

# Munich Cancer Registry



- ▶ Incidence and Mortality
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

## ICD-10 C34: Non-small cell LC

### Survival

Year of diagnosis	1988-1997	1998-2020
Patients	3,431	29,100
Diseases	3,448	29,437
Cases evaluated	3,069	22,782
Creation date	04/15/2022	
Database export	12/20/2021	
Population	4.92 m	



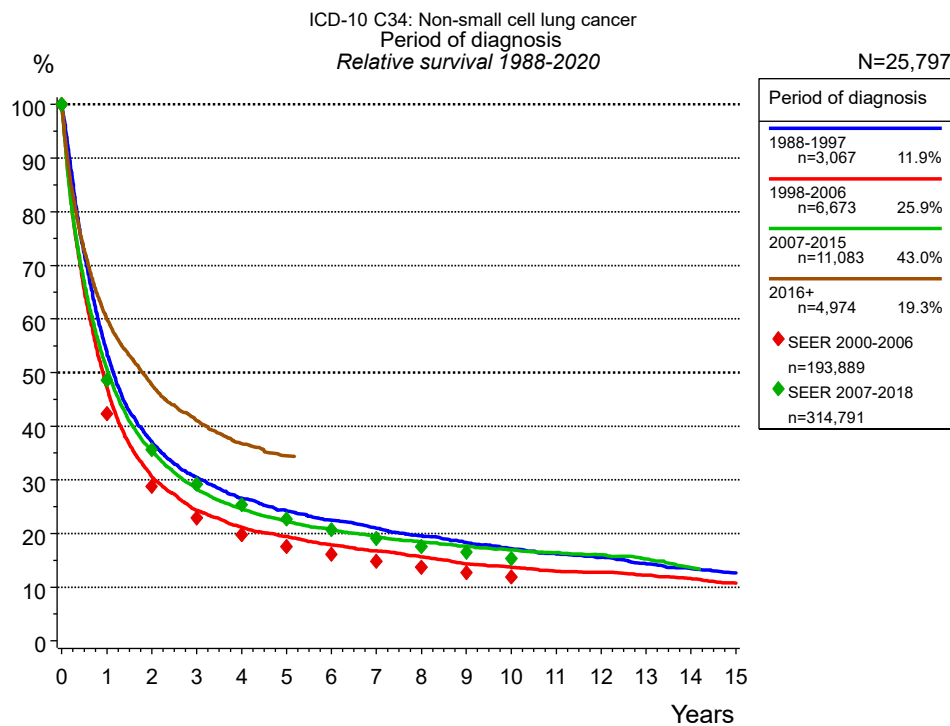
Munich Cancer Registry  
Cancer Registry Bavaria - Upper Bavaria Regional Center  
at Klinikum Grosshadern/IBE  
Marchioninstr. 15  
Munich, 81377  
Germany

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

[https://www.tumorregister-muenchen.de/en/facts/surv/sC34N\\_E-ICD-10-C34-Non-small-cell-LC-survival.pdf](https://www.tumorregister-muenchen.de/en/facts/surv/sC34N_E-ICD-10-C34-Non-small-cell-LC-survival.pdf)

# Index of figures and tables

Fig./Tbl.	Page
1a Relative survival by period of diagnosis (chart)	3
1b Survival by period of diagnosis (table)	3
2a Survival by sex (chart)	4
2b Survival by sex (table)	4
3a Observed survival by age category (chart)	5
3b Relative survival by age category (chart)	5
3c Survival by age category (table)	6
4a Relative survival by UICC (chart)	7
4b Survival by UICC (table)	7
4c Conditional survival by UICC (chart)	8
4d Conditional survival by UICC (table)	8
4g Relative survival by TNM staging (chart)	9
4h Survival by TNM staging (table)	9
5a Time to first progression (chart)	11
5b Time to first progression (table)	11
5c Observed post-progression survival (chart)	13
5d Observed post-progression survival (table)	13
5e Observed post-progression survival by period of progression (chart)	14
5f Observed post-progression survival by period of progression (table)	14



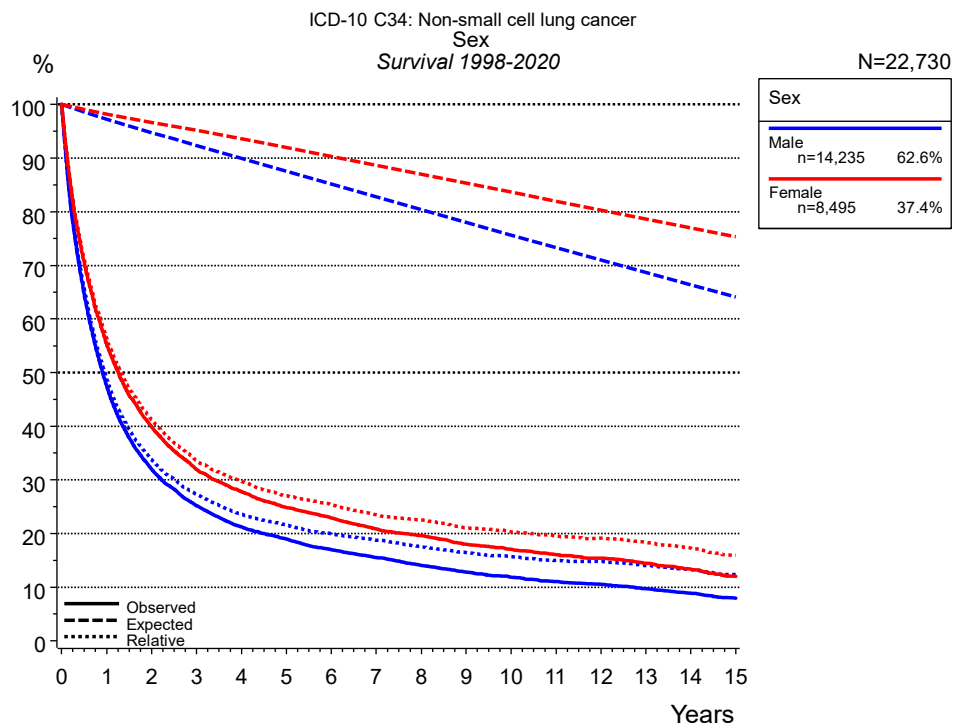
**Figure 1a.** Relative survival of patients with non-small cell LC by period of diagnosis. Included in the evaluation are 25,797 cases diagnosed between 1988 and 2020.

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 2000 to 2018, and are represented by colored 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 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							
	1988-1997 n=3,067		1998-2006 n=6,673		2007-2015 n=11,083		2016+ n=4,974	
	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	52.6	53.9	46.2	47.3	49.5	50.7	58.5	59.9
2	35.4	37.1	29.2	30.6	33.8	35.4	45.7	47.7
3	28.3	30.4	22.7	24.3	26.5	28.3	38.4	41.0
4	24.2	26.6	19.4	21.2	22.5	24.6	33.8	36.8
5	21.5	24.2	17.4	19.5	19.9	22.3	31.1	34.5
6	19.6	22.5	15.6	17.9	18.1	20.8		
7	17.9	21.0	14.3	16.8	16.5	19.4		
8	16.3	19.6	13.0	15.6	15.3	18.5		
9	14.9	18.4	11.6	14.3	14.2	17.6		
10	13.5	17.1	10.8	13.7	13.3	16.9		
11	12.5	16.2	10.0	13.0	12.6	16.4		
12	11.7	15.5	9.6	12.8	12.0	16.0		
13	10.5	14.3	9.0	12.2	11.1	15.2		
14	9.6	13.5	8.2	11.6	9.8	13.7		
15	8.8	12.7	7.4	10.8				
Median	1.1		0.9		1.0		1.6	

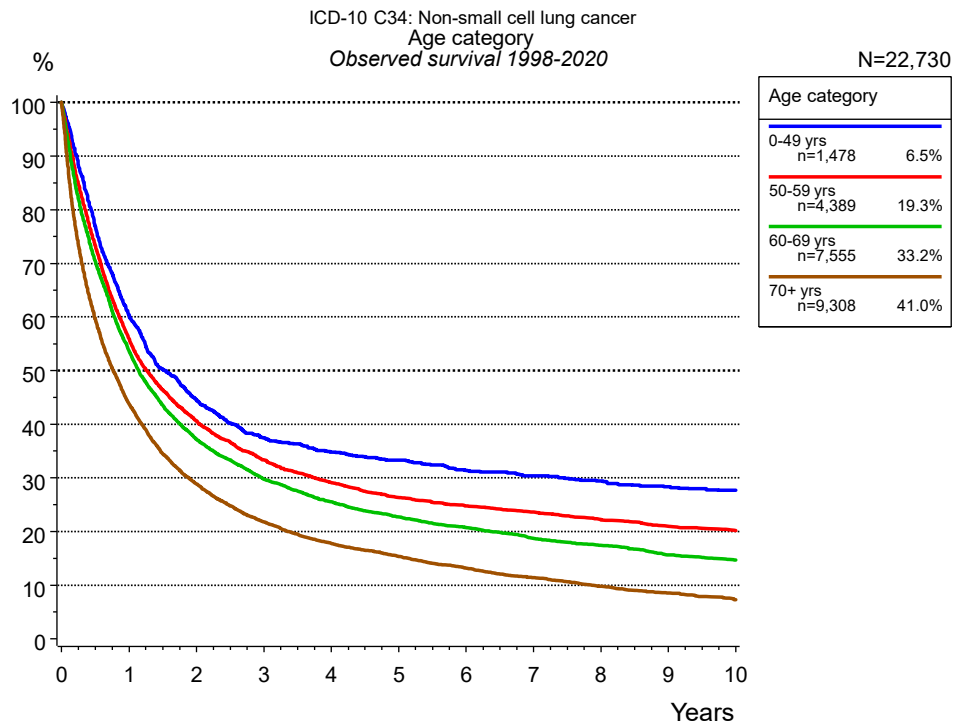
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by period of diagnosis for period 1988-2020 (N=25,797).



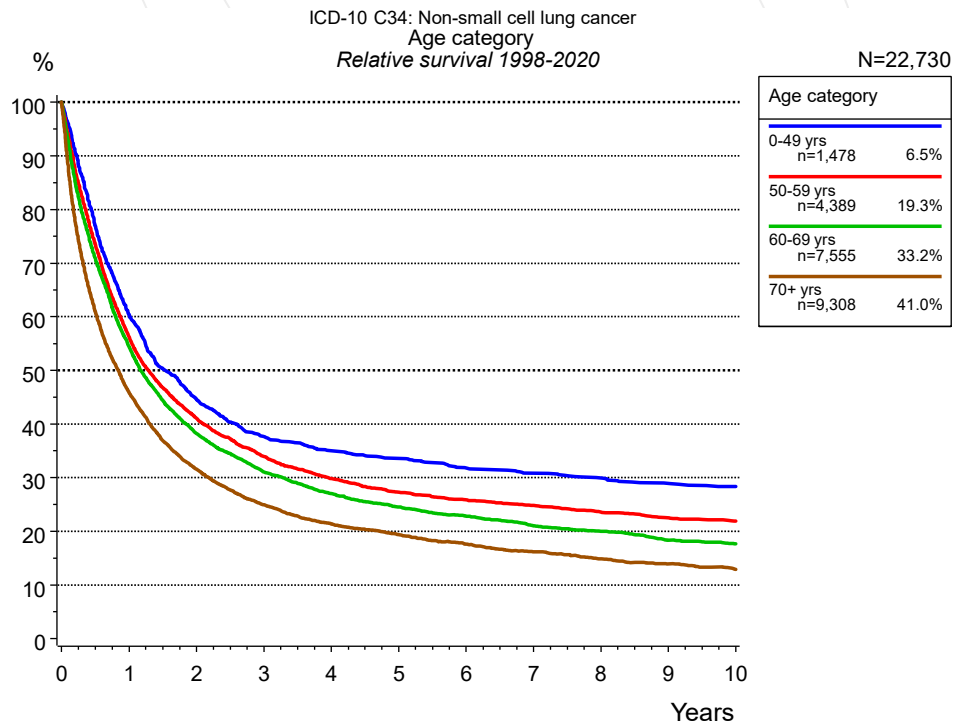
**Figure 2a.** Survival of patients with non-small cell LC by sex. Included in the evaluation are 22,730 cases diagnosed between 1998 and 2020.

Years	Sex			
	Male n=14,235		Female n=8,495	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	47.6	48.9	55.3	56.3
2	32.0	33.7	39.9	41.2
3	25.2	27.2	31.9	33.6
4	21.3	23.6	27.8	29.7
5	18.9	21.6	24.8	27.0
6	17.0	19.9	22.9	25.3
7	15.5	18.7	20.9	23.5
8	14.1	17.5	19.6	22.5
9	12.8	16.4	18.0	21.0
10	11.8	15.6	17.0	20.3
11	11.0	15.0	16.0	19.5
12	10.5	14.8	15.4	19.1
13	9.7	14.0	14.5	18.3
14	8.8	13.3	13.3	17.2
15	7.9	12.4	12.0	15.9
Median	0.9		1.3	

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by sex for period 1998-2020 (N=22,730).



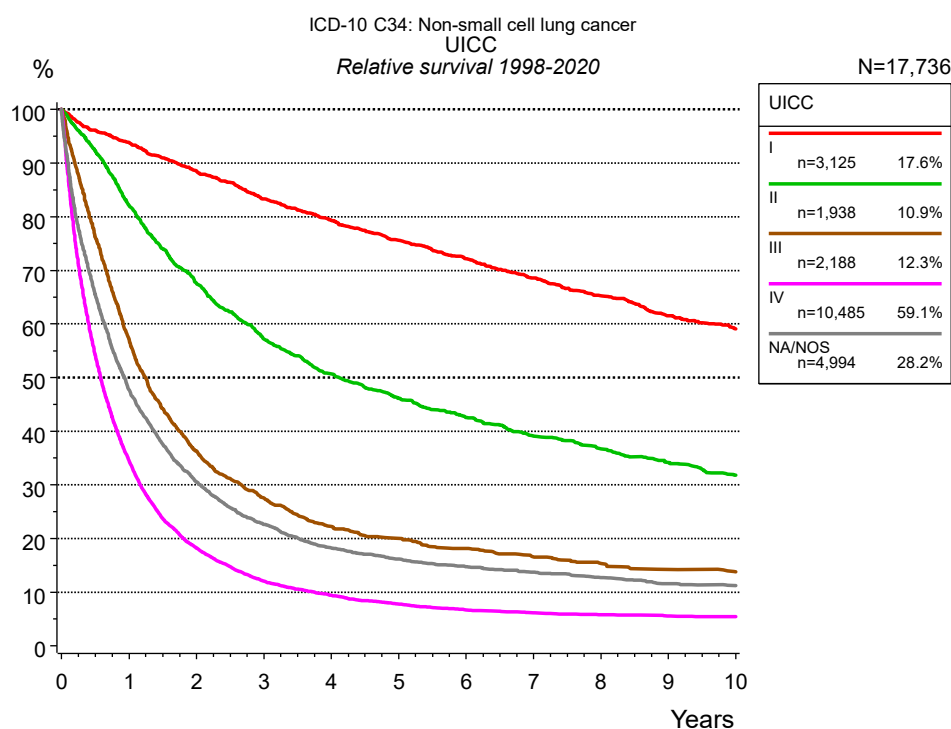
**Figure 3a.** Observed survival of patients with non-small cell LC by age category. Included in the evaluation are 22,730 cases diagnosed between 1998 and 2020.



**Figure 3b.** Relative survival of patients with non-small cell LC by age category. Included in the evaluation are 22,730 cases diagnosed between 1998 and 2020.

Years	Age category							
	0-49 yrs n=1,478		50-59 yrs n=4,389		60-69 yrs n=7,555		70+ yrs n=9,308	
	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	60.4	60.4	55.9	56.2	53.6	54.3	43.8	45.8
2	44.5	44.6	40.6	41.0	37.2	38.2	28.9	31.6
3	37.5	37.7	33.3	33.9	29.8	31.0	21.8	24.9
4	34.8	35.0	29.1	29.8	25.5	27.1	17.8	21.4
5	33.3	33.6	26.4	27.2	22.7	24.5	15.3	19.4
6	31.4	31.8	24.8	25.8	20.7	22.8	13.2	17.6
7	30.4	30.8	23.6	24.8	18.7	21.0	11.4	16.2
8	29.4	29.9	22.2	23.5	17.4	20.0	9.8	14.8
9	28.3	28.9	21.0	22.5	15.6	18.4	8.6	13.9
10	27.7	28.4	20.2	21.9	14.6	17.7	7.3	12.9
Median	1.5		1.3		1.1		0.8	

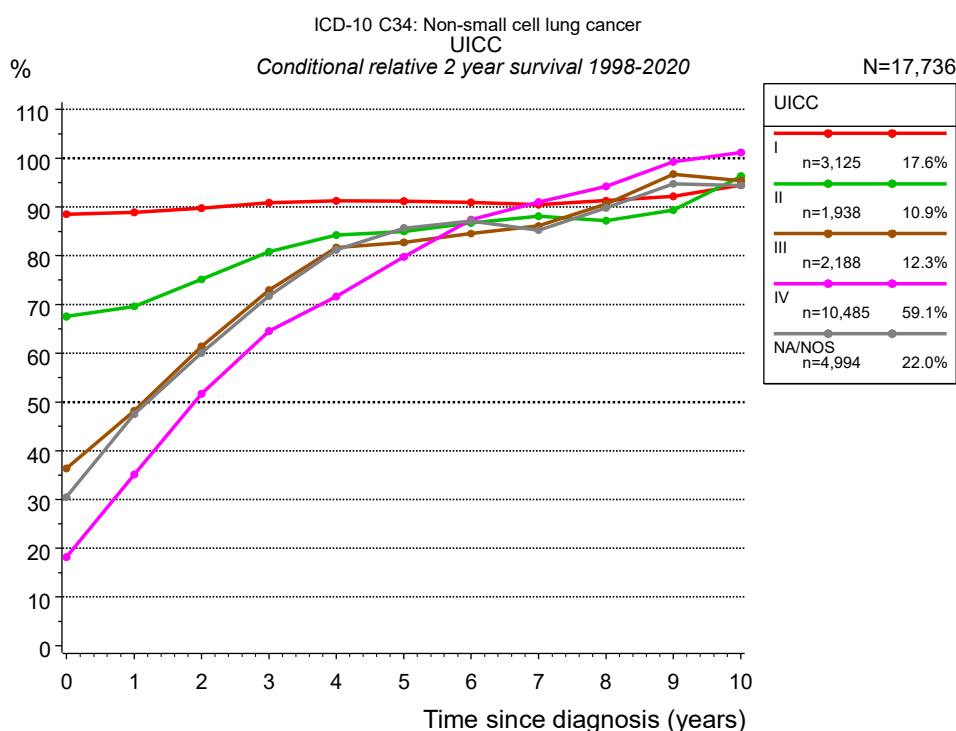
**Table 3c.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by age category for period 1998-2020 (N=22,730).



**Figure 4a.** Relative survival of patients with non-small cell LC by UICC. For 20,509 of 22,730 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 17,736 cases an evaluable classification was established. The grey line represents the subgroup of 4,994 patients with missing values regarding UICC (22.0 % of 22,730 patients, the percent values of all other categories are related to n=17,736).

Years	UICC									
	I n=3,125		II n=1,938		III n=2,188		IV n=10,485		NA/NOS n=4,994	
	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	92.0	93.8	80.6	82.1	55.8	57.0	33.6	34.4	46.1	47.7
2	85.2	88.5	65.0	67.5	34.8	36.3	17.4	18.2	28.7	30.5
3	78.5	83.3	54.0	57.2	25.8	27.5	11.4	12.1	20.7	22.6
4	73.1	79.4	46.9	50.7	20.5	22.3	8.7	9.4	16.2	18.3
5	68.0	75.5	41.8	46.2	18.1	20.0	7.0	7.8	14.0	16.1
6	63.5	72.2	37.7	42.6	16.0	18.1	5.9	6.7	12.4	14.7
7	58.8	68.5	33.7	39.1	14.3	16.6	5.3	6.2	11.3	13.7
8	54.6	65.2	31.0	36.8	12.9	15.3	4.9	5.8	10.2	12.7
9	50.2	61.6	28.1	34.2	11.7	14.2	4.6	5.6	9.0	11.6
10	47.0	59.1	25.4	31.8	11.0	13.8	4.4	5.4	8.6	11.3
Median	9.1		3.6		1.2		0.6		0.9	

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by UICC for period 1998-2020 (N=17,736).



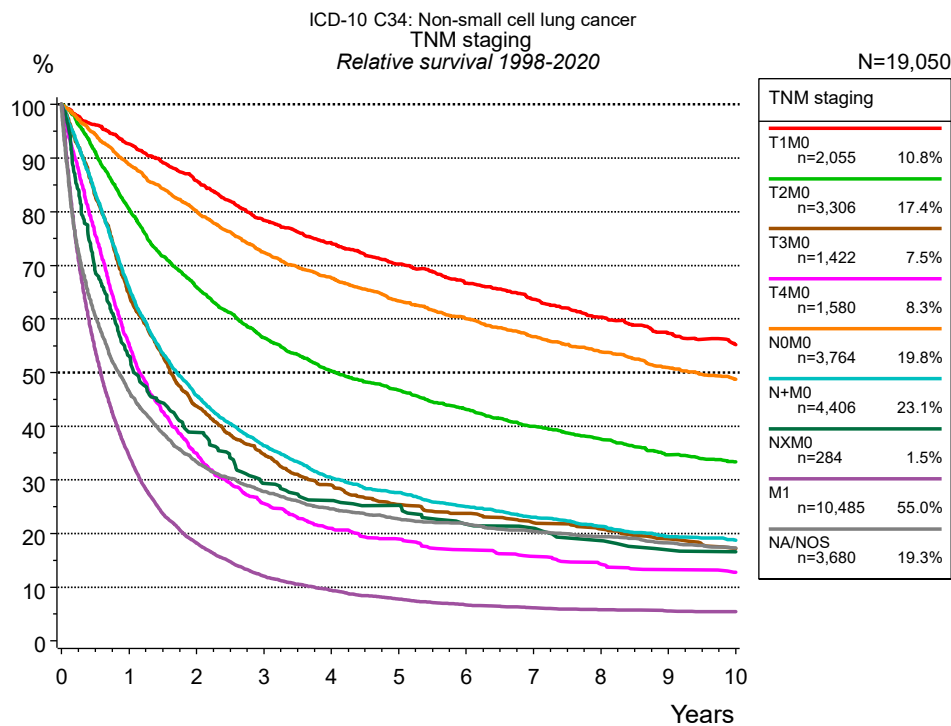
**Figure 4c.** Conditional relative 2-year survival of patients with non-small cell LC by UICC. For 20,509 of 22,730 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 17,736 cases an evaluable classification was established. The grey line represents the subgroup of 4,994 patients with missing values regarding UICC (22.0 % of 22,730 patients, the percent values of all other categories are related to n=17,736).

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	3,125	88.5	1,938	67.5	2,188	36.3	10,485	18.2	4,994	30.5
1	2,772	88.9	1,519	69.6	1,160	48.2	3,408	35.1	2,246	47.5
2	2,443	89.7	1,167	75.1	672	61.4	1,642	51.7	1,348	60.1
3	2,112	90.9	920	80.8	450	72.9	951	64.5	900	71.7
4	1,833	91.3	758	84.2	307	81.7	613	71.6	654	81.2
5	1,567	91.2	638	85.0	234	82.7	414	79.8	521	85.6
6	1,351	90.9	533	86.7	189	84.5	284	87.4	410	87.1
7	1,162	90.5	430	88.1	143	86.1	219	91.0	340	85.3
8	991	91.3	347	87.2	119	90.6	168	94.2	281	89.8
9	820	92.1	282	89.3	95	96.7	128	99.3	226	94.8
10	697	94.4	223	96.3	77	95.4	103	101.1	195	94.4

**Table 4d.** Conditional relative 2-year survival of patients with non-small cell LC by UICC for period 1998-2020 (N=17,736).

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 4a). 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 90.9% (n=2,112).



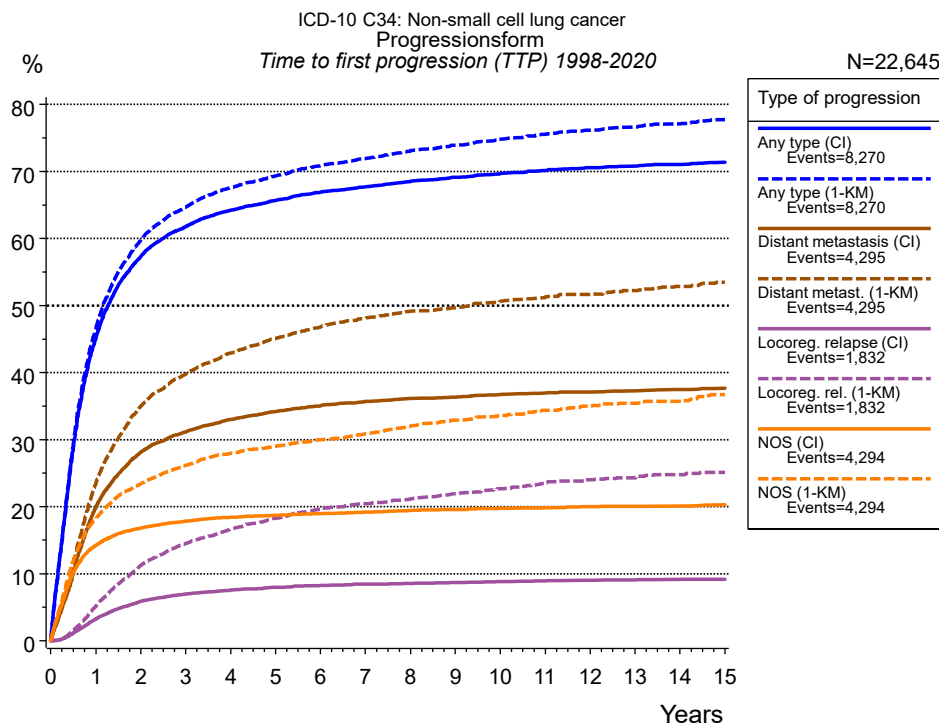


**Figure 4g.** Relative survival of patients with non-small cell LC by TNM staging. For 20,509 of 22,730 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 19,050 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 3,680 patients with missing values regarding TNM staging (16.2 % of 22,730 patients, the percent values of all other categories are related to n=19,050).

TNM staging														
	T1M0 n=2,055		T2M0 n=3,306		T3M0 n=1,422		T4M0 n=1,580		N0M0 n=3,764		N+M0 n=4,406		NXM0 n=284	
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	90.8	92.6	78.7	80.5	63.2	64.6	54.0	55.2	86.9	88.8	64.4	65.9	51.6	53.1
2	82.4	85.8	63.0	66.0	41.8	43.8	33.5	34.9	76.7	80.1	43.9	45.8	36.6	38.8
3	73.7	78.4	52.7	56.5	32.5	34.7	24.0	25.6	67.7	72.4	34.2	36.4	26.6	29.4
4	68.2	74.2	45.8	50.3	26.6	29.0	19.3	21.0	61.8	67.7	28.0	30.4	23.2	26.1
5	63.2	70.3	41.6	46.7	22.7	25.4	17.1	19.0	56.5	63.4	24.9	27.6	21.6	25.2
6	58.5	66.7	37.5	43.1	20.9	23.8	15.0	17.0	52.3	60.0	22.1	25.0	17.7	21.7
7	54.6	63.7	33.9	40.0	18.9	22.0	13.5	15.7	48.1	56.7	19.9	23.0	16.7	21.0
8	50.4	60.3	31.1	37.6	17.5	20.8	12.1	14.3	44.6	53.9	18.0	21.3	14.4	18.7
9	46.8	57.3	27.9	34.7	15.7	19.0	10.9	13.3	41.1	50.9	16.0	19.4	12.4	16.9
10	44.0	55.2	26.1	33.3	13.7	17.2	10.1	12.8	38.3	48.7	15.0	18.7	11.9	16.6
Median	8.1		3.3		1.6		1.1		6.5		1.6		1.0	

<i>cont'd</i>	TNM staging			
	M1 n=10,485		NA/NOS n=3,680	
	obs. %	rel. %	obs. %	rel. %
Years				
0	100.0	100.0	100.0	100.0
1	33.6	34.4	45.0	46.4
2	17.4	18.2	31.5	33.3
3	11.4	12.1	25.7	27.8
4	8.7	9.4	22.1	24.6
5	7.0	7.8	19.9	22.7
6	5.9	6.7	18.7	21.8
7	5.3	6.2	17.1	20.4
8	4.9	5.8	15.8	19.4
9	4.6	5.6	14.4	18.2
10	4.4	5.4	13.3	17.3
Median	0.6		0.8	

**Table 4h.** Observed (obs.) and relative (rel.) survival of patients with non-small cell LC by TNM staging for period 1998-2020 (N=19,050).

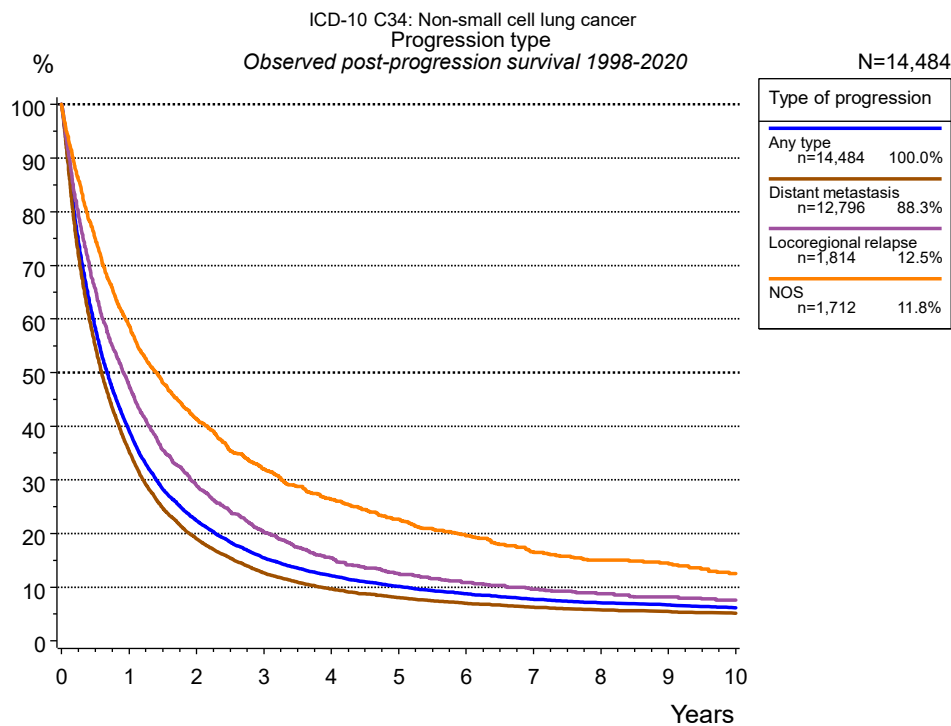


**Figure 5a.** Time to first progression of 22,645 patients with non-small cell LC diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)
N	12,390	12,390	12,395	12,395	22,644	22,644	22,641
Events	8,255	8,255	4,286	4,286	1,826	1,826	4,287
compet.	1,606		5,132		16,783		14,447
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	45.1	46.6	19.9	23.5	3.3	5.2	14.3
2	57.3	59.7	28.1	35.0	5.9	11.3	16.8
3	61.8	64.7	31.2	39.8	6.9	14.5	17.8
4	64.2	67.6	33.0	42.9	7.6	16.7	18.4
5	65.7	69.3	34.2	45.1	8.0	18.3	18.7
6	66.9	70.9	35.0	46.8	8.3	19.6	19.0
7	67.7	72.0	35.7	48.1	8.4	20.4	19.2
8	68.5	73.0	36.2	49.2	8.6	21.1	19.4
9	69.1	73.9	36.4	49.7	8.7	22.0	19.6
10	69.7	74.8	36.8	50.7	8.8	22.7	19.7
11	70.2	75.5	37.0	51.2	9.0	23.4	19.9
12	70.5	76.2	37.1	51.7	9.1	24.0	20.0
13	70.8	76.7	37.3	52.2	9.1	24.3	20.1
14	71.1	77.1	37.5	52.9	9.2	24.8	20.1
15	71.4	77.7	37.7	53.5	9.2	25.1	20.3

Type of progression	
<i>cont'd</i>	NOS (1-KM)
N	22,641
Events	4,287
compet.	
Years	%
0	0.0
1	18.2
2	23.4
3	26.2
4	27.9
5	29.0
6	30.0
7	30.9
8	32.0
9	32.9
10	33.6
11	34.3
12	35.0
13	35.4
14	35.7
15	36.7

**Table 5b.** Time to first progression of patients with non-small cell LC for period 1998-2020 (N=22,645), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

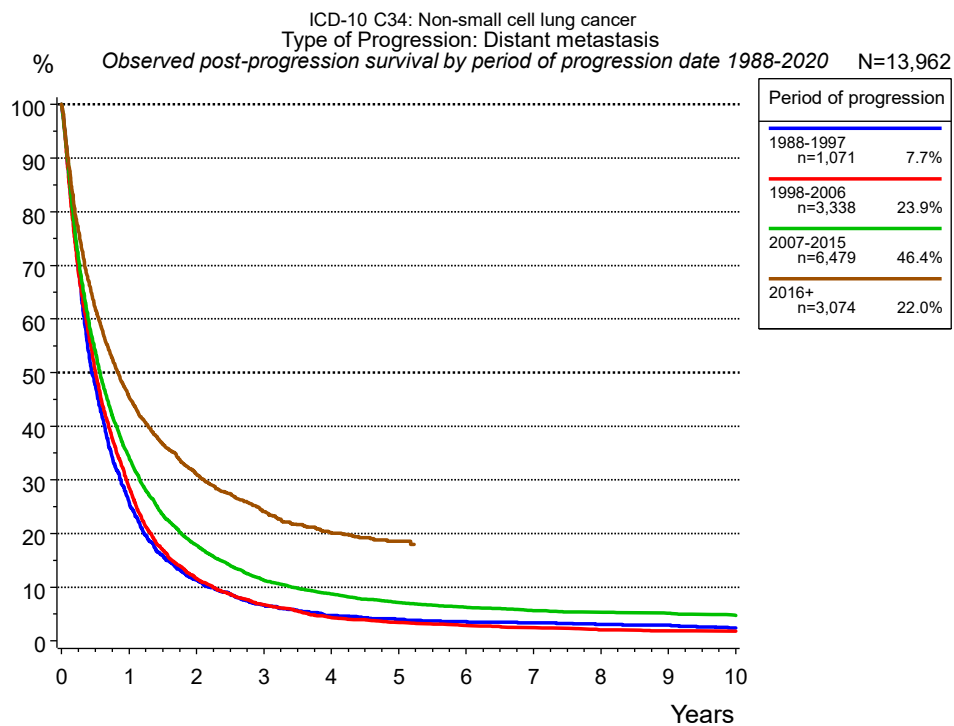


**Figure 5c.** Observed post-progression survival of 14,484 patients with non-small cell LC diagnosed between 1998 and 2020. These 14,484 patients with documented progression events during their course of disease represent 64.0 % of the totally 22,645 evaluated cases (incl. M1, n=10,255, 45.3 %). Patients with cancer relapse documented via death certificates only were excluded (n=4,041, 17.8 %). 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 “Any type” 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.

Years	Type of progression			
	Any type n=14,484 %	Distant metastasis n=12,796 %	Locoregional relapse n=1,814 %	NOS n=1,712 %
0	100.0	100.0	100.0	100.0
1	39.1	35.3	47.6	58.6
2	22.4	19.0	29.0	41.4
3	15.4	12.6	20.3	32.0
4	12.1	9.7	15.4	26.4
5	10.2	8.0	12.5	22.6
6	8.7	6.9	10.9	19.6
7	7.7	6.2	9.6	16.5
8	7.0	5.7	8.7	15.0
9	6.7	5.4	8.1	14.5
10	6.1	5.1	7.6	12.5

**Table 5d.** Observed post-progression survival of patients with non-small cell LC for period 1998-2020 (N=14,484).



**Figure 5e.** Observed post-progression (distant metastasis) survival of 13,962 patients with non-small cell LC diagnosed between 1988 and 2020 by period of progression.

Years	Period of progression			
	1988-1997 n=1,071 %	1998-2006 n=3,338 %	2007-2015 n=6,479 %	2016+ n=3,074 %
0	100.0	100.0	100.0	100.0
1	25.8	28.5	34.1	45.5
2	11.4	11.6	17.7	31.0
3	6.7	6.7	11.3	24.1
4	4.7	4.3	8.7	20.2
5	4.0	3.4	7.1	18.6
6	3.6	2.8	6.2	
7	3.4	2.5	5.6	
8	3.0	2.1	5.3	
9	2.9	1.9	5.1	
10	2.4	1.8	4.7	

**Table 5f.** Observed post-progression (distant metastasis) survival of patients with non-small cell LC for period 1988-2020 by period of progression (N=13,962).

## Shortcuts

MCR Munich Cancer Registry, Germany

NCI National Cancer Institute, USA

SEER Surveillance, Epidemiology, and End Results, USA

UICC Union for International Cancer Control, Geneva

DCO Death certificate only Death certificate provides the only notification to the registry.

NA Not available

NOS Not otherwise specified

OS Overall/Observed survival Overall/Observed survival (Kaplan-Meier estimate)

Date of entry: diagnosis

Event: death from any cause

RS Relative survival

Survival compared to “general population”, ratio of observed to expected survival (Ederer II method), reflecting cancer specific survival

AS Assembled survival

Assembled chart of observed, expected, relative survival

CS Conditional survival

Survival probability under the condition of surviving a given period of time

TTP Time to progression

Time to first progression / relapse

Date of entry: diagnosis

Event: (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression

1-KM

1 minus Kaplan-Meier estimator (“inverse” Kaplan-Meier estimator)

CI

Cumulative incidence

Death as competing risk (according to Kalbfleisch und Prentice)

PPS Post-progression survival

Survival since first progression / relapse (Kaplan-Meier estimate)

Date of entry (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression

Event: death from any cause

## Recommended Citation

Munich Cancer Registry. Survival ICD-10 C34: Non-small cell LC [Internet]. 2022 [updated 2022 Apr 15; cited 2022 Jun 1]. Available from: [https://www.tumorregister-muenchen.de/en/facts/surv/sC34N\\_E-ICD-10-C34-Non-small-cell-LC-survival.pdf](https://www.tumorregister-muenchen.de/en/facts/surv/sC34N_E-ICD-10-C34-Non-small-cell-LC-survival.pdf)

## Copyright

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

## Disclaimer

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.