SUPPLEMENTARY TABLES

		Polycythemia vera	Essential thrombocythemia	Myelofibrosis	Myeloproliferative neoplasm NOS	Chronic myeloid leukemia	Myelodysplastic syndrome	Acute myeloid leukemia
Number of patients		6,649	3,287	1,443	1,638	5,567	3,520	12,832
Male/female ratio		0.97 (3279/3370)	0.73 (1385/1902)	1.24 (800/643)	0.99 (815/823)	1.26 (3109/2458)	1.35 (2021/1499)	1.09 (6689/6143)
Mean age at diagnosis		67	65	69	75	59	74	62
Lower quartile of the age of diagnosis distribution (years)		59	56	63	68	47	68	52
Calendar year of diagnosis	**1958-1967**	864	0	2	0	1,114	0	915
	1968-1977	1,175	2	162	0	1,109	0	1,908
	1978-1987	1,294	158	350	0	1,005	0	2,534
	1988-1997	1,107	817	210	300	804	594	2,635
	1998-2007	1,121	1,020	293	877	825	1,286	2,650
	2007-2015	1,088	1,290	426	461	710	1,640	2,190
Number of relatives	**Total**	15,071	11,597	3,871	5,579	13,211	11,145	32,562
	Parents	2,954	3,100	835	1,332	3,142	2,513	7,663
	Siblings	2,260	2,504	680	1,116	2,422	1,965	5,966
	Offspring	9,916	6,009	2,358	3,131	7,656	6,685	18,976
Median follow-up of first-degree relatives (years)		51	47	50	49	50	50	50
Total person-years of first-degree relatives		686,315	495,831	172,440	246,730	588,126	497,299	1,458,088

Supplementary Table 1: Characteristics of patients and first-degree relatives. NOS, not otherwise specified.

	Overall SIR (95% CI)	Age group	N	SIR (95% CI)	*P* value
Myeloid malignancies	1.99 (1.82-2.17)	≤56	167	2.19 (1.87-2.55)	0.13
		>56	312	1.89 (1.69-2.11)	
Myeloproliferative neoplasm	4.93 (4.26-5.70)	≤59	80	6.46 (5.12-8.04)	4.1×10^{-3}
		>59	101	4.15 (3.38-5.04)	
Polycythemia vera	7.66 (5.86-10.03)	≤59	26	10.90 (7.12-15.97)	0.03
		>59	27	5.96 (3.93-8.67)	
Essential thrombocythemia	6.75 (4.44-10.25)	≤56	10	9.76 (4.68-17.95)	0.17
		>56	12	5.37 (2.77-9.38)	
Chronic myeloid leukemia	0.78 (0.29-2.07)	≤47	2	1.33 (0.16-4.80)	0.39
		>47	2	0.55 (0.07-1.99)	
Myelodysplastic syndrome	6.88 (4.33-10.92)	≤68	13	11.95 (6.36-20.43)	8.8×10^{-3}
		>68	5	3.27 (1.06-7.63)	
Acute myeloid leukemia	1.53 (1.15-2.04)	≤52	13	1.48 (0.79-2.53)	0.90
		>52	33	1.55 (1.07-2.18)	

Supplementary Table 2: Familial relative risks of myeloid malignancies, by the age at diagnosis. Age group defined by the lower quartile of the distribution of the diagnosis. FDR, first-degree relative; N, number; SIR, Standardised incidence ratios; CI, confidence interval. *P* value represents a trend test. The age stratification was based on the first quartile of the age at diagnosis distribution of all incident cases for each myeloid malignancy. Where a first-degree relative appears in both age groups due to being related to two or more incident cases, the first-degree relative is counted in the younger age group. Myeloid malignancies comprise polycythemia vera, essential thrombocythemia, myelofibrosis, myeloproliferative neoplasm NOS, chronic myeloid leukemia, myelodysplastic syndrome, acute myeloid leukemia. Myeloproliferative neoplasms comprise polycythemia vera, essential thrombocythemia, myelofibrosis and myeloproliferative neoplasm NOS.

	Overall SIR (95% CI)	Relationship	N	SIR (95% CI)	*P* value
Myeloid malignancies	1.99 (1.82-2.17)	Parent-child	393	1.98 (1.79-2.19)	0.75
		Sibling	90	2.06 (1.66-2.53)	
Myeloproliferative neoplasm	4.93 (4.26-5.70)	Parent-child	149	5.02 (4.25-5.89)	0.76
		Sibling	34	4.75 (3.29-6.64)	
Polycythemia vera	7.66 (5.86-10.03)	Parent-child	53	8.84 (6.62-11.56)	1.0×10^{-5}
		Sibling	0		
Essential thrombocythemia	6.75 (4.44-10.25)	Parent-child	16	6.73 (3.85-10.93)	0.99
		Sibling	6	6.77 (2.48-14.74)	
Chronic myeloid leukemia	0.78 (0.29-2.07)	Parent-child	4	0.93 (0.25-2.38)	0.82
		Sibling	0		
Myelodysplastic syndrome	6.88 (4.33-10.92)	Parent-child	10	5.50 (2.64-10.11)	0.21
		Sibling	8	10.00 (4.32-19.70)	
Acute myeloid leukemia	1.53 (1.15-2.04)	Parent-child	30	1.19 (0.80-1.70)	2.1×10^{-3}
		Sibling	16	3.29 (1.88-5.34)	

Supplementary Table 3 - Standardised incident ratios of myeloid malignancies in first-degree relatives of individuals with myeloid malignancy, stratified by familial relationship. N, number; SIR, standardised incident ratio; CI, confidence interval. *P* value represents a trend test. Where a first-degree relative appears in both relationship groups due to being related to two or more incident cases, the first-degree relative is counted in both relationship groups. Myeloid malignancies comprise polycythemia vera, essential thrombocythemia, myelofibrosis, myeloproliferative neoplasm NOS, chronic myeloid leukemia, myelodysplastic syndrome, acute myeloid leukemia. Myeloproliferative neoplasms comprise polycythemia vera, essential thrombocythemia, myelofibrosis and myeloproliferative neoplasm NOS.

	Overall SIR (95% CI)	Sex of case	N	SIR (95% CI)	*P* value
Myeloid malignancies	1.99 (1.82-2.17)	Male	246	1.94 (1.71-2.20)	0.42
		Female	240	2.08 (1.83-2.36)	
Myeloproliferative neoplasm	4.93 (4.26-5.70)	Male	86	4.73 (3.78-5.84)	0.44
		Female	99	5.30 (4.31-6.45)	
Polycythemia vera	7.66 (5.86-10.03)	Male	29	7.98 (5.34-11.46)	0.86
		Female	25	7.60 (4.92-11.22)	
Essential thrombocythemia	6.75 (4.44-10.25)	Male	9	6.33 (2.89-12.02)	0.80
		Female	13	7.06 (3.76-12.07)	
Chronic myeloid leukemia	0.78 (0.29-2.07)	Male	1	0.34 (0.01-1.89)	0.20
		Female	3	1.33 (0.27-3.89)	
Myelodysplastic syndrome	6.88 (4.33-10.92)	Male	10	6.70 (3.21-12.32)	0.90
		Female	8	7.12 (3.07-14.03)	
Acute myeloid leukemia	1.53 (1.15-2.04)	Male	24	1.52 (0.97-2.26)	0.97
		Female	22	1.54 (0.97-2.33)	

Supplementary Table 4 - Standardised incident ratios of myeloid malignancies in first-degree relatives of individuals with myeloid malignancy, stratified by the sex of cases. N, number; SIR, standardised incident ratio; CI, confidence interval. *P* value represents a trend test. Where a first-degree relative appears in both groups due to being related to two or more incident cases, the first-degree relative is counted in both groups. Myeloid malignancies comprise polycythemia vera, essential thrombocythemia, myelofibrosis, myeloproliferative neoplasm NOS, chronic myeloid leukemia, myelodysplastic syndrome, acute myeloid leukemia. Myeloproliferative neoplasms comprise polycythemia vera, essential thrombocythemia, myelofibrosis and myeloproliferative neoplasm NOS.

	Overall SIR (95% CI)	Sex of FDR	N	SIR (95% CI)	*P* value
Myeloid malignancies	1.99 (1.82-2.17)	Male	243	1.95 (1.71-2.21)	0.52
		Female	236	2.02 (1.77-2.29)	
Myeloproliferative neoplasm	4.93 (4.26-5.70)	Male	84	4.74 (3.78-5.87)	0.53
		Female	97	5.11 (4.14-6.23)	
Polycythemia vera	7.66 (5.86-10.03)	Male	28	7.92 (5.26-11.45)	0.70
		Female	25	7.40 (4.79-10.92)	
Essential thrombocythemia	6.75 (4.44-10.25)	Male	9	6.70 (3.06-12.72)	0.98
		Female	13	6.79 (3.62-11.61)	
Chronic myeloid leukemia	0.78 (0.29-2.07)	Male	1	0.34 (0.01-1.89)	0.19
		Female	3	1.36 (0.28-3.97)	
Myelodysplastic syndrome	6.88 (4.33-10.92)	Male	10	7.00 (3.36-12.87)	0.94
		Female	8	6.74 (2.91-13.28)	
Acute myeloid leukemia	1.53 (1.15-2.04)	Male	24	1.55 (0.99-2.31)	0.93
		Female	22	1.51 (0.95-2.29)	

Supplementary Table 5 - Standardised incident ratios of myeloid malignancies in first-degree relatives of individuals with myeloid malignancy, stratified by the sex of first-degree relative. FDR, first-degree relative; N, number; SIR, standardised incident ratio; CI, confidence interval. *P* value represents a trend test. Where a first-degree relative appears in both groups due to being related to two or more incident cases, the first-degree relative is counted in both groups. Myeloid malignancies comprise polycythemia vera, essential thrombocythemia, myelofibrosis, myeloproliferative neoplasm NOS, chronic myeloid leukemia, myelodysplastic syndrome, acute myeloid leukemia. Myeloproliferative neoplasms comprise polycythemia vera, essential thrombocythemia, myelofibrosis and myeloproliferative neoplasm NOS.

	Number of affected FDRs						
			1			≥2	
Individual with hematological malignancy	**N**	**SIR (95% CI)**	**CR (%)**	**N**	**SIR (95% CI)**	**CR (%)**	***P* value**
Myeloid malignancies	470	1.96 (1.79-2.15)	1.4	9	4.55 (2.08-8.64)	4.4	0.02
Myeloproliferative neoplasm	176	4.83 (4.14-5.60)	1.2	5	17.82 (5.79-24.89)	3.2	0.01

Supplementary Table 6: Familial relative risks of myeloid and myeloproliferative neoplasm, by number of first-degree relatives affected. FDR, first-degree relative; N, number; SIR, Standardised incidence ratios; CI, confidence interval; CR, cumulative risk. *P* value represents a trend test. Myeloid malignancies comprise polycythemia vera, essential thrombocythemia, myelofibrosis, myeloproliferative neoplasm NOS, chronic myeloid leukemia, myelodysplastic syndrome, acute myeloid leukemia. Myeloproliferative neoplasms comprise polycythemia vera, essential thrombocythemia, myelofibrosis and myeloproliferative neoplasm NOS.