

Munich Cancer Registry



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

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

Cancer statistics: Survival

C15-C26: GI cancer

Year of diagnosis	1988-2013
Patients	94,301
Diseases	97,462
Cases evaluated	50,937
Creation date	05/13/2015
Export date	12/30/2014
Population	4.64 m



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C1526E.pdf

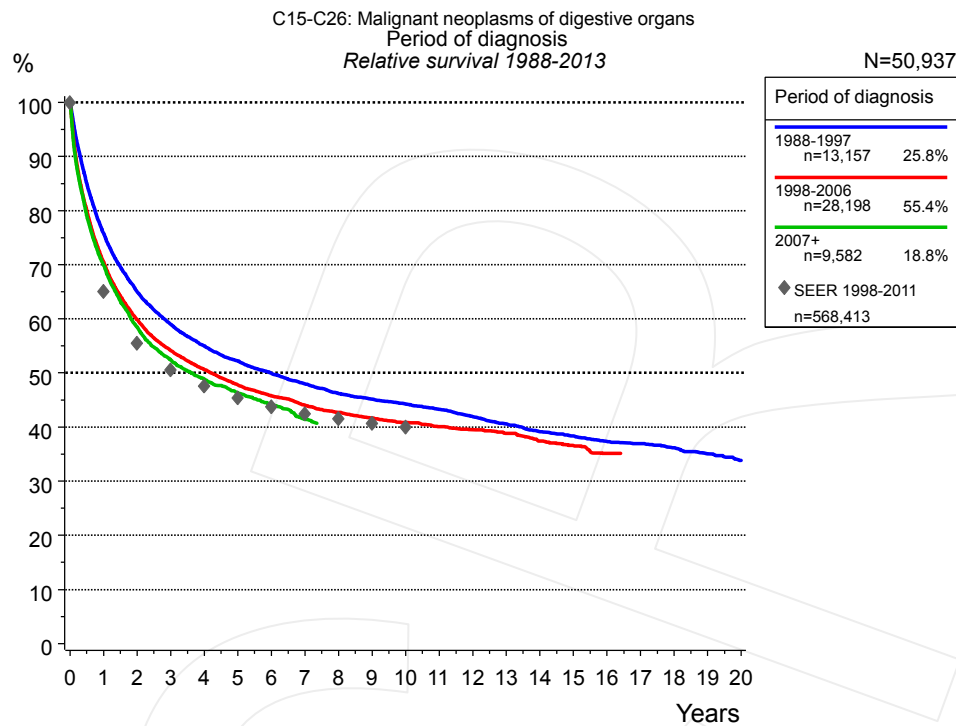


Figure 1a. Relative survival of patients with GI cancer by period of diagnosis. Included in the evaluation are 50,937 cases diagnosed between 1988 and 2013.

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.

Years	Period of diagnosis					
	1988-1997 n=13,157		1998-2006 n=28,198		2007+ n=9,582	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	73.0	75.7	67.9	70.5	67.5	69.9
2	60.6	65.0	55.8	59.9	54.8	58.5
3	53.2	59.0	48.9	54.2	47.6	52.4
4	48.0	55.0	44.3	50.7	42.9	48.8
5	44.1	52.2	40.5	47.9	39.3	46.2
6	40.7	49.9	37.5	45.8	36.4	44.2
7	37.8	48.0	34.9	44.1	33.0	41.4
8	35.1	46.2	32.7	42.8		
9	33.2	45.2	30.8	41.7		
10	31.4	44.3	29.2	40.9		
11	29.7	43.3	27.6	40.1		
12	27.7	41.9	26.3	39.5		
13	25.9	40.6	24.9	38.9		
14	24.2	39.1	23.1	37.4		
15	22.8	38.3	21.6	36.6		
16	21.5	37.3	20.1	35.1		
17	20.6	36.9				
18	19.3	36.2				
19	18.0	35.0				
20	16.7	33.8				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with GI cancer by period of diagnosis for period 1988-2013 (N=50,937).

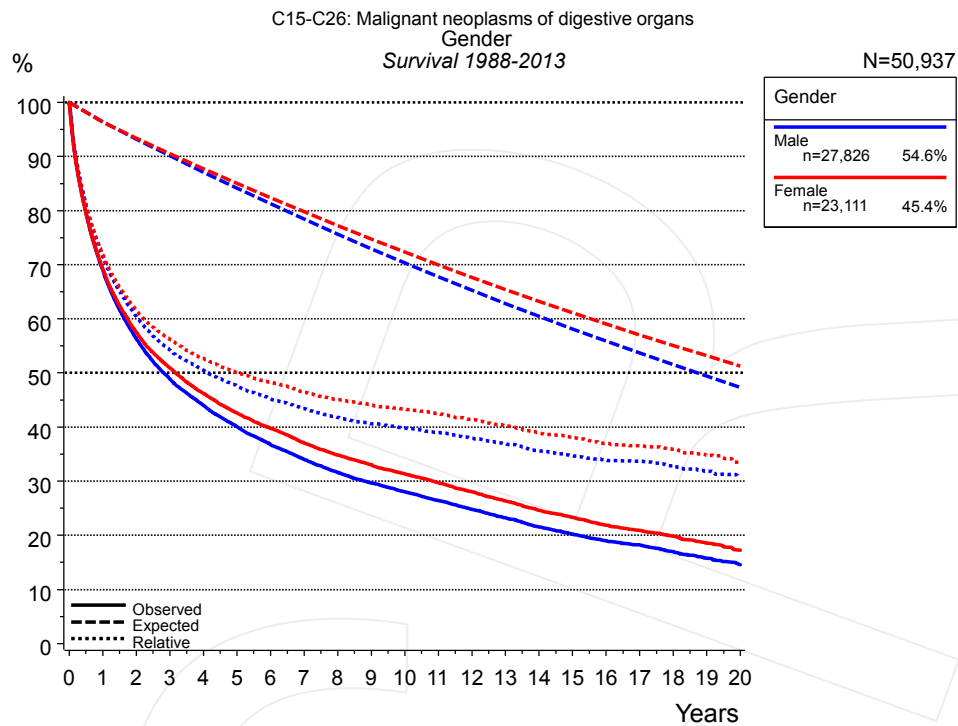


Figure 2a. Survival of patients with GI cancer by gender. Included in the evaluation are 50,937 cases diagnosed between 1988 and 2013.

Years	Gender			
	Male n=27,826		Female n=23,111	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	69.1	71.6	69.3	71.9
2	56.4	60.5	57.6	61.6
3	48.9	54.2	50.9	56.3
4	44.0	50.5	46.3	52.7
5	40.1	47.6	42.6	50.1
6	36.8	45.2	39.8	48.3
7	34.0	43.4	37.1	46.5
8	31.6	41.8	34.8	45.1
9	29.7	40.6	33.0	44.2
10	28.0	39.8	31.3	43.3
11	26.4	39.0	29.7	42.5
12	24.8	37.9	28.0	41.4
13	23.2	36.9	26.3	40.2
14	21.5	35.6	24.6	38.9
15	20.2	34.7	23.3	38.2
16	19.0	34.0	21.9	37.0
17	18.2	33.7	20.9	36.6
18	16.9	32.8	19.8	36.0
19	15.8	31.8	18.5	34.8
20	14.6	30.8	17.3	33.5

Table 2b. Observed (obs.) and relative (rel.) survival of patients with GI cancer by gender for period 1988-2013 (N=50,937).

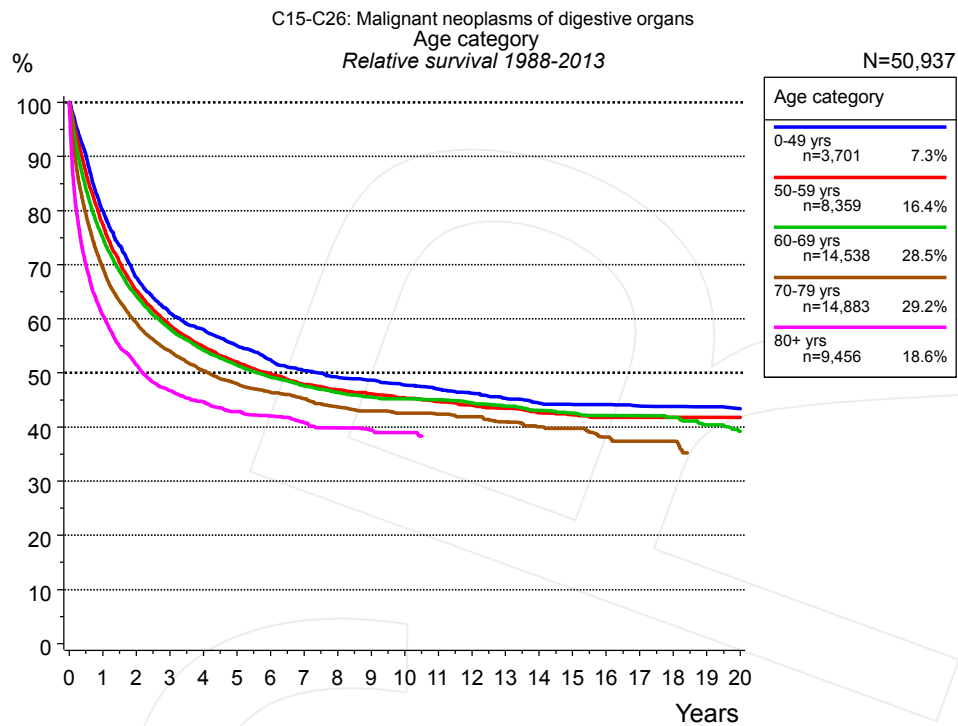


Figure 3a. Relative survival of patients with GI cancer by age category. Included in the evaluation are 50,937 cases diagnosed between 1988 and 2013.

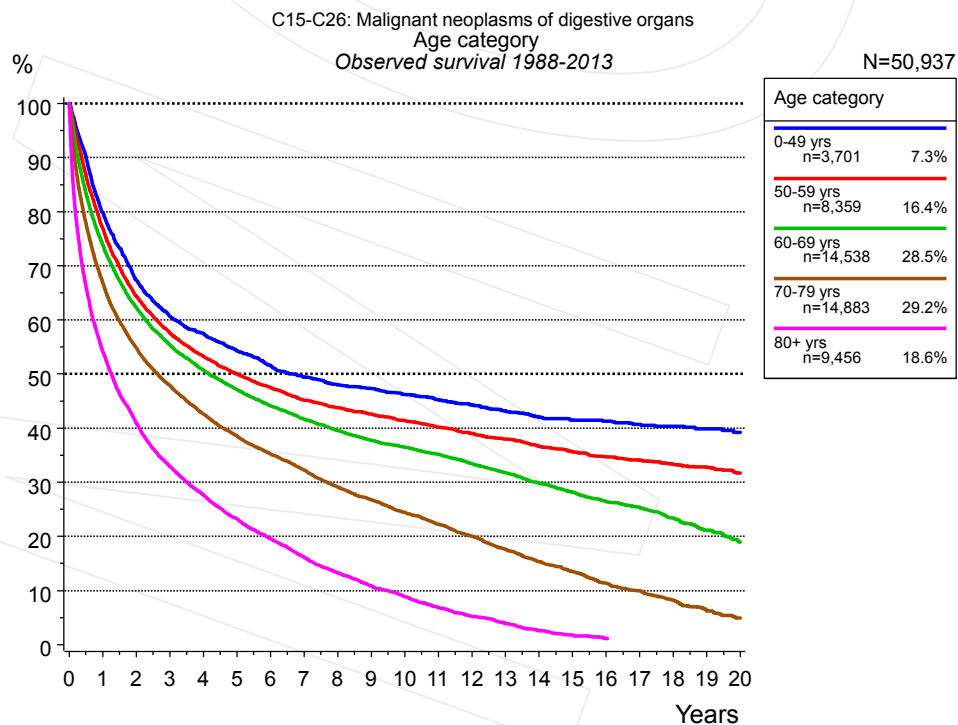


Figure 3b. Observed survival of patients with GI cancer by age category. Included in the evaluation are 50,937 cases diagnosed between 1988 and 2013.

Years	Age category									
	0-49 yrs n=3,701		50-59 yrs n=8,359		60-69 yrs n=14,538		70-79 yrs n=14,883		80+ yrs n=9,456	
	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	79.8	80.0	77.0	77.5	73.9	75.0	66.9	69.5	54.2	60.7
2	67.3	67.6	64.4	65.3	62.3	64.3	54.9	59.3	41.0	51.5
3	60.6	61.1	57.6	58.8	55.4	58.2	47.9	54.1	33.0	46.7
4	57.5	58.1	53.3	54.9	50.7	54.2	42.6	50.5	27.7	44.6
5	54.3	55.0	50.0	52.0	47.1	51.5	38.6	48.0	23.3	42.8
6	51.6	52.4	47.5	49.8	44.1	49.2	35.2	46.4	19.6	42.0
7	49.4	50.4	45.1	47.9	41.6	47.6	32.3	45.2	16.2	40.9
8	48.0	49.2	43.7	46.9	39.6	46.4	29.1	43.7	13.3	39.8
9	47.3	48.7	42.6	46.2	37.7	45.5	26.7	43.0	10.9	39.5
10	46.2	47.7	41.3	45.4	36.5	45.2	24.5	42.6	8.9	39.0
11	45.3	47.0	40.2	44.7	35.2	45.0	22.3	42.4		
12	44.3	46.2	39.0	44.0	33.4	44.5	20.0	41.9		
13	43.2	45.3	38.0	43.5	31.8	43.9	17.6	41.0		
14	42.1	44.4	36.6	42.7	29.8	43.1	15.3	40.0		
15	41.5	44.2	35.6	42.2	28.2	42.6	13.5	39.8		
16	41.3	44.1	34.7	41.8	26.5	42.1	11.3	38.2		
17	40.7	43.9	34.1	41.8	25.3	42.1	9.9	37.4		
18	40.4	43.8	33.3	41.8	23.4	41.8	8.2	37.4		
19	39.9	43.8	32.8	41.8	21.1	40.4				
20	39.2	43.4	31.7	41.8	18.9	39.2				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with GI cancer by age category for period 1988-2013 (N=50,937).

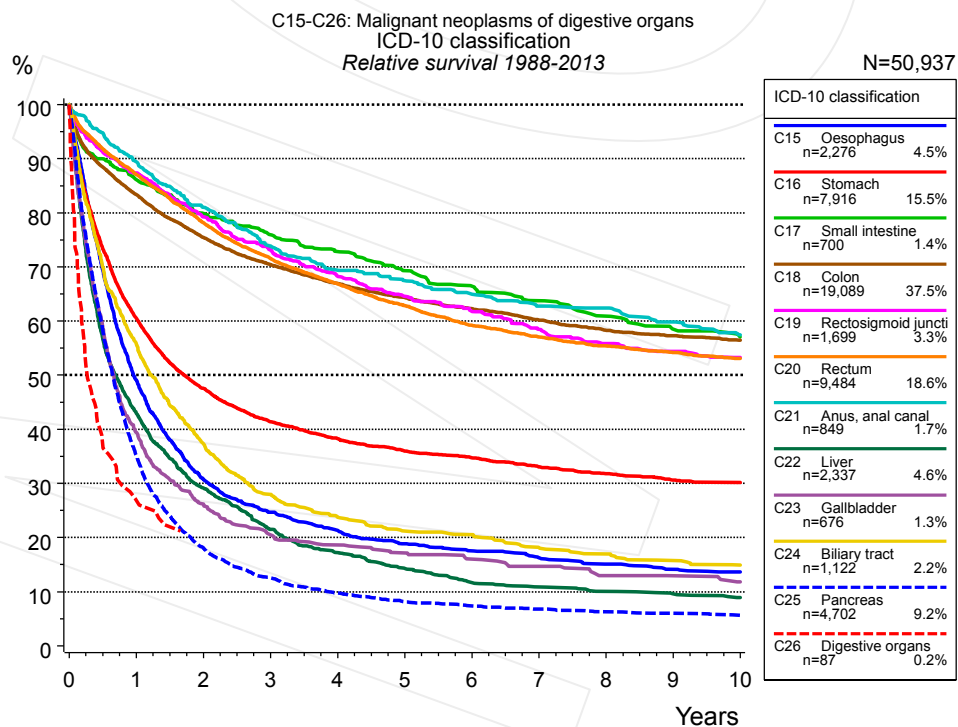


Figure 4a. Relative survival of patients with GI cancer by ICD-10 classification. Included in the evaluation are 50,937 cases diagnosed between 1988 and 2013.

ICD-10 classification														
	C15 Oesophagus		C16 Stomach		C17 Small intestine		C18 Colon		C19 Rectosigmoid junction		C20 Rectum		C21 Anus, anal canal	
	n=2,276		n=7,916		n=700		n=19,089		n=1,699		n=9,484		n=849	
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	48.0	49.2	58.0	60.5	84.0	86.2	80.1	83.4	84.6	87.4	84.3	87.1	86.9	89.5
2	29.5	30.8	44.0	47.6	76.4	79.9	69.8	75.5	74.4	79.2	73.4	78.2	76.6	81.0
3	23.1	24.7	37.0	41.4	71.1	76.0	62.8	70.4	66.9	73.2	65.3	71.6	68.3	73.9
4	19.5	21.3	33.1	38.3	66.9	72.9	57.6	67.0	60.5	68.2	59.3	66.9	62.7	69.4
5	16.9	18.9	30.1	36.0	62.3	69.3	53.3	64.4	55.3	64.6	54.1	62.9	59.7	67.5
6	15.4	17.6	28.1	34.7	58.5	66.5	49.6	62.3	51.3	61.8	49.5	59.2	56.3	65.0
7	13.9	16.3	25.8	33.1	55.1	63.8	46.2	60.2	46.9	58.5	46.3	57.1	53.1	62.8
8	12.6	15.1	24.0	31.8	51.6	60.9	43.1	58.3	43.3	55.8	43.6	55.4	51.9	62.4
9	11.6	14.2	22.4	30.7	48.3	58.5	40.8	57.3	41.0	54.4	41.3	54.2	48.6	59.8
10	10.9	13.7	21.3	30.2	46.1	57.1	38.6	56.5	38.6	53.3	39.2	53.1	45.4	57.4

ICD-10 classification											
<i>cont'd</i>	C22 Liver		C23 Gallbladder		C24 Biliary tract		C25 Pancreas		C26 Digestive organs		
	n=2,337		n=676		n=1,122		n=4,702		n=87		
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	41.8	43.0	37.8	39.4	53.9	55.8	34.1	35.1	26.2	26.9	
2	27.7	29.2	24.1	26.1	35.0	37.3	17.2	18.1	20.0	20.2	
3	19.9	21.5	18.2	20.5	25.7	28.0	11.7	12.6			
4	15.6	17.2	16.1	18.6	21.2	23.8	8.9	9.7			
5	12.7	14.3	14.4	17.1	18.5	21.2	7.2	8.1			
6	10.2	11.7	12.9	16.0	17.6	20.5	6.4	7.4			
7	9.3	10.9	11.5	14.7	15.1	18.2	5.8	6.8			
8	8.4	10.1	9.6	12.9	13.8	17.0	5.3	6.3			
9	7.8	9.6	9.2	12.9	12.5	15.8	4.8	6.0			
10	7.2	8.9	8.1	11.8	11.5	14.9	4.5	5.7			

Table 4b. Observed (obs.) and relative (rel.) survival of patients with GI cancer by ICD-10 classification for period 1988-2013 (N=50,937).

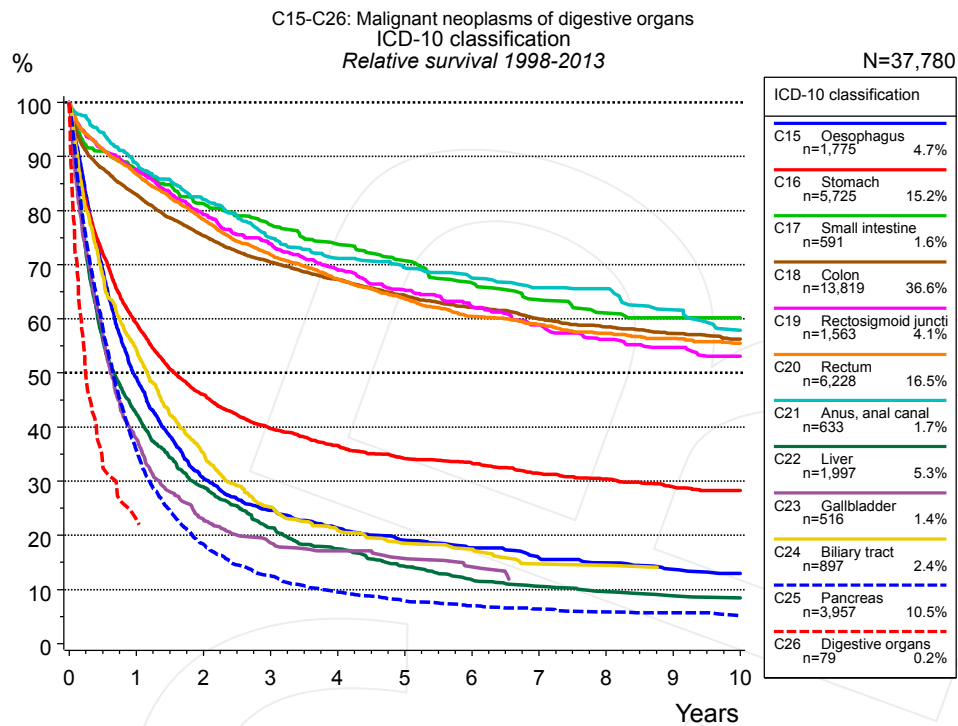


Figure 4c. Relative survival of patients with GI cancer by ICD-10 classification. Included in the evaluation are 37,780 cases diagnosed between 1998 and 2013.

ICD-10 classification														
	C15 Oesophagus		C16 Stomach		C17 Small intestine		C18 Colon		C19 Rectosigmoid junction		C20 Rectum		C21 Anus, anal canal	
	n=1,775		n=5,725		n=591		n=13,819		n=1,563		n=6,228		n=633	
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	48.0	49.2	56.6	59.2	85.5	87.5	79.6	83.0	84.9	87.6	83.9	86.8	86.4	88.8
2	29.3	30.6	42.5	46.0	77.8	81.3	69.8	75.4	74.6	79.3	73.6	78.4	77.9	82.1
3	23.1	24.6	35.4	39.7	72.6	77.4	62.8	70.5	67.6	73.8	65.7	71.9	69.6	75.0
4	19.6	21.4	31.5	36.6	68.0	73.8	57.8	67.3	61.3	69.0	59.8	67.3	64.8	71.2
5	17.2	19.1	28.5	34.2	63.8	70.8	53.3	64.4	56.1	65.3	55.0	63.7	61.9	69.5
6	15.6	17.7	26.8	33.3	58.9	66.7	49.5	62.1	51.8	62.2	50.8	60.5	59.1	67.6
7	13.6	15.8	24.4	31.4	55.2	63.5	46.1	60.0	47.6	58.9	48.1	59.0	56.1	65.8
8	12.6	14.9	22.8	30.4	51.9	61.0	43.3	58.5	43.9	56.2	45.4	57.3	55.3	65.6
9	11.3	13.7	21.0	28.9	50.6	60.2	40.7	57.3	41.7	54.7	43.4	56.4	50.8	61.7
10	10.4	13.0	20.0	28.3	49.0	60.2	38.5	56.3	39.0	53.1	41.3	55.5	46.9	57.9

ICD-10 classification										
cont'd	C22 Liver n=1,997		C23 Gallbladder n=516		C24 Biliary tract n=897		C25 Pancreas n=3,957		C26 Digestive organs n=79	
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	41.3	42.4	36.3	37.9	52.4	54.3	34.8	35.8	22.4	22.9
2	27.5	29.0	21.2	23.0	32.9	35.1	17.4	18.3		
3	19.8	21.4	16.6	18.6	23.2	25.3	11.7	12.6		
4	15.9	17.5	14.9	17.1	18.7	20.9	8.6	9.5		
5	12.6	14.3	13.4	15.7	16.2	18.5	7.0	7.9		
6	10.3	11.8	11.7	14.2	15.1	17.5	6.1	7.0		
7	9.0	10.6	9.4	11.7	12.4	14.7	5.4	6.4		
8	8.0	9.6			12.0	14.4	4.8	5.8		
9	7.2	8.8			11.2	14.1	4.6	5.7		
10	7.0	8.5			11.2	14.0	4.1	5.1		

Table 4d. Observed (obs.) and relative (rel.) survival of patients with GI cancer by ICD-10 classification for period 1998-2013 (N=37,780).

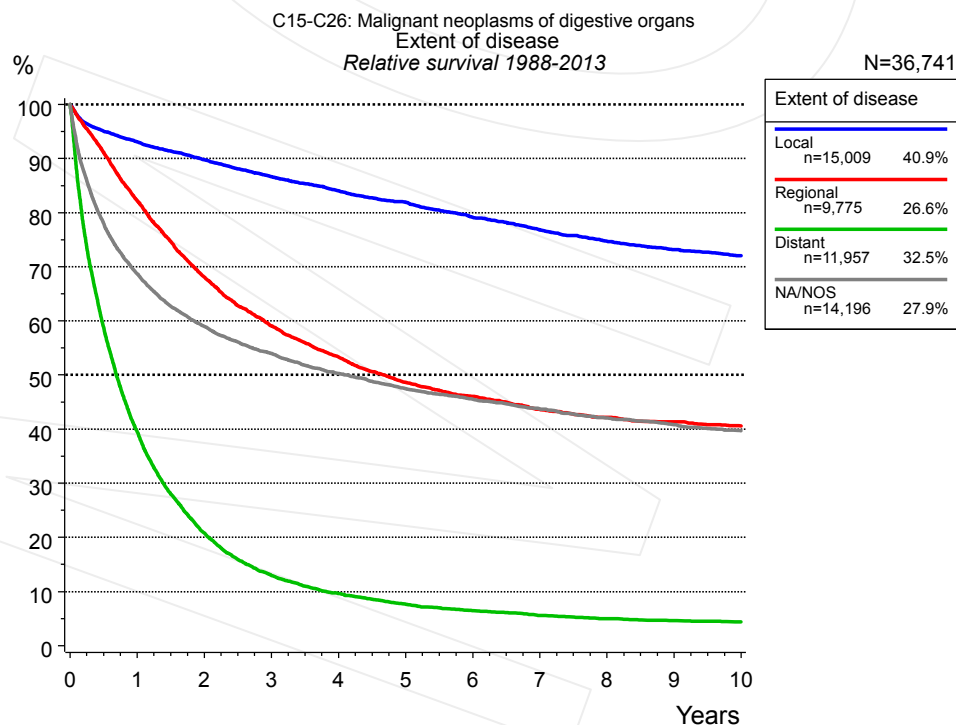


Figure 4e. Relative survival of patients with GI cancer by extent of disease. For 44,695 of 50,937 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 36,741 cases an evaluable classification was established. The grey line represents the subgroup of 14,196 patients with missing values regarding extent of disease (27.9% of 50,937 patients, the percent values of all other categories are related to n=36,741).

Years	Extent of disease							
	Local n=15,009		Regional n=9,775		Distant n=11,957		NA/NOS n=14,196	
	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
1	89.9	93.1	79.6	82.3	38.3	39.5	65.7	68.7
2	83.9	89.8	63.9	68.1	19.7	20.8	54.3	59.0
3	78.3	86.6	53.9	59.1	12.0	13.0	47.9	54.0
4	73.4	84.0	47.2	53.3	8.7	9.6	43.1	50.3
5	69.1	82.0	41.8	48.6	6.8	7.7	39.3	47.5
6	64.5	79.1	38.4	46.0	5.6	6.4	36.4	45.5
7	60.4	76.8	35.3	43.7	4.7	5.6	33.8	43.7
8	56.7	74.7	33.1	42.2	4.1	5.0	31.4	42.0
9	53.6	73.2	31.4	41.3	3.7	4.6	29.4	40.8
10	50.9	72.0	29.9	40.6	3.4	4.4	27.6	39.7

Table 4f. Observed (obs.) and relative (rel.) survival of patients with GI cancer by extent of disease for period 1988-2013 (N=36,741).

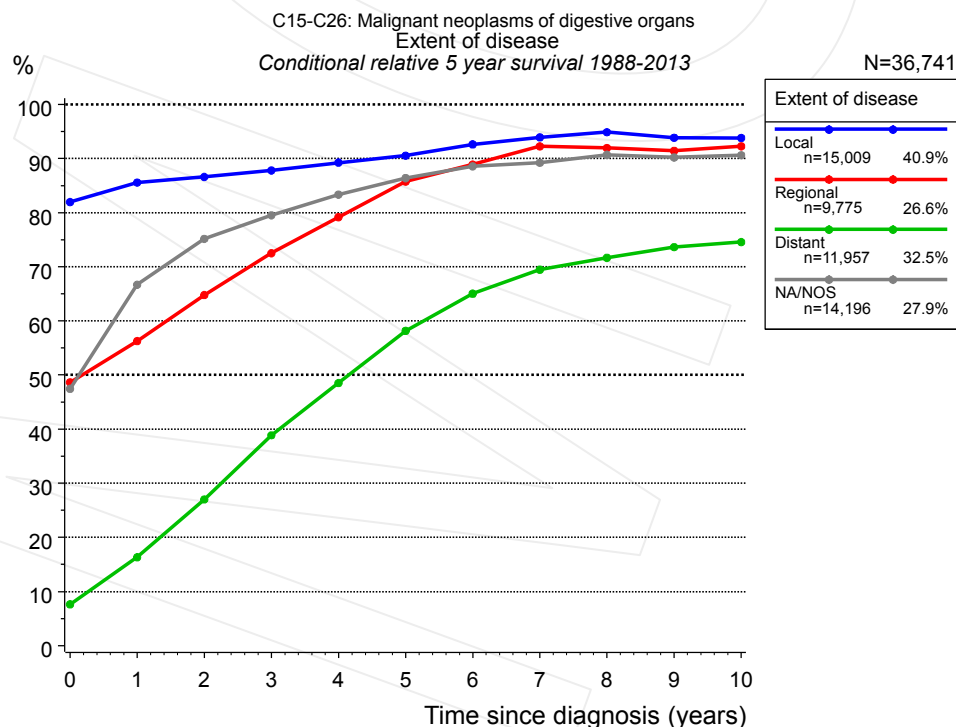


Figure 4g. Conditional relative 5-year survival of patients with GI cancer by extent of disease. For 44,695 of 50,937 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 36,741 cases an evaluable classification was established. The grey line represents the subgroup of 14,196 patients with missing values regarding extent of disease (27.9% of 50,937 patients, the percent values of all other categories are related to n=36,741).

Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	15,009	82.0	9,775	48.6	11,957	7.7	14,196	47.5
1	12,871	85.6	7,428	56.3	4,250	16.3	8,798	66.7
2	11,208	86.6	5,527	64.8	1,982	27.0	6,733	75.2
3	9,660	87.8	4,237	72.5	1,067	38.9	5,490	79.5
4	8,250	89.2	3,315	79.2	681	48.5	4,478	83.3
5	6,985	90.5	2,616	85.7	462	58.2	3,698	86.4
6	5,893	92.6	2,148	88.9	337	65.0	3,025	88.5
7	5,159	93.9	1,805	92.2	249	69.5	2,511	89.2
8	4,507	94.9	1,543	92.0	184	71.6	2,105	90.7
9	3,890	93.8	1,343	91.4	144	73.6	1,745	90.2
10	3,376	93.8	1,151	92.2	116	74.6	1,452	90.6

Table 4h. Conditional relative 5-year survival of patients with GI cancer by extent of disease for period 1988-2013 (N=36,741).

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 4e). 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 extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 87.8% (n=9,660).

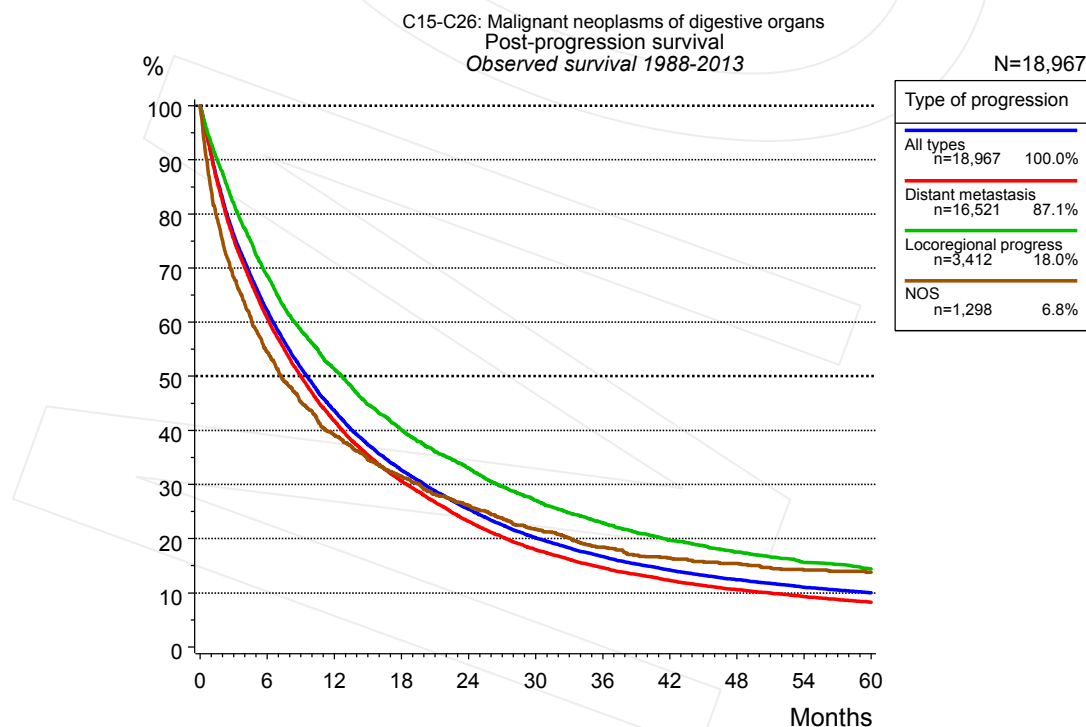


Figure 5a. Observed post-progression survival of 18,967 patients with GI cancer diagnosed between 1988 and 2013 (incl. M1). These 18,967 patients with documented progression events during their course of disease represent 37.2% of the totally 50,937 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=6,861, 13.5%). Multiple progression types on different sites are included in the evaluation even when not occurring

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 potentially considered in more than one subgroup.

Months	Type of progression			
	All types n=18,967 %	Distant metastasis n=16,521 %	Locoregional progress n=3,412 %	NOS n=1,298 %
0	100.0	100.0	100.0	100.0
12	43.6	41.8	51.4	39.1
24	25.5	23.2	33.0	26.1
36	16.7	14.6	23.0	18.4
48	12.5	10.6	17.5	15.5
60	10.0	8.3	14.5	13.8

Table 5b. Observed post-progression survival of patients with GI cancer for period 1988-2013 (N=18,967).

Shortcuts

MCR	Munich Cancer Registry, Germany (Tumorregister München)
NCI	National Cancer Institute, USA
SEER	Surveillance, Epidemiology, and End Results, USA
UICC	Union for International Cancer Control, Geneva
DCO	Death certificate only. The death certificate provides the only notification to the registry.
NA	Not available
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
RS	Relative survival, compared to the general population, ratio of observed to expected survival (Ederer II method), reflecting excess mortality among cancer patients
AS	Assembled survival chart (observed, expected, relative)
PPS	Post-progression survival, survival since first relapse (Kaplan-Meier estimate)
progression	Date of entry: Date of first locoregional recurrence, distant metastasis, unspecified
	Event: Death of all causes
CS	Conditional survival, survival probability under the condition of surviving a given period of time

Recommended Citation

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