

**Supplementary table A. Relative risk and absolute risk (cumulative risk) of familial colorectal cancer by various combinations of family history, sex, and age at diagnosis of youngest affected relative**

Family history constellation	Relative risk by sex				Absolute risk by sex and age at diagnosis of youngest affected relative							
	Men		Women		Men				Women			
					<50 years		≥50 years		<50 years		≥50 years	
	N	SIR <sup>a</sup> (95% CI)	N	SIR <sup>a</sup> (95% CI)	N	LCR% (95% CI)	N	LCR% (95% CI)	N	LCR% (95% CI)	N	LCR (%) 95% CI
<b>0 FDR + 0 SDR</b>	82748	Reference	74369	Reference	-		-		-		-	
<b>1 FDR + 0 SDR</b>	7094	<b>1.6</b> (1.6 to 1.7)	6385	<b>1.6</b> (1.5 to 1.6)	591	<b>8.4</b> (7.6 to 9.1)	5693	<b>7.1</b> (6.9 to 7.3)	524	<b>6.8</b> (6.2 to 7.4)	4892	<b>5.4</b> (5.2 to 5.5)
<b>2 FDRs + 0 SDR</b>	534	<b>2.6</b> (2.4 to 2.9)	435	<b>2.3</b> (2.1 to 2.5)	121	<b>15</b> (12 to 18)	383	<b>10</b> (8.7 to 11)	78	<b>8.6</b> (6.5 to 11)	318	<b>7.5</b> (6.6 to 8.5)
<b>≥3 FDRs + 0 SDR</b>	67	<b>5.6</b> (4.4 to 7.2)	45	<b>4.0</b> (2.9 to 5.4)	22	<b>24</b> (13 to 34)	44	<b>19</b> (13 to 24)	17	<b>16</b> (7.6 to 23)	27	<b>14</b> (8.2 to 19)
<b>0 FDR + 1 SDR</b>	770	<b>1.2</b> (1.1 to 1.2)	807	<b>1.2</b> (1.2 to 1.3)	227	<b>4.5</b> (3.9 to 5.1)	460	<b>6.8</b> (5.7 to 7.9)	257	<b>4.1</b> (3.6 to 4.6)	443	<b>4.6</b> (3.8 to 5.4)
<b>1 FDR + 1 SDR</b>	168	<b>2.4</b> (2.1 to 2.8)	150	<b>2.2</b> (1.9 to 2.6)	83	<b>10</b> (7.7 to 13)	68	<b>7.6</b> (4.5 to 11)	71	<b>7.9</b> (5.9 to 10)	70	<b>5.8</b> (3.6 to 7.8)
<b>2 FDRs + 1 SDR</b>	26	<b>4.5</b> (2.9 to 6.6)	24	<b>4.7</b> (3.0 to 7.0)	19	<b>16</b> (7.3 to 23)	6	<b>10</b> (1.7 to 18)	17	<b>15</b> (6.8 to 22)	5	11 (0 to 21)
<b>≥3 FDRs + 1 SDR</b>	6	<b>9.9</b> (3.6 to 22)	7	<b>12</b> (4.9 to 25)	5	<b>25</b> (3.4 to 41)	1	13 (0 to 34)	3	19 (0 to 36)	3	32 (0 to 58)
<b>0 FDR + 2 SDRs</b>	50	<b>1.5</b> (1.1 to 2.0)	57	<b>1.8</b> (1.3 to 2.3)	8	4.0 (0 to 8.4)	40	<b>39</b> (0.6 to 63)	2	0.3 (0 to 0.6)	54	5.3 (0 to 12)
<b>1 FDR + 2 SDRs</b>	20	<b>5.7</b> (3.5 to 8.7)	16	<b>5.1</b> (2.9 to 8.3)	12	<b>12</b> (2.4 to 20)	8	<b>1.4</b> (0.3 to 2)	8	7.2 (0 to 16)	8	21 (0 to 45)
<b>2 FDRs + 2 SDRs</b>	4	<b>14</b> (3.7 to 35)	2	4.3 (0.5 to 16)	4	19 (0 to 34)	0	-	2	8.1 (0 to 18)	0	-
<b>≥3 FDRs + 2 SDRs</b>	0	-	0	-	0	-	0	-	0	-	0	-
<b>0 FDR + ≥3 SDRs</b>	6	2.1 (0.8 to 4.6)	2	0.8 (0.1 to 2.8)	2	40 (0 to 77)	4	7.4 (0 to 16)	1	0.6 (0 to 1.7)	1	0.1 (0 to 0.4)
<b>1 FDR + ≥3 SDRs</b>	2	4.7 (0.6 to 17)	0	-	2	5.5 (0 to 13)	0	-	0	-	0	-
<b>2 FDRs + ≥3 SDRs</b>	2	<b>21</b> (2.5 to 76)	0	-	0	-	2	78 (0 to 98)	0	-	0	-
<b>≥3 FDRs + ≥3 SDRs</b>	0	-	0	-	0	-	0	-	0	-	0	-

N: Number of cases; SIR: Standardized incidence ratio; CI: Confidence interval; LCR: Lifetime (0-79 years) cumulative risk; FDR: First-degree relative; SDR: Second-degree relative

<sup>a</sup> Adjusted for age, calendar periods, residential areas and socioeconomic status

Significant risks are indicated in bold.

**Supplementary table B. Relative risk and absolute risk (cumulative risk) of familial colorectal cancer by detailed relationship, sex, and age at diagnosis of youngest affected relative**

Relationship	Relative risk by sex				Absolute risk by sex and age at diagnosis of youngest affected relative							
	Men		Women		Men				Women			
	N	SIR <sup>a</sup> (95% CI)	N	SIR <sup>a</sup> (95% CI)	<50	≥50	<50	≥50	<50	≥50	<50	≥50
<b>1 Sibling + 0 SDR</b>	1164	<b>1.7</b> (1.6 to 1.8)	925	<b>1.6</b> (1.5 to 1.7)	106	<b>10</b> (6.7 to 14)	1039	<b>7.9</b> (7.3 to 8.5)	79	<b>6.3</b> (4.4 to 8.2)	825	<b>5.9</b> (5.4 to 6.4)
<b>1 Brother</b>	656	<b>1.8</b> (1.6 to 1.9)	509	<b>1.7</b> (1.5 to 1.8)	53	<b>12</b> (5.8 to 17)	595	<b>8.0</b> (7.2 to 8.8)	41	<b>8.0</b> (4.5 to 11)	457	<b>6.0</b> (5.3 to 6.7)
<b>1 Sister</b>	508	<b>1.6</b> (1.5 to 1.8)	416	<b>1.5</b> (1.4 to 1.7)	53	<b>9.3</b> (4.6 to 14)	444	<b>7.8</b> (6.9 to 8.7)	38	<b>5.1</b> (3.1 to 7.1)	368	<b>5.8</b> (5.1 to 6.5)
<b>1 Half-Sibling + 0 FDR</b>	71	<b>1.5</b> (1.1 to 1.8)	69	<b>1.6</b> (1.3 to 2.1)	9	4.3 (0 to 8.8)	59	<b>7.7</b> (4.9 to 10)	14	<b>6.7</b> (0.2 to 13)	54	<b>4.8</b> (3.2 to 6.4)
<b>1 Maternal half-sibling</b>	29	1.2 (0.8 to 1.8)	31	<b>1.6</b> (1.1 to 2.3)	4	<b>2.0</b> (0.0 to 4.0)	23	<b>6.1</b> (2.4 to 9.7)	4	2.7 (0 to 5.4)	26	<b>5.6</b> (2.7 to 8.5)
<b>1 Paternal half-sibling</b>	42	<b>1.7</b> (1.2 to 2.3)	38	<b>1.7</b> (1.2 to 2.3)	5	7.9 (0 to 19)	36	<b>9.1</b> (5.1 to 13)	10	8.5 (0 to 17)	28	<b>4.0</b> (2.4 to 5.7)
<b>1 Parent + 0 SDR</b>	3052	<b>1.6</b> (1.5 to 1.7)	2468	<b>1.6</b> (1.5 to 1.6)	104	<b>17</b> (4.1 to 28)	2917	<b>7.3</b> (6.9 to 7.7)	88	<b>7.9</b> (2.9 to 13)	2348	<b>5.7</b> (5.4 to 6.0)
<b>Father</b>	1470	<b>1.6</b> (1.5 to 1.7)	1227	<b>1.6</b> (1.5 to 1.7)	48	40 (0 to 69)	1407	<b>7.0</b> (6.5 to 7.5)	46	<b>5.7</b> (3.2 to 8.1)	1167	<b>5.9</b> (5.4 to 6.3)
<b>Mother</b>	1582	<b>1.6</b> (1.5 to 1.7)	1241	<b>1.5</b> (1.4 to 1.6)	56	<b>9.7</b> (5.0 to 14)	1510	<b>7.6</b> (7.1 to 8.2)	42	<b>8.2</b> (1.9 to 14)	1181	<b>5.5</b> (5.1 to 6.0)
<b>1 Grandparent + 0 FDR</b>	231	<b>1.2</b> (1.0 to 1.3)	229	<b>1.2</b> (1.0 to 1.3)	6	<b>0.3</b> (0.0 to 0.5)	225	<b>1.3</b> (0.8 to 1.9)	7	5.9 (0 to 16)	222	<b>1.9</b> (0.1 to 3.7)
<b>1 Uncle/Aunt + 0 FDR</b>	90	1.1 (0.9 to 1.4)	99	<b>1.2</b> (1.0 to 1.5)	5	0.3 (0 to 0.5)	85	<b>1.4</b> (0.7 to 2.1)	7	1.0 (0 to 2.6)	92	2.6 (0 to 6.1)
<b>1 Half-sibling + 1 FDR</b>	23	<b>3.7</b> (2.4 to 5.6)	18	<b>3.3</b> (2.0 to 5.2)	11	<b>13</b> (4.7 to 21)	11	<b>14</b> (2.4 to 25)	5	15 (0 to 29)	12	<b>6.3</b> (2.4 to 10)
<b>1 Maternal half-sib. + 1 FDR</b>	8	<b>2.8</b> (1.2 to 5.6)	7	<b>2.6</b> (1.0 to 5.3)	2	6.1 (0 to 14)	6	<b>12</b> (0.5 to 22)	1	2.7 (0 to 7.9)	6	<b>7.2</b> (1.0 to 13)
<b>1 Paternal half-sib. + 1 FDR</b>	15	<b>4.4</b> (2.5 to 7.3)	11	<b>4.0</b> (2.0 to 7.2)	9	<b>19</b> (5.0 to 31)	5	14 (0 to 29)	4	20 (0 to 38)	6	<b>5.3</b> (0.6 to 9.7)
<b>1 Half-sibling + 1 Sibling</b>	4	3.0 (0.8 to 7.8)	4	<b>3.7</b> (1.0 to 9.6)	0	-	3	29 (0 to 55)	0	-	3	11 (0 to 22)
<b>1 Half-sibling + 1 Parent</b>	19	<b>3.9</b> (2.4 to 6.2)	13	<b>3.1</b> (1.7 to 5.3)	11	<b>18</b> (6.0 to 29)	8	<b>7.1</b> (0.9 to 13)	4	11 (0 to 21)	9	<b>4.8</b> (1.4 to 8.1)
<b>1 Grandparent + 1 FDR</b>	39	<b>2.8</b> (2.0 to 3.8)	43	<b>3.2</b> (2.3 to 4.4)	8	<b>1.1</b> (0.3 to 1.9)	31	<b>1.6</b> (0.8 to 2.5)	11	11 (0 to 23)	32	<b>2.2</b> (0.8 to 3.5)
<b>1 Uncle/Aunt + 1 FDR</b>	16	<b>2.5</b> (1.4 to 4.0)	12	1.9 (1.0 to 3.3)	5	<b>1.3</b> (0.1 to 2.6)	11	<b>1.7</b> (0.3 to 3.1)	6	<b>3.4</b> (0.3 to 6.3)	6	<b>0.4</b> (0.1 to 0.8)
<b>2 Half-siblings + 0 FDR</b>	4	<b>4.8</b> (1.3 to 12)	2	2.2 (0.3 to 8.1)	1	12 (0 to 31)	3	25 (0 to 48)	0	-	2	7.2 (0 to 17)
<b>2 Siblings + 0 SDR</b>	60	<b>2.3</b> (1.8 to 3.0)	45	<b>2.2</b> (1.6 to 2.9)	9	<b>8.3</b> (2.5 to 14)	51	<b>10</b> (6.9 to 14)	2	1.8 (0 to 4.2)	42	<b>9.2</b> (5.7 to 12)
<b>1 Sibling + 1 Parent + 0 SDR</b>	220	<b>2.8</b> (2.4 to 3.2)	176	<b>2.6</b> (2.2 to 3.0)	47	<b>14</b> (8.6 to 20)	171	<b>9.4</b> (7.7 to 11)	31	<b>16</b> (5.0 to 26)	143	<b>8.1</b> (6.4 to 9.7)

N: Number of cases; SIR: Standardized incidence ratio; CI: Confidence interval; LCR: Lifetime (0-79 years) cumulative risk; FDR: First-degree relative; SDR: Second-degree relative; Half-sib.:

Half-sibling; <sup>a</sup> Adjusted for age, calendar periods, residential areas and socioeconomic status; maximum age in the third generation of the latest available dataset was 68 years, so cumulative risk for grandparents/aunts/uncle are limited to this age. Significant risks are indicated in bold.

**Supplementary table C. Relative risk and absolute risk (cumulative risk) of familial colorectal cancer by various combinations of family history excluding half-siblings**

Family history constellation	Relative risk by sex				Absolute risk by sex and age at diagnosis of youngest affected relative							
	Men		Women		Men			Women				
					<50	≥50		<50	≥50			
	N	SIR <sup>a</sup> (95% CI)	N	SIR <sup>a</sup> (95% CI)	N	LCR% (95% CI)	N	LCR% (95% CI)	N	LCR% (95% CI)	N	LCR% (95% CI)
<b>0 FDR + 1 SDR (excl. half-sibling)</b>	699	<b>1.1</b> (1.1 to 1.2)	738	<b>1.2</b> (1.1 to 1.3)	218	<b>4.4</b> (3.8 to 5.1)	401	<b>6.5</b> (5.3 to 7.8)	243	<b>4.0</b> (3.5 to 4.5)	389	<b>4.3</b> (3.4 to 5.2)
<b>1 FDR + 1 SDR (excl. half-sibling)</b>	145	<b>2.3</b> (1.9 to 2.7)	132	<b>2.1</b> (1.8 to 2.5)	72	<b>9.7</b> (7.2 to 12)	57	<b>6.1</b> (3.2 to 8.9)	66	<b>7.7</b> (5.7 to 9.6)	58	<b>5.5</b> (3.1 to 7.7)
<b>2 FDRs + 1 SDR (excl. half-sibling)</b>	25	<b>4.7</b> (3.0 to 7.0)	23	<b>4.9</b> (3.1 to 7.4)	19	<b>16</b> (7.8 to 24)	5	<b>12</b> (1.1 to 21)	17	<b>15</b> (7.0 to 22)	4	9.2 (0 to 20)
<b>≥3 FDRs + 1 SDR (excl. half-sibling)</b>	6	<b>10</b> (3.8 to 22)	6	<b>10</b> (3.8 to 23)	5	<b>25</b> (3.4 to 41)	1	13 (0 to 34)	2	13 (0 to 29)	3	32 (0 to 58)
<b>0 FDR + 2 SDRs (excl. half-siblings)</b>	45	<b>1.4</b> (1.0 to 1.9)	54	<b>1.8</b> (1.3 to 2.3)	6	3.3 (0 to 7.6)	37	45 (0 to 76)	2	0.3 (0 to 0.7)	51	<b>1.8</b> (0.7 to 2.9)
<b>1 FDR + 2 SDRs (excl. half-siblings)</b>	18	<b>5.3</b> (3.2 to 8.5)	14	<b>4.7</b> (2.6 to 8.0)	10	<b>11</b> (1.3 to 20)	8	<b>1.4</b> (0.3 to 2.5)	7	7.4 (0 to 17)	7	8.7 (0 to 19)
<b>2 FDRs + 2 SDRs (excl. half-siblings)</b>	3	<b>10</b> (2.2 to 31)	2	4.3 (0.5 to 16)	3	15 (0 to 30)	0	-	2	8.5 (0 to 19)	0	-
<b>≥3 FDRs + 2 SDRs (excl. half-siblings)</b>	0	-	0	-	0	-	0	-	0	-	0	-

N: Number of cases; SIR: Standardized incidence ratio; CI: Confidence interval; LCR: Lifetime (0-79 years) cumulative risk; FDR: First-degree relative; SDR: Second-degree relative

<sup>a</sup> Adjusted for sex, age, calendar periods, residential areas and socioeconomic status

Significant risks are indicated in bold.

**Supplementary table D. Relative risk of familial colorectal cancer by calendar periods of diagnosis**

Family history constellation	<1970		≥1970		<1980		≥1980		<1990		≥1990		<2000		≥2000		<2005		≥2005	
	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)	N	SIR (95%CI)
<b>0 FDR + 0 SDR</b>	8095	Reference	149022	Reference	23517	Reference	133600	Reference	49634	Reference	107483	Reference	84973	Reference	72144	Reference	105086	Reference	52031	Reference
<b>1 FDR + 0 SDR</b>	681	<b>1.7</b> (1.6 to 1.9)	12798	<b>1.6</b> (1.6 to 1.6)	1845	<b>1.6</b> (1.6 to 1.7)	11634	<b>1.6</b> (1.6 to 1.6)	3721	<b>1.6</b> (1.6 to 1.7)	9758	<b>1.6</b> (1.6 to 1.6)	6220	<b>1.6</b> (1.6 to 1.6)	7259	<b>1.6</b> (1.6 to 1.6)	7919	<b>1.6</b> (1.6 to 1.7)	5560	<b>1.6</b> (1.5 to 1.6)
<b>2 FDRs + 0 SDR</b>	33	<b>2.5</b> (1.7 to 3.5)	936	<b>2.5</b> (2.3 to 2.6)	94	<b>2.4</b> (1.9 to 2.9)	875	<b>2.5</b> (2.3 to 2.7)	184	<b>2.2</b> (1.9 to 2.6)	785	<b>2.5</b> (2.4 to 2.7)	381	<b>2.5</b> (2.3 to 2.8)	588	<b>2.4</b> (2.2 to 2.6)	512	<b>2.6</b> (2.3 to 2.8)	457	<b>2.4</b> (2.2 to 2.6)
<b>≥3 FDRs + 0 SDR</b>	2	3.1 (0.4 to 11)	110	<b>4.9</b> (4.0 to 5.9)	8	<b>4.0</b> (1.7 to 8.0)	104	<b>4.9</b> (4.0 to 6.0)	18	<b>4.2</b> (2.5 to 6.7)	94	<b>5.0</b> (4.0 to 6.1)	49	<b>6.1</b> (4.5 to 8.0)	63	<b>4.2</b> (3.2 to 5.4)	56	<b>5.0</b> (3.8 to 6.5)	56	<b>4.7</b> (3.6 to 6.1)
<b>0 FDR + 1 SDR</b>	83	<b>1.5</b> (1.2 to 1.9)	1494	<b>1.2</b> (1.1 to 1.2)	230	<b>1.5</b> (1.3 to 1.7)	1347	<b>1.2</b> (1.1 to 1.2)	405	<b>1.3</b> (1.1 to 1.4)	1172	<b>1.2</b> (1.1 to 1.2)	665	<b>1.2</b> (1.1 to 1.3)	912	<b>1.2</b> (1.1 to 1.3)	839	<b>1.2</b> (1.1 to 1.3)	738	<b>1.2</b> (1.1 to 1.2)
<b>1 FDR + 1 SDR</b>	18	<b>3.0</b> (1.8 to 4.8)	300	<b>2.3</b> (2.0 to 2.6)	41	<b>2.4</b> (1.7 to 3.3)	277	<b>2.3</b> (2.0 to 2.6)	66	<b>1.9</b> (1.5 to 2.5)	252	<b>2.5</b> (2.2 to 2.8)	111	<b>2.0</b> (1.6 to 2.4)	207	<b>2.6</b> (2.2 to 2.9)	148	<b>2.1</b> (1.8 to 2.4)	170	<b>2.6</b> (2.2 to 3.0)
<b>2 FDRs + 1 SDR</b>	5	<b>12</b> (3.8 to 27)	45	<b>4.3</b> (3.1 to 5.8)	7	<b>5.3</b> (2.1 to 11)	43	<b>4.5</b> (3.3 to 6.1)	19	<b>6.5</b> (3.9 to 10)	31	<b>3.9</b> (2.6 to 5.5)	28	<b>5.8</b> (3.9 to 8.4)	22	<b>3.6</b> (2.3 to 5.5)	33	<b>5.4</b> (3.7 to 7.6)	17	<b>3.5</b> (2.1 to 5.7)
<b>≥3 FDRs + 1 SDR</b>	1	16 (0.4 to 87)	12	<b>11</b> (5.5 to 19)	4	<b>32</b> (8.6 to 81)	9	<b>8.5</b> (3.9 to 16)	5	<b>22</b> (7.0 to 50)	8	<b>8.4</b> (3.6 to 17)	12	<b>28</b> (14 to 48)	1	1.3 (0.0 to 7.4)	12	<b>20</b> (11 to 36)	1	1.7 (0.0 to 9.3)
<b>0 FDR + 2 SDRs</b>	3	4.7 (1.0 to 14)	104	<b>1.6</b> (1.3 to 2.0)	3	1.3 (0.3 to 3.9)	104	<b>1.7</b> (1.4 to 2.0)	9	1.4 (0.6 to 2.7)	98	<b>1.7</b> (1.4 to 2.0)	16	1.1 (0.7 to 1.8)	91	<b>1.8</b> (1.4 to 2.2)	28	1.3 (0.9 to 1.9)	79	<b>1.8</b> (1.4 to 2.2)
<b>1 FDR + 2 SDRs</b>	1	12 (0.3 to 64)	35	<b>5.3</b> (3.7 to 7.4)	1	3.4 (0.1 to 19)	35	<b>5.5</b> (3.8 to 7.6)	2	2.5 (0.3 to 8.9)	34	<b>5.8</b> (4.0 to 8.1)	6	<b>3.5</b> (1.3 to 7.6)	30	<b>6.1</b> (4.1 to 8.7)	12	<b>4.9</b> (2.5 to 8.6)	24	<b>5.7</b> (3.6 to 8.5)
<b>2 FDRs + 2 SDRs</b>	0	-	6	<b>8.2</b> (3.0 to 18)	2	<b>22</b> (2.6 to 78)	4	<b>6.0</b> (1.6 to 15)	2	<b>9.9</b> (1.2 to 36)	4	<b>7.2</b> (2.0 to 18)	3	<b>8.2</b> (1.7 to 24)	3	<b>7.6</b> (1.6 to 22)	5	<b>11</b> (3.6 to 26)	1	3.2 (0.1 to 18)
<b>≥3 FDRs + 2 SDRs</b>	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
<b>0 FDR + ≥3 SDRs</b>	0	-	8	1.5 (0.6 to 2.9)	0	-	8	1.5 (0.7 to 3.0)	0	-	8	1.6 (0.7 to 3.1)	0	-	8	1.8 (0.8 to 3.6)	2	1.3 (0.2 to 4.6)	6	1.6 (0.6 to 3.4)
<b>1 FDR + ≥3 SDRs</b>	0	-	2	2.4 (0.3 to 8.7)	0	-	2	2.5 (0.3 to 9.0)	0	-	2	2.8 (0.3 to 10)	0	-	2	3.4 (0.4 to 12)	0	-	2	4.0 (0.5 to 14)
<b>2 FDRs + ≥3 SDRs</b>	0	-	2	<b>21</b> (2.6 to 77)	0	-	2	<b>23</b> (2.8 to 84)	0	-	2	<b>30</b> (3.6 to 107)	0	-	2	<b>59</b> (7.2 to 214)	0	-	2	<b>137</b> (17 to 495)
<b>≥3 FDRs + ≥3 SDRs</b>	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-

N: Number of cases; SIR: Standardized incidence ratio; CI: Confidence interval; LCR: Lifetime (0-79 years) cumulative risk; FDR: First-degree relative; SDR: Second-degree relative

All SIRs were adjusted for sex, age, calendar periods, residential areas and socioeconomic status

Significant risks are indicated in bold.