

# Munich Cancer Registry



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

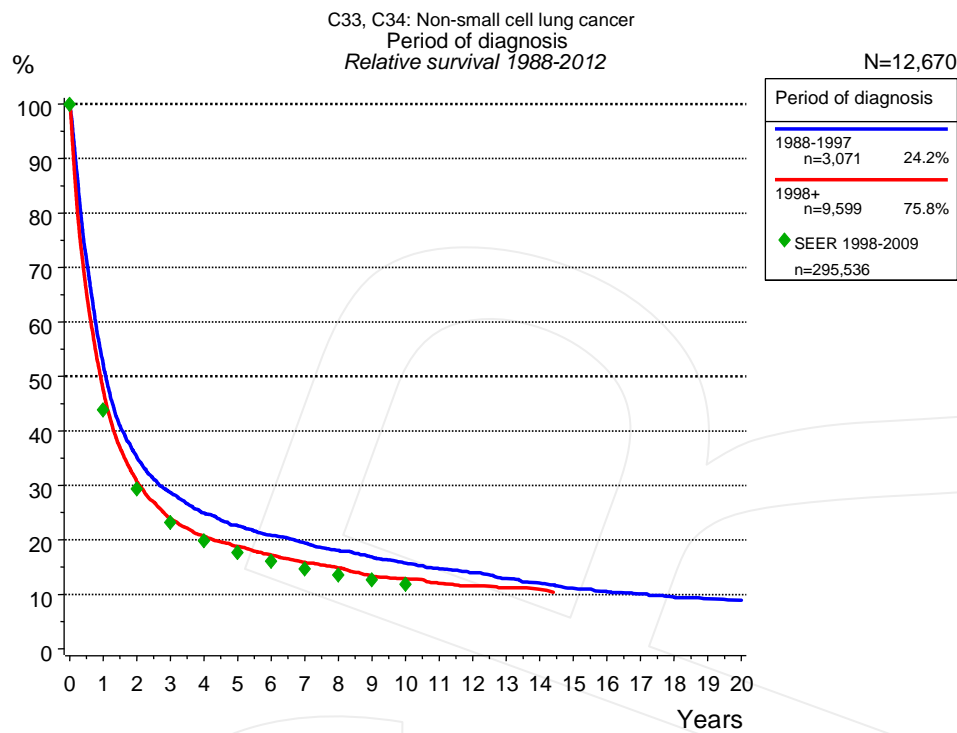
## Cancer statistics: Survival

### C33, C34: Non-small cell LC

Year of diagnosis	1988-2012
Patients	20,952
Diseases	21,158
Cases evaluated	12,670
Creation date	03/25/2014
Export date	02/12/2014
Population	4.5 m



[http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C34n\\_E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C34n_E.pdf)



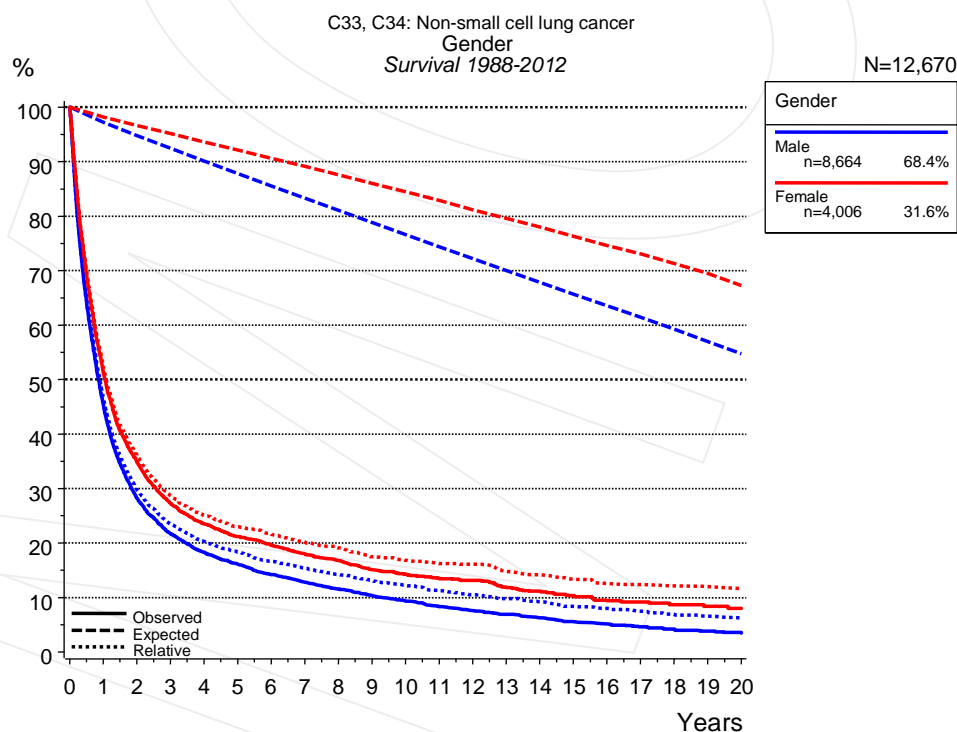
**Figure 1a.** Relative survival of patients with non-small cell LC by period of diagnosis. Included in the evaluation are 12,670 cases diagnosed between 1988 and 2012.

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 green 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.

Years	Period of diagnosis			
	1988-1997		1998+	
	n=3,071		n=9,599	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	50.8	52.1	46.1	47.2
2	33.5	35.2	29.2	30.6
3	26.7	28.6	22.3	23.9
4	22.7	24.9	18.9	20.6
5	20.1	22.6	16.8	18.8
6	18.1	20.8	15.0	17.2
7	16.5	19.4	13.6	15.9
8	15.0	18.1	12.4	14.9
9	13.7	16.9	10.9	13.3
10	12.4	15.7	10.2	12.8
11	11.3	14.7	9.3	12.0
12	10.5	14.0	8.8	11.5
13	9.4	12.9	8.3	11.2
14	8.6	12.1	7.9	10.9
15	7.7	11.1		
16	7.0	10.5		
17	6.6	10.1		
18	6.1	9.5		
19	5.7	9.2		
20	5.3	8.9		

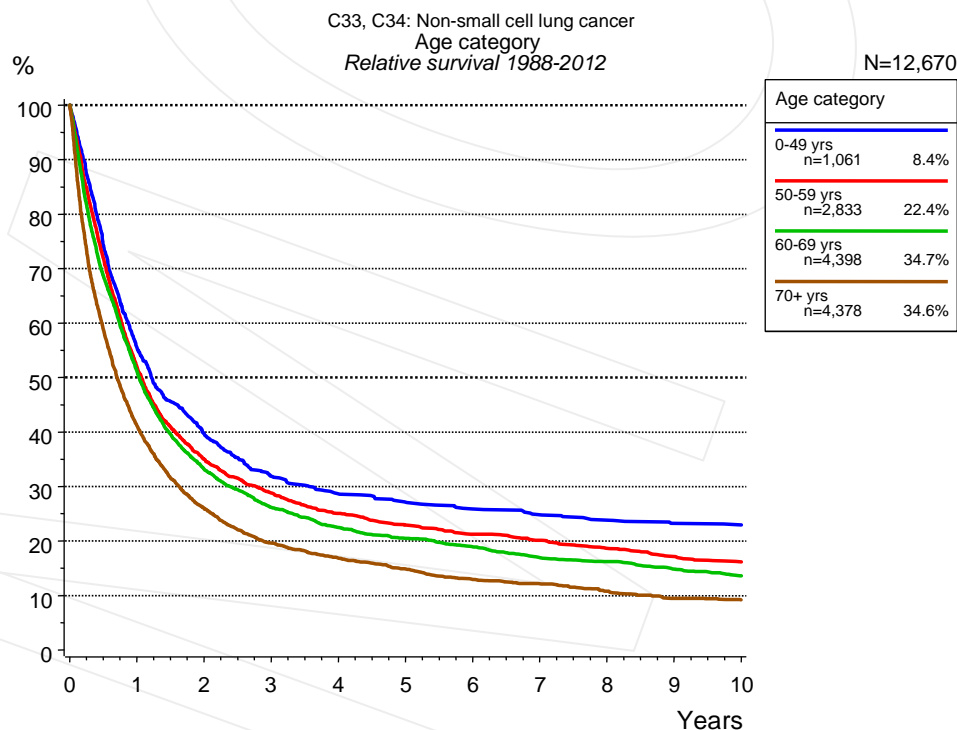
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by period of diagnosis for period 1988-2012 (N=12,670).



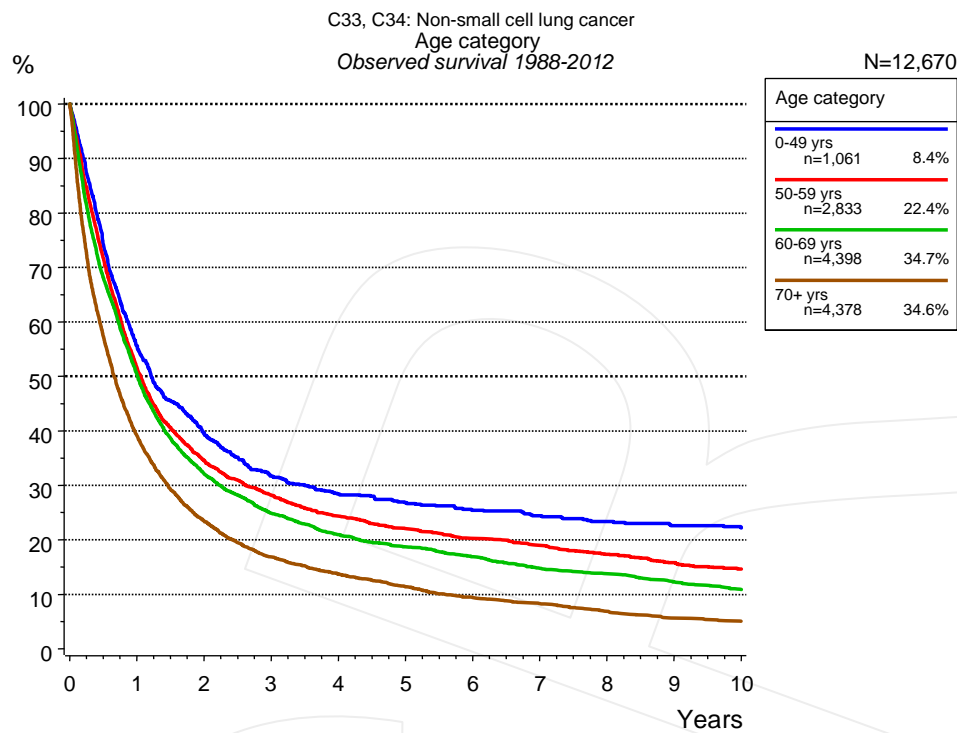
**Figure 2a.** Survival of patients with non-small cell LC by gender. Included in the evaluation are 12,670 cases diagnosed between 1988 and 2012.

Years	Gender			
	Male n=8,664		Female n=4,006	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	45.4	46.6	51.2	52.2
2	28.2	29.8	34.9	36.0
3	21.7	23.5	27.3	28.7
4	18.3	20.3	23.5	25.1
5	16.1	18.3	21.2	23.0
6	14.2	16.6	19.6	21.6
7	12.8	15.4	18.0	20.2
8	11.5	14.2	16.7	19.1
9	10.3	13.1	15.1	17.5
10	9.3	12.2	14.2	16.8
11	8.4	11.2	13.4	16.2
12	7.6	10.5	13.2	16.1
13	6.9	9.8	11.8	14.8
14	6.3	9.2	11.1	14.1
15	5.5	8.4	10.3	13.3
16	5.1	8.0	9.4	12.5
17	4.6	7.5	9.2	12.4
18	4.2	6.9	8.7	12.1
19	3.8	6.6	8.4	12.0
20	3.4	6.3	8.0	11.6

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by gender for period 1988-2012 (N=12,670).



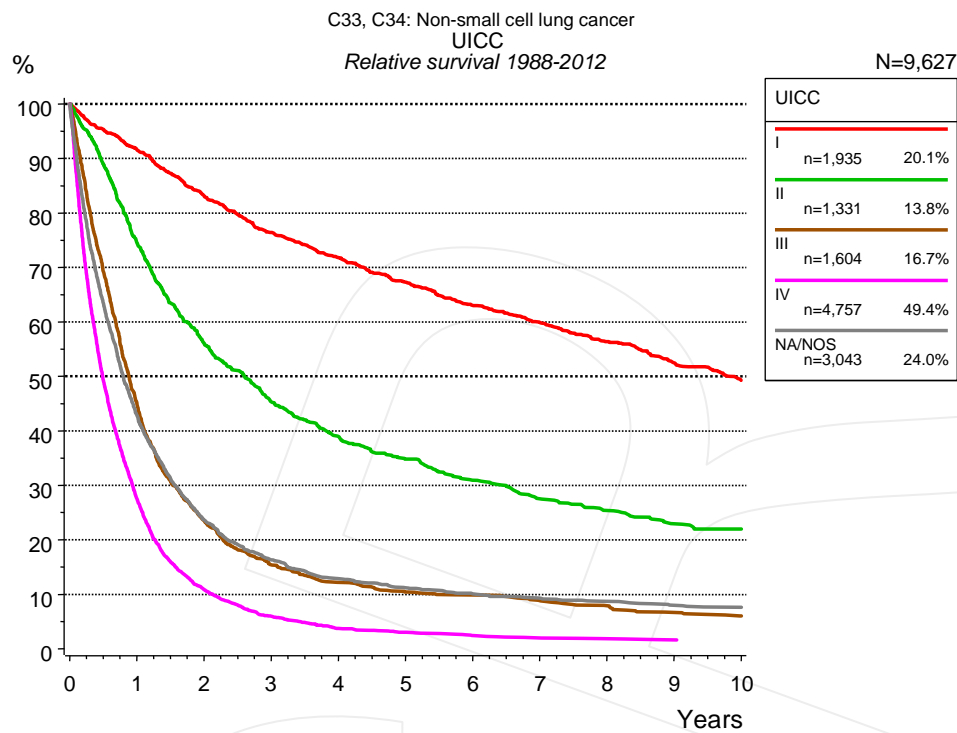
**Figure 3a.** Relative survival of patients with non-small cell LC by age category. Included in the evaluation are 12,670 cases diagnosed between 1988 and 2012.



**Figure 3b.** Observed survival of patients with non-small cell LC by age category. Included in the evaluation are 12,670 cases diagnosed between 1988 and 2012.

Years	Age category							
	0-49 yrs n=1,061		50-59 yrs n=2,833		60-69 yrs n=4,398		70+ yrs n=4,378	
	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	55.6	55.4	51.6	52.0	50.4	51.2	39.1	41.2
2	39.6	39.7	34.5	35.0	32.1	33.2	23.5	26.0
3	31.7	31.9	28.2	28.8	24.9	26.2	16.8	19.6
4	28.4	28.6	24.3	25.1	20.9	22.5	13.8	16.9
5	26.8	27.1	22.0	22.9	18.7	20.5	11.4	14.8
6	25.4	25.9	20.2	21.3	16.9	18.9	9.3	12.9
7	24.4	24.8	19.0	20.1	14.8	17.0	8.3	12.2
8	23.4	23.8	17.3	18.6	13.7	16.2	6.8	10.8
9	22.6	23.3	15.8	17.1	12.2	14.8	5.6	9.5
10	22.2	23.0	14.6	16.1	10.9	13.6	5.0	9.2

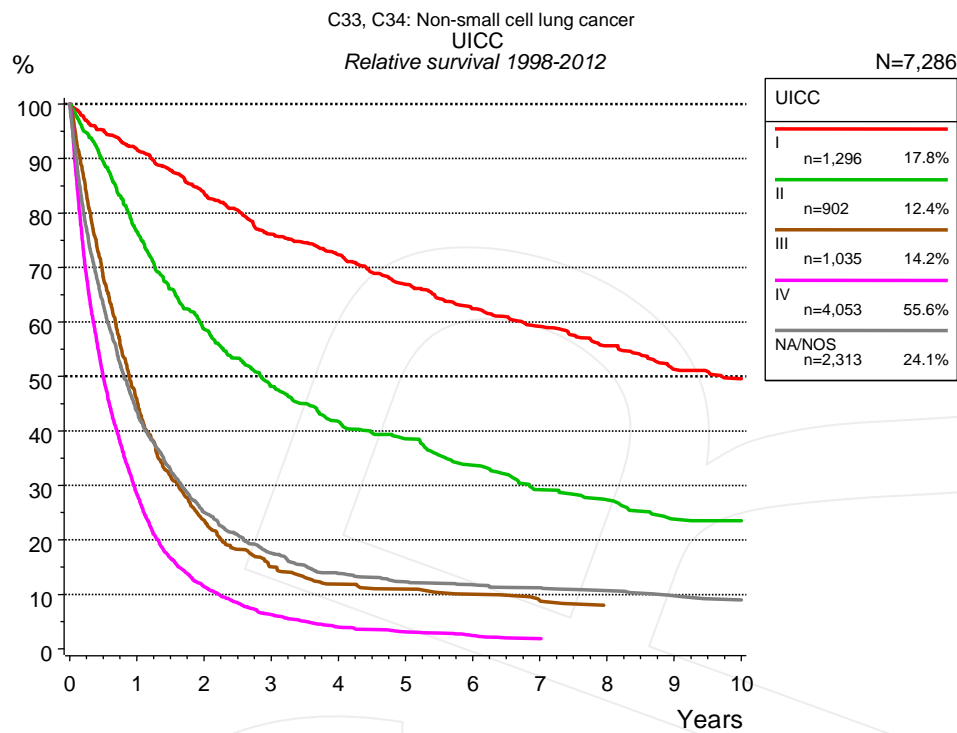
**Table 3c.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by age category for period 1988-2012 (N=12,670).



**Figure 4a.** Relative survival of patients with non-small cell LC by UICC. For 11,324 of 12,670 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 9,627 cases an evaluable classification was established. The grey line represents the subgroup of 3,043 patients with missing values regarding UICC (24.0% of 12,670 patients, the percent values of all other categories are related to n=9,627).

		UICC									
		I n=1,935		II n=1,331		III n=1,604		IV n=4,757		NA/NOS n=3,043	
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		89.7	91.6	73.2	74.6	44.0	45.0	26.9	27.5	41.5	42.9
2		79.8	83.1	54.0	56.1	22.6	23.6	10.4	10.8	22.2	23.7
3		71.7	76.4	42.8	45.3	14.5	15.4	5.7	6.0	14.9	16.3
4		66.0	71.8	36.0	38.9	11.2	12.2	3.5	3.7	11.4	12.8
5		60.3	67.3	31.5	34.8	9.4	10.4	2.8	3.0	9.7	11.2
6		55.3	63.0	27.5	31.0	8.8	9.9	2.2	2.4	8.5	10.1
7		51.3	59.9	24.0	27.5	7.7	8.8	1.8	2.0	7.7	9.3
8		47.1	56.4	21.6	25.4	6.7	7.9	1.6	1.9	7.1	8.7
9		42.8	52.5	19.1	22.9	5.5	6.7	1.4	1.6	6.3	8.0
10		39.1	49.2	17.9	21.9	4.9	6.1	1.4	1.5	6.0	7.6

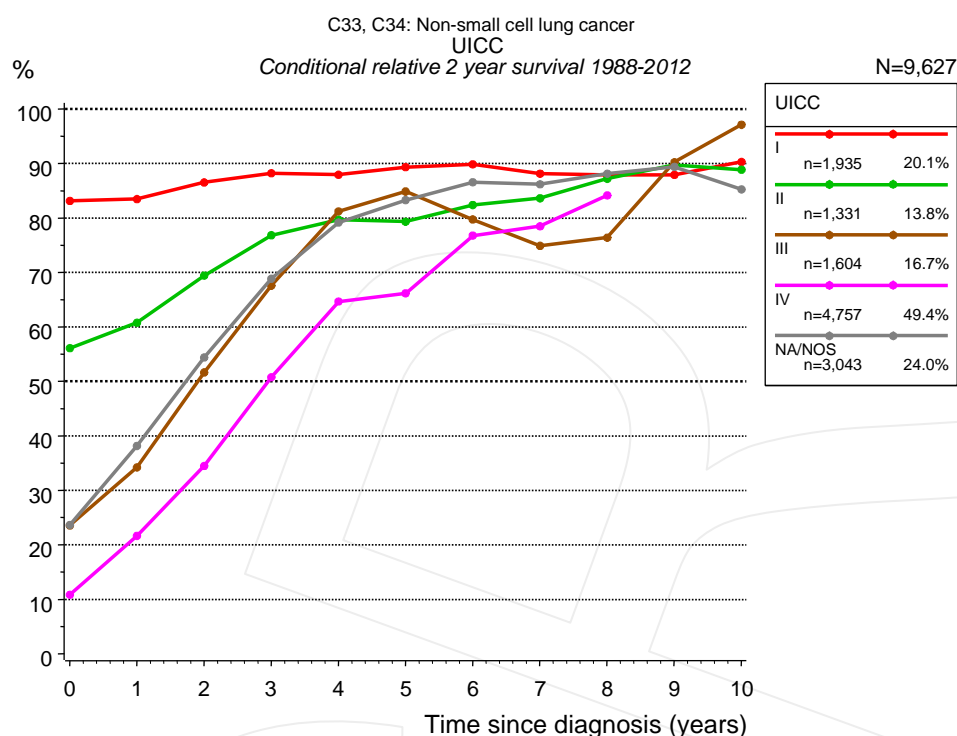
**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by UICC for period 1988-2012 (N=9,627).



**Figure 4c.** Relative survival of patients with non-small cell LC by UICC. For 8,494 of 9,599 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 7,286 cases an evaluable classification was established. The grey line represents the subgroup of 2,313 patients with missing values regarding UICC (24.1% of 9,599 patients, the percent values of all other categories are related to n=7,286).

Years	UICC									
	I		II		III		IV		NA/NOS	
	n=1,296		n=902		n=1,035		n=4,053		n=2,313	
	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	89.8	91.7	75.1	76.6	44.7	45.7	27.8	28.4	42.1	43.6
2	80.4	83.7	56.4	58.6	22.7	23.6	10.9	11.4	23.6	25.0
3	71.6	76.1	45.5	48.2	14.2	15.0	6.0	6.3	16.1	17.6
4	66.6	72.3	38.7	41.7	11.0	11.9	3.7	4.0	12.3	13.8
5	60.1	66.9	35.0	38.5	10.0	10.9	2.9	3.1	10.7	12.3
6	54.8	62.4	30.0	33.7	8.9	10.0	2.2	2.4	10.0	11.8
7	50.9	59.2	25.5	29.2	7.9	8.8	1.8	1.9	9.4	11.2
8	46.6	55.6	23.5	27.3	6.7	7.8			8.7	10.7
9	42.0	51.3	19.9	23.8					7.8	9.7
10	39.6	49.6	19.4	23.5					7.2	9.0

**Table 4d.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by UICC for period 1998-2012 (N=7,286).



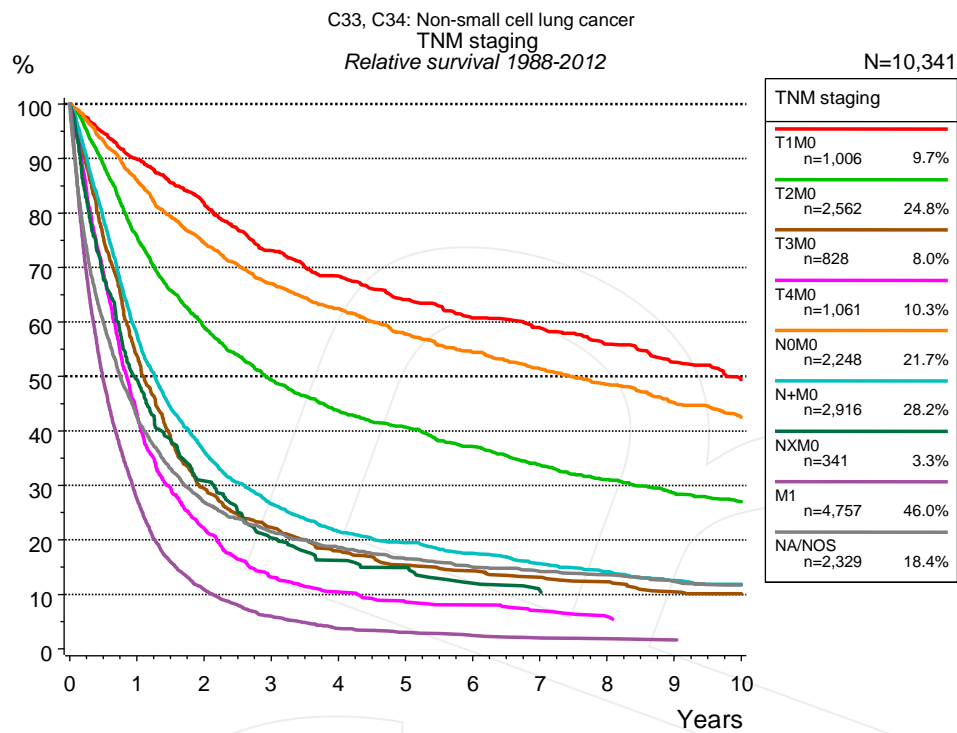
**Figure 4e.** Conditional relative 2-year survival of patients with non-small cell LC by UICC. For 11,324 of 12,670 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 9,627 cases an evaluable classification was established. The grey line represents the subgroup of 3,043 patients with missing values regarding UICC (24.0% of 12,670 patients, the percent values of all other categories are related to n=9,627).

UICC										
Years	I		II		III		IV		NA/NOS	
	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	1,935	83.1	1,331	56.1	1,604	23.6	4,757	10.8	3,043	23.7
1	1,659	83.5	925	60.8	660	34.2	1,170	21.7	1,170	38.2
2	1,375	86.5	632	69.4	305	51.6	393	34.5	567	54.4
3	1,150	88.2	458	76.8	178	67.6	182	50.8	346	68.9
4	975	87.9	344	79.7	122	81.2	88	64.7	234	79.2
5	801	89.3	273	79.3	92	84.9	66	66.2	174	83.3
6	663	89.9	216	82.4	79	79.7	42	76.8	131	86.6
7	574	88.1	171	83.6	63	74.9	28	78.5	101	86.2
8	487	87.9	141	87.2	53	76.4	20	84.2	77	88.1
9	410	87.9	116	89.7	42	90.2			54	89.4
10	343	90.3	98	88.9	36	97.1			44	85.3

**Table 4f.** Conditional relative 2-year survival of patients with non-small cell LC by UICC for period 1988-2012 (N=9,627).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 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 2-year survival rate is 88.2% (n=1,150).



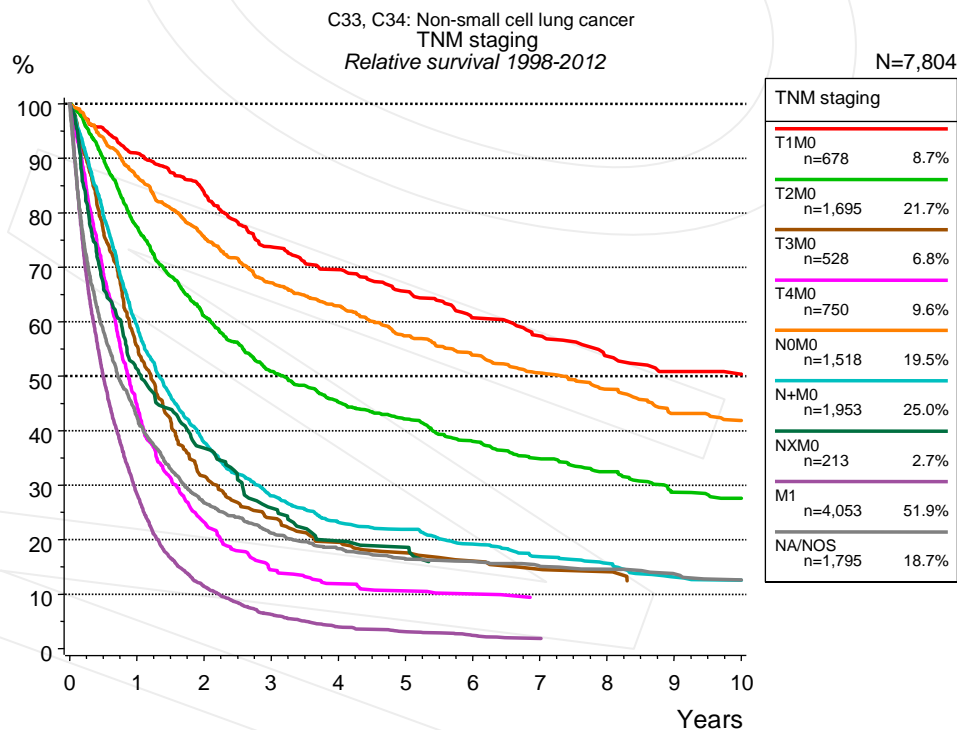


**Figure 4g.** Relative survival of patients with non-small cell LC by TNM staging. For 11,324 of 12,670 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 10,341 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 2,329 patients with missing values regarding TNM staging (18.4% of 12,670 patients, the percent values of all other categories are related to n=10,341).

		TNM staging													
		T1M0 n=1,006		T2M0 n=2,562		T3M0 n=828		T4M0 n=1,061		N0M0 n=2,248		N+M0 n=2,916		NXM0 n=341	
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		88.1	89.8	73.9	75.7	52.6	53.8	42.3	43.2	84.1	86.0	56.4	57.7	48.2	49.4
2		78.7	81.8	56.3	59.0	28.0	29.4	21.3	22.1	71.3	74.6	34.8	36.3	29.0	30.8
3		68.9	73.1	46.0	49.3	20.8	22.2	12.4	13.2	62.6	67.0	25.0	26.6	18.6	20.4
4		63.1	68.4	39.8	43.7	16.5	17.9	9.6	10.4	57.1	62.5	19.8	21.5	14.5	16.2
5		58.1	64.1	36.1	40.7	13.9	15.3	7.7	8.6	51.6	57.8	17.6	19.5	13.0	14.9
6		53.9	60.7	32.2	37.1	12.7	14.3	7.2	8.1	47.5	54.5	15.5	17.5	10.1	12.1
7		51.2	58.9	28.5	33.7	11.5	13.1	6.1	7.0	43.8	51.4	13.6	15.6	8.6	10.7
8		47.6	56.0	25.6	31.1	10.6	12.3	5.1	5.9	40.4	48.6	12.1	14.2		
9		43.8	52.6	23.0	28.6	8.9	10.5			36.7	45.2	10.4	12.5		
10		40.1	49.4	21.1	27.0	8.3	10.1			33.6	42.5	9.6	11.8		

cont'd	TNM staging			
	M1 n=4,757		NA/NOS n=2,329	
	obs. %	rel. %	obs. %	rel. %
Years				
0	100.0	100.0	100.0	100.0
1	26.9	27.5	41.3	42.6
2	10.4	10.8	25.4	26.9
3	5.7	6.0	19.7	21.4
4	3.5	3.7	16.7	18.6
5	2.8	3.0	14.4	16.5
6	2.2	2.4	12.8	15.0
7	1.8	2.0	12.0	14.2
8	1.6	1.9	11.2	13.6
9	1.4	1.6	9.9	12.3
10	1.4	1.5	9.2	11.6

**Table 4h.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by TNM staging for period 1988-2012 (N=15,719).

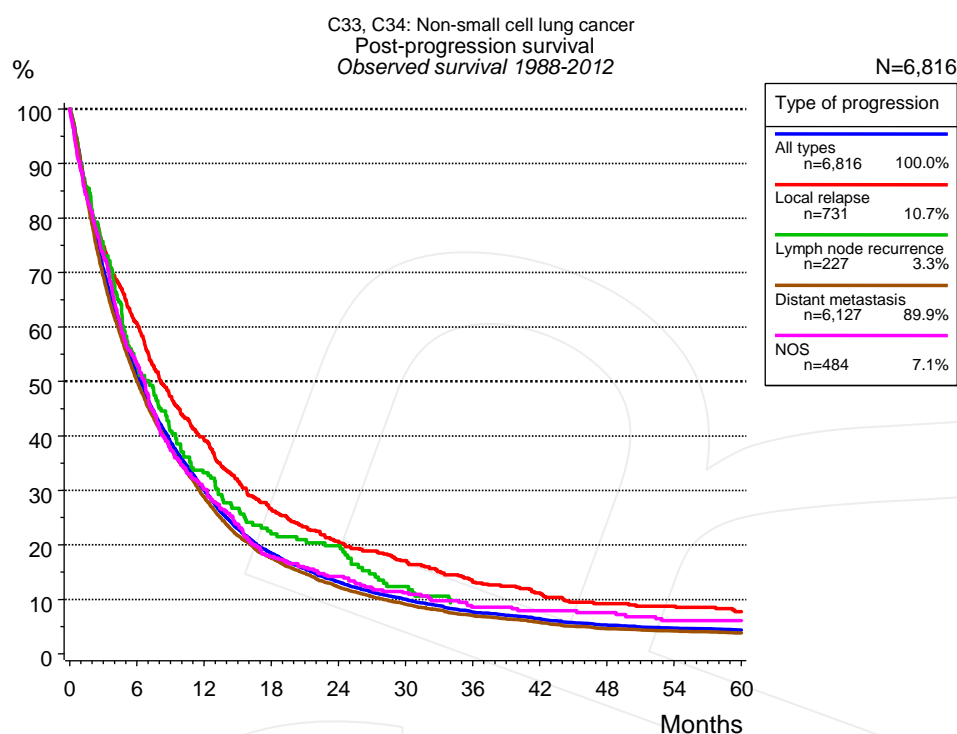


**Figure 4i.** Relative survival of patients with non-small cell LC by TNM staging. For 8,494 of 9,599 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 7,804 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 1,795 patients with missing values regarding TNM staging (18.7% of 9,599 patients, the percent values of all other categories are related to n=7,804).

TNM staging															
Years	T1M0 n=678		T2M0 n=1,695		T3M0 n=528		T4M0 n=750		N0M0 n=1,518		N+M0 n=1,953		NXM0 n=213		
	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	89.2	90.9	75.6	77.4	54.3	55.5	43.6	44.5	84.7	86.6	58.0	59.3	50.0	51.2	
2	80.5	83.7	58.3	61.0	30.4	31.6	22.3	23.2	72.4	75.7	36.3	37.9	34.6	36.8	
3	69.3	73.7	47.5	50.9	22.5	24.0	13.6	14.5	62.8	67.1	26.4	28.0	23.8	25.8	
4	64.2	69.6	41.3	45.3	18.2	19.5	11.0	11.9	57.6	62.9	21.4	23.2	17.9	19.7	
5	59.4	65.6	37.5	42.1	16.2	17.6	9.7	10.6	51.3	57.4	19.9	21.9	16.6	18.5	
6	53.8	60.7	33.1	38.0	14.5	16.1	9.0	10.0	47.1	53.9	17.0	19.2	13.5	15.8	
7	50.2	57.4	29.7	34.9	13.1	14.6	8.1	9.3	43.3	50.6	14.8	16.9	13.5	15.7	
8	45.8	53.7	26.9	32.5	12.6	14.1			39.7	47.6	13.4	15.6			
9	42.5	50.9	23.2	28.7					35.2	43.2	11.0	13.1			
10	41.0	50.4	21.9	27.6					33.3	41.8	10.2	12.6			

TNM staging				
Years	M1 n=4,053		NA/NOS n=1,795	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	27.8	28.4	41.2	42.5
2	10.9	11.4	25.3	26.8
3	6.0	6.3	19.6	21.2
4	3.7	4.0	16.5	18.4
5	2.9	3.1	14.4	16.4
6	2.2	2.4	13.8	16.0
7	1.8	1.9	12.8	15.1
8			12.1	14.6
9			11.0	13.7
10			10.1	12.6

**Table 4j.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by TNM staging for period 1998-2012 (N=11,388).



**Figure 5a.** Observed post-progression survival of 6,816 patients with non-small cell LC diagnosed between 1988 and 2012 (incl. M1). These 6,816 patients with documented progression events during their course of disease represent 53.8% of the totally 12,670 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=2,431, 19.2%). 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=6,816 %	Local relapse n=731 %	Lymph node recurrence n=227 %	Distant metastasis n=6,127 %	NOS n=484 %
0	100.0	100.0	100.0	100.0	100.0
12	30.0	39.2	33.2	28.7	30.2
24	13.1	20.7	19.8	12.2	14.2
36	7.6	13.2		7.0	8.6
48	5.2	9.2		4.6	7.6
60	4.3	7.8		3.8	6.1

**Table 5b.** Observed post-progression survival of patients with non-small cell LC for period 1988-2012 (N=6,816).

**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 C33, C34: Non-small cell LC [Internet]. 2014 [updated 2014 Mar 25; cited 2014 May 1]. Available from: [http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C34n\\_E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C34n_E.pdf)

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