

Trastuzumab deruxtecan (T-DXd) + pertuzumab vs taxane + trastuzumab + pertuzumab (THP) for patients with HER2+ advanced/metastatic breast cancer: additional analyses of **DESTINY-Breast09** in key subgroups of interest

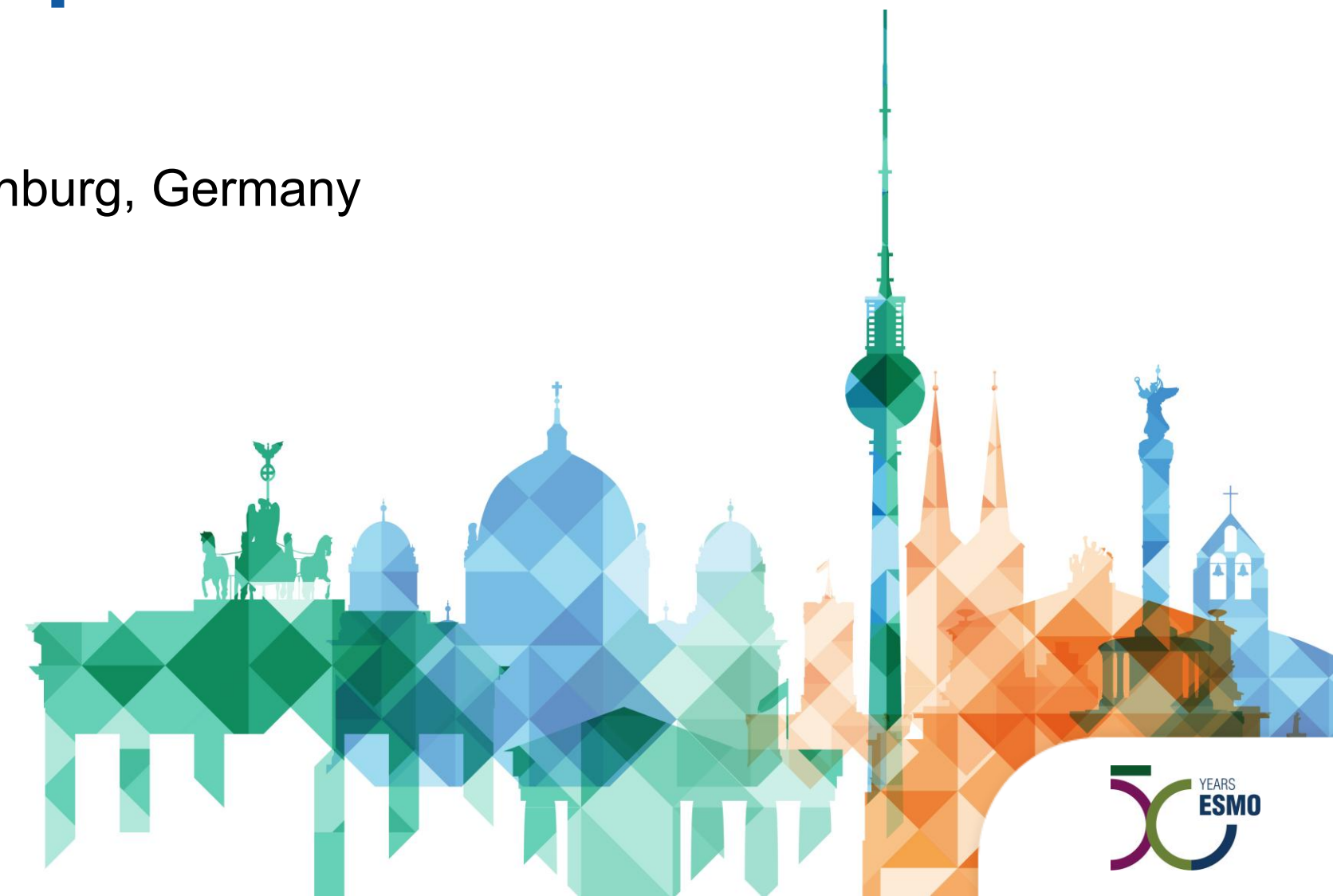
Sibylle Loibl, MD, PhD

University Hospital Goethe, University Frankfurt/M, GBG Neu-Isenburg, Germany

Co-authors: Zefei Jiang, Romualdo Barroso-Sousa, Yeon Hee Park, Cristina Saura, Mothaffar F Rimawi, Andreas Schneeweiss, Masakazu Toi, Seock-Ah Im, Zhongsheng Tong, Umut Demirci, Cynthia Villarreal-Garza, Chiun-Sheng Huang, Toshimi Takano, Valentina Guarneri, Shoubhik Mondal, Doudou Huang, Angela Zeng, Sara M Tolaney

On behalf of the DESTINY-Breast09 investigators

Sunday, October 19, 2025
Presentation LBA18

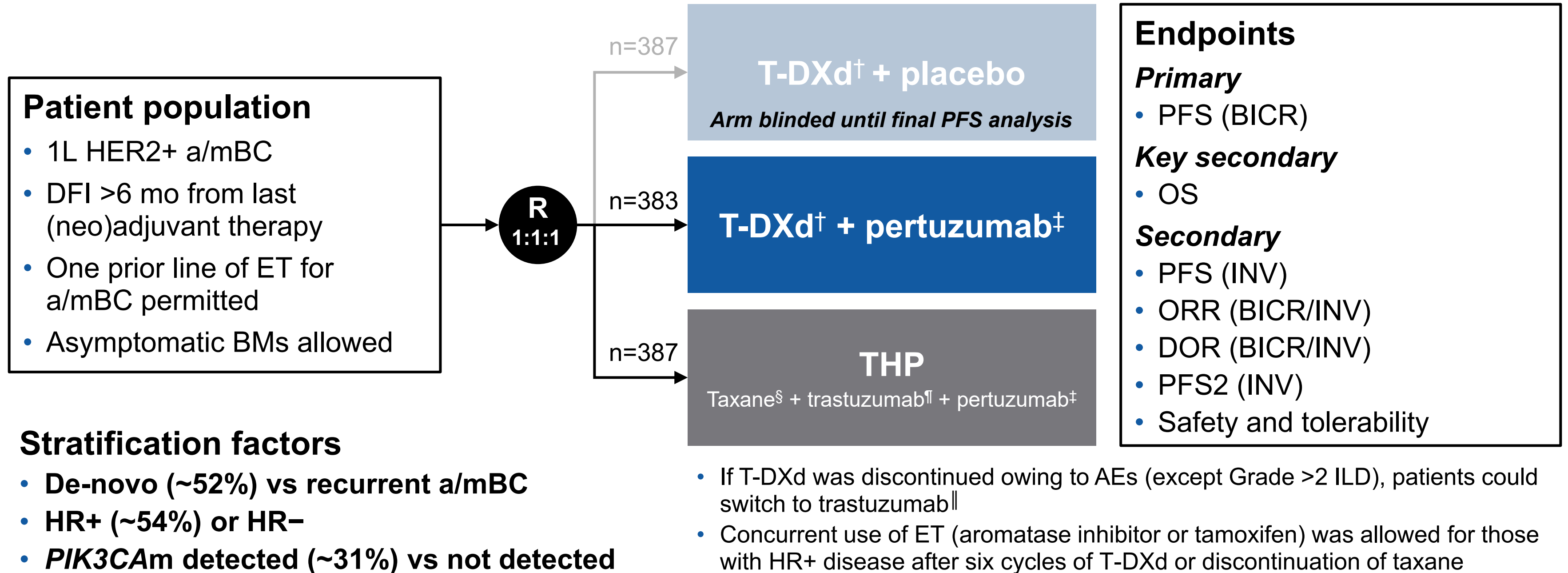


Declaration of interests

Commercial interests	Nature of relationship
AbbVie, AstraZeneca, Celgene, Daiichi Sankyo, Greenwich LifeSciences, Immunomedics/Gilead Sciences, Molecular Health, Novartis, Pfizer, and Roche	Receipt of research funding
Amgen, AstraZeneca, Bayer, BeiGene, Bicycle Therapeutics, Bristol Myers Squibb, Celgene, Daiichi Sankyo, Gilead Sciences, GSK, Jazz Pharmaceuticals, Lilly, Medscape, Merck, Novartis, Pfizer, Pierre Fabre, Roche, Sanofi, Seagen, and Menarini-Stemline	Advisory board participation / receipt of consultation fees
GBG Forschungs GmbH	Employment
VMscope GmbH	Receipt of licensing fees

DESTINY-Breast09 study design

A randomized, multicenter, open-label,* Phase 3 study (NCT04784715)^{1,2}



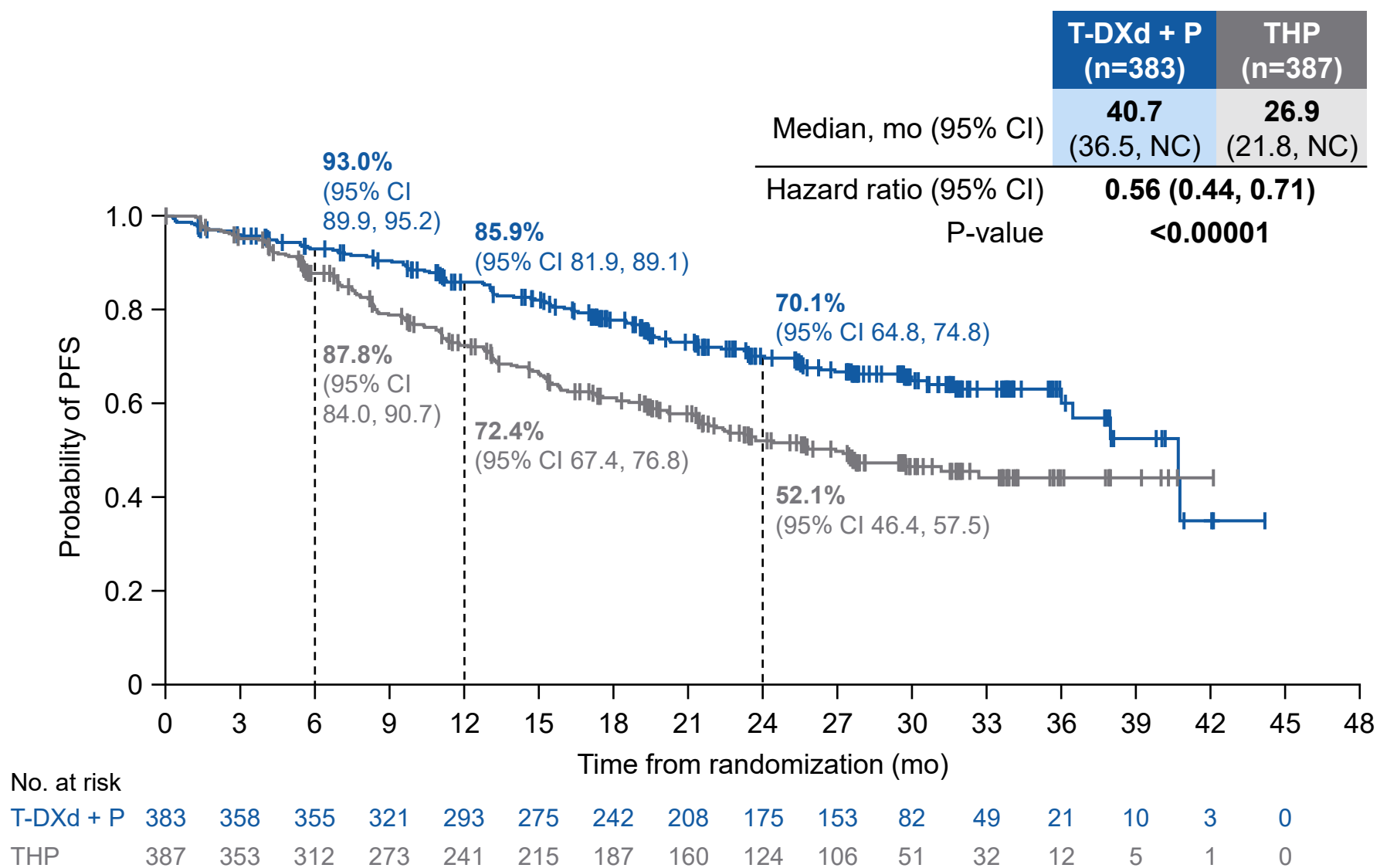
*Open label for THP arm, double blinded for pertuzumab in experimental arms; [†]5.4 mg/kg Q3W; [‡]840 mg loading dose, then 420 mg Q3W; [§]paclitaxel 80 mg/m² QW or 175 mg/m² Q3W, or docetaxel 75 mg/m² Q3W for a minimum of six cycles or until intolerable toxicity; [¶]8 mg/kg loading dose, then 6 mg/kg Q3W; ^{||}without loading dose

1L, first-line; AE, adverse event; a/mBC, advanced/metastatic breast cancer; BICR, blinded independent central review; BM, brain metastasis; DFI, disease-free interval; DOR, duration of response; ET, endocrine therapy; HER2+, human epidermal growth factor receptor 2–positive; HR+/-, hormone receptor–positive/-negative; ILD, interstitial lung disease; INV, investigator; mo, months; ORR, objective response rate; OS, overall survival; PFS, progression-free survival; PFS2, second progression-free survival; *PIK3CAm*, *PIK3CA* mutation; Q3W, every 3 weeks; QW, once weekly; R, randomization; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab
1. Tolaney SM, et al. Oral presentation at ASCO 2025 (Abstract LBA1008); 2. NCT04784715. Updated. August 1, 2025. Available from: <https://clinicaltrials.gov/study/NCT04784715> (Accessed October 15, 2025)

Background: DESTINY-Breast09 primary results

- T-DXd + P demonstrated a statistically significant and clinically meaningful **improvement in PFS by BICR vs THP**¹
- Early OS data suggest a positive trend favoring T-DXd + P, with a **supportive hazard ratio of 0.60 for PFS2**¹
- A consistent PFS benefit with T-DXd + P was also observed across **stratification factors**¹
 - **Recurrent disease / prior treatment** (~50% of patients in this setting²)
 - **HR-negative status** (~50% of patients³)
 - **PIK3CA mutation** (~30% of patients^{4,5})
- T-DXd + P safety data were consistent with known profiles of individual treatments¹

DESTINY-Breast09 interim analysis (DCO February 26, 2025) PFS by BICR: primary endpoint¹



BICR, blinded independent central review; CI, confidence interval; DCO, data cutoff; HR, hormone receptor; mo, months; NC, not calculable; OS, overall survival; P, pertuzumab; PFS, progression-free survival; PFS2, second progression-free survival; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab
1. Tolaney SM, et al. Oral presentation at ASCO 2025 (Abstract LBA1008); 2. Tripathy D, et al. *Oncologist*. 2020;25:e214–e222; 3. Baselga J, et al. *N Engl J Med*. 2012;366:109–119;
4. Baselga J, et al. *J Clin Oncol*. 2014;32:3753–3761; 5. Swain S, et al. *Cancer Res*. 2023;83(Suppl. 5):P2-11-07 (Abstract)

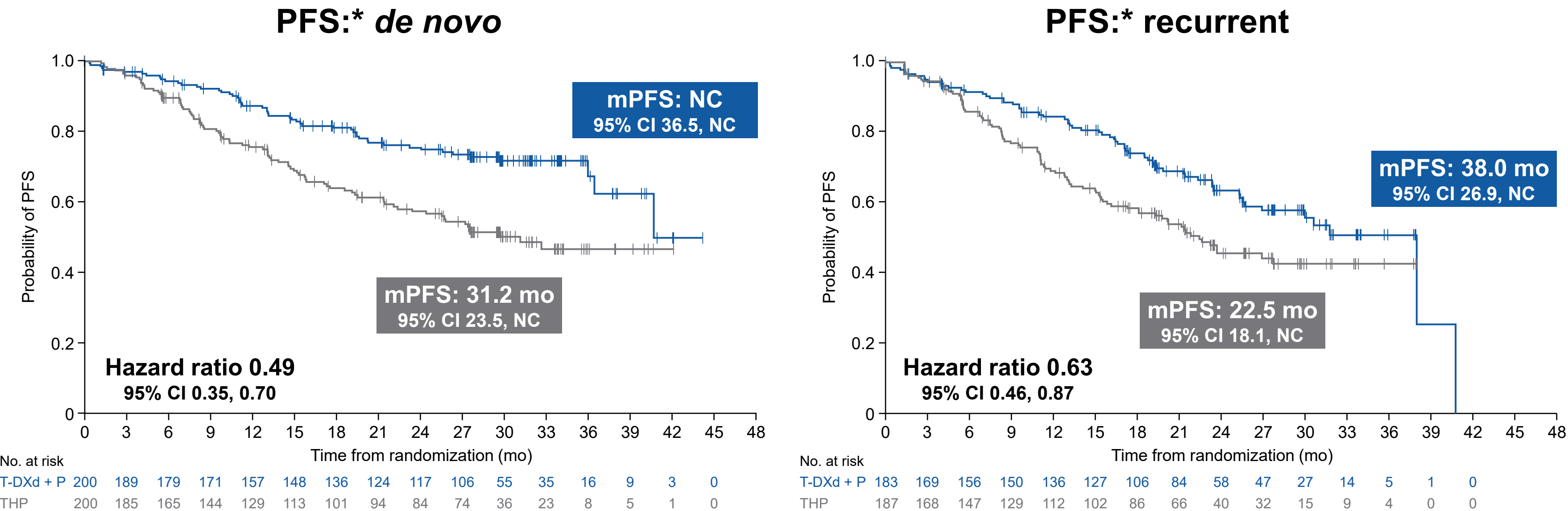
Key baseline disease characteristics by subgroup

Prior treatment status					HR status				PIK3CAm status			
De novo		Recurrent		n (%)	HR+		HR-		Detected		Not detected	
T-DXd + P	THP	T-DXd + P	THP		T-DXd + P	THP	T-DXd + P	THP	T-DXd + P	THP	T-DXd + P	THP
(n=200)	(n=200)	(n=183)	(n=187)		(n=207)	(n=209)	(n=176)	(n=178)	(n=116)	(n=121)	(n=266)*	(n=266)
ECOG PS score												
0					141 (68.1)	129 (61.7)	115 (65.3)	117 (65.7)	71 (61.2)	76 (62.8)	185 (69.5)	170 (63.9)
1					66 (31.9)	80 (38.3)	61 (34.7)	61 (34.3)	45 (38.8)	45 (37.2)	81 (30.5)	96 (36.1)
Brain mets [†]					10 (4.8)	7 (3.3)	15 (8.5)	15 (8.4)	8 (6.9)	6 (5.0)	17 (6.4)	16 (6.0)
Visceral mets					147 (71.0)	141 (67.5)	134 (76.1)	127 (71.3)	75 (64.7)	77 (63.6)	205 (77.1)	191 (71.8)
Prior treatment status												
De novo					112 (54.1)	106 (50.7)	88 (50.0)	94 (52.8)	54 (46.6)	55 (45.5)	146 (54.9)	145 (54.5)
Recurrent					95 (45.9)	103 (49.3)	88 (50.0)	84 (47.2)	62 (53.4)	66 (54.5)	120 (45.1)	121 (45.5)
HR status												
Positive [‡]									61 (52.6)	64 (52.9)	146 (54.9)	145 (54.5)
Negative									55 (47.4)	57 (47.1)	120 (45.1)	121 (45.5)
PIK3CAm status												
Detected					61 (29.5)	64 (30.6)	55 (31.3)	57 (32.0)				
Not detected					146 (70.5)	145 (69.4)	120 (68.2)*	121 (68.0)				

Treatment arms were well balanced according to key disease characteristics

*One patient had missing PIK3CAm status; [†]participants were eligible if they had brain metastases that were clinically inactive or treated/asymptomatic; [‡]defined as estrogen receptor–positive and/or progesterone receptor–positive (≥1%)
CI, confidence interval; ECOG PS, Eastern Cooperative Oncology Group performance status; HR(+/-), hormone receptor(–positive/–negative); mets, metastases; mo, months; NC, not calculable; P, pertuzumab;
PIK3CAm, PIK3CA mutation; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

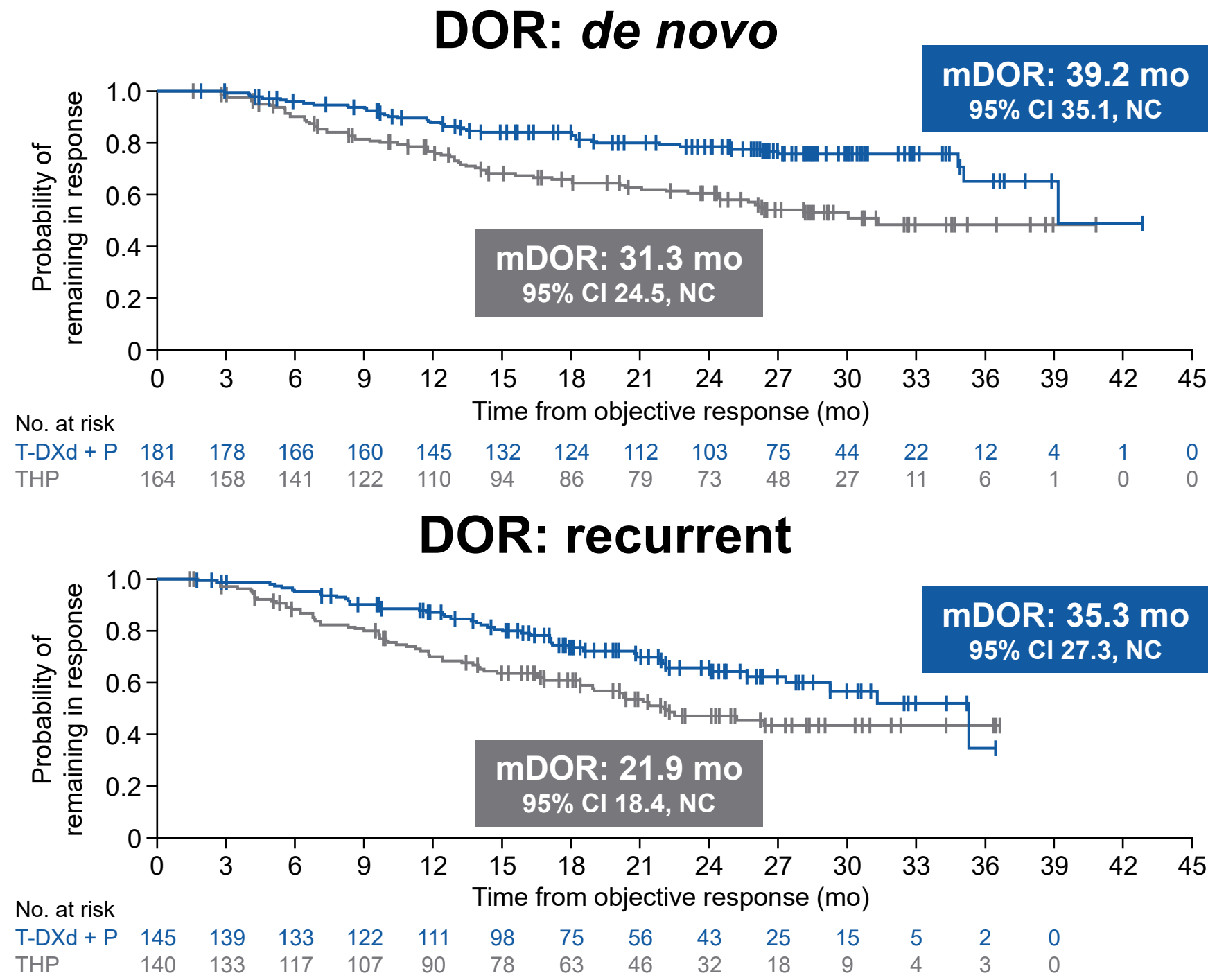
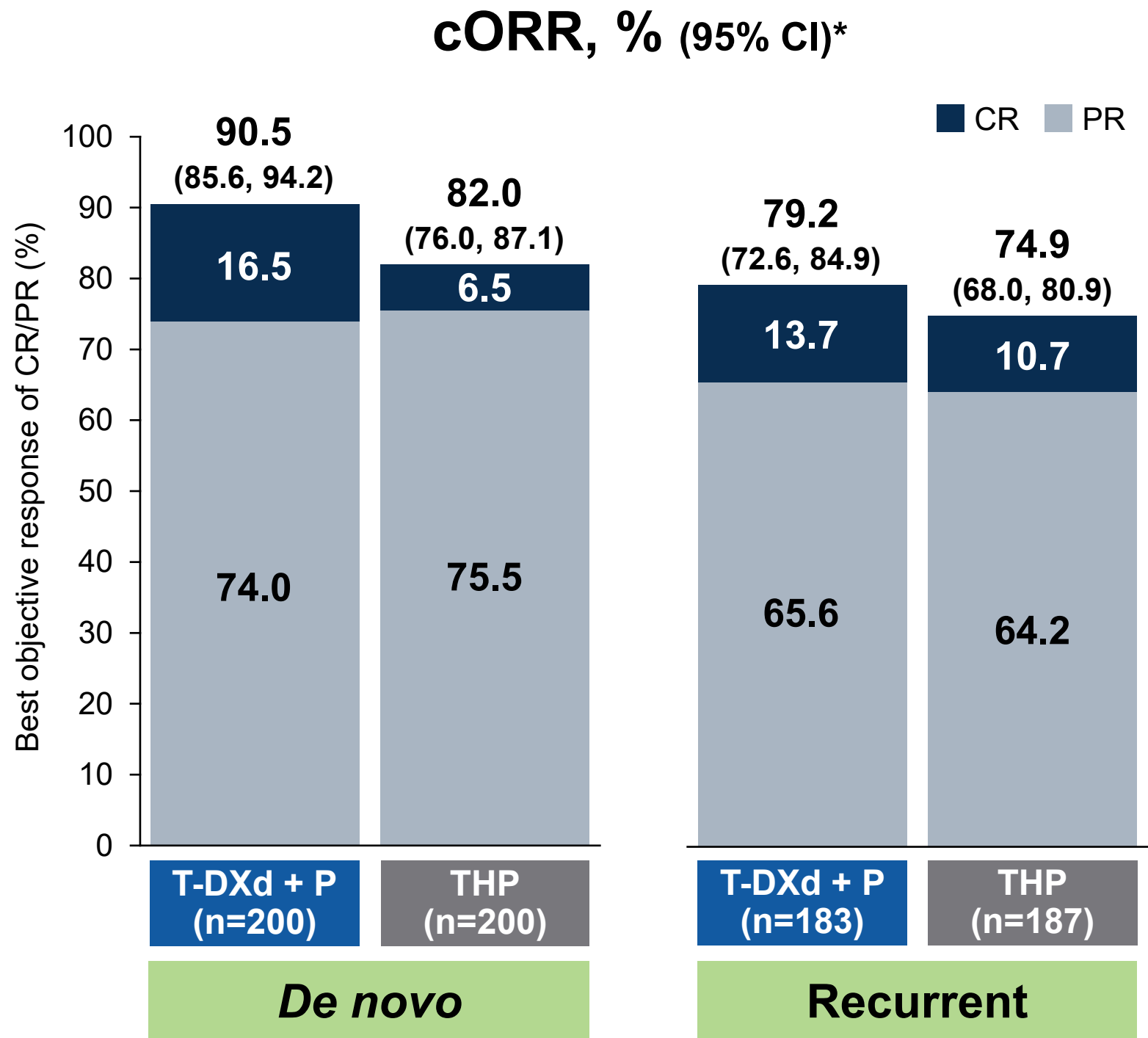
PFS by prior treatment status



T-DXd + P demonstrated a clinically meaningful PFS benefit vs THP regardless of de-novo or recurrent status

*By blinded independent central review
CI, confidence interval; mPFS, median progression-free survival; mo, months; NC, not calculable; P, pertuzumab; PFS, progression-free survival; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

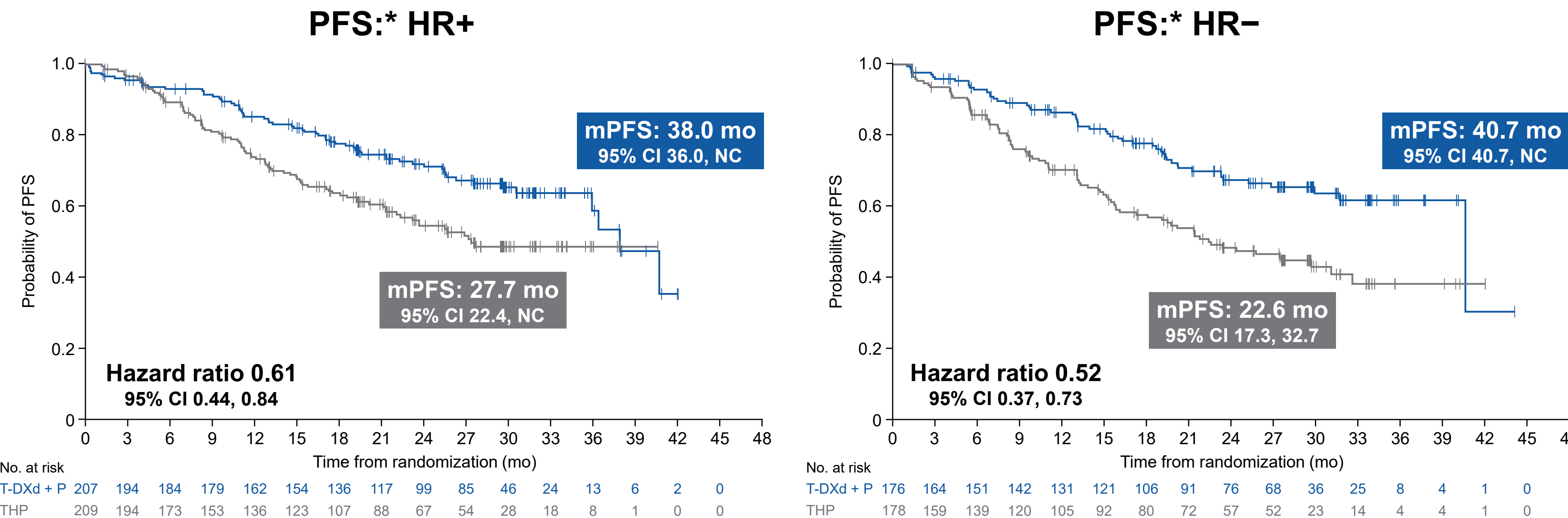
cORR and DOR by prior treatment status



CR rates and DOR favored T-DXd + P vs THP regardless of prior treatment status

*By blinded independent central review
CI, confidence interval; cORR, confirmed objective response rate; CR, complete response; DOR, duration of response; mDOR, median duration of response; mo, months; NC, not calculable; P, pertuzumab; PR, partial response; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

PFS by HR status

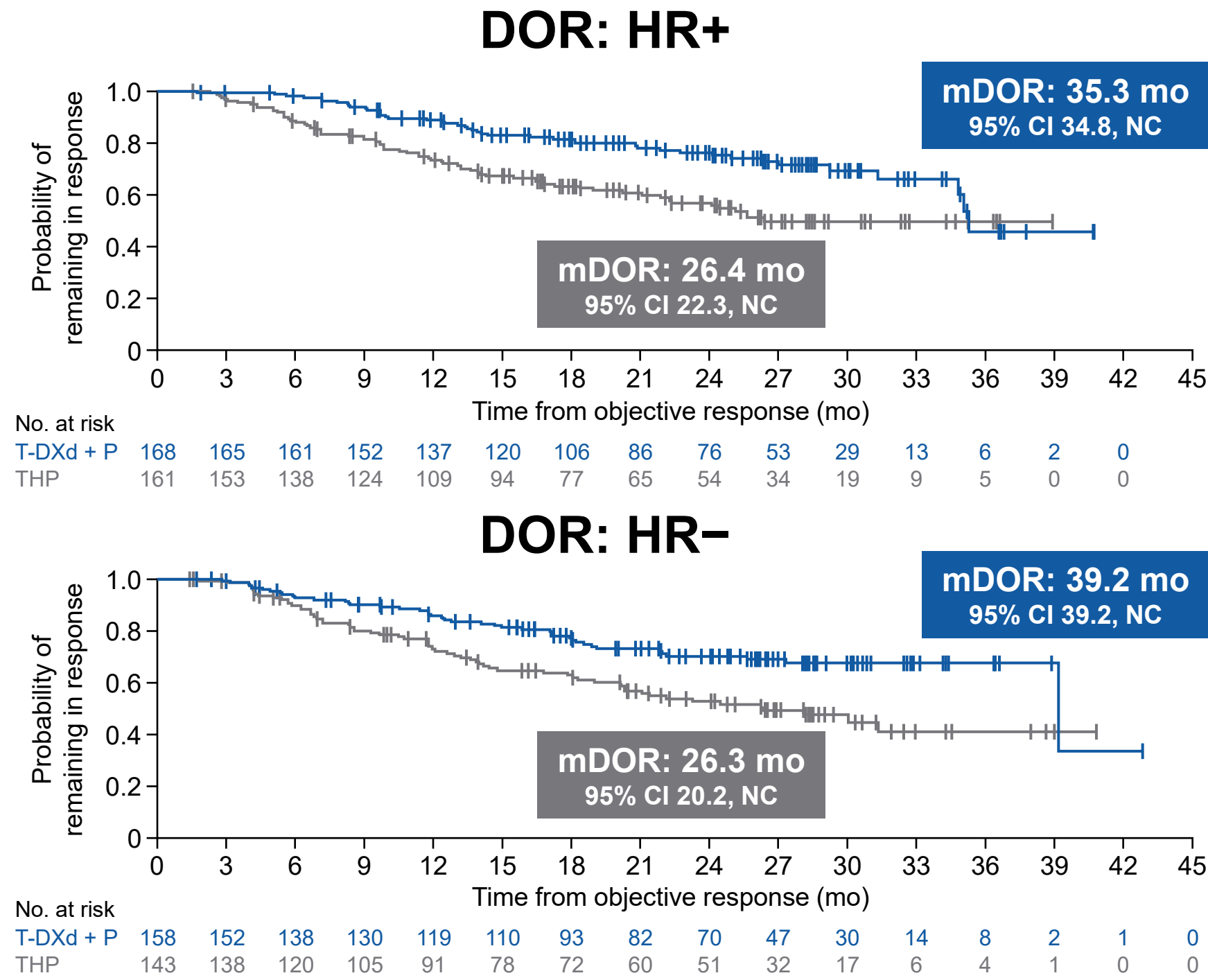
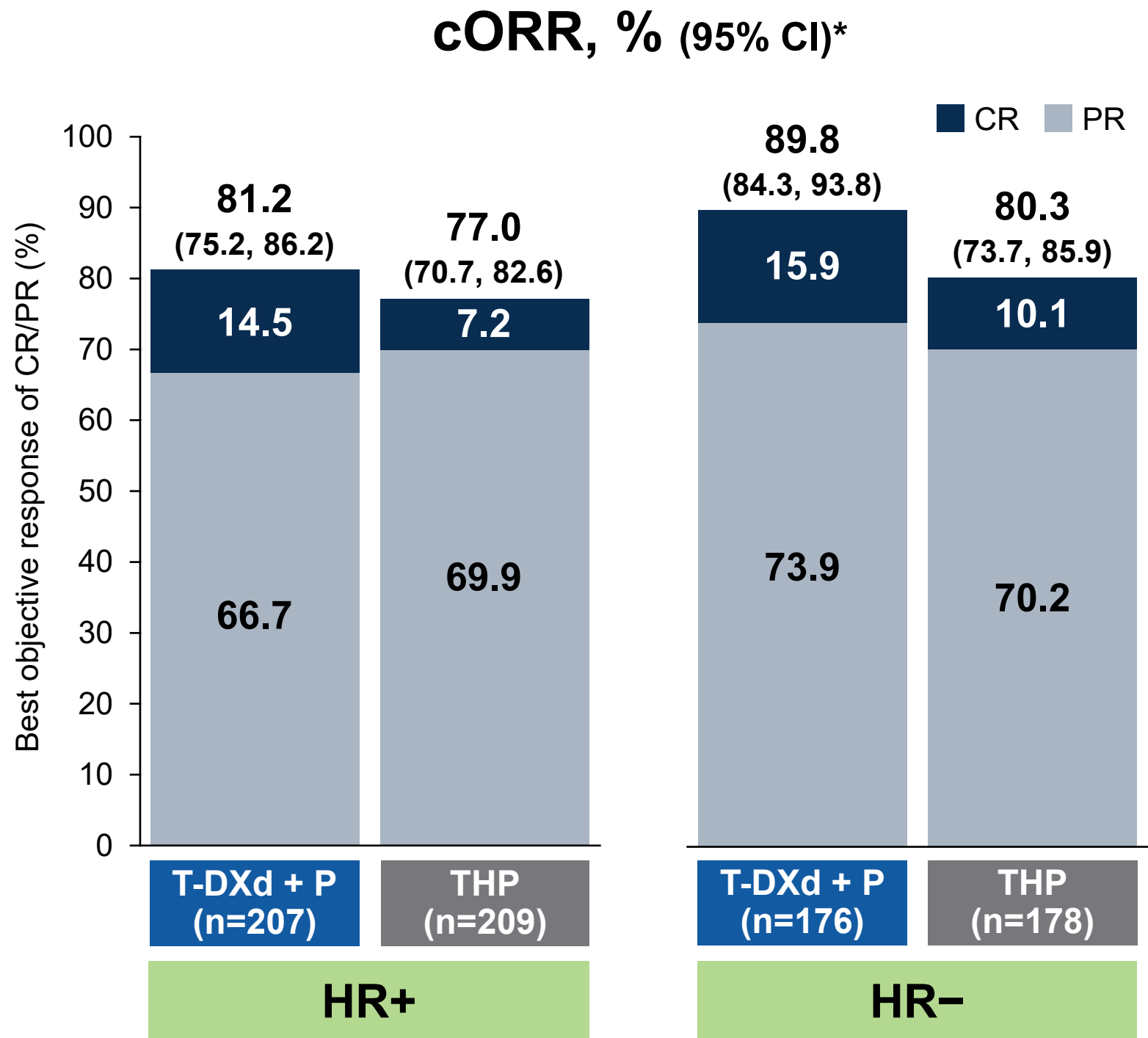


Patients with HR+ disease could receive concurrent ET after six cycles of T-DXd or discontinuation of taxane, which occurred in **13.5% (T-DXd + P)** versus **38.3% (THP)** of patients

T-DXd + P demonstrated a clinically meaningful PFS benefit vs THP regardless of HR status

*By blinded independent central review
CI, confidence interval; ET, endocrine therapy; HR(+/-), hormone receptor(–positive/–negative); mPFS, median progression-free survival; mo, months; NC, not calculable; P, pertuzumab;
PFS, progression-free survival; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

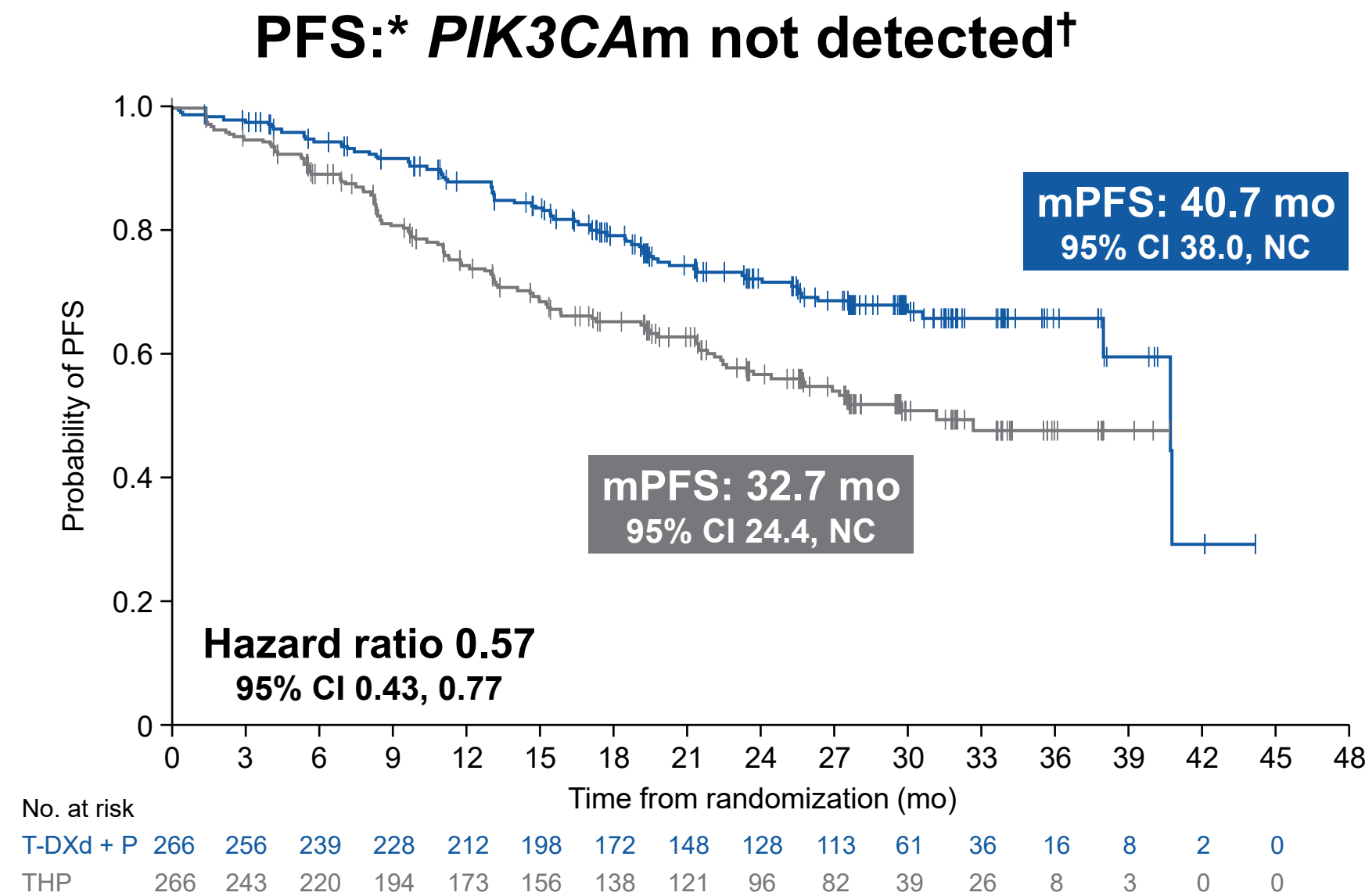
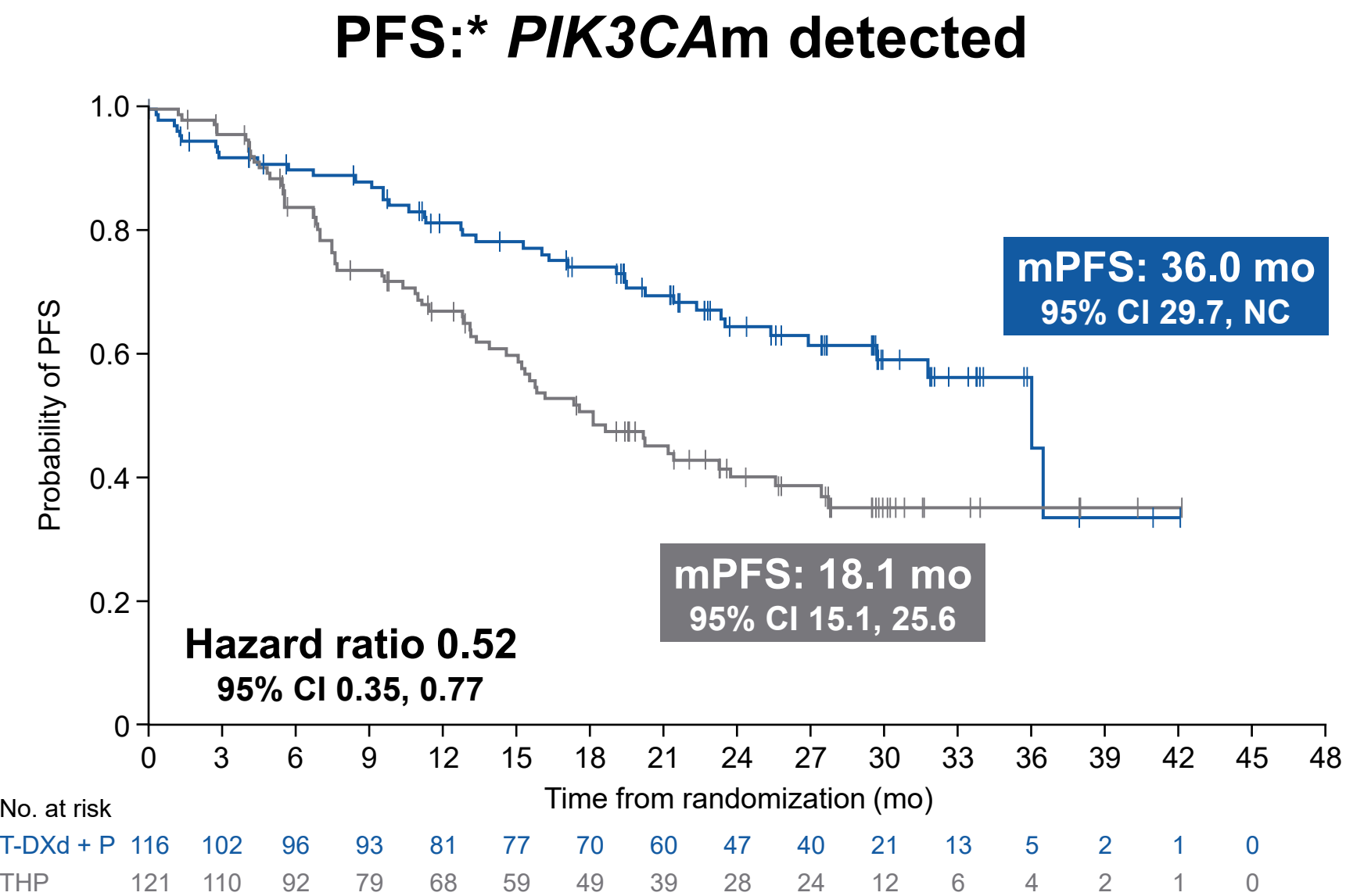
cORR and DOR by HR status



CR rates and DOR favored T-DXd + P vs THP regardless of HR status

*By blinded independent central review
CI, confidence interval; cORR, confirmed objective response rate; CR, complete response; DOR, duration of response; HR(+/-), hormone receptor(–positive/–negative); mDOR, median duration of response; mo, months; NC, not calculable; P, pertuzumab; PR, partial response; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

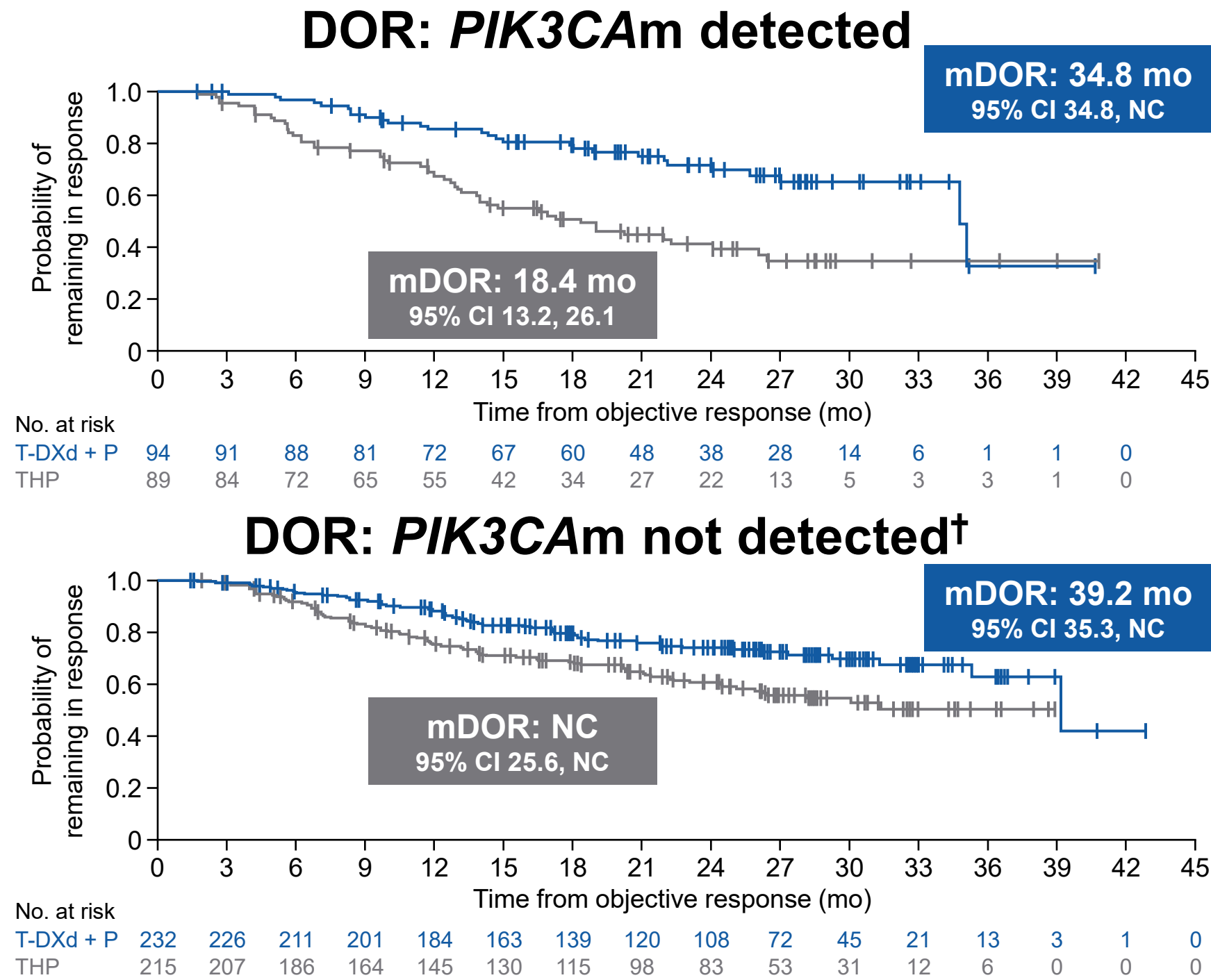
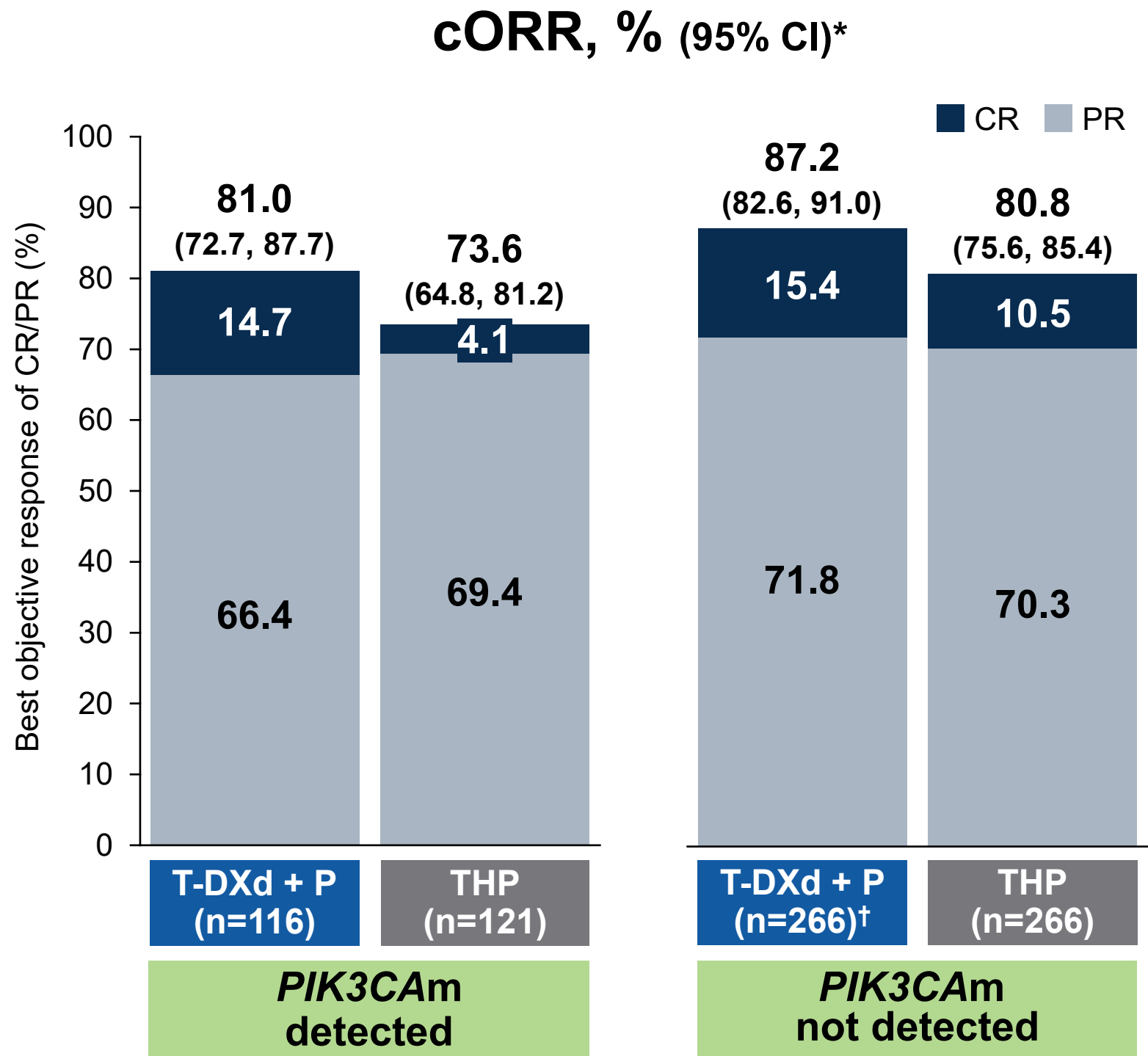
PFS by *PIK3CA*m status



T-DXd + P demonstrated a clinically meaningful PFS benefit vs THP regardless of *PIK3CA*m status

*By blinded independent central review; †one patient in the T-DXd + P arm had missing *PIK3CA*m status
CI, confidence interval; mo, months; mPFS, median progression-free survival; NC, not calculable; P, pertuzumab; PFS, progression-free survival; *PIK3CA*m, *PIK3CA* mutation;
T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

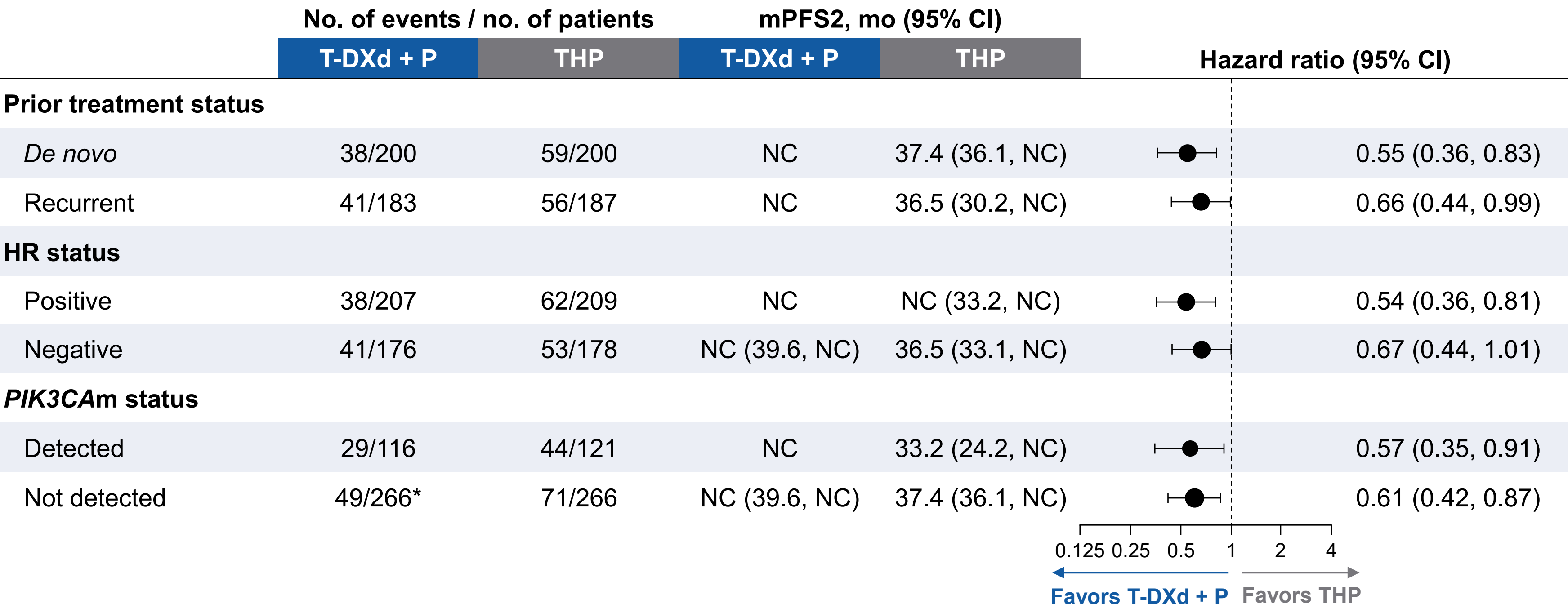
cORR and DOR by *PIK3CA*m status



CR rates and DOR favored T-DXd + P vs THP regardless of *PIK3CA*m status

*By blinded independent central review; †one patient in the T-DXd + P arm had missing *PIK3CA*m status
CI, confidence interval; cORR, confirmed objective response rate; CR, complete response; DOR, duration of response; mDOR, median duration of response; mo, months;
NC, not calculable; P, pertuzumab; *PIK3CA*m, *PIK3CA* mutation; PR, partial response; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

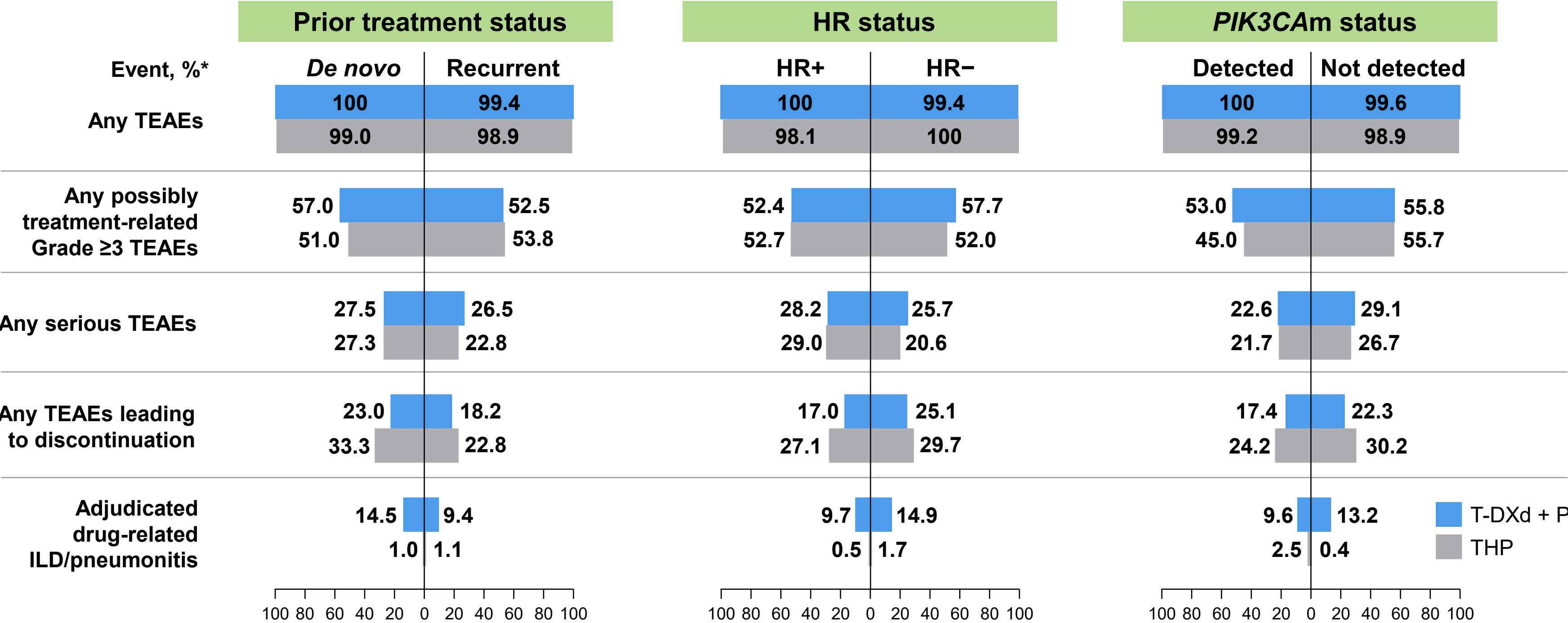
PFS2 by subgroup



Clinically meaningful improvement in PFS2 with T-DXd + P vs THP across subgroups

*One patient in the T-DXd + P arm had missing *PIK3CAm* status. Size of circle is proportional to the number of events. PFS2 was defined by investigators according to local standard clinical practice as the time from randomization to second progression (earliest progression event following first subsequent therapy) or death
CI, confidence interval; HR, hormone receptor; mo, months; mPFS2, median second progression-free survival; NC, not calculable; P, pertuzumab; PFS2, second progression-free survival;
PIK3CAm, *PIK3CA* mutation; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

Safety summary by subgroup



Safety profiles in subgroups were in line with the overall safety population

*Includes TEAEs with an onset date on or after the date of first dose and up to and including 47 days following the date of last dose of study medication or before the initiation of the first subsequent cancer therapy (whichever occurs first). Safety analyses included all patients who received at least one dose of study medication (at least one study drug). HR(+/-), hormone receptor(-positive/-negative); ILD, interstitial lung disease; P, pertuzumab; PIK3CAm, PIK3CA mutation; T-DXd, trastuzumab deruxtecan; TEAE, treatment-emergent adverse event; THP, taxane + trastuzumab + pertuzumab

Conclusions

- In this subgroup analysis of DESTINY-Breast09, 1L treatment with T-DXd + P demonstrated a clinically meaningful PFS benefit vs THP regardless of prior treatment, HR, or *PIK3CA*m status, reflecting results in the overall population
- DOR consistently favored T-DXd + P (**median of ~3 years**), and CR rates were higher with T-DXd + P (**13.7–16.5%**) than THP (**4.1–10.7%**) in all subgroups
- No new safety signals were identified for T-DXd + P; safety outcomes for each arm were broadly similar across subgroups and in line with the overall population

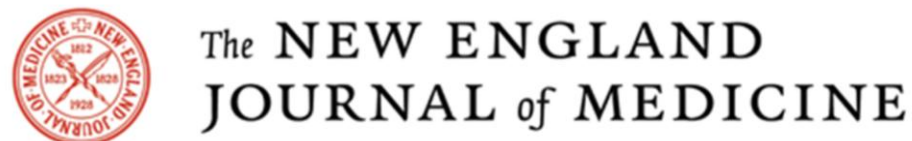
T-DXd + P represents an effective 1L treatment for patients with HER2+ a/mBC, regardless of prior treatment, HR, or *PIK3CA*m status

1L, first-line; a/mBC, advanced/metastatic breast cancer; CR, complete response; DOR, duration of response; HER2+, human epidermal growth factor receptor 2–positive; HR, hormone receptor; P, pertuzumab; PFS, progression-free survival; *PIK3CA*m, *PIK3CA* mutation; T-DXd, trastuzumab deruxtecan; THP, taxane + trastuzumab + pertuzumab

Acknowledgments

Thank you to the patients and their families for their participation and the study-site staff for their contributions, as well as Members of the Independent Data Monitoring Committee and the Interstitial Lung Disease Adjudication Committee

**DESTINY-Breast09
primary manuscript
available at NEJM.org
on 29 October 2025**



ORIGINAL ARTICLE

Trastuzumab Deruxtecan plus Pertuzumab
for HER2-Positive Metastatic Breast Cancer

Sara M. Tolaney, M.D.,¹ Zefei Jiang, M.D.,² Qingyuan Zhang, M.D.,³
Romualdo Barroso-Sousa, M.D.,⁴ Yeon Hee Park, M.D.,⁵
Mothaffar F. Rimawi, M.D.,⁶ Cristina Saura, M.D.,⁷ Andreas Schneeweiss, M.D.,⁸
Masakazu Toi, M.D.,⁹ Yee Soo Chae, M.D.,¹⁰ Yasemin Kemal, M.D.,¹¹
Mukesh Chaudhari, M.D.,¹² Mehmet A.N. Şendur, M.D.,¹³
Toshinari Yamashita, M.D.,¹⁴ Monica Casalnuovo, M.D.,¹⁵
Michael A. Danso, M.D.,¹⁶ Jie Liu, Ph.D.,¹⁷ Jagdish Shetty, M.D.,¹⁸
Pia Herbolzheimer, M.D.,¹⁸ and Sibylle Loibl, M.D.,¹⁹
for the DESTINY-Breast09 Trial Investigators*

This study was sponsored and designed by:

AstraZeneca
Daiichi Sankyo

Medical writing support was funded by AstraZeneca and provided by:

Conor O'Boyle, PhD, of Helios Medical Communications, part of the Helios Global Group

Sibylle Loibl, MD, PhD

Content of this presentation is copyright and responsibility of the author. Permission is required for re-use.

Scan the Quick Response (QR) code for:

- Presentation slides
- Plain language summary infographic



Copies of materials obtained through the QR code
are for personal use only and may not be
reproduced without permission from the author



DESTINY-Breast09



What is the purpose of the DESTINY-Breast09 key subgroups analysis?



In DESTINY-Breast09, **trastuzumab deruxtecan (T-DXd) + pertuzumab** was compared with standard therapy – known as **THP (taxane + trastuzumab + pertuzumab)** – for people with **advanced/metastatic breast cancers** that have a higher-than-normal level of a protein called HER2 (known as '**HER2-positive**'). This was the first treatment (**first line**) these people received for advanced/metastatic breast cancer, although people were permitted to have had one hormone therapy.

In an interim analysis of DESTINY-Breast09 (reported in June 2025), people in the **T-DXd + pertuzumab** arm lived longer without their disease growing, spreading, or getting worse than people in the **THP** arm



People in the study could have cancers that were **newly diagnosed or recurrent**, **hormone receptor-positive (HR+) or -negative (HR-)**, or that **did or did not have a detectable PIK3CA mutation**. These characteristics can affect how a cancer progresses and how it responds to treatment. The aim of this analysis was to find out how well each treatment performed according to these characteristics.

What did this subgroup analysis show?

People in the T-DXd + pertuzumab arm lived longer without cancer progression than those in the THP arm, regardless of whether they had newly diagnosed or recurrent cancer, HR+ or HR- cancer, or cancer with or without a detectable PIK3CA mutation. These characteristics did not affect the safety of each treatment

How was the DESTINY-Breast09 key subgroups analysis carried out?

Start of study



Before the study, people and their cancers were assessed to find out which of the **newly diagnosed / recurrent**, **HR**, and **PIK3CA mutation** categories they belonged to:



~5 in 10 (52%) people had **newly diagnosed** advanced/metastatic breast cancer



~5 in 10 (54%) people had cancers that were **HR+**



~3 in 10 (31%) people had cancers with a **detected PIK3CA mutation**

People were randomly assigned to receive either **T-DXd + pertuzumab (n=383)** or **THP (n=387)***

*There was another group of people who received T-DXd **without** pertuzumab, which will be evaluated versus THP in a future analysis

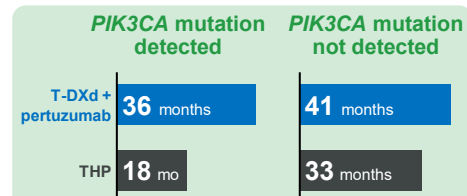
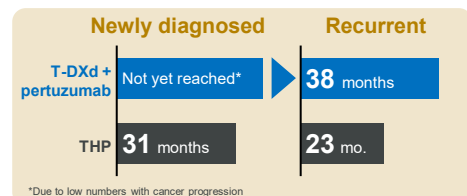
Overall balance of subgroups



The **newly diagnosed vs recurrent**, **HR+ vs HR-**, and **PIK3CA mutation detected vs not detected** groups all had different numbers of people but, within each pair that were compared, a similar number received T-DXd + pertuzumab or THP

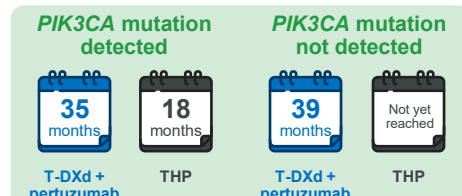
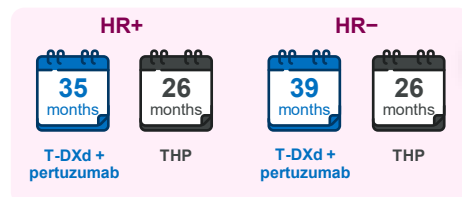
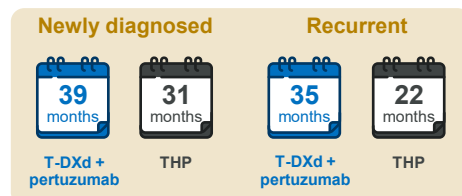
Time without progression

The timepoint after randomization at which half of the people were expected to be alive without cancer progression (known as **median progression-free survival**) was:



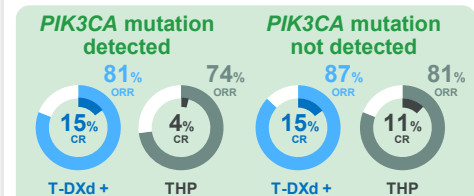
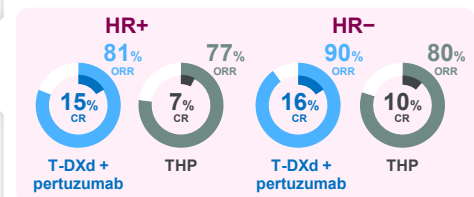
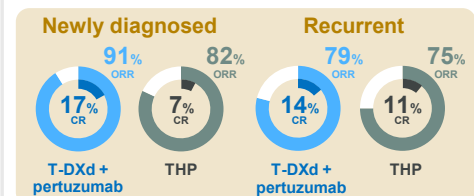
Duration of response

The expected length of time for which at least half the people who responded to treatment continued to respond (known as **median duration of response**) was:



Response to treatment

The proportions of people with at least a **30% decrease in tumor size (objective response rate [ORR])** and who had **no signs of cancer after treatment (complete response [CR])** were:



Safety



No new safety signals were identified; safety outcomes for each treatment arm were broadly similar across subgroups and in line with the overall population

What's next?



The study will continue to explore T-DXd with and without pertuzumab compared with THP at longer follow up, and will also look at efficacy and safety in more subgroups

How do the results of this analysis help to improve the treatment of cancer?

Data showed that T-DXd + pertuzumab was beneficial for a broad range of people with HER2-positive advanced/metastatic breast cancer, supporting use of this combination as a new first-line treatment option

Where can I access more information?

DESTINY-Breast09 ClinicalTrials.gov identifier [NCT04784715](https://clinicaltrials.gov/ct2/show/study/NCT04784715)

This summary is based on an oral presentation by Professor Sibylle Loibl at the 2025 European Society For Medical Oncology (ESMO) Annual Meeting (Presentation LBA18). This summary, and the results of this analysis, have not yet been peer reviewed. The authors would like to thank the patients and their families who participated in the DESTINY-Breast09 study and the investigators, co-investigators, and study staff. Date of summary: October 2025. The DESTINY-Breast09 study was sponsored by AstraZeneca. In March 2019, AstraZeneca entered into a global development and commercialization collaboration agreement with Daiichi Sankyo for trastuzumab deruxtecan (T-DXd; DS-8201). This plain language summary was prepared by Stephen Purver, MChem, and Conor O'Boyle, PhD (Helios Medical Communications, part of the Helios Global Group), and was funded by AstraZeneca