Supplemental materials of
Racial differences as predictors of outcomes in young patients with multiple myeloma

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Supplemental Material Content:

Supplementary Table S1. Patient, disease, and treatment characteristics (n = 258).

	All (n = 258)	Non-Hispanic White patients (n = 198)	Non-Hispanic Black patients (n = 60)	*P-value*
Age (median, range)	46 (17-50)	46 (17-50)	45 (34-50)	0.32
< 30 years (no-%)	6 (2.3)	6 (3.0)	0 (0)	
30-40 years (no-%)	35 (13.6)	23 (11.6)	12 (20)	
40-50 years (no-%)	217 (84.1)	169 (85.4)	48 (80)	
Gender (no-%)				0.18
Male	165 (64.0)	131 (66.2)	34 (56.7)	
Female	93 (36.0)	67 (33.8)	26 (43.3)	
Year of diagnosis (no-%)				0.08
1992-2002	25 (9.6)	23 (11.6)	2 (3.3)	
2003-2019	233 (90.4)	175 (88.4)	58 (96.7)	
ISS stage (no-%)				0.11
Stage I	89 (42.0)	66 (40.0)	23 (48.9)	
Stage II	66 (31.1)	49 (29.7)	17 (36.2)	
Stage III	57 (26.9)	50 (30.3)	7 (14.9)	
NA	46	33	13	
MM type (no-%)				0.37
IgG	121 (46.9)	89 (44.9)	32 (53.3)	
IgA	53 (20.5)	44 (22.2)	9 (15.0)	
Light chain disease	72 (27.9)	56 (28.3)	16 (26.7)	
Other	12 (4.7)	9 (4.5)	3 (5.0)	
Presentation (no-%)				0.56
MM	201 (77.9)	151 (76.3)	50 (83.3)	
EMD-Bone	28 (10.9)	22 (11.1)	6 (10)	
EMD	21 (8.1)	17 (8.6)	4 (6.7)	
PCL	6 (2.3)	6 (3.0)	0 (0.0)	
Amyloidosis	2 (0.8)	2 (1.0)	0 (0.0)	
Cytogenetics (no-%)	**(n = 210)**	**(n = 159)**	**(n = 51)**	
t(11;14)	42 (20)	28 (17.6)	14 (27.5)	0.13
t(4;14)	15 (7.1)	13 (8.2)	2 (3.9)	0.30
t(8;14)	4 (1.9)	4 (2.5)	0 (0.0)	0.25
Del(17p)	15 (7.1)	13 (8.2)	2 (3.9)	0.30
Del(13q)	72 (34.3)	62 (39.0)	10 (19.6)	0.01
1q21+	48 (22.9)	37 (23.3)	11 (21.6)	0.80
Hypodiploidy	5 (2.4)	2 (1.3)	3 (5.9)	0.09
Risk category (no-%)				0.37
Standard (0 HRCA)	147 (70.0)	111 (68.9)	36 (73.5)	
High-risk (1 HRCA)	49 (23.3)	37 (23.0)	12 (24.5)	
Ultra-high risk (≥ 2 HRCA)	14 (6.7)	13 (8.1)	1 (2.0)	
Induction therapy (no-%)				0.94
Bortezomib-dex (VD)	57 (22.1)	44 (22.2)	13 (21.7)	
Lenalidomide-dex (RD)	25 (9.7)	19 (9.6)	6 (10.0)	
Bortezomib-lenalidomide-dex (VRD)	70 (27.1)	52 (26.3)	18 (30.0)	
Other	106 (41.1)	83 (41.9)	23 (38.3)	
Transplant (no-%)				0.11
No	20 (7.8)	13 (6.6)	7 (11.7)	
One ASCT	195 (75.6)	149 (75.3)	46 (76.7)	
Two or more ASCT	30 (11.6)	23 (11.3)	7 (11.7)	
ASCT followed by Allogeneic	13 (5.0)	13 (6.6)		
Maintenance after ASCT (no-%)	**(n = 238)**	**(n = 185)**	**(n = 53)**	0.31
No	120 (50.4)	90 (48.6)	24 (56.6)	
Yes	118 (49.6)	95 (51.4)	21 (43.4)	
Lines of therapy (median, range)	3 (1-21)	3 (1-15)	3 (1-21)	0.82
Family History of cancer (no-%)	**(n = 221)**	**(n = 172)**	**(n = 49)**	
Negative	99 (44.8)	71 (41.3)	28 (57.1)	0.05
Positive other than MM	115 (52.0)	95 (55.2)	20 (40.8)	0.10
Positive for MM/MGUS	7 (0.03)	6 (3.4)	1 (2.0)	0.99
Personal history of cancer (no-%)	**(n = 226)**	**(n = 176)**	**(n = 50)**	
No	203 (89.8)	154 (87.5)	49 (98.0)	0.03
Before MM diagnosis	10 (4.4)	9 (5.1)	1 (2.0)	0.70
After MM diagnosis	13 (5.8)	13 (7.4)	0 (0.0)	0.08
Smoking (no-%)	**(n = 251)**	**(n = 193)**	**(n = 58)**	0.37

No Yes (Active or previous at diagnosis)	144 (57.3) 107 (42.7)	114 (59.1) 79 (40.9)	30 (51.8) 28 (48.2)	

Abbreviations: ISS- International staging system, MM- multiple myeloma, EMD- extramedullary disease, PCL- plasma cell leukemia, HRCA- high-risk chromosomal abnormalities, dex- dexamethasone, ASCT- autologous stem cell transplant, MGUS- monoclonal gammopathy of undetermined significance.

Supplementary Table S2. Type and time of occurrence of second malignancy in non-Hispanic White and non-Hispanic Black patients with Multiple Myeloma (MM).

Second malignancy	n = 226	Non-Hispanic White patients (n = 176)	Non-Hispanic Black patients (n = 50)	*P-value*
Before MM diagnosis (no-%)	10 (4.4)	9 (5.1)	1 (2.0)	0.70
Second malignancy type		1) Hairy cell leukemia 2) Melanoma 3) Cervical cancer 4) Endometrial cancer 5) CLL 6) Papillary thyroid cancer 7) Squamous cell carcinoma of the skin 8) Mantle cell lymphoma 9) Meningioma	1) Cervical cancer	
After MM diagnosis (no-%)	13 (5.8)	13 (7.4)	0 (0)	0.08
Second malignancy type		1) Renal cell carcinoma 2) Colorectal cancer [2] 3) Cutaneous T-cell lymphoma 4) Myelodysplastic syndrome 5) Basal cell carcinoma [2] 6) B-ALL [2] 7) DLBCL 8) Schwannoma 9) Papillary thyroid cancer 10) Squamous cell carcinoma of the skin		

Abbreviations: CLL, chronic lymphocytic leukemia, B-ALL, B-cell acute lymphoblastic leukemia, DLBCL, diffuse large B-cell lymphoma.

Supplementary Table S3. Progression-free survival (PFS) rates with 95% Confidence Intervals (CI) in non-Hispanic White and non-Hispanic Black patients at 1, 3, 5, and 10 years.

Non-Hispanic White patients				Non-Hispanic Black patients			
Year	PFS rate from diagnosis	95% CI		Year	PFS rate from diagnosis	95% CI	
1	91%	86%	95%	1	98%	86%	95%
3	54%	47%	61%	3	65%	52%	76%
5	38%	31%	45%	5	50%	36%	62%
10	22%	16%	29%	10	26%	14%	39%
Median PFS	3.2	2.8	4.3	Median PFS	5.9	3.0	6.2
Year	PFS rate from first transplant	95% CI		Year	PFS rate from first transplant	95% CI	
1	74%	67%	79%	1	81%	67%	89%
3	45%	38%	52%	3	54%	39%	67%
5	33%	26%	40%	5	47%	33%	60%
10	18%	13%	25%	10	26%	14%	40%
Median PFS	2.4	1.8	3.5	Median PFS	3.3	2.0	5.8

Supplementary Table S4. Overall survival (OS) rates with 95% Confidence Intervals (CI) in non-Hispanic White and non-Hispanic Black patients at 1, 3, 5, 10, 15, and 20 years.

Non-Hispanic White				Non-Hispanic Black			
Year	OS rate from diagnosis	95% CI		Year	OS rate from diagnosis	95% CI	
1	99%	96%	100%	1	98%	89%	100%
3	82%	76%	87%	3	91%	80%	96%
5	66%	58%	72%	5	86%	73%	93%
10	47%	39%	54%	10	54%	37%	68%
15	30%	21%	39%	15	54%	37%	68%
20	14%	6%	24%	20	NR	NR	NR
Median OS	8.6	6.9	12.1	Median OS	NR	7.4	NR
Year	OS rate from first transplant	95% CI		Year	OS rate from first transplant	95% CI	
1	93%	88%	96%	1	92%	81%	97%
3	73%	66%	79%	3	84%	71%	92%
5	61%	53%	68%	5	75%	60%	85%
10	44%	36%	52%	10	52%	35%	66%
15	26%	17%	36%	15	52%	35%	66%
20	9%	2%	21%	20	NR	NR	NR
Median OS	7.3	5.5	11.4	Median OS	NR	6.1	NR

Abbreviations: NR, not reached

Figure S1.

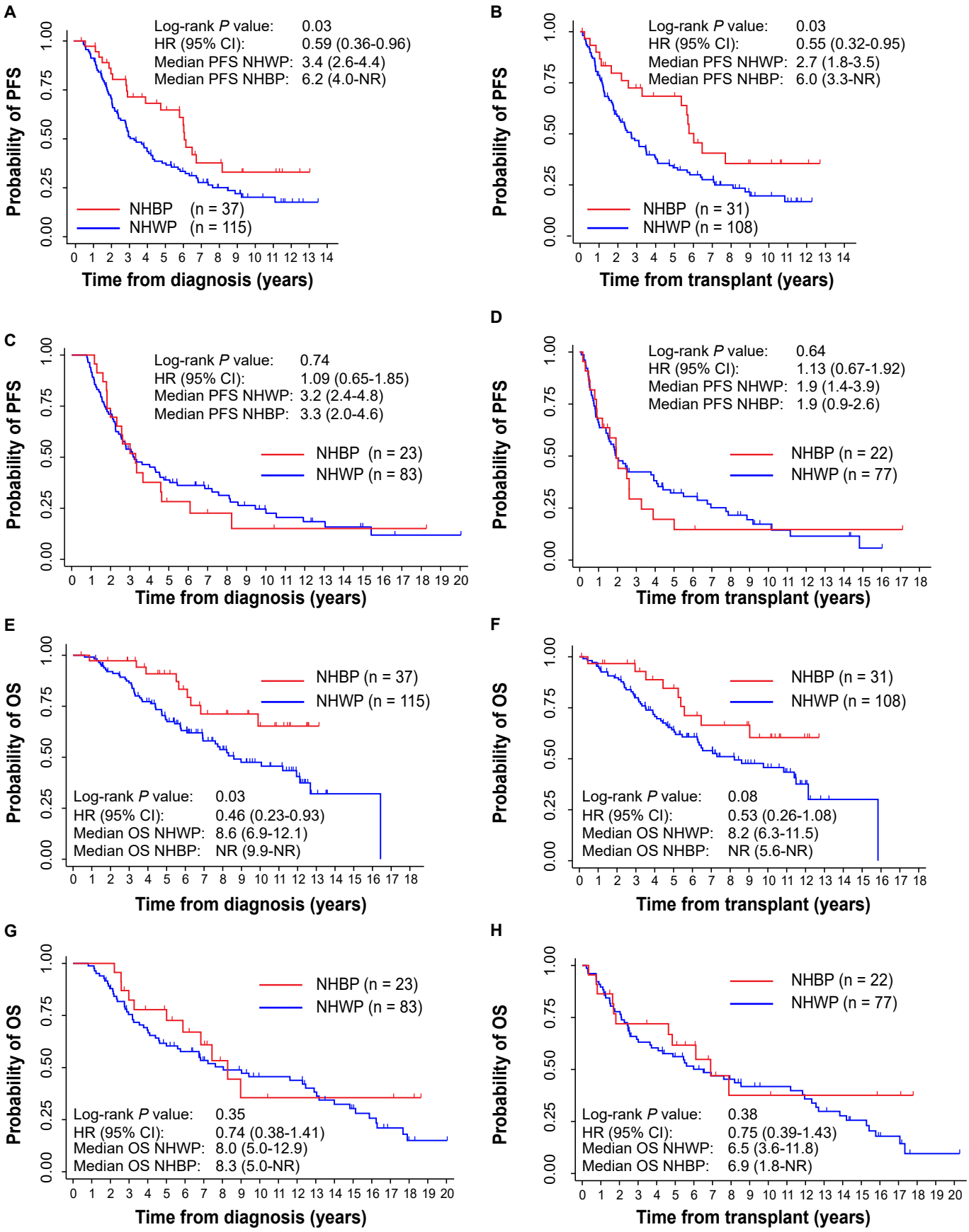

Figure S1. Outcomes of non-Hispanic White patients (NHWP) and non-Hispanic Black patients (NHBP) with MM diagnosed before age 50, stratified based on induction regimen.

Kaplan-Meier curves of progression-free survival (PFS) from diagnosis or first transplant in NHWP and NHBP who received VD-RD-VRD (**A-B**) or other therapies (**C-D**) as induction strategy;
Kaplan-Meier curves of overall survival (OS) from diagnosis or first transplant in NHWP and NHBP who received VD-RD-VRD (**E-F**) or other therapies (**G-H**) as induction strategy. V, bortezomib; R, lenalidomide; D, dexamethasone; *P*, log-rank p-value; HR, Hazard Ratio; CI, Confidence Interval; NR, not reached.

Figure S2.

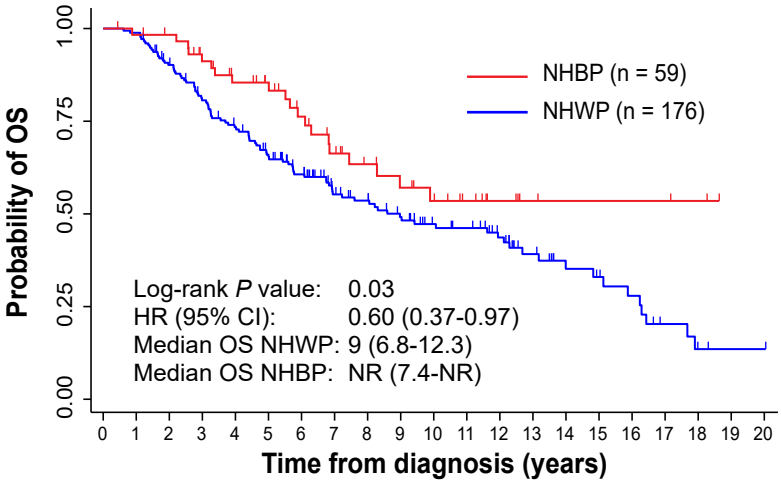

Figure S2. Overall survival (OS) outcomes of non-Hispanic White patients (NHWP) and non-Hispanic Black patients (NHBP) with MM diagnosed before age 50 without a second malignancy.
Kaplan-Meier curves of OS from diagnosis in n = 235 patients. *P*, log-rank p-value; HR, Hazard Ratio; CI, Confidence Interval; NR, not reached.

Figure S3.

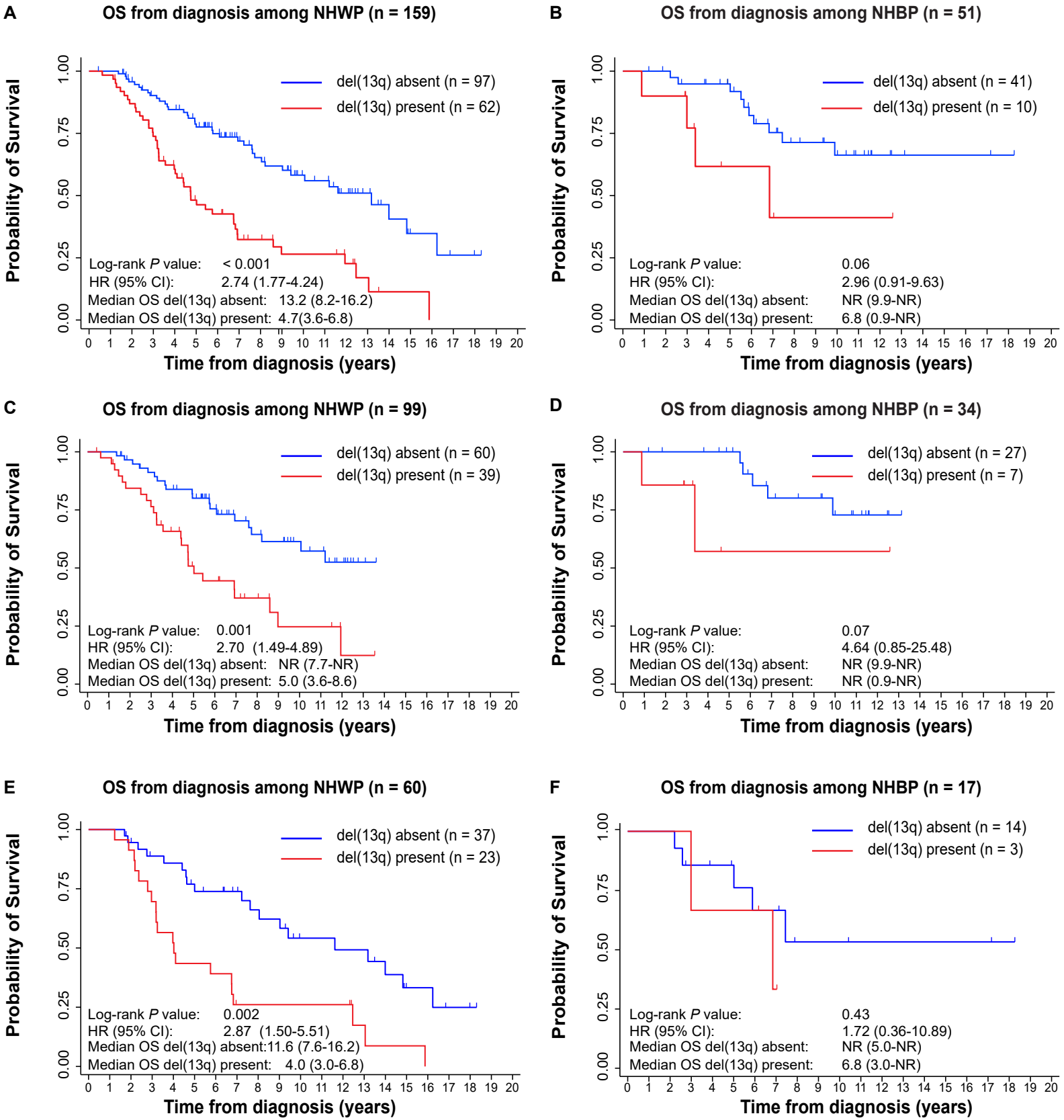

Figure S3. Overall survival (OS) outcomes of non-Hispanic White patients (NHWP) and non-Hispanic Black patients (NHBP) with MM diagnosed before age 50, stratified based on the presence of del(13q). Kaplan-Meier curves of OS from diagnosis based on the presence or absence of del(13q) in all NHWP (**A**) or NHBP (**B**), in NHWP (**C**) or NHBP (**D**) treated with VD-RD-VRD, and in NHWP (**E**) or NHBP (**F**) treated with other induction therapies. *P*, log-rank p-value; HR, Hazard Ratio; CI, Confidence Interval; NR, not reached.