Munich Cancer Registry

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

ICD-10 C32: Larynx cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	826	3,020
Diseases	826	3,032
Cases evaluated	756	2,239

Creation date	04/15/2022
Database export	12/20/2021
Population	4.92 m

Munich Cancer Registry
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Marchioninistr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/surv/sC32__E-ICD-10-C32-Larynx-cancer-survival.pdf

Index of figures and tables

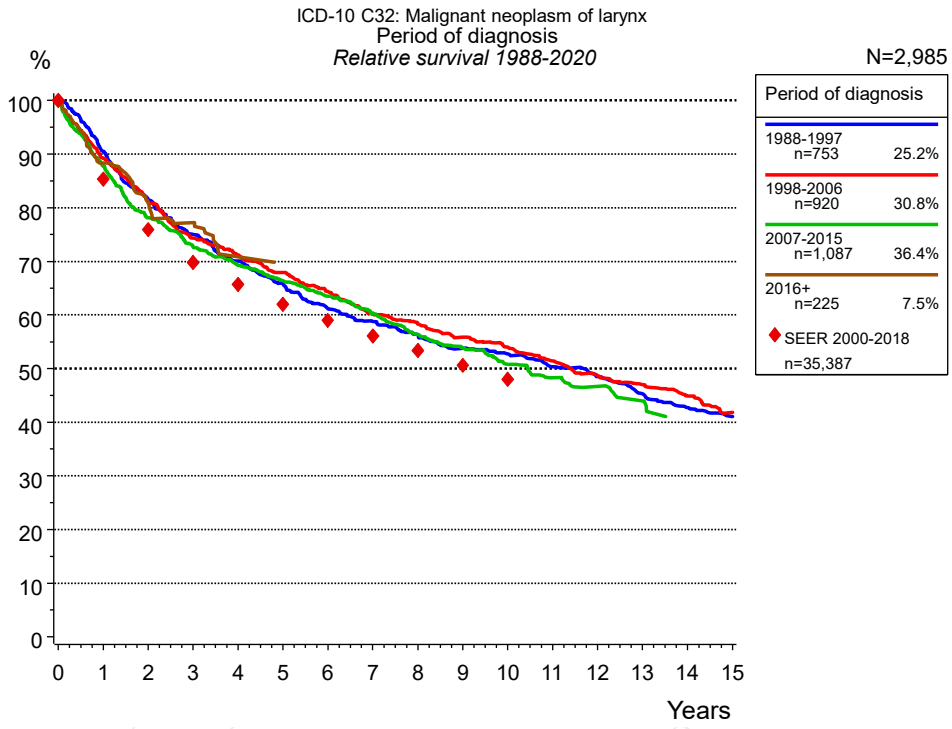

Figure 1a. Relative survival of patients with larynx cancer by period of diagnosis. Included in the evaluation are 2,985 cases diagnosed between 1988 and 2020.

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.

	Period of diagnosis							
	1988-1997 n=753		1998-2006 n=920		2007-2015 n=1,087		2016+ n=225	
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	88.4	90.5	87.5	89.2	85.9	87.8	86.5	88.3
2	77.7	81.5	77.9	81.1	74.8	78.1	77.5	80.9
3	69.9	75.0	70.0	74.3	68.0	72.6	72.6	77.2
4	63.7	70.0	65.5	71.2	63.4	69.3	64.6	70.9
5	58.5	65.9	61.1	67.9	59.3	66.4		
6	52.9	61.2	56.6	64.4	55.3	63.5		
7	49.5	58.8	51.9	60.3	51.2	60.2		
8	46.4	56.3	48.9	58.3	46.7	56.3		
9	43.2	53.8	45.7	55.9	43.4	53.8		
10	41.4	52.7	43.1	54.0	39.8	50.8		
11	38.5	50.3	40.0	51.4	36.7	48.3		
12	36.1	48.5	37.0	48.7	34.5	46.7		
13	32.9	45.3	34.7	47.0	31.8	44.0		
14	30.2	42.7	32.3	44.9				
15	28.3	41.1	29.2	41.8				
Median	6.8		7.6		7.3			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with larynx cancer by period of diagnosis for period 1988-2020 (N=2,985).

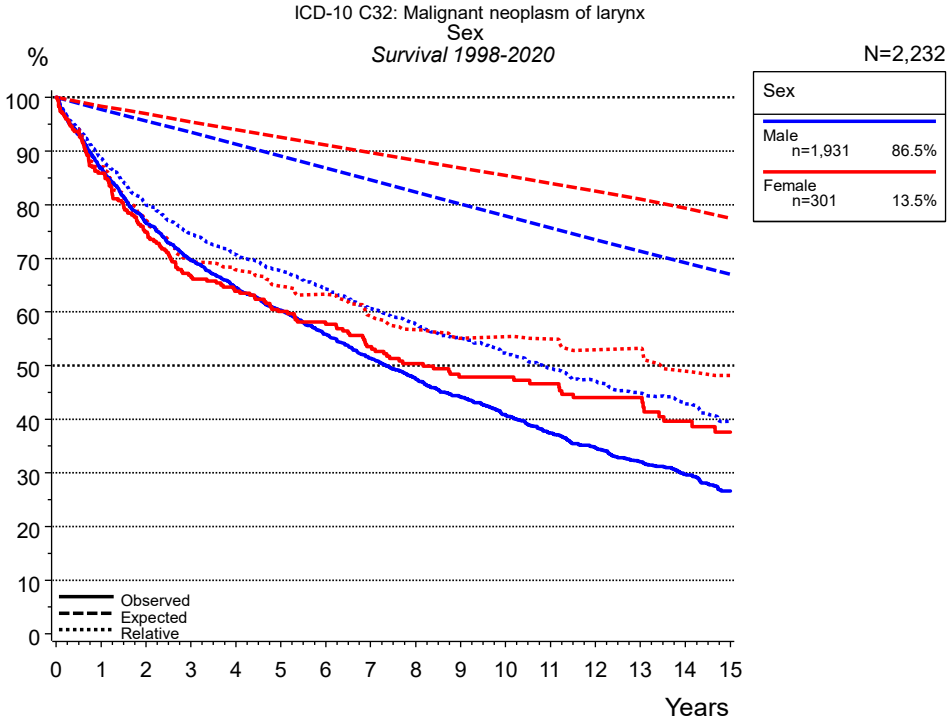

Figure 2a. Survival of patients with larynx cancer by sex. Included in the evaluation are 2,232 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=1,931		Female n=301	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	86.7	88.6	85.9	87.1
2	76.6	80.0	74.9	77.1
3	69.6	74.5	66.5	69.6
4	64.5	70.7	63.9	67.8
5	60.3	67.7	60.1	64.8
6	55.8	64.3	57.7	63.3
7	51.4	60.6	53.5	59.2
8	47.5	57.7	50.4	56.7
9	44.2	55.1	47.9	55.1
10	40.8	52.3	47.9	55.4
11	37.4	49.4	46.6	55.0
12	34.7	47.1	44.0	53.0
13	32.0	44.9	44.0	53.3
14	29.7	42.9	39.6	49.0
15	26.7	39.6	37.6	48.1
Median	7.3		8.2	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with larynx cancer by sex for period 1998-2020 (N=2,232).

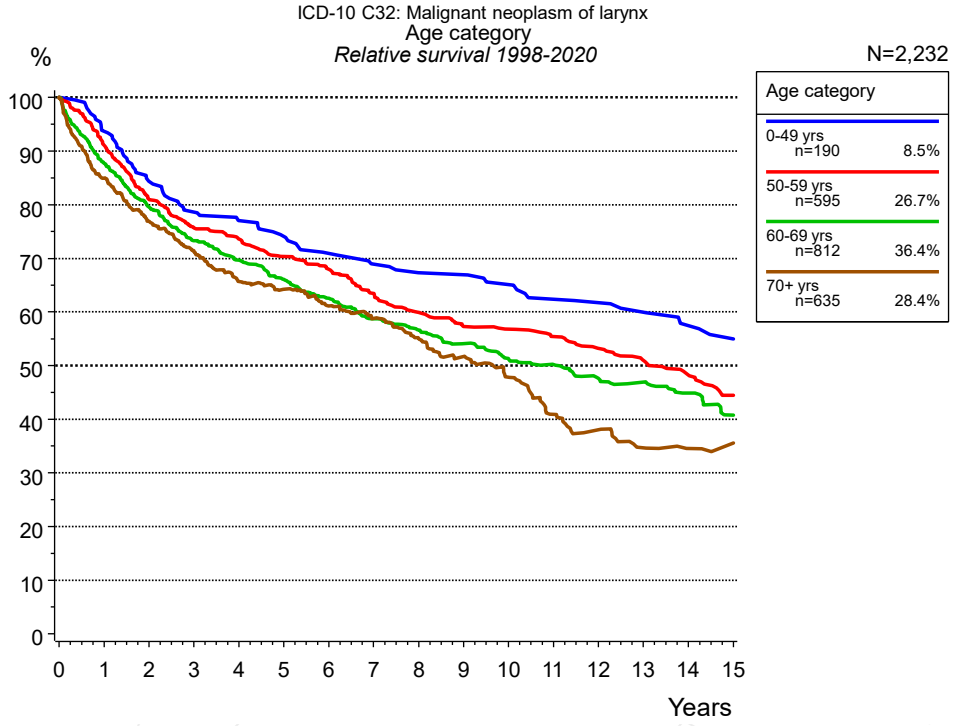

Figure 3a. Relative survival of patients with larynx cancer by age category. Included in the evaluation are 2,232 cases diagnosed between 1998 and 2020.

	Age category							
	0-49 yrs n=190		50-59 yrs n=595		60-69 yrs n=812		70+ yrs n=635	
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	93.6	93.6	90.6	91.1	86.4	87.7	80.9	84.9
2	83.9	84.3	80.0	81.0	77.2	79.6	69.6	76.9
3	78.4	78.6	74.0	75.6	69.8	73.3	61.1	71.3
4	76.2	77.0	71.4	73.6	65.2	69.7	53.2	65.7
5	73.3	74.1	67.7	70.4	60.6	66.1	48.8	64.2
6	69.8	70.9	64.7	67.9	56.2	62.6	43.5	61.2
7	67.4	68.9	59.9	63.4	51.5	58.7	39.1	58.8
8	65.5	67.3	55.8	59.9	48.5	56.7	34.1	55.0
9	65.5	66.9	52.7	57.3	45.0	54.1	29.7	51.7
10	63.3	65.1	51.6	56.8	41.4	51.3	25.4	47.8
11	60.2	62.4	49.7	55.5	39.2	50.2	19.9	40.9
12	59.3	61.8	46.9	53.2	36.2	47.6	17.0	38.0
13	57.5	59.9	44.3	51.0	34.3	46.9	14.1	34.7
14	54.4	57.5	41.3	48.3	31.5	44.9	12.5	34.6
15	52.2	55.0	37.3	44.5	27.5	40.7	11.5	35.6
Median	15.2		10.9		7.5		4.8	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with larynx cancer by age category for period 1998-2020 (N=2,232).

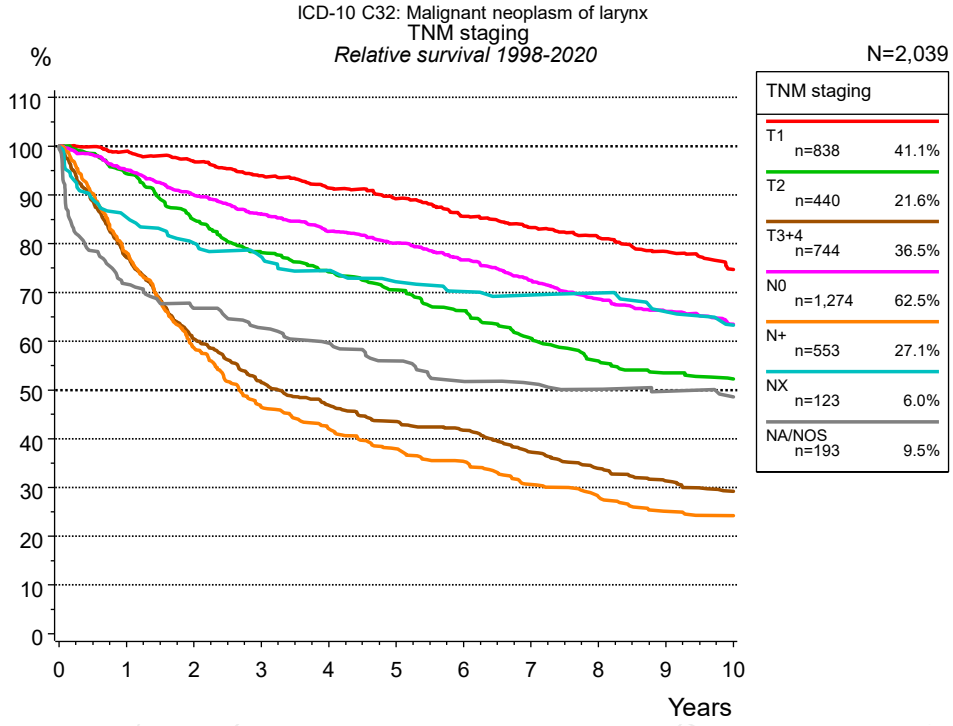

Figure 4a. Relative survival of patients with larynx cancer by TNM staging. For 2,049 of 2,232 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 2,039 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 193 patients with missing values regarding TNM staging (8.6 % of 2,232 patients, the percent values of all other categories are related to n=2,039).

	TNM staging													
	T1 n=838		T2 n=440		T3+4 n=744		N0 n=1,274		N+ n=553		NX n=123		NA/NOS n=193	
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	96.8	99.0	92.6	94.4	75.8	77.2	93.1	95.1	77.0	78.2	83.4	85.4	70.1	71.7
2	92.5	96.9	82.1	84.9	58.2	60.5	86.1	90.0	56.8	58.6	76.6	80.1	63.5	66.7
3	87.6	93.9	73.7	78.2	48.6	51.5	80.5	86.1	44.1	46.4	72.3	77.3	58.4	62.8
4	83.1	91.4	68.6	74.2	43.5	46.9	75.4	82.5	39.3	42.1	67.9	74.5	54.3	59.5
5	79.0	89.2	64.0	70.5	39.7	43.5	71.5	80.1	34.9	37.9	63.3	72.2	49.6	55.9
6	73.8	85.6	59.0	66.3	37.2	41.8	66.8	76.7	31.8	35.3	60.5	70.2	44.8	51.8
7	70.0	83.3	52.9	60.6	32.6	37.2	61.6	72.5	27.0	30.6	58.5	69.5	43.0	51.3
8	66.3	81.3	47.9	55.9	29.0	33.9	56.9	68.7	24.4	28.1	57.4	69.9	41.1	50.2
9	62.3	78.4	44.5	53.5	26.3	31.4	53.5	66.2	21.2	25.1	52.6	66.0	39.0	49.7
10	57.5	74.7	42.7	52.2	24.2	29.2	49.9	63.5	20.3	24.2	48.6	63.3	37.5	48.5
Median	12.3		7.7		2.9		10.0		2.5		9.7		4.7	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with larynx cancer by TNM staging for period 1998-2020 (N=2,039).

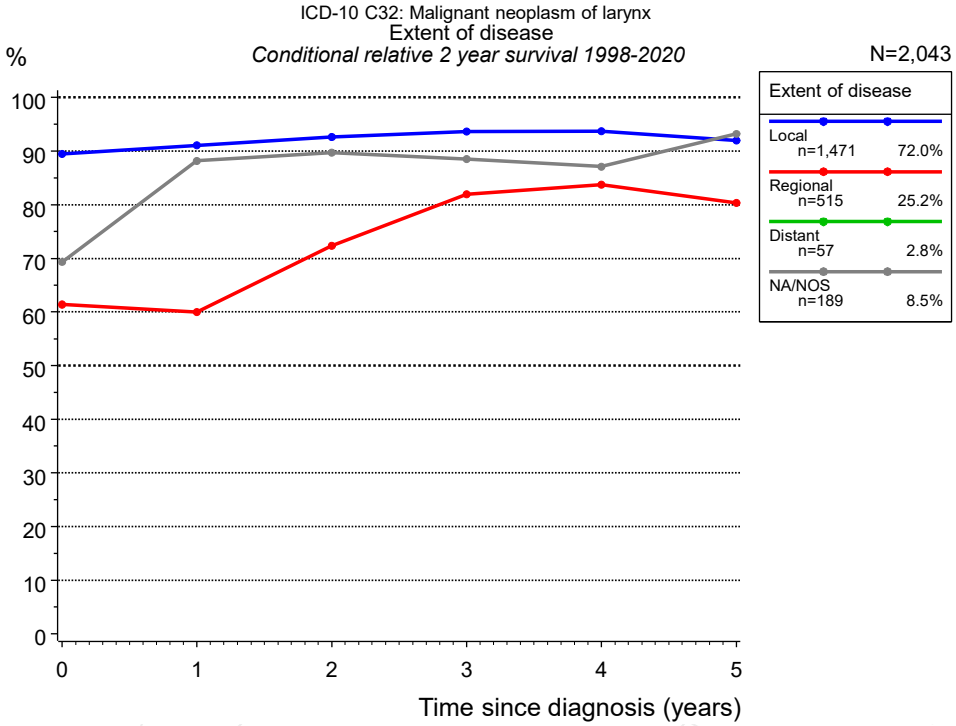

Figure 4c. Conditional relative 2-year survival of patients with larynx cancer by extent of disease. For 2,049 of 2,232 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 2,043 cases an evaluable classification was established. The grey line represents the subgroup of 189 patients with missing values regarding extent of disease (8.5 % of 2,232 patients, the percent values of all other categories are related to n=2,043).

	Extent of disease							
	Local		Regional		Distant		NA/NOS	
Years	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	1,471	89.5	515	61.4	57		189	69.3
1	1,327	91.1	405	60.0			129	88.2
2	1,205	92.6	297	72.4			117	89.7
3	1,107	93.6	226	81.9			104	88.5
4	1,003	93.7	194	83.7			94	87.1
5	911	91.9	169	80.3			84	93.2

Table 4d. Conditional relative 2-year survival of patients with larynx cancer by extent of disease for period 1998-2020 (N=2,043).

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 extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 93.6% (n=1,107).

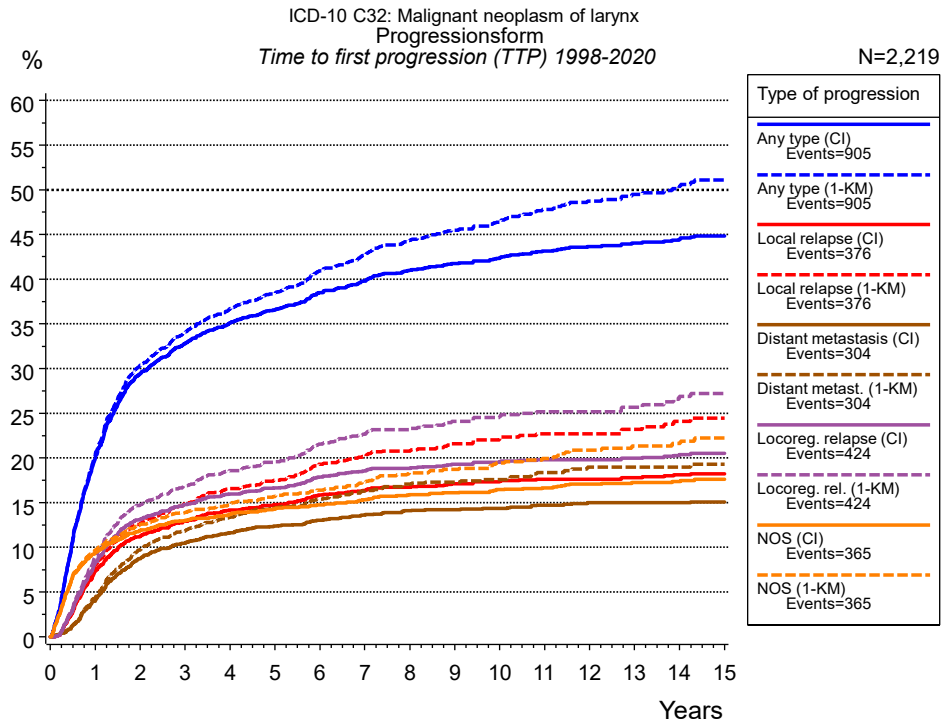

Figure 5a. Time to first progression of 2,219 patients with larynx cancer diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)
N	2,164	2,164	2,219	2,219	2,164	2,164	2,219
Events	895	895	373	373	302	302	420
compet.	558		1,063		989		1,028
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	19.9	20.3	7.3	7.9	4.0	4.3	8.2
2	29.4	30.3	11.2	12.6	8.7	9.7	13.1
3	32.8	34.1	12.9	14.9	10.5	11.8	14.8
4	35.1	36.7	14.2	16.6	11.7	13.4	16.0
5	36.5	38.4	14.8	17.5	12.4	14.4	16.7
6	38.5	40.9	15.9	19.3	13.0	15.4	17.9
7	39.8	42.7	16.4	20.2	13.6	16.3	18.5
8	41.0	44.4	16.7	20.8	14.1	17.1	18.8
9	41.7	45.5	17.1	21.6	14.2	17.3	19.3
10	42.4	46.5	17.4	22.2	14.4	17.6	19.6
11	43.2	47.8	17.6	22.7	14.7	18.4	19.8
12	43.7	48.7	17.6	22.7	15.0	19.0	19.8
13	44.0	49.5	17.8	23.2	15.0	19.0	20.0
14	44.5	50.4	18.1	24.1	15.0	19.0	20.4
15	44.8	51.1	18.2	24.4	15.1	19.3	20.5

	Type of progression		
cont'd	Locoreg. rel. (1-KM)	NOS (CI)	NOS (1-KM)
N	2,219	2,219	2,219
Events	420	359	359
compet.		999	
Years	%	%	%
0	0.0	0.0	0.0
1	8.9	9.4	9.7
2	14.7	11.9	12.5
3	16.9	13.0	13.9
4	18.6	13.7	14.9
5	19.6	14.3	15.7
6	21.5	14.7	16.4
7	22.7	15.3	17.3
8	23.2	15.9	18.3
9	24.1	16.1	18.7
10	24.7	16.4	19.4
11	25.2	16.7	19.9
12	25.2	17.1	20.9
13	25.7	17.3	21.3
14	26.9	17.4	21.6
15	27.2	17.6	22.2

Table 5b. Time to first progression of patients with larynx cancer for period 1998-2020 (N=2,219), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

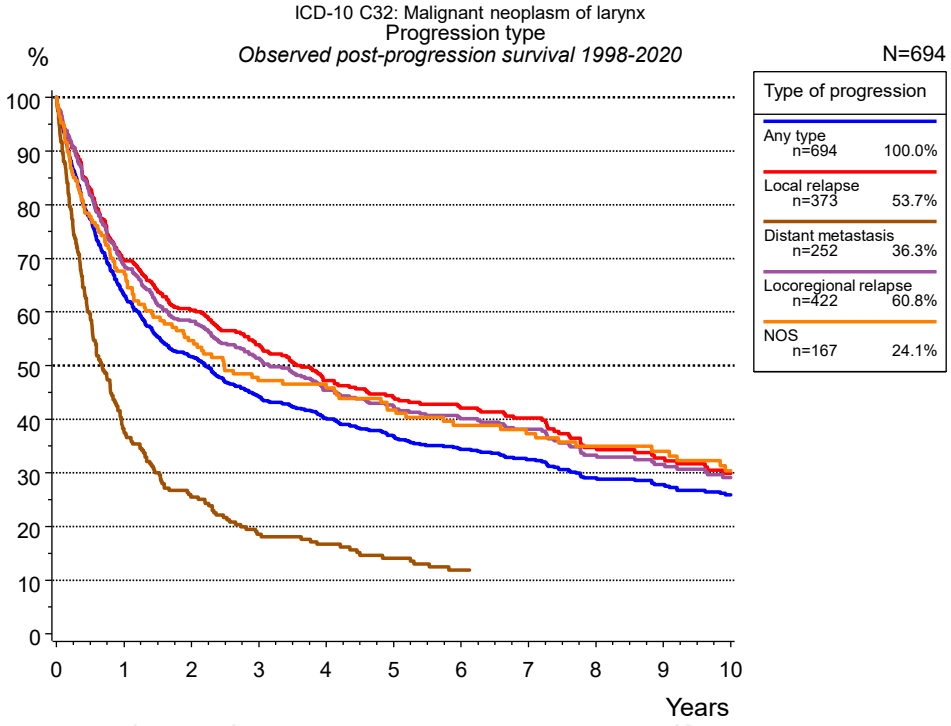

Figure 5c. Observed post-progression survival of 694 patients with larynx cancer diagnosed between 1998 and 2020. These 694 patients with documented progression events during their course of disease represent 31.3 % of the totally 2,219 evaluated cases (incl. M1, n=55, 2.5 %). Patients with cancer relapse documented via death certificates only were excluded (n=266, 12.0 %). 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 “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	Local relapse	Distant metastasis	Locoregional relapse	NOS
	n=694	n=373	n=252	n=422	n=167
Years	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
1	63.3	69.8	37.9	68.8	67.6
2	51.6	60.3	25.5	58.2	54.7
3	44.3	53.9	18.6	51.3	47.2
4	40.1	47.2	16.7	45.5	45.9
5	36.9	44.1	14.1	42.4	41.8
6	34.4	42.1	11.9	40.1	38.9
7	32.5	40.2		38.1	37.3
8	29.0	34.7		33.3	35.0
9	27.8	32.8		31.6	34.1
10	25.9	29.9		29.2	30.4

Table 5d. Observed post-progression survival of patients with larynx cancer for period 1998-2020 (N=694).

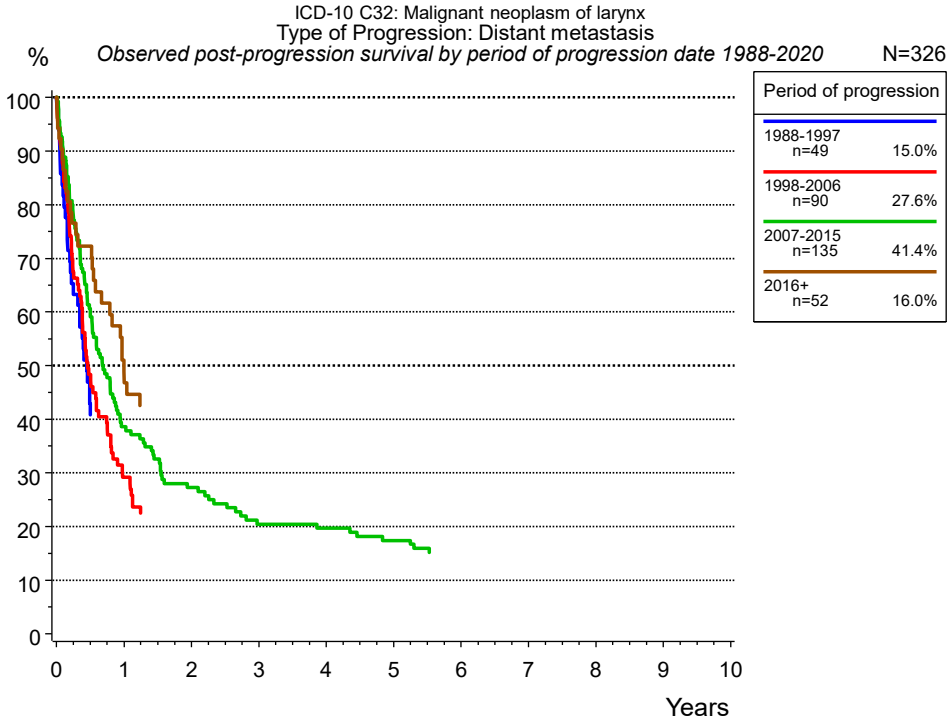

Figure 5e. Observed post-progression (distant metastasis) survival of 326 patients with larynx cancer diagnosed between 1988 and 2020 by period of progression.

	Period of progression			
	1988-1997 n=49	1998-2006 n=90	2007-2015 n=135	2016+ n=52
Years	%	%	%	%
0	100.0	100.0	100.0	100.0
1		29.2	38.6	48.9
2			27.3	
3			20.5	
4			19.7	
5			17.4	

Table 5f. Observed post-progression (distant metastasis) survival of patients with larynx cancer for period 1988-2020 by period of progression (N=326).

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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