

The Benefit of Daratumumab Plus Bortezomib, Lenalidomide, and Dexamethasone on Depth and Durability of Response in the Phase 3 CEPHEUS Trial: Updated Minimal Residual Disease Analysis

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Disclosures

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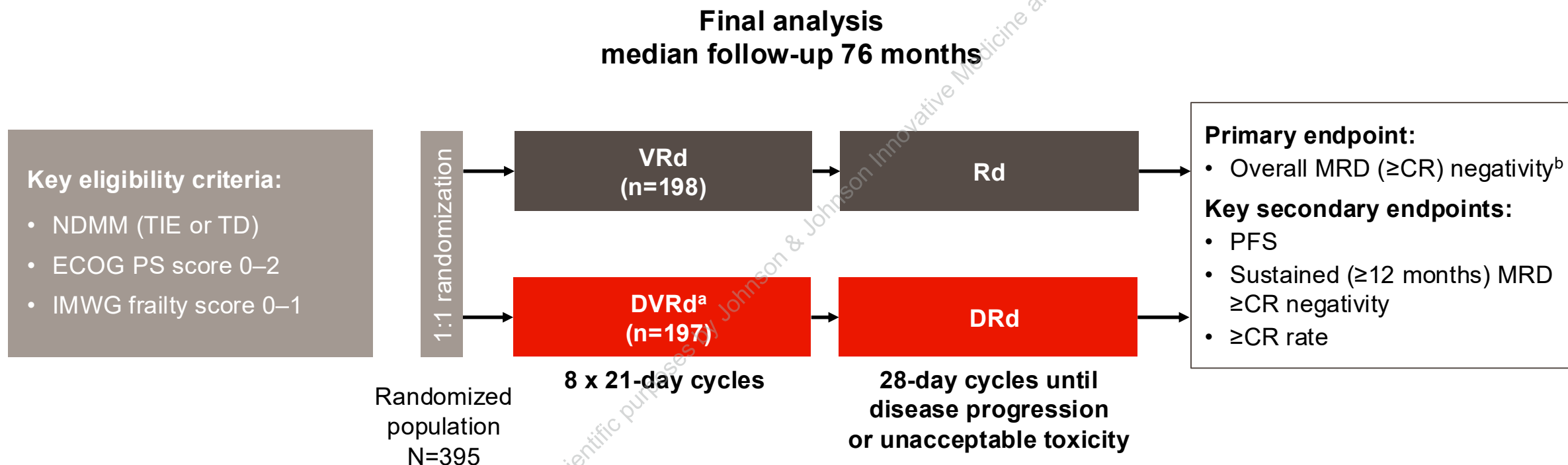


CEPHEUS MRD: Introduction

- MRD is a strong prognostic indicator in MM and an accepted clinical trial endpoint
MRD is a primary endpoint in the phase 3 CEPHEUS trial designed for TIE or transplant-deferred NDMM
- CEPHEUS previously demonstrated that DVRd improved depth of response and PFS versus VRd¹
After a median follow-up of over 6 years, the final analysis of the CEPHEUS trial demonstrated that DVRd continues to show superior efficacy over VRd across key endpoints in TIE patients²
 - Risk of disease progression or death was 45% lower for DVRd vs VRd; HR, 0.55
 - OS favored DVRd, especially when censoring for death due to COVID-19 (HR, 0.74)
- This final analysis - with >6 years of follow up - evaluates whether the MRD benefit with DVRd is deep, sustained, and clinically meaningful, linking MRD dynamics to durable disease control.
Including 60-month sustained MRD-negativity ≥CR rates



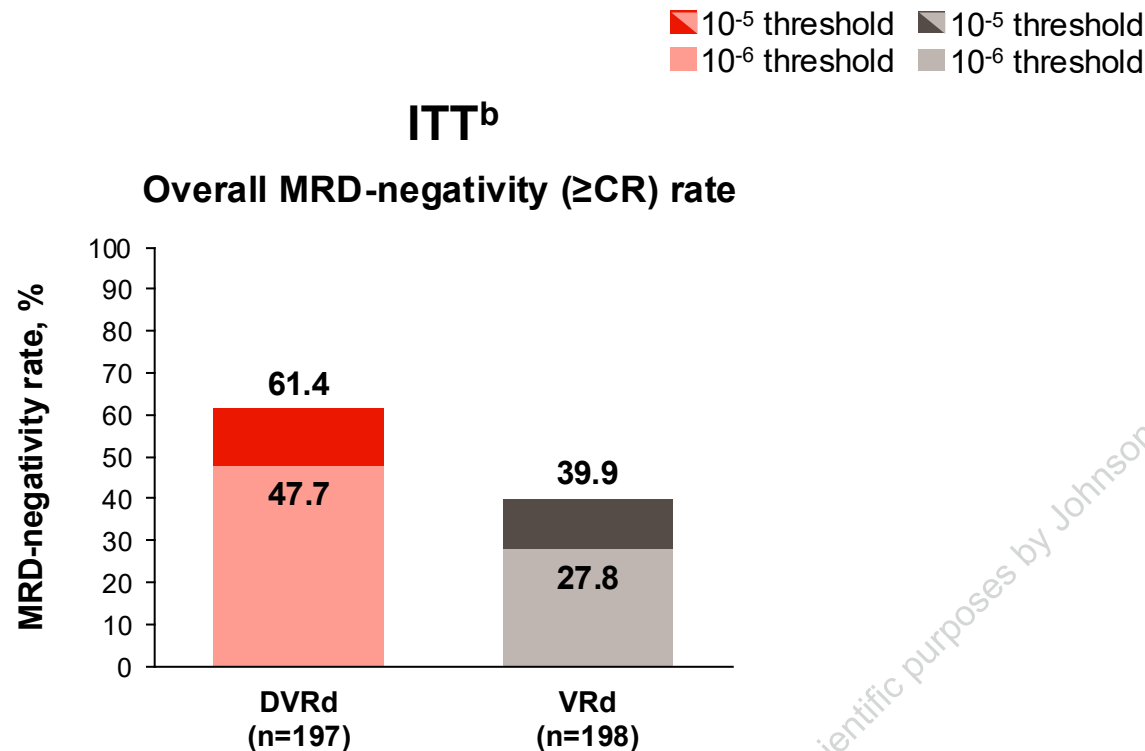
CEPHEUS: Study Design



^aDaratumumab 1,800 mg co-formulated with rHuPH20 (2,000 U/mL; ENHANZE® drug delivery technology, Halozyme, Inc., San Diego, CA, USA). ^bMRD was assessed via next-generation sequencing (clonoSEQ®; Adaptive Biotechnologies) using bone marrow aspirate samples obtained at baseline, at the time of suspected CR, and at 12, 18, 24, 30, and 36 months after the first dose and annually thereafter in patients with CR. ≥CR, complete response or better; DRd, daratumumab, lenalidomide, and dexamethasone; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; ECOG PS, Eastern Cooperative Oncology Group performance status; IMWG, International Myeloma Working Group; ITT, intent to treat; MRD, minimal residual disease; NDMM, newly diagnosed multiple myeloma; OS, overall survival; PFS, progression-free survival; Rd, lenalidomide and dexamethasone; TD, transplant deferred; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone. ClinicalTrials.gov Identifier: NCT03652064. Accessed August 11, 2026. Usmani, SZ, et al. *Nat Med* 2025;31:1195-202.



CEPHEUS MRD: Overall MRD-Negativity $\geq$ CR Rates^a



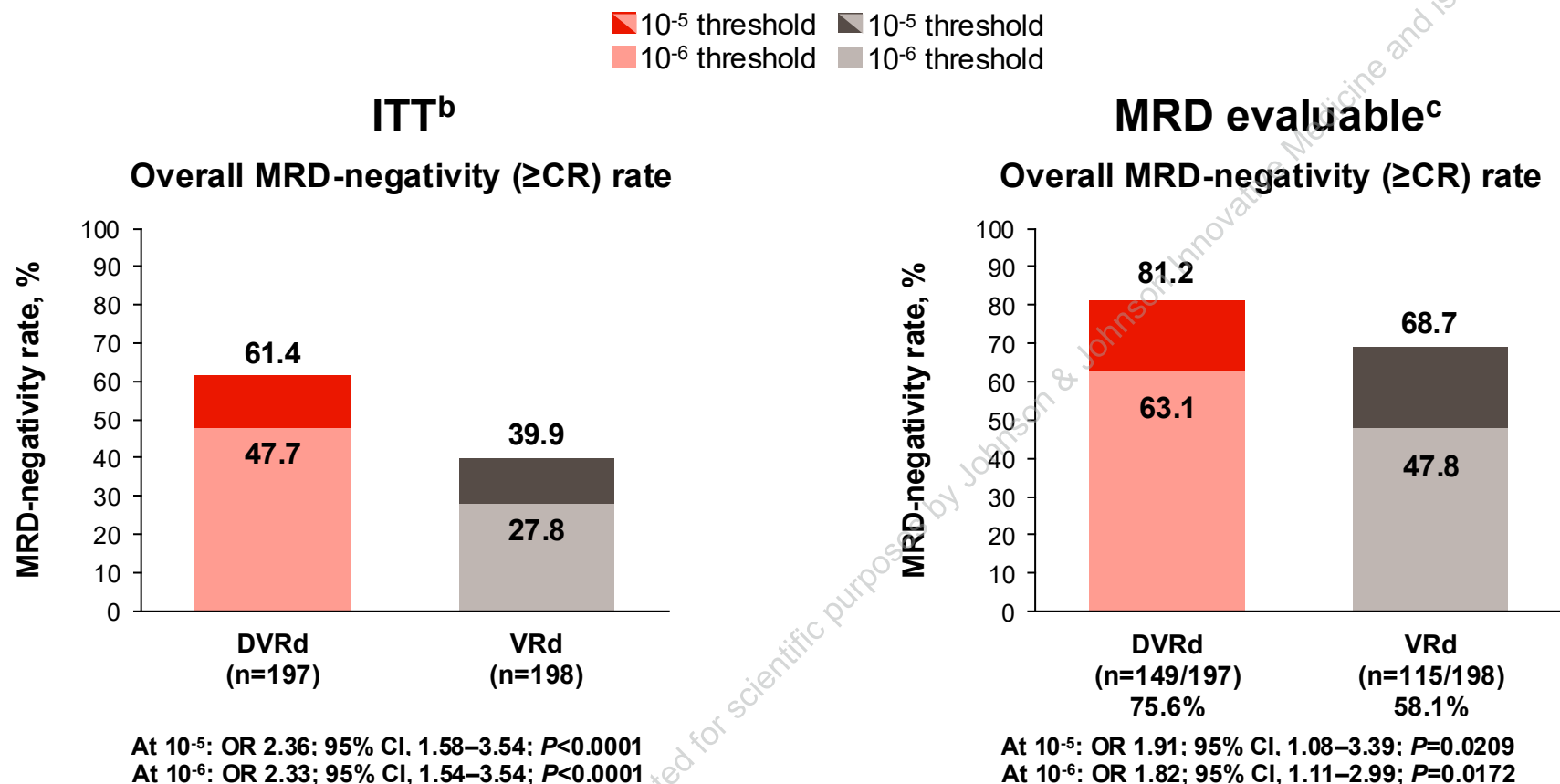
At 10⁻⁵: OR 2.36; 95% CI, 1.58–3.54; $P < 0.0001$
At 10⁻⁶: OR 2.33; 95% CI, 1.54–3.54; $P < 0.0001$

DVRd demonstrated superior overall MRD-negativity rates at 10⁻⁵ and 10⁻⁶ vs VRd

^aThe proportion of patients who achieved both MRD-negativity (at or below a 10⁻⁵ threshold) and $\geq$ CR at any point during the study. ^bFor the TIE population, MRD-negativity rates were higher with DVRd vs VRd at 10⁻⁵ (61.1% vs 40.0%; OR 2.35; 95% CI, 1.47–3.77; $P = 0.0004$) and at 10⁻⁶ (46.5% vs 27.6%; OR 2.27; 95% CI, 1.39–3.71; $P = 0.0010$). $\geq$ CR, complete or better response; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; ITT, intent to treat; MRD, minimal residual disease; OR, odds ratio; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



CEPHEUS MRD: Overall MRD-Negativity ≥CR Rates^a



Loss of MRD negativity (10⁻⁵)

Subjects with ≥1 negative MRD test	DVRd (n=123)	VRd (n=82)
Subjects with loss of MRD negativity, n (%)	19 (15.4)	29 (35.4)

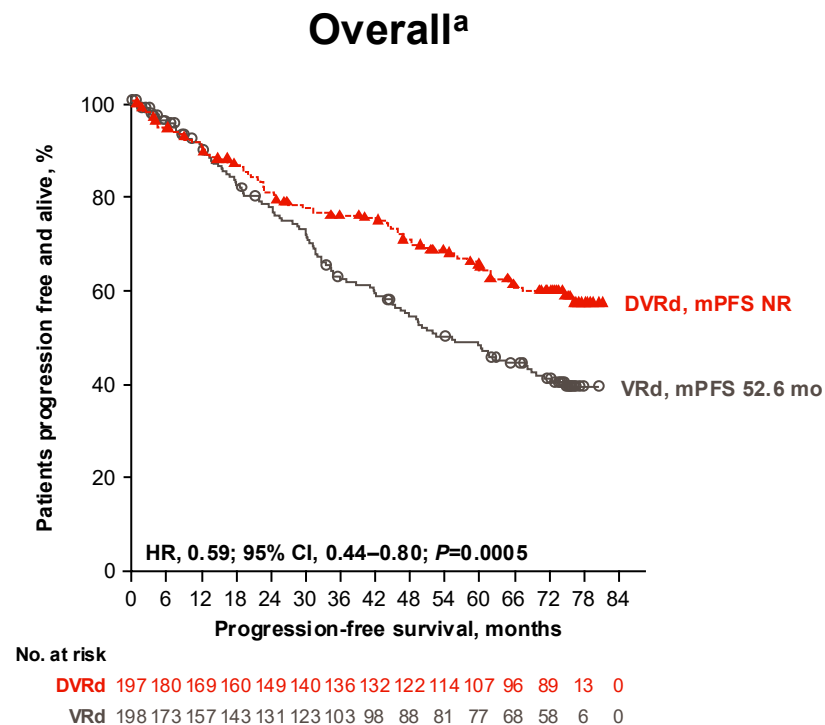
Subjects with 1 negative sample followed by a positive result on any subsequent testing.

DVRd demonstrated superior overall MRD-negativity rates at 10⁻⁵ and 10⁻⁶ vs VRd

^aThe proportion of patients who achieved both MRD-negativity (at or below a 10⁻⁵ threshold) and ≥CR at any point during the study. ^bFor the TIE population, MRD-negativity rates were higher with DVRd vs VRd at 10⁻⁵ (61.1% vs 40.0%; OR 2.35; 95% CI, 1.47–3.77; *P*=0.0004) and at 10⁻⁶ (46.5% vs 27.6%; OR 2.27; 95% CI, 1.39–3.71; *P*=0.0010). ^cThe MRD-evaluable population was defined as patients with ≥CR, successful baseline calibration, MRD samples at each specified time point, and with ≥1 post-baseline MRD sample. ≥CR, complete or better response; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; ITT, intent to treat; MRD, minimal residual disease; OR, odds ratio; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



ITT: Progression-Free Survival by MRD Status

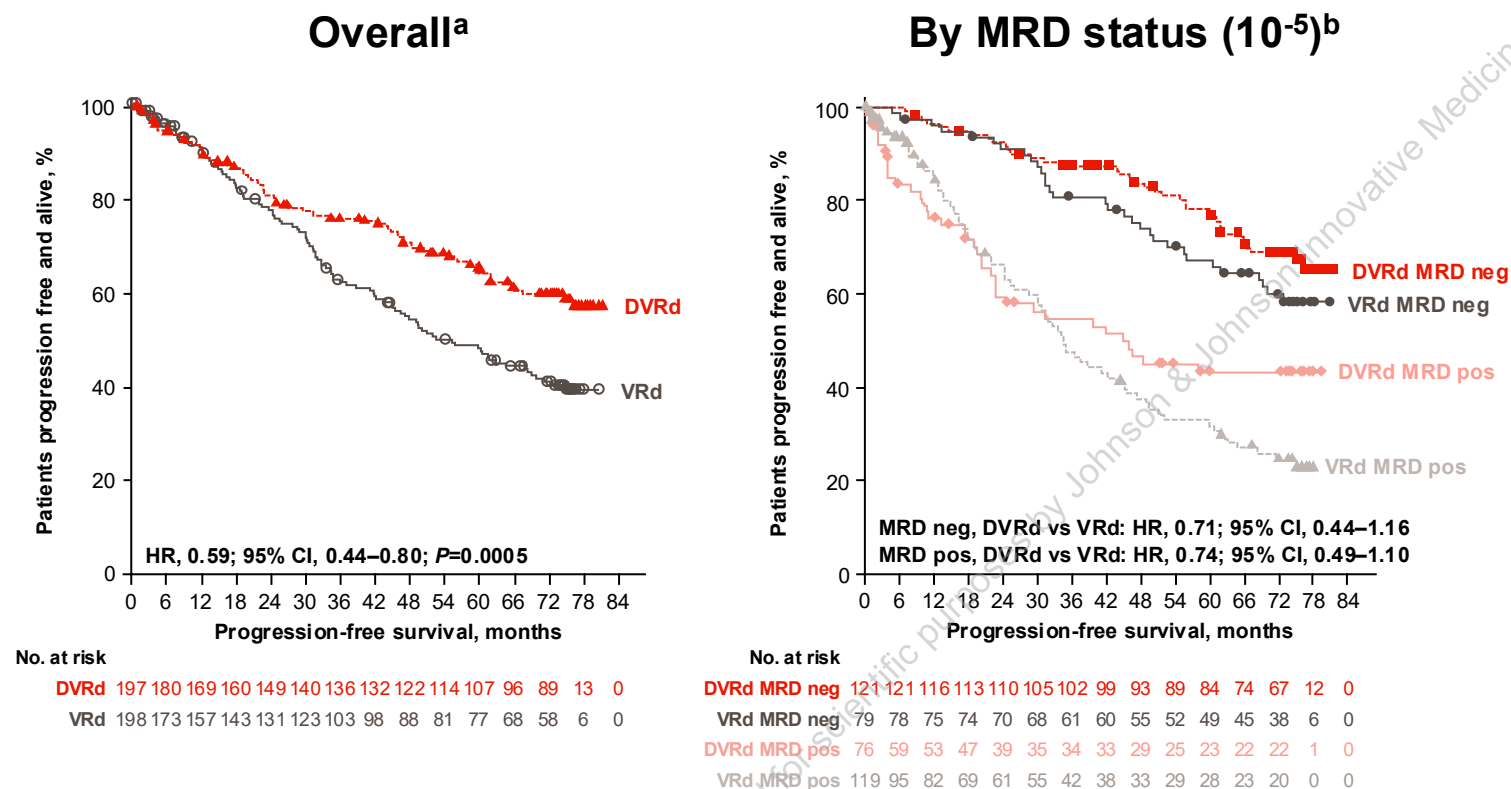


PFS improved with DVRd vs VRd in MRD-negative and MRD-positive patients

^aFor the TIE population, DVRd improved PFS with 45% reduction in risk of disease progression or death vs VRd (HR, 0.55; 95% CI, 0.39–0.78; $P=0.0007$). DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; HR, hazard ratio; ITT, intent to treat; MRD, minimal residual disease; OR, odds ratio; PFS, progression-free survival per investigator assessment; VRd, bortezomib, lenalidomide, and dexamethasone; TIE, transplant ineligible.



ITT: Progression-Free Survival by MRD Status

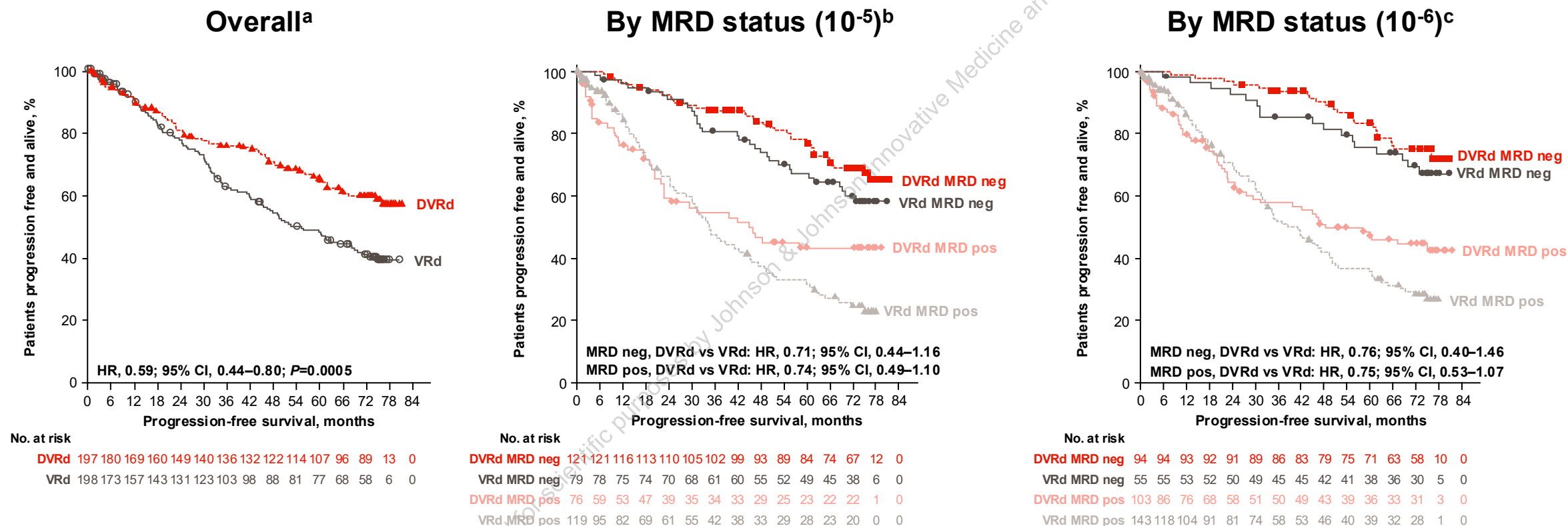


PFS improved with DVRd vs VRd in MRD-negative and MRD-positive patients

^aFor the TIE population, DVRd improved PFS with 45% reduction in risk of disease progression or death vs VRd (HR, 0.55; 95% CI, 0.39–0.78; $P=0.0007$). ^bFor the TIE population, median PFS improved in patients with DVRd vs VRd in patients achieving MRD-negativity at 10^{-5} (HR, 0.81; 95% CI, 0.46–1.44; $P=0.4776$) and in MRD-positive patients (HR, 0.56; 95% CI, 0.34–0.91; $P=0.0170$). DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; HR, hazard ratio; ITT, intent to treat; MRD, minimal residual disease; neg, negative; OR, odds ratio; PFS, progression-free survival per investigator assessment; pos, positive; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



ITT: Progression-Free Survival by MRD Status

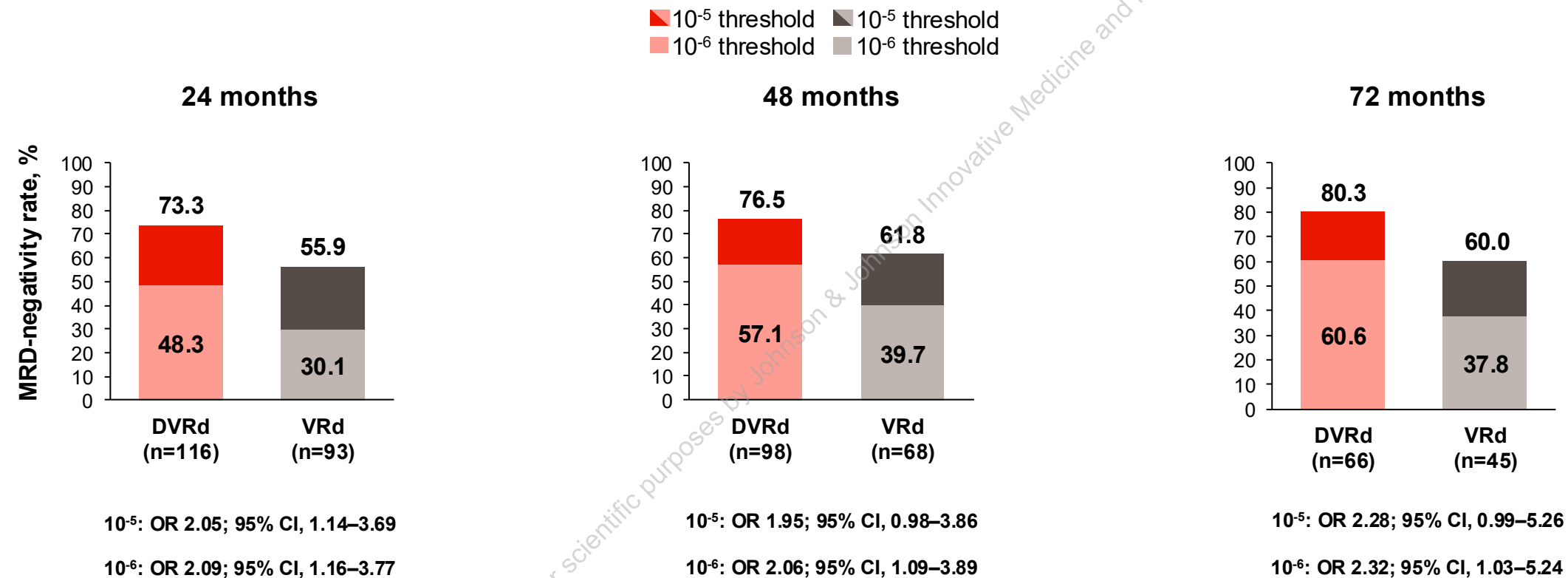


PFS improved with DVRd vs VRd in MRD-negative and MRD-positive patients

^aFor the TIE population, DVRd improved PFS with 45% reduction in risk of disease progression or death vs VRd (HR, 0.55; 95% CI, 0.39–0.78; $P=0.0007$). ^bFor the TIE population, median PFS improved in patients with DVRd vs VRd in patients achieving MRD-negativity at 10^{-5} (HR, 0.81; 95% CI, 0.46–1.44; $P=0.4776$) and in MRD-positive patients (HR, 0.56; 95% CI, 0.34–0.91; $P=0.0170$). ^cFor the TIE population, median PFS improved in patients with DVRd vs VRd in patients achieving MRD-negativity at 10^{-6} (HR, 1.18; 95% CI, 0.54–2.57; $P=0.6735$) and in MRD-positive patients (HR, 0.57; 95% CI, 0.37–0.87; $P=0.0078$). DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; HR, hazard ratio; ITT, intent to treat; MRD, minimal residual disease; neg, negative; OR, odds ratio; PFS, progression-free survival per investigator assessment; pos, positive; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



MRD-Evaluable: MRD-Negativity $\geq$ CR Rates^a at Prespecified Landmark Time Points

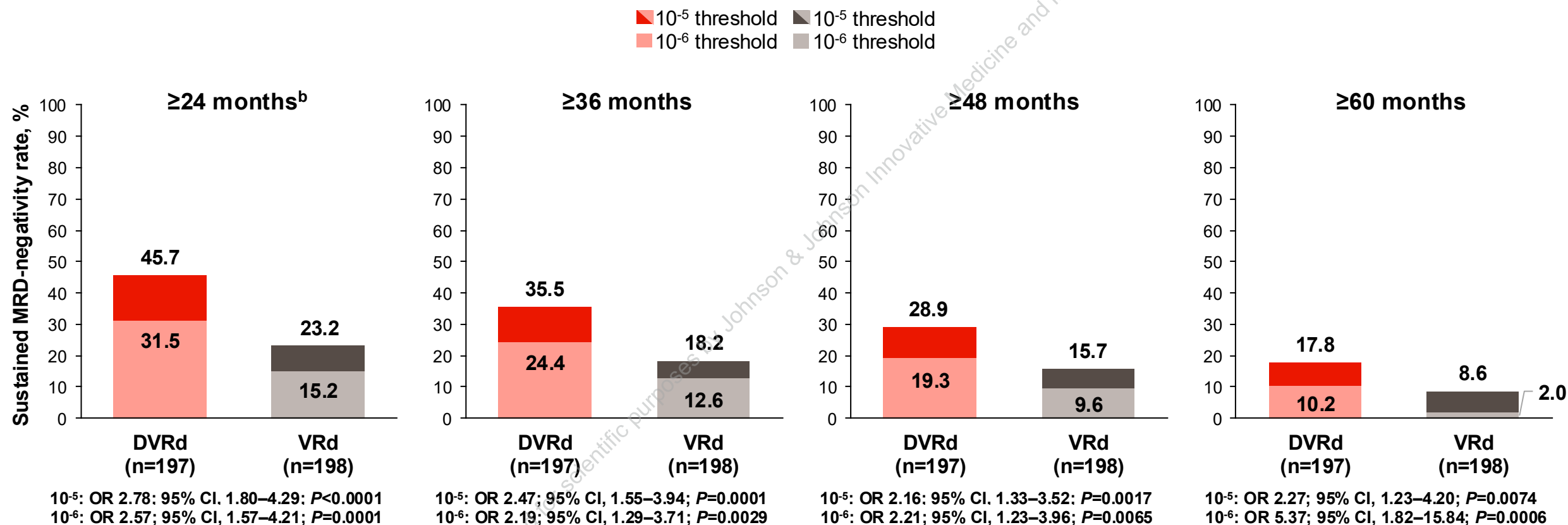


MRD-negativity rates were improved at all prespecified assessment time points up to 72 months with DVRd vs VRd in the MRD-evaluable population

^aThe proportion of patients who achieved both MRD-negativity (at or below a 10⁻⁵ or 10⁻⁶ threshold) and $\geq$ CR; calculated with the number of subjects with $\geq$ CR and with MRD sample in each window as denominators. The number of patients per arm is the same for the 10⁻⁵ and 10⁻⁶ threshold. $\geq$ CR, complete response or better; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; MRD, minimal residual disease; OR, odds ratio; VRd, bortezomib, lenalidomide, and dexamethasone.



ITT: Sustained MRD-Negativity $\geq$ CR Rates^a



DVRd demonstrated superior sustained MRD-negativity rates over time vs VRd

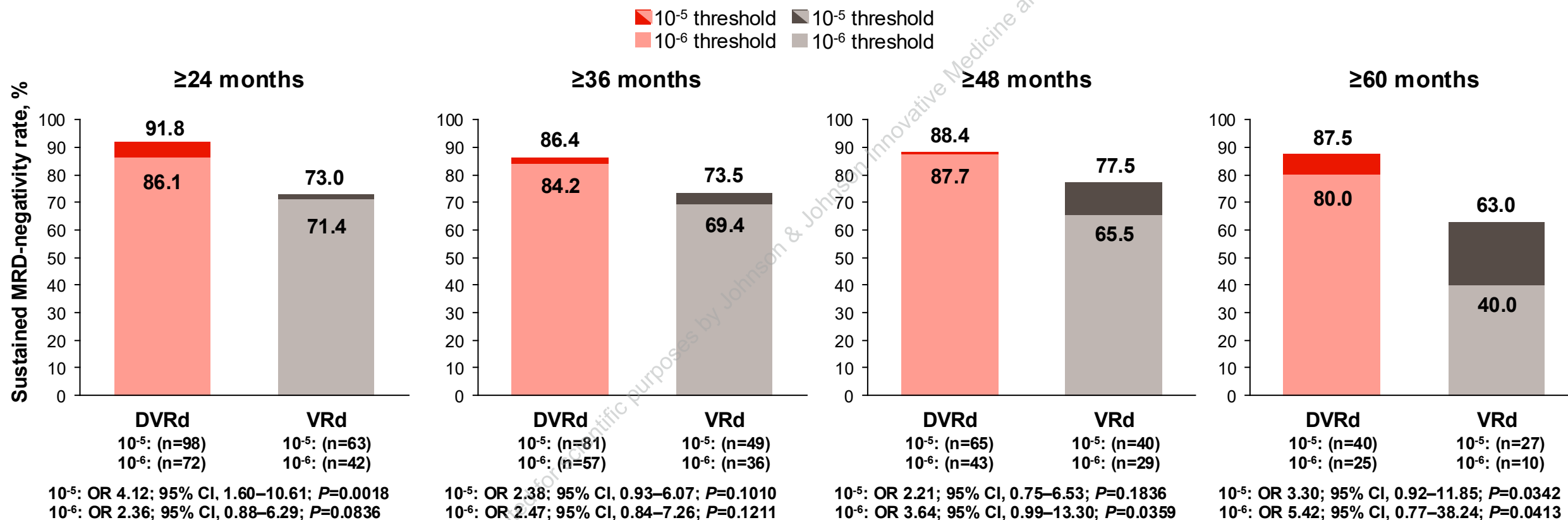
^aSustained MRD negativity was defined as 2 consecutive MRD negative reads $\geq$ 24, 36, 48, or 60 ($\pm$ 3) months apart with no MRD-positive result in between. ^bFor the TIE population, 24-month sustained MRD-negativity rates were higher with DVRd vs VRd at 10⁻⁵ (44.4% vs 23.4%; OR 2.62; 95% CI, 1.58–4.36; $P=0.0002$) and at 10⁻⁶ (30.6% vs 15.2%; OR 2.45; 95% CI, 1.38–4.37; $P=0.0020$).

$\geq$ CR, complete response or better; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; ITT, intent to treat; MRD, minimal residual disease; OR, odds ratio; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



MRD-Evaluable: Sustained MRD-Negativity ≥CR Rates^a

Patients achieved ≥CR and had an MRD-negative sample, followed by another MRD sample ≥24, 36, 48, or 60 months later



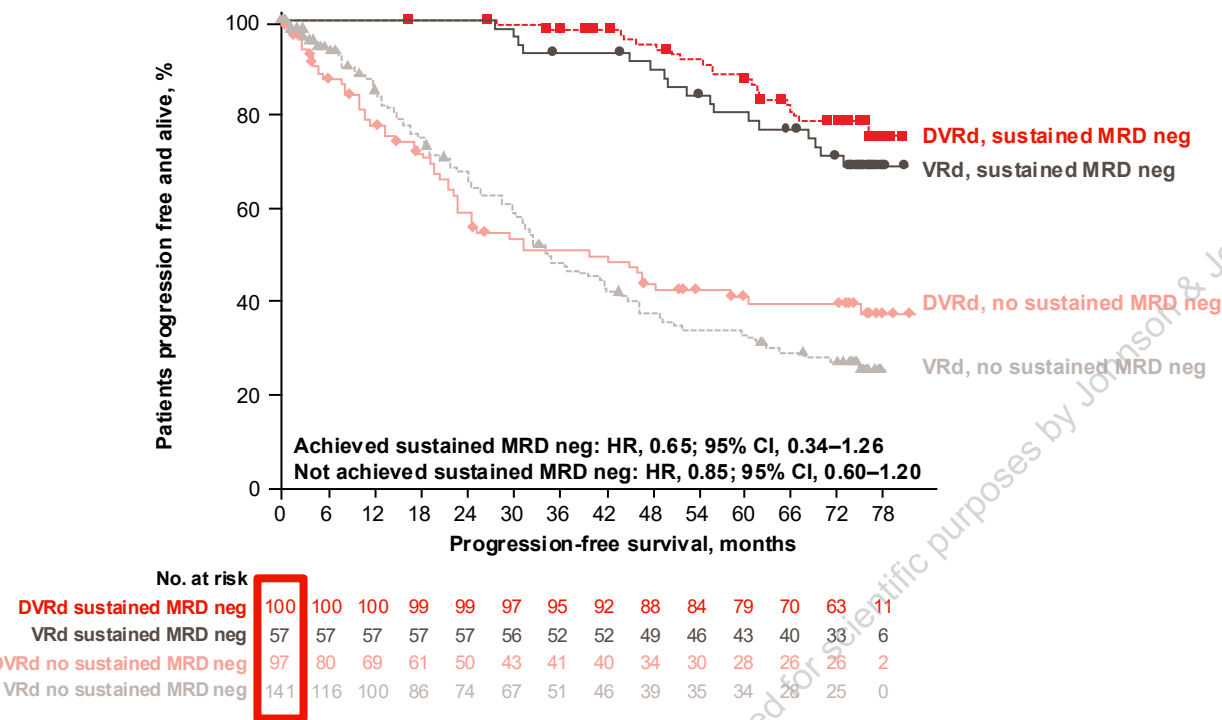
DVRd demonstrated superior sustained MRD-negativity rates at 10⁻⁵ and 10⁻⁶ vs VRd

^aPatients achieved ≥CR and had an MRD-negative sample, followed by another MRD sample ≥24, 36, 48, or 60 (±3) months later. Sustained MRD negativity was defined as 2 consecutive MRD negative reads ≥24, 36, 48, or 60 (±3) months apart with no MRD-positive result in between. MRD-evaluable population defined as patients with ≥CR, successful baseline calibration, and with an MRD-negative sample followed by another MRD sample 24, 36, 48, or 60 months later, respectively. ≥CR, complete response or better; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; MRD, minimal residual disease; OR, odds ratio; VRd, bortezomib, lenalidomide, and dexamethasone.



ITT: Progression-Free Survival^a by Sustained MRD-Negativity Status^b

12 months (10⁻⁵)^c

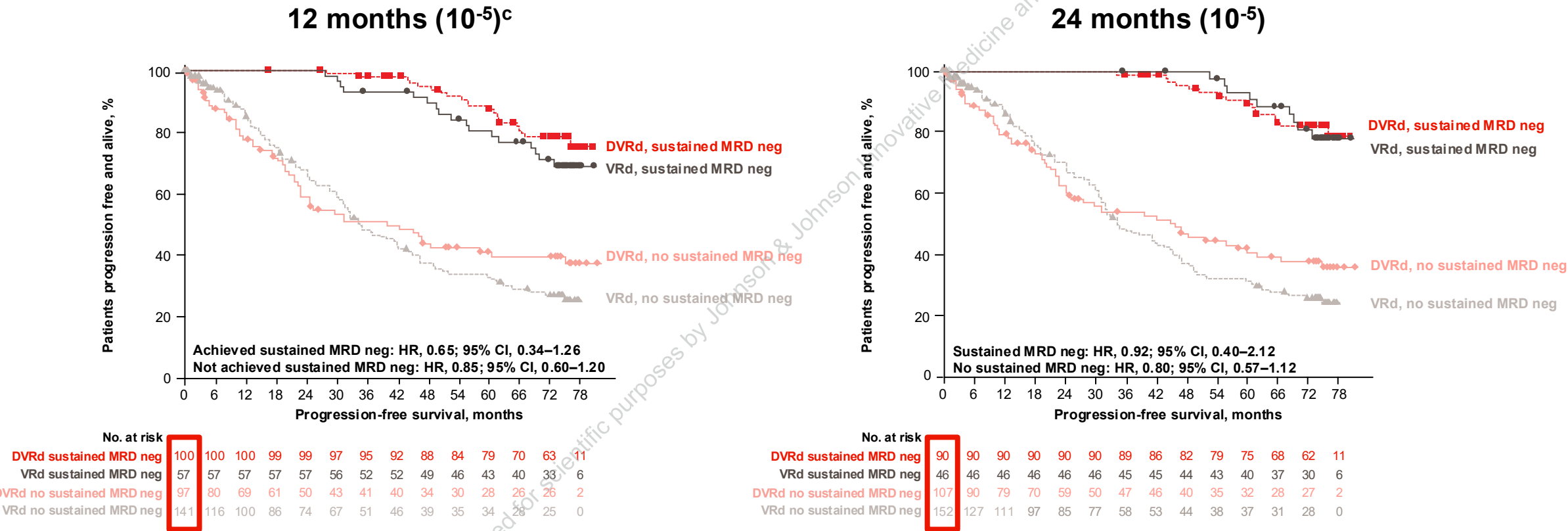


PFS improved with DVRd vs VRd in patients with sustained MRD negativity

^aPFS per investigator assessment; ^bSustained MRD negativity was defined as 2 consecutive MRD negative reads ≥ 12 (± 1) or 24 months (± 3) apart with no MRD-positive result in between. ^cFor the TIE population, median PFS improved in patients with DVRd vs VRd in patients with 12-month sustained MRD-negativity (HR, 0.75; 95% CI, 0.35–1.60) and without 12-month sustained MRD-negativity (HR, 0.68; 95% CI, 0.45–1.03). DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; HR, hazard ratio; ITT, intent to treat; MRD, minimal residual disease; neg, negative; OR, odds ratio; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



ITT: Progression-Free Survival^a by Sustained MRD-Negativity Status^b



PFS improved with DVRd vs VRd in patients with sustained MRD negativity

^aPFS per investigator assessment. ^bSustained MRD negativity was defined as 2 consecutive MRD negative reads ≥ 12 (± 1) or 24 months (± 3) apart with no MRD-positive result in between. ^cFor the TIE population, median PFS improved in patients with DVRd vs VRd in patients with 12-month sustained MRD-negativity (HR, 0.75; 95% CI, 0.35–1.60) and without 12-month sustained MRD-negativity (HR, 0.68; 95% CI, 0.45–1.03). DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone; HR, hazard ratio; ITT, intent to treat; MRD, minimal residual disease; neg, negative; OR, odds ratio; TIE, transplant ineligible; VRd, bortezomib, lenalidomide, and dexamethasone.



CEPHEUS MRD: Conclusions

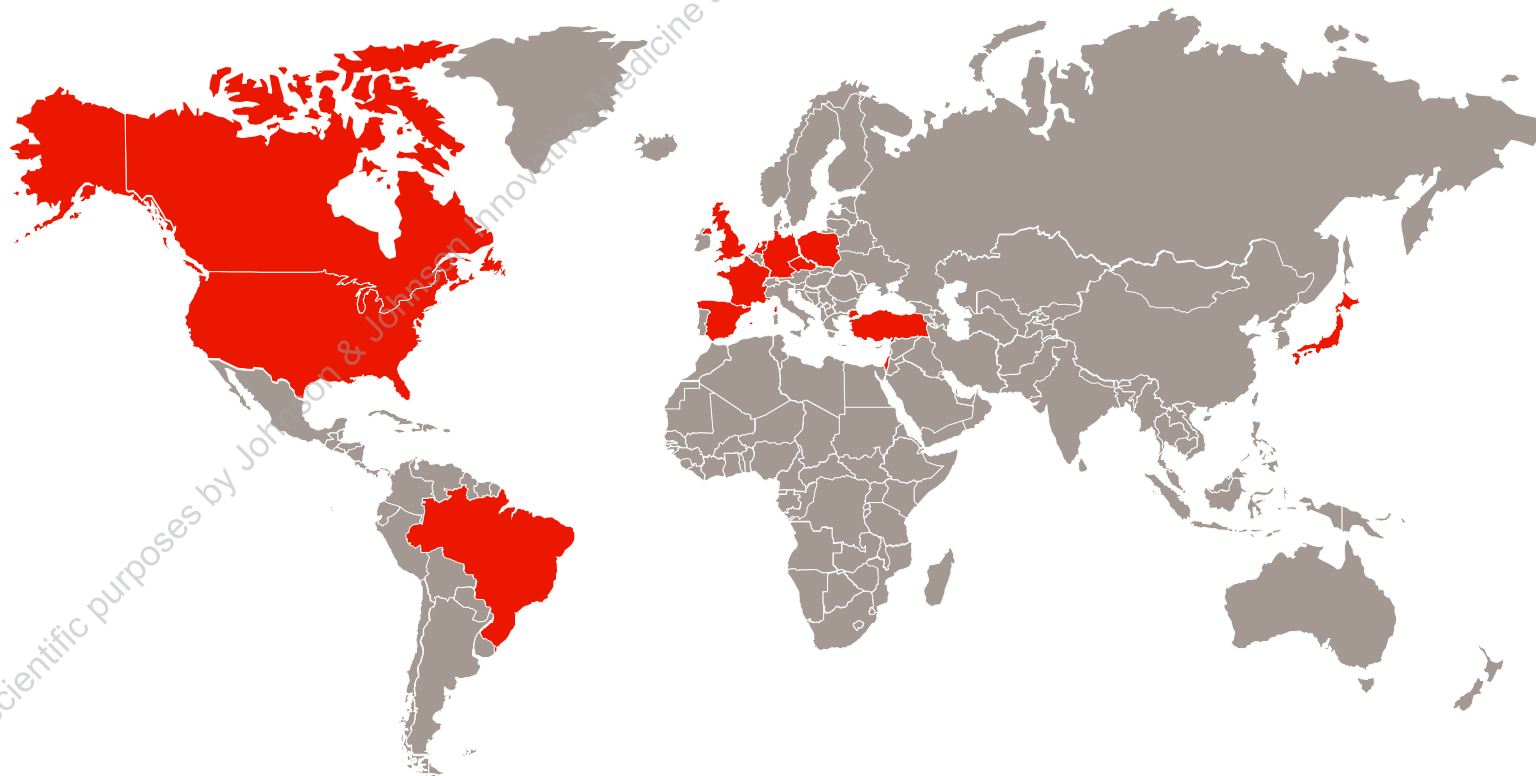
- **DVRd produced deeper responses than VRd, with higher MRD-negativity $\geq$ CR rates at both 10^{-5} and 10^{-6} in the ITT and MRD-evaluable populations**
 - ITT: 61.4% vs 39.9% at 10^{-5} ; 47.7% vs 27.8% at 10^{-6}
- **DVRd showed superior sustained MRD-negativity $\geq$ CR rates, including the first report of improved 60-month sustained MRD-negativity $\geq$ CR rates versus VRd in TIE/TD NDMM**
 - 24 months, ITT: 45.7% vs 23.2% at 10^{-5} ; 31.5% vs 15.2% at 10^{-6}
 - 48 months, ITT: 28.9% vs 15.7% at 10^{-5} ; 19.3% vs 9.6% at 10^{-6}
- **MRD negativity, particularly sustained MRD negativity, was associated with improved PFS, supporting sustained, deep response as a marker of durable disease control**
 - PFS for achieving overall MRD negativity: HR, 0.71 at 10^{-5} ; 12-month sustained: HR, 0.65 at 10^{-5}

With >6 years of follow-up, daratumumab + VRd continues to deepen responses and sustains MRD negativity with improved PFS, which supports durable disease control



CEPHEUS MRD: Acknowledgments

- We thank the patients who participated in this study and their families/caregivers, staff members at the study sites, and the data and safety monitoring committee
- This study was funded by Johnson & Johnson



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