Munich Cancer Registry

- Incidence and Mortality
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- *Deutsch*

ICD-10 C82-C85: NHL

Survival

Year of diagnosis	1988-1997	1998-2016
Patients	1,600	9,952
Diseases	1,607	10,039
Cases evaluated	1,418	7,324

Creation date	08/22/2018
Export date	08/09/2018
Population	4.81 m

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

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

Index of figures and tables

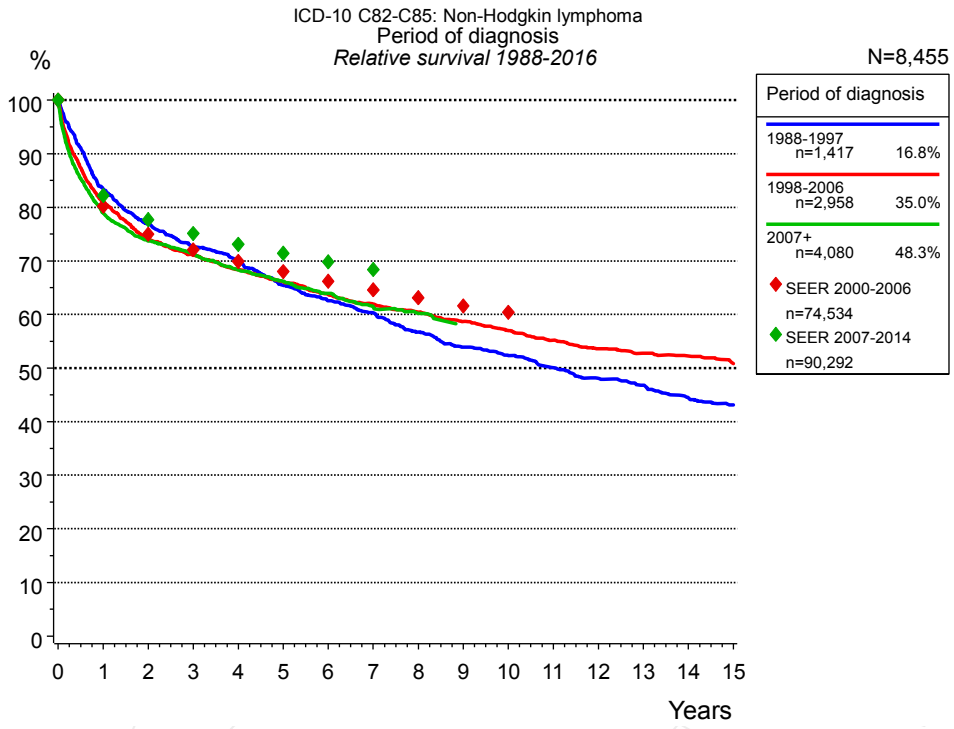

Figure 1a. Relative survival of patients with nHL by period of diagnosis. Included in the evaluation are 8,455 cases diagnosed between 1988 and 2016.

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 2014, 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.

	Period of diagnosis					
	1988-1997 n=1,417		1998-2006 n=2,958		2007+ n=4,080	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	81.2	83.3	78.8	80.9	76.7	78.9
2	73.4	76.9	70.6	74.0	69.9	73.7
3	67.9	72.7	66.4	71.1	66.3	71.4
4	64.1	69.9	62.5	68.4	61.9	68.3
5	58.6	65.4	59.3	66.1	58.7	66.2
6	54.9	62.5	56.0	63.7	55.5	63.9
7	51.9	60.3	53.4	61.9	52.1	61.4
8	47.9	56.7	51.1	60.5	49.9	60.2
9	44.6	53.9	48.6	58.7		
10	42.5	52.3	46.2	57.0		
11	39.9	50.1	43.9	55.2		
12	37.6	48.1	41.8	53.6		
13	35.9	46.8	40.3	52.8		
14	33.5	44.5	39.1	52.3		
15	31.9	43.1	37.3	50.8		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with nHL by period of diagnosis for period 1988-2016 (N=8,455).

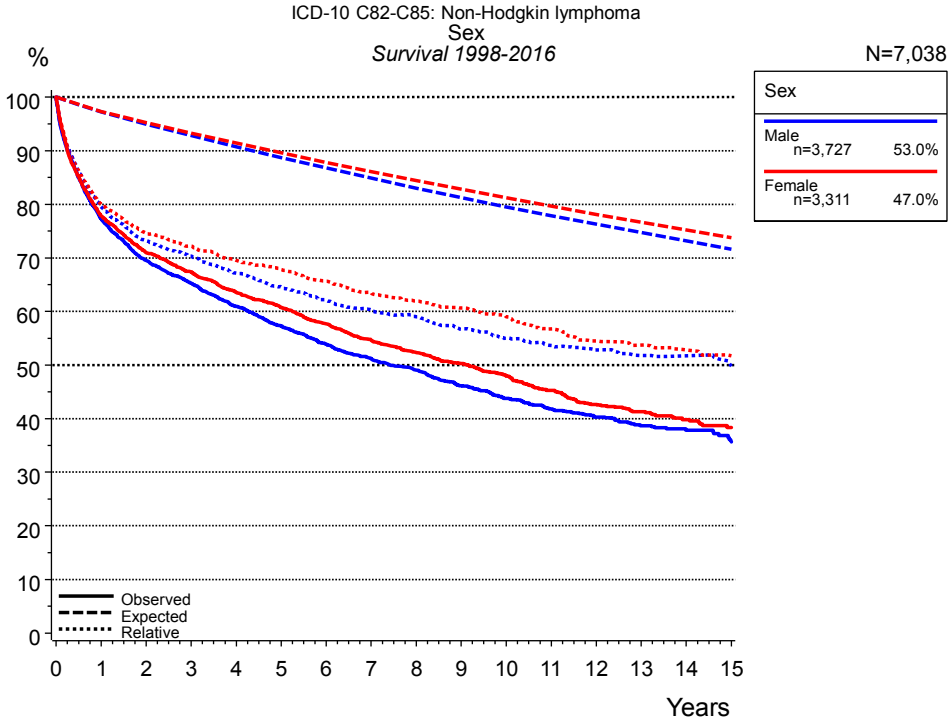

Figure 2a. Survival of patients with nHL by sex. Included in the evaluation are 7,038 cases diagnosed between 1998 and 2016.

	Sex			
	Male n=3,727		Female n=3,311	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.3	79.5	77.9	80.0
2	69.5	73.2	70.9	74.5
3	65.3	70.3	67.4	72.2
4	60.9	67.1	63.6	69.5
5	57.3	64.6	60.8	67.8
6	53.9	62.1	57.6	65.7
7	51.2	60.2	54.7	63.4
8	49.0	59.0	52.3	61.9
9	46.1	56.7	50.3	60.7
10	43.8	55.0	47.9	59.0
11	41.8	53.6	45.2	56.7
12	40.3	52.8	42.7	54.5
13	38.7	51.8	41.3	53.7
14	37.8	51.7	39.8	52.8
15	35.7	49.8	38.3	51.7

Table 2b. Observed (obs.) and relative (rel.) survival of patients with nHL by sex for period 1998-2016 (N=7,038).

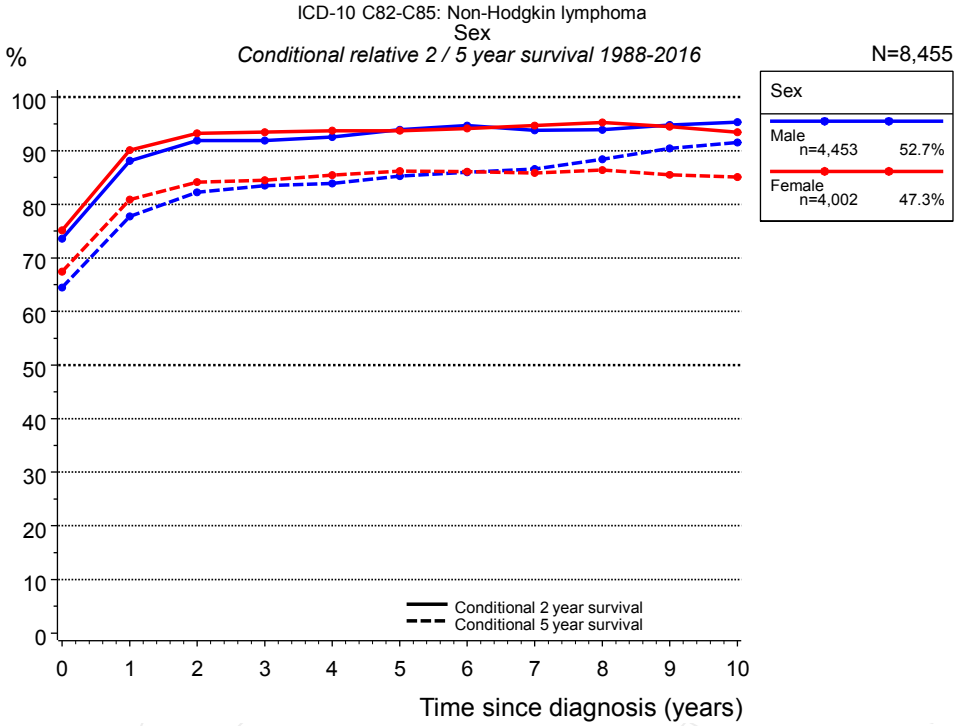

Figure 2c. Conditional relative 2 / 5-year survival of patients with nHL by sex. For 8,455 of 8,455 cases diagnosed between 1988 and 2016 valid data could be obtained for this item.

	Sex					
	Male			Female		
		Cond. surv. %			Cond. surv. %	
Years	n	2 yrs	5 yrs	n	2 yrs	5 yrs
0	4,453	73.6	64.5	4,002	75.1	67.4
1	3,288	88.1	77.7	2,987	90.1	80.9
2	2,767	91.9	82.2	2,602	93.3	84.1
3	2,428	91.9	83.5	2,301	93.4	84.5
4	2,110	92.5	83.9	2,038	93.7	85.5
5	1,819	93.9	85.3	1,802	93.7	86.2
6	1,584	94.7	86.0	1,548	94.1	86.1
7	1,341	93.8	86.6	1,331	94.7	85.8
8	1,133	93.9	88.4	1,134	95.3	86.4
9	940	94.8	90.4	971	94.5	85.5
10	788	95.3	91.5	844	93.5	85.1

Table 2d. Conditional relative 2 / 5-year survival of patients with nHL by sex for period 1988-2016 (N=8,455).

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 sex="Male", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 91.9% (n=2,428).

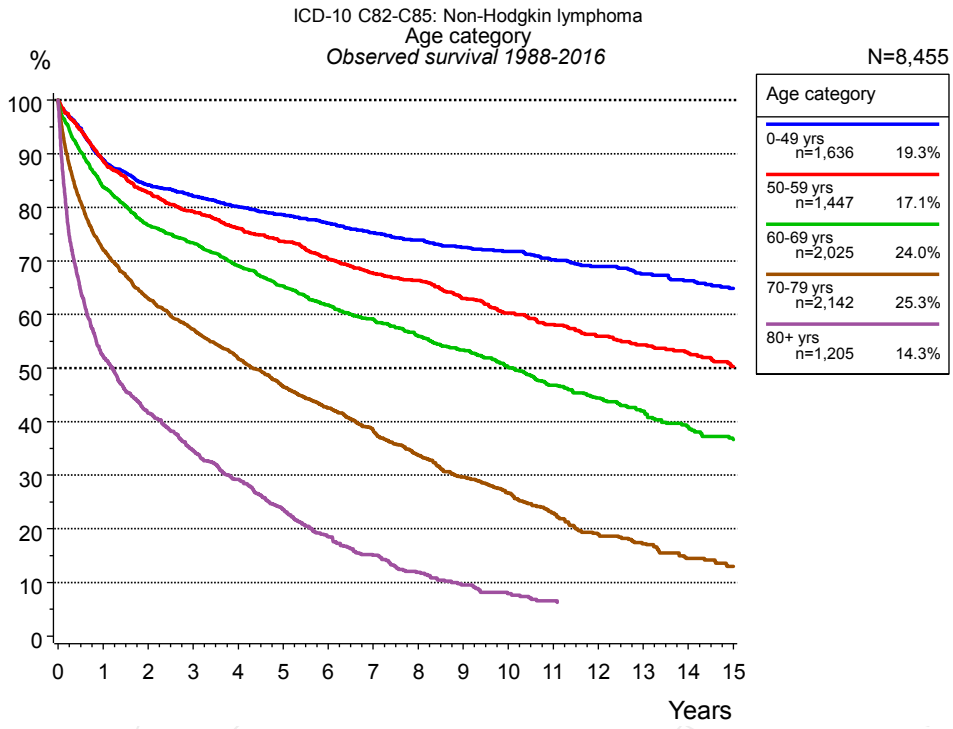

Figure 3a. Observed survival of patients with nHL by age category. Included in the evaluation are 8,455 cases diagnosed between 1988 and 2016.

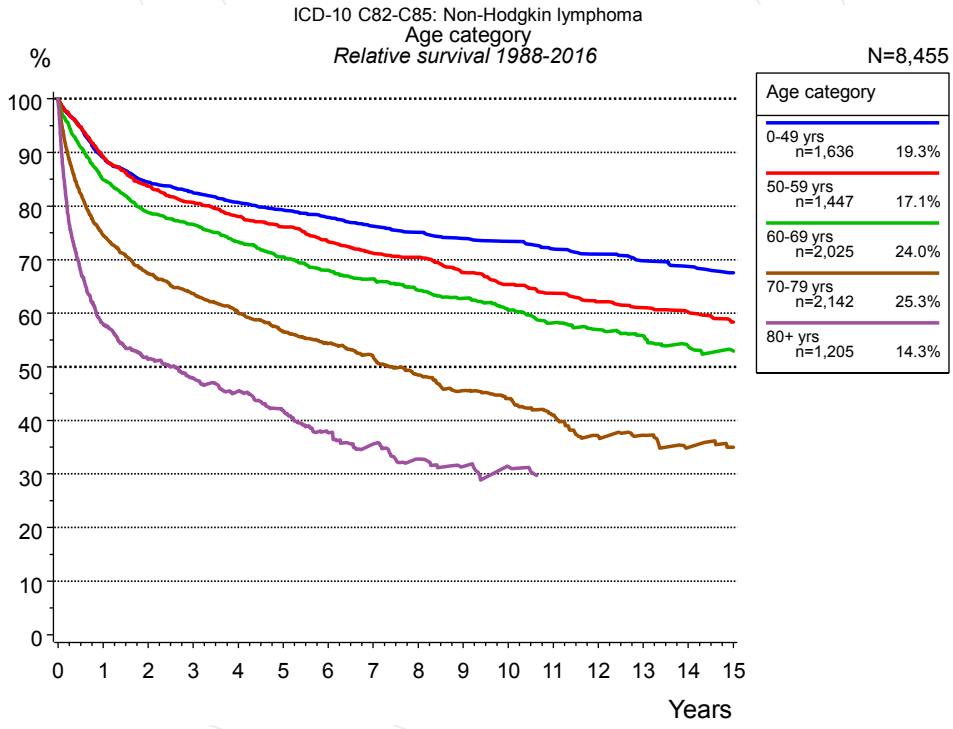

Figure 3b. Relative survival of patients with nHL by age category. Included in the evaluation are 8,455 cases diagnosed between 1988 and 2016.

	Age category									
	0-49 yrs n=1,636		50-59 yrs n=1,447		60-69 yrs n=2,025		70-79 yrs n=2,142		80+ yrs n=1,205	
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	89.0	89.0	88.7	89.2	83.8	84.9	72.2	74.6	52.2	58.0
2	84.2	84.4	82.7	83.7	76.6	78.8	63.0	67.4	41.6	51.4
3	82.1	82.5	79.2	80.7	73.4	76.6	57.3	63.7	34.7	47.9
4	80.1	80.6	76.1	78.1	69.1	73.3	51.8	60.1	29.2	45.4
5	78.6	79.3	73.6	76.1	65.3	70.5	46.5	56.5	23.6	41.8
6	77.0	77.9	70.3	73.3	61.8	68.0	42.5	54.4	18.6	37.7
7	75.2	76.2	67.7	71.2	59.1	66.4	38.4	51.8	15.1	35.6
8	73.9	75.1	66.4	70.4	56.0	64.3	33.7	48.5	11.9	32.8
9	72.5	73.9	63.0	67.6	53.4	62.8	29.7	45.5	9.5	31.4
10	71.8	73.4	60.3	65.4	50.1	60.6	26.7	44.1	7.9	31.4
11	70.2	72.0	58.1	63.7	46.8	58.2	23.0	41.0	6.6	31.0
12	69.0	71.0	55.9	62.1	44.4	57.0	19.0	37.1		
13	67.5	69.8	54.3	61.1	42.0	55.8	17.3	37.2		
14	66.3	68.7	52.7	60.2	38.9	53.9	14.5	35.0		
15	64.8	67.6	50.3	58.4	36.7	52.9	13.0	35.0		

Table 3c. Observed (obs.) and relative (rel.) survival of patients with nHL by age category for period 1988-2016 (N=8,455).

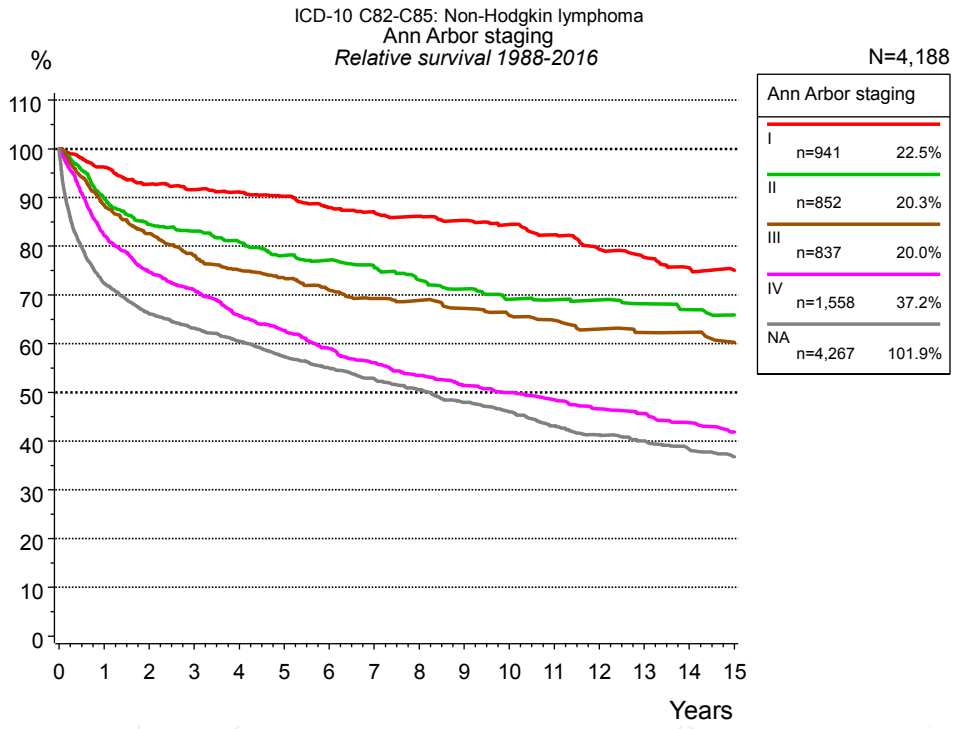

Figure 4a. Relative survival of patients with nHL by Ann Arbor staging. For 4,193 of 8,455 cases diagnosed between 1988 and 2016 valid data could be obtained for this item. For a total of 4,188 cases an evaluable classification was established. The grey line represents the subgroup of 4,267 patients with missing values regarding Ann Arbor staging (50.5 % of 8,455 patients, the percent values of all other categories are related to n=4,188).

	Ann Arbor staging									
	I n=941		II n=852		III n=837		IV n=1,558		NA n=4,267	
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	94.2	96.2	87.8	89.7	86.5	88.4	80.6	82.2	70.1	72.5
2	88.9	92.8	81.1	84.5	79.4	82.6	71.9	74.7	62.3	66.2
3	86.1	91.6	78.4	83.1	73.7	78.1	67.3	71.0	58.0	63.2
4	84.1	91.2	74.9	80.9	69.5	75.1	61.1	65.7	54.2	60.5
5	81.6	90.2	70.9	78.1	66.7	73.5	57.3	62.8	50.1	57.3
6	77.9	87.9	68.8	77.2	63.2	71.0	53.0	59.1	46.9	55.0
7	75.5	86.9	66.2	75.7	60.6	69.3	49.5	56.1	44.0	52.8
8	73.3	86.2	62.7	73.1	59.1	68.9	46.3	53.5	41.2	50.6
9	71.2	85.3	60.2	71.2	56.7	67.2	43.8	51.4	38.2	47.9
10	69.1	84.5	57.4	69.1	54.3	65.8	41.8	50.0	35.8	46.0
11	66.1	82.4	56.5	69.0	52.6	64.8	40.0	48.5	32.9	43.1
12	62.3	79.4	55.8	69.0	50.2	63.0	37.7	46.6	30.8	41.3
13	59.7	77.7	54.3	68.2	48.7	62.3	36.4	45.7	29.3	40.1
14	57.2	75.6	52.5	67.0	48.1	62.3	34.1	43.8	27.4	38.3
15	55.7	75.1	51.1	65.9	46.0	60.3	31.9	41.9	25.8	36.8

Table 4b. Observed (obs.) and relative (rel.) survival of patients with nHL by Ann Arbor staging for period 1988-2016 (N=4,188).

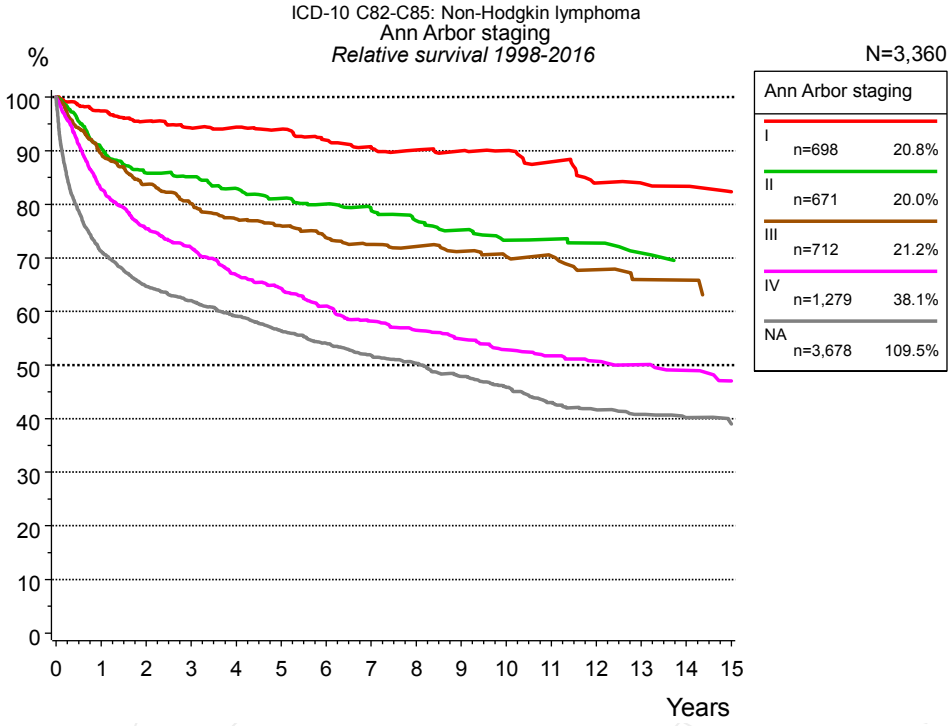

Figure 4c. Relative survival of patients with nHL by Ann Arbor staging. For 3,364 of 7,038 cases diagnosed between 1998 and 2016 valid data could be obtained for this item. For a total of 3,360 cases an evaluable classification was established. The grey line represents the subgroup of 3,678 patients with missing values regarding Ann Arbor staging (52.3 % of 7,038 patients, the percent values of all other categories are related to n=3,360).

	Ann Arbor staging									
	I n=698		II n=671		III n=712		IV n=1,279		NA n=3,678	
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	95.4	97.4	88.6	90.5	87.5	89.5	81.1	82.8	68.9	71.3
2	91.7	95.5	82.5	85.8	80.3	83.7	72.5	75.4	60.9	64.7
3	88.8	94.3	80.4	85.2	75.3	80.1	68.0	71.9	57.0	62.0
4	87.4	94.4	76.8	82.9	71.2	77.3	61.9	66.8	53.0	59.1
5	85.5	94.0	73.7	81.1	68.6	76.0	58.5	64.3	49.3	56.4
6	82.0	92.0	71.5	80.1	65.2	73.8	54.6	61.0	46.2	54.1
7	79.3	90.5	69.1	79.0	62.9	72.5	51.2	58.2	43.3	51.9
8	77.4	90.1	66.1	77.0	61.2	72.1	48.7	56.5	41.0	50.3
9	75.9	90.0	63.8	75.3	59.2	71.2	46.5	54.9	38.2	47.9
10	74.4	90.0	60.9	73.3	57.0	70.2	44.0	52.9	35.7	45.9
11	71.2	87.9	60.4	73.5	56.0	70.4	42.3	51.7	32.8	43.0
12	66.4	84.0	59.1	72.8	52.9	67.8	40.8	50.7	31.2	41.7
13	65.0	84.0	56.7	70.9	50.1	65.9	39.7	50.1	30.0	40.8
14	64.2	83.4			50.1	65.8	38.1	49.0	28.9	40.2
15	61.4	82.3					35.5	47.0	27.5	39.0

Table 4d. Observed (obs.) and relative (rel.) survival of patients with nHL by Ann Arbor staging for period 1998-2016 (N=3,360).

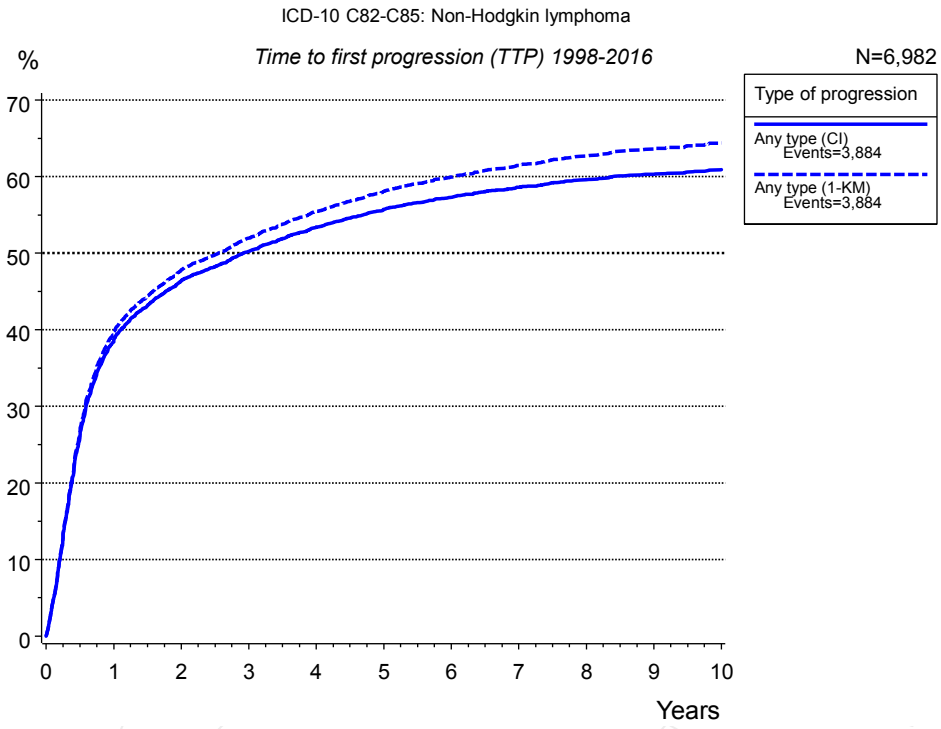

Figure 5a. Time to first progression of 6,982 patients with nHL diagnosed between 1998 and 2016 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression	
	Any type (CI) n=6,982	Any type (1-KM) n=6,982
Years	%	%
0	0.0	0.0
1	38.6	39.6
2	46.4	47.8
3	50.3	52.0
4	53.4	55.4
5	55.7	58.1
6	57.3	60.0
7	58.6	61.5
8	59.6	62.7
9	60.3	63.6
10	60.9	64.4

Table 5b. Time to first progression of patients with nHL for period 1998-2016 (N=6,982).

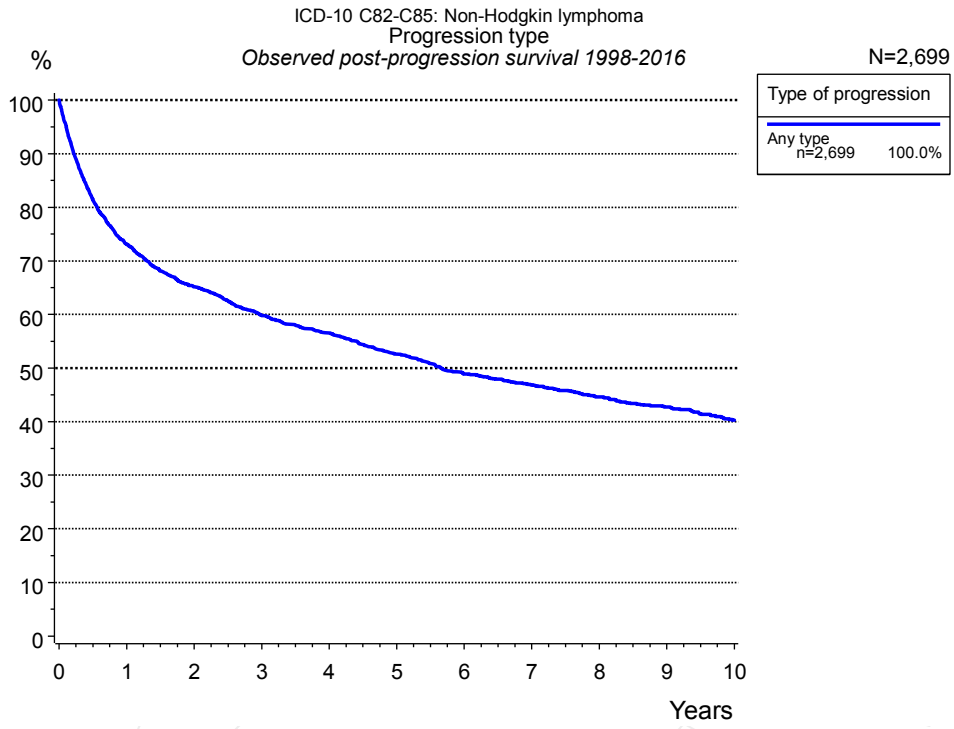

Figure 5c. Observed post-progression survival of 2,699 patients with nHL diagnosed between 1998 and 2016. These 2,699 patients with documented progression events during their course of disease represent 38.6 % of the totally 6,987 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=1,190, 17.0 %).

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 potientially considered in more than one subgroup.

Type of progression	
	Any type n=2,699
Years	%
0	100.0
1	73.1
2	65.2
3	59.8
4	56.5
5	52.5
6	48.9
7	46.9
8	44.6
9	42.7
10	40.3

Table 5d. Observed post-progression survival of patients with nHL for period 1998-2016 (N=2,699).

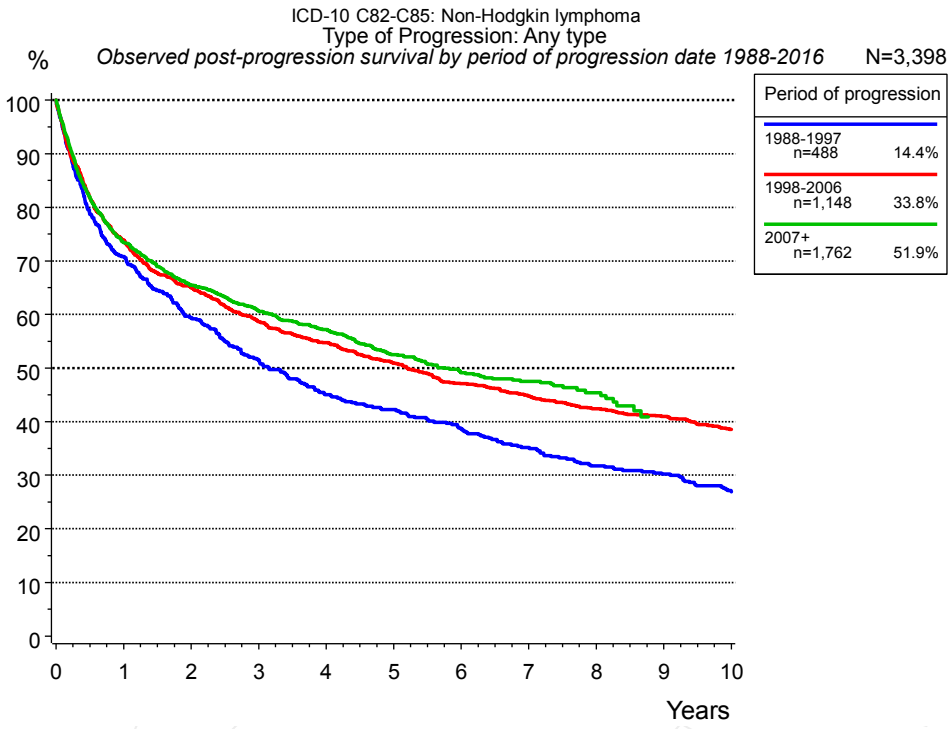

Figure 5e. Observed post-progression (any type) survival of 3,398 patients with nHL diagnosed between 1988 and 2016 by period of progression.

	Period of progression		
	1988-1997 n=488	1998-2006 n=1,148	2007+ n=1,762
Years	%	%	%
0	100.0	100.0	100.0
1	70.8	73.8	73.3
2	59.4	65.0	65.5
3	51.6	58.7	60.7
4	45.0	54.7	57.2
5	42.2	50.9	52.5
6	38.6	47.1	49.1
7	35.2	44.8	47.5
8	31.7	42.4	45.4
9	30.2	41.0	
10	26.9	38.6	

Table 5f. Observed post-progression (any type) survival of patients with nHL for period 1988-2016 by period of progression (N=3,398).

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

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