

Munich Cancer Registry



- ▶ Baseline statistics
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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

C33, C34: Lung cancer

Year of diagnosis	1978-1987	1988-1997	1998-2011
Patients	1,987	4,706	24,042
Diseases	1,989	4,731	24,242
Creation date	04/01/2013		
Export date	01/03/2013		
Population	4.5 m		



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C3334E.pdf

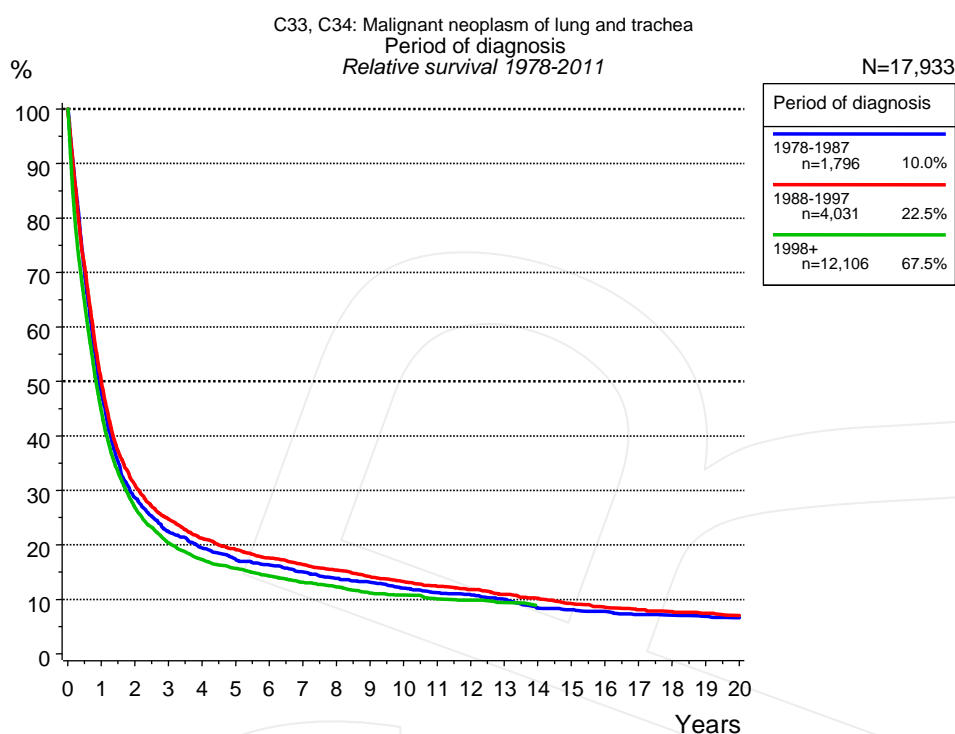


Figure 1a. Relative survival of patients with lung cancer by period of diagnosis. Included in the evaluation are 17,933 cases diagnosed between 1978 and 2011.

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.

Years	Period of diagnosis					
	1978-1987 n=1,796		1988-1997 n=4,031		1998+ n=12,106	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	46.5	47.8	48.7	50.0	43.2	44.3
2	27.2	28.6	29.5	31.0	25.6	26.8
3	20.8	22.4	23.0	24.7	19.0	20.3
4	17.6	19.4	19.3	21.2	15.8	17.3
5	15.3	17.3	17.0	19.1	14.0	15.7
6	14.1	16.3	15.3	17.6	12.5	14.2
7	12.7	15.0	13.9	16.4	11.3	13.1
8	11.4	13.9	12.8	15.4	10.3	12.3
9	10.7	13.2	11.5	14.2	9.1	11.1
10	9.5	12.1	10.4	13.2	8.6	10.7
11	8.6	11.2	9.5	12.4	7.9	10.1
12	8.1	10.8	8.9	11.8	7.5	9.8
13	7.2	10.0	7.9	10.9	7.0	9.4
14	5.9	8.4	7.3	10.2		
15	5.6	8.1	6.4	9.2		
16	5.2	7.8	5.7	8.5		
17	4.7	7.2	5.3	8.1		
18	4.5	7.1	5.0	7.7		
19	4.2	6.9	4.6	7.5		
20	4.0	6.6	4.1	7.0		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by period of diagnosis for period 1978-2011 (N=17,933).

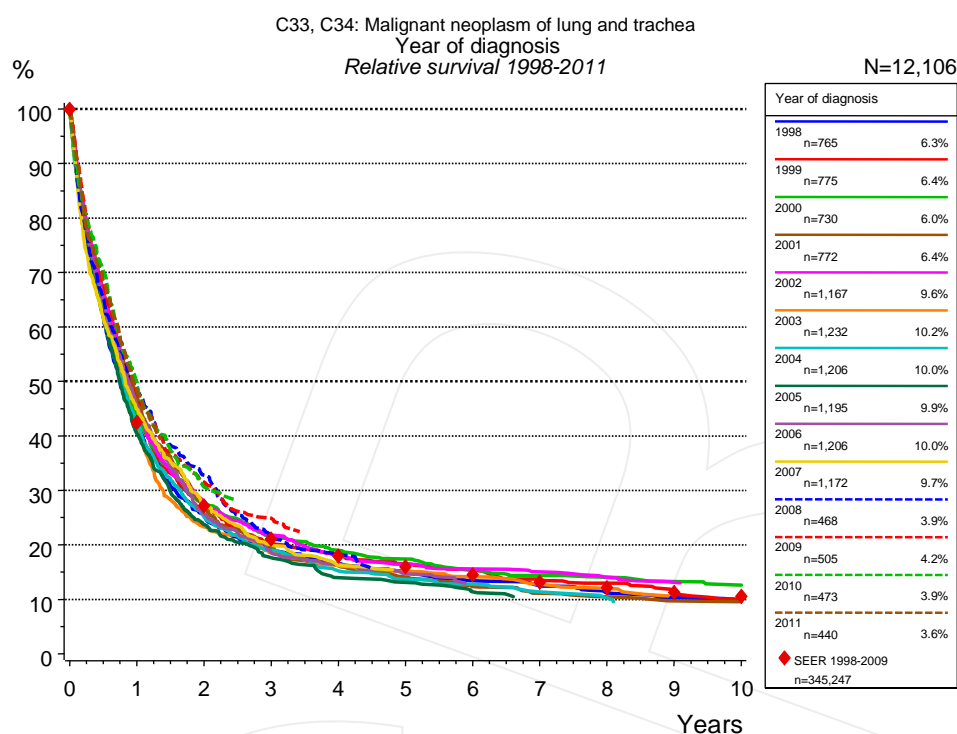


Figure 1c. Relative survival of patients with lung cancer by year of diagnosis. Included in the evaluation are 12,106 cases diagnosed between 1998 and 2011.

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 n=765		1999 n=775		2000 n=730		2001 n=772		2002 n=1,167		2003 n=1,232		2004 n=1,206	
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		41.1	42.3	43.2	44.5	42.5	43.6	46.2	47.4	43.9	45.1	40.3	41.3	41.7	42.7
2		24.2	25.4	26.1	27.4	26.5	27.7	25.7	26.8	26.3	27.5	22.2	23.3	24.0	25.1
3		17.8	19.1	18.8	20.2	20.4	21.6	18.4	19.6	20.3	21.7	17.4	18.6	17.9	19.0
4		15.0	16.5	16.5	18.3	17.4	19.0	14.9	16.2	16.5	18.1	14.9	16.2	14.1	15.2
5		13.4	15.1	14.5	16.5	15.7	17.4	12.7	14.1	14.8	16.4	13.6	15.1	12.2	13.7
6		11.6	13.5	13.2	15.4	13.6	15.5	10.9	12.4	13.6	15.6	12.5	14.1	11.2	12.8
7		10.7	12.5	11.5	13.6	12.5	14.4	9.7	11.1	12.9	15.0	11.1	12.7	9.9	11.4
8		9.1	11.2	10.7	13.0	12.0	14.1	9.0	10.5	11.8	14.0	10.2	12.0	8.7	10.2
9		8.3	10.3	8.9	11.1	11.0	13.3	8.2	9.7	10.9	13.1				
10		7.7	9.9	7.9	10.0	10.1	12.6	7.9	9.6						

		Year of diagnosis													
cont'd		2005 n=1,195		2006 n=1,206		2007 n=1,172		2008 n=468		2009 n=505		2010 n=473		2011 n=440	
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		39.5	40.3	44.2	45.3	43.9	44.9	47.9	48.9	46.9	47.8	48.6	49.7	47.4	48.5
2		22.8	23.7	24.7	25.6	25.9	27.1	31.4	32.8	30.3	31.5	29.6	30.6		
3		16.7	17.6	17.5	18.5	18.8	20.0	20.1	21.3	23.4	24.9				
4		13.0	14.0	15.2	16.4	15.0	16.3	16.8	18.3						
5		12.1	13.1	13.2	14.7										
6		10.2	11.4												
7		9.3	10.0												

Table 1d. Observed (obs.) and relative (rel.) survival of patients with lung cancer by year of diagnosis for period 1998-2011 (N=12,106).

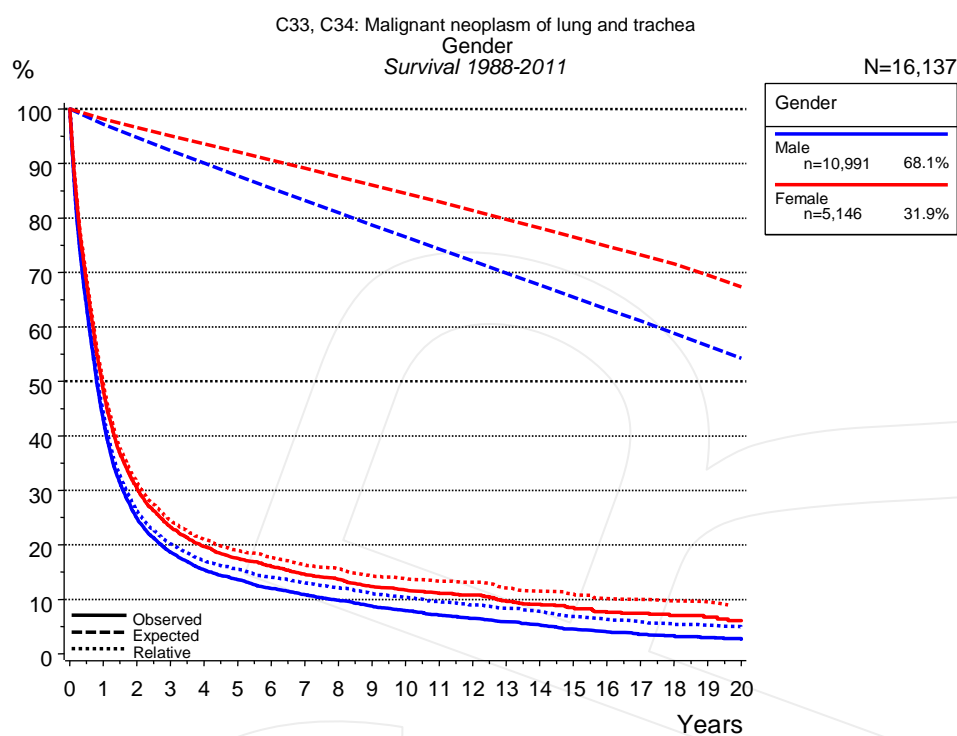


Figure 2a. Survival of patients with lung cancer by gender. Included in the evaluation are 16,137 cases diagnosed between 1988 and 2011.

Years	Gender			
	Male n=10,991		Female n=5,146	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	42.9	44.1	48.3	49.2
2	24.9	26.2	30.4	31.4
3	18.6	20.2	23.3	24.5
4	15.4	17.1	19.7	21.0
5	13.6	15.5	17.5	19.0
6	12.0	14.0	16.0	17.7
7	10.9	13.0	14.6	16.4
8	9.8	12.1	13.6	15.6
9	8.7	11.1	12.3	14.3
10	7.9	10.3	11.7	13.8
11	7.1	9.5	11.1	13.3
12	6.5	9.0	10.8	13.1
13	5.9	8.4	9.6	12.1
14	5.3	7.8	9.1	11.5
15	4.5	6.9	8.5	11.0
16	4.0	6.3	7.6	10.2
17	3.6	5.8	7.4	10.0
18	3.3	5.5	7.0	9.7
19	3.0	5.2	6.7	9.5
20	2.7	4.9	6.1	8.8

Table 2b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by gender for period 1988-2011 (N=16,137).

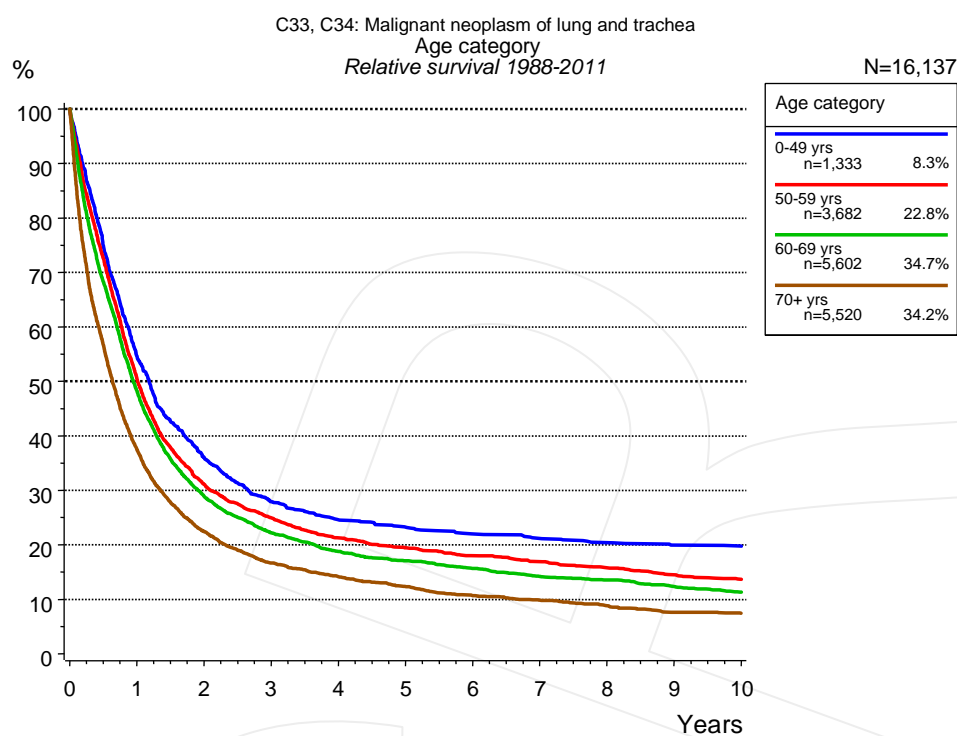


Figure 3a. Relative survival of patients with lung cancer by age category. Included in the evaluation are 16,137 cases diagnosed between 1988 and 2011.

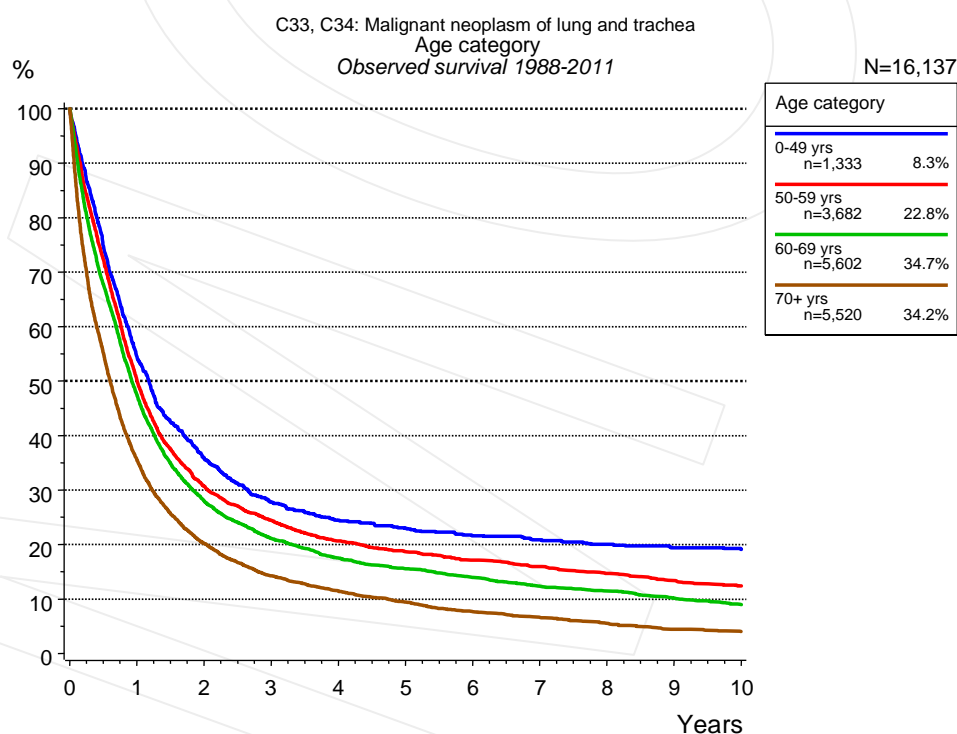


Figure 3b. Observed survival of patients with lung cancer by age category. Included in the evaluation are 16,137 cases diagnosed between 1988 and 2011.

Years	Age category							
	0-49 yrs n=1,333		50-59 yrs n=3,682		60-69 yrs n=5,602		70+ yrs n=5,520	
	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	54.5	54.6	50.2	50.5	47.5	48.3	35.6	37.5
2	35.9	36.0	30.7	31.1	28.0	28.9	20.2	22.4
3	27.7	27.9	24.4	24.9	21.1	22.2	14.2	16.7
4	24.4	24.6	20.6	21.3	17.5	18.8	11.5	14.2
5	23.0	23.2	18.7	19.4	15.6	17.1	9.4	12.4
6	21.6	22.0	17.1	18.0	14.0	15.7	7.6	10.7
7	20.8	21.2	15.9	16.9	12.3	14.2	6.6	9.8
8	20.0	20.4	14.7	15.8	11.5	13.6	5.5	8.8
9	19.4	20.0	13.4	14.5	10.1	12.3	4.4	7.6
10	19.1	19.7	12.4	13.7	9.0	11.3	4.0	7.5

Table 3c. Observed (obs.) and relative (rel.) survival of patients with lung cancer by age category for period 1988-2011 (N=16,137).

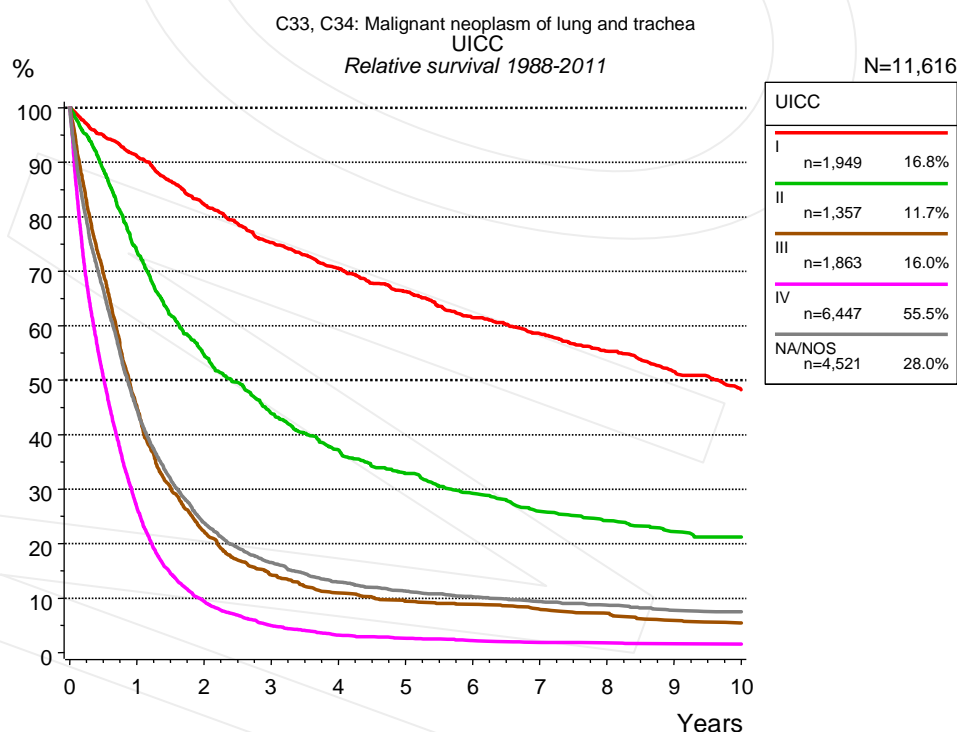


Figure 4a. Relative survival of patients with lung cancer by UICC. For 13,952 of 16,137 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 11,616 cases an evaluable classification was established. The grey line represents the subgroup of 4,521 patients with missing values regarding UICC (28.0% of 16,137 patients, the percent values of all other categories are related to n=11,616).

Years	UICC									
	I		II		III		IV		NA/NOS	
	n=1,949		n=1,357		n=1,863		n=6,447		n=4,521	
	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	89.2	91.1	72.3	73.7	44.2	45.2	26.0	26.6	43.2	44.7
2	78.9	82.3	52.7	54.7	21.3	22.3	9.0	9.4	22.4	23.8
3	70.7	75.3	41.5	43.9	13.4	14.3	4.7	5.0	15.2	16.5
4	64.8	70.6	34.4	37.2	10.1	11.0	3.0	3.2	11.5	12.9
5	59.5	66.3	29.8	32.9	8.5	9.4	2.5	2.7	9.8	11.3
6	53.9	61.5	25.9	29.2	7.9	8.9	2.0	2.2	8.7	10.3
7	50.1	58.5	22.6	25.9	7.0	8.0	1.7	1.9	7.8	9.4
8	46.2	55.3	20.6	24.2	6.2	7.2	1.6	1.8	7.1	8.7
9	42.1	51.6	18.5	22.2	4.9	5.9	1.5	1.6	6.2	7.8
10	38.3	48.2	17.3	21.2	4.4	5.4	1.4	1.6	5.8	7.5

Table 4b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by UICC for period 1988-2011 (N=11,616).

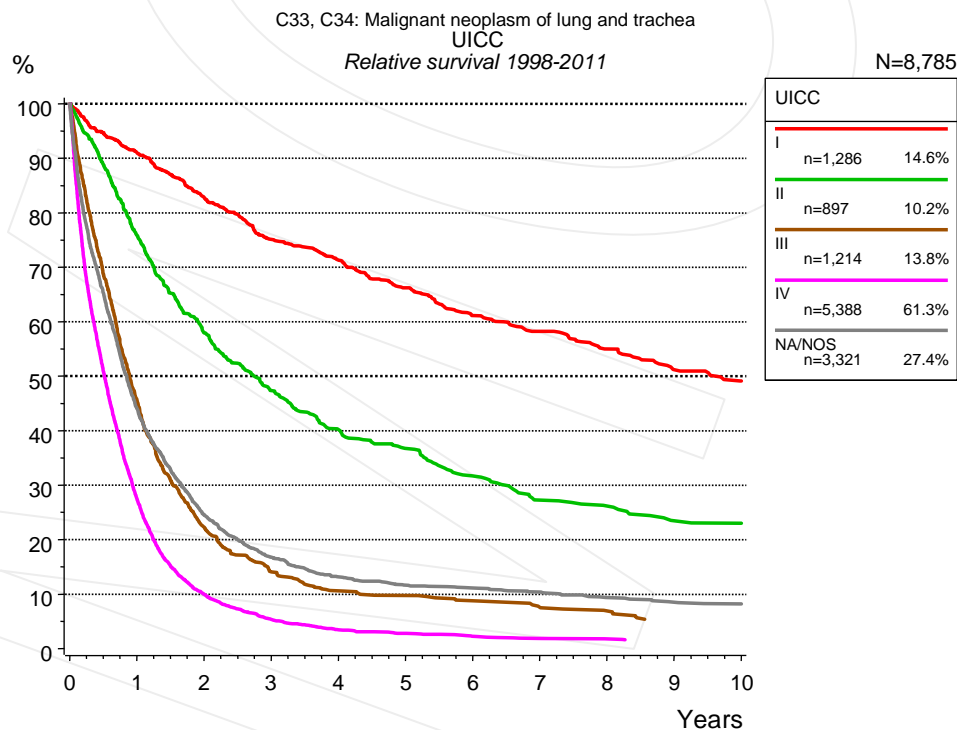


Figure 4c. Relative survival of patients with lung cancer by UICC. For 10,381 of 12,106 cases diagnosed between 1998 and 2011 valid data could be obtained for this item. For a total of 8,785 cases an evaluable classification was established. The grey line represents the subgroup of 3,321 patients with missing values regarding UICC (27.4% of 12,106 patients, the percent values of all other categories are related to n=8,785).

Years	UICC									
	I n=1,286		II n=897		III n=1,214		IV n=5,388		NA/NOS n=3,321	
	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	89.2	91.0	74.5	75.9	44.6	45.7	26.8	27.4	42.6	44.0
2	79.5	82.8	55.8	58.0	21.4	22.3	9.5	9.9	23.1	24.5
3	70.7	75.1	44.7	47.4	13.4	14.1	5.1	5.4	15.4	16.8
4	65.6	71.3	37.3	40.2	9.9	10.6	3.2	3.5	11.7	13.1
5	59.6	66.2	33.4	36.7	9.0	9.8	2.6	2.8	10.2	11.7
6	53.7	61.1	28.2	31.7	7.9	8.8	2.1	2.3	9.5	11.1
7	50.2	58.2	23.8	27.3	6.7	7.6	1.7	1.9	8.7	10.4
8	46.1	55.0	22.4	26.2	5.9	6.9	1.6	1.8	7.6	9.4
9	41.9	51.2	19.6	23.5					6.9	8.5
10	39.2	49.1	19.1	23.0					6.5	8.2

Table 4d. Observed (obs.) and relative (rel.) survival of patients with lung cancer by UICC for period 1998-2011 (N=8,785).

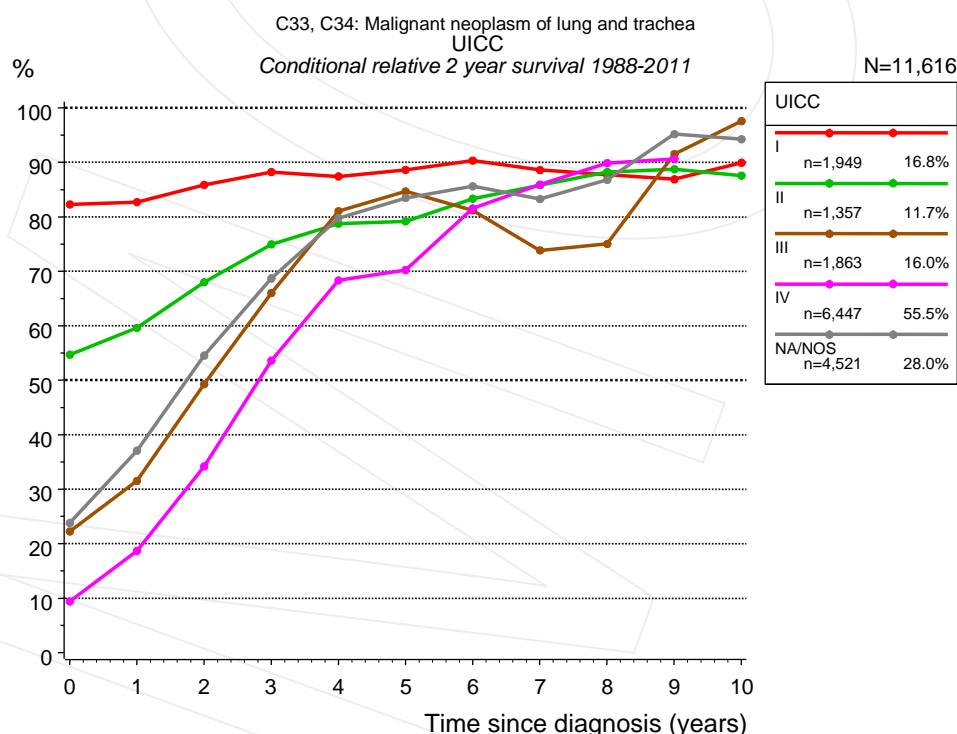


Figure 4e. Conditional relative 2-year survival of patients with lung cancer by UICC. For 13,952 of 16,137 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 11,616 cases an evaluable classification was established. The grey line represents the subgroup of 4,521 patients with missing values regarding UICC (28.0% of 16,137 patients, the percent values of all other categories are related to n=11,616).

Years	UICC									
	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	1,949	82.3	1,357	54.7	1,863	22.3	6,447	9.4	4,521	23.8
1	1,662	82.7	928	59.6	769	31.5	1,538	18.7	1,820	37.1
2	1,361	85.9	625	68.0	336	49.3	460	34.2	862	54.5
3	1,127	88.2	444	75.0	191	66.0	197	53.6	526	68.7
4	957	87.4	334	78.7	132	81.0	110	68.3	367	79.8
5	778	88.6	263	79.2	101	84.7	80	70.2	273	83.5
6	642	90.3	207	83.3	86	81.2	55	81.5	209	85.6
7	561	88.6	164	85.8	72	73.8	38	85.9	170	83.3
8	476	87.7	141	88.2	61	75.0	31	89.9	136	86.8
9	395	86.9	113	88.7	48	91.5	25	90.6	98	95.2
10	329	89.9	96	87.6	40	97.6			80	94.2

Table 4f. Conditional relative 2-year survival of patients with lung cancer by UICC for period 1988-2011 (N=11,616).

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=1,127).

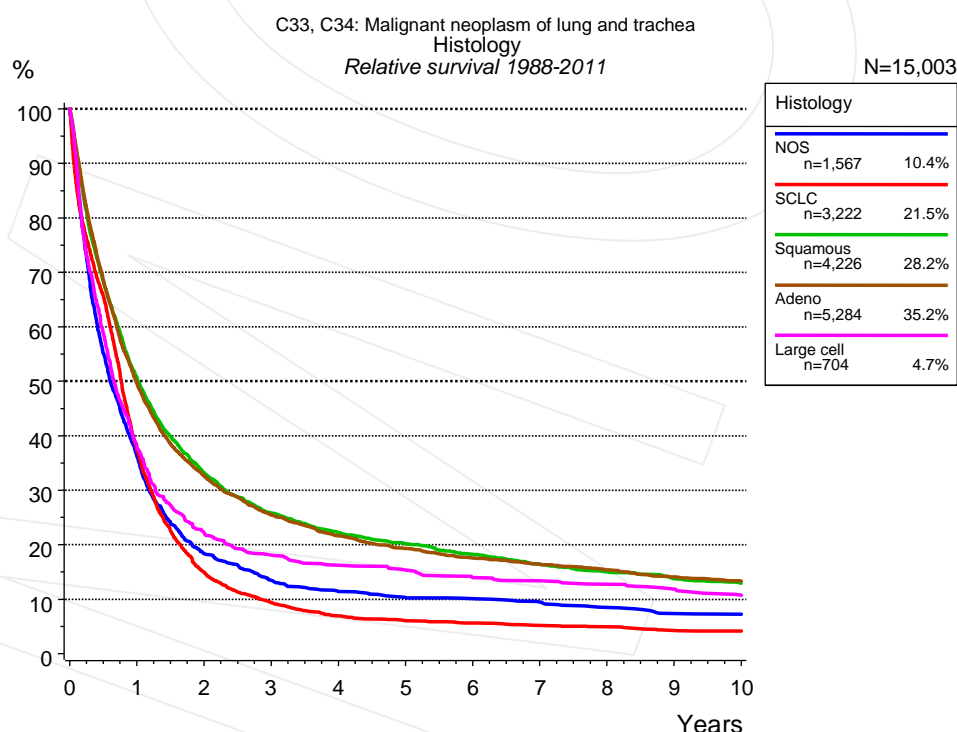


Figure 4g. Relative survival of patients with lung cancer by histology. For 15,003 of 16,137 cases diagnosed between 1988 and 2011 valid data could be obtained for this item.

Years	Histology									
	NOS n=1,567		SCLC n=3,222		Squamous n=4,226		Adeno n=5,284		Large cell n=704	
	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	35.3	36.2	36.7	37.5	49.3	50.7	48.5	49.6	37.1	37.9
2	17.5	18.3	14.4	14.9	31.4	33.2	31.2	32.6	21.3	22.2
3	12.6	13.4	8.9	9.4	23.8	25.8	23.9	25.4	17.1	18.1
4	10.5	11.4	6.5	7.0	20.0	22.2	19.9	21.6	15.2	16.2
5	9.2	10.3	5.6	6.1	17.6	20.2	17.4	19.3	13.9	15.3
6	8.9	10.1	5.1	5.6	15.5	18.2	15.5	17.6	12.5	14.0
7	8.2	9.5	4.6	5.2	13.6	16.4	14.2	16.4	11.7	13.4
8	7.1	8.4	4.3	4.9	12.1	15.0	13.0	15.4	11.1	12.8
9	6.1	7.3	3.7	4.3	10.8	13.8	11.6	14.1	10.1	11.8
10	5.9	7.2	3.5	4.2	9.8	12.9	10.7	13.3	9.0	10.7

Table 4h. Observed (obs.) and relative (rel.) survival of patients with lung cancer by histology for period 1988-2011 (N=15,003).

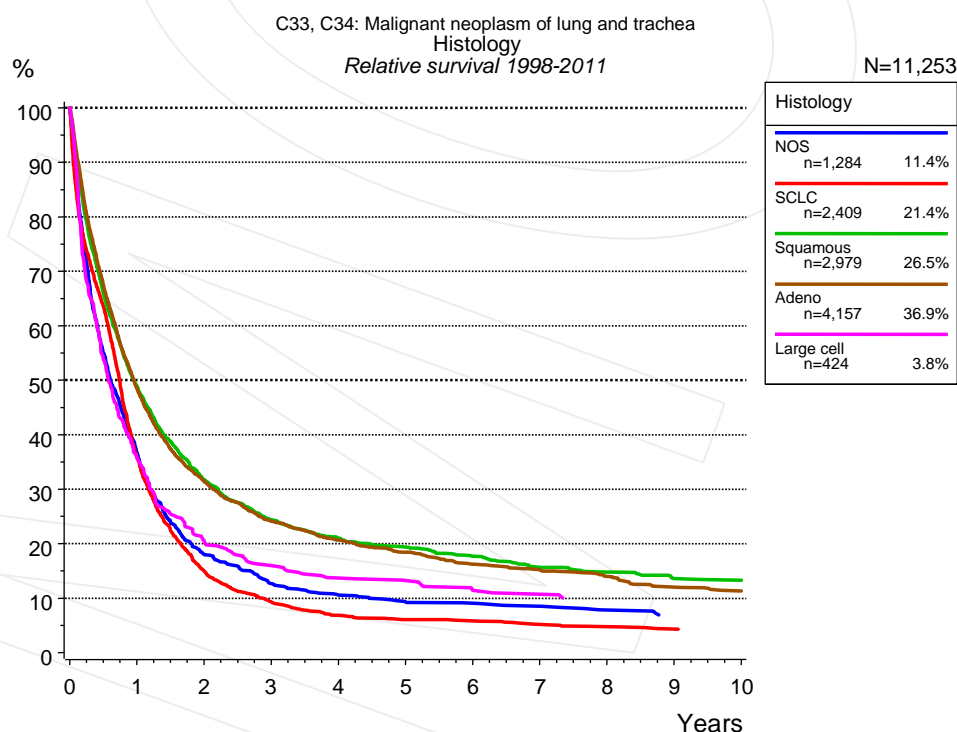


Figure 4i. Relative survival of patients with lung cancer by histology. For 11,253 of 12,106 cases diagnosed between 1998 and 2011 valid data could be obtained for this item.

Years	Histology									
	NOS n=1,284		SCLC n=2,409		Squamous n=2,979		Adeno n=4,157		Large cell n=424	
	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	35.8	36.7	35.2	36.0	47.6	48.9	47.3	48.4	35.1	35.7
2	17.2	18.0	14.4	15.0	30.1	31.7	30.1	31.4	19.6	20.3
3	11.9	12.7	8.8	9.3	22.6	24.4	22.7	24.1	15.3	16.0
4	9.8	10.6	6.4	6.8	18.9	21.0	19.0	20.6	12.9	13.7
5	8.4	9.3	5.6	6.1	17.0	19.4	16.6	18.5	12.2	13.2
6	8.1	9.1	5.3	5.8	15.1	17.7	14.3	16.2	10.1	11.4
7	7.6	8.5	4.6	5.1	13.1	15.6	13.1	15.2	9.7	10.7
8	6.7	7.8	4.2	4.7	11.9	14.8	11.8	14.0	8.6	9.6
9	5.7	6.9	3.8	4.3	10.7	13.6	9.9	12.0		
10	5.7	6.7			10.1	13.3	9.1	11.3		

Table 4j. Observed (obs.) and relative (rel.) survival of patients with lung cancer by histology for period 1998-2011 (N=11,253).

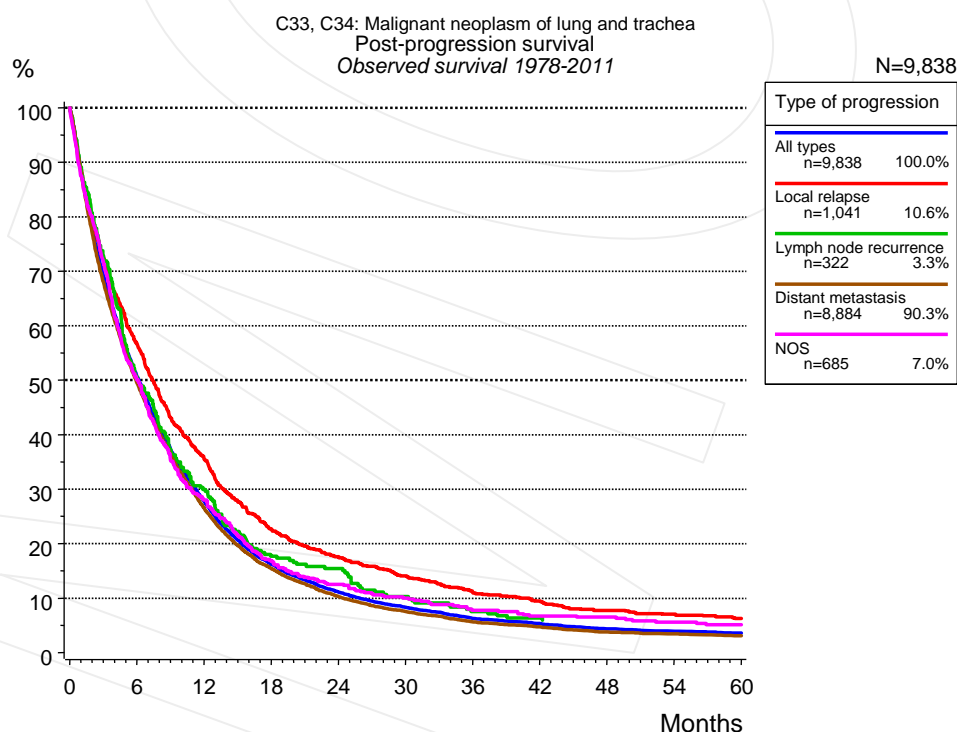


Figure 5a. Observed post-progression survival of 9,838 patients with lung cancer diagnosed between 1978 and 2011 (incl. M1). These 9,838 patients with documented progression events during their course of disease represent 54.9% of the totally 17,933 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=3,314, 18.5%). 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				NOS n=685 %
	All types n=9,838 %	Local relapse n=1,041 %	Lymph node recurrence n=322 %	Distant metastasis n=8,884 %	
0	100.0	100.0	100.0	100.0	100.0
12	27.7	35.4	29.9	26.5	28.0
24	11.1	17.6	15.4	10.3	12.5
36	6.3	11.1	7.5	5.7	7.7
48	4.3	7.8		3.8	6.5
60	3.5	6.3		3.1	5.1

Table 5b. Observed post-progression survival of patients with lung cancer for period 1978-2011 (N=9,838).

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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