Supplemental Table 1 NRM at 2 years according to the CoBRA score in the training cohort.

The CoBRA score	Risk group	n	NRM at 2 years (95% CI) (%)
1	Low	15	6.7 (0.4 - 27.0)
2		111	17.3 (10.9 - 25.0)
3		340	13.1 (9.8 - 17.0)
4		516	18.0 (14.8 - 21.5)
5	Intermediate	552	22.3 (18.9 - 25.9)
6		451	29.8 (25.6 - 34.1)
7		319	37.2 (31.9 - 42.6)
8	High	198	42.6 (35.5 - 49.4)
9		111	50.3 (40.5 - 59.3)
10-11		74	56.8 (44.5 - 67.3)

Supplemental Table 2 NRM at 2 years according to the CoBRA score in the validation cohort.

The CoBRA score	Risk group	n	NRM at 2 years (95% CI) (%)
1	Low	15	0.0 (0.0 - 0.0)
2		80	6.6 (2.4 - 13.9)
3		211	13.0 (8.5 - 18.6)
4		338	18.4 (14.0 - 23.3)
5	Intermediate	377	18.8 (14.5 - 23.6)
6		318	28.3 (22.6 - 34.3)
7		229	32.0 (25.6 - 38.6)
8	High	96	46.8 (35.3 - 57.4)
9		55	49.2 (34.3 - 62.6)
10-11		31	40.6 (19.4 - 61.0)

Supplemental Figure 1 Clinical outcomes according to transplant year.

The cumulative incidence of (A) NRM and (B) Relapse. (C) OS and (D) PFS.

Supplemental Figure 2 Flowchart for recipient selection.

AML, acute myeloid leukemia; ALL, acute lymphoblastic leukemia; MDS, myelodysplastic syndrome; MPN, myeloproliferative neoplasms; ATL, adult T-cell leukemia-lymphoma; UCB, umbilical cord blood; GVHD, graft-versus-host disease; CNI, calcineurin inhibitor; MTX, methotrexate; MMF, mycofenolate mofetil; DRI, disease risk index; CR, complete remission; CFU-GM, granulocyte-monocyte colony forming unit; HCT-CI, hematopoietic cell transplant-specific comorbidity index; PS, performance status; HCT, hematopoietic cell transplantation.

Supplemental Figure 3 NRM according to recipient/donor sex.

F to F; female donor to female recipient, F to M; female donor to male recipient, M to F; male donor to female recipient, M to M; male donor to male recipient.

Supplemental Figure 4 PFS and Relapse.

(A) PFS and (B) the cumulative incidence of relapse in the training cohort and (C) (D) those in the validation cohort.

Supplemental Figure 5 NRM and OS in the validation cohort excluding ATL.

(A) The cumulative incidence of NRM and (B) OS in the validation cohort excluding ATL.

Supplemental Figure 6 The calibration plot.

The value predicted by the CoBRA score (x-axis) and the observed NRM (y-axis).

Supplemental Figure 7 NRM risks based on conditioning regimen.

* The multivariable Cox regression analysis for NRM were used for interaction analysis. We identified significant interaction terms when a P-value of less than 0.05 was obtained.

Supplemental Figure 8 Engraftment.

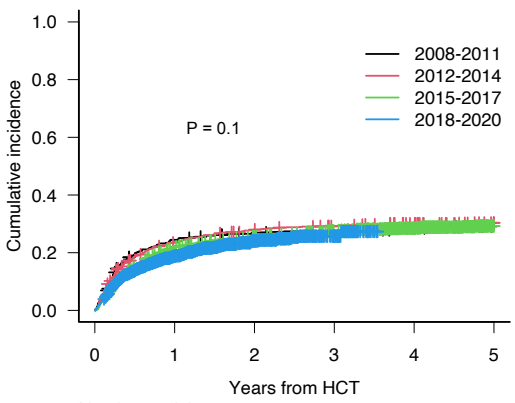
The cumulative incidence of (A) neutrophil and (B) platelet engraftment in the entire cohort.

Supplemental Figure 9 GVHD.

The cumulative incidence of (A) grade II to IV, (B) grade III to IV acute GVHD, and (C) chronic and (D) extensive chronic GVHD in the entire cohort.

Supplemental Figure 1

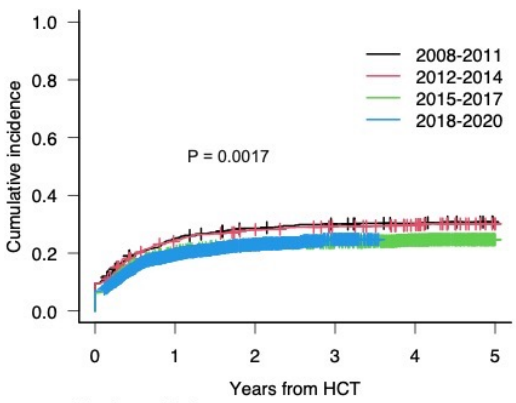
A



Number at risk

2008-2011	491	243	209	197	188	173
2012-2014	900	458	383	356	332	304
2015-2017	1296	717	619	553	396	162
2018-2020	1750	762	330	79	0	0

B



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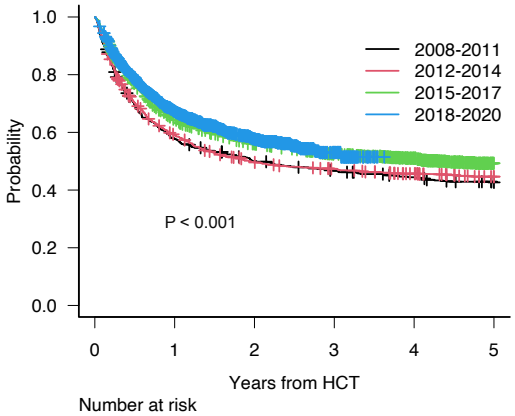
2008-2011	491	243	209	197	188	173
2012-2014	900	458	383	356	332	304
2015-2017	1296	717	619	553	396	162
2018-2020	1750	762	330	79	0	0

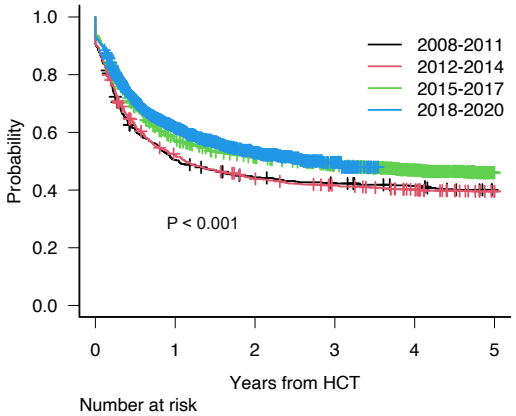
C



Number at risk

2008-2011	491	278	236	217	202	186
2012-2014	900	517	426	399	370	338
2015-2017	1296	793	663	588	425	167
2018-2020	1750	830	360	85	0	0

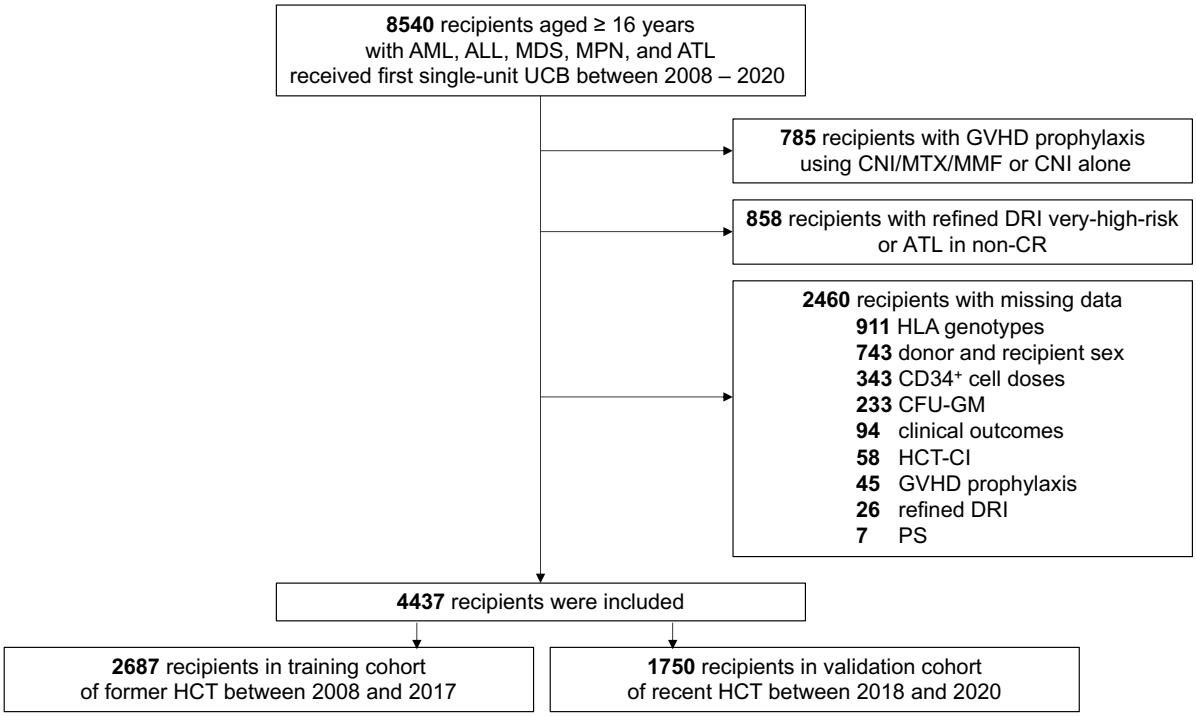
D



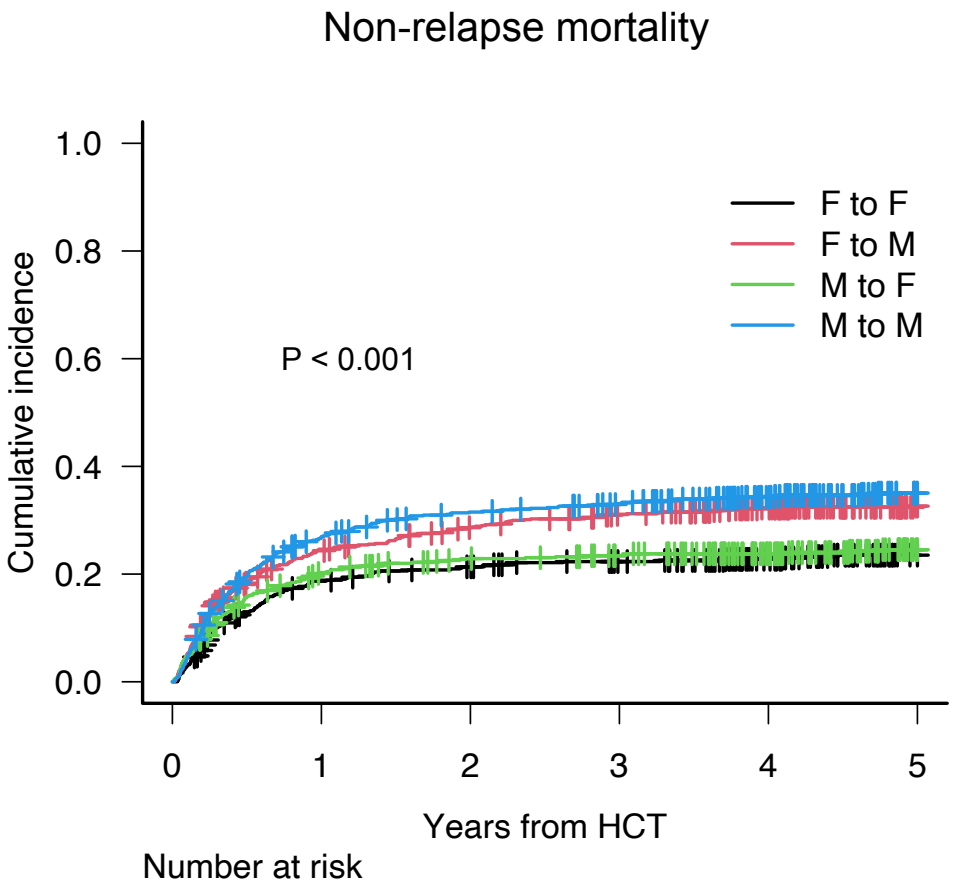
Number at risk

2008-2011	491	243	209	197	188	173
2012-2014	900	458	383	356	332	304
2015-2017	1296	717	619	553	396	162
2018-2020	1750	762	330	79	0	0

Supplemental Figure 2



Supplemental Figure 3

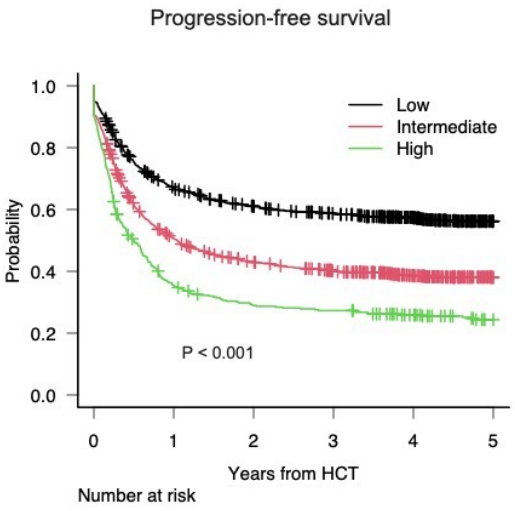


Number at risk

F to F	543	311	273	253	206	144
F to M	784	391	325	292	252	181
M to F	606	340	296	271	224	149
M to M	754	376	317	290	234	165

Supplemental Figure 4

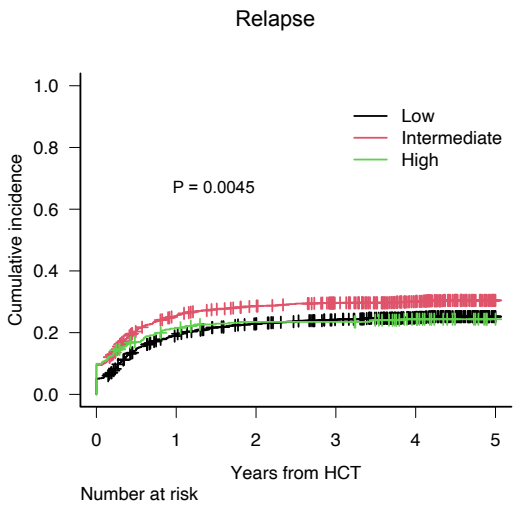
A



Number at risk

Low	982	638	568	527	439	298
Intermediate	1322	649	538	480	397	284
High	383	131	105	99	80	57

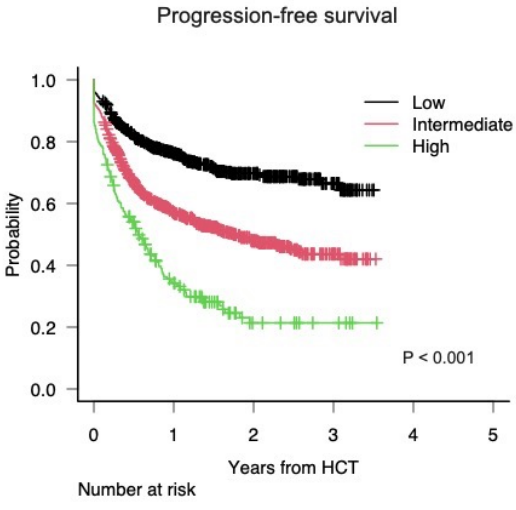
B



Number at risk

Low	982	638	568	527	439	298
Intermediate	1322	649	538	480	397	284
High	383	131	105	99	80	57

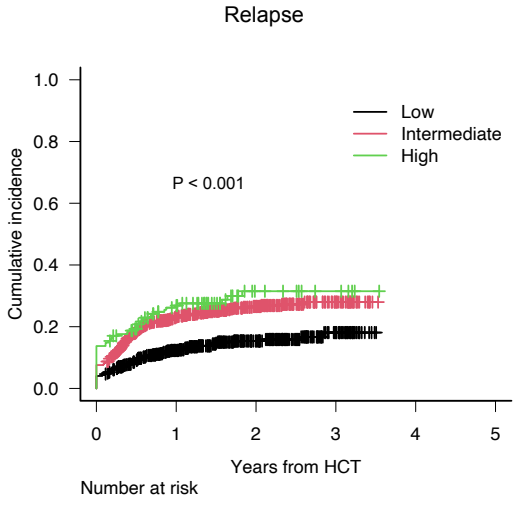
C



Number at risk

Low	644	335	151	40	0	0
Intermediate	924	377	168	34	0	0
High	182	50	11	5	0	0

D

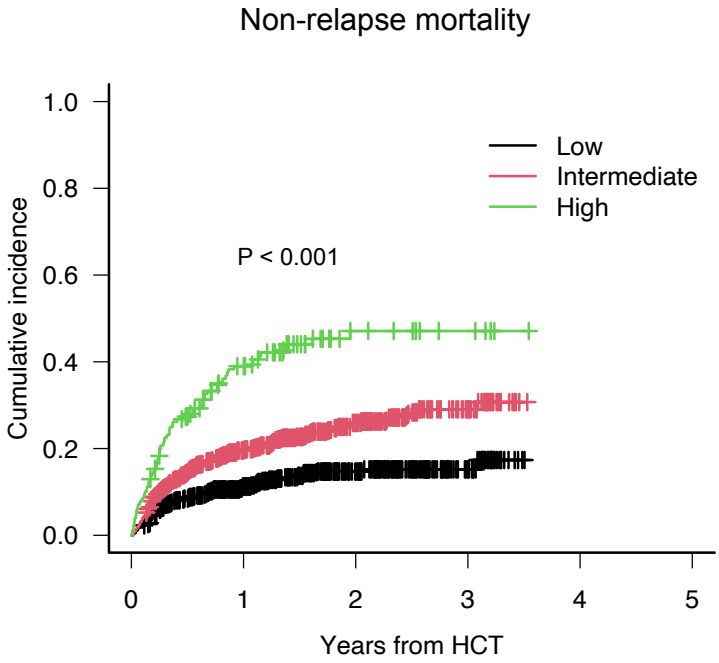


Number at risk

Low	644	335	151	40	0	0
Intermediate	924	377	168	34	0	0
High	182	50	11	5	0	0

Supplemental Figure 5

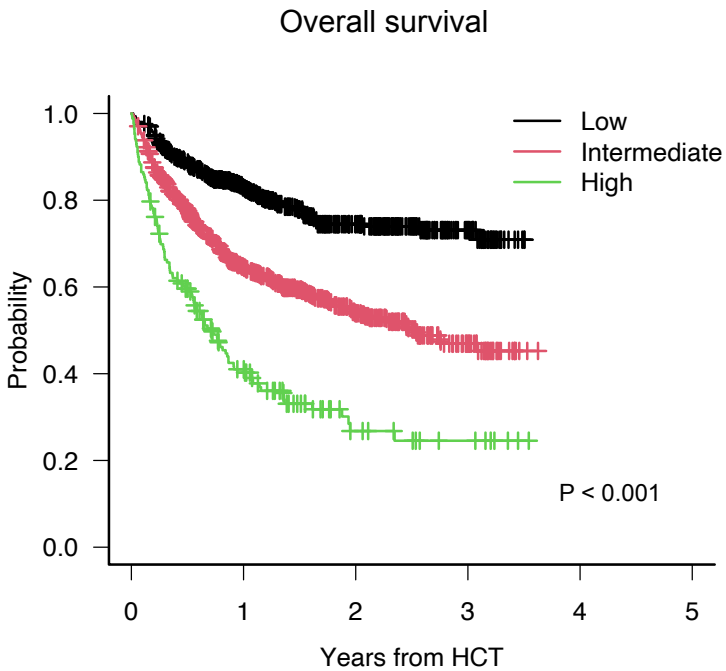
A



Number at risk

Low	616	325	148	39	0	0
Intermediate	849	360	157	34	0	0
High	170	47	11	5	0	0

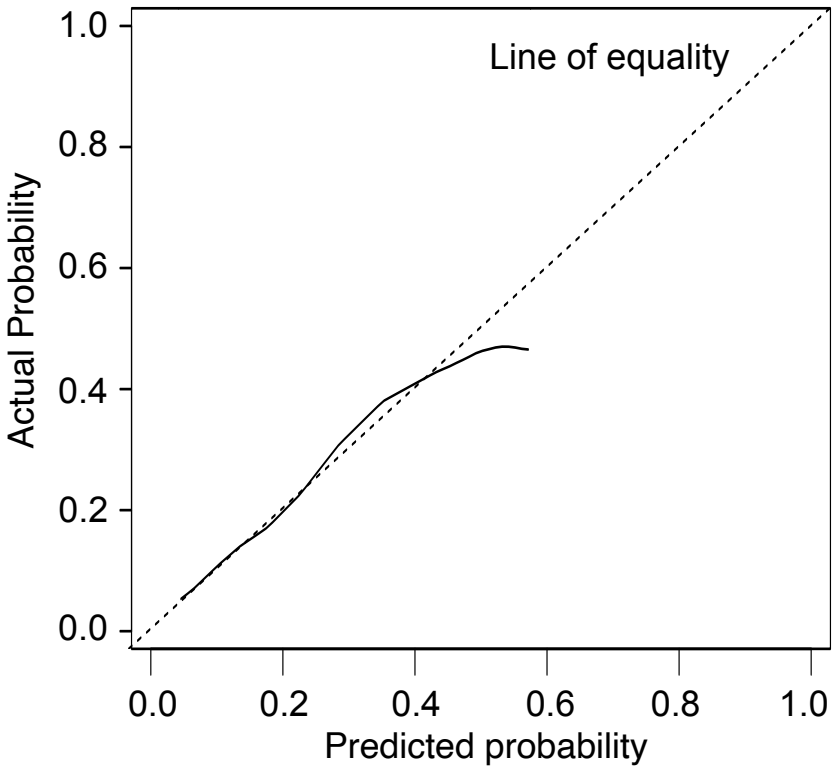
B



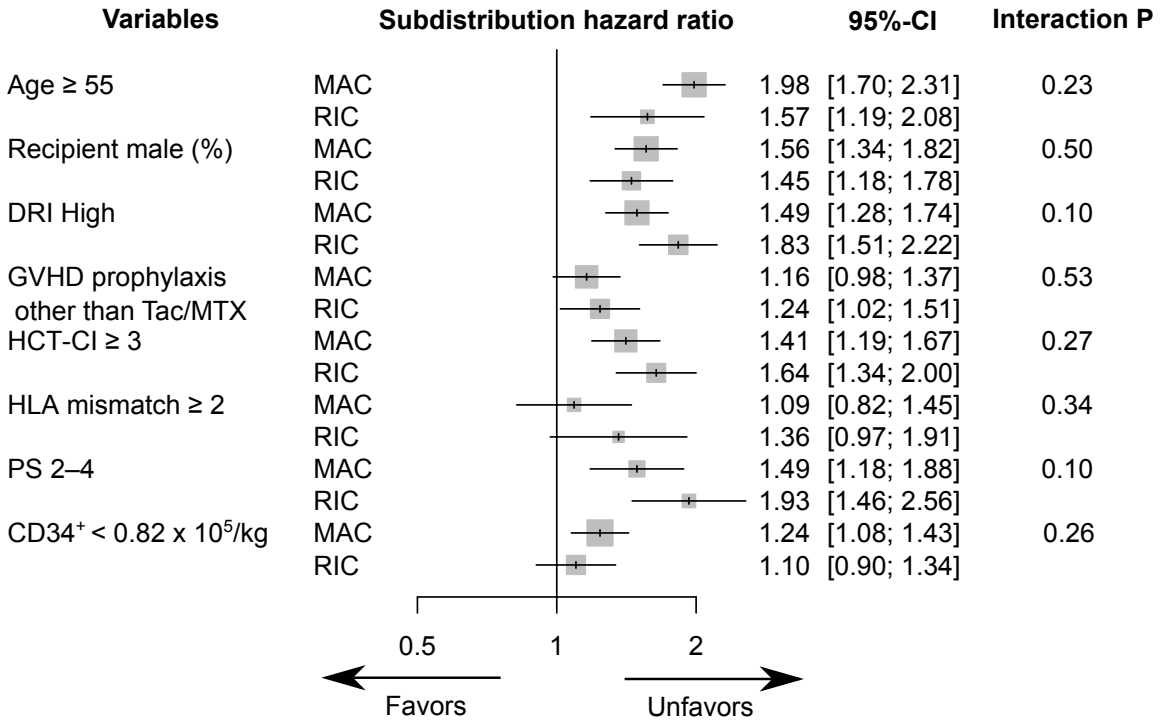
Number at risk

Low	616	350	159	42	0	0
Intermediate	849	389	169	35	0	0
High	170	55	15	7	0	0

Supplemental Figure 6

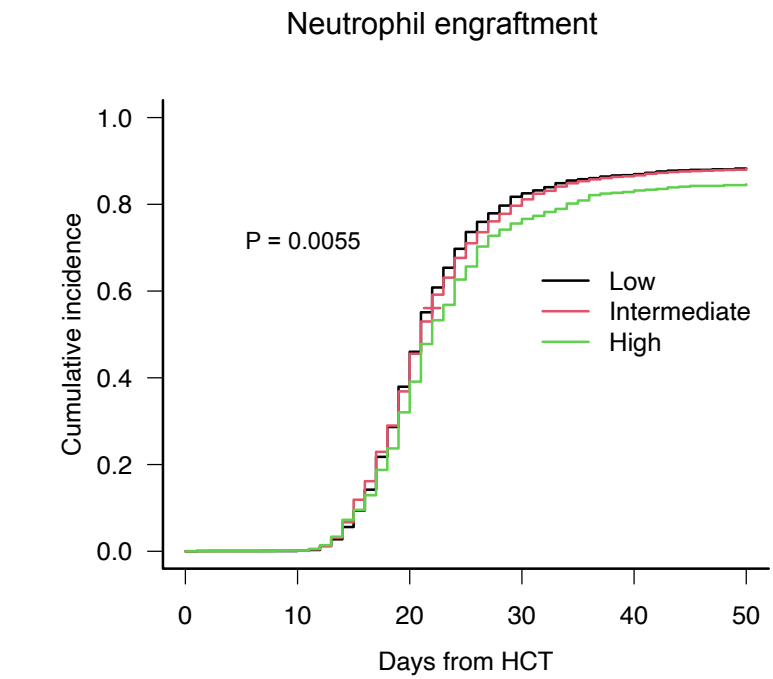


Supplemental Figure 7



Supplemental Figure 8

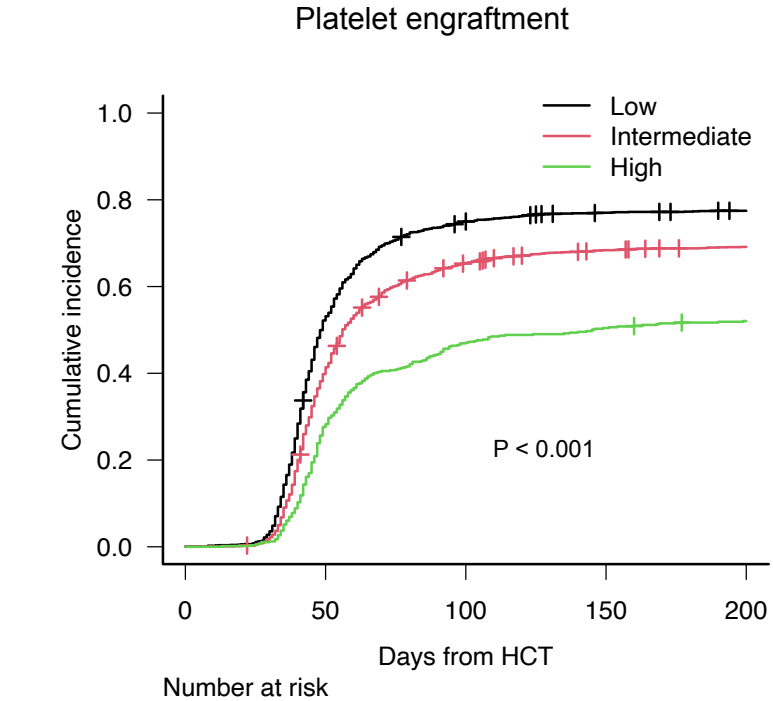
A



Number at risk

Low	1626	1616	981	256	169	137
Intermediate	2246	2222	1362	363	190	141
High	565	548	345	80	33	22

B

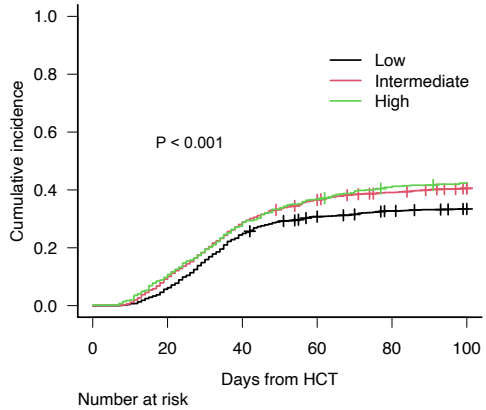


Number at risk

Low	1626	705	268	206	169
Intermediate	2245	1153	418	268	199
High	565	323	127	74	43

Supplemental Figure 9

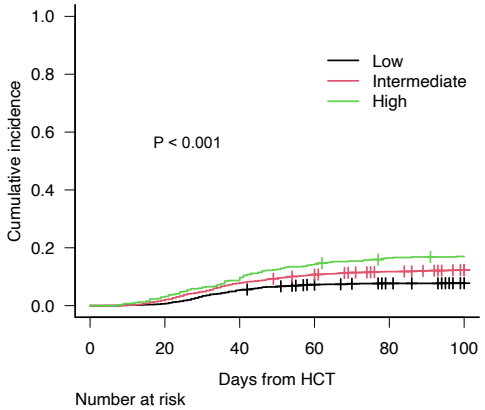
A



Number at risk

Low	1626	1445	1111	978	912	863
Intermediate	2246	1849	1370	1113	987	911
High	565	429	304	228	182	152

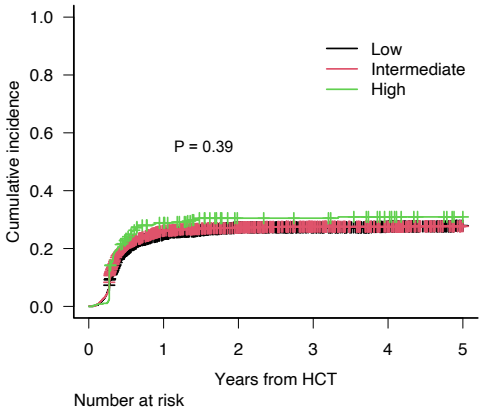
B



Number at risk

Low	1626	1520	1413	1344	1295	1242
Intermediate	2246	1989	1792	1648	1542	1457
High	565	462	403	345	307	279

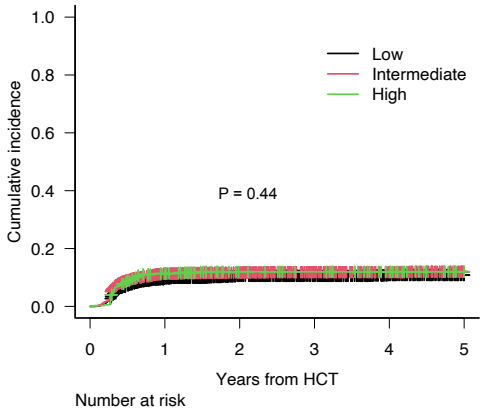
C



Number at risk

Low	1448	698	473	369	267	178
Intermediate	1825	686	447	310	230	156
High	375	103	49	43	29	15

D



Number at risk

Low	1448	870	624	489	369	251
Intermediate	1823	892	608	434	333	237
High	375	156	99	88	68	46