Impact of Exposure to Residual Intraretinal Fluid and Fluctuations of Central Subfield Thickness on Visual Outcomes in Eyes with Macular Edema following Central Retinal Vein Occlusion: A 1-Year Post Hoc Analysis of the COPERNICUS and GALILEO Trials

Michael Ip MD

on behalf of the COPERNICUS and GALILEO study investigators

Doheny Eye Center, UCLA, Pasadena, California

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Disclosures

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Background and Objectives

- SCORE2: Greater CST fluctuations were associated with worse visual outcomes in eyes with macular edema following CRVO receiving anti-VEGF treatment[1]
- LEAVO: Persistent or recurrent IRF was associated with worse visual outcomes in eyes with macular edema following CRVO receiving anti-VEGF treatment[2]

CRVO, central retinal vein occlusion; CST, central subfield thickness; IAI, intravitreal aflibercept injection; IRF, intraretinal fluid; VEGF, vascular endothelial growth factor.

1. Scott IU et al. SCORE2#17. *Graefes Arch Clin Exp Ophthalmol*. 2022;260(5):1491-1500. 2. Gurudas S et al. *JAMA Ophthalmol*. 2022;140(2):143-150.

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PURPOSE: Perform a post hoc analysis to assess CST fluctuations and the impact of exposure to residual IRF on visual outcomes and vision-related quality of life in patients with macular edema following CRVO treated with IAI in the COPERNICUS and GALILEO trials

CRVO, central retinal vein occlusion; CST, central subfield thickness; IAI, intravitreal aflibercept injection; IRF, intraretinal fluid; VEGF, vascular endothelial growth factor.

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Methods

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COPERNICUS and GALILEO:	**G1: 0-1 visits**	**G2: 2-3 visits**	**G3: 4-7 visits**
GALILEO:	**G1: 0-3 visits**	**G2: 4-7 visits**	**G3: 8-14 visits**

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- **Impact of CST fluctuation** was evaluated in quartiles or tertiles of the SD of CST of each eye from Weeks 4-24 and Weeks 4-52:

COPERNICUS and GALILEO:	**Q1: ≤12.7 µm**	**Q2: >12.7 to ≤19.1 µm**	**Q3: >19.1 to ≤30.7 µm**	**Q4: >30.7 µm**
GALILEO:	**T1: ≤24.6 µm**	**T2: >24.6 to ≤99.5 µm**	**T3: >99.5 µm**	

  - Patients with <3 CST observations from baseline through Week 24 (n=10) or 52 (n=6) were excluded from the analysis

G, group; Q, quartile; SD, standard deviation; T, tertile; VFQ-25, Visual Function Questionnaire-25.

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- Vision-related quality of life (VFQ-25 scores) was evaluated by exposure to residual IRF and CST fluctuation subgroups[1]

1. Scott IU et al. *Am J Ophthalmol*. 2017;184:147-156.

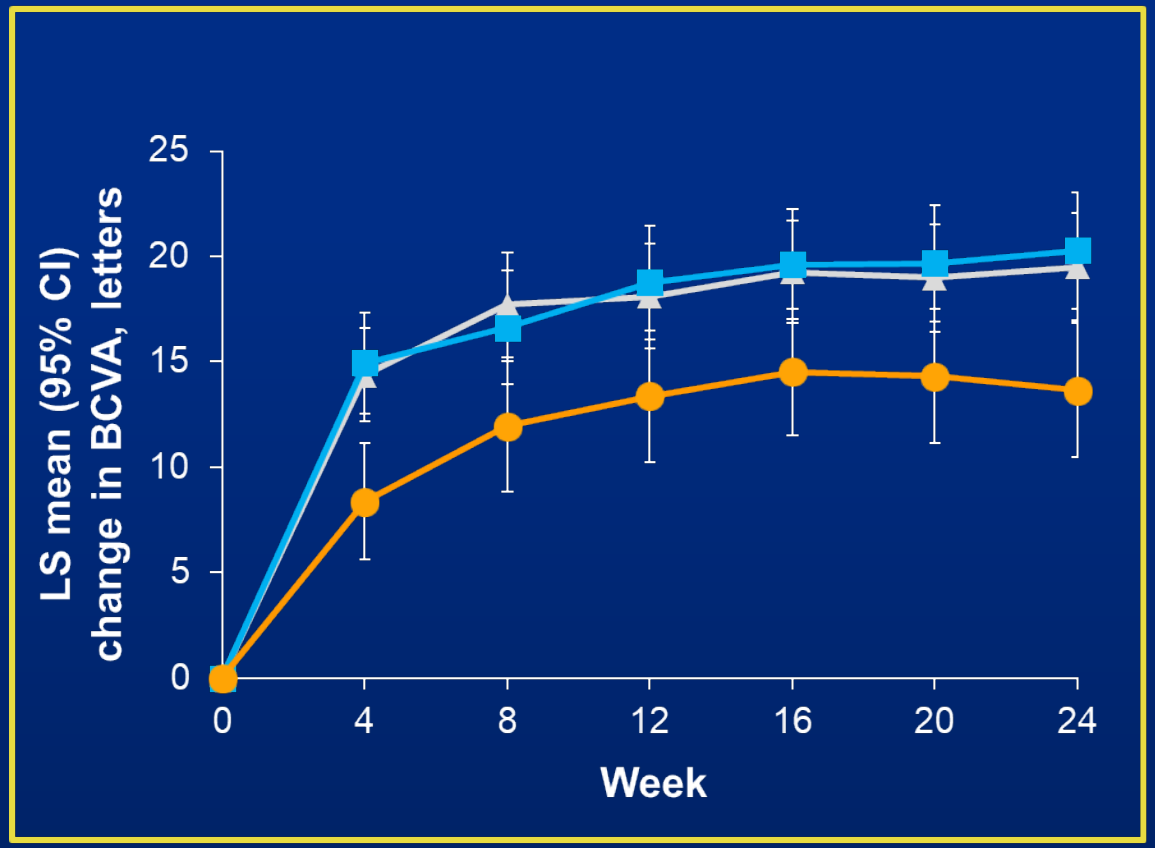
BCVA, best-corrected visual acuity; G, group; Q, quartile; SD, standard deviation; T, tertile; VFQ-25, Visual Function Questionnaire-25.

Outcomes by Exposure to Residual IRF Through Week 24: COPERNICUS and GALILEO Integrated Analysis

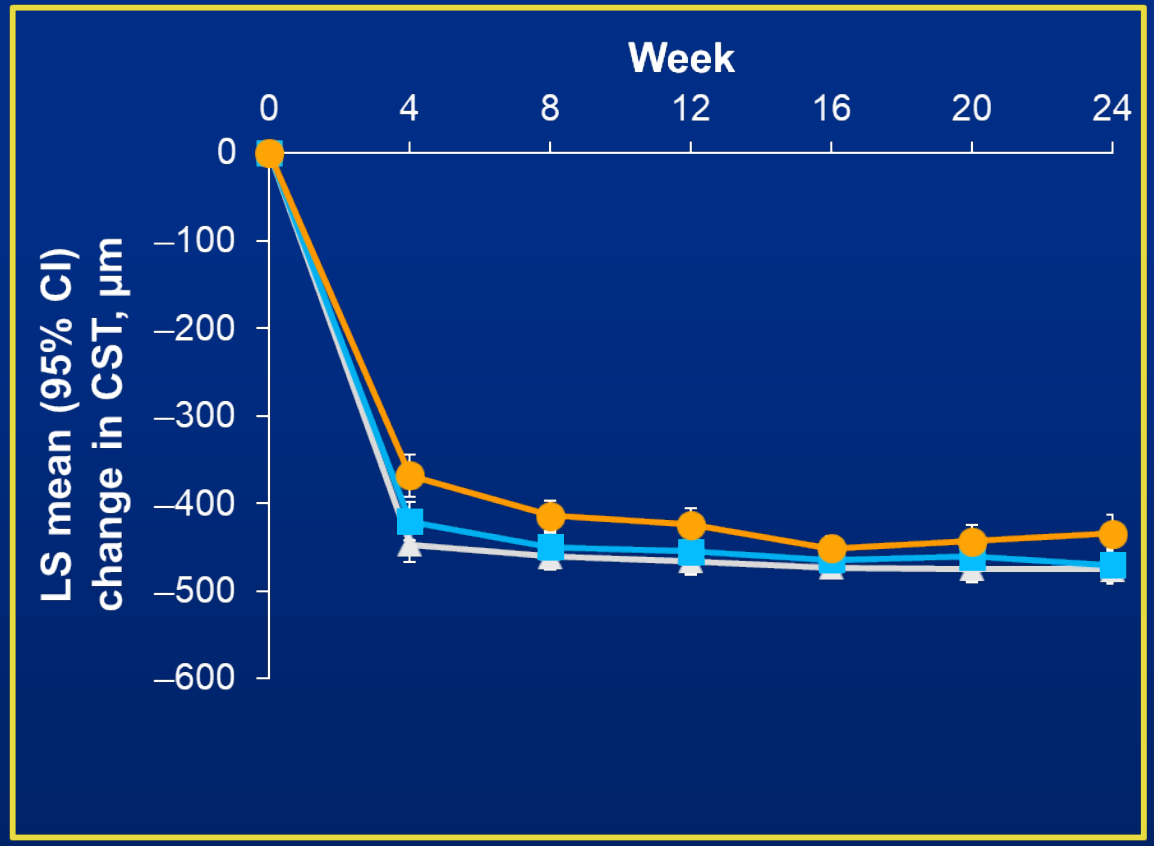
Outcomes Through Week 24 by Subgroups of IRF Exposure

G1: 0-1 visits with IRF (n=84) G2: 2-3 visits with IRF (n=67) G3: 4-7 visits with IRF (n=53)

Mean Change in BCVA From Baseline



Mean Change in CST From Baseline

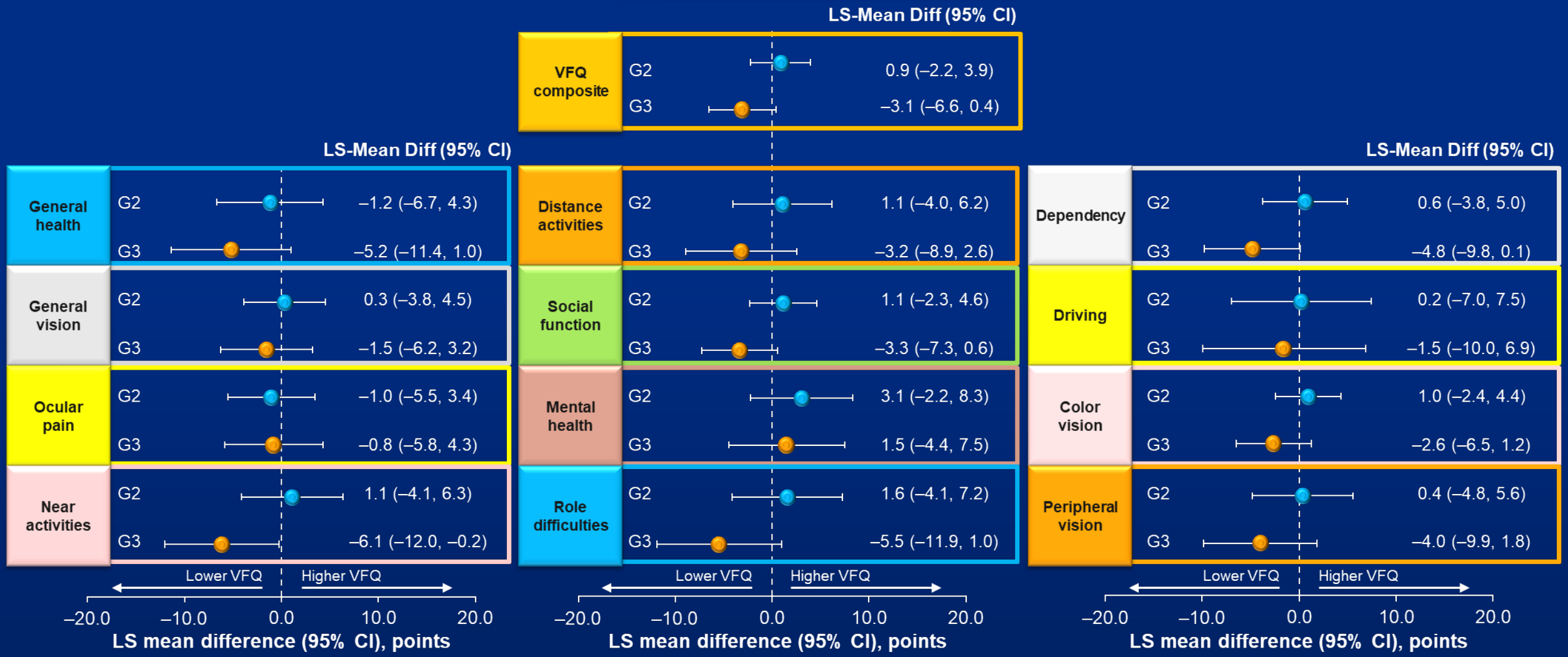


LS mean and inference were calculated from an MMRM model. The model included subgroups of IRF exposure, study, baseline BCVA or CST, and subgroups of IRF exposure-by-visits interaction.

CI, confidence interval; LS, least squares; MMRM, Mixed Models for Repeated Measures.

COPERNICUS and GALILEO

Difference in VFQ-25 Composite and Subscale Scores at Week 24 by Subgroups of IRF Exposure



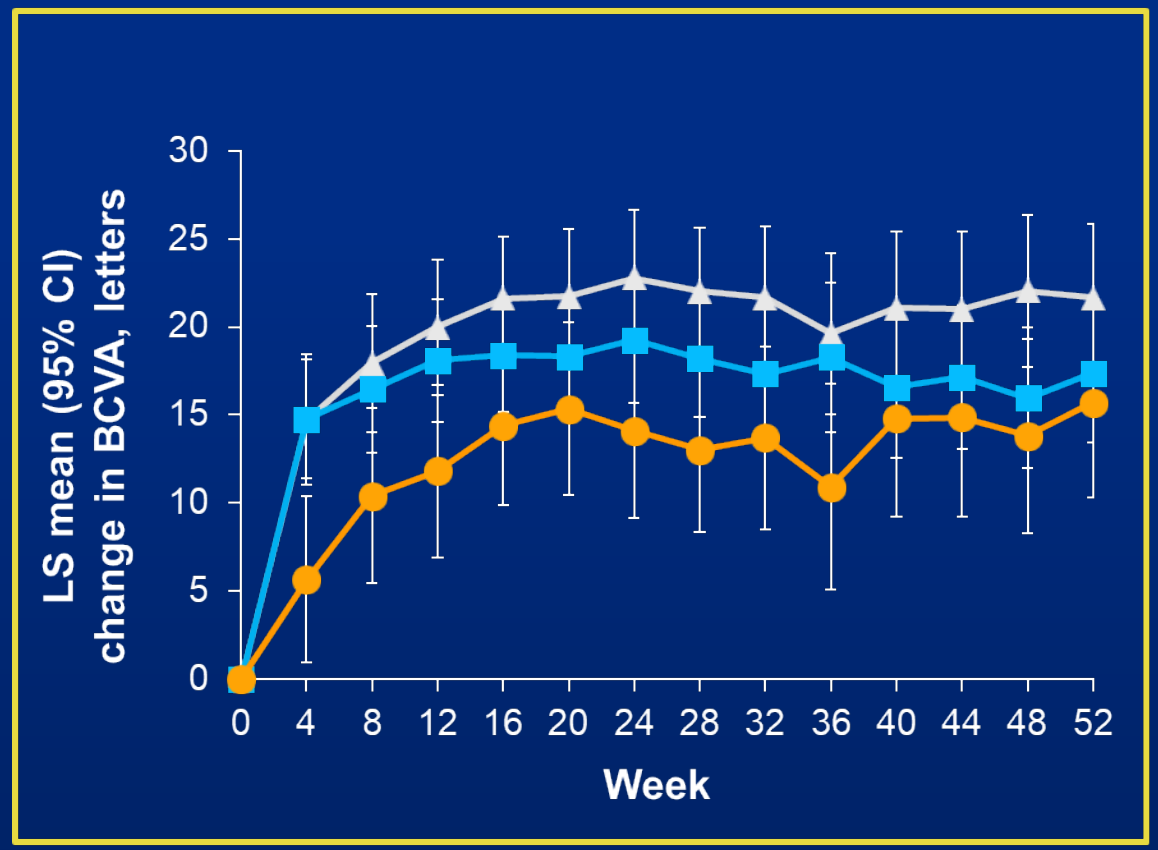
The reported difference represents the comparison between G2 (2-3 visits with IRF) or G3 (4-7 visits with IRF) versus G1 (0-1 visits with IRF).
LS mean and inference were calculated from an MMRM model. The model included subgroups of IRF exposure, study, baseline BCVA, and subgroups IRF exposure-by-visits interaction.

Outcomes by Exposure to Residual IRF Through Week 52: GALILEO Analysis

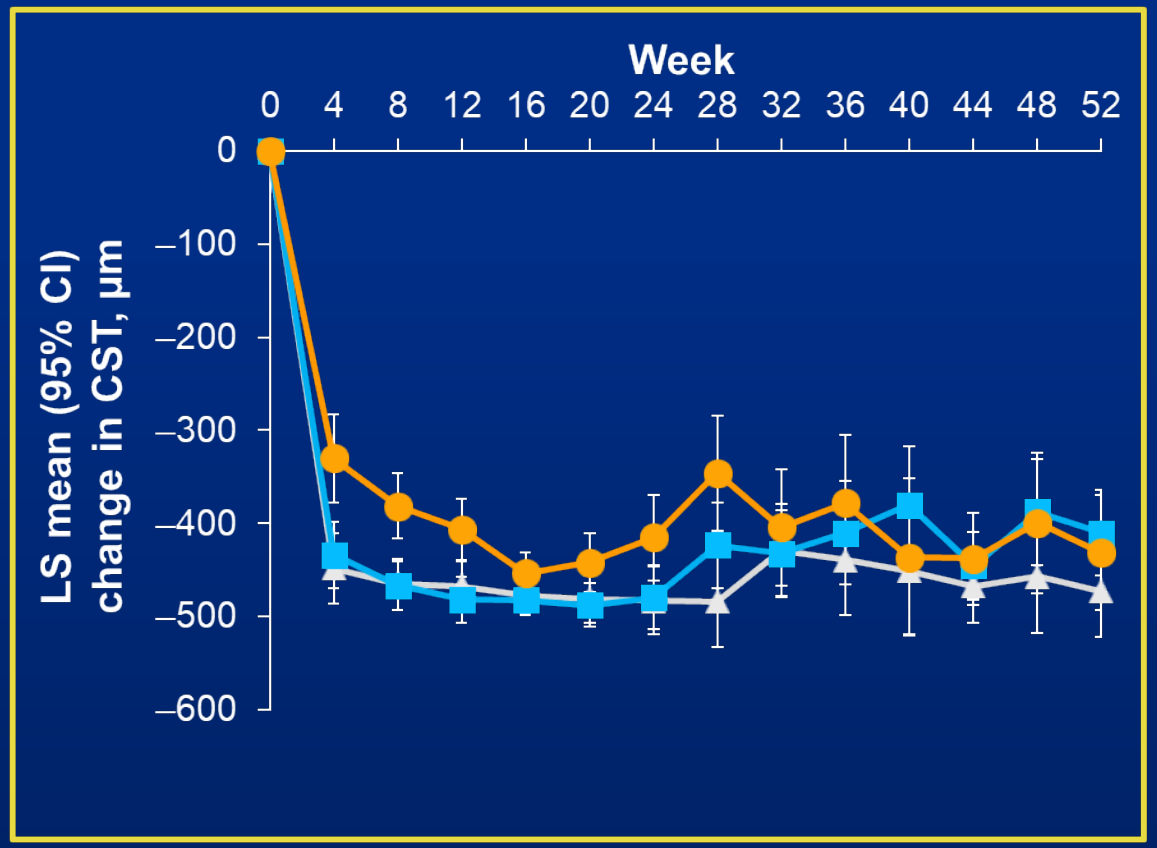
Outcomes Through Week 52 by Subgroups of IRF Exposure

G1: 0-3 visits with IRF (n=32) G2: 4-7 visits with IRF (n=36) G3: 8-14 visits with IRF (n=20)

Mean Change in BCVA From Baseline

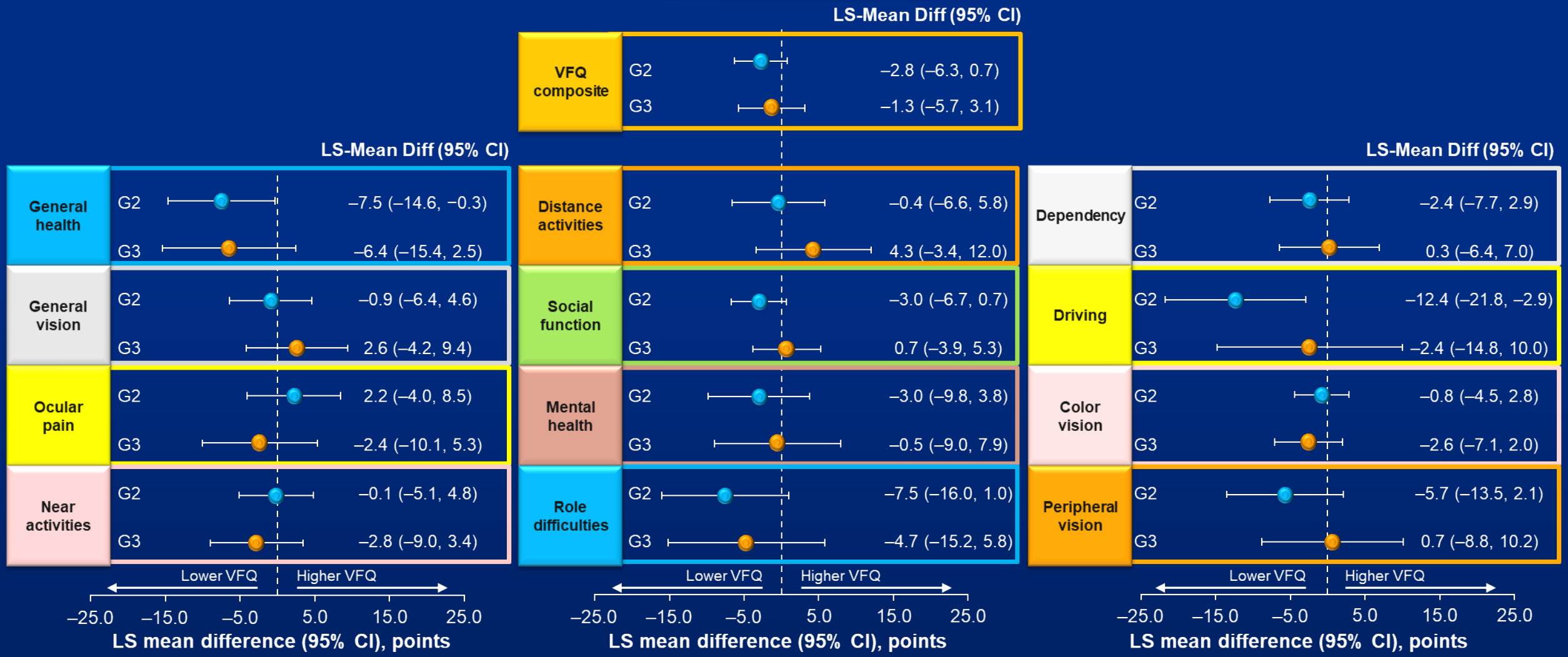


Mean Change in CST From Baseline



LS mean and inference were calculated from an MMRM model. The model included subgroups of IRF exposure, baseline BCVA or CST, and subgroups of IRF exposure-by-visits interaction.

Difference in VFQ-25 Composite and Subscale Scores at Week 52 by Subgroups of IRF Exposure

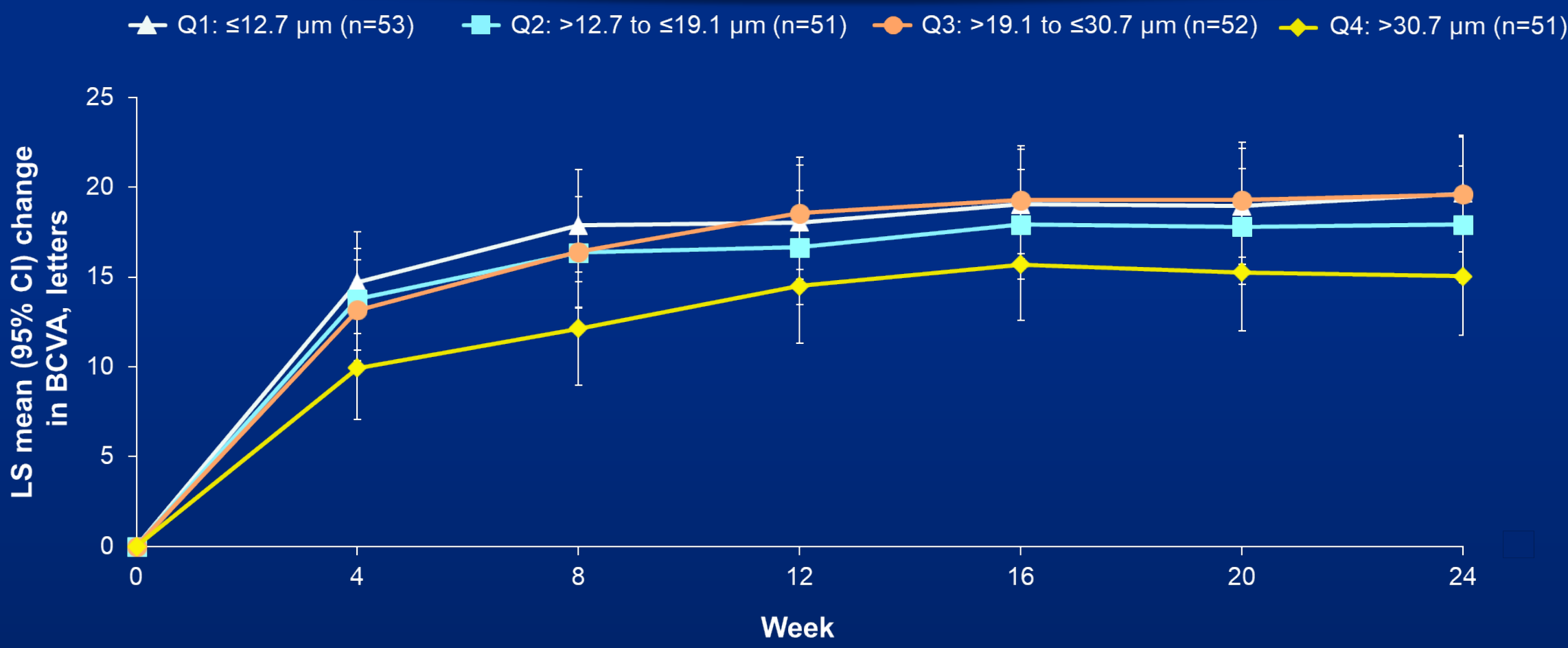


The reported difference represents the comparison between G2 (4-7 visits with IRF) or G3 (8-14 visits with IRF) versus G1 (0-3 visits with IRF).
LS mean and inference were calculated from an MMRM model. The model included subgroups of IRF exposure, baseline BCVA, and subgroups of IRF exposure-by-visits interaction.

Outcomes by Quartiles of CST Fluctuation From Week 4 to Week 24: COPERNICUS and GALILEO Integrated Analysis

COPERNICUS and GALILEO

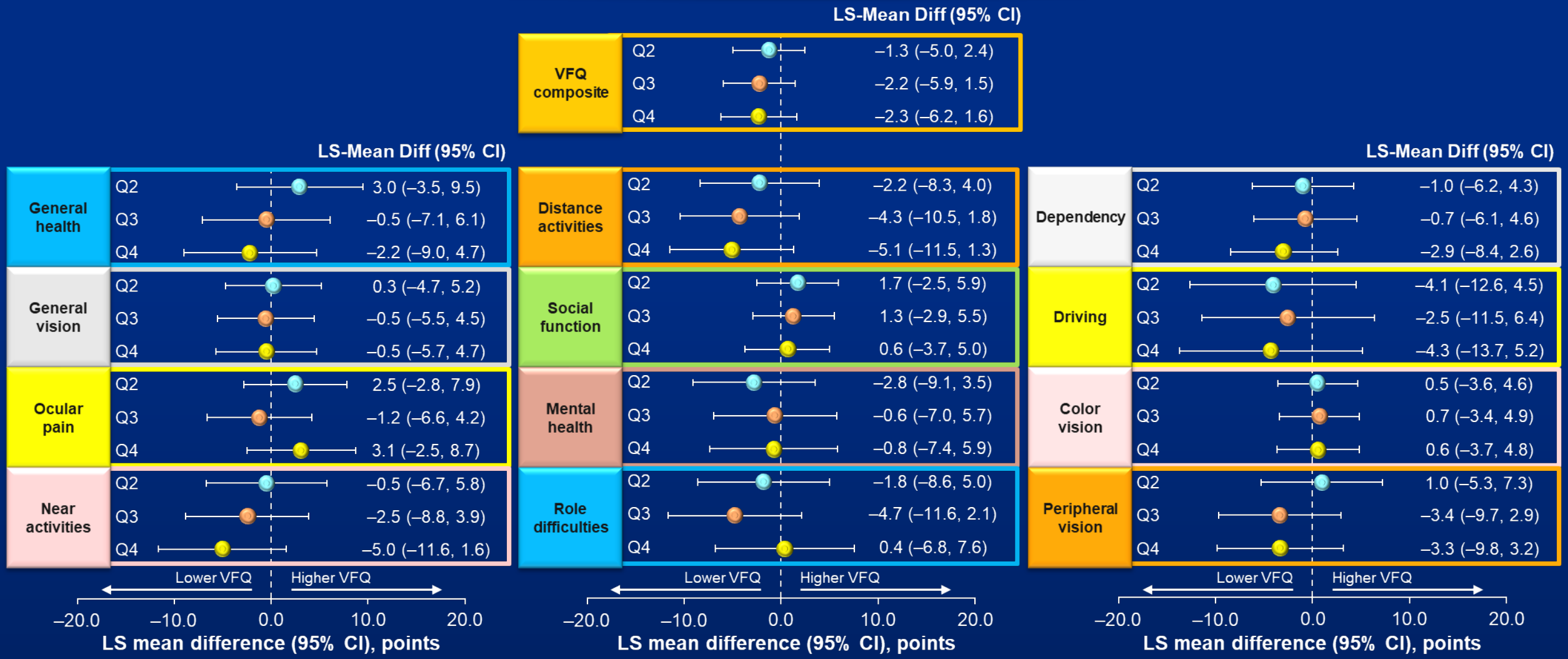
Mean Change in BCVA From Baseline Through Week 24 by Quartiles of CST Fluctuation



LS mean and inference were calculated from an MMRM model. The model included quartiles of SD of CST, study, baseline BCVA, visits, and quartiles of SD of CST-by-visits interaction.

COPERNICUS and GALILEO

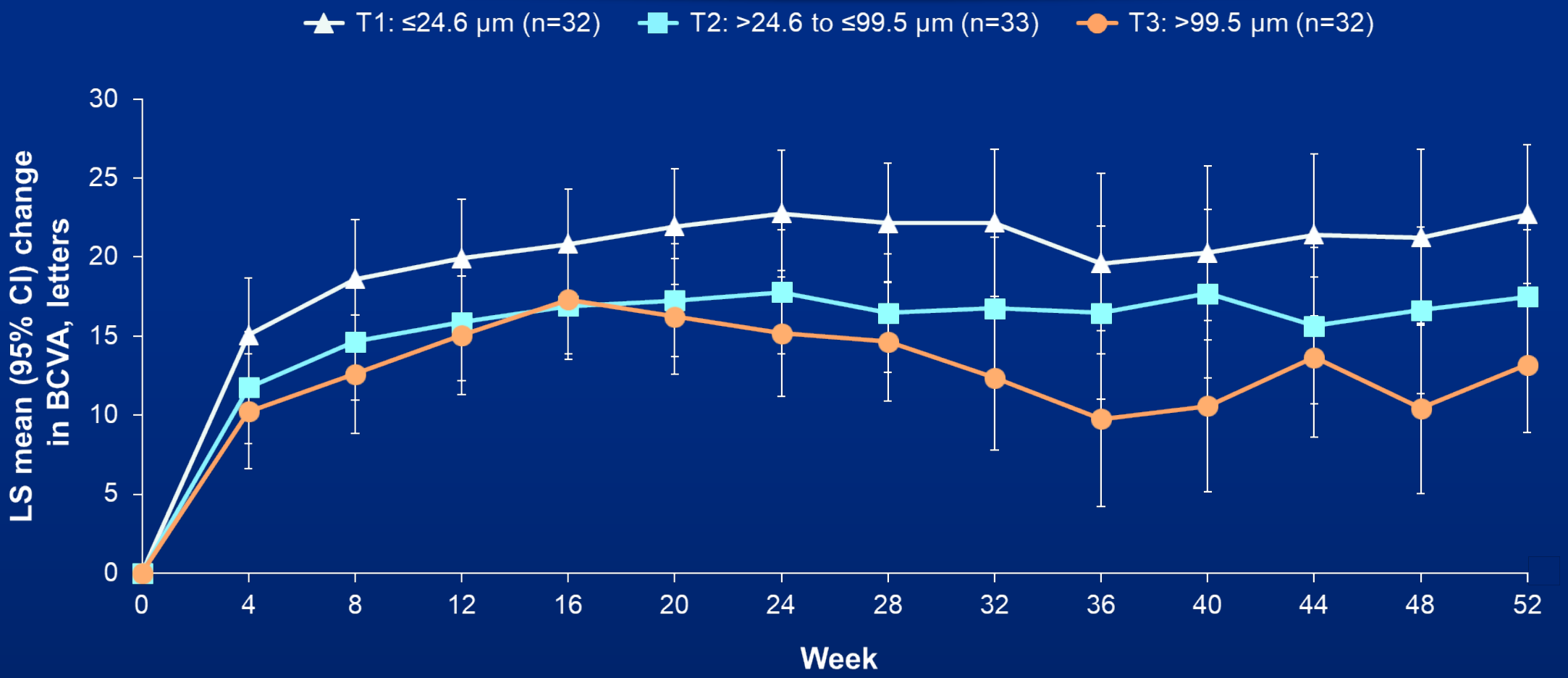
Difference in VFQ-25 Composite and Subscale Scores at Week 24 by Quartiles of CST Fluctuation



The reported difference represents the comparison between Q2 (>12.7 to ≤19.1 µm), Q3 (>19.1 to ≤30.7 µm), or Q4 (>30.7 µm) versus Q1 (≤12.7 µm).
LS mean and inference were calculated from an MMRM model. The model included quartiles of SD of CST, study, baseline BCVA, visits, and quartiles of SD of CST-by-visits interaction.

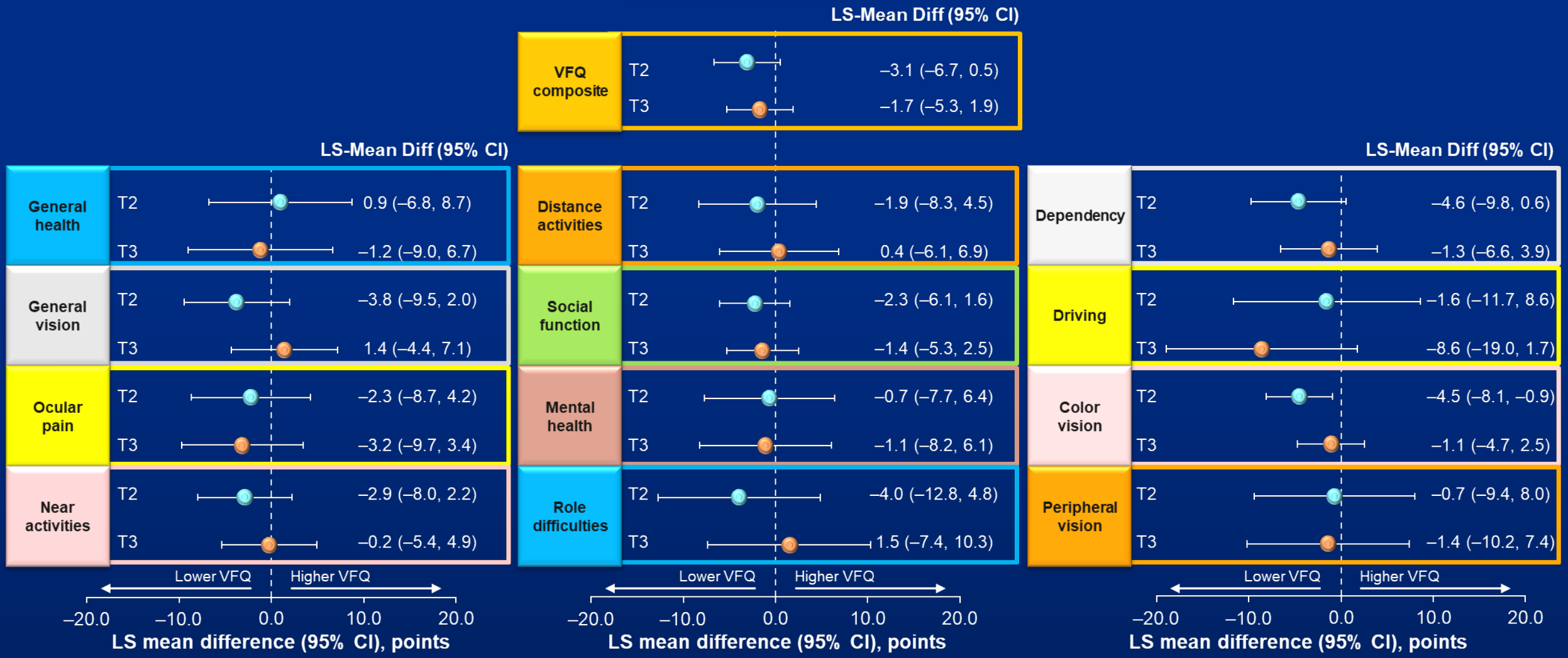
Outcomes by Tertiles of CST Fluctuation From Week 4 to Week 52: GALILEO Analysis

Mean Change in BCVA From Baseline Through Week 52 by Tertiles of CST Fluctuation



LS mean and inference were calculated from an MMRM model. The model included tertiles of SD of CST, baseline BCVA, and tertile of SD of CST from Week 4 to Week 52-by-visit interaction.

Difference in VFQ-25 Composite and Subscale Scores at Week 52 by Tertiles of CST Fluctuation



The reported difference represents the comparison between T2 (>24.6 to ≤99.5 µm) or T3 (>99.5 µm) versus T1 (≤24.6 µm).
LS mean and inference were calculated from an MMRM model. The model included tertiles of SD of CST, baseline BCVA, visits, and tertiles of SD of CST-by-visits interaction.

Conclusions

- Greater exposure to residual IRF was associated with a trend towards lower BCVA gains through Week 24 and Week 52
- Higher CST fluctuation was associated with a trend towards lower BCVA gains through Week 24 and Week 52
- Similar vision-related quality of life responses (composite and subscale) were observed across subgroups of residual IRF and CST fluctuation, potentially driven by the better-seeing eye in patients with macular edema following CRVO[1]
- Minimizing IRF and CST fluctuations could optimize outcomes in the treatment of eyes with macular edema following CRVO using IAI

1. Scott IU et al. *Am J Ophthalmol*. 2017;184:147-156