Munich Cancer Registry

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

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

Cancer statistics: Survival

C18-C21: Colorectal cancer

Year of diagnosis	1978-1987	1988-1997	1998-2011
Patients	2,830	10,302	37,654
Diseases	2,869	10,474	38,535
Creation date	04/01/2013		
Export date	01/03/2013		
Population	4.5 m		

C18-C21: Malignant neoplasm of colorectum incl. anus
Period of diagnosis
Relative survival 1978-2011

%   N=32,328

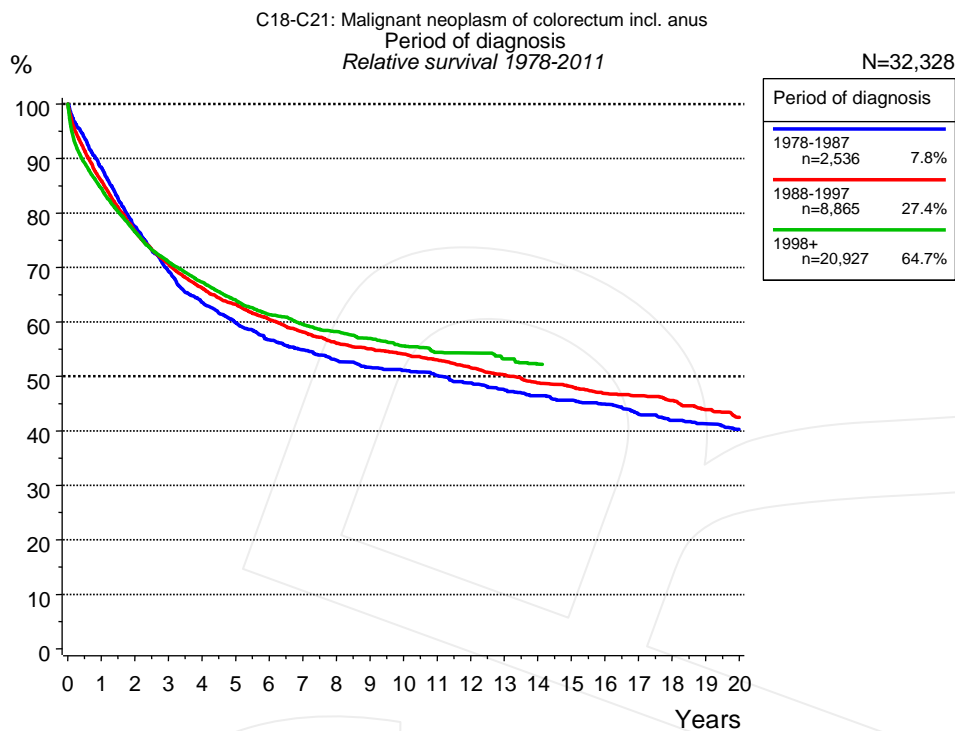| Period of diagnosis |
|---|
| 1978-1987
n=2,536   7.8% |
| 1988-1997
n=8,865   27.4% |
| 1998+
n=20,927   64.7% |

Figure 1a. Relative survival of patients with colorectal cancer by period of diagnosis. Included in the evaluation are 32,328 cases diagnosed between 1978 and 2011.

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 1998, 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					
	1978-1987 n=2,536		1988-1997 n=8,865		1998+ n=20,927	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	85.5	88.3	82.7	85.9	81.3	84.5
2	72.6	77.5	71.3	76.6	71.2	76.5
3	62.9	69.2	63.5	70.6	63.9	71.0
4	55.9	63.6	57.5	66.2	58.6	67.3
5	51.0	59.8	53.1	63.3	53.9	64.0
6	46.7	56.7	49.0	60.5	49.9	61.3
7	43.7	54.8	45.5	58.1	46.8	59.6
8	40.8	53.0	42.4	56.1	44.2	58.2
9	38.4	51.6	40.1	55.1	41.7	56.9
10	36.7	51.1	38.0	54.1	39.3	55.6
11	34.7	50.2	36.0	53.0	37.1	54.4
12	32.6	48.8	33.8	51.6	35.7	54.3
13	30.5	47.5	31.7	50.3	33.5	53.2
14	28.9	46.4	29.7	48.8	31.6	52.3
15	27.3	45.6	28.3	48.2		
16	26.0	44.9	26.5	46.9		
17	23.9	43.0	25.4	46.4		
18	22.5	41.9	23.9	45.5		
19	21.4	41.3	22.1	43.9		
20	20.0	40.3	20.6	42.5		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by period of diagnosis for period 1978-2011 (N=32,328).

C18-C21: Malignant neoplasm of colorectum incl. anus
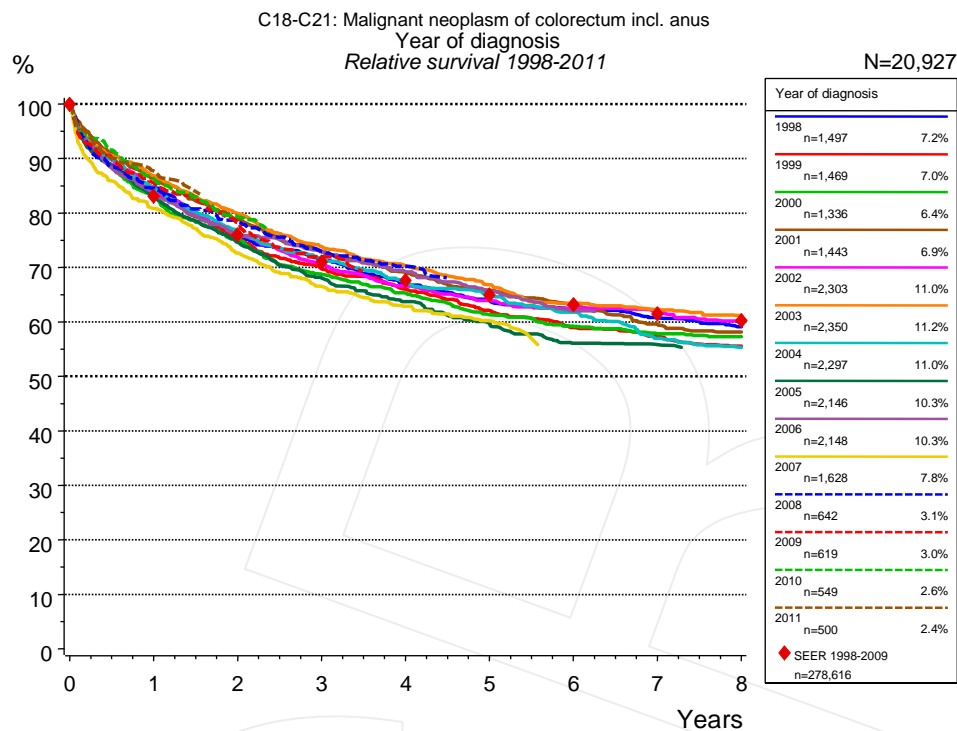Year of diagnosis
Relative survival 1998-2011

Figure 1c. Relative survival of patients with colorectal cancer by year of diagnosis. Included in the evaluation are 20,927 cases diagnosed between 1998 and 2011.

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		1999		2000		2001		2002		2003		2004	
	n=1,497		n=1,469		n=1,336		n=1,443		n=2,303		n=2,350		n=2,297	
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	81.4	84.7	80.6	84.0	79.7	83.0	83.1	86.3	81.3	84.5	83.7	86.8	81.4	84.4
2	70.3	75.9	69.8	75.2	69.7	75.0	73.4	78.8	70.7	76.1	74.5	79.8	71.1	76.4
3	63.9	71.4	62.4	69.7	61.8	68.8	65.7	72.9	63.2	70.5	66.7	73.8	64.4	71.5
4	58.0	67.1	57.0	66.0	56.8	65.3	60.4	69.1	57.8	66.6	61.4	70.3	58.6	67.3
5	53.6	64.2	51.7	62.0	51.6	61.3	55.7	65.8	53.6	63.9	56.6	66.8	54.8	65.2
6	50.2	62.1	47.5	59.0	48.3	59.2	51.7	62.9	50.9	62.5	51.8	63.4	50.2	61.8
7	47.4	60.8	44.7	57.4	45.6	57.8	47.4	59.6	48.4	61.7	49.2	62.3	44.5	57.0
8	44.6	59.1	42.0	55.6	44.0	57.3	45.0	58.2	45.5	60.2	46.5	61.2	41.6	55.3

	Year of diagnosis													
cont'd	2005		2006		2007		2008		2009		2010		2011	
	n=2,146		n=2,148		n=1,628		n=642		n=619		n=549		n=500	
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	80.1	83.1	80.9	83.7	77.8	80.8	81.2	84.5	82.6	85.5	83.2	86.3	84.6	87.8
2	69.7	74.6	71.1	75.9	67.6	72.7	72.6	78.3	73.2	78.2	73.8	79.3		
3	61.6	68.0	66.3	72.9	59.8	66.5	65.4	73.0	65.1	71.9				
4	55.7	63.7	60.9	69.1	54.6	62.9	60.9	70.2						
5	50.7	59.7	56.1	65.7	50.4	60.2								
6	45.8	56.1	51.2	62.1										
7	44.1	55.8												

Table 1d. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by year of diagnosis for period 1998-2011 (N=20,927).
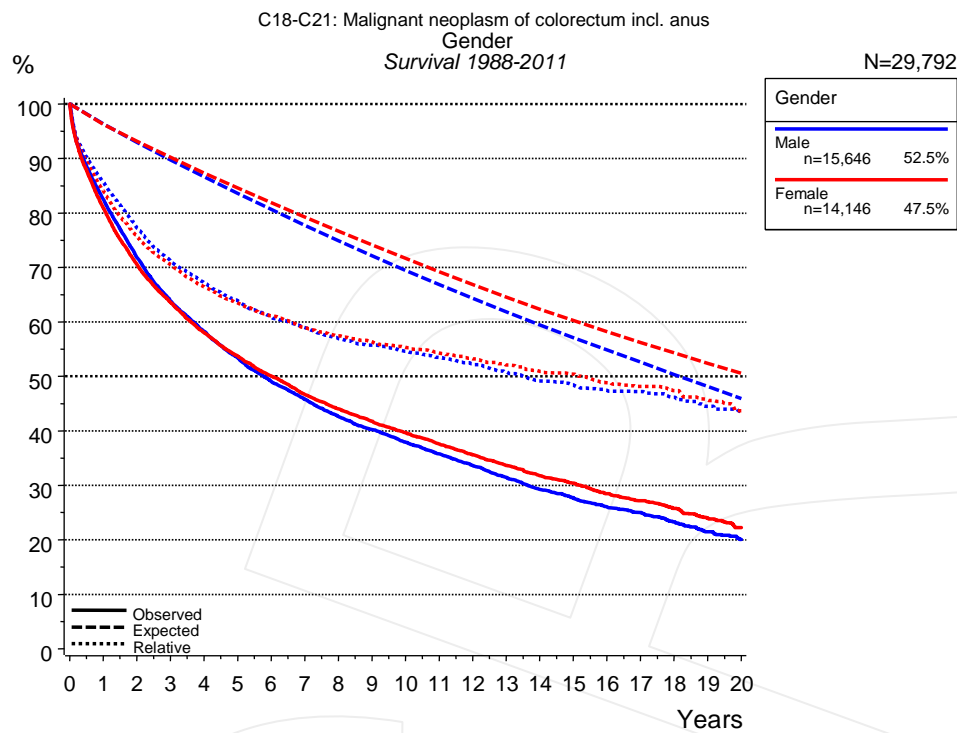
C18-C21: Malignant neoplasm of colorectum incl. anus
Gender
Survival 1988-2011

Figure 2a. Survival of patients with colorectal cancer by gender. Included in the evaluation are 29,792 cases diagnosed between 1988 and 2011.

	Gender			
	Male n=15,646		Female n=14,146	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	82.5	85.7	80.9	84.0
2	71.8	77.3	70.5	75.7
3	63.9	71.2	63.6	70.5
4	58.2	67.2	58.0	66.4
5	53.4	63.9	53.7	63.5
6	49.1	60.8	50.0	61.1
7	45.8	58.9	46.7	58.9
8	42.7	56.9	44.0	57.4
9	40.2	55.7	41.7	56.3
10	37.9	54.6	39.6	55.3
11	35.8	53.4	37.6	54.3
12	33.6	52.3	35.6	53.2
13	31.5	50.8	33.6	52.1
14	29.2	49.1	31.8	50.9
15	27.6	48.4	30.4	50.4
16	26.1	47.4	28.5	48.8
17	25.0	47.2	27.2	48.1
18	23.3	46.1	25.8	47.4
19	21.5	44.5	23.9	45.6
20	20.1	43.6	22.2	43.7

Table 2b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by gender for period 1988-2011 (N=29,792).
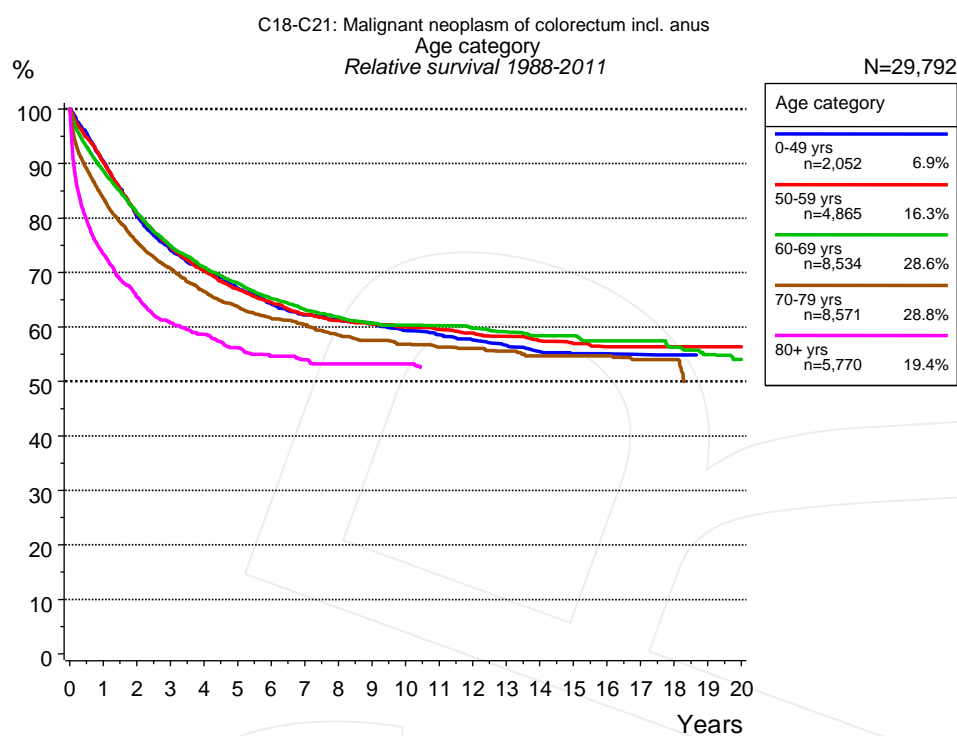
C18-C21: Malignant neoplasm of colorectum incl. anus
Age category
Relative survival 1988-2011

%　　　　　　　　　　　　　　　　　　　　　　　N=29,792

Age category		
0-49 yrs		
n=2,052		6.9%
50-59 yrs		
n=4,865		16.3%
60-69 yrs		
n=8,534		28.6%
70-79 yrs		
n=8,571		28.8%
80+ yrs		
n=5,770		19.4%

Years

Figure 3a. Relative survival of patients with colorectal cancer by age category. Included in the evaluation are 29,792 cases diagnosed between 1988 and 2011.
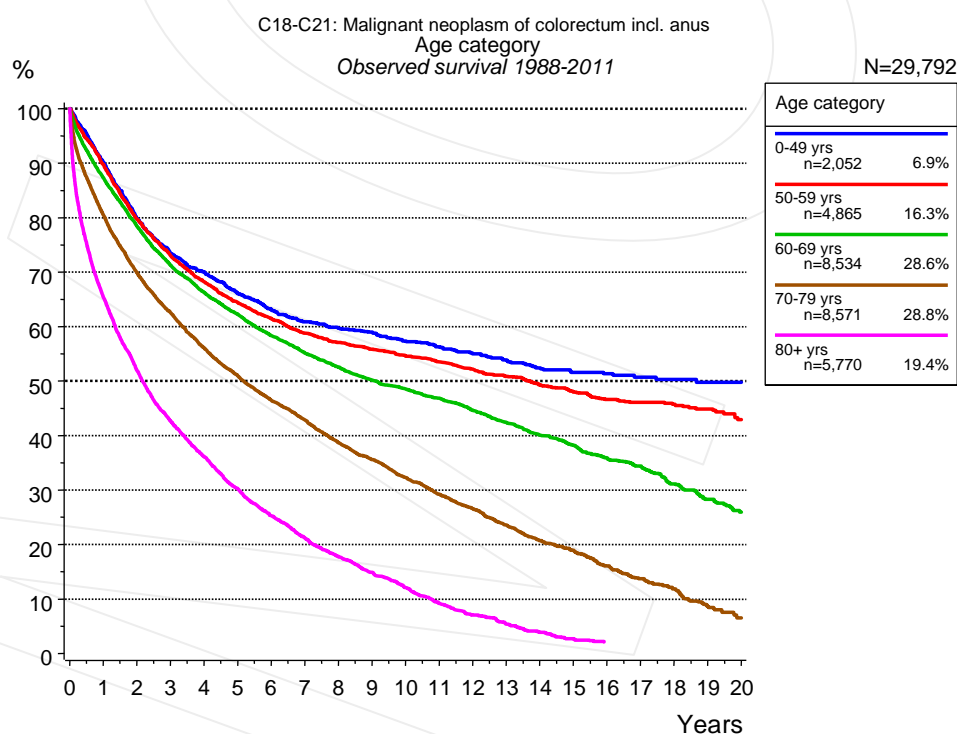
C18-C21: Malignant neoplasm of colorectum incl. anus
Age category
Observed survival 1988-2011

%　　　　　　　　　　　　　　　　　　　　　　　N=29,792

Age category		
0-49 yrs		
n=2,052		6.9%
50-59 yrs		
n=4,865		16.3%
60-69 yrs		
n=8,534		28.6%
70-79 yrs		
n=8,571		28.8%
80+ yrs		
n=5,770		19.4%

Years

Figure 3b. Observed survival of patients with colorectal cancer by age category. Included in the evaluation are 29,792 cases diagnosed between 1988 and 2011.

	Age category									
	0-49 yrs n=2,052		50-59 yrs n=4,865		60-69 yrs n=8,534		70-79 yrs n=8,571		80+ yrs n=5,770	
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	90.2	90.4	89.7	90.3	87.3	88.7	80.5	83.6	65.4	73.3
2	79.9	80.3	79.7	80.8	78.4	81.0	69.9	75.6	52.0	65.5
3	73.5	74.0	73.1	74.6	71.3	74.9	62.6	70.7	42.7	60.7
4	70.1	70.8	68.2	70.3	66.2	70.9	56.1	66.5	36.1	58.6
5	66.1	67.0	64.4	67.0	62.3	68.0	51.0	63.8	30.3	56.1
6	63.1	64.2	61.4	64.5	58.3	65.2	46.5	61.6	25.3	54.6
7	60.9	62.2	58.8	62.3	55.1	63.1	42.8	60.4	21.2	54.0
8	59.7	61.2	57.1	61.2	52.6	61.8	38.7	58.5	17.8	53.2
9	59.0	60.7	55.9	60.5	50.2	60.7	35.6	57.6	14.9	53.2
10	57.4	59.3	54.6	60.0	48.5	60.3	32.3	56.9	12.0	53.2
11	56.3	58.5	53.5	59.5	46.8	60.2	29.3	56.3		
12	55.0	57.6	52.2	58.9	44.7	59.8	26.6	56.1		
13	53.9	56.6	50.9	58.3	42.4	59.1	23.5	55.5		
14	52.5	55.4	49.3	57.5	40.0	58.4	20.7	54.7		
15	51.6	55.1	48.0	57.0	38.2	58.4	18.9	54.7		
16	51.4	55.1	46.6	56.4	35.9	57.4	16.1	54.7		
17	50.7	54.9	46.1	56.4	34.4	57.4	13.7	54.0		
18	50.3	54.8	45.7	56.4	31.1	56.3	11.8	54.0		
19			44.9	56.4	28.3	54.9				
20			42.9	56.4	26.0	54.0				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by age category for period 1988-2011 (N=29,792).
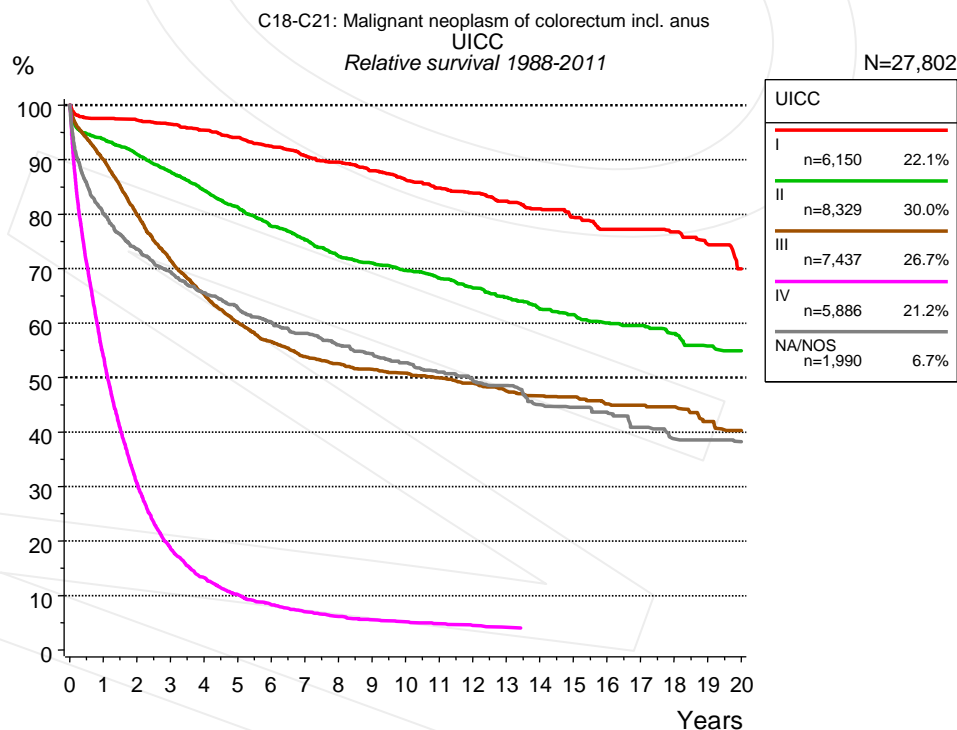

Figure 4a. Relative survival of patients with colorectal cancer by UICC. For 28,081 of 29,792 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 27,802 cases an evaluable classification was established. The grey line represents the subgroup of 1,990 patients with missing values regarding UICC (6.7% of 29,792 patients, the percent values of all other categories are related to n=27,802).

	UICC									
	I		II		III		IV		NA/NOS	
	n=6,150		n=8,329		n=7,437		n=5,886		n=1,990	
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	94.5	97.5	89.9	93.7	86.8	90.0	52.0	53.8	76.3	80.1
2	91.1	97.2	83.9	91.0	74.4	79.9	28.8	30.6	67.5	73.6
3	87.5	96.5	78.0	87.8	64.5	71.5	17.1	18.6	61.5	69.4
4	83.7	95.4	72.2	84.4	57.0	65.3	11.9	13.3	56.3	65.6
5	79.9	94.1	67.0	81.3	50.9	60.2	8.9	10.2	52.3	62.8
6	75.8	92.5	61.7	77.8	46.3	56.6	7.1	8.3	48.6	60.1
7	71.8	90.7	57.5	75.2	42.7	53.8	5.9	7.0	45.8	58.1
8	68.5	89.5	53.2	72.3	40.3	52.5	5.1	6.2	42.5	56.0
9	65.0	88.0	50.3	71.0	38.3	51.5	4.4	5.5	39.9	54.4
10	61.5	86.3	47.5	69.6	36.5	50.8	4.0	5.2	37.4	52.8
11	58.5	84.8	44.8	68.2	34.7	49.9	3.6	4.8	34.8	51.0
12	55.7	83.9	41.9	66.4	33.0	49.0	3.3	4.5	32.6	49.5
13	52.7	82.4	39.3	64.7	30.8	47.5	3.0	4.2	30.9	48.5
14	49.9	81.0	36.5	62.5	29.3	46.6	2.8	4.0	27.6	45.1
15	47.2	79.4	34.7	61.5	28.1	46.4	2.8	4.0	26.2	44.6
16	44.5	77.2	32.5	60.0	26.4	45.1			24.9	43.7
17	43.1	77.2	31.2	59.6	25.4	44.9			22.4	40.9
18	41.0	76.7	29.0	58.1	24.4	44.6			20.2	38.7
19	38.4	74.4	26.7	55.8	21.9	41.9			19.6	38.6
20	34.7	70.0	25.3	54.9	20.5	40.3			18.3	38.2

Table 4b. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by UICC for period 1988-2011 (N=27,802).
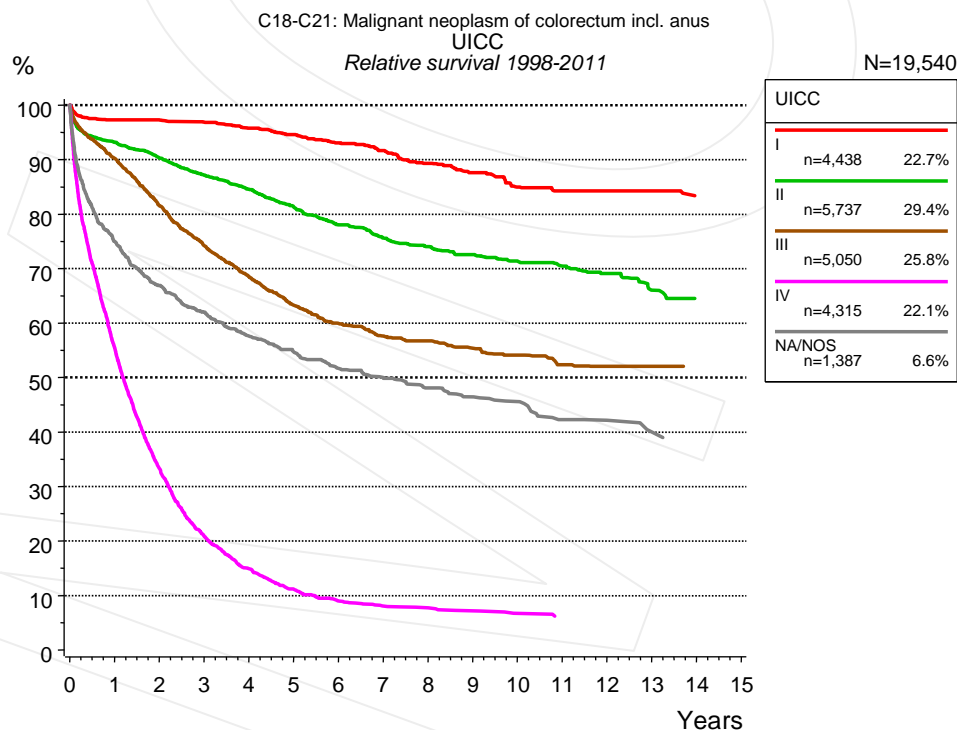

Figure 4c. Relative survival of patients with colorectal cancer by UICC. For 19,758 of 20,927 cases diagnosed between 1998 and 2011 valid data could be obtained for this item. For a total of 19,540 cases an evaluable classification was established. The grey line represents the subgroup of 1,387 patients with missing values regarding UICC (6.6% of 20,927 patients, the percent values of all other categories are related to n=19,540).

	UICC									
	I n=4,438		II n=5,737		III n=5,050		IV n=4,315		NA/NOS n=1,387	
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	94.3	97.3	89.3	93.2	87.0	90.2	53.5	55.4	71.2	75.0
2	91.2	97.3	83.3	90.3	76.0	81.6	31.4	33.3	61.2	66.9
3	87.9	96.9	77.4	87.1	67.0	74.2	19.2	20.9	54.9	62.0
4	84.1	95.8	72.3	84.6	59.9	68.5	13.4	14.9	49.6	57.6
5	80.4	94.6	67.1	81.4	53.6	63.3	9.8	11.1	45.9	54.7
6	76.3	93.1	62.0	78.0	49.1	59.9	7.8	9.0	42.3	51.7
7	72.6	91.7	57.8	75.6	45.8	57.6	6.8	8.1	40.0	50.1
8	68.2	89.3	54.7	74.1	43.7	56.7	6.5	7.7	37.4	48.1
9	64.6	87.6	51.5	72.6	41.2	55.4	5.9	7.2	35.4	46.5
10	60.3	85.0	48.7	71.4	39.0	54.1	5.3	6.7	33.8	45.6
11	58.0	84.3	46.3	70.5	36.3	52.4	4.8	6.1	30.3	42.3
12	56.5	84.3	43.7	69.1	35.2	52.1	4.8	5.7	29.2	42.1
13	53.8	84.3	39.8	66.1	33.8	52.1	4.8	5.2	27.4	40.0
14					32.2	50.6				

Table 4d. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by UICC for period 1998-2011 (N=19,540).

C18-C21: Malignant neoplasm of colorectum incl. anus
UICC
Conditional relative 5 year survival 1988-2011   N=27,802

UICC
I   n=6,150   22.1%
II   n=8,329   30.0%
III n=7,437   26.7%
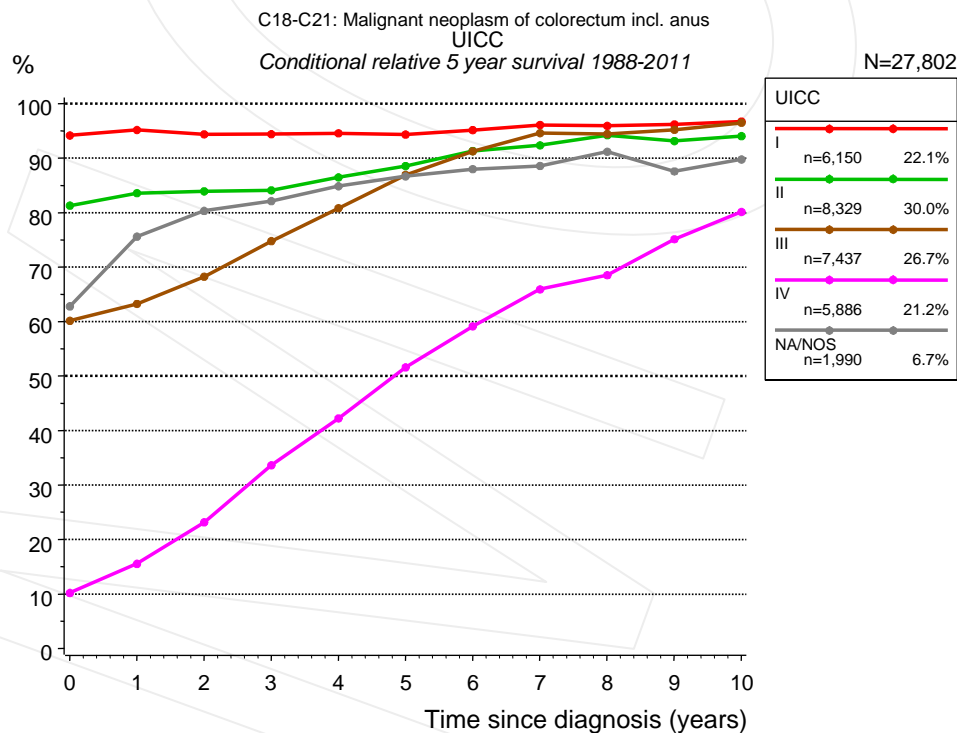IV   n=5,886   21.2%
NA/NOS n=1,990 6.7%

Figure 4e. Conditional relative 5-year survival of patients with colorectal cancer by UICC. For 28,081 of 29,792 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 27,802 cases an evaluable classification was established. The grey line represents the subgroup of 1,990 patients with missing values regarding UICC (6.7% of 29,792 patients, the percent values of all other categories are related to n=27,802).

	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	6,150	94.2	8,329	81.3	7,437	60.2	5,886	10.2	1,990	62.8
1	5,542	95.2	7,133	83.6	6,135	63.3	2,840	15.5	1,456	75.6
2	4,955	94.4	6,219	83.9	4,848	68.3	1,426	23.2	1,228	80.3
3	4,340	94.4	5,308	84.1	3,838	74.8	742	33.6	1,063	82.1
4	3,720	94.6	4,465	86.5	3,018	80.8	441	42.2	914	84.8
5	3,147	94.3	3,728	88.6	2,347	86.9	279	51.6	796	86.7
6	2,650	95.1	3,063	91.3	1,893	91.3	191	59.1	693	88.0
7	2,293	96.1	2,609	92.4	1,594	94.6	133	65.9	599	88.6
8	2,020	95.9	2,215	94.2	1,366	94.4	95	68.5	510	91.2
9	1,713	96.2	1,914	93.1	1,169	95.2	74	75.1	426	87.6
10	1,430	96.7	1,594	94.0	984	96.5	59	80.1	362	89.8

Table 4f. Conditional relative 5-year survival of patients with colorectal cancer by UICC for period 1988-2011 (N=27,802).

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 94.4% (n=4,340).
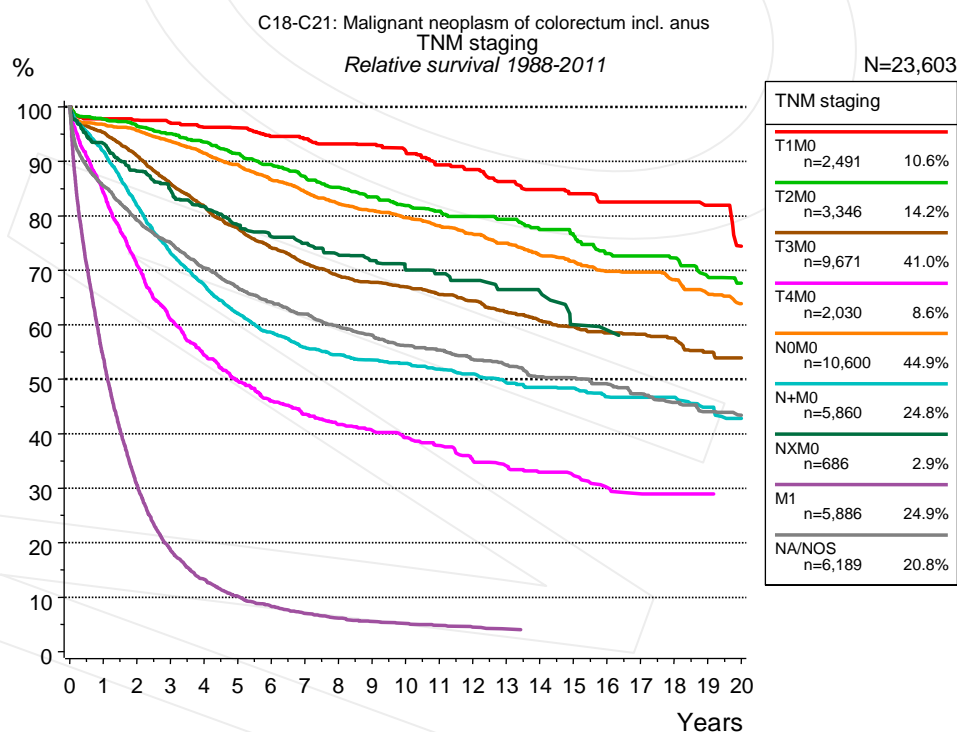

Figure 4g. Relative survival of patients with colorectal cancer by TNM staging. For 28,081 of 29,792 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 23,603 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 6,189 patients with missing values regarding TNM

staging (20.8% of 29,792 patients, the percent values of all other categories are related to n=23,603).

	TNM staging												
	T1M0		T2M0		T3M0		T4M0		N0M0		N+M0		NXM0	
	n=2,491		n=3,346		n=9,671		n=2,030		n=10,600		n=5,860		n=686	
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	91.8	95.3	80.6	84.2	93.4	96.8	88.7	91.9	90.1	93.2
2	92.1	97.5	90.5	96.4	84.7	91.0	65.2	70.8	89.2	95.7	76.5	81.9	82.5	88.2
3	89.0	97.1	86.4	95.1	77.2	85.9	54.2	60.9	84.4	93.7	66.3	73.2	77.0	84.7
4	85.7	96.3	82.3	93.5	70.9	81.7	46.6	54.4	79.6	91.5	59.1	67.3	72.3	81.7
5	83.2	96.1	77.8	91.4	65.2	77.8	41.2	49.7	75.1	89.4	52.9	62.1	67.3	78.3
6	79.0	94.5	73.6	89.4	60.0	74.1	36.8	46.0	70.2	86.6	48.3	58.6	63.6	76.2
7	76.1	94.1	69.4	87.2	55.6	71.3	33.7	43.6	66.0	84.4	44.7	55.8	61.0	74.9
8	73.5	93.2	65.6	85.2	52.0	69.0	31.1	41.7	62.1	82.2	42.3	54.5	57.5	72.8
9	70.6	93.1	62.1	83.4	49.2	67.8	29.3	40.6	58.9	81.0	40.2	53.5	54.8	71.8
10	67.2	91.9	58.8	81.8	46.9	67.0	27.4	39.3	55.9	79.7	38.5	52.9	51.6	70.0
11	63.3	89.3	56.4	80.9	44.3	65.5	25.6	37.8	52.9	78.2	36.6	51.8	49.5	69.3
12	60.6	88.5	53.8	79.9	42.0	64.4	22.9	35.0	50.0	76.6	34.9	51.0	47.8	68.1
13	57.2	86.2	51.4	79.3	39.1	62.4	21.5	34.1	47.2	75.0	32.5	49.4	44.4	66.5
14	54.5	84.8	48.2	77.5	36.7	60.7	20.1	32.9	44.1	72.7	31.0	48.5	42.7	66.0
15	51.8	84.0	45.9	76.4	34.7	59.6	19.3	32.3	41.9	71.7	29.7	48.4	37.1	60.0
16	49.3	82.5	42.3	73.1	32.9	58.5	17.3	30.1	39.3	69.8	27.8	46.8	35.7	59.0
17	48.9	82.5	40.8	72.6	31.7	58.3	16.4	29.0	38.0	69.7	27.0	46.7	34.0	55.3
18	46.7	82.5	39.0	72.2	30.0	57.5	16.0	28.9	35.7	68.3	25.9	46.7	34.0	51.1
19	43.6	81.9	35.8	68.8	27.5	55.0	16.0	28.9	33.0	65.7	23.9	44.9	34.0	47.0
20	38.3	74.4	33.8	67.7	26.0	53.9			30.9	63.9	22.2	42.8		

	TNM staging			
cont'd	M1		NA/NOS	
	n=5,886		n=6,189	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	52.0	53.8	81.6	85.5
2	28.8	30.6	72.7	79.2
3	17.1	18.6	66.2	75.1
4	11.9	13.3	59.8	70.4
5	8.9	10.2	54.8	66.9
6	7.1	8.3	50.6	64.2
7	5.9	7.0	47.1	62.0
8	5.1	6.2	43.7	59.7
9	4.4	5.5	40.9	58.1
10	4.0	5.2	38.1	56.2
11	3.6	4.8	36.1	55.3
12	3.3	4.5	33.6	53.6
13	3.0	4.2	31.7	52.6
14	2.8	4.0	29.2	50.5
15	2.8	4.0	28.0	50.3
16			26.3	49.2
17			24.3	47.3
18			22.4	45.7
19			20.8	44.0
20			19.5	43.4

Table 4h. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by TNM staging for period 1988-2011 (N=40,570).

C18-C21: Malignant neoplasm of colorectum incl. anus
TNM staging
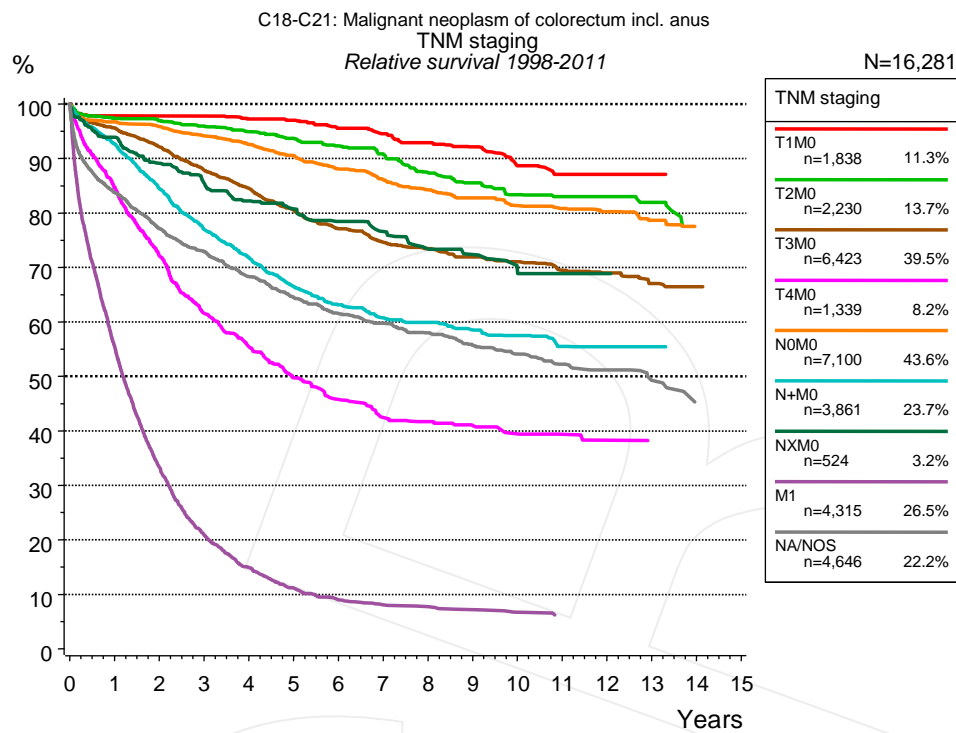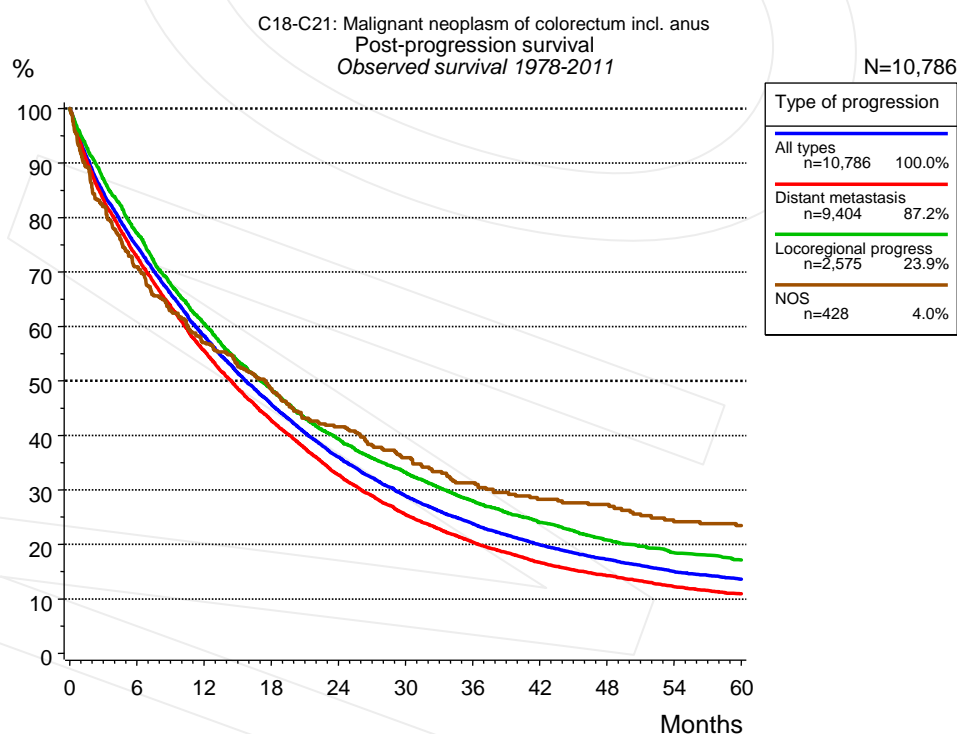*Relative survival 1998-2011*   N=16,281

Figure 4i. Relative survival of patients with colorectal cancer by TNM staging. For 19,758 of 20,927 cases diagnosed between 1998 and 2011 valid data could be obtained for this item. For a total of 16,281 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 4,646 patients with missing values regarding TNM staging (22.2% of 20,927 patients, the percent values of all other categories are related to n=16,281).

| | **TNM staging** | | | | | | | | | | | | |
| | T1M0 n=1,838 | | T2M0 n=2,230 | | T3M0 n=6,423 | | T4M0 n=1,339 | | N0M0 n=7,100 | | N+M0 n=3,861 | | NXM0 n=524 | |
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	92.1	95.6	81.2	84.7	93.3	96.7	89.5	92.7	90.9	93.9
2	92.6	97.8	90.9	96.9	85.7	92.2	66.6	72.1	89.3	95.8	79.0	84.5	83.5	89.1
3	89.8	97.8	87.2	95.9	78.9	87.8	55.0	61.6	84.9	94.2	69.8	77.0	78.0	85.4
4	86.6	97.2	83.5	94.8	73.3	84.5	47.9	55.5	80.6	92.6	63.1	71.8	73.1	82.2
5	83.9	97.0	79.8	93.7	67.5	80.6	41.6	49.8	76.1	90.6	56.7	66.5	69.9	80.8
6	79.7	95.5	76.1	92.3	62.4	77.1	37.1	45.8	71.4	88.0	52.2	63.1	66.1	78.4
7	76.4	94.6	72.4	90.8	58.2	74.6	33.5	42.5	67.4	86.1	48.7	60.7	62.9	76.6
8	72.8	92.9	67.2	87.4	55.3	73.5	32.1	41.7	63.6	84.2	46.7	59.9	58.9	73.4
9	69.5	92.1	63.9	85.5	52.2	72.0	30.5	41.0	60.4	82.8	44.0	58.5	56.2	72.4
10	64.4	88.7	60.1	83.3	49.6	71.0	28.8	39.5	57.1	81.3	42.2	57.5	51.4	68.9
11	61.2	87.1	57.8	83.0	46.6	69.5	27.7	39.4	54.5	80.8	39.0	55.5	51.4	68.9
12	60.1	87.1	55.8	83.0	44.7	69.0	26.4	38.3	52.2	80.2	38.2	55.4	51.4	68.9
13	57.4	87.1	52.8	81.9	41.4	67.0			49.0	78.6	36.4	55.4		
14					39.8	66.5					35.7	54.1		

	TNM staging			
cont'd	M1 n=4,315		NA/NOS n=4,646	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	53.5	55.4	79.8	83.7
2	31.4	33.3	70.6	77.1
3	19.2	20.9	64.3	72.9
4	13.4	14.9	58.1	68.4
5	9.8	11.1	52.9	64.5
6	7.8	9.0	48.7	61.5
7	6.8	8.1	45.7	59.7
8	6.5	7.7	42.8	58.0
9	5.9	7.2	39.7	55.7
10	5.3	6.7	37.2	54.1
11	4.8	6.1	34.7	52.2
12	4.8	5.7	32.8	51.2
13	4.8	5.2	30.2	49.3

Table 4j. Observed (obs.) and relative (rel.) survival of patients with colorectal cancer by TNM staging for period 1998-2011 (N=27,630).

Figure 5a. Observed post-progression survival of 10,786 patients with colorectal cancer diagnosed between 1978 and 2011 (incl. M1). These 10,786 patients with documented progression events during their course of disease represent 33.4% of the totally 32,328 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=2,368, 7.3%). 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 n=10,786	Distant metastasis n=9,404	Locoregional progress n=2,575	NOS n=428
Months	%	%	%	%
0	100.0	100.0	100.0	100.0
12	58.2	55.5	60.4	57.0
24	36.0	32.8	39.3	41.6
36	23.8	20.4	28.0	31.3
48	17.2	14.3	20.8	27.3
60	13.6	10.9	17.1	23.4

Table 5b. Observed post-progression survival of patients with colorectal cancer for period 1978-2011 (N=10,786).

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

Recommended Citation

Munich Cancer Registry. Survival C18-C21: Colorectal cancer [Internet]. 2013 [updated 2013 Apr 1; cited 2013 May 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/surv/surv_C1821E.pdf

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