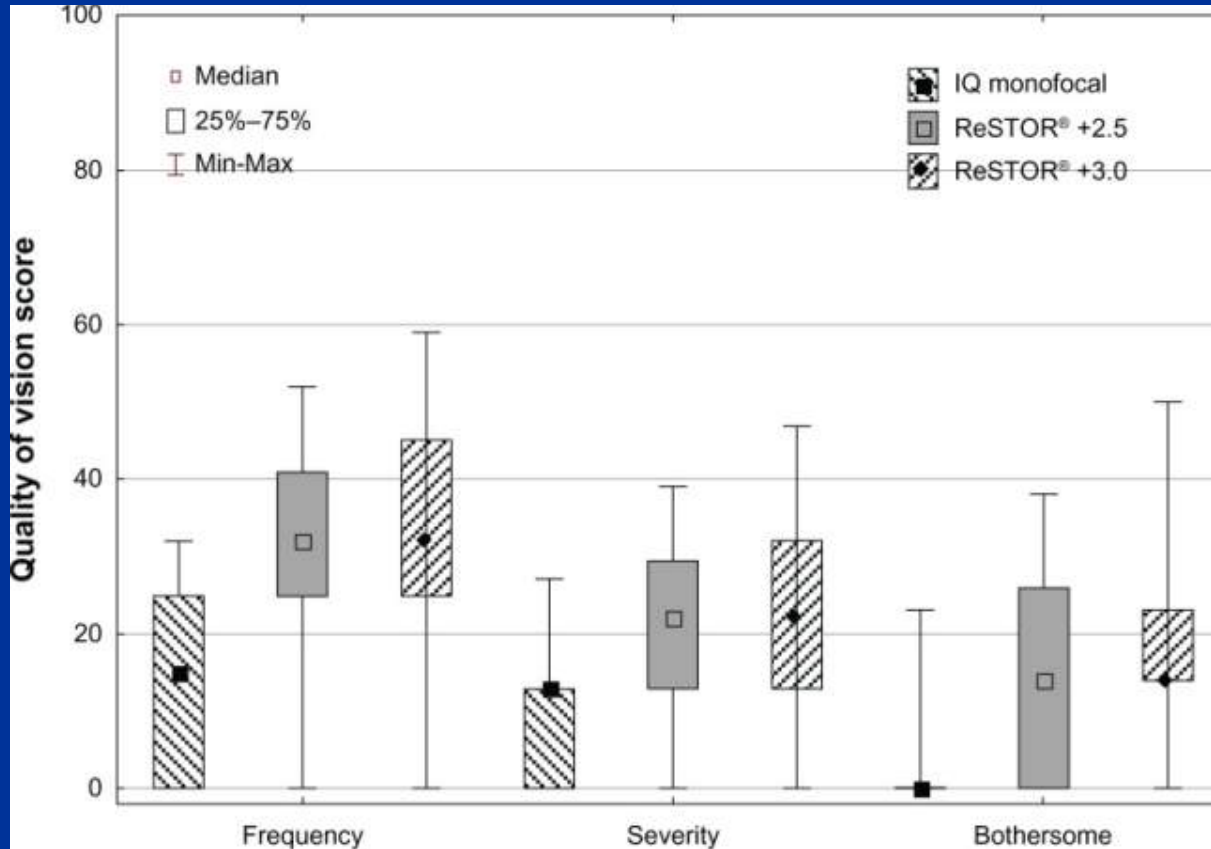
# Patient Reported Outcomes for Cataract Surgery and IOLs

## QOV Instrument:

- Glare
- Haloes **HOW OFTEN**
- Starbursts
- Hazy vision
- Blurred vision **HOW SEVERE**
- Distortion
- Double/multiple images
- Fluctuating vision **HOW BOTHERSOME**
- Focusing difficulties
- Distance/depth perception difficulties

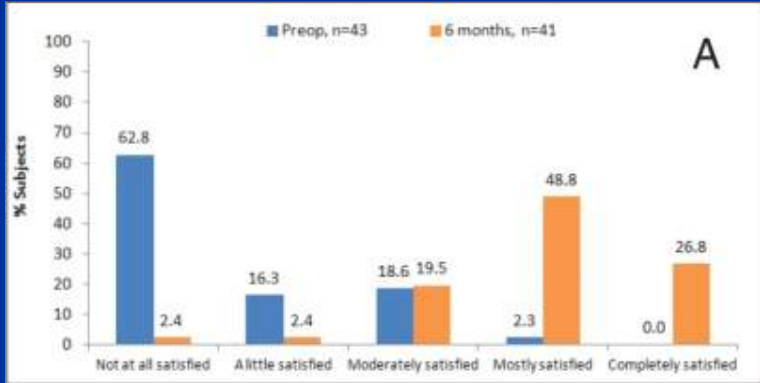


# Patient Reported Outcomes for Cataract Surgery and IOLs

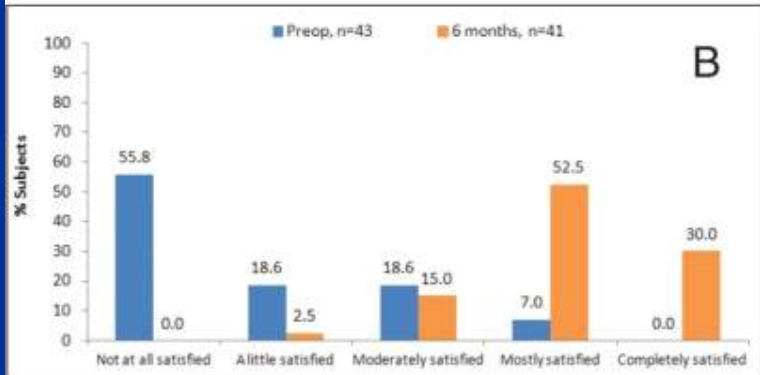


Gunderson and Potvin, Clinical Ophthalmology, 2012:7

Knorz et al, J Refract Surg.2013;29  
Overall vision satisfaction

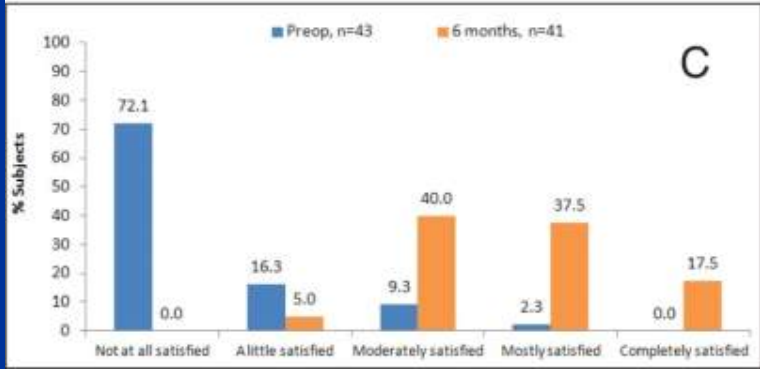


Day vision satisfaction



Multifocal  
Toric IOL

Night vision satisfaction



# Patient Reported Outcomes for Cataract Surgery and IOLs

## Important Presbyopia Correcting IOL outcomes:

- Uncorrected binocular acuity under multiple conditions/distances, spectacle independence
- Validated device-related symptoms questionnaire
- Validated visual function questionnaire – across range of distances and circumstances
- Overall satisfaction with vision
- Assessment of patient expectations