Munich Cancer Registry

Munich Cancer Registry at Munich Cancer Center
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Munich, 81377
Germany

http://www.tumorregister-muenchen.de/en

Cancer statistics: Survival

C18-C21: Colorectal cancer

Year of diagnosis	1988-2012
Patients	51,200
Diseases	52,531
Cases evaluated	30,559
Creation date	03/25/2014
Export date	02/12/2014
Population	4.5 m

C18-C21: Malignant neoplasm of colorectum incl. anus
Period of diagnosis
Relative survival 1988-2012　　　　　N=30,559

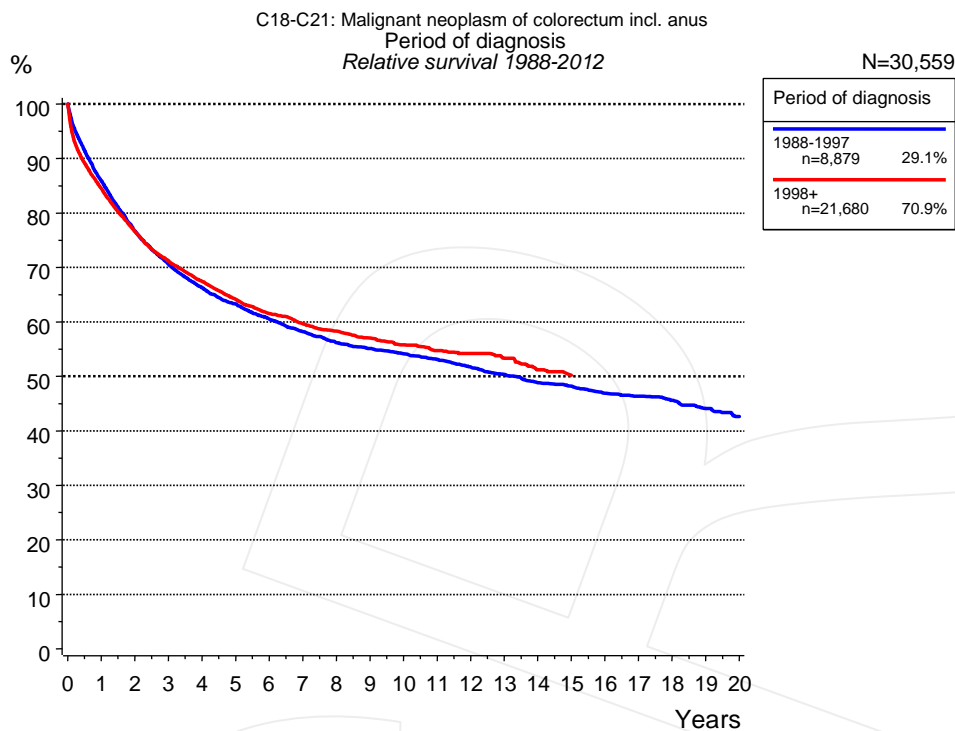| Period of diagnosis		
1988-1997 n=8,879		29.1%
1998+ n=21,680		70.9%

Figure 1a. Relative survival of patients with colorectal cancer by period of diagnosis. Included in the evaluation are 30,559 cases diagnosed between 1988 and 2012.

The presented survival curves are derived from clinical records with valid follow-up informations, which means that death certificate cases (DCO) cases are omitted from the analysis. With this one restriction, the MCR has provided population-based statistics since 1988, collecting data on all cancer cases in the region of southern Bavaria. Historical data of previous time periods can be heavily selected, therefore, univariate survival comparisons of the presented time periods must be carefully considered. Nonetheless, all calculable survival curves are depicted to facilitate the comparison of long time follow-up analyses of relative survival between particular cancers.

	Period of diagnosis			
	1988-1997 n=8,879		1998+ n=21,680	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	82.8	85.9	81.3	84.5
2	71.3	76.6	71.3	76.6
3	63.6	70.7	64.1	71.1
4	57.6	66.3	58.7	67.4
5	53.1	63.3	54.0	64.2
6	49.0	60.5	50.1	61.5
7	45.5	58.2	47.0	59.7
8	42.4	56.2	44.3	58.3
9	40.2	55.1	41.8	57.0
10	38.1	54.2	39.5	55.8
11	36.0	53.1	37.4	54.7
12	33.8	51.7	35.7	54.2
13	31.8	50.4	33.7	53.3
14	29.8	48.9	31.1	51.2
15	28.3	48.2		
16	26.6	46.9		
17	25.4	46.4		
18	24.0	45.6		
19	22.2	44.1		
20	20.7	42.6		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by period of diagnosis for period 1988-2012 (N=30,559).

C18-C21: Malignant neoplasm of colorectum incl. anus
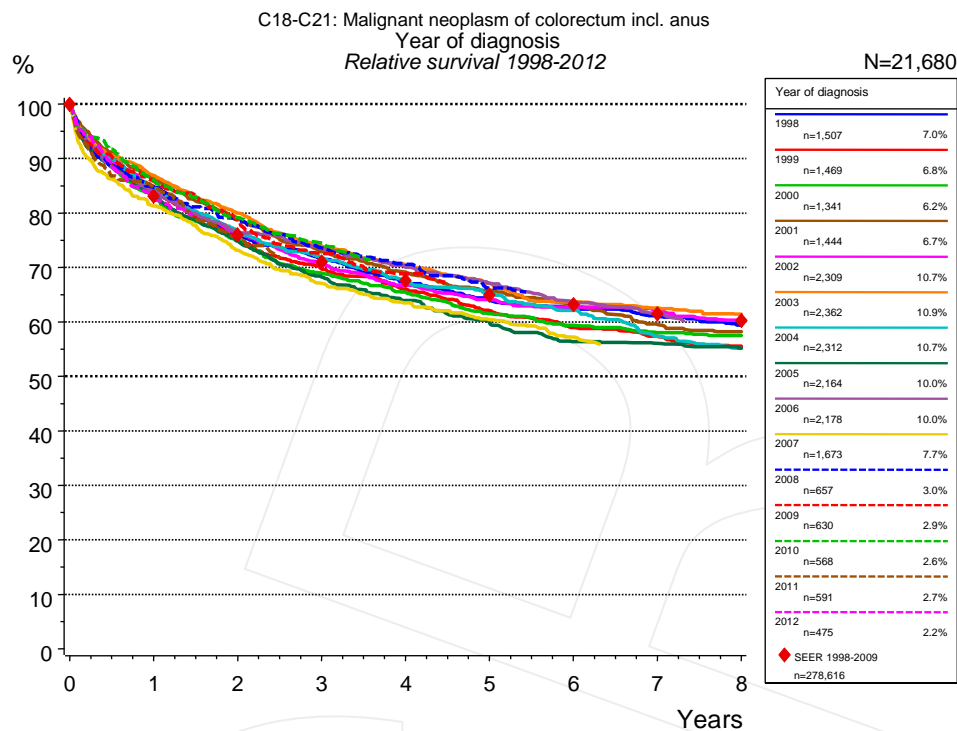Year of diagnosis
Relative survival 1998-2012

Figure 1c. Relative survival of patients with colorectal cancer by year of diagnosis. Included in the evaluation are 21,680 cases diagnosed between 1998 and 2012.

The survival results of the SEER program (Surveillance, Epidemiology, and End Results) of the American National Cancer Institute (NCI) are summarized as the period of diagnosis from 1998 to 2009, and are represented by red diamonds in order to facilitate comparisons between MCR and SEER.

	Year of diagnosis													
	1998 n=1,507		1999 n=1,469		2000 n=1,341		2001 n=1,444		2002 n=2,309		2003 n=2,362		2004 n=2,312	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	81.5	84.8	80.6	84.0	79.8	83.0	83.1	86.3	81.4	84.6	83.8	86.9	81.4	84.5
2	70.4	76.0	69.8	75.2	69.8	75.1	73.4	78.8	70.7	76.2	74.6	79.9	71.3	76.5
3	64.1	71.6	62.4	69.7	61.9	68.9	65.7	72.9	63.3	70.6	66.8	73.9	64.6	71.7
4	58.3	67.3	57.0	66.0	56.9	65.4	60.4	69.1	57.9	66.7	61.6	70.4	58.8	67.5
5	53.8	64.4	51.7	62.0	51.7	61.5	55.7	65.8	53.7	64.1	56.7	67.0	55.0	65.4
6	50.4	62.4	47.5	59.0	48.4	59.4	51.7	63.0	51.0	62.7	52.0	63.6	50.5	62.1
7	47.6	61.0	44.7	57.4	45.7	58.0	47.5	59.6	48.5	61.9	49.4	62.5	44.8	57.4
8	44.8	59.4	42.0	55.6	44.1	57.5	45.1	58.2	45.6	60.3	46.7	61.4	41.5	55.2

	Year of diagnosis													
cont'd	2005 n=2,164		2006 n=2,178		2007 n=1,673		2008 n=657		2009 n=630		2010 n=568		2011 n=591	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	80.2	83.3	81.2	84.0	78.2	81.3	81.4	84.8	82.9	85.8	83.1	86.1	81.9	84.9
2	69.9	74.8	71.6	76.4	68.1	73.1	73.1	78.7	73.7	78.7	73.8	79.1	70.5	75.4
3	61.8	68.3	67.0	73.6	60.3	67.1	66.1	73.6	65.6	72.6	67.0	74.4		
4	56.0	64.0	61.8	70.1	55.2	63.5	61.5	70.7	60.2	68.8				
5	51.0	60.0	57.4	67.1	50.8	60.4	55.5	66.2						
6	46.1	56.4	52.8	63.8	46.6	57.2								
7	44.4	56.1	49.2	61.6										
8	42.2	55.2												

Year of diagnosis		
cont'd	2012	
	n=475	
Years	obs. %	rel. %
0	100.0	100.0
1	79.6	82.4

Table 1d. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by year of diagnosis for period 1998-2012 (N=21,680).

C18-C21: Malignant neoplasm of colorectum incl. anus
Gender
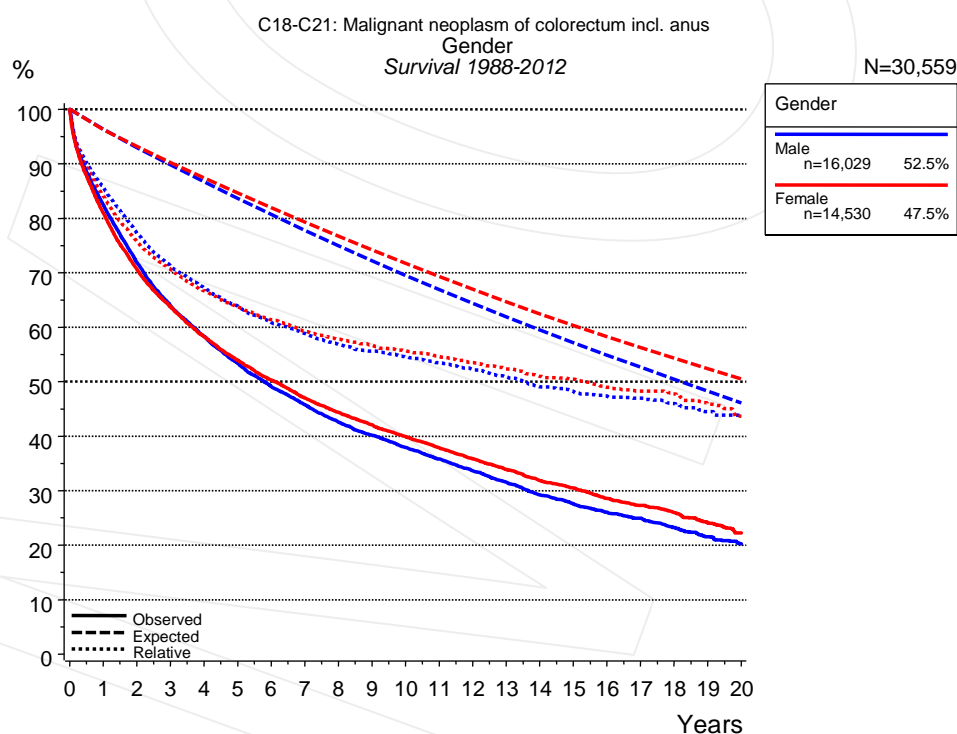*Survival 1988-2012*

Figure 2a. Survival of patients with colorectal cancer by gender. Included in the evaluation are 30,559 cases diagnosed between 1988 and 2012.

| Years | Gender | | | |
| | Male n=16,029 | | Female n=14,530 | |
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	82.5	85.6	80.9	84.0
2	71.8	77.3	70.6	75.8
3	64.0	71.2	63.7	70.6
4	58.3	67.3	58.3	66.7
5	53.4	63.9	54.0	63.8
6	49.1	60.9	50.3	61.4
7	45.8	58.8	47.0	59.3
8	42.6	56.8	44.4	57.8
9	40.2	55.6	42.1	56.7
10	37.9	54.6	39.9	55.7
11	35.8	53.5	37.9	54.6
12	33.6	52.2	35.8	53.5
13	31.6	50.9	33.9	52.3
14	29.2	49.1	31.8	51.0
15	27.5	48.2	30.5	50.5
16	26.0	47.4	28.6	49.0
17	24.9	47.0	27.3	48.3
18	23.2	46.0	26.0	47.7
19	21.6	44.5	24.1	45.9
20	20.3	43.8	22.2	43.7

Table 2b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by gender for period 1988-2012 (N=30,559).
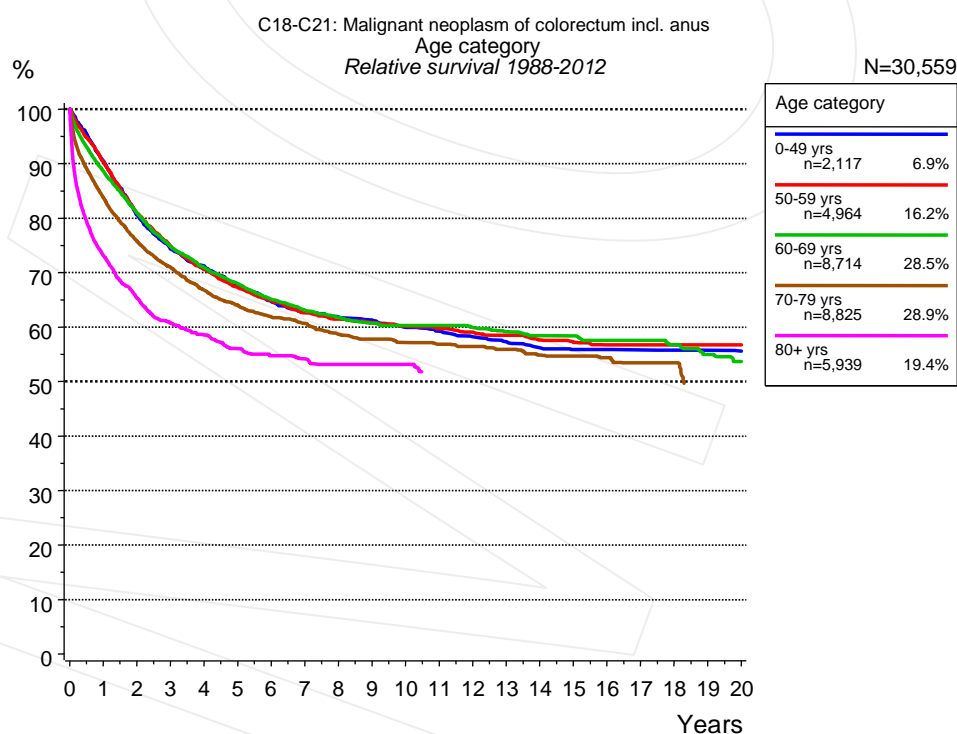

Figure 3a. Relative survival of patients with colorectal cancer by age category. Included in the evaluation are 30,559 cases diagnosed between 1988 and 2012.
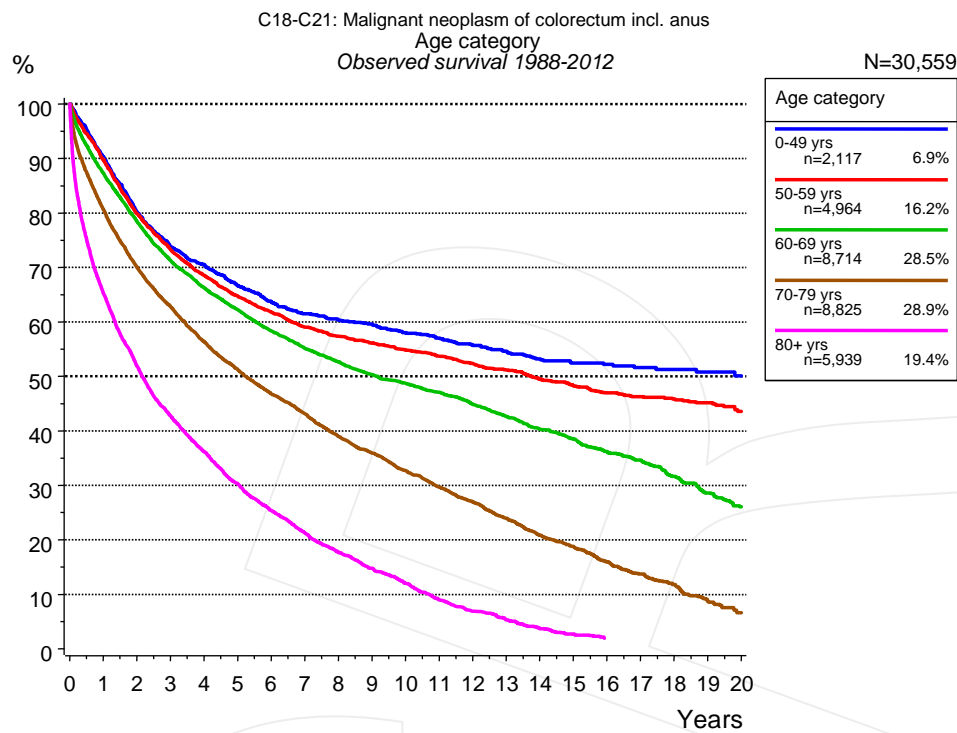
C18-C21: Malignant neoplasm of colorectum incl. anus
Age category
Observed survival 1988-2012

Figure 3b. Observed survival of patients with colorectal cancer by age category. Included in the evaluation are 30,559 cases diagnosed between 1988 and 2012.

	Age category									
	0-49 yrs n=2,117		50-59 yrs n=4,964		60-69 yrs n=8,714		70-79 yrs n=8,825		80+ yrs n=5,939	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	90.3	90.5	89.8	90.4	87.3	88.6	80.7	83.8	65.3	73.2
2	80.2	80.5	79.9	81.0	78.4	80.9	70.1	75.8	52.0	65.3
3	73.8	74.4	73.3	74.8	71.3	74.8	62.8	71.0	42.8	60.7
4	70.5	71.2	68.5	70.6	66.2	70.9	56.4	66.8	36.2	58.5
5	66.6	67.5	64.7	67.3	62.3	68.0	51.3	64.0	30.4	56.0
6	63.7	64.7	61.8	64.8	58.3	65.1	46.8	61.9	25.4	54.7
7	61.5	62.8	59.0	62.6	55.1	63.1	43.1	60.6	21.3	54.2
8	60.3	61.8	57.3	61.5	52.7	61.8	39.0	58.7	17.8	53.1
9	59.6	61.3	56.1	60.8	50.3	60.7	35.9	57.8	14.8	53.1
10	58.0	60.0	54.8	60.1	48.7	60.3	32.7	57.2	12.0	53.1
11	57.0	59.2	53.7	59.7	47.1	60.3	29.7	56.9		
12	55.7	58.2	52.3	59.1	44.9	59.9	26.9	56.4		
13	54.6	57.3	51.1	58.5	42.7	59.2	23.9	55.9		
14	53.2	56.2	49.5	57.6	40.3	58.4	20.8	54.8		
15	52.4	55.9	48.2	57.2	38.4	58.4	18.8	54.7		
16	52.2	55.9	47.0	56.7	36.3	57.6	16.0	54.4		
17	51.6	55.8	46.3	56.7	34.6	57.6	13.7	53.4		
18	51.3	55.8	45.8	56.7	31.6	56.8	11.8	53.4		
19	50.8	55.8	45.1	56.7	28.6	55.0				
20	50.1	55.6	43.6	56.7	26.1	53.7				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by age category for period 1988-2012 (N=30,559).

C18-C21: Malignant neoplasm of colorectum incl. anus
UICC
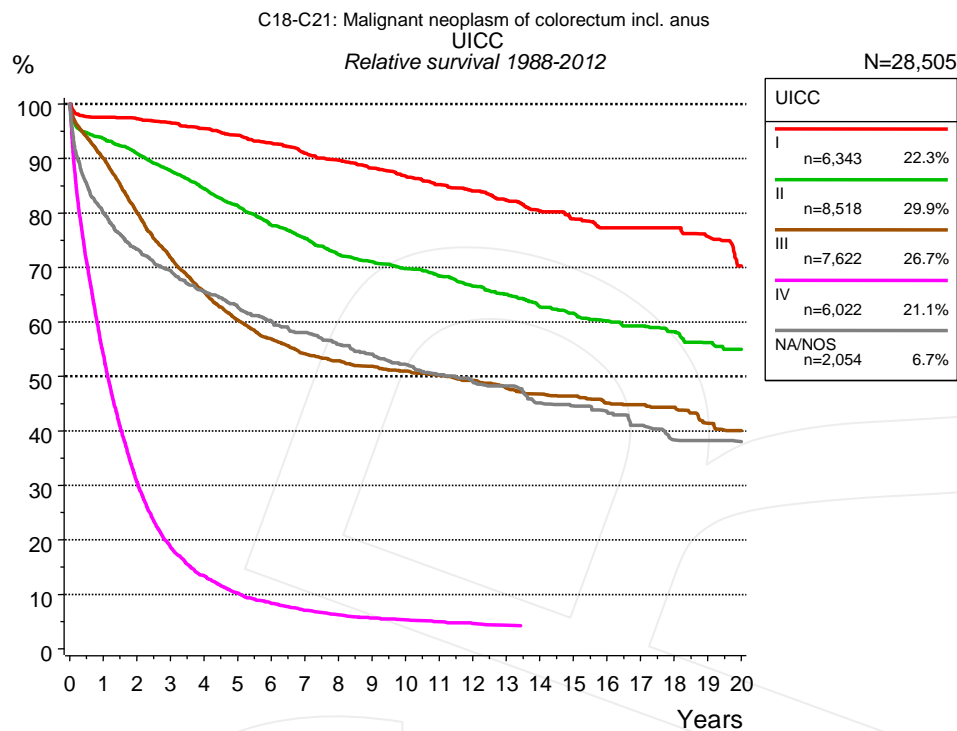*Relative survival 1988-2012*　　　　　　　　N=28,505

Figure 4a. Relative survival of patients with colorectal cancer by UICC. For 28,782 of 30,559 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 28,505 cases an evaluable classification was established. The grey line represents the subgroup of 2,054 patients with missing values regarding UICC (6.7% of 30,559 patients, the percent values of all other categories are related to n=28,505).

	UICC									
	I		II		III		IV		NA/NOS	
	n=6,343		n=8,518		n=7,622		n=6,022		n=2,054	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	94.6	97.5	89.8	93.6	86.8	90.0	52.0	53.8	76.2	80.0
2	91.2	97.3	83.9	90.9	74.6	80.0	28.8	30.6	67.2	73.4
3	87.6	96.6	78.0	87.8	64.8	71.8	17.1	18.6	61.5	69.4
4	83.8	95.4	72.3	84.4	57.2	65.5	12.0	13.4	56.4	65.6
5	80.1	94.2	67.1	81.4	51.1	60.4	8.9	10.2	52.3	62.8
6	76.1	92.8	61.8	77.8	46.6	56.9	7.1	8.3	48.6	60.1
7	72.1	91.0	57.6	75.3	43.0	54.2	5.9	7.0	45.6	58.1
8	68.7	89.7	53.3	72.4	40.6	52.8	5.1	6.2	42.4	55.9
9	65.2	88.2	50.4	71.0	38.6	51.8	4.5	5.6	39.6	54.1
10	61.9	86.8	47.6	69.8	36.7	51.0	4.1	5.3	37.0	52.2
11	58.9	85.2	44.9	68.4	35.0	50.2	3.8	5.0	34.3	50.3
12	55.9	84.0	42.0	66.5	33.2	49.3	3.3	4.6	32.3	49.0
13	52.8	82.4	39.5	65.1	31.1	47.8	3.0	4.3	30.8	48.3
14	49.6	80.3	36.7	62.8	29.4	46.7	2.9	4.2	27.7	45.2
15	47.0	78.9	34.7	61.6	28.2	46.4	2.9	4.2	26.3	44.6
16	44.4	77.3	32.6	60.2	26.4	45.1			24.9	43.6
17	43.1	77.3	31.0	59.2	25.5	44.8			22.7	41.0
18	41.4	77.3	29.1	58.2	24.2	44.4			20.2	38.4
19	38.9	75.7	26.9	56.2	21.6	41.4			19.6	38.2
20	34.8	70.3	25.4	55.0	20.5	40.1			18.5	38.1

Table 4b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by UICC for period 1988-2012 (N=28,505).

C18-C21: Malignant neoplasm of colorectum incl. anus
UICC
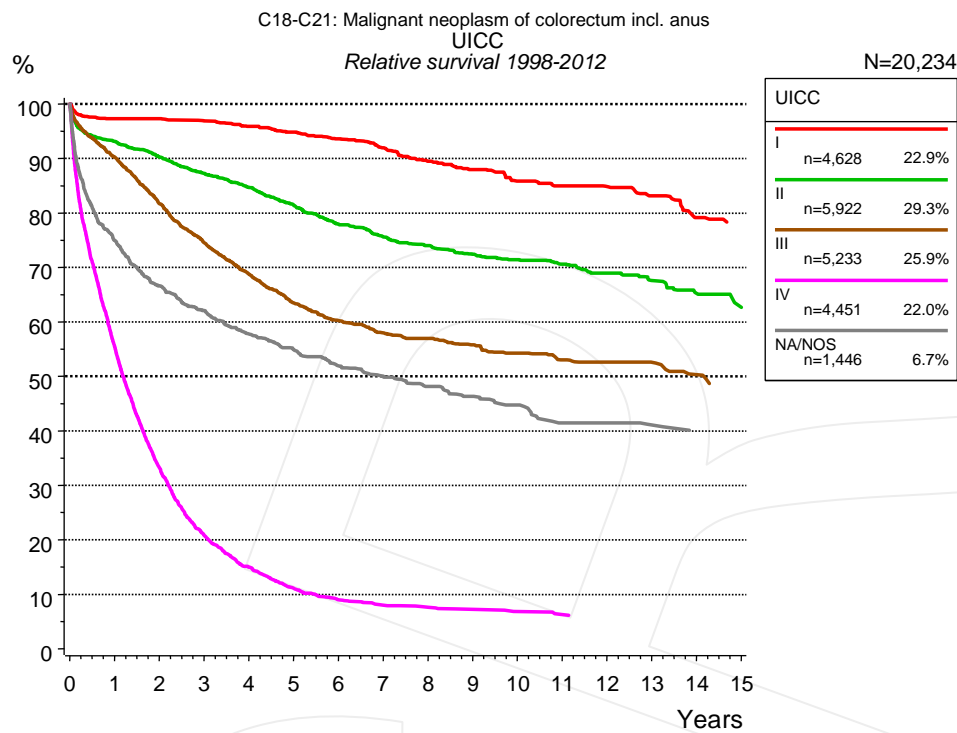*Relative survival 1998-2012*

Figure 4c. Relative survival of patients with colorectal cancer by UICC. For 20,453 of 21,680 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 20,234 cases an evaluable classification was established. The grey line represents the subgroup of 1,446 patients with missing values regarding UICC (6.7% of 21,680 patients, the percent values of all other categories are related to n=20,234).

	UICC									
	I		II		III		IV		NA/NOS	
	n=4,628		n=5,922		n=5,233		n=4,451		n=1,446	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	94.4	97.3	89.2	93.1	87.0	90.2	53.5	55.4	71.2	74.9
2	91.3	97.3	83.2	90.2	76.2	81.7	31.3	33.2	60.9	66.6
3	87.9	96.9	77.5	87.2	67.3	74.5	19.2	20.8	55.0	62.1
4	84.2	95.9	72.5	84.7	60.1	68.8	13.5	15.0	49.7	57.8
5	80.7	94.8	67.2	81.5	53.8	63.5	9.8	11.1	45.9	54.9
6	76.8	93.6	62.0	77.9	49.4	60.2	7.8	9.0	42.4	51.9
7	72.8	92.0	57.9	75.5	46.1	57.9	6.8	8.0	39.9	50.1
8	68.4	89.5	54.7	74.0	44.0	57.0	6.4	7.6	37.3	48.1
9	64.9	87.9	51.4	72.4	41.5	55.8	5.9	7.2	35.1	46.3
10	61.0	85.9	48.8	71.4	39.2	54.3	5.4	6.8	33.0	44.7
11	58.6	85.0	46.3	70.6	36.8	53.0	4.9	6.3	29.6	41.4
12	56.1	84.8	43.6	68.9	35.7	52.6	4.7	6.1	28.8	41.4
13	52.8	83.1	40.8	67.6	34.0	52.6	4.7	5.9	27.8	41.1
14	48.1	79.1	37.8	65.2	31.4	50.3			26.3	39.8

Table 4d. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by UICC for period 1998-2012 (N=20,234).

C18-C21: Malignant neoplasm of colorectum incl. anus
UICC
Conditional relative 5 year survival 1988-2012   N=28,505

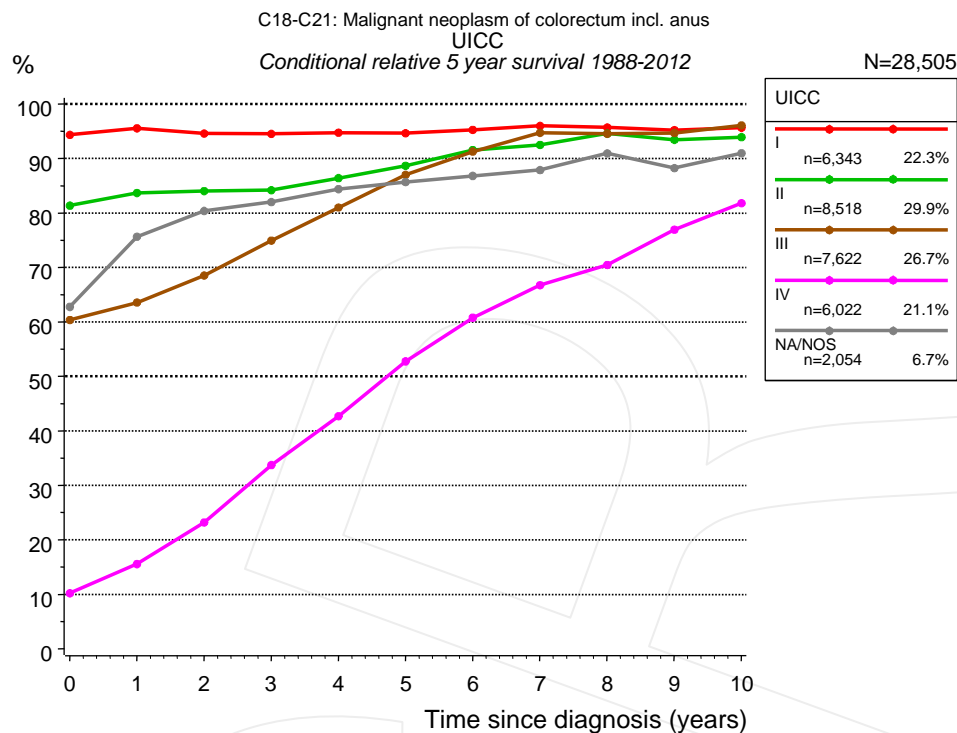| UICC		
I	n=6,343	22.3%
II	n=8,518	29.9%
III	n=7,622	26.7%
IV	n=6,022	21.1%
NA/NOS	n=2,054	6.7%

Figure 4e. Conditional relative 5-year survival of patients with colorectal cancer by UICC. For 28,782 of 30,559 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 28,505 cases an evaluable classification was established. The grey line represents the subgroup of 2,054 patients with missing values regarding UICC (6.7% of 30,559 patients, the percent values of all other categories are related to n=28,505).

	UICC									
	I		II		III		IV		NA/NOS	
		Cond. surv. %		Cond. surv. %		Cond. surv. %		Cond. surv. %		Cond. surv. %
Years	n	5 yrs	n	5 yrs	n	5 yrs	n	5 yrs	n	5 yrs
0	6,343	94.3	8,518	81.4	7,622	60.4	6,022	10.2	2,054	62.8
1	5,725	95.5	7,282	83.7	6,301	63.6	2,917	15.6	1,500	75.7
2	5,106	94.6	6,365	84.0	5,016	68.5	1,468	23.2	1,266	80.4
3	4,494	94.5	5,481	84.2	3,969	74.9	769	33.7	1,107	82.0
4	3,897	94.7	4,591	86.4	3,153	81.0	467	42.7	943	84.4
5	3,292	94.6	3,862	88.7	2,469	87.0	292	52.8	826	85.7
6	2,776	95.3	3,190	91.6	1,991	91.3	206	60.8	715	86.8
7	2,408	96.0	2,746	92.5	1,674	94.7	140	66.8	621	87.9
8	2,111	95.7	2,317	94.6	1,440	94.5	106	70.5	528	90.9
9	1,817	95.2	2,009	93.4	1,236	94.7	77	76.9	449	88.2
10	1,530	95.7	1,713	93.9	1,045	96.1	63	81.8	383	91.0

Table 4f. Conditional relative 5-year survival of patients with colorectal cancer by UICC for period 1988-2012 (N=28,505).

Conditional relative survival rates refer to the relative survival probability, in this case for 5 years after cancer diagnosis, compared to the age- and sex-matched population (=100%) under the condition of being alive for a certain time period (x-axis in Figure 4c). The results illustrate to what extent the cancer induced mortality of particular subgroups declines in the subsequent years after detection of the malignancy. For instance, according to the presented survival statistics, patients in the subgroup UICC="I", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 94.5% (n=4,494).
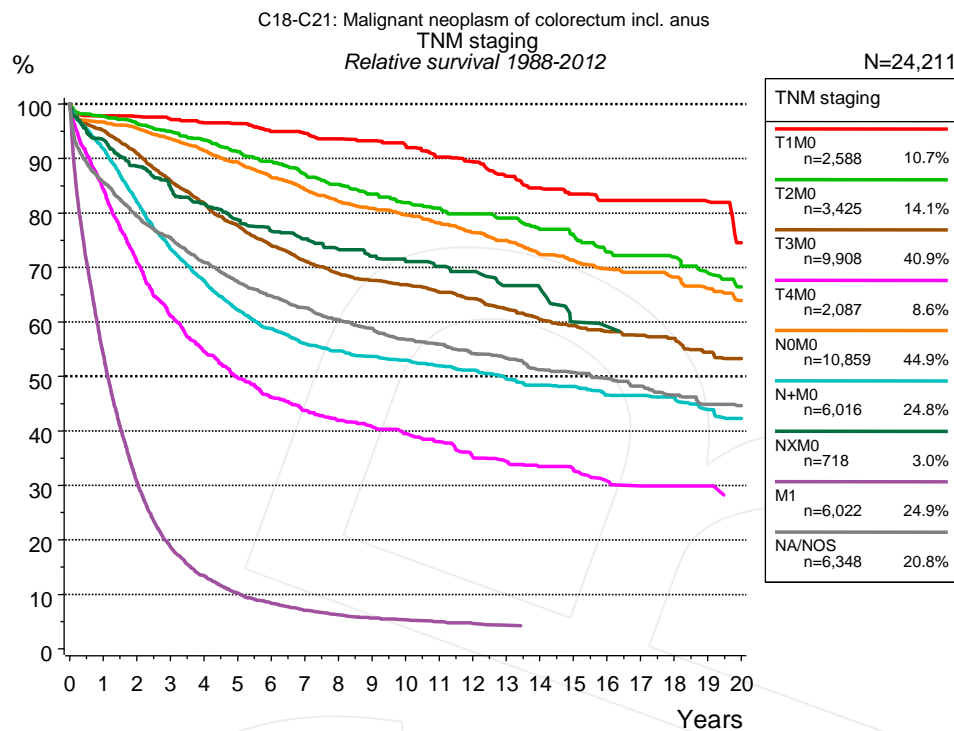
C18-C21: Malignant neoplasm of colorectum incl. anus
TNM staging
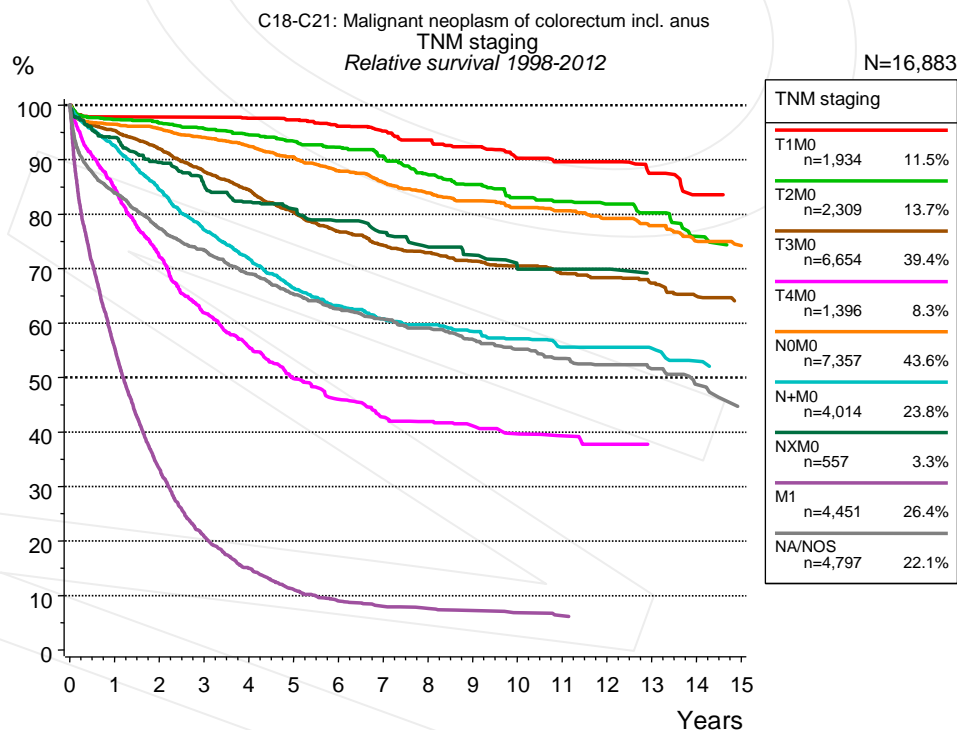*Relative survival 1988-2012*   N=24,211

Figure 4g. Relative survival of patients with colorectal cancer by TNM staging. For 28,782 of 30,559 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 24,211 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 6,348 patients with missing values regarding TNM staging (20.8% of 30,559 patients, the percent values of all other categories are related to n=24,211).

	TNM staging													
	T1M0 n=2,588		T2M0 n=3,425		T3M0 n=9,908		T4M0 n=2,087		N0M0 n=10,859		N+M0 n=6,016		NXM0 n=718	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.3	97.8	94.7	97.7	91.7	95.1	80.7	84.3	93.3	96.7	88.6	91.8	90.2	93.4
2	92.3	97.7	90.4	96.3	84.6	90.9	65.3	70.9	89.1	95.5	76.6	82.0	82.9	88.5
3	89.2	97.2	86.3	95.0	77.2	85.9	54.4	61.1	84.4	93.6	66.5	73.4	76.9	84.6
4	86.0	96.6	82.1	93.3	71.0	81.8	46.7	54.5	79.6	91.4	59.3	67.6	72.3	81.7
5	83.5	96.4	77.7	91.3	65.2	77.8	41.3	49.8	75.1	89.4	53.0	62.2	67.6	78.7
6	79.5	95.0	73.7	89.5	59.9	74.0	37.0	46.2	70.2	86.6	48.5	58.7	64.0	76.6
7	76.6	94.5	69.4	87.2	55.6	71.1	33.9	43.7	66.0	84.3	45.0	56.0	61.3	75.2
8	73.8	93.6	65.6	85.2	51.9	68.8	31.4	41.9	62.1	82.1	42.5	54.6	57.9	73.3
9	70.8	93.3	62.2	83.4	49.2	67.6	29.5	40.8	58.9	80.8	40.4	53.6	55.1	72.0
10	67.7	92.4	58.9	81.9	46.9	66.8	27.6	39.5	55.9	79.6	38.7	52.9	52.5	71.1
11	64.0	90.2	56.4	80.9	44.3	65.4	25.7	38.0	52.9	78.2	36.7	51.9	50.3	70.2
12	61.3	89.5	53.6	79.8	41.9	64.2	23.1	35.2	49.8	76.4	35.1	51.2	48.8	69.2
13	57.4	86.8	51.3	79.0	39.2	62.4	21.8	34.4	47.2	74.9	32.7	49.5	44.4	66.6
14	54.1	84.5	48.0	77.0	36.5	60.4	20.5	33.5	43.9	72.4	31.0	48.4	42.8	66.1
15	51.6	83.4	45.6	75.8	34.6	59.3	19.6	32.9	41.7	71.3	29.7	48.2	37.2	60.0
16	49.2	82.3	42.1	72.8	32.8	58.2	17.8	30.8	39.2	69.8	27.7	46.6	36.0	59.1
17	48.9	82.3	40.5	72.2	31.3	57.6	16.9	29.9	37.7	69.1	26.9	46.5	34.4	57.8
18	46.7	82.3	38.6	71.9	29.7	57.0	16.5	29.9	35.6	68.3	25.6	46.1	34.4	57.0
19	43.9	82.1	35.8	69.0	27.2	54.4	16.0	29.9	33.2	66.1	23.4	43.9		
20	38.3	74.5	33.2	66.4	25.7	53.2	14.3	27.5	30.9	63.9	22.0	42.3		

	TNM staging			
cont'd	M1 n=6,022		NA/NOS n=6,348	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	52.0	53.8	81.8	85.6
2	28.8	30.6	72.8	79.4
3	17.1	18.6	66.6	75.4
4	12.0	13.4	60.3	70.9
5	8.9	10.2	55.2	67.4
6	7.1	8.3	51.1	64.8
7	5.9	7.0	47.6	62.6
8	5.1	6.2	44.2	60.4
9	4.5	5.6	41.4	58.8
10	4.1	5.3	38.5	56.8
11	3.8	5.0	36.5	55.9
12	3.3	4.6	34.0	54.2
13	3.0	4.3	32.2	53.3
14	2.9	4.2	29.7	51.2
15	2.9	4.2	28.3	50.7
16			26.7	49.7
17			24.9	48.2
18			23.0	46.5
19			21.3	44.9
20			20.1	44.6

Table 4h. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by TNM staging for period 1988-2012 (N=41,623).

Figure 4i. Relative survival of patients with colorectal cancer by TNM staging. For 20,453 of 21,680 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 16,883 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 4,797 patients with missing values regarding TNM

staging (22.1% of 21,680 patients, the percent values of all other categories are related to n=16,883).

	TNM staging												
	T1M0		T2M0		T3M0		T4M0		N0M0		N+M0		NXM0	
	n=1,934		n=2,309		n=6,654		n=1,396		n=7,357		n=4,014		n=557	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.4	97.8	94.4	97.4	91.8	95.4	81.4	84.8	93.1	96.5	89.4	92.6	91.0	94.1
2	92.8	97.8	90.8	96.7	85.6	92.0	66.7	72.1	89.2	95.7	79.1	84.5	84.0	89.5
3	90.0	97.8	87.0	95.7	78.9	87.8	55.3	61.9	84.8	94.1	70.0	77.1	77.9	85.3
4	87.0	97.6	83.2	94.5	73.3	84.4	48.0	55.6	80.5	92.5	63.2	71.8	73.2	82.2
5	84.3	97.3	79.6	93.4	67.4	80.4	41.7	49.8	76.1	90.5	56.7	66.4	70.1	80.9
6	80.4	96.2	76.1	92.3	62.2	76.8	37.3	46.0	71.4	88.0	52.3	63.2	66.4	78.7
7	77.0	95.2	72.2	90.6	58.0	74.2	33.8	42.7	67.2	85.8	48.8	60.8	63.1	76.7
8	73.3	93.6	67.2	87.2	55.1	72.9	32.3	41.9	63.4	83.9	46.7	59.7	59.4	74.0
9	69.9	92.4	63.9	85.4	51.9	71.4	30.6	41.1	60.2	82.4	44.1	58.5	56.4	72.5
10	65.7	90.2	60.0	83.1	49.4	70.5	28.9	39.7	57.0	81.2	42.0	57.2	52.4	69.9
11	63.3	89.6	57.4	82.3	46.5	69.1	27.6	39.3	54.5	80.6	39.2	55.6	51.4	69.9
12	61.5	89.6	54.7	81.9	44.4	68.3	26.0	37.8	51.5	79.2	38.4	55.5	51.4	69.9
13	56.9	87.5	52.0	80.2	41.8	67.4	25.2	37.6	48.7	77.9	36.3	55.3	47.0	68.9
14	52.2	83.5	46.9	75.9	38.7	65.0	25.2	36.1	45.0	75.0	33.7	53.0	47.0	66.4

	TNM staging			
cont'd	M1		NA/NOS	
	n=4,451		n=4,797	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	53.5	55.4	80.0	83.9
2	31.3	33.2	70.9	77.3
3	19.2	20.8	64.7	73.3
4	13.5	15.0	58.7	69.0
5	9.8	11.1	53.6	65.3
6	7.8	9.0	49.5	62.5
7	6.8	8.0	46.4	60.7
8	6.4	7.6	43.5	59.1
9	5.9	7.2	40.5	57.0
10	5.4	6.8	37.9	55.2
11	4.9	6.3	35.4	53.5
12	4.7	6.1	33.5	52.4
13	4.7	5.9	31.7	51.6
14			28.8	48.7

Table 4j. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by TNM staging for period 1998-2012 (N=28,672).

C18-C21: Malignant neoplasm of colorectum incl. anus
Post-progression survival
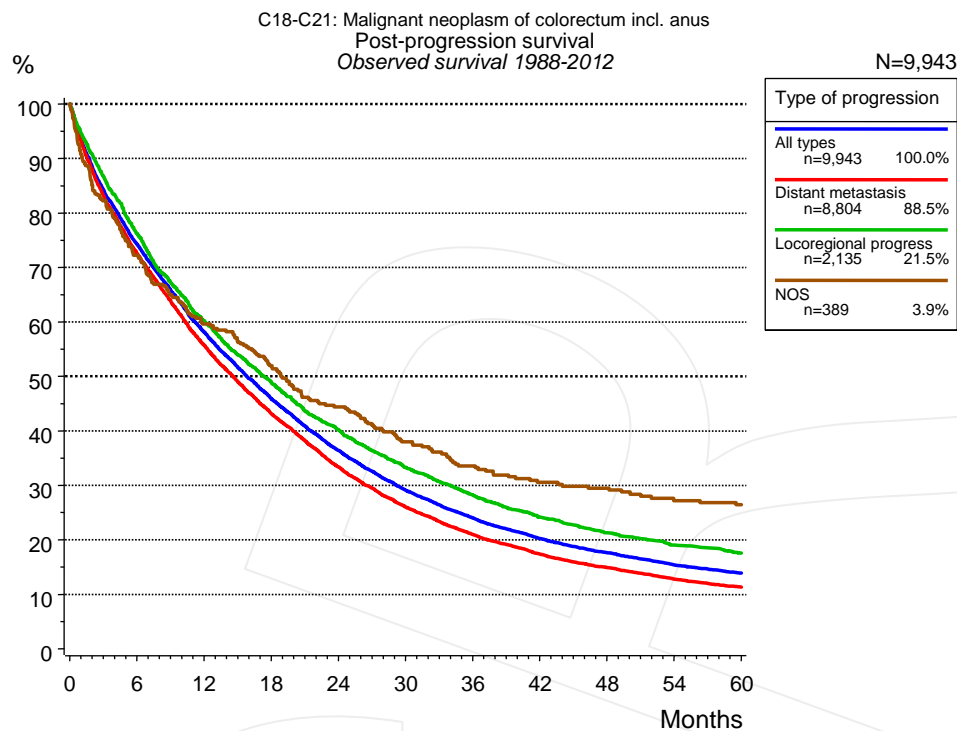*Observed survival 1988-2012*   N=9,943

Figure 5a. Observed post-progression survival of 9,943 patients with colorectal cancer diagnosed between 1988 and 2012 (incl. M1). These 9,943 patients with documented progression events during their course of disease represent 32.5% of the totally 30,559 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=2,323, 7.6%). Multiple progression types on different sites are included in the evaluation even when not occuring synchronously. The NOS (not otherwise specified) class is included under the condition, that it is the one and only progression type during the course of disease.

Medical record documentation often lacks the linguistic severity to distinguish between local relapse, regional lymph node metastasis and distant spread in solid cancers. Frequently, the statement "not specified" is the only information in registries regarding relapse of the disease. The category "All types" denotes all cases who suffered from at least one relapse during the course of disease (incl. primary M1-status). Although, the real number of relapsed patients is likely to be much higher. The accumulated percentage of patients with local relapse or distant metastasis exceeds the 100% value because patients are potientially considered in more than one subgroup.

	Type of progression			
	All types	Distant metastasis	Locoregional progress	NOS
	n=9,943	n=8,804	n=2,135	n=389
Months	%	%	%	%
0	100.0	100.0	100.0	100.0
12	58.1	55.7	60.1	59.6
24	36.4	33.4	40.2	44.4
36	24.0	21.0	28.2	33.6
48	17.6	14.9	21.2	29.5
60	13.9	11.3	17.5	26.4

Table 5b. Observed post-progression survival of patients with colorectal cancer for period 1988-2012 (N=9,943).

Shortcuts

AS	Assembled survival chart (observed, expected, relative)
CS	Conditional survival
DCO	Death certificate only. The death certificate provides the only notification to the registry.
MCR	Munich Cancer Registry, Germany (Tumorregister München)
NA	Not available
NCI	National Cancer Institute, USA
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
PPS	Post-progression survival
RS	Relative Survival. Ratio of observed and expected survival (derived from the normal population)
SEER	Surveillance, Epidemiology, and End Results, USA
TTP	Time to progression
	Date of entry: Date of diagnosis
	Event (Progression): First local recurrence, lymph node relapse or distant metastasis, unspecified recurrence
	First all-cause recurrence is illustrated by survival curves (Kaplan-Meier estimate).
	First local recurrence, lymph node relapse or distant metastasis are depicted cumulatively, where applicable ("reverse" Kaplan-Meier estimate).
UICC	Union for International Cancer Control, Geneva

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