

# Munich Cancer Registry



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

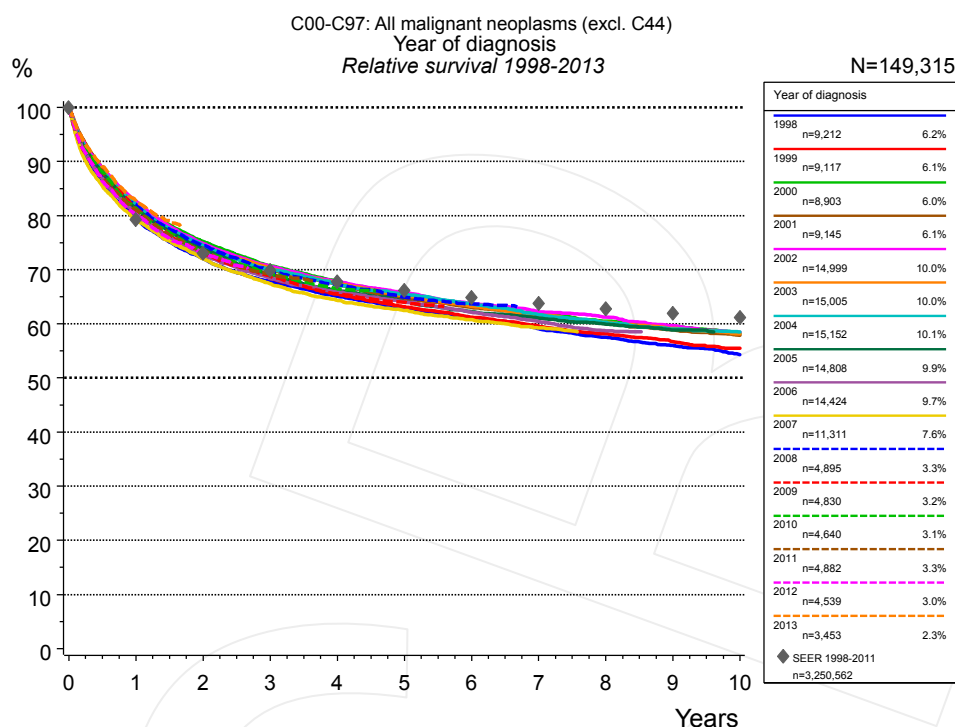
## Cancer statistics: Survival

### C00-C97: All cancers (excl. C44)

Year of diagnosis	1988-2013
Patients	349,663
Diseases	387,225
Cases evaluated	204,892
Creation date	05/13/2015
Export date	12/30/2014
Population	4.64 m



[http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C0097E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C0097E.pdf)



**Figure 1a.** Relative survival of patients with all cancers (excl. C44) by year of diagnosis. Included in the evaluation are 149,315 cases diagnosed between 1998 and 2013.

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 2011, and are represented by gray diamonds in order to facilitate comparisons between MCR and SEER.

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.

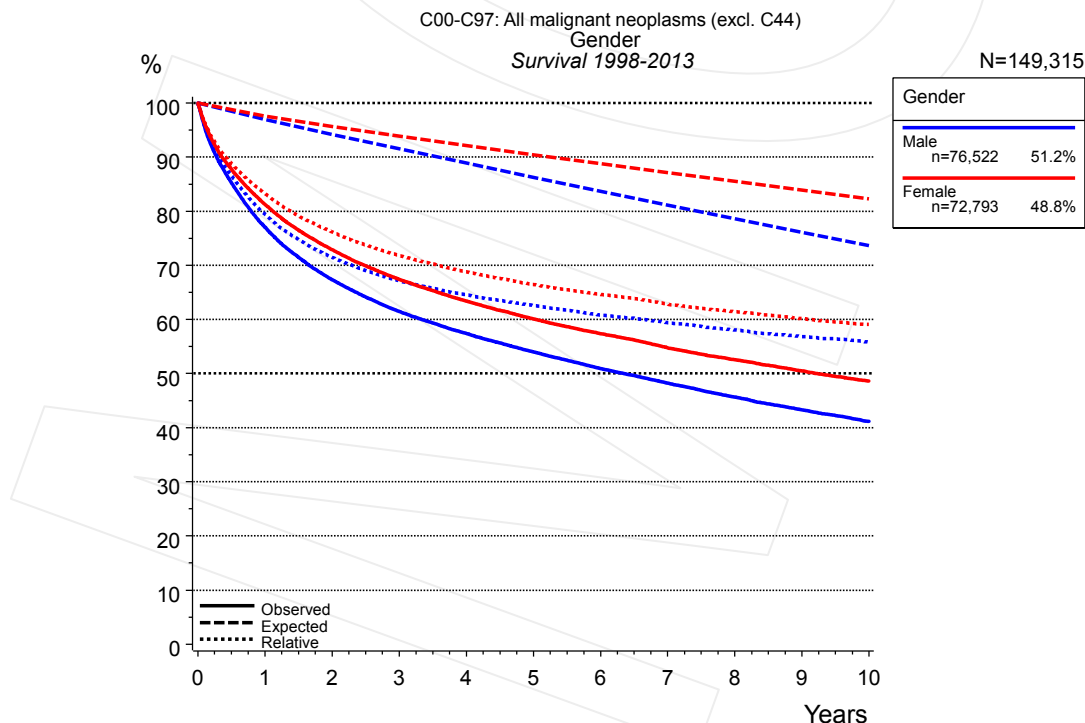
		Year of diagnosis													
		1998 n=9,212		1999 n=9,117		2000 n=8,903		2001 n=9,145		2002 n=14,999		2003 n=15,005		2004 n=15,152	
Years		obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1		77.1	79.5	78.1	80.5	80.1	82.5	80.0	82.2	80.3	82.7	79.7	81.9	79.9	82.1
2		68.1	72.1	69.0	73.0	71.3	75.2	70.6	74.4	70.8	74.8	70.6	74.4	70.8	74.4
3		62.4	67.8	63.1	68.4	65.4	70.7	65.0	70.2	65.2	70.6	65.1	70.3	65.1	70.1
4		58.5	65.1	58.9	65.5	61.2	67.9	61.0	67.4	61.1	67.8	61.0	67.5	61.1	67.3
5		55.0	62.8	55.4	63.2	57.3	65.1	57.3	64.8	57.9	65.8	57.5	65.2	58.0	65.5
6		52.1	61.1	52.5	61.2	54.5	63.4	54.5	63.0	54.7	63.7	54.4	63.2	55.1	63.7
7		49.2	59.1	49.9	59.6	51.9	61.9	52.0	61.5	52.1	62.2	51.7	61.6	52.1	61.7
8		46.8	57.5	47.6	58.2	49.5	60.5	49.5	60.0	49.9	61.2	49.3	60.2	49.6	60.3
9		44.4	56.0	45.2	56.7	47.6	59.5	47.4	58.9	47.4	59.6	47.1	59.1	47.4	59.0
10		42.0	54.3	43.3	55.5	45.3	58.2	45.4	57.9	45.2	58.4	45.1	58.1	45.7	58.5

cont'd	Year of diagnosis													
	2005		2006		2007		2008		2009		2010		2011	
	n=14,808		n=14,424		n=11,311		n=4,895		n=4,830		n=4,640		n=4,882	
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	79.2	81.4	78.3	80.5	77.1	79.3	80.0	82.1	79.3	81.3	79.3	81.4	79.0	81.0
2	70.2	73.9	68.9	72.5	68.5	72.0	71.0	74.5	69.9	73.3	70.1	73.5	70.1	73.5
3	64.2	69.1	63.6	68.4	62.7	67.4	65.1	69.8	64.2	68.8	64.7	69.3	64.5	69.1
4	60.1	66.2	59.8	65.9	58.5	64.3	61.3	67.2	59.7	65.6	60.6	66.5		
5	56.8	64.1	56.8	64.0	55.6	62.5	57.8	64.9	57.0	64.0				
6	53.9	62.2	53.8	62.2	52.9	60.7	55.4	63.7						
7	51.7	61.0	51.0	60.4	50.4	59.2								
8	49.5	59.9	48.4	58.7										
9	47.4	58.8												

cont'd	Year of diagnosis			
	2012		2013	
	n=4,539		n=3,453	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	78.2	80.2	80.7	82.7
2	69.8	73.1		

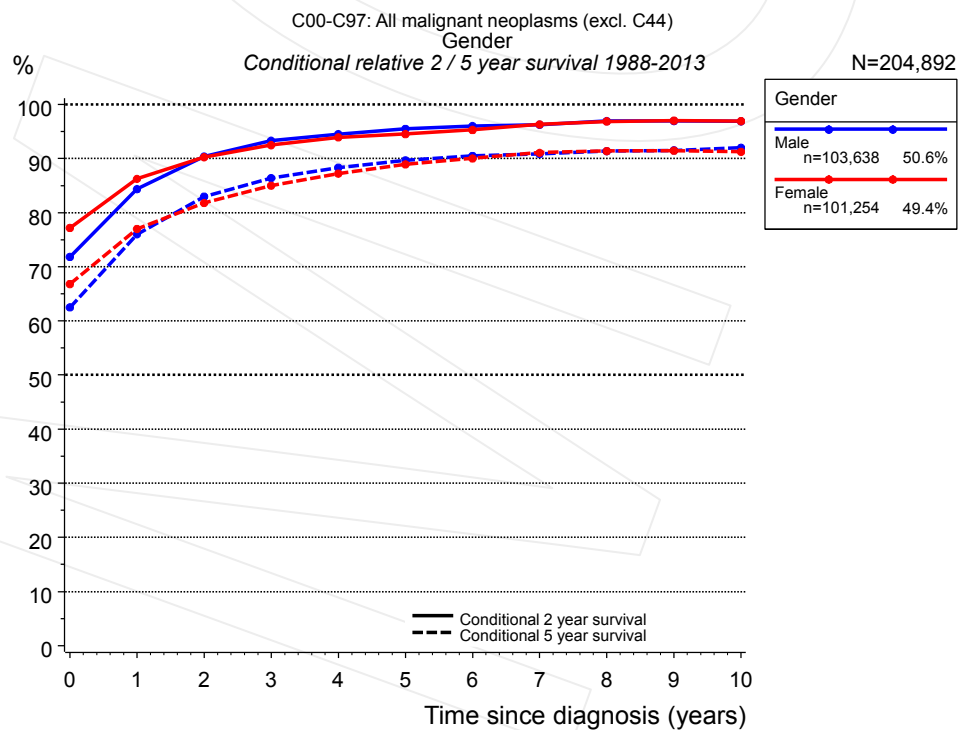
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with all cancers (excl. C44) by year of diagnosis for period 1998-2013 (N=149,315).



**Figure 2a.** Survival of patients with all cancers (excl. C44) by gender. Included in the evaluation are 149,315 cases diagnosed between 1998 and 2013.

Years	Gender			
	Male n=76,522		Female n=72,793	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.1	79.5	81.3	83.3
2	67.4	71.5	72.9	76.2
3	61.5	67.2	67.4	71.8
4	57.4	64.6	63.4	68.8
5	54.0	62.6	60.1	66.4
6	50.9	60.8	57.4	64.6
7	48.2	59.4	54.8	62.8
8	45.7	58.1	52.6	61.4
9	43.3	56.9	50.5	60.2
10	41.1	55.9	48.6	59.0

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with all cancers (excl. C44) by gender for period 1998-2013 (N=149,315).

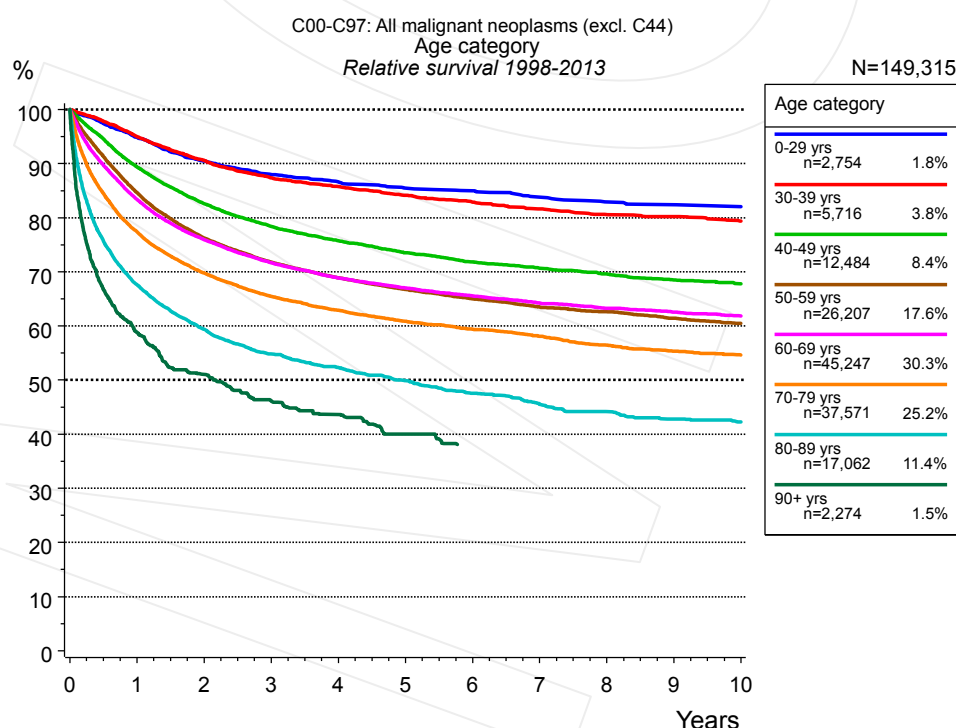


**Figure 2c.** Conditional relative 2 / 5-year survival of patients with all cancers (excl. C44) by gender. For 204,892 of 204,892 cases diagnosed between 1988 and 2013 valid data could be obtained for this item.

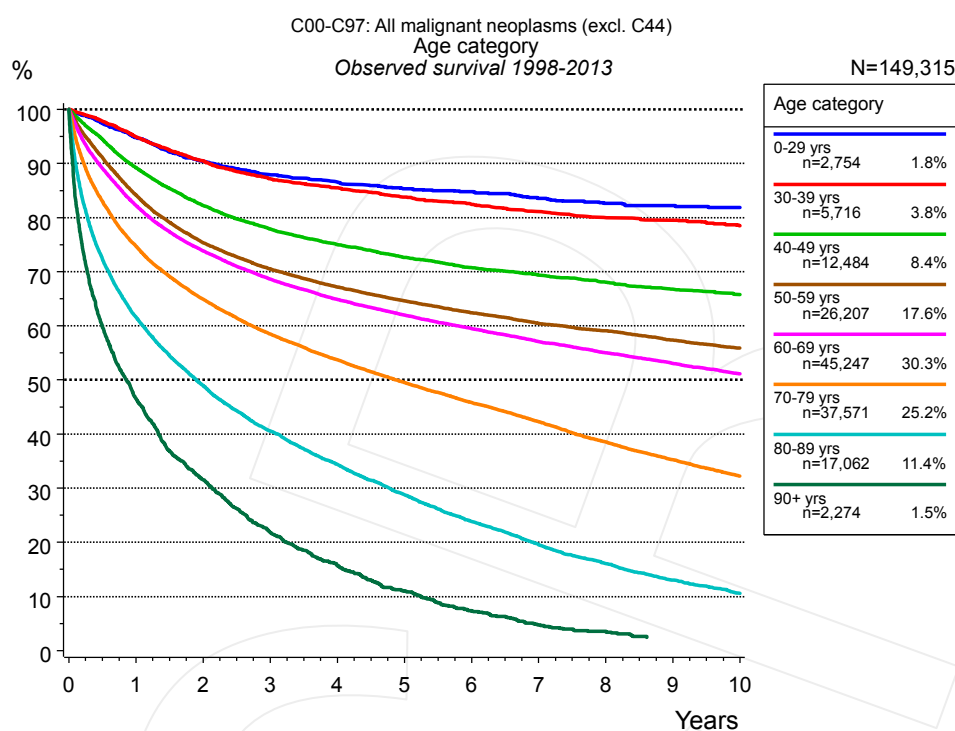
Years	Gender					
	Male			Female		
	n	Cond. surv. % 2 yrs	5 yrs	n	Cond. surv. % 2 yrs	5 yrs
0	103,638	71.8	62.5	101,254	77.2	66.8
1	76,391	84.4	76.0	79,547	86.3	77.0
2	61,707	90.4	83.0	66,220	90.2	81.8
3	51,292	93.3	86.4	56,194	92.5	85.0
4	43,071	94.5	88.3	47,880	93.9	87.2
5	36,023	95.5	89.7	40,941	94.5	88.9
6	30,191	96.0	90.5	34,999	95.3	90.0
7	26,063	96.3	90.9	30,524	96.3	91.1
8	22,378	96.9	91.4	26,646	96.9	91.4
9	19,061	96.9	91.5	23,158	97.0	91.5
10	16,083	96.9	92.0	20,132	96.9	91.3

**Table 2d.** Conditional relative 2 / 5-year survival of patients with all cancers (excl. C44) by gender for period 1988-2013 (N=204,892).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 and 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 2a). 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 gender="Male", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 93.3% (n=51,292).



**Figure 3a.** Relative survival of patients with all cancers (excl. C44) by age category. Included in the evaluation are 149,315 cases diagnosed between 1998 and 2013.



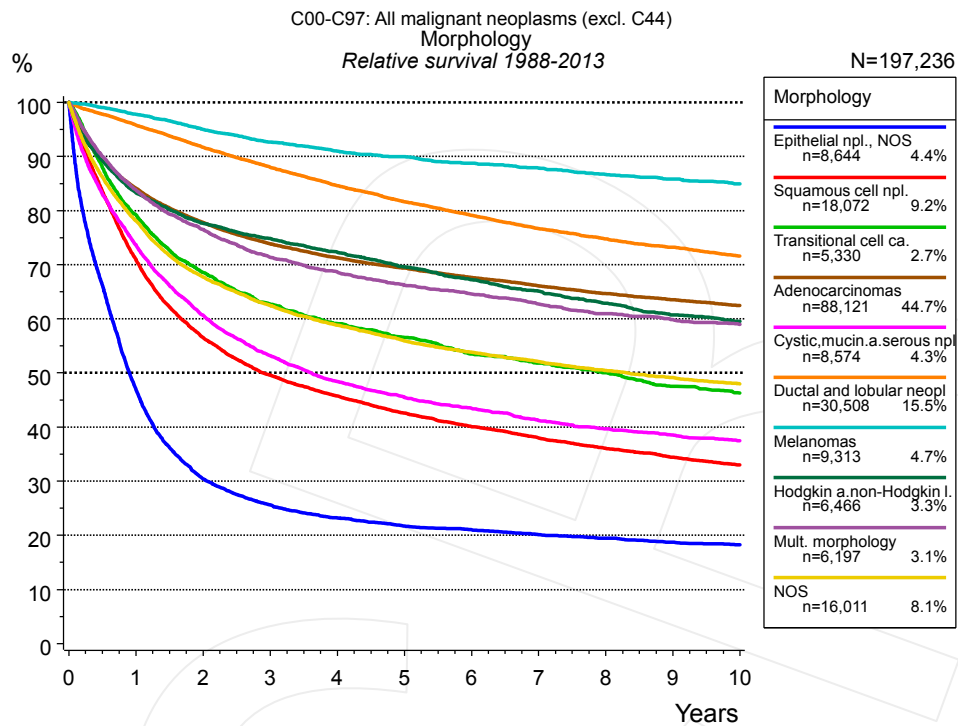
**Figure 3b.** Observed survival of patients with all cancers (excl. C44) by age category. Included in the evaluation are 149,315 cases diagnosed between 1998 and 2013.

		Age category													
		0-29 yrs n=2,754		30-39 yrs n=5,716		40-49 yrs n=12,484		50-59 yrs n=26,207		60-69 yrs n=45,247		70-79 yrs n=37,571		80-89 yrs n=17,062	
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		94.8	94.8	94.9	95.0	89.2	89.4	84.2	84.7	82.3	83.4	74.8	77.4	61.6	67.7
2		90.4	90.5	90.5	90.6	82.2	82.6	75.4	76.3	73.9	76.0	64.9	69.8	49.0	59.4
3		87.9	88.0	87.2	87.4	77.9	78.4	70.5	71.8	68.6	71.7	58.5	65.5	40.6	54.8
4		86.6	86.6	85.5	85.8	75.0	75.7	67.2	68.9	64.9	68.9	53.7	62.9	34.4	52.3
5		85.3	85.5	83.8	84.1	72.6	73.5	64.6	66.8	62.0	67.0	49.5	60.8	28.8	49.9
6		84.8	85.0	82.5	82.9	70.7	71.8	62.4	65.0	59.5	65.5	45.8	59.4	23.8	47.6
7		83.6	83.8	81.1	81.6	69.4	70.6	60.4	63.5	57.1	64.2	42.3	58.1	19.6	45.6
8		82.6	82.9	80.0	80.6	68.0	69.6	59.1	62.6	55.0	63.3	38.5	56.4	16.0	44.2
9		82.2	82.4	79.5	80.2	66.7	68.5	57.3	61.4	53.1	62.5	35.2	55.3	13.0	42.8
10		81.8	82.0	78.5	79.4	65.8	67.8	55.9	60.5	51.1	61.9	32.2	54.6	10.5	42.3

		Age category cont'd 90+ yrs n=2,274	
Years		obs. %	rel. %
0		100.0	100.0
1		46.5	58.8
2		31.5	51.0
3		21.8	46.1
4		15.6	43.6
5		11.0	40.1

**Table 3c.** Observed (obs.) and relative (rel.) survival of patients with all cancers (excl. C44) by age category for period 1998-2013 (N=149,315).

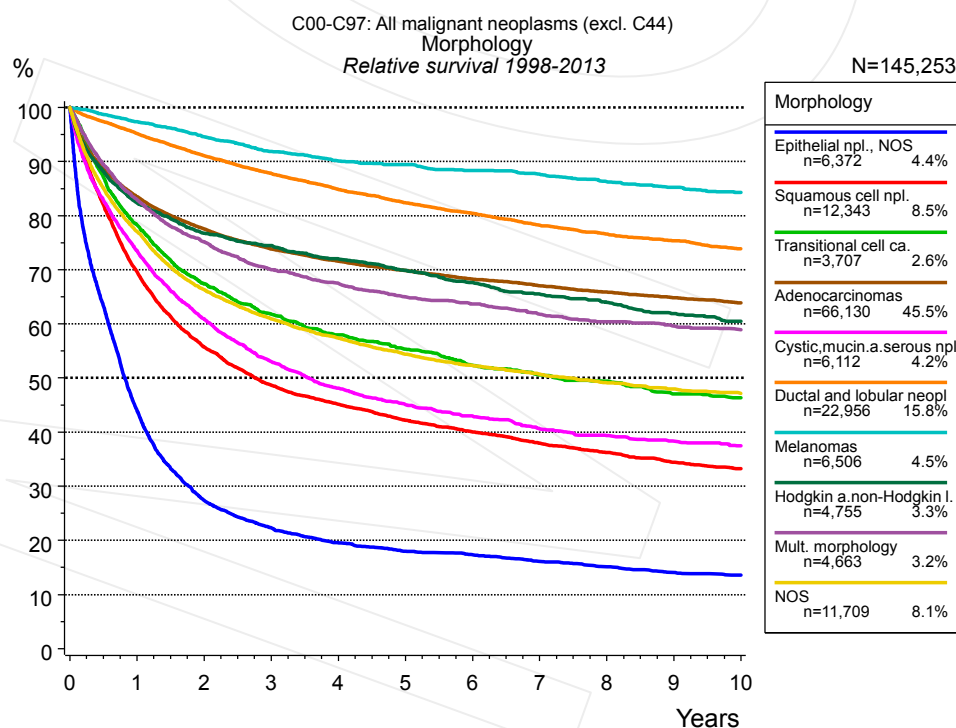


**Figure 4a.** Relative survival of patients with all cancers (excl. C44) by morphology. For 197,236 of 204,892 cases diagnosed between 1988 and 2013 valid data could be obtained for this item.

Morphology															
	Epithelial npl., NOS		Squamous cell npl.		Adenocarcinomas		Cystic,mucin.a.serous npl.		Ductal and lobular neoplasms		Melanomas		Hodgkin a.non-Hodgkin l.		
	n=8,644		n=18,072		n=88,121		n=8,574		n=30,508		n=9,313		n=6,466		
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	45.6	46.9	69.3	70.9	81.4	84.1	71.4	73.7	94.2	95.8	95.9	97.8	81.3	83.3	
2	28.8	30.4	54.1	56.5	73.0	77.8	57.3	60.6	88.7	91.7	91.4	95.0	74.4	77.6	
3	23.6	25.6	46.6	49.6	67.3	73.9	48.9	53.2	83.8	88.0	87.6	92.7	70.5	74.9	
4	20.9	23.2	42.1	45.7	62.9	71.3	43.3	48.4	79.2	84.6	84.5	91.0	66.9	72.3	
5	19.0	21.7	38.5	42.6	59.4	69.4	39.6	45.5	75.3	81.6	82.1	90.0	63.3	69.6	
6	17.9	21.0	35.5	40.1	56.0	67.6	36.8	43.4	71.7	79.1	79.5	88.7	60.1	67.2	
7	16.7	20.1	33.0	38.0	53.0	66.1	33.9	41.2	68.4	76.6	77.3	87.9	57.3	65.1	
8	15.8	19.5	30.7	36.0	50.2	64.7	31.8	39.6	65.6	74.7	74.9	86.7	54.5	62.9	
9	14.8	18.7	28.7	34.4	47.6	63.5	30.1	38.5	63.2	73.2	72.9	85.8	51.8	60.7	
10	14.0	18.2	27.0	33.0	45.2	62.4	28.4	37.4	60.7	71.6	70.9	84.9	50.1	59.6	

cont'd Years	Morphology			
	Mult. morphology n=6,197		NOS n=21,341	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	81.8	83.8	76.4	78.4
2	73.1	76.5	64.8	67.9
3	66.7	71.4	58.5	62.5
4	62.9	68.6	54.0	58.9
5	59.4	66.2	50.5	56.0
6	56.8	64.5	47.5	53.7
7	54.1	62.7	45.2	51.9
8	51.6	61.0	42.9	50.2
9	49.5	59.8	40.9	48.6
10	47.8	58.9	39.3	47.4

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with all cancers (excl. C44) by morphology for period 1988-2013 (N=197,236).



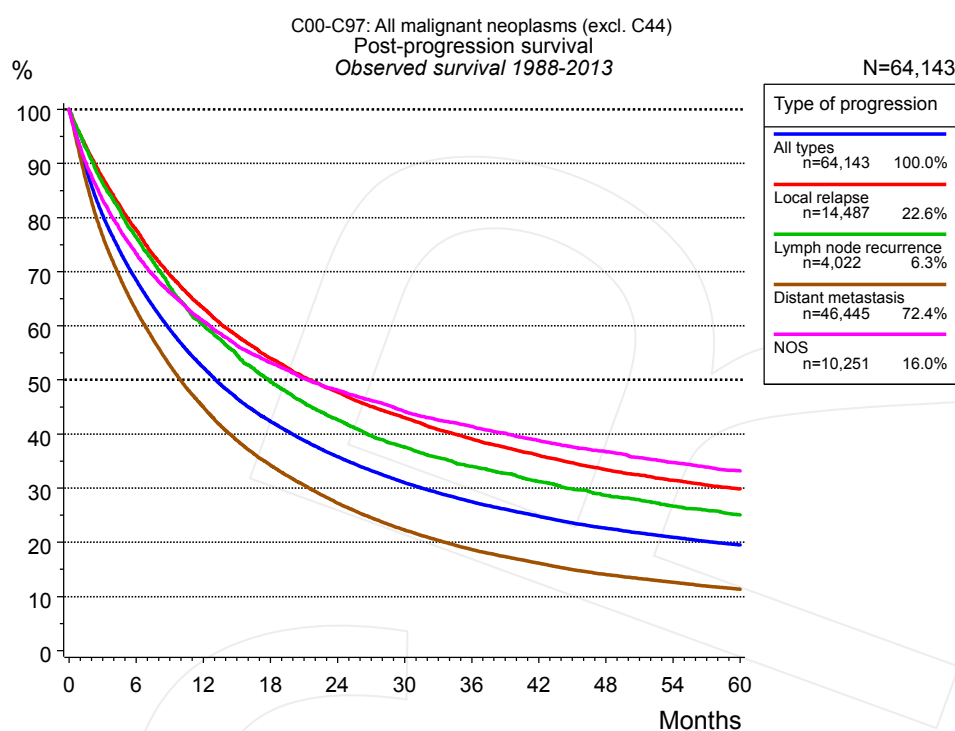
**Figure 4c.** Relative survival of patients with all cancers (excl. C44) by morphology. For 145,253 of 149,315 cases diagnosed between 1998 and 2013 valid data could be obtained for this item.



Years	Morphology													
	Epithelial npl., NOS		Squamous cell npl.		Adenocarcinomas		Cystic, mucin.a.serous npl.		Ductal and lobular neoplasms		Melanomas		Hodgkin a.non-Hodgkin l.	
	n=6,372		n=12,343		n=66,130		n=6,112		n=22,956		n=6,506		n=4,755	
	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	42.8	44.0	68.1	69.6	80.9	83.5	71.3	73.6	93.5	95.2	95.5	97.3	80.3	82.3
2	25.9	27.4	53.4	55.7	72.9	77.5	57.5	60.9	88.1	91.1	91.0	94.6	73.5	76.8
3	20.6	22.3	45.8	48.7	67.4	73.8	48.7	53.0	83.5	87.8	86.8	91.8	70.0	74.5
4	17.6	19.6	41.6	45.1	63.5	71.6	42.9	48.1	79.5	84.9	83.8	90.1	66.5	72.0
5	15.7	18.0	38.2	42.2	60.1	69.9	39.2	45.1	75.9	82.4	81.7	89.4	63.3	69.9
6	14.7	17.4	35.5	40.0	56.9	68.3	36.2	42.9	72.9	80.4	79.2	88.3	60.2	67.6
7	13.3	16.1	33.1	37.9	54.2	67.0	33.3	40.6	69.8	78.2	77.2	87.6	57.4	65.5
8	12.2	15.2	31.0	36.2	51.5	65.9	31.4	39.3	67.2	76.6	74.7	86.3	55.1	64.0
9	11.0	14.1	28.9	34.4	49.1	64.8	29.7	38.3	65.0	75.4	72.6	85.2	52.5	61.9
10	10.3	13.6	27.3	33.2	46.7	63.9	28.2	37.5	62.5	73.8	70.5	84.3	50.6	60.5

Years	Morphology			
	cont'd Mult. morphology		NOS	
	n=4,663		n=15,416	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	81.0	83.0	75.4	77.4
2	71.9	75.2	63.5	66.6
3	65.6	70.0	57.2	61.1
4	62.0	67.5	52.8	57.5
5	58.5	64.9	49.2	54.5
6	56.2	63.7	46.4	52.3
7	53.6	61.8	44.2	50.6
8	51.4	60.4	42.1	49.1
9	49.5	59.6	40.2	47.6
10	48.0	58.9	39.0	46.9

**Table 4d.** Observed (obs.) and relative (rel.) survival of patients with all cancers (excl. C44) by morphology for period 1998-2013 (N=145,253).



**Figure 5a.** Observed post-progression survival of 64,143 patients with all cancers (excl. C44) diagnosed between 1988 and 2013 (incl. M1). These 64,143 patients with documented progression events during their course of disease represent 31.3% of the totally 204,892 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=18,996, 9.3%). 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=64,143	Local relapse n=14,487	Lymph node recurrence n=4,022	Distant metastasis n=46,445	NOS n=10,251
	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
12	52.3	63.3	60.3	45.0	60.8
24	35.8	47.8	42.6	27.3	48.1
36	27.5	39.1	34.0	18.7	41.4
48	22.6	33.4	28.7	14.1	36.7
60	19.5	29.8	25.1	11.3	33.2

**Table 5b.** Observed post-progression survival of patients with all cancers (excl. C44) for period 1988-2013 (N=64,143).

## 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

Munich Cancer Registry. Survival C00-C97: All cancers (excl. C44) [Internet]. 2015 [updated 2015 May 13; cited 2015 Jul 1]. Available from: [http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C0097E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C0097E.pdf)

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