Munich Cancer Registry

- Baseline statistics
- Selection Matrix
- Homepage
- *Deutsch*

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

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

Cancer statistics: Survival

C33, C34: Lung cancer

Year of diagnosis	1988-2012
Patients	30,950
Diseases	31,246
Cases evaluated	16,605
Creation date	03/25/2014
Export date	02/12/2014
Population	4.5 m

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

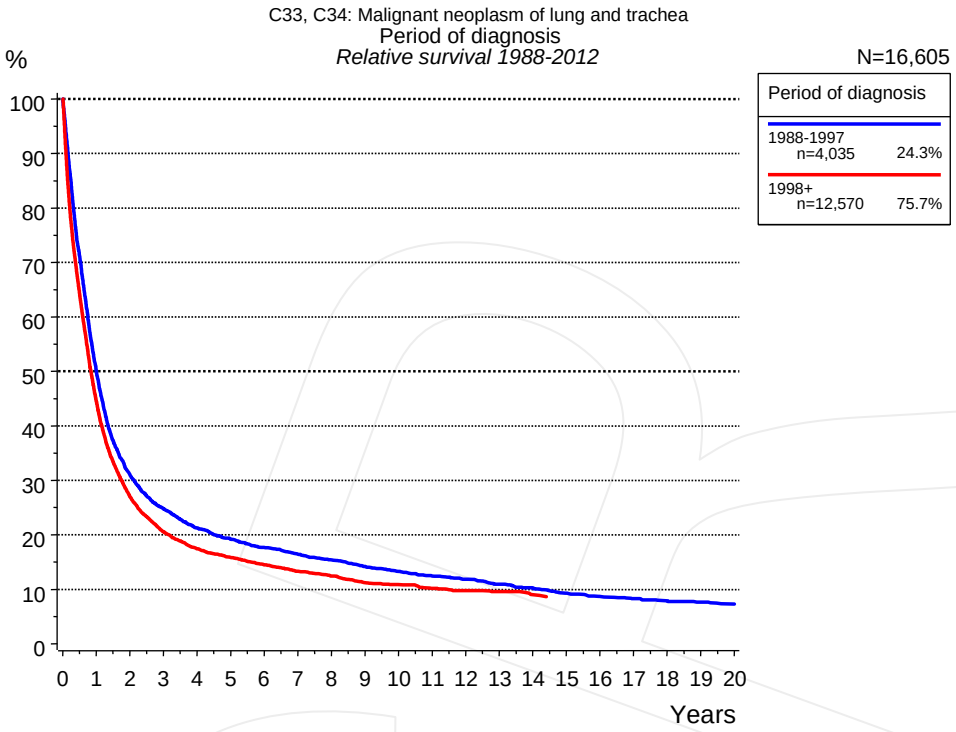

Figure 1a. Relative survival of patients with lung cancer by period of diagnosis. Included in the evaluation are 16,605 cases diagnosed between 1988 and 2012.

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.

Period of diagnosis				
	1988-1997 n=4,035		1998+ n=12,570	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	48.8	50.0	43.2	44.3
2	29.6	31.0	25.7	27.0
3	23.1	24.8	19.2	20.5
4	19.4	21.3	16.0	17.4
5	17.1	19.2	14.2	15.8
6	15.3	17.6	12.7	14.5
7	13.9	16.4	11.4	13.3
8	12.8	15.4	10.4	12.4
9	11.5	14.2	9.2	11.2
10	10.5	13.3	8.7	10.8
11	9.6	12.4	7.9	10.2
12	8.9	11.8	7.5	9.8
13	8.0	10.9	7.1	9.6
14	7.3	10.2	6.6	9.0
15	6.4	9.3		
16	5.8	8.6		
17	5.4	8.3		
18	5.0	7.9		
19	4.7	7.6		
20	4.3	7.3		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by period of diagnosis for period 1988-2012 (N=16,605).

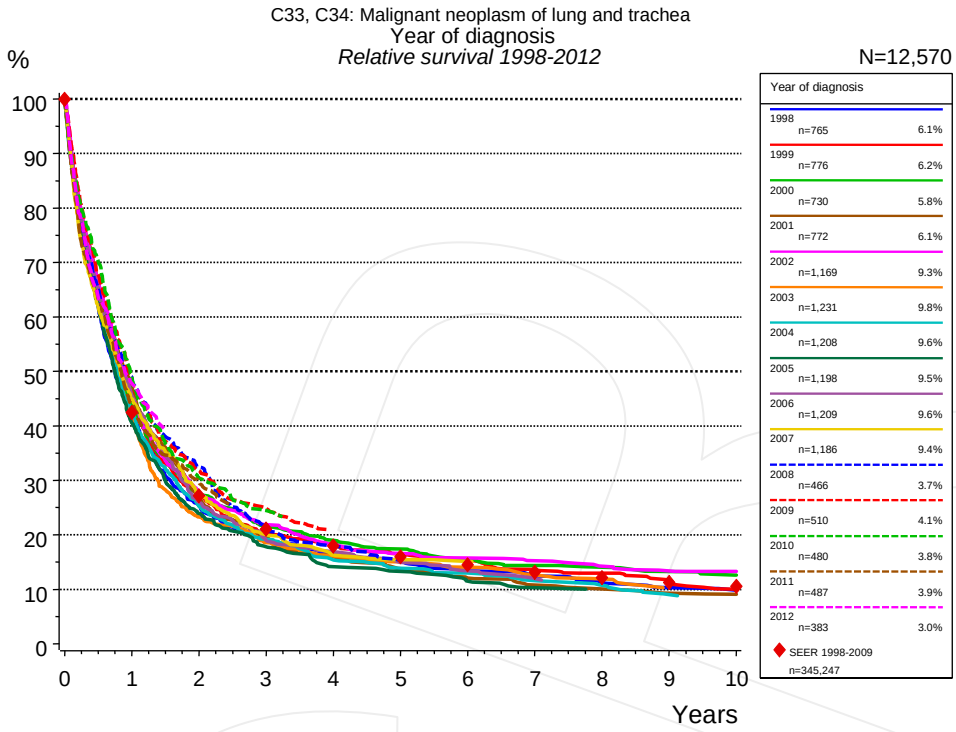

Figure 1c. Relative survival of patients with lung cancer by year of diagnosis. Included in the evaluation are 12,570 cases diagnosed between 1998 and 2012.

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 red diamonds in order to facilitate comparisons between MCR and SEER.

	Year of diagnosis													
	1998 n=765		1999 n=776		2000 n=730		2001 n=772		2002 n=1,169		2003 n=1,231		2004 n=1,208	
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	44.4	42.5	43.6	46.1	47.2	44.0	45.2	40.2	41.2	41.8	42.8
2	24.2	25.4	26.0	27.4	26.5	27.7	25.6	26.7	26.4	27.6	22.2	23.2	24.1	25.2
3	17.8	19.1	18.8	20.2	20.4	21.6	18.3	19.5	20.5	21.9	17.3	18.5	18.0	19.2
4	15.0	16.5	16.5	18.3	17.4	19.0	14.8	16.0	16.7	18.2	14.8	16.1	14.3	15.4
5	13.4	15.1	14.5	16.5	15.7	17.4	12.5	13.8	14.9	16.6	13.5	15.1	12.4	13.8
6	11.6	13.5	13.2	15.4	13.6	15.5	10.7	12.1	13.8	15.7	12.4	14.0	11.3	12.9
7	10.7	12.5	11.5	13.6	12.5	14.4	9.4	10.8	13.1	15.2	11.0	12.6	10.1	11.6
8	9.1	11.2	10.7	13.0	12.0	14.1	8.7	10.1	12.0	14.2	10.0	11.9	9.0	10.7
9	8.3	10.3	8.9	11.1	11.0	13.3	7.8	9.3	11.1	13.3			7.5	9.0
10	7.6	9.9	7.9	10.0	10.1	12.6	7.6	9.1	10.8	13.3				

	Year of diagnosis													
cont'd	2005 n=1,198		2006 n=1,209		2007 n=1,186		2008 n=466		2009 n=510		2010 n=480		2011 n=487	
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	39.6	40.5	44.3	45.4	43.9	44.9	47.6	48.7	47.1	47.9	48.1	49.2	43.1	44.1
2	23.0	23.9	25.0	25.9	26.0	27.1	31.1	32.4	30.6	31.8	29.4	30.4	28.4	29.6
3	16.9	17.8	17.9	18.9	18.8	20.0	19.7	20.9	23.3	24.8	23.3	24.4		
4	13.1	14.1	15.7	16.9	15.0	16.3	16.5	18.0						
5	12.2	13.3	13.5	14.9	13.9	15.5								
6	10.3	11.5	12.0	13.4	13.5	15.1								
7	9.1	10.3	10.7	12.0										
8	8.7	9.6												

Year of diagnosis		
cont'd	2012	
	n=383	
Years	obs. %	rel. %
0	100.0	100.0
1	47.0	47.8

Table 1d. Observed (obs.) and relative (rel.) survival of patients with lung cancer by year of diagnosis for period 1998-2012 (N=12,570).

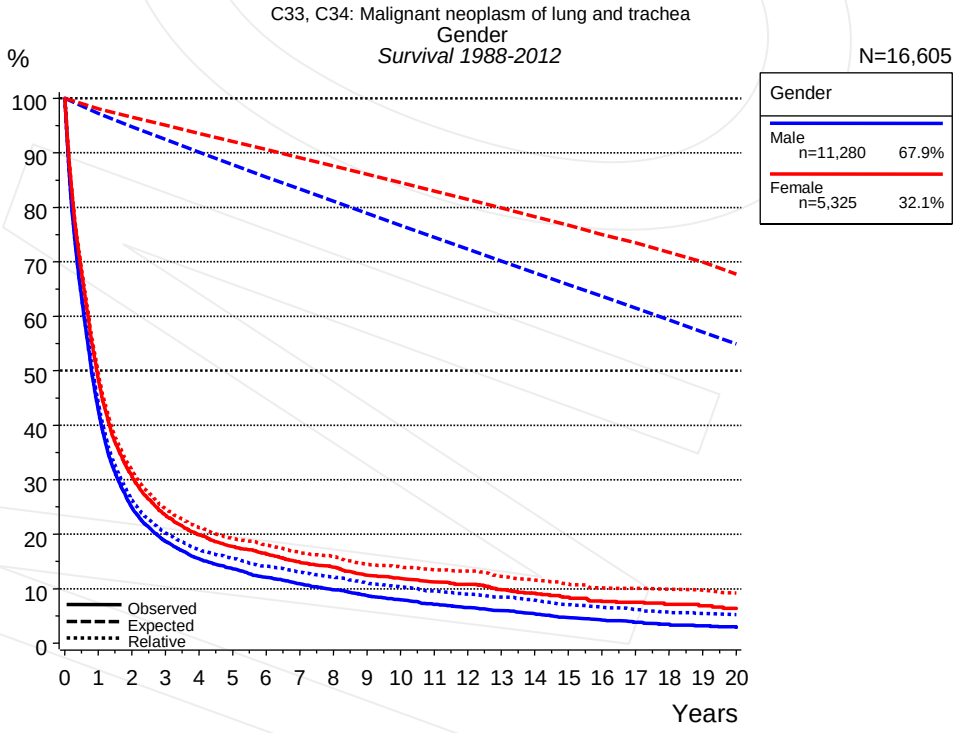

Figure 2a. Survival of patients with lung cancer by gender. Included in the evaluation are 16,605 cases diagnosed between 1988 and 2012.

	Gender			
	Male n=11,280		Female n=5,325	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	42.8	44.0	48.4	49.3
2	24.9	26.2	30.6	31.7
3	18.7	20.2	23.5	24.6
4	15.5	17.2	19.9	21.2
5	13.6	15.5	17.7	19.2
6	12.0	14.1	16.3	18.0
7	10.9	13.0	14.9	16.7
8	9.8	12.1	13.9	15.9
9	8.7	11.0	12.4	14.4
10	7.9	10.3	11.8	14.0
11	7.1	9.5	11.2	13.4
12	6.5	9.0	10.8	13.2
13	5.9	8.4	9.8	12.2
14	5.4	7.9	9.1	11.6
15	4.7	7.1	8.4	10.9
16	4.2	6.6	7.6	10.1
17	3.8	6.1	7.5	10.0
18	3.5	5.7	7.1	9.9
19	3.2	5.4	6.9	9.7
20	2.9	5.2	6.4	9.2

Table 2b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by gender for period 1988-2012 (N=16,605).

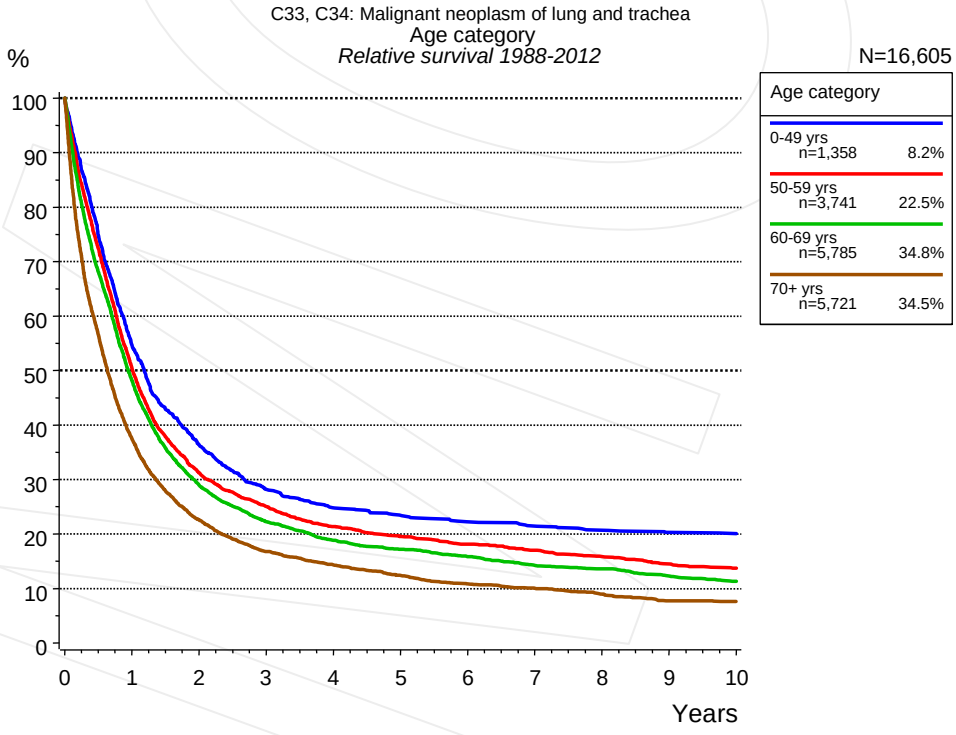

Figure 3a. Relative survival of patients with lung cancer by age category. Included in the evaluation are 16,605 cases diagnosed between 1988 and 2012.

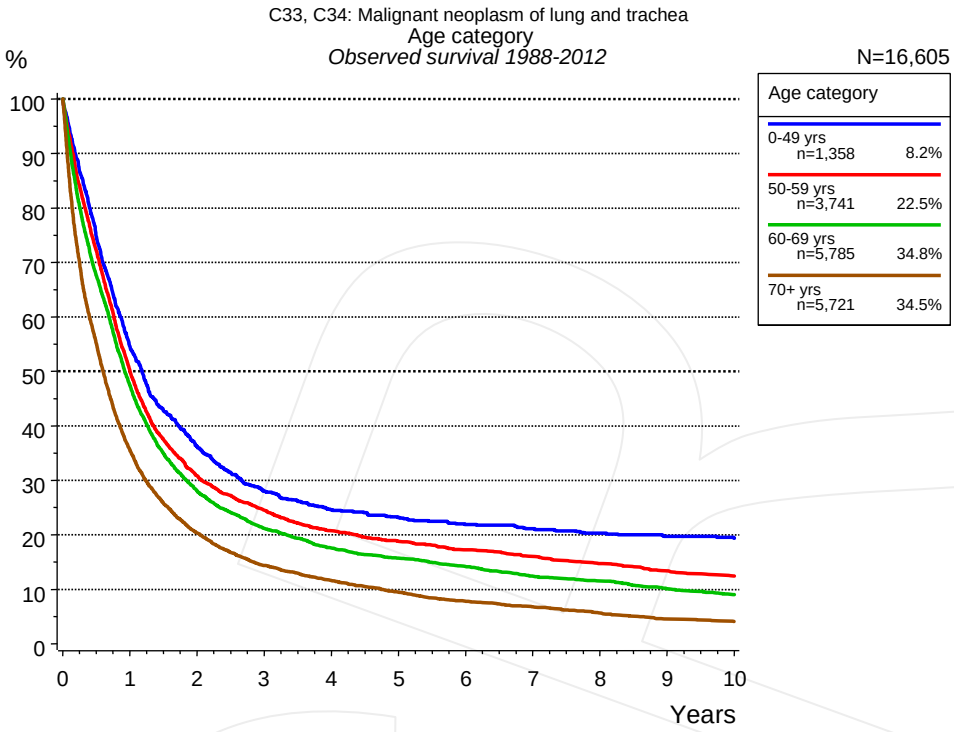

Figure 3b. Observed survival of patients with lung cancer by age category. Included in the evaluation are 16,605 cases diagnosed between 1988 and 2012.

	Age category							
	0-49 yrs n=1,358		50-59 yrs n=3,741		60-69 yrs n=5,785		70+ yrs n=5,721	
Years	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	54.6	54.7	50.1	50.5	47.5	48.2	35.6	37.5
2	36.3	36.4	30.8	31.2	28.0	28.9	20.3	22.6
3	28.0	28.2	24.5	25.0	21.2	22.3	14.4	16.8
4	24.6	24.8	20.7	21.4	17.6	18.9	11.6	14.3
5	23.2	23.4	18.8	19.5	15.7	17.2	9.5	12.4
6	21.9	22.3	17.2	18.1	14.1	15.9	7.8	10.8
7	21.1	21.5	16.0	17.0	12.4	14.2	6.8	10.0
8	20.3	20.7	14.7	15.8	11.5	13.6	5.6	9.0
9	19.7	20.3	13.4	14.5	10.1	12.3	4.5	7.7
10	19.4	20.1	12.5	13.7	9.0	11.3	4.1	7.6

Table 3c. Observed (obs.) and relative (rel.) survival of patients with lung cancer by age category for period 1988-2012 (N=16,605).

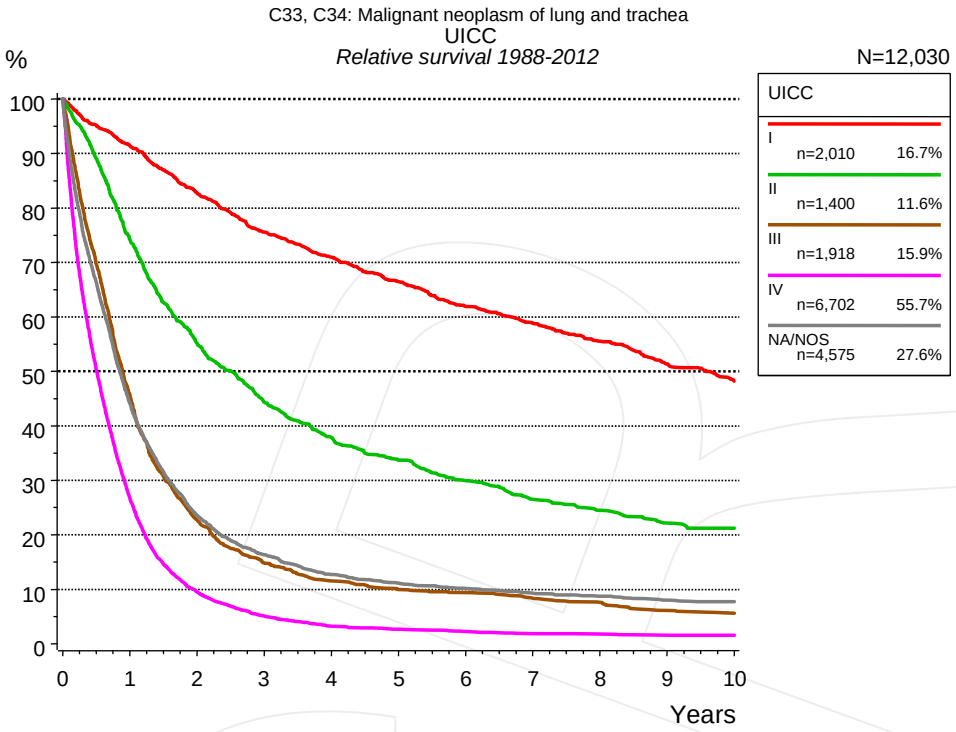

Figure 4a. Relative survival of patients with lung cancer by UICC. For 14,377 of 16,605 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 12,030 cases an evaluable classification was established. The grey line represents the subgroup of 4,575 patients with missing values regarding UICC (27.6% of 16,605 patients, the percent values of all other categories are related to n=12,030).

	UICC									
	I		II		III		IV		NA/NOS	
	n=2,010		n=1,400		n=1,918		n=6,702		n=4,575	
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	89.5	91.4	72.8	74.2	44.6	45.7	26.1	26.7	42.7	44.1
2	79.4	82.7	53.1	55.1	21.8	22.7	9.1	9.5	22.2	23.6
3	71.0	75.6	41.9	44.3	14.0	14.8	4.8	5.1	15.0	16.4
4	65.2	71.0	35.1	37.9	10.7	11.6	3.0	3.2	11.3	12.7
5	59.6	66.5	30.6	33.7	9.0	10.0	2.5	2.7	9.7	11.1
6	54.3	61.9	26.6	29.9	8.4	9.4	2.0	2.3	8.6	10.2
7	50.4	58.8	23.2	26.5	7.3	8.4	1.7	1.9	7.7	9.3
8	46.4	55.5	20.9	24.5	6.5	7.6	1.6	1.8	7.1	8.7
9	41.9	51.3	18.5	22.2	5.1	6.1	1.4	1.6	6.4	8.0
10	38.3	48.2	17.4	21.2	4.6	5.6	1.4	1.6	6.0	7.7

Table 4b. Observed (obs.) and relative (rel.) survival of patients with lung cancer by UICC for period 1988-2012 (N=12,030).

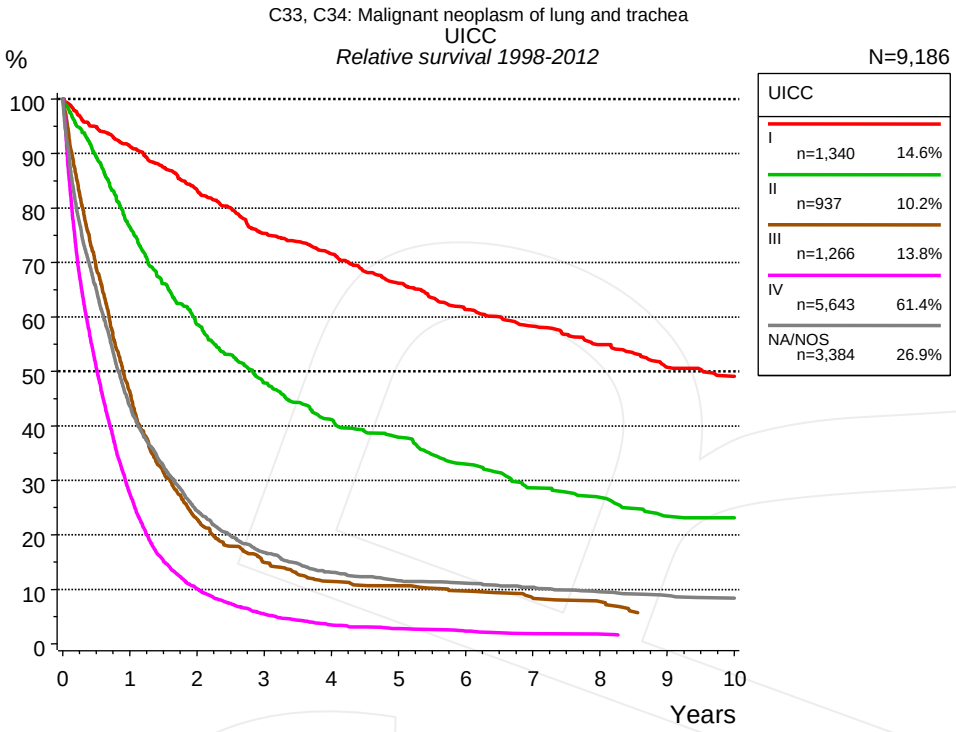

Figure 4c. Relative survival of patients with lung cancer by UICC. For 10,806 of 12,570 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 9,186 cases an evaluable classification was established. The grey line represents the subgroup of 3,384 patients with missing values regarding UICC (26.9% of 12,570 patients, the percent values of all other categories are related to n=9,186).

	UICC									
	I		II		III		IV		NA/NOS	
	n=1,340		n=937		n=1,266		n=5,643		n=3,384	
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	89.5	91.3	75.0	76.5	45.2	46.2	26.8	27.4	42.1	43.5
2	80.0	83.3	56.4	58.6	22.0	22.9	9.7	10.1	23.0	24.4
3	70.8	75.3	45.2	47.9	14.1	14.9	5.2	5.5	15.4	16.8
4	65.9	71.6	38.2	41.1	10.6	11.4	3.3	3.5	11.7	13.1
5	59.5	66.2	34.5	37.9	9.7	10.6	2.6	2.8	10.1	11.6
6	54.0	61.4	29.4	33.0	8.7	9.7	2.1	2.4	9.5	11.1
7	50.2	58.3	25.1	28.6	7.5	8.4	1.7	1.9	8.7	10.4
8	46.1	54.9	23.1	26.8	6.6	7.7	1.6	1.8	7.8	9.5
9	41.6	50.7	19.6	23.4					7.1	8.9
10	39.3	49.1	19.2	23.1					6.7	8.4

Table 4d. Observed (obs.) and relative (rel.) survival of patients with lung cancer by UICC for period 1998-2012 (N=9,186).

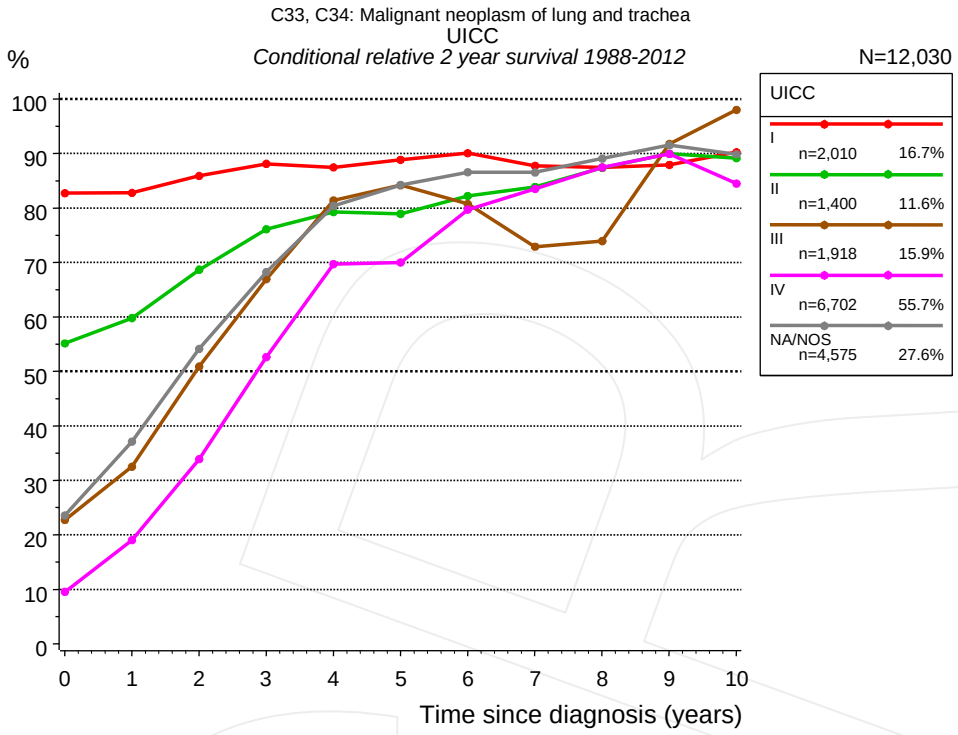

Figure 4e. Conditional relative 2-year survival of patients with lung cancer by UICC. For 14,377 of 16,605 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 12,030 cases an evaluable classification was established. The grey line represents the subgroup of 4,575 patients with missing values regarding UICC (27.6% of 16,605 patients, the percent values of all other categories are related to n=12,030).

	UICC									
	I		II		III		IV		NA/NOS	
Years	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	2,010	82.7	1,400	55.1	1,918	22.7	6,702	9.5	4,575	23.6
1	1,721	82.8	967	59.8	798	32.5	1,608	19.0	1,825	37.1
2	1,422	85.9	654	68.7	351	50.9	494	33.9	866	54.1
3	1,184	88.1	473	76.1	206	66.9	223	52.6	534	68.2
4	1,003	87.5	352	79.3	140	81.4	113	69.7	369	80.4
5	824	88.8	278	78.9	106	84.2	87	70.0	277	84.2
6	680	90.1	220	82.2	92	80.7	61	79.7	217	86.6
7	589	87.7	173	83.9	73	72.9	41	83.5	173	86.5
8	501	87.4	143	87.4	63	73.9	31	87.5	141	89.1
9	417	87.9	118	90.0	48	91.8	26	89.9	106	91.5
10	349	90.2	100	89.1	41	98.0	24	84.5	90	89.9

Table 4f. Conditional relative 2-year survival of patients with lung cancer by UICC for period 1988-2012 (N=12,030).

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 88.1% (n=1,184).

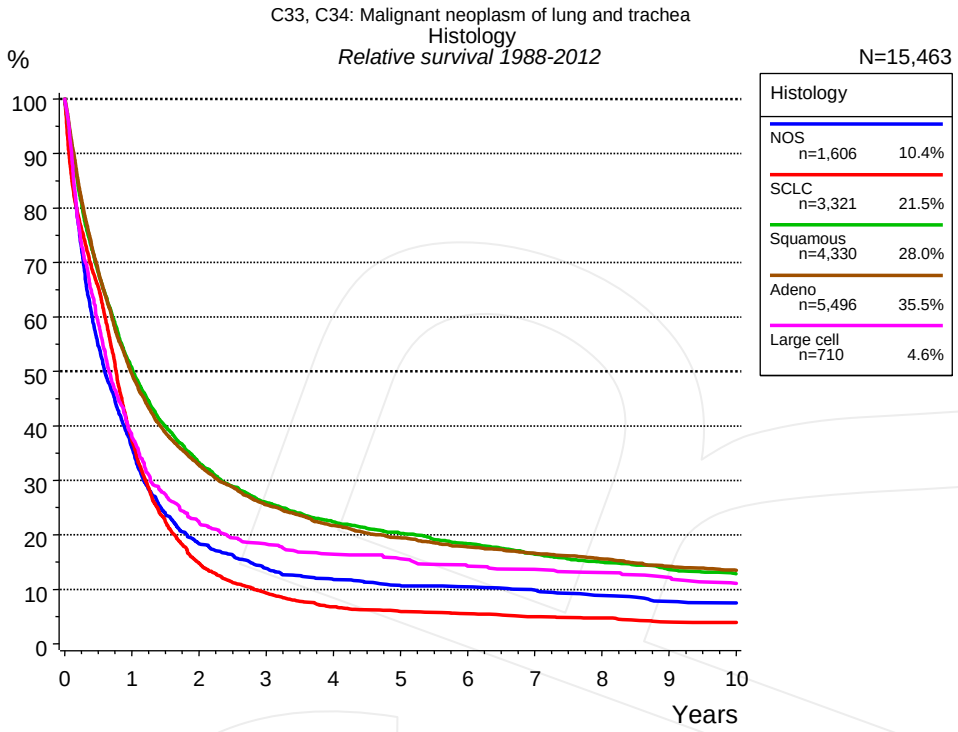

Figure 4g. Relative survival of patients with lung cancer by histology. For 15,463 of 16,605 cases diagnosed between 1988 and 2012 valid data could be obtained for this item.

	Histology									
	NOS n=1,606		SCLC n=3,321		Squamous n=4,330		Adeno n=5,496		Large cell n=710	
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	35.1	36.0	36.6	37.4	49.2	50.6	48.4	49.5	37.2	38.0
2	17.5	18.4	14.2	14.8	31.5	33.2	31.4	32.8	21.4	22.3
3	12.9	13.8	8.8	9.3	24.0	25.9	23.9	25.5	17.4	18.3
4	10.8	11.8	6.3	6.8	20.1	22.4	20.0	21.7	15.4	16.5
5	9.6	10.7	5.5	6.0	17.7	20.3	17.5	19.5	14.2	15.6
6	9.3	10.5	5.0	5.5	15.6	18.4	15.7	17.8	12.7	14.3
7	8.5	9.9	4.4	5.0	13.7	16.5	14.4	16.6	12.0	13.6
8	7.5	8.9	4.1	4.7	12.1	15.0	13.1	15.6	11.3	13.1
9	6.5	7.8	3.5	4.0	10.7	13.6	11.7	14.2	10.4	12.2
10	6.2	7.5	3.3	3.9	9.8	12.9	10.8	13.5	9.3	11.1

Table 4h. Observed (obs.) and relative (rel.) survival of patients with lung cancer by histology for period 1988-2012 (N=15,463).

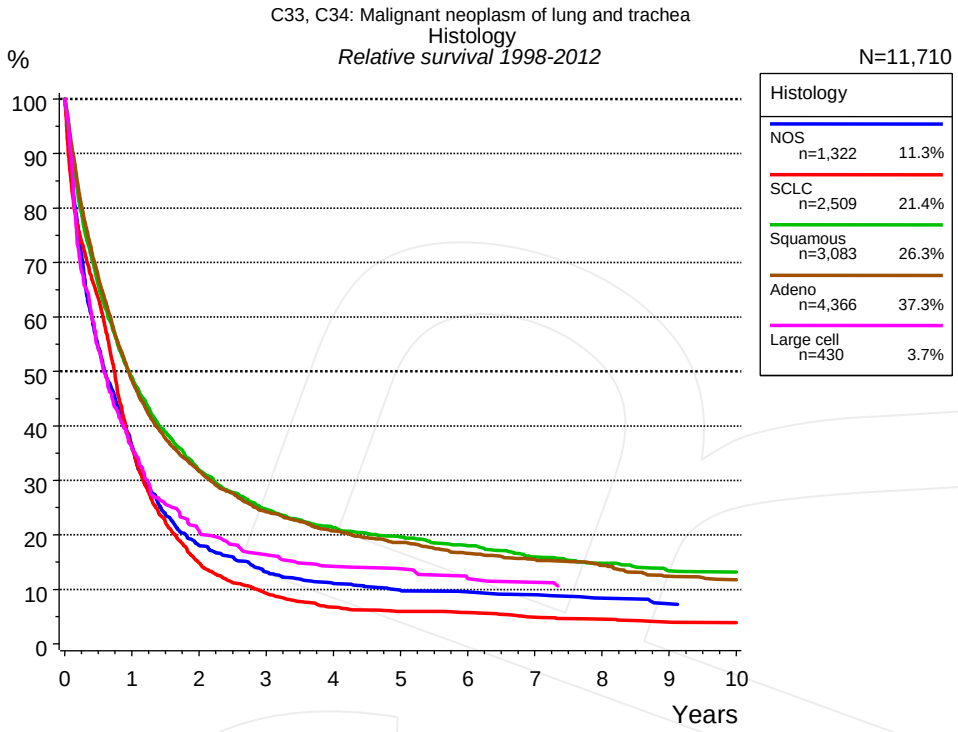

Figure 4i. Relative survival of patients with lung cancer by histology. For 11,710 of 12,570 cases diagnosed between 1998 and 2012 valid data could be obtained for this item.

	Histology									
	NOS n=1,322		SCLC n=2,509		Squamous n=3,083		Adeno n=4,366		Large cell n=430	
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	35.4	36.3	35.2	35.9	47.6	49.0	47.2	48.3	35.3	35.9
2	17.2	18.0	14.3	14.8	30.3	31.9	30.3	31.7	19.8	20.6
3	12.3	13.1	8.8	9.2	22.8	24.7	22.7	24.2	15.7	16.4
4	10.2	11.0	6.3	6.7	19.2	21.3	19.1	20.7	13.4	14.2
5	8.9	9.8	5.5	5.9	17.2	19.6	16.8	18.6	12.7	13.8
6	8.5	9.5	5.2	5.7	15.4	18.0	14.6	16.6	10.7	12.0
7	8.0	9.0	4.4	4.9	13.3	15.9	13.4	15.5	10.2	11.3
8	7.1	8.4	4.0	4.5	12.0	14.8	12.1	14.4	9.2	10.2
9	6.2	7.3	3.5	4.0	10.5	13.4	10.2	12.4		
10	6.0	7.0	3.4	3.9	10.1	13.2	9.4	11.7		

Table 4j. Observed (obs.) and relative (rel.) survival of patients with lung cancer by histology for period 1998-2012 (N=11,710).

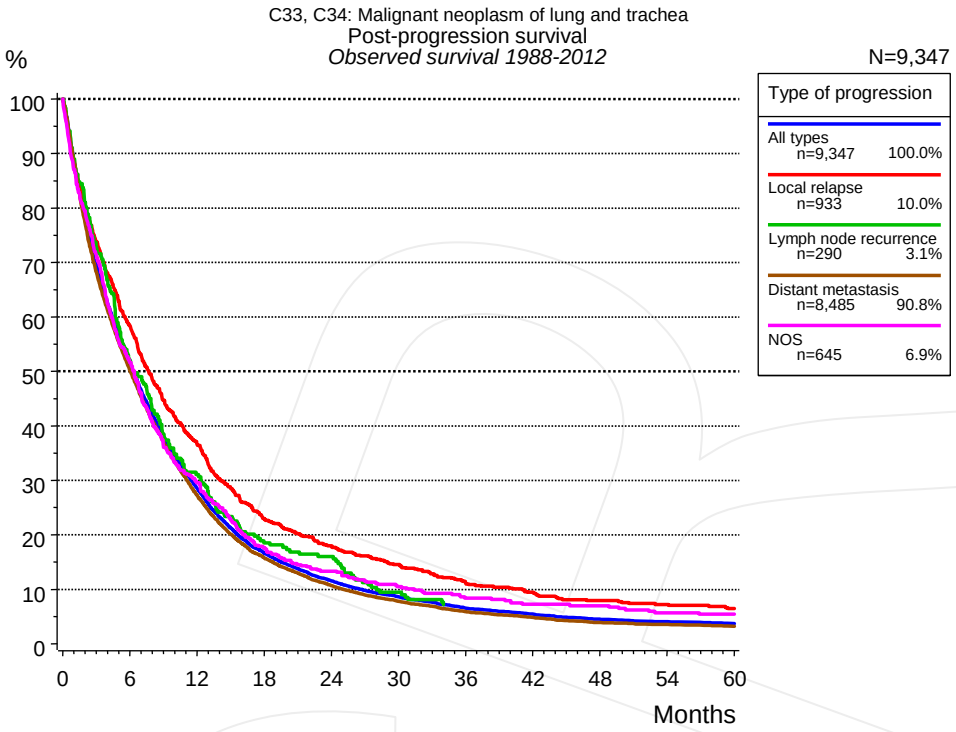

Figure 5a. Observed post-progression survival of 9,347 patients with lung cancer diagnosed between 1988 and 2012 (incl. M1). These 9,347 patients with documented progression events during their course of disease represent 56.3% of the totally 16,605 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=3,230, 19.5%). 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	Local relapse	Lymph node recurrence	Distant metastasis	NOS
	n=9,347	n=933	n=290	n=8,485	n=645
Months	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
12	28.5	36.5	31.1	27.2	29.5
24	11.5	17.9	16.0	10.7	13.3
36	6.5	11.1		5.9	8.4
48	4.5	7.9		3.9	7.0
60	3.7	6.5		3.2	5.5

Table 5b. Observed post-progression survival of patients with lung cancer for period 1988-2012 (N=9,347).

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

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