Week 96 outcomes in aflibercept 8 mg- and 2 mg-treated patients by prior DME treatment status: a subgroup analysis of the phase 2/3 PHOTON trial

Patricia Udaondo, MD,[1] Manjot Gill, MD, MS, FRCS(C),[2]
on behalf of the PHOTON study investigators
[1]Hospital Universitari i Politècnic La Fe, Avinguda Fernando Abril Martorell, No. 106, Valencia, Spain
[2]Northwestern University Feinberg School of Medicine, Chicago, IL, USA

Presented at the 25th European Society of Retina Specialists (EURETINA), Paris, France, September 4–7, 2025

Disclosures

- **Patricia Udaondo**: Receives consulting fees from AbbVie, Alimera, Apellis, Bayer, Boehringer Ingelheim, Eyepoint, Outlook Therapeutics, Ocular Therapeutix, and Roche; and has received honoraria from AbbVie, Alimera, Apellis, Bayer, and Roche. **Manjot Gill**: Received consulting fees from Kriya Therapeutics, Regeneron Pharmaceuticals, Inc. and Roche/Genentech
- The PHOTON study was funded by Regeneron Pharmaceuticals, Inc. (Tarrytown, NY) and co-funded by Bayer AG (Leverkusen, Germany). This analysis was funded by Regeneron Pharmaceuticals, Inc. (Tarrytown, NY). The sponsors participated in the design and conduct of the analysis, data interpretation, and preparation of this presentation.
- Writing assistance was provided by Abbie Rodger, BSc, of Core (a division of Prime, London, UK), funded by Regeneron Pharmaceuticals, Inc. Medical writing support for this encore, under the direction of the authors, was provided by ApotheCom, and funded by Bayer Consumer Care AG, Basel, Switzerland, in accordance with Good Publication Practice (GPP) guidelines (Ann Intern Med 2022;175:1298–1304). Data were originally presented at the 2025 Macula Society Meeting, Charlotte Harbor, FL, February 12–15, 2025.

Background

- Aflibercept 8 mg is a novel intravitreal formulation that delivers a 4-times higher molar dose than aflibercept 2 mg, potentially extending VEGF suppression over a longer period
- In the PHOTON trial, aflibercept 8 mg demonstrated non-inferior BCVA gains with extended dosing intervals versus aflibercept 2 mg in patients with DME, with no new safety signals through Week 96[1]
  - Given that approximately 44% of patients in PHOTON received prior treatment for DME,[a] there is an opportunity to assess treatment outcomes in patients with prior DME treatment

This subgroup analysis evaluated visual acuity and anatomic outcomes (CRT and DRSS) in PHOTON patients by prior DME treatment status

[a]Previous treatments for DME were laser, intravitreal anti-VEGF therapy, and corticosteroids.
BCVA, best-corrected visual acuity; CRT, central retinal thickness; DME, diabetic macular edema; DRSS, Diabetic Retinopathy Severity Scale; VEGF, vascular endothelial growth factor.

PHOTON Study Design

Multicenter, randomized, double-masked study in adult patients with center-involved DME[a]
Randomized 1 (2q8) : 2 (8q12) : 1 (8q16)

2q8
Aflibercept 2 mg every 8 weeks after 5 initial monthly injections
n=167

8q12
Aflibercept 8 mg every 12 weeks after 3 initial monthly injections
n=328

8q16
Aflibercept 8 mg every 16 weeks after 3 initial monthly injections
n=163

	Year 1													Year 2										
	Day 1	Wk 4	Wk 8	Wk 12	Wk 16	Wk 20	Wk 24	Wk 28	Wk 32	Wk 36	Wk 40	Wk 44	Wk 48	Wk 52	Wk 56	Wk 60	Wk 64	Wk 68	Wk 72	Wk 76	Wk 80	Wk 84	Wk 88	Wk 92	Wk 96
2q8	X	X	X	X	X	o	X	o	X	o	X	o	X	o	X	o	X	o	X	o	X	o	X	o	–
8q12	X	X	X	o	O[b]	X[b]	o	o	X[b]	o	O	X[b]	o	o	X[b,c]	o	o	X[b,c]	o	o	X[b,c]	o	o	X[b,c]	–
8q16	X	X	X	o	o[b]	o[b]	X[b]	o	O	o	X[b]	O	o	o	X[b,c]	o	O	o	X[b,c]	o	O	o	X[b,c]	O	–

Primary endpoint at Week 48
Mean change in BCVA (non-inferiority)

End of study at Week 96
With an optional 1-year extension through Week 156

[b]DRM: Interval Shortening During Years 1 and 2

- **Criteria for interval shortening:**
  - >10-letter loss in BCVA from Week 12 due to persistent or worsening DME **AND**
  - >50-µm increase in CRT from Week 12
- Patients who met DRM criteria had dosing intervals shortened to Q8 at **Weeks 16** and **20** or by 4-week increments from **Week 24**
  - The minimum interval was Q8

[c]DRM: Interval Extension During Year 2

- **Criteria for interval extension:**
  - <5-letter loss in BCVA from Week 12 **AND**
  - CRT <300 µm (or <320 µm on Spectralis)
- Patients who met DRM criteria beginning at **Week 52** had dosing intervals extended by 4-week increments
  - The maximum assigned interval was Q24

[a]Treatment-naive and previously treated patients. Figure does not reflect all dosing options once a patient's interval is shortened or extended. Stippled boxes = initial treatment phase; X = active injection; o = sham injection. 2q8, 2 mg every 8 weeks; 8q12, 8 mg every 12 weeks; 8q16, 8 mg every 16 weeks; BCVA, best-corrected visual acuity; CRT, central retinal thickness; DME, diabetic macular edema; DRM, dose regimen modification; Q8, every 8 weeks; Q24, every 24 weeks; Wk, week.

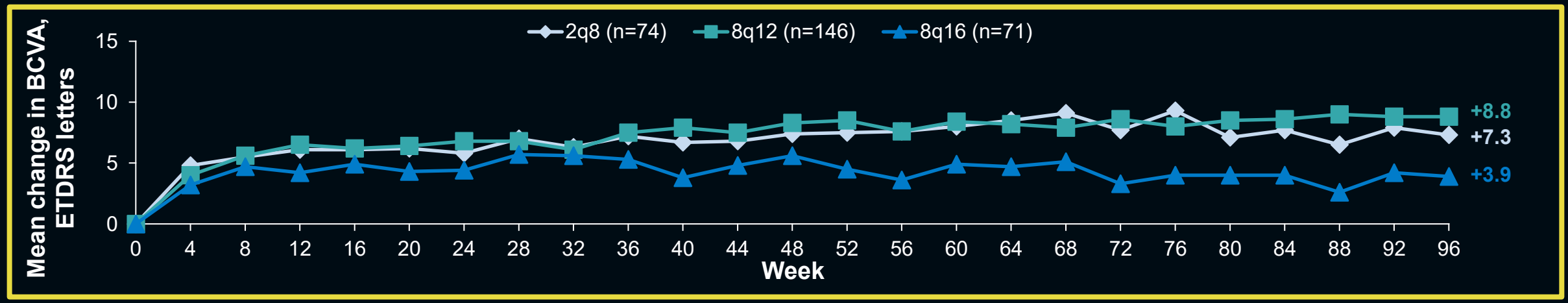
Baseline Demographics and Ocular Characteristics

	With Prior DME Treatment			Without Prior DME Treatment		
	2q8 (n=74)	8q12 (n=146)	8q16 (n=71)	2q8 (n=93)	8q12 (n=182)	8q16 (n=92)
Age, years	64.4 (8.9)	62.7 (10.9)	63.0 (8.4)	62.0 (10.4)	61.6 (11.3)	60.9 (10.3)
Female, %	45.9	39.7	40.8	44.1	33.0	38.0
Race,[a] %						
White	64.9	69.2	77.5	68.8	71.4	79.3
Asian	21.6	19.9	18.3	15.1	10.4	10.9
Black or African American	9.5	7.5	4.2	11.8	13.2	6.5
Hispanic or Latino, %	18.9	17.1	22.5	18.3	15.9	19.6
Duration of diabetes, years	16.7 (10.6)	16.2 (9.4)	16.6 (9.7)	15.5 (9.6)	14.5 (10.3)	15.0 (11.4)
BCVA, ETDRS letters	62.1 (10.9)	62.2 (10.7)	58.6 (11.9)	61.0 (11.5)	64.8 (9.5)	63.7 (11.2)
Snellen equivalent, %						
20/32 (>73 to 78 letters)	14.9	16.4	5.6	9.7	19.2	20.7
20/40 or worse (≤73 letters)	85.1	83.4	94.4	90.3	80.8	79.3
CRT, µm	472.7 (162.3)	456.9 (123.9)	460.6 (109.3)	444.9 (127.1)	442.9 (130.2)	460.1 (124.7)
DRSS categories, %						
Better or equal to level 43	70.3	66.4	67.6	57.0	54.9	64.1
Level 47 or worse	25.7	28.1	23.9	36.6	39.6	31.5
Missing/ungradable	4.1	5.5	8.5	6.5	5.5	4.3

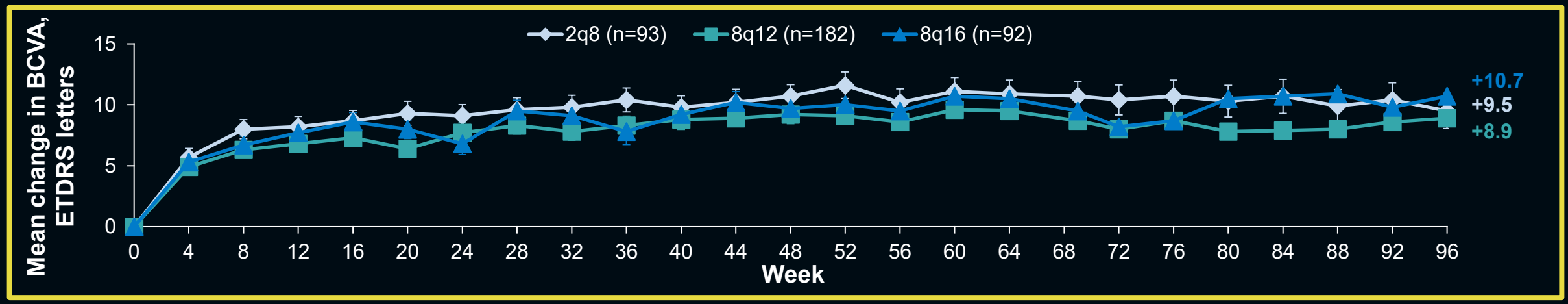
[a]Other race categories included: American Indian or Alaskan Native (<1%), Other, and Not reported (<3% each).
Data are mean (SD) unless otherwise indicated. ETDRS, Early Treatment Diabetic Retinopathy Study.

Mean Change in BCVA Through Week 96

With Prior DME Treatment



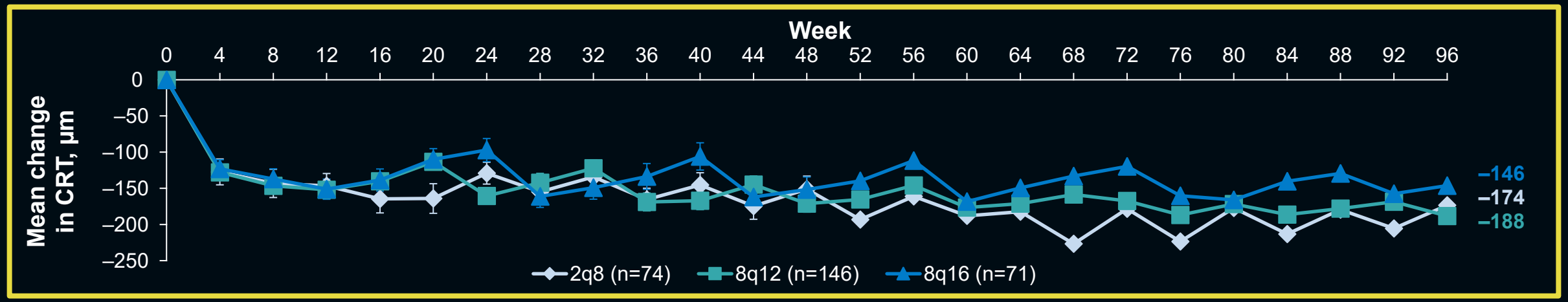
Without Prior DME Treatment



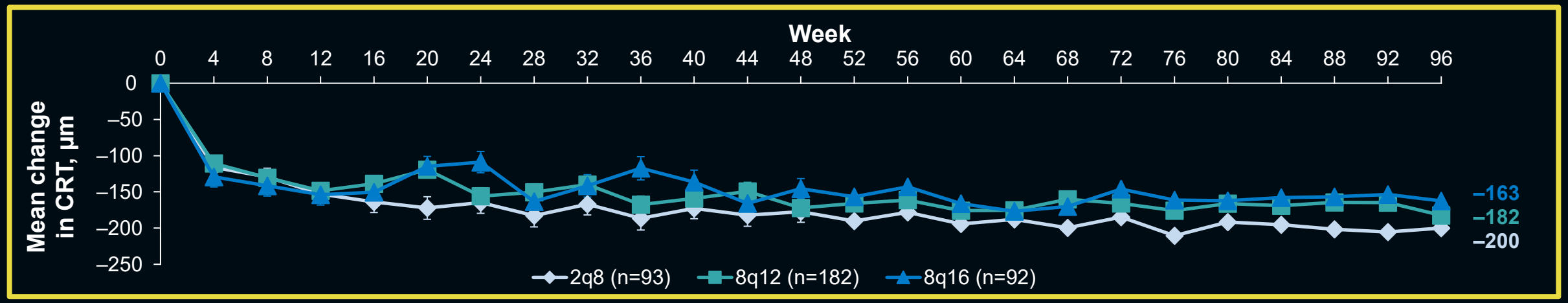
FAS, observed cases (censoring data post-intercurrent event).
FAS, full analysis set.

Mean Change in CRT Through Week 96

With Prior DME Treatment



Without Prior DME Treatment

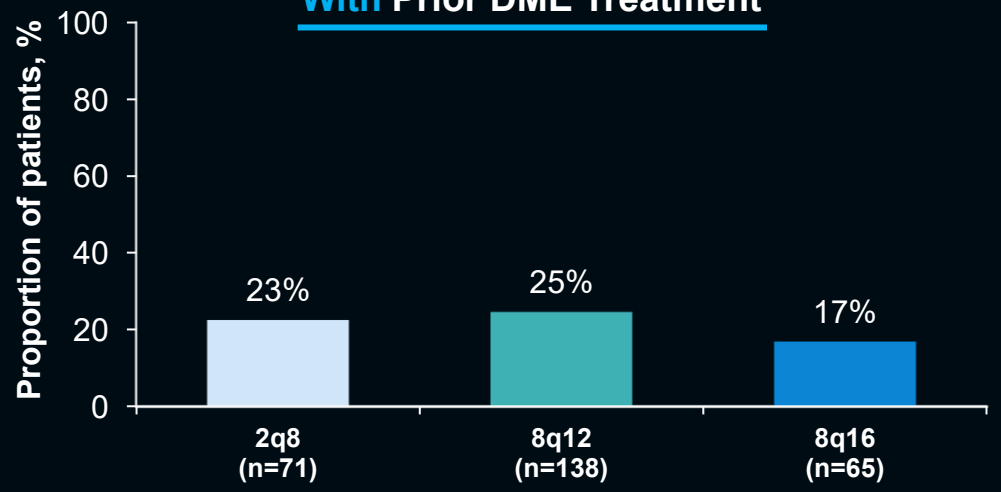


FAS, observed cases (censoring data post-intercurrent event).

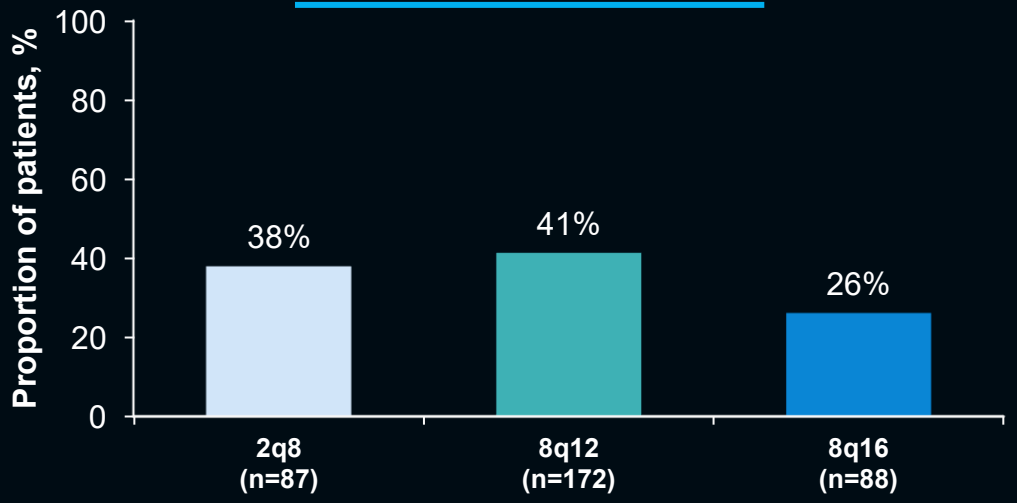
DRSS Outcomes Through Week 96

Proportion of Patients With ≥2-Step DRSS Improvement From Baseline at Week 96

With Prior DME Treatment

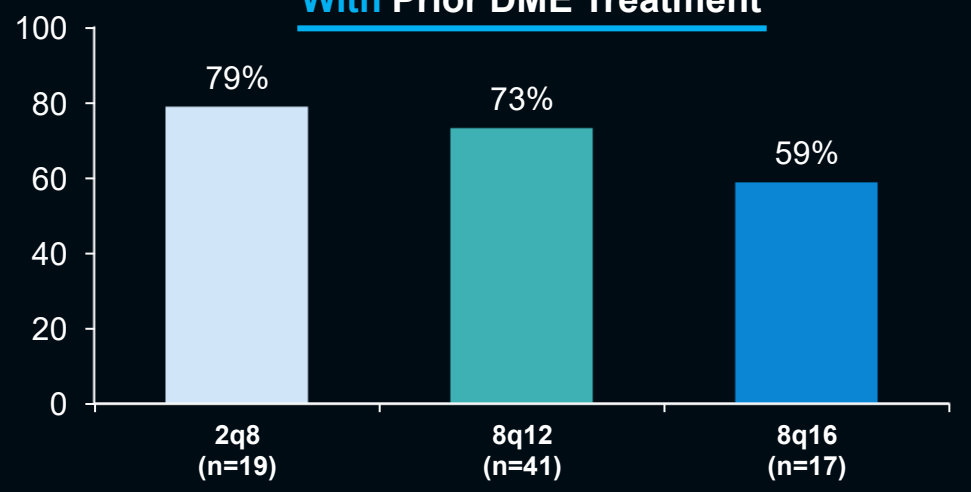


Without Prior DME Treatment

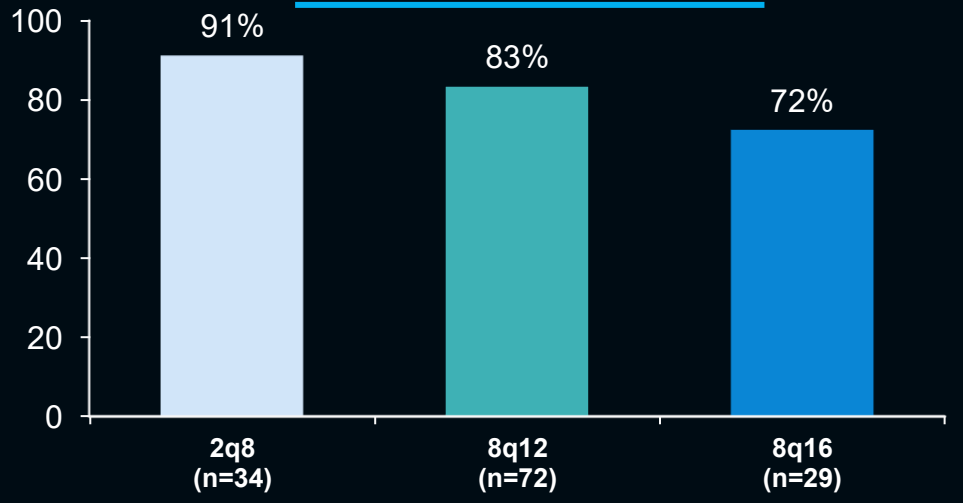


Proportion of Patients With Baseline DRSS ≤47 and ≥2-Step DRSS Improvement from Baseline at Week 96

With Prior DME Treatment

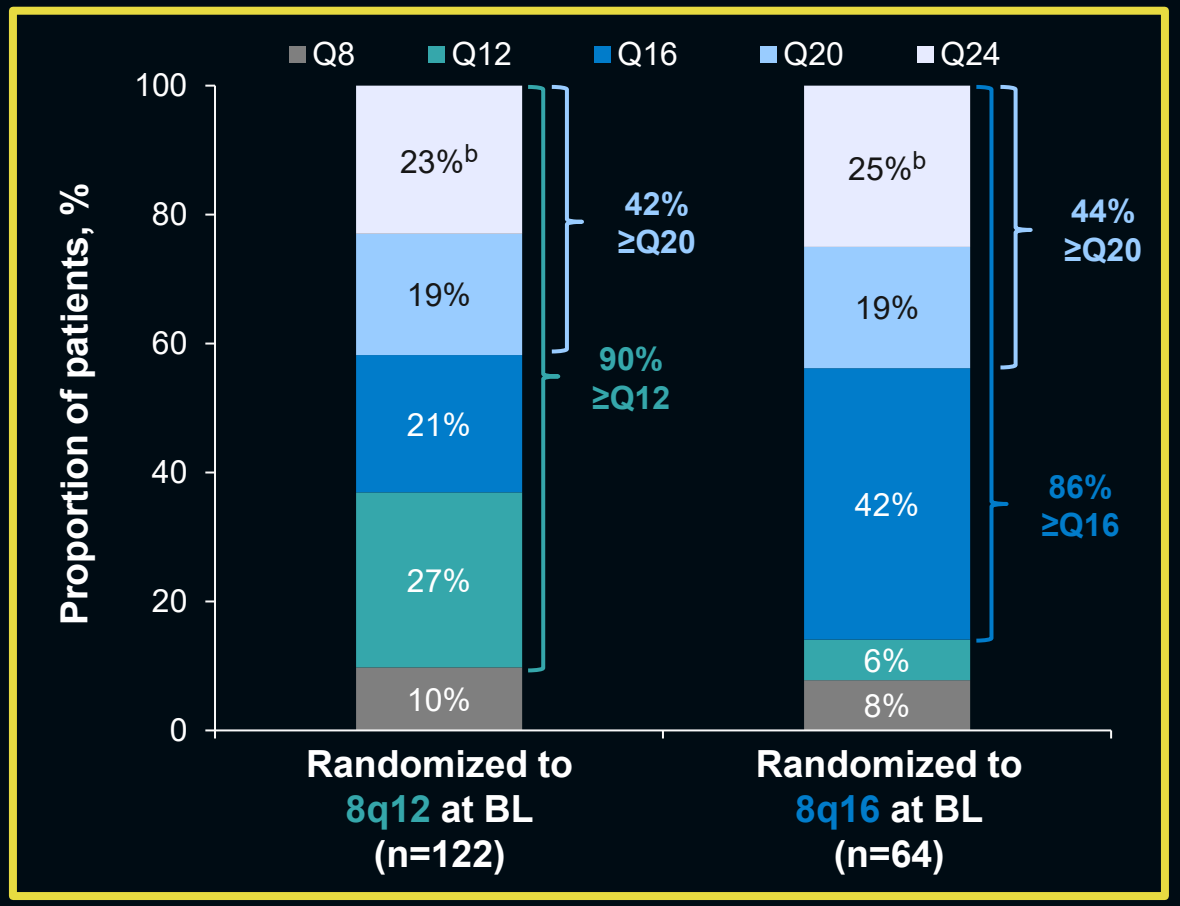


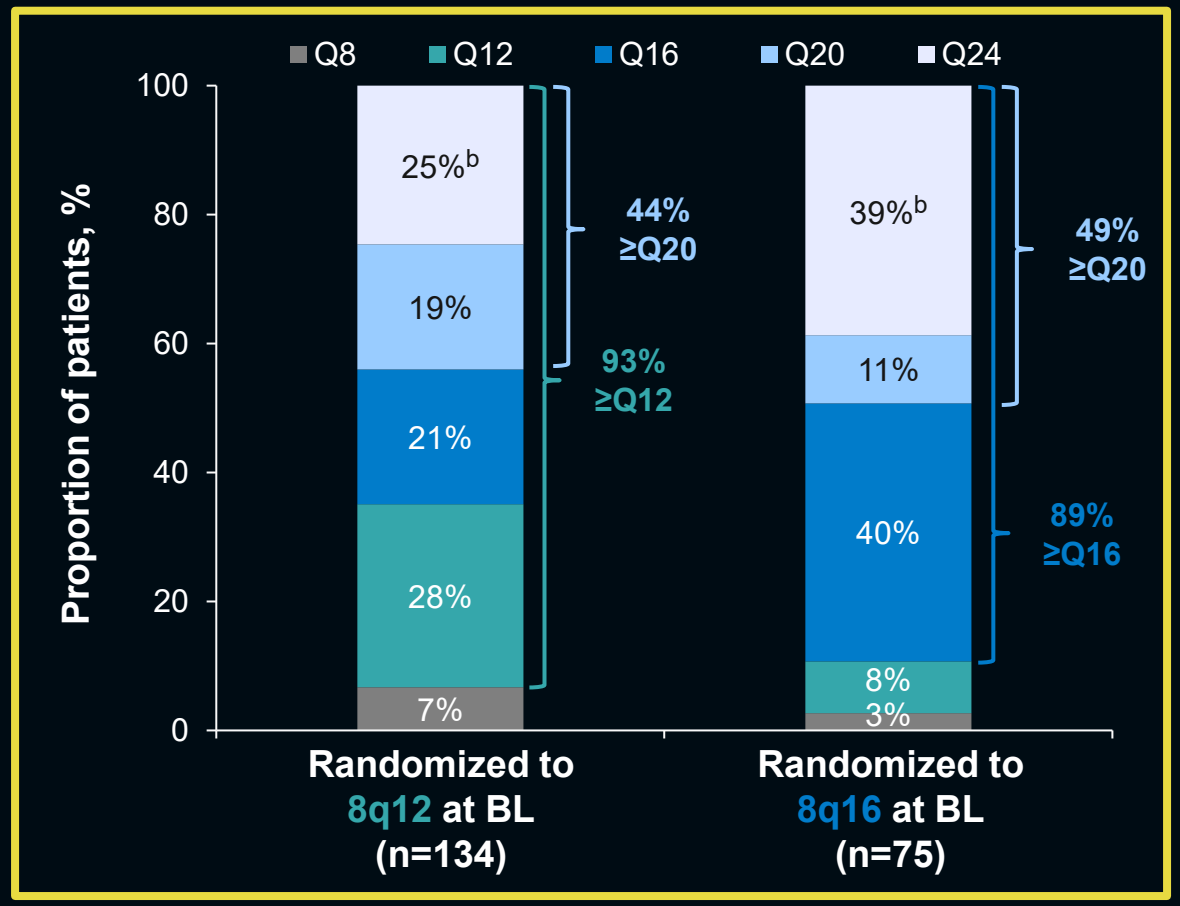
Without Prior DME Treatment



FAS, LOCF. LOCF, last observation carried forward.

Large Proportion of Patients Qualified for Interval Extension in Year 2[a]





FAS, patients who completed Week 96 visit. Values may not add up to 100% due to rounding.
[a]Dosing intervals were extended in Year 2 if patients had <5-letter loss in BCVA from Week 12 and CRT <300 µm (or <320 µm on Spectralis). [b]Patients were assigned to 24-week dosing intervals if they continued to meet extension criteria but there was not sufficient time to complete the interval within the 96-week study period.
BL, baseline; Q12, every 12 weeks; Q16, every 16 weeks; Q20, every 20 weeks.

Conclusions

- In patients with prior DME treatment, mean BCVA gain at Week 96 was numerically greater with 2q8 and 8q12 compared with 8q16, suggesting that some patients in this subgroup could have benefited from more frequent treatment
  - This may have been a particularly recalcitrant subgroup as the baseline VA in this group was lower than the other subgroups
- CRT improvements were generally comparable at Week 96 irrespective of prior DME treatment status
- Proportions of patients with ≥2-step improvement in DRSS score at Week 96 trended numerically higher across all treatment groups in patients without versus with prior DME treatment
- Similar proportions of patients in the aflibercept 8q12 and 8q16 groups had a last assigned dosing interval of ≥20 weeks at Week 96 irrespective of prior DME treatment status