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# **EARLY TREATMENT INTENSIFICATION FOR METASTATIC CASTRATION SENSITIVE PROSTATE CANCER: OPTIMISING PATIENT SELECTION AND TREATMENT**

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# EDUCATIONAL OBJECTIVES

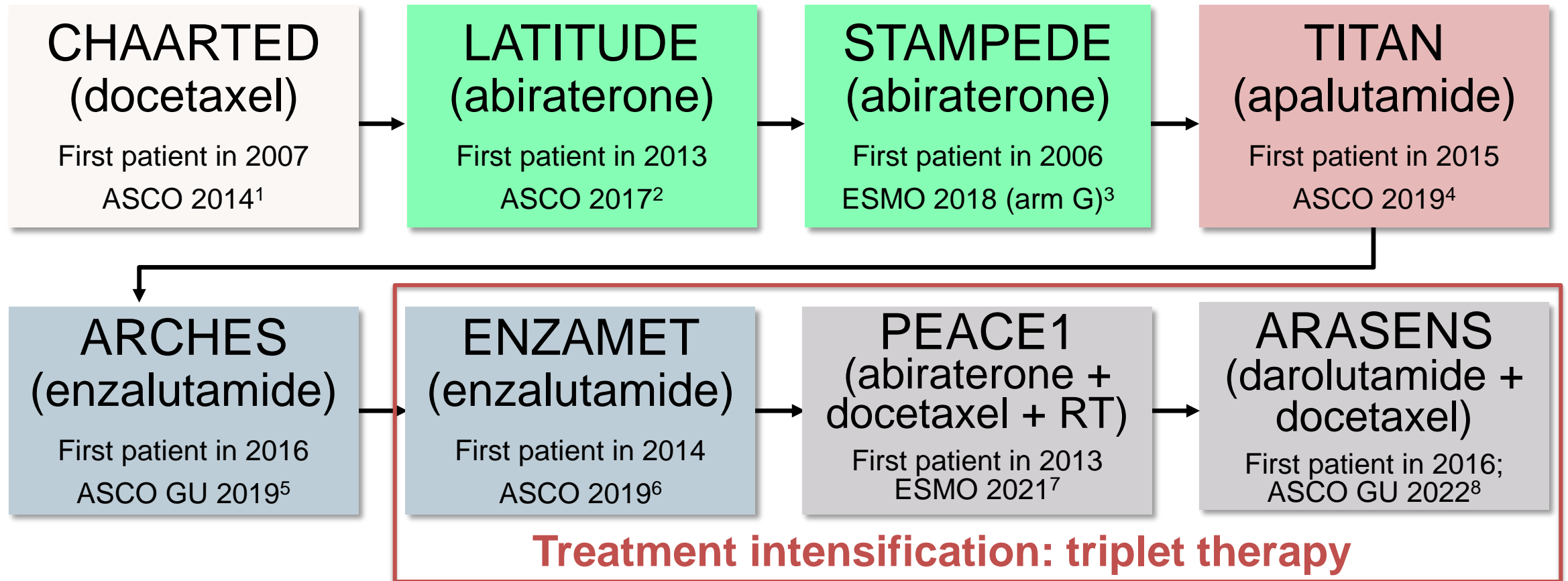
- Recognise how the mCSPC treatment landscape has evolved highlighting the need for treatment intensification
- Understand the available data and how this can be applied to select the most appropriate treatment for mCSPC patients

# CLINICAL TAKEAWAYS

- ADT alone is no longer sufficient treatment for mCSPC patients
- Treatment intensification with either doublet or triplet therapy should occur
- Patients with *de novo*, high-volume disease who are fit for chemotherapy should be considered for triplet therapy with ADT + docetaxel + NHA
- Patients who are unfit for chemotherapy or have low volume disease should be considered for doublet therapy with ADT + NHA

# mCSPC: EVOLVING TREATMENT LANDSCAPE

# THE DEVELOPMENT OF NOVEL HORMONE THERAPY AND CHEMOTHERAPY IN mCSPC



ADT, androgen deprivation therapy; ARPI, androgen receptor pathway inhibitor; ASCO, American Society of Clinical Oncology; ESMO, European Society for Medical Oncology; GU, genitourinary; mCSPC, metastatic castration-sensitive prostate cancer; RT, radiation therapy

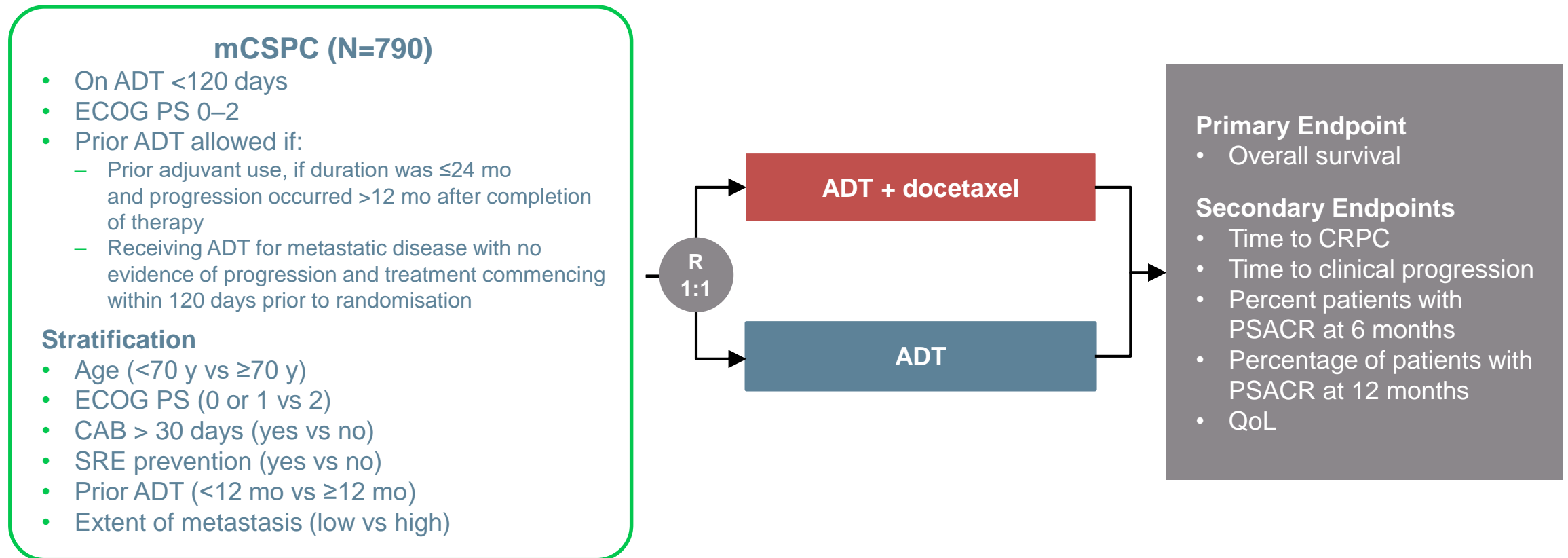
1. Sweeney C, et al. J Clin Oncol. 2014;32(5s):(suppl; abstr LBA2); 2. Fizazi K, et al. J Clin Oncol. 2017;35(suppl):LBA3; 3. Hoyle AP, et al. Ann Oncol. 2018;29(suppl 8):viii722 (abstract LBA4);

4. Chi KN, et al. J Clin Oncol. 2019;37(suppl):5006; 5. Armstrong AJ, et al. J Clin Oncol. 2019;37(suppl 7S):687; 6. Sweeney C, et al. J Clin Oncol. 2019;37(suppl):LBA2;

7. Fizazi K, et al. Abstract #LBA5\_PR. ESMO 2021. Oral presentation; 8. Smith M, et al. J Clin Oncol 2022; 40, (suppl 6; abstr 13) (ASCO GU 2022, oral presentation)

# CHAARTED STUDY DESIGN

**CHAARTED:** Randomised phase 3 trial designed to determine whether docetaxel therapy at initiation of ADT in patients with mCSPC can increase overall survival compared with ADT alone



ADT, androgen deprivation therapy; CAB, combined androgen blockade; CRPC, castration-resistant prostate cancer; ECOG PS, Eastern Cooperative Oncology Group performance status; mCSPC, metastatic castration sensitive prostate cancer; mo, month; PSACR, prostate-specific antigen complete response; QoL, quality of life;

R, randomisation; SRE, skeletal-related event; y, year

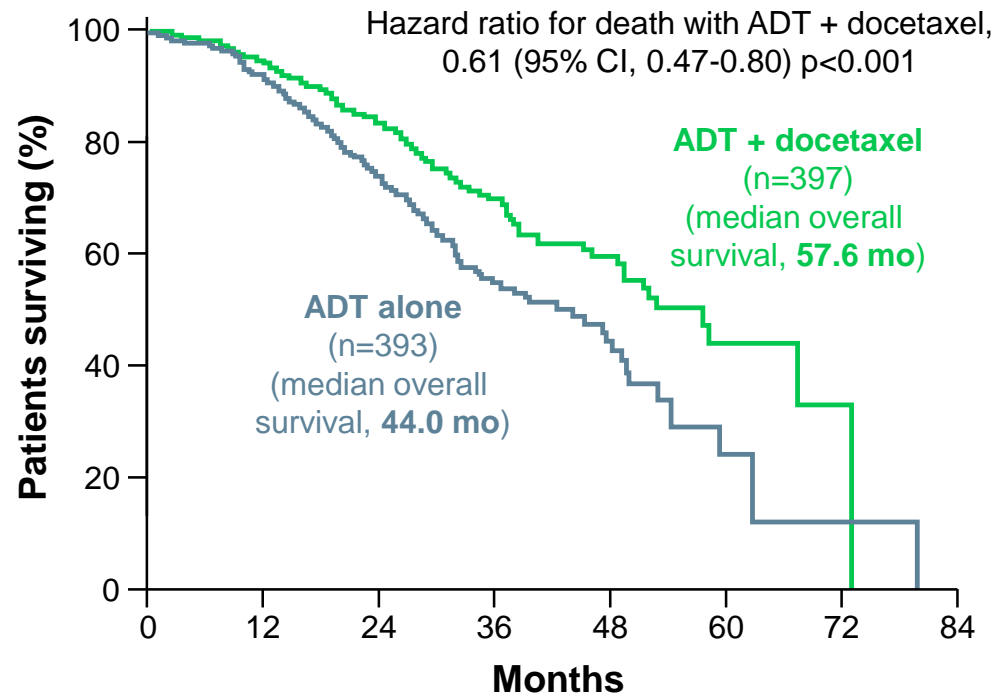
Sweeney CJ, et al. N Engl J Med. 2015;373:737-46



# CHAARTED: COMBINATION ADT + DOCETAXEL RESULTED IN SIGNIFICANTLY LONGER OVERALL SURVIVAL THAN ADT ALONE

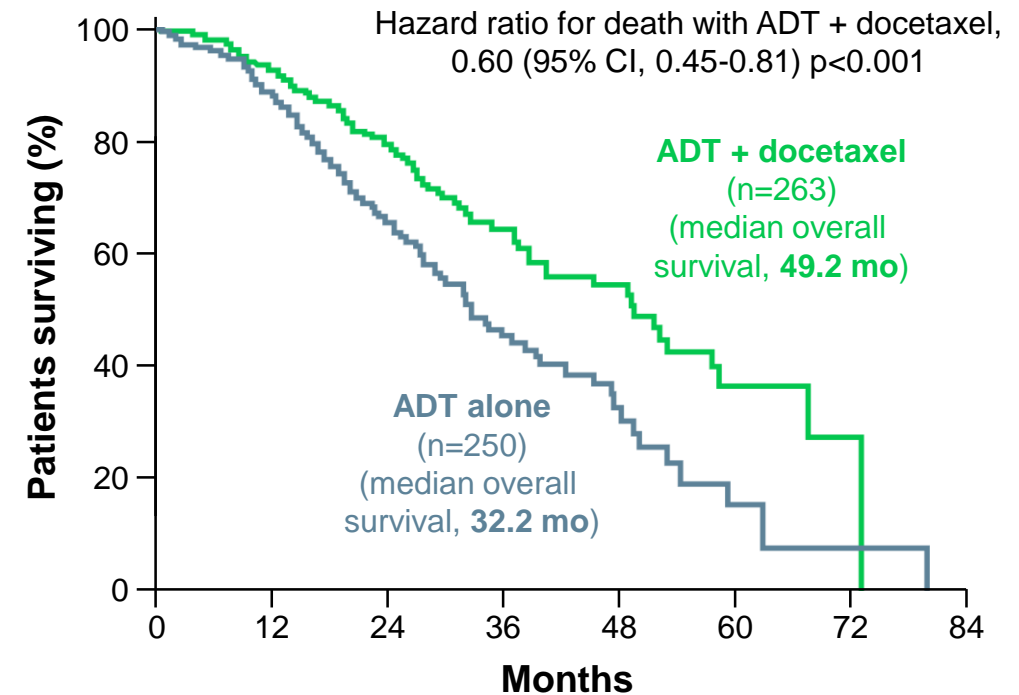
## Median Overall Survival – All Patients

**13.6** months longer with ADT + docetaxel



## Median Overall Survival – High-Volume Disease<sup>a</sup>

**17.0** months longer with ADT + docetaxel



<sup>a</sup> High-volume disease was defined as the presence of visceral metastases or  $\geq 4$  bone metastases lesions with  $\geq 1$  beyond the vertebral bodies and pelvis

ADT, androgen deprivation therapy; CI, confidence interval; mo, months

Sweeney CJ, et al. N Engl J Med. 2015;373:737-46

# TREATMENT INTENSIFICATION: CONSIDERATIONS

# TREATMENT INTENSIFICATION – SUITABLE FOR WHICH PATIENTS?

- Fit for chemotherapy or not?
- High-volume or low-volume disease?
- Symptomatic or non-symptomatic?
- Contraindications to particular treatments or not?

# CONSIDERATIONS WHEN SELECTING BETWEEN ANDROGEN PATHWAY INHIBITORS

- **Abiraterone** – liver function test abnormalities, hypokalaemia, oedema, hypertension, hyperglycaemia (from exogenous glucocorticoids)<sup>1,2</sup>
- **Enzalutamide** – fatigue, falls, restless leg syndrome<sup>3,4</sup>
- **Apalutamide** – rash<sup>5,6</sup>
- **Darolutamide** – only approved in combination with docetaxel by FDA (can start up to 6 weeks prior to starting docetaxel), fewer unfavourable drug-drug interactions<sup>7,8,9</sup>

# POTENTIAL DRUG-DRUG INTERACTIONS OF NHA'S WITH COMMONLY USED PC MEDICATIONS

Interaction	Substrate	Substrate	Inducer	Inhibitor
	AR inhibitor increases plasma level of comedication May increase risk of AEs associated with comedication	AR inhibitor decreases plasma level of comedication May lead to a decrease in activity of comedication	Comedication decreases plasma level of AR inhibitor May lead to a decrease in activity of AR inhibitor	Comedication increases plasma level of AR inhibitor May increase risk of AEs associated with AR inhibitor

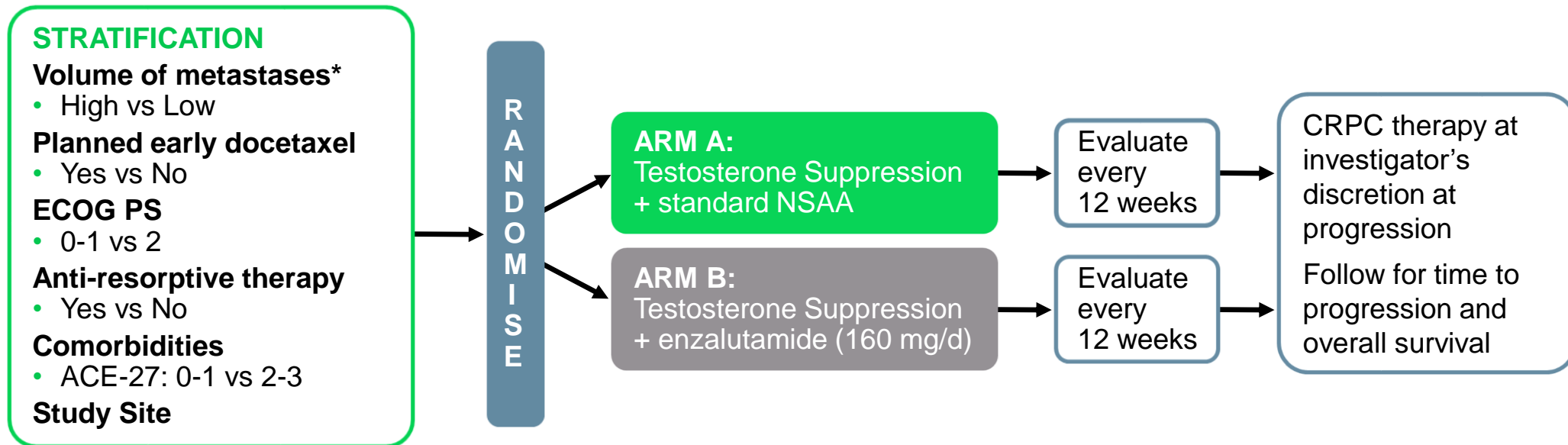
Medicinal product		Apalutamide	Enzalutamide	Darolutamide
<b>Antithrombotics</b>	Clopidogrel		X	
	Dabigatran	CAUTION	CAUTION	
	Rivaroxaban	X	X	
	Warfarin	X	X	
<b>Calcium channel blockers</b>	Amlodipine	CAUTION	CAUTION	
	Diltiazem		✓	
	Nifedipine, felodipine	X	X	
	Verapamil		CAUTION	
<b>Cardiac glycosides</b>	Digoxin	CAUTION	CAUTION	
<b>Proton pump inhibitor</b>	Omeprazole	X	X	
<b>Analgesics</b>	Fentanyl	CAUTION	X	
<b>Hypnotics</b>	Diazepam	X	X	
	Midazolam	X	X	
<b>Antipsychotics</b>	Haloperidol	X	X	
<b>Antibiotics</b>	Clarithromycin	CAUTION		CAUTION
	Rifampicin		X	X
<b>Anticonvulsants</b>	Carbamazepine		X	X
<b>Statins</b>	Rosuvastatin	CAUTION		X

**Note:** Recommendations provided in the US PI, EMA SPC, and NICE BNF. ✓ Comedication can be combined with AR inhibitor. X Avoidance or substitution of comedication is recommended. CAUTION indicates comedication should be administered with caution and/or dose adjustment based on efficacy/tolerability is recommended.

AE, adverse event; AR, androgen receptor; BNF, British National Formulary; EMA, European Medicines Agency; NICE, National Institute for Health and Care Excellence; PC, prostate cancer; PI, prescribing information; SPC, summary of product characteristics

# mCSPC TRIPLET THERAPY TRIALS

# ENZAMET STUDY DESIGN

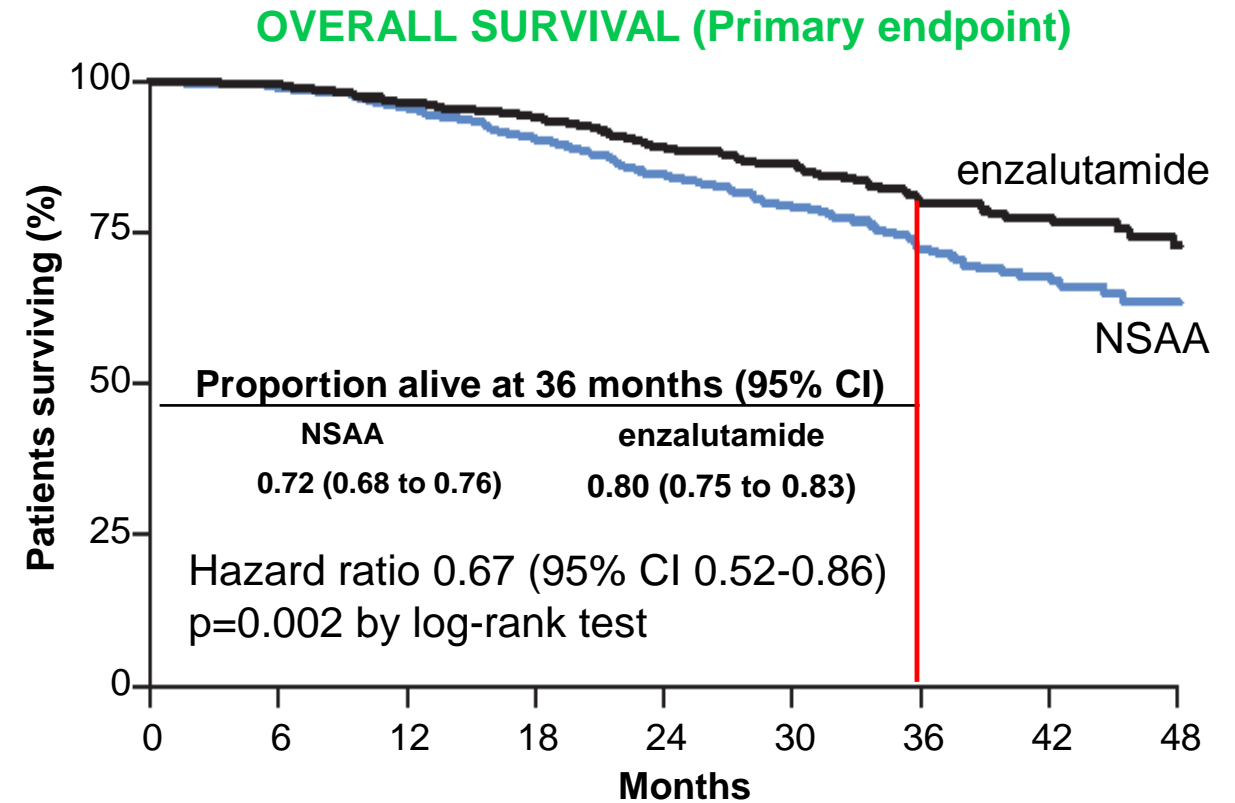
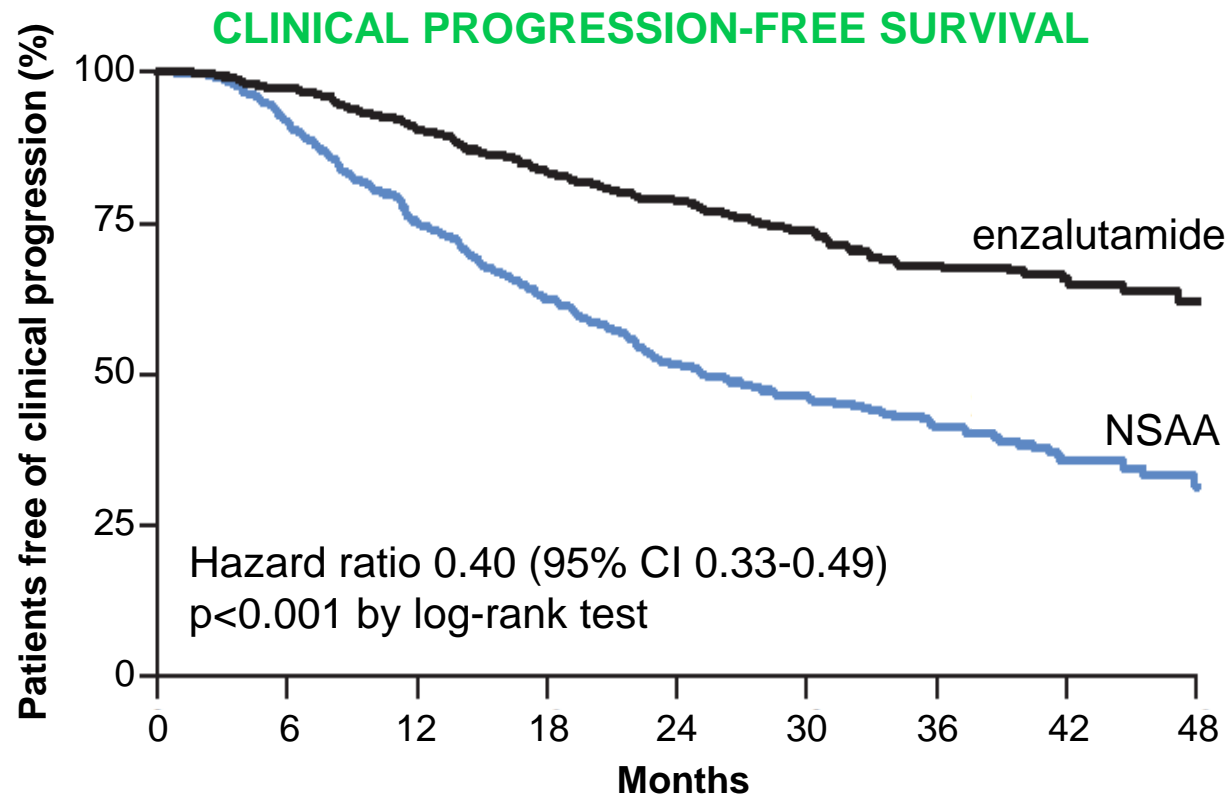


Prior to randomisation testosterone suppression up to 12 weeks and 2 cycles of docetaxel was allowed; intermittent ADT and cyproterone were not allowed; NSAA: bicalutamide; nilutamide; flutamide

\* High volume: visceral metastases and/or 4 or more bone metastases (at least 1 beyond pelvis and vertebral column);

# ENZAMET: ENZALUTAMIDE FOR mCSPC

- **Varied inclusion criteria:** high and low volume, *de novo* vs metachronous metastasis, concurrent docetaxel, many permutations

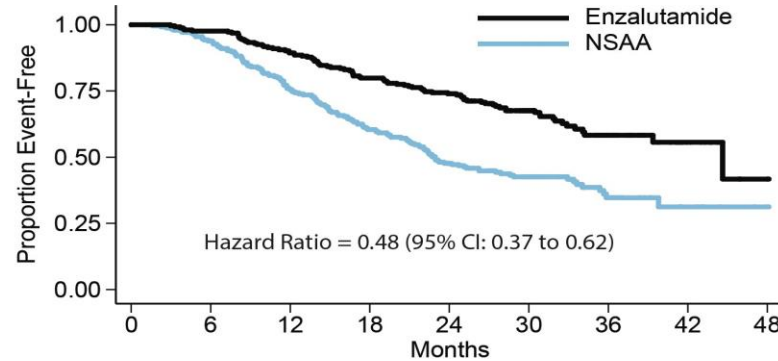




# ENZAMET: CONCURRENT DOCETAXEL

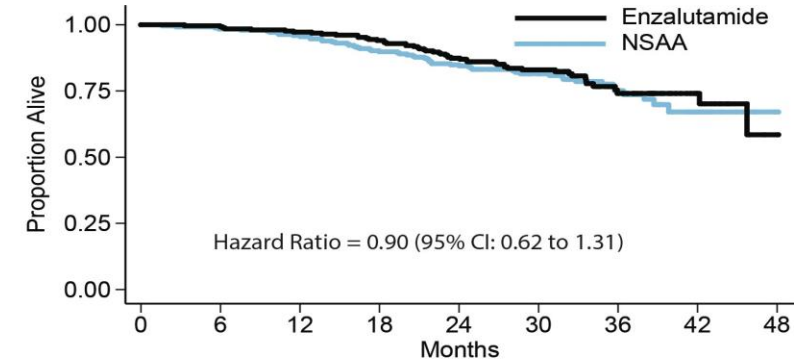
**Testosterone suppression + docetaxel  
n=503  
(71% high volume)**

## CLINICAL PROGRESSION-FREE SURVIVAL



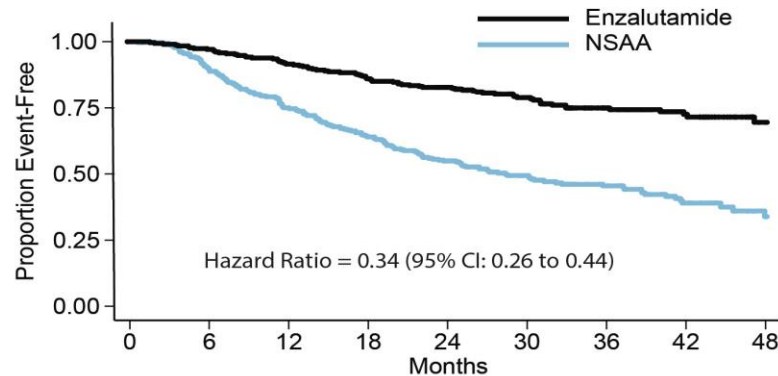
Number at risk		0	6	12	18	24	30	36	42	48
NSAA	249	230	185	148	112	73	21	6	1	
Enzalutamide	254	248	226	202	178	109	35	12	2	

## OVERALL SURVIVAL

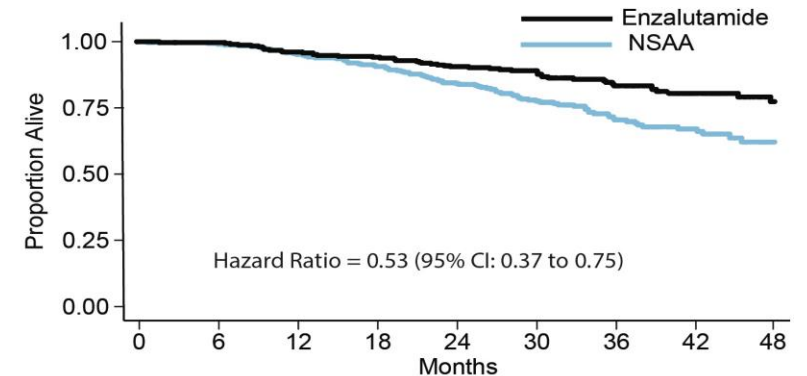


Number at risk		0	6	12	18	24	30	36	42	48
NSAA	249	241	235	220	203	135	56	13	2	
Enzalutamide	254	252	246	238	210	139	54	19	3	

**Testosterone suppression + no docetaxel  
n=622  
(37% high volume)**



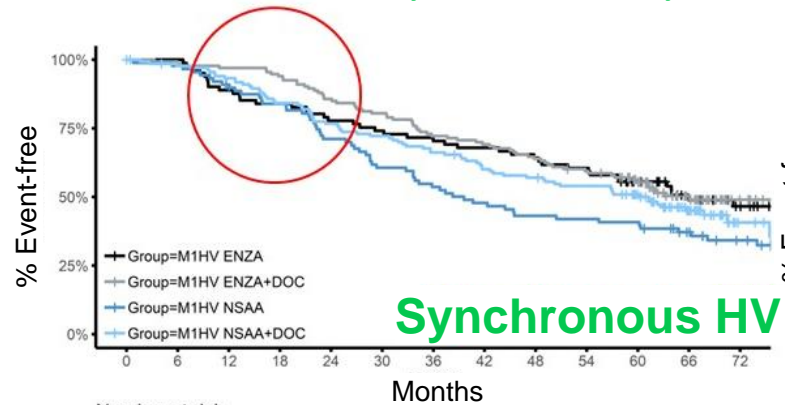
Number at risk		0	6	12	18	24	30	36	42	48
NSAA	313	282	233	198	160	109	75	44	16	
Enzalutamide	309	299	281	266	246	175	121	72	34	



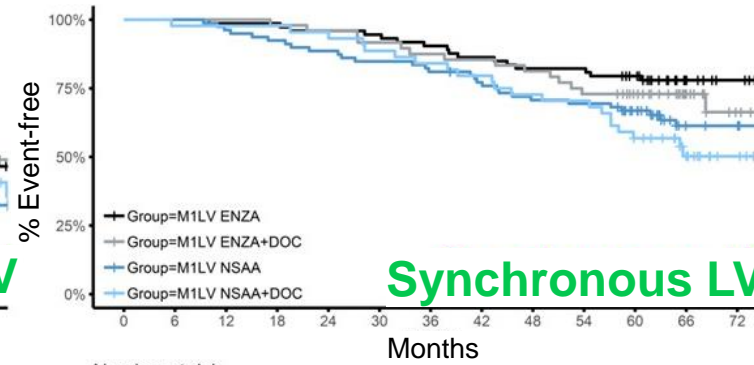
Number at risk		0	6	12	18	24	30	36	42	48
NSAA	313	310	296	281	249	176	118	73	30	
Enzalutamide	309	306	295	289	270	201	135	87	42	

# ENZAMET: UPDATED OVERALL SURVIVAL

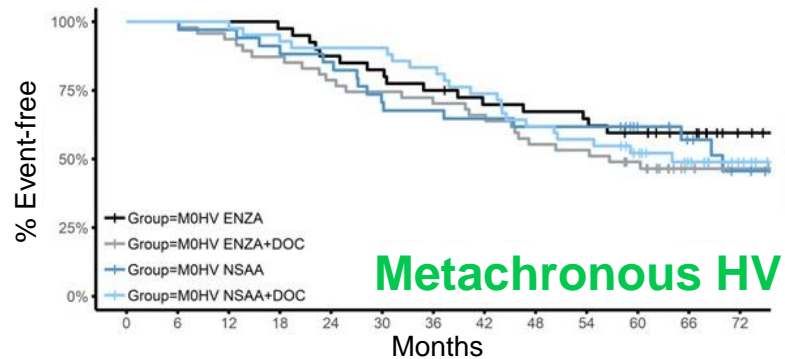
## EXPLORATORY ANALYSIS: VOLUME, M1 TIMING, DOCETAXEL



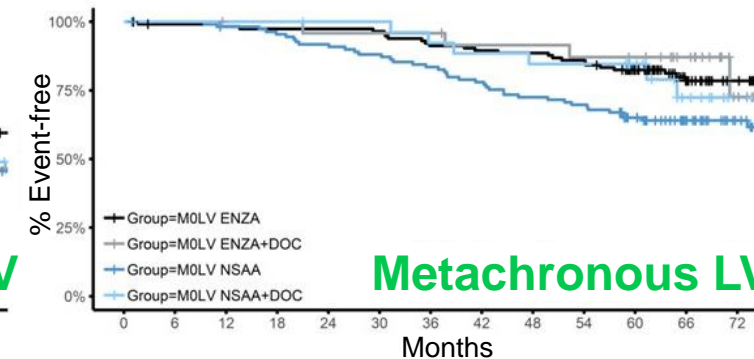
Number at risk	0	6	12	18	24	30	36	42	48	54	60	66	72
Group=M1HV ENZA	81	81	72	68	63	60	57	55	52	49	40	28	19
Group=M1HV ENZA+DOC	133	131	129	125	114	107	96	92	85	78	65	38	12
Group=M1HV NSAA	88	86	79	72	61	52	46	41	37	36	35	27	20
Group=M1HV NSAA+DOC	137	130	124	112	102	96	88	79	75	70	59	35	10



Number at risk	0	6	12	18	24	30	36	42	48	54	60	66	72
Group=M1LV ENZA	73	73	72	72	70	69	66	63	60	60	55	40	35
Group=M1LV ENZA+DOC	48	48	48	47	46	44	42	41	39	35	30	16	7
Group=M1LV NSAA	79	79	76	73	70	67	64	60	55	54	46	27	26
Group=M1LV NSAA+DOC	44	43	43	43	42	39	37	35	32	31	24	14	4



Number at risk	0	6	12	18	24	30	36	42	48	54	60	66	72
Group=M0HV ENZA	40	40	40	39	35	33	30	27	26	25	22	18	11
Group=M0HV ENZA+DOC	47	47	44	41	37	35	33	31	26	25	20	8	4
Group=M0HV NSAA	34	34	33	31	29	24	23	22	21	21	15	11	7
Group=M0HV NSAA+DOC	42	42	42	39	38	38	35	31	26	24	19	13	7



Number at risk	0	6	12	18	24	30	36	42	48	54	60	66	72
Group=M0LV ENZA	116	113	112	111	111	110	104	102	101	98	85	54	41
Group=M0LV ENZA+DOC	25	25	24	24	23	23	23	21	21	20	19	14	4
Group=M0LV NSAA	111	110	107	104	100	96	91	85	79	76	64	46	29
Group=M0LV NSAA+DOC	27	27	27	27	26	26	24	23	22	22	18	9	3

- Enzalutamide
- Enzalutamide + docetaxel
- NSAA
- NSAA + docetaxel

HV, high volume; LV, low volume

Davis, IJ Clin Oncol 40, 2022 (suppl 17; abstr LBA5004)

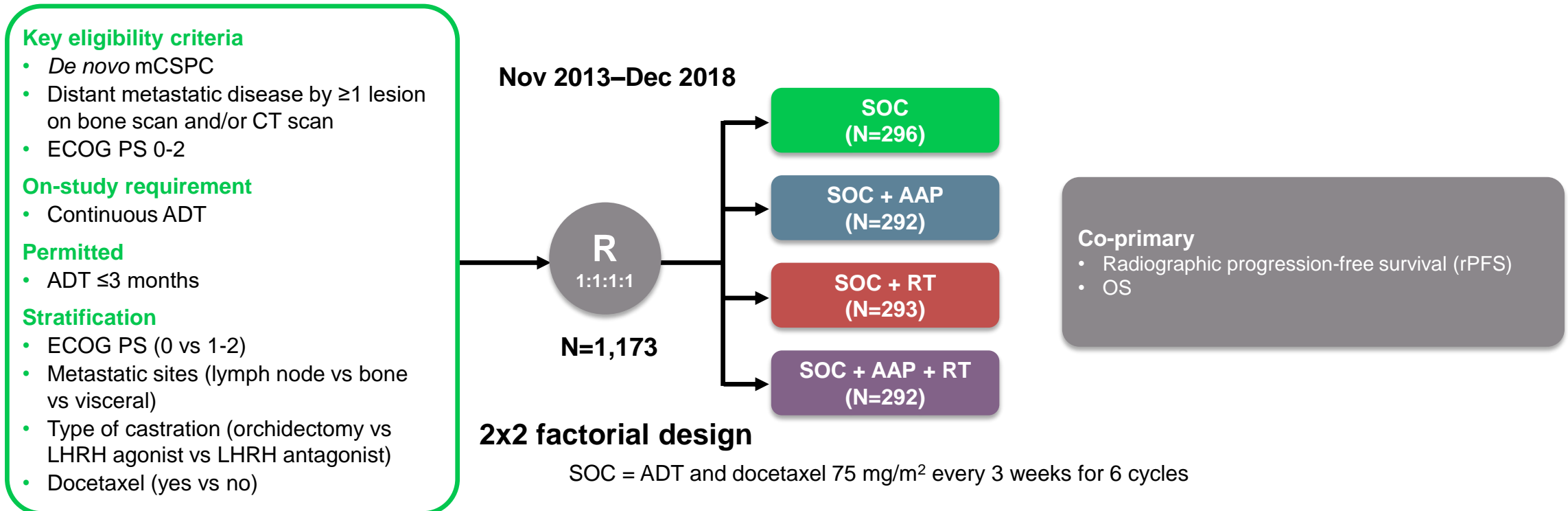
# ENZAMET: SELECTED AEs ALL PATIENTS AT ANYTIME

Selected AEs*	TS + NSAA N=558		TS + ENZA N=563	
SAE rate per year of Rx exposure	0.33	95% CI: 0.28-0.39	0.34	95% CI: 0.29-0.40
AEs of Interest	N	%	N	%
G3 Hypertension	24	4	43	8
G2 Hypertension	30	5	60	11
G3 Fatigue	4	1	31	6
G2 Fatigue	80	14	142	25
G3 Falls	2	<1	6	1
G2 Falls	8	1	28	5
Syncope	7	1	20	4
Concentration impairment (G1/2)	6	1	24	4
Any seizure	0	0	7	1

\*Worst grade shown

# PEACE-1 STUDY DESIGN

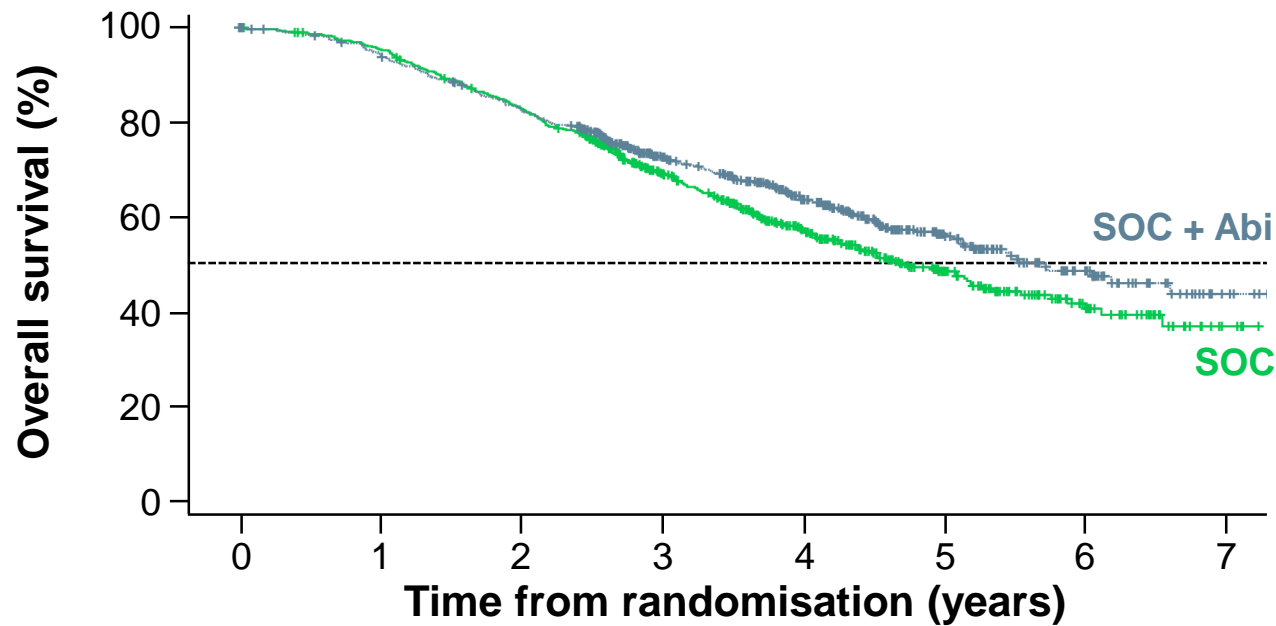
**PEACE-1:** A phase 3 trial with 2x2 factorial design investigating overall survival of abiraterone acetate + docetaxel + ADT in *de novo* mCSPC patients



AAP, abiraterone and prednisone; ADT, androgen deprivation therapy; CT, computed tomography; ECOG PS, Eastern Cooperative Oncology Group performance status; LHRH, luteinising hormone releasing hormone; mCSPC, metastatic castration-sensitive prostate cancer; OS, overall survival; PCWG 2, Prostate Cancer Working Group 2; PSA, prostate specific antigen; R, randomisation; rPFS, radiographic progression-free survival; RT, radiotherapy; SOC, standard of care

Fizazi K, et al. Abstract #LBA5\_PR. ESMO 2021. Oral presentation; Fizazi K, et al. The Lancet 2022; 399 (103360): 1695-1707

# PEACE-1 TRIAL – OVERALL SURVIVAL FOR THE ENTIRE POPULATION



	<b>SOC + Abi (n=583)</b>	<b>SOC (n=589)</b>
<b>Median, y (95% CI)</b>	5.7 (5.1-NE)	4.7 (4.3-5.3)
<b>Events</b>	228	268
<b>HR (95% CI)*</b>	0.82 (0.69-0.98)	
<b>p value</b>	0.030	

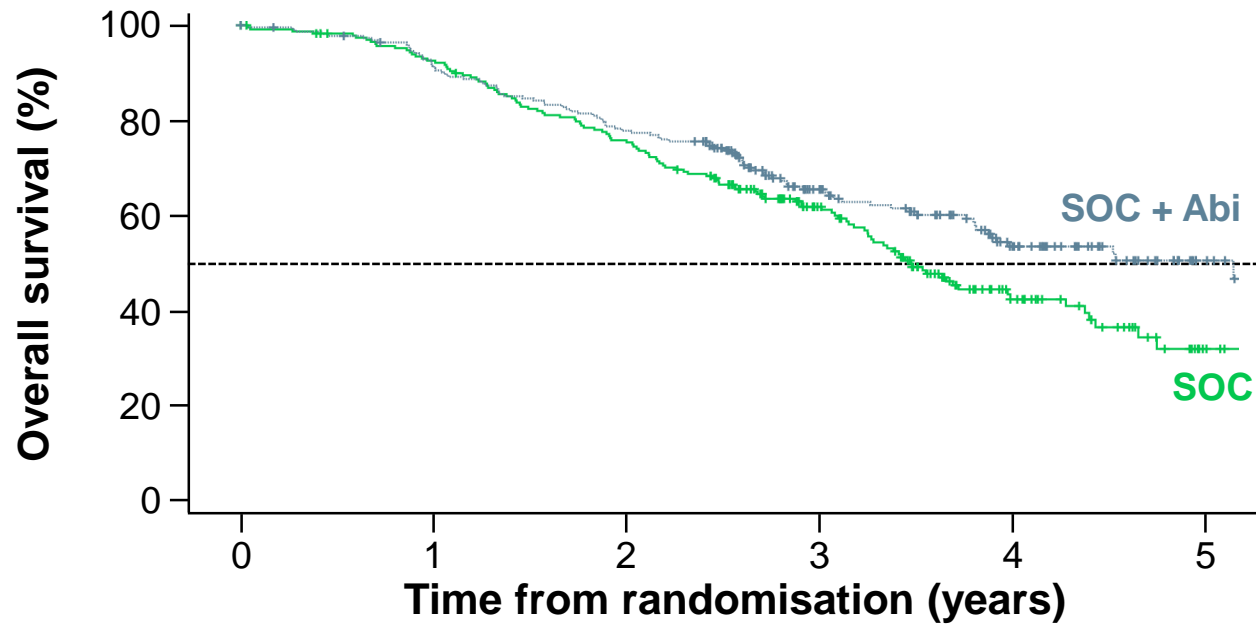
<b>SOC</b>	589	556	480	334	207	101	37	4
<b>SOC + Abi</b>	583	541	470	340	230	111	47	6

\* Adjusted on stratification parameters (RXT, PS, type of castration, metastatic burden, docetaxel)

Abi, abiraterone; CI, confidence interval; HR, hazard ratio; NE, not estimable; OS, overall survival; PS, performance status; RXT, radiotherapy to primary tumour; SOC, standard of care; y, year

# PEACE-1 TRIAL – OVERALL SURVIVAL WITH ABIRATERONE + ADT + DOCETAXEL (+/- RT) IN HIGH-VOLUME PATIENTS

- Abiraterone + ADT + docetaxel provides lifetime gain of more than 1.5 years in high-volume patients (5.1y vs 3.5y)



	SOC + Abi (n=224)	SOC (n=232)
<b>Median, y (95% CI)</b>	5.1 (3.8-NE)	3.5 (3.2-4.0)
<b>Events</b>	92	120
<b>HR (95% CI)</b>	0.72 (0.55-0.95)	
<b>p value</b>	0.019	

<b>SOC</b>	232	210	171	101	39	6
<b>SOC+Abi</b>	224	201	171	103	57	16

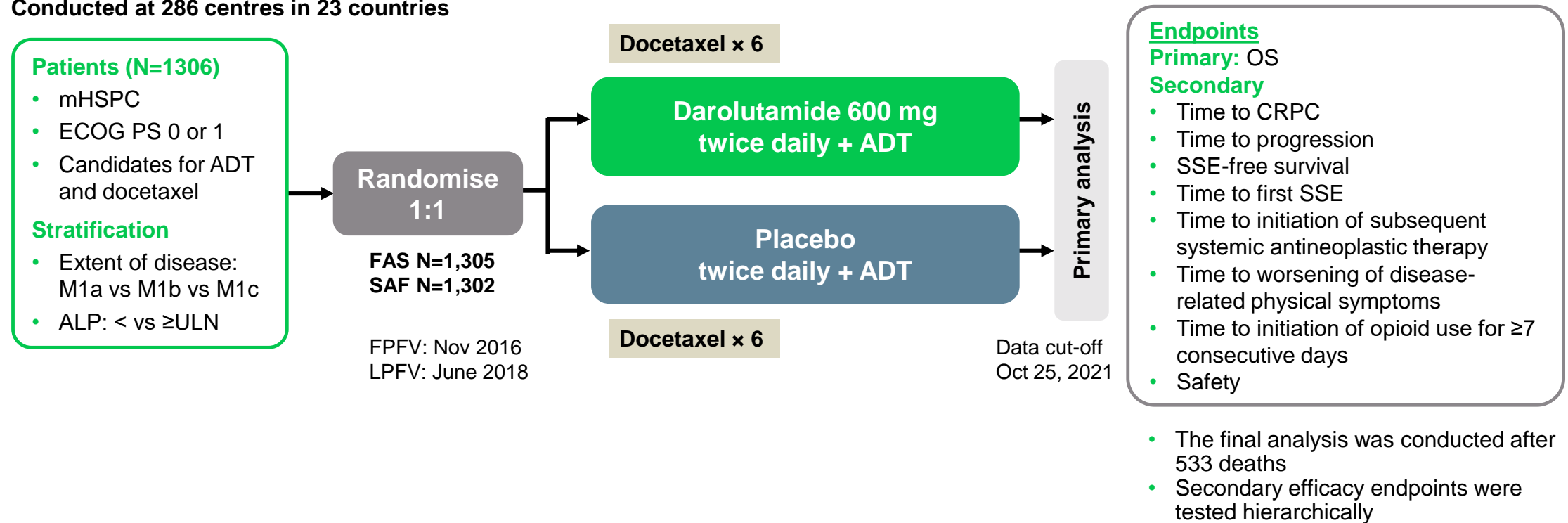
# PEACE-1: SAFETY DATA

## G3-5 TOXICITY ON STUDY TREATMENTS (ADT + DOCETAXEL SAFETY POPULATION)

Toxicity, N (%)	SOC (+/- RXT) + Abiraterone (n=346)	SOC (+/- RXT) (n=350)
Neutropenia	34 (10)	32 (9)
Febrile neutropenia	18 (5)	19 (5)
Liver	20 (6)	2 (1)
Hypertension	76 (22)	45 (13)
Hypokalemia	11 (3)	1 (0)
Cardiac	6 (2)	5 (1)
Fatigue	10 (3)	15 (4)
Gastrointestinal	14 (4)	18 (5)
Grade 5	7 (2)	3 (1)

# ARASENS STUDY DESIGN

Randomised, double-blind, placebo-controlled, global, phase 3 study (NCT02799602)  
Conducted at 286 centres in 23 countries



ADT, androgen deprivation therapy; ALP, alkaline phosphatase; CRPC, castration-resistant prostate cancer; ECOG PS, Eastern Cooperative Oncology Group performance status; FAS, full analysis set; FPFV, first patient first visit; LPFV, last patient first visit; M1a, nonregional lymph node metastases; M1b, bone metastases +/- lymph node metastases; M1c, visceral metastases +/- lymph node or bone metastases; mHSPC, metastatic hormone sensitive prostate cancer; OS, overall survival; SAF, safety analysis set; SSE, symptomatic skeletal event; ULN, upper limit of normal

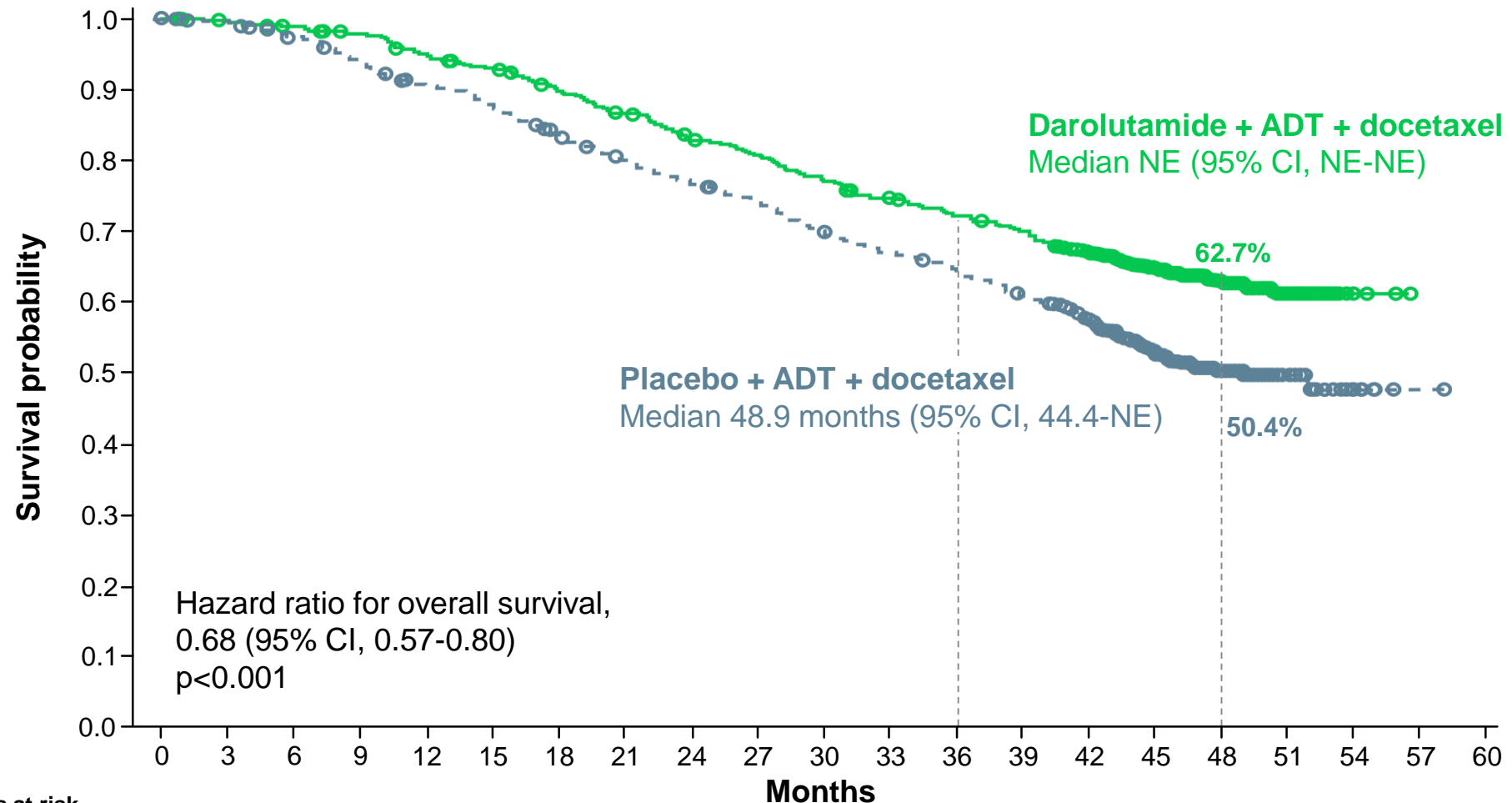
Smith M, et al. J Clin Oncol 2022; 40, (suppl 6; abstr 13) (ASCO GU 2022, oral presentation); Smith M, et al. N Engl J Med. 2022; 386(12):1132-42



# ARASENS: SELECTED CLINICAL CHARACTERISTICS AT BASELINE

Characteristic	Darolutamide–ADT– docetaxel (N=651)	Placebo–ADT– docetaxel (N=654)
Gleason score at initial diagnosis — no. (%)		
<8	122 (18.7)	118 (18)
≥8	505 (77.6)	516 (78.9)
Data missing	24 (3.7)	20 (3.1)
Metastasis stage at initial diagnosis – no. (%)		
M1, distant metastasis	558 (85.7)	566 (86.5)
M0, no distant metastasis	86 (13.2)	82 (12.5)
MX, distant metastasis not assessed	7 (1.1)	6 (0.9)
Metastasis stage at screening — no. (%)		
M1a, nonregional lymph-node metastases only	23 (3.5)	16 (2.4)
M1b, bone metastases with or without lymph-node metastases	517 (79.4)	520 (79.5)
M1c, visceral metastases with or without lymph-node or bone metastases	111 (17.1)	118 (18.0)
Median serum PSA level (range) – ng/ml	30.3 (0.0-9,219.0)	24.2 (0.0-11,947.0)
Median serum ALP level (range) – U/liter	148 (40-4,885)	140 (36-7,680)
ALP category – no. (%)		
<ULN	290 (44.5)	291 (44.5)
≥ULN	361 (55.5)	363 (55.5)

# ARASENS: OVERALL SURVIVAL



Number of patients at risk

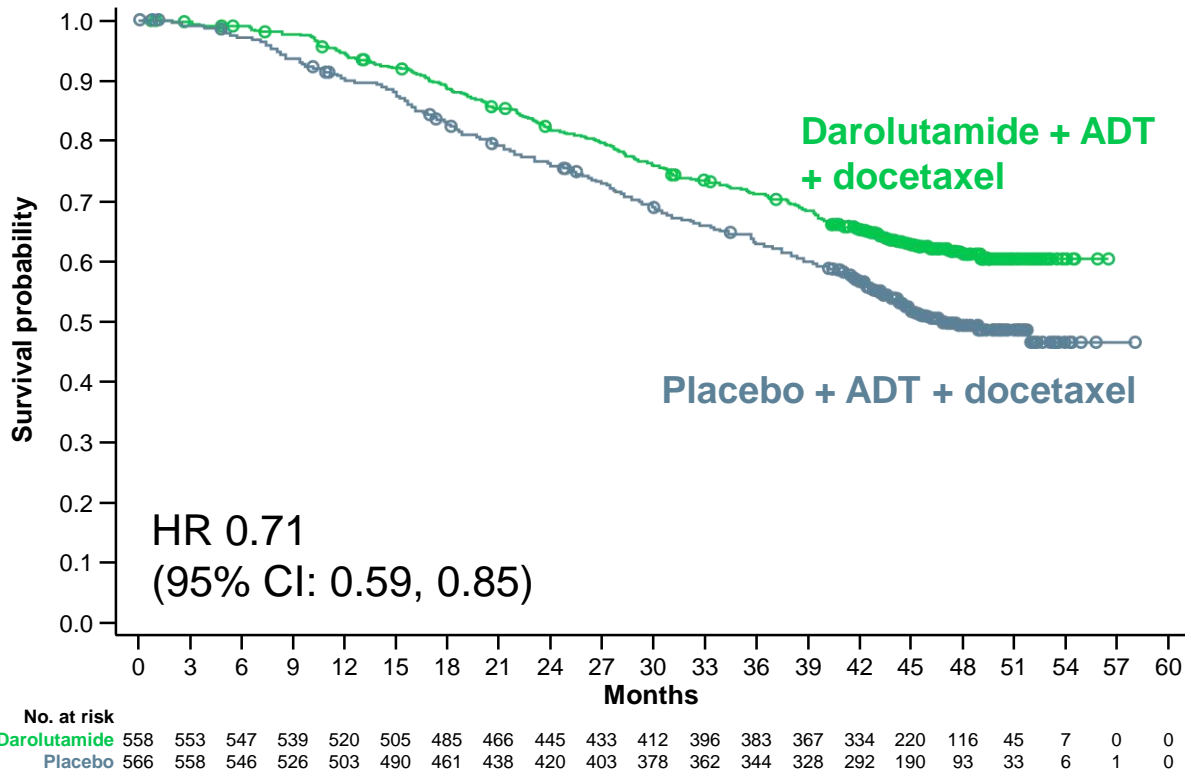
Darolutamide	651	645	637	627	608	593	570	548	525	509	486	468	452	436	402	267	139	56	9	0	0
Placebo	654	646	630	607	580	565	535	510	488	470	441	424	402	383	340	218	107	37	6	1	0

ADT, androgen deprivation therapy; CI, confidence interval; NE, not estimable

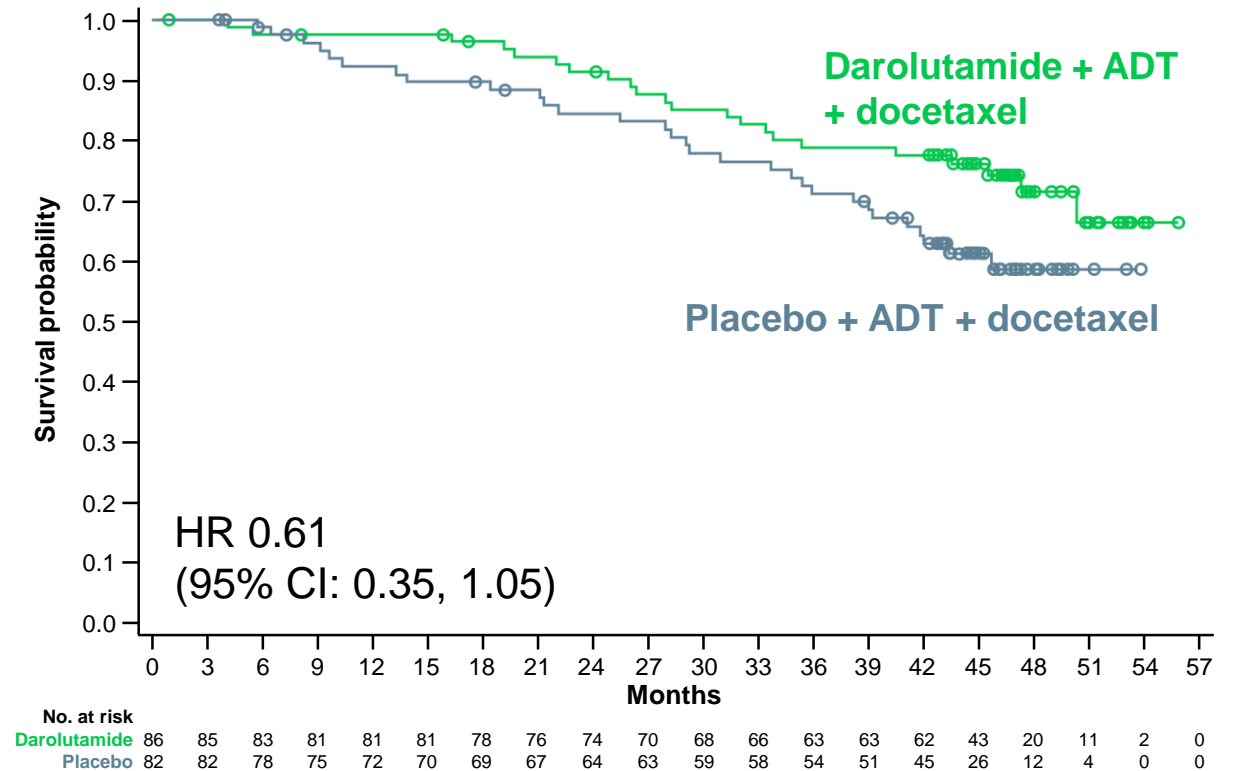
Smith M, et al. N Engl J Med. 2022;386(12):1132-42; Smith M, et al. J Clin Oncol 2022; 40, (suppl 6; abstr 13) (ASCO GU 2022, oral presentation)

# ARASENS: OS BY *DE NOVO* AND RECURRENT SUBSETS

**De novo mHSPC**  
(M1 at initial diagnosis; 86.1% of patients)



**Recurrent mHSPC**  
(M0 at initial diagnosis; 12.9% of patients)



ADT, androgen deprivation therapy; CI, confidence interval; HR, hazard ratio; M0, non-metastatic; M1, metastatic; mHSPC, metastatic hormone sensitive prostate cancer; OS, overall survival

# ARASENS: ADVERSE EVENTS OF INTEREST

Adverse Event	Darolutamide + ADT + docetaxel (N=652)	Placebo + ADT + docetaxel (N=650)
	No. of patients (%)	No. of patients (%)
<b>Events commonly associated with ADT or ARPI therapy</b>		
Fatigue	216 (33.1)	214 (32.9)
Vasodilatation and flushing	133 (20.4)	141 (21.7)
Rash	108 (16.6)	88 (13.5)
Diabetes mellitus and hyperglycemia	99 (15.2)	93 (14.3)
Hypertension	89 (13.7)	60 (9.2)
Cardiac disorder	71 (10.9)	76 (11.7)
Cardiac arrhythmia	52 (8.0)	55 (8.5)
Coronary artery disorder	19 (2.9)	13 (2.0)
Heart failure	4 (0.6)	13 (2.0)
Bone fracture	49 (7.5)	33 (5.1)
Falls, including accident	43 (6.6)	30 (4.6)
Mental-impairment disorder	23 (3.5)	15 (2.3)
Weight decreased	22 (3.4)	35 (5.4)
Depressed-mood disorder	21 (3.2)	24 (3.7)
Breast disorders/gynecomastia	21 (3.2)	10 (1.5)
Cerebral ischemia	8 (1.2)	8 (1.2)
Seizure	4 (0.6)	1 (0.2)

Most AEs of interest were similar between the treatment arms except for rash and hypertension

# SUMMARY

- For patients fit for docetaxel with mCSPC, consideration should be given to add either darolutamide or abiraterone to ADT + docetaxel
  - Especially for those patients with de novo, high-volume prostate cancer
- As the above are a highly selected group of patients, this triple combination is not the only standard of care, yet treatment intensification for mCSPC patients of some sort needs to be strongly considered
- Patient comorbidities, side effects of androgen pathway inhibitors and drug-drug interactions should be factored into appropriate agent selection
- Further post-hoc information is forthcoming on high volume vs low volume disease subgroups
- Do patients who present with metachronous, rather than synchronous metastatic hormone sensitive prostate cancer benefit from triple combination therapy?

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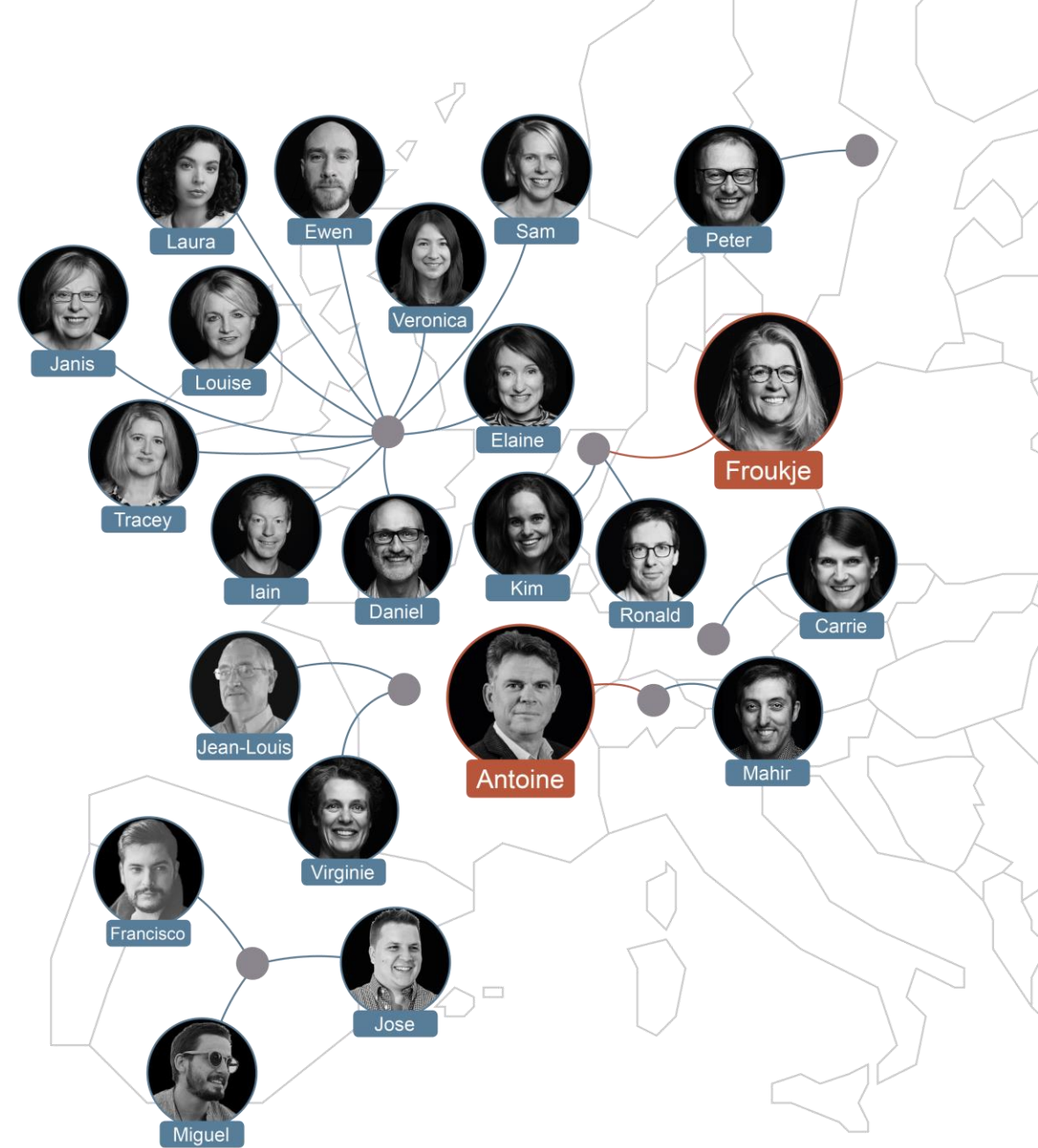
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