Munich Cancer Registry

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

ICD-10 C09-C14: Pharynx cancer

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	1,381	5,645
Diseases	1,401	5,767
Cases evaluated	1,239	4,422

Creation date	01/27/2021
Database export	01/07/2021
Population	4.92 m

Munich Cancer Registry
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https://www.tumorregister-muenchen.de/en

https://www.tumorregister-muenchen.de/en/facts/surv/sC0914E-ICD-10-C09-C14-Pharynx-cancer-survival.pdf

Index of figures and tables

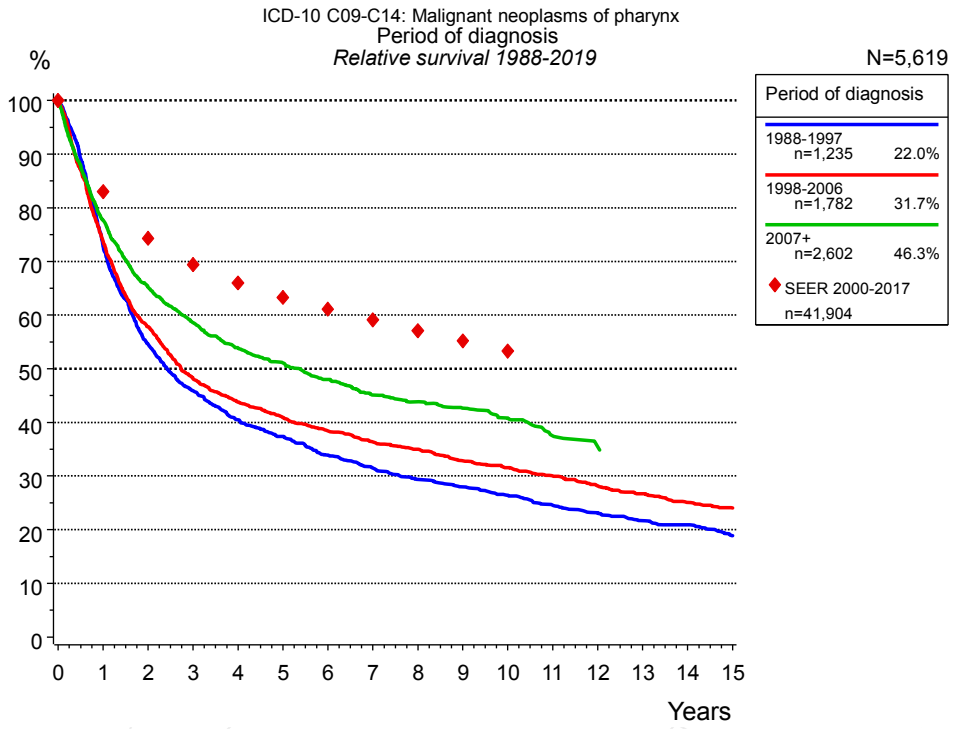

Figure 1a. Relative survival of patients with pharynx cancer by period of diagnosis. Included in the evaluation are 5,619 cases diagnosed between 1988 and 2019.

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 2017, 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=1,235		1998-2006 n=1,782		2007+ n=2,602	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	71.8	72.8	72.7	73.7	76.5	77.7
2	53.1	54.6	56.3	57.8	63.2	65.2
3	44.0	45.9	46.3	48.1	55.9	58.5
4	38.2	40.5	41.5	43.8	50.7	53.8
5	34.8	37.4	38.2	40.9	47.2	51.1
6	31.1	33.9	35.4	38.4	43.6	48.0
7	28.4	31.5	33.0	36.4	40.3	45.1
8	26.1	29.4	31.3	35.0	38.5	43.8
9	24.5	28.0	28.9	32.8	36.7	42.6
10	22.8	26.4	27.4	31.6	34.6	40.8
11	20.9	24.6	25.6	30.0	31.2	37.5
12	19.4	23.2	23.6	28.2	29.5	35.5
13	17.8	21.7	21.9	26.7		
14	16.9	20.9	20.2	25.1		
15	14.9	18.9	18.9	24.0		
Median	2.3		2.6		4.2	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with pharynx cancer by period of diagnosis for period 1988-2019 (N=5,619).

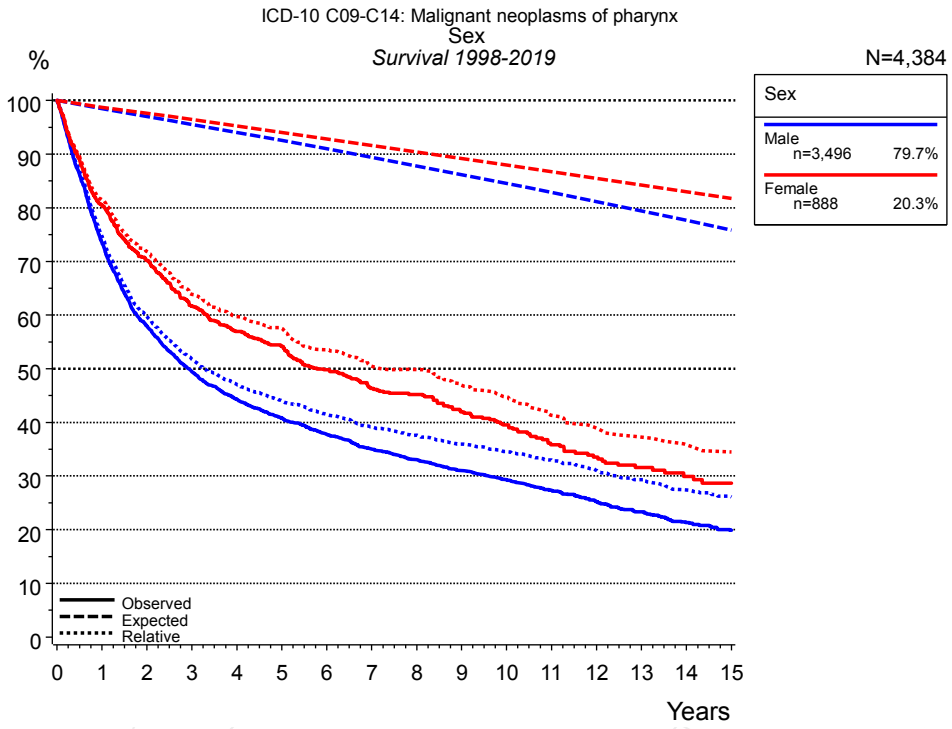

Figure 2a. Survival of patients with pharynx cancer by sex. Included in the evaluation are 4,384 cases diagnosed between 1998 and 2019.

	Sex			
	Male n=3,496		Female n=888	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	73.5	74.7	80.5	81.5
2	57.9	59.7	70.2	71.8
3	49.4	51.7	61.6	63.9
4	44.3	47.1	56.9	59.7
5	40.7	44.0	54.1	57.5
6	37.8	41.5	49.8	53.5
7	35.0	39.1	46.3	50.5
8	33.1	37.6	45.2	49.9
9	31.0	35.9	41.9	46.9
10	29.3	34.6	39.5	44.7
11	27.4	33.0	35.8	41.3
12	25.2	31.0	33.5	38.9
13	23.4	29.3	31.6	37.3
14	21.3	27.4	29.9	35.8
15	19.9	26.1	28.6	34.5
Median	2.9		5.8	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with pharynx cancer by sex for period 1998-2019 (N=4,384).

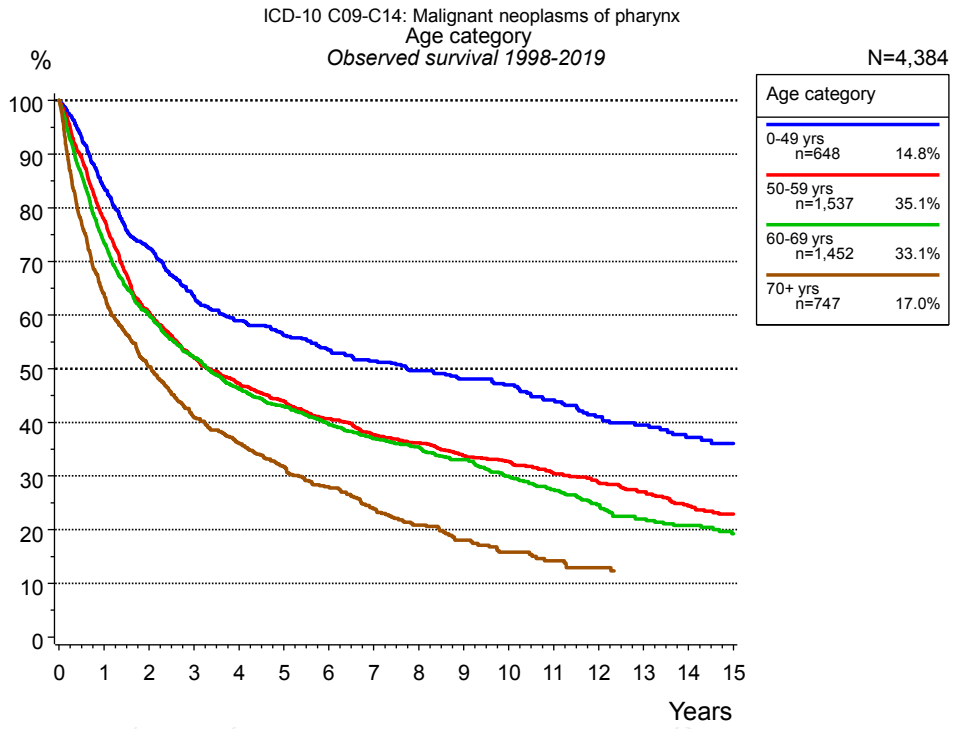

Figure 3a. Observed survival of patients with pharynx cancer by age category. Included in the evaluation are 4,384 cases diagnosed between 1998 and 2019.

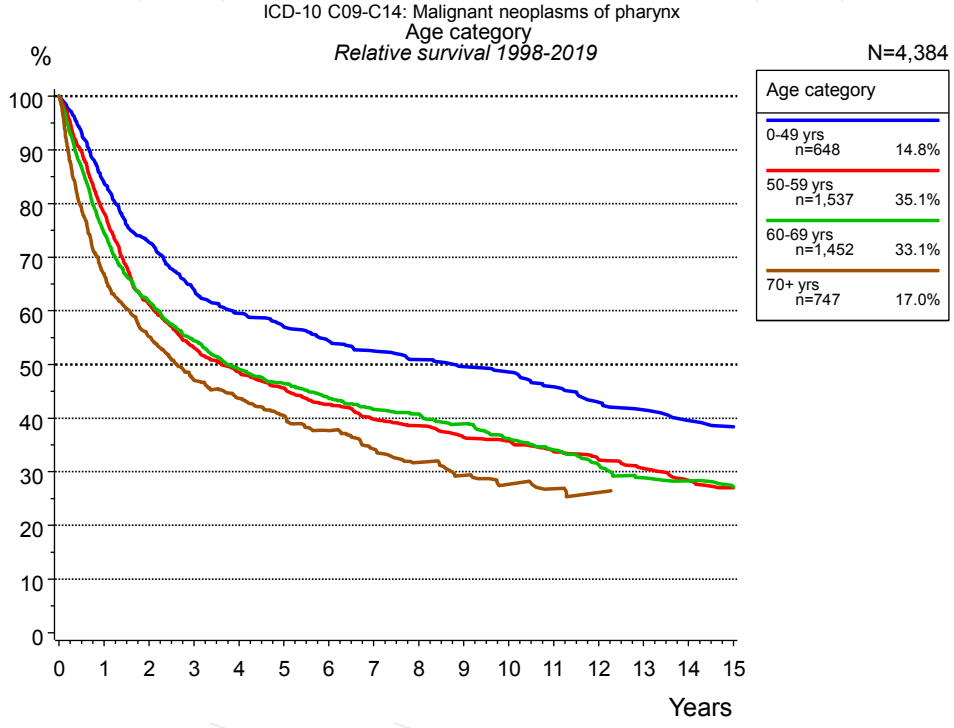

Figure 3b. Relative survival of patients with pharynx cancer by age category. Included in the evaluation are 4,384 cases diagnosed between 1998 and 2019.

	Age category							
	0-49 yrs n=648		50-59 yrs n=1,537		60-69 yrs n=1,452		70+ yrs n=747	
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	83.7	83.9	77.8	78.3	73.6	74.6	63.9	66.9
2	72.4	72.8	60.5	61.2	60.0	61.7	50.3	55.2
3	63.5	64.0	52.0	53.1	52.1	54.4	41.0	47.1
4	59.0	59.5	47.3	48.6	46.2	49.1	36.2	43.7
5	56.2	57.0	43.9	45.6	42.9	46.5	31.7	40.5
6	53.5	54.4	40.7	42.5	39.6	43.7	28.0	37.7
7	51.4	52.5	37.7	39.8	36.9	41.6	23.9	34.3
8	49.6	50.9	36.2	38.6	35.4	40.7	20.9	31.8
9	48.1	49.6	33.7	36.4	33.1	38.9	18.1	29.3
10	46.9	48.6	32.7	35.7	29.9	36.2	15.8	27.7
11	44.2	45.8	30.5	33.7	27.5	34.1	14.2	26.9
12	41.0	43.0	28.8	32.3	24.6	31.3	12.9	26.2
13	39.5	41.5	27.1	30.6	21.9	28.9		
14	37.2	39.6	24.4	28.4	20.8	28.3		
15	36.1	38.4	22.9	27.0	19.2	27.2		
Median	7.7		3.3		3.3		2.0	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with pharynx cancer by age category for period 1998-2019 (N=4,384).

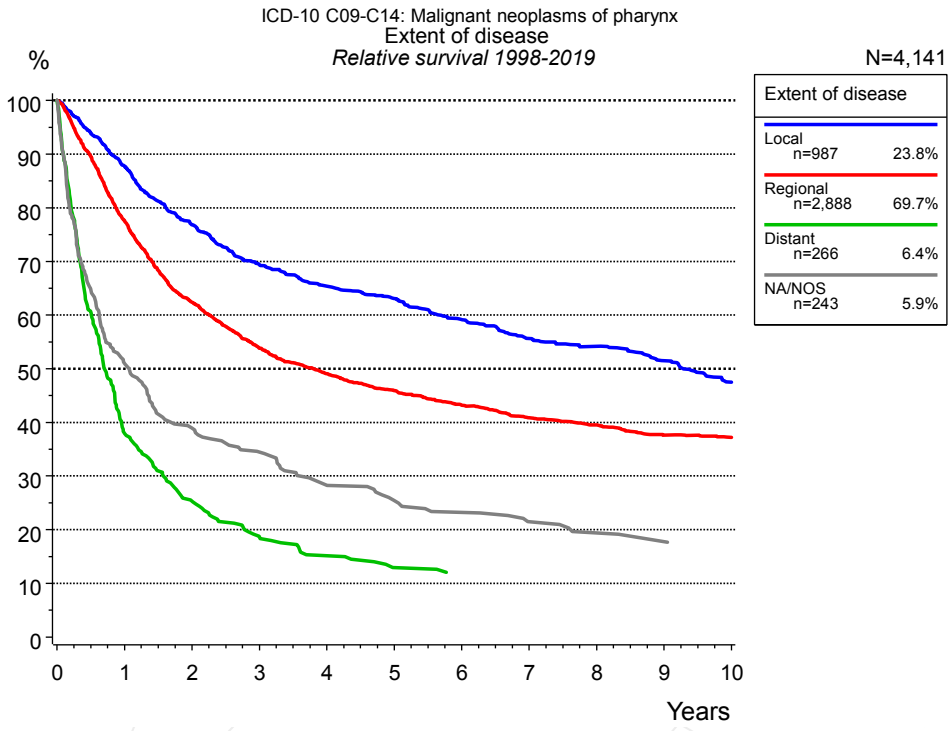

Figure 4a. Relative survival of patients with pharynx cancer by extent of disease. For 4,149 of 4,384 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 4,141 cases an evaluable classification was established. The grey line represents the subgroup of 243 patients with missing values regarding extent of disease (5.5 % of 4,384 patients, the percent values of all other categories are related to n=4,141).

	Extent of disease							
	Local n=987		Regional n=2,888		Distant n=266		NA/NOS n=243	
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	86.4	87.7	76.5	77.6	37.8	38.0	49.9	51.0
2	74.7	76.8	60.7	62.4	24.8	25.3	37.2	38.9
3	66.5	69.4	51.6	53.8	18.0	18.7	32.4	34.5
4	61.8	65.4	46.4	49.1	14.5	15.2	26.4	28.3
5	58.7	63.1	42.7	45.9	12.0	13.0	22.9	25.4
6	54.2	59.2	39.6	43.2	10.9	12.0	20.9	23.2
7	50.1	55.6	36.8	40.8			18.7	21.4
8	48.1	54.2	35.1	39.5			17.0	19.4
9	44.8	51.5	32.8	37.6			16.3	17.7
10	40.7	47.5	31.9	37.2				
Median	7.0		3.2		0.7		1.0	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with pharynx cancer by extent of disease for period 1998-2019 (N=4,141).

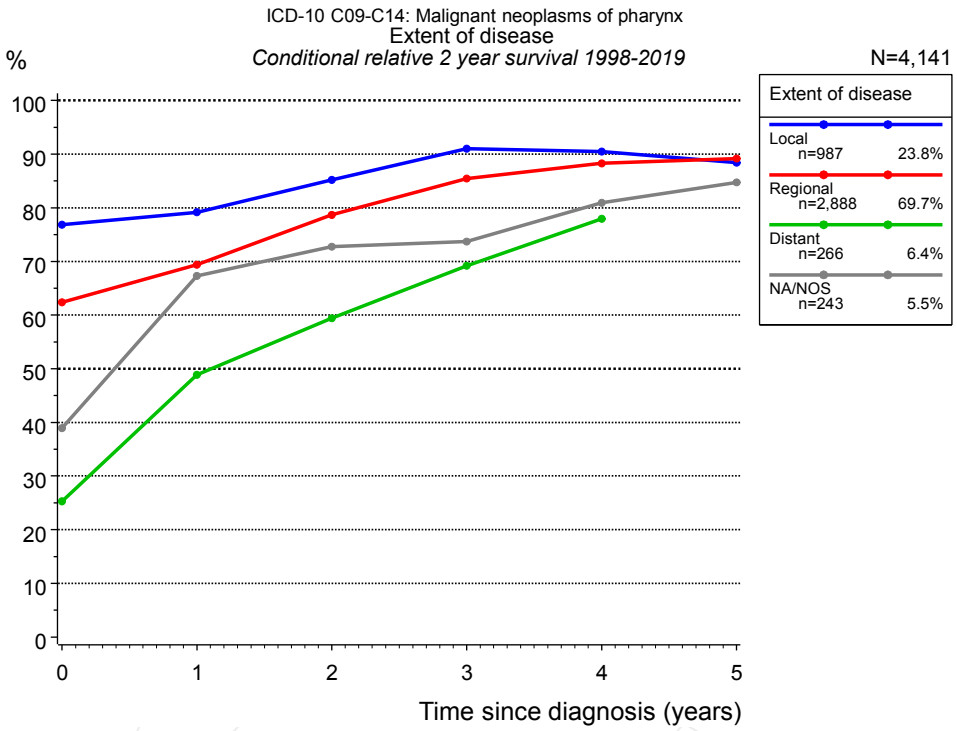

Figure 4c. Conditional relative 2-year survival of patients with pharynx cancer by extent of disease. For 4,149 of 4,384 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 4,141 cases an evaluable classification was established. The grey line represents the subgroup of 243 patients with missing values regarding extent of disease (5.5 % of 4,384 patients, the percent values of all other categories are related to n=4,141).

	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	987	76.8	2,888	62.4	266	25.3	243	38.9
1	823	79.2	2,153	69.4	99	48.9	114	67.3
2	691	85.2	1,645	78.7	62	59.4	85	72.8
3	594	91.0	1,322	85.4	44	69.2	73	73.7
4	523	90.5	1,097	88.3	30	78.0	54	80.9
5	471	88.4	939	89.2			45	84.7

Table 4d. Conditional relative 2-year survival of patients with pharynx cancer by extent of disease for period 1998-2019 (N=4,141).

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 91.0% (n=594).

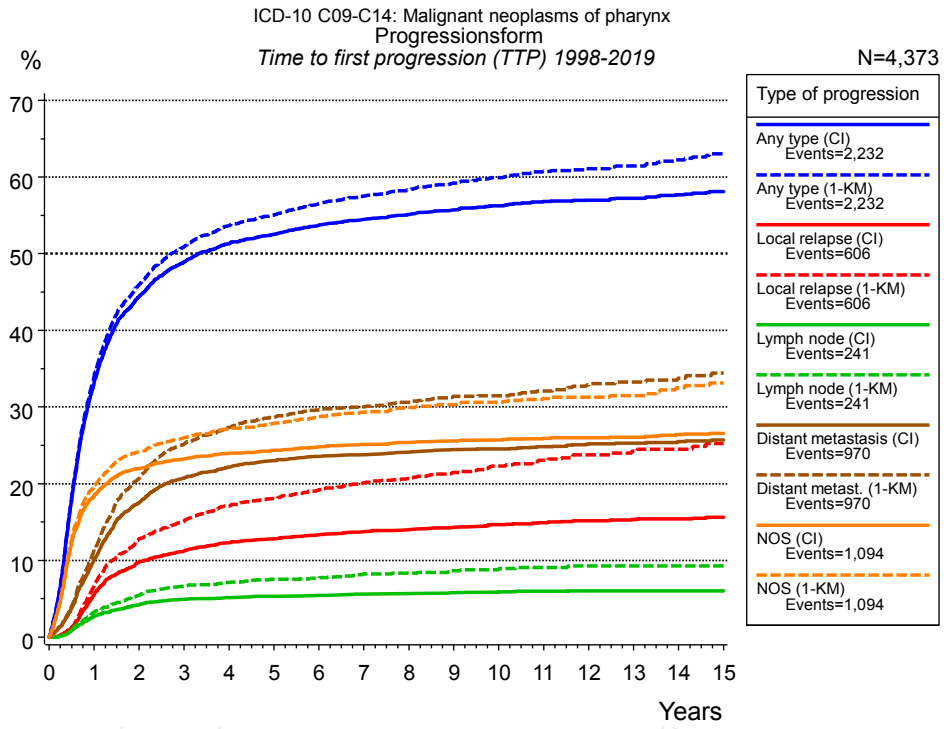

Figure 5a. Time to first progression of 4,373 patients with pharynx cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency 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)	Lymph node (CI)	Lymph node (1-KM)	Distant metastasis (CI)
N	4,124	4,124	4,373	4,373	4,373	4,373	4,127
Events	2,224	2,224	600	600	241	241	967
compet.	637		2,324		2,637		1,707
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	33.3	34.1	5.6	6.8	2.7	3.3	10.2
2	44.4	46.0	9.8	12.8	4.2	5.4	17.5
3	48.9	50.9	11.2	15.1	4.9	6.6	20.8
4	51.3	53.7	12.3	17.1	5.1	7.1	22.2
5	52.6	55.1	12.8	18.1	5.3	7.5	23.0
6	53.7	56.6	13.3	19.1	5.4	7.7	23.6
7	54.5	57.5	13.8	20.1	5.6	8.2	23.8
8	55.1	58.3	14.0	20.7	5.7	8.3	24.1
9	55.8	59.2	14.3	21.5	5.8	8.7	24.5
10	56.2	59.9	14.7	22.3	5.9	8.9	24.5
11	56.8	60.8	14.9	23.1	5.9	9.1	24.8
12	57.0	61.1	15.2	23.8	6.0	9.3	25.2
13	57.2	61.5	15.3	24.2	6.0	9.3	25.3
14	57.7	62.3	15.4	24.5	6.0	9.3	25.5
15	58.1	63.0	15.6	25.2	6.0	9.3	25.7

	Type of progression		
cont'd	Distant metast. (1-KM)	NOS (CI)	NOS (1-KM)
N	4,127	4,370	4,370
Events	967	1,091	1,091
compet.		1,863	
Years	%	%	%
0	0.0	0.0	0.0
1	11.4	18.5	19.7
2	20.6	22.0	24.2
3	25.2	23.3	26.0
4	27.3	24.0	27.1
5	28.7	24.4	27.9
6	29.6	24.8	28.7
7	30.0	25.1	29.3
8	30.6	25.4	29.9
9	31.4	25.6	30.3
10	31.5	25.7	30.6
11	32.1	25.9	31.1
12	32.9	26.0	31.3
13	33.3	26.1	31.5
14	33.8	26.4	32.5
15	34.4	26.6	33.1

Table 5b. Time to first progression of patients with pharynx cancer for period 1998-2019 (N=4,373), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

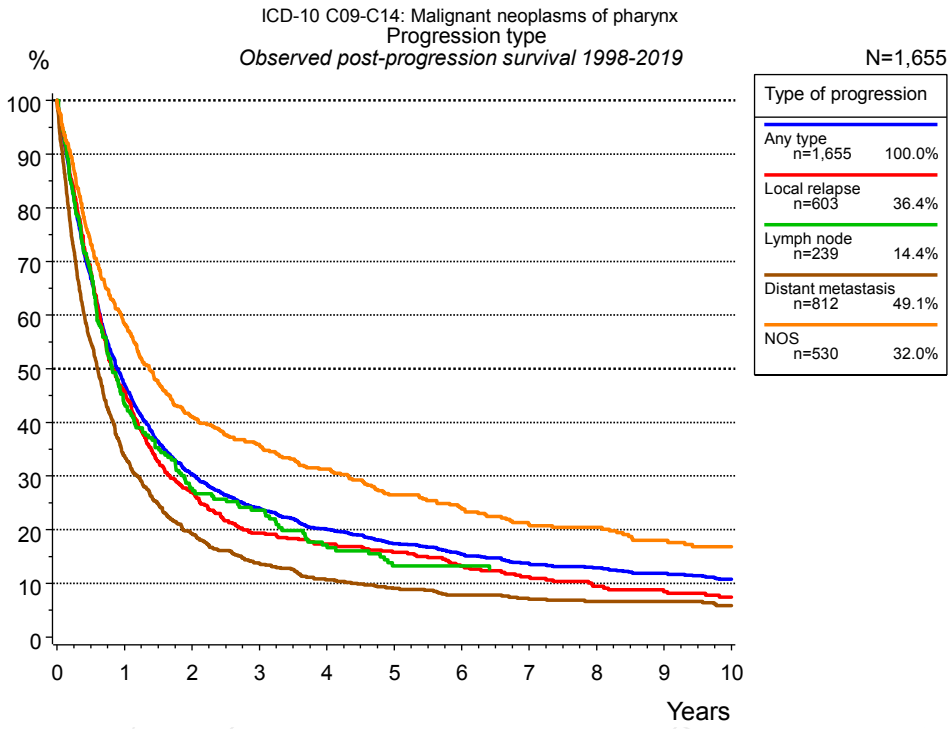

Figure 5c. Observed post-progression survival of 1,655 patients with pharynx cancer diagnosed between 1998 and 2019. These 1,655 patients with documented progression events during their course of disease represent 37.8 % of the totally 4,373 evaluated cases (incl. M1, n=249, 5.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=826, 18.9 %). 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 n=1,655	Local relapse n=603	Lymph node n=239	Distant metastasis n=812	NOS n=530
Years	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
1	47.1	45.7	43.5	33.8	58.4
2	30.4	27.0	27.7	19.2	41.1
3	24.0	19.3	23.6	13.6	35.9
4	20.1	17.3	17.2	10.7	31.2
5	17.4	15.8	13.3	9.0	26.5
6	15.4	13.2	13.3	7.8	24.1
7	13.7	11.2		7.0	21.0
8	12.9	9.4		6.6	20.4
9	11.9	8.5		6.6	18.0
10	10.8	7.4		5.9	16.8

Table 5d. Observed post-progression survival of patients with pharynx cancer for period 1998-2019 (N=1,655).

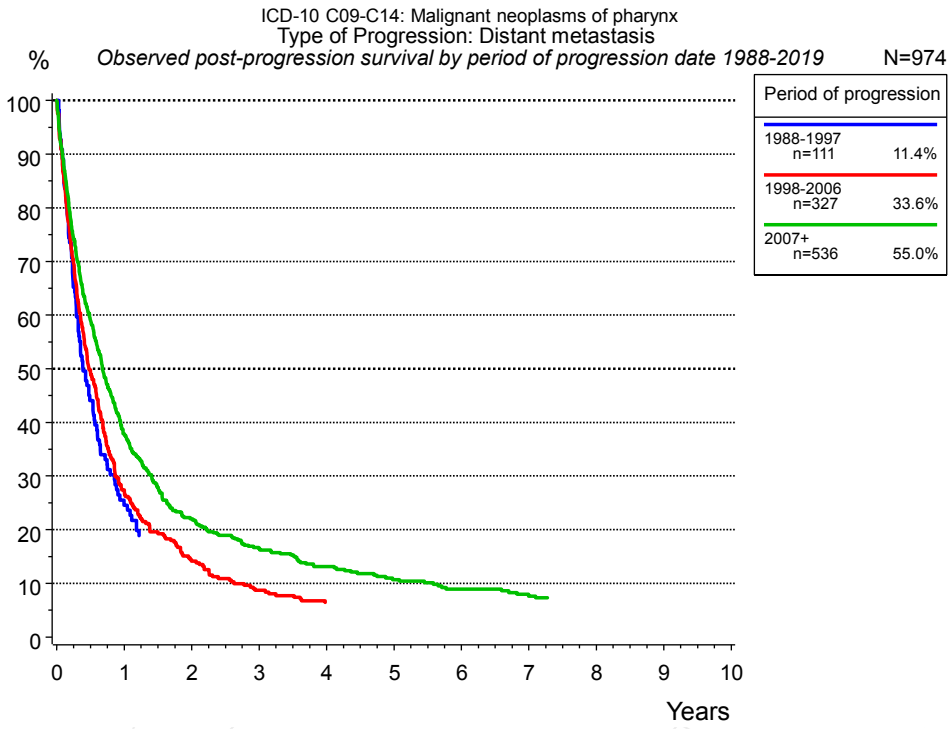

Figure 5e. Observed post-progression (distant metastasis) survival of 974 patients with pharynx cancer diagnosed between 1988 and 2019 by period of progression.

	Period of progression		
	1988-1997 n=111	1998-2006 n=327	2007+ n=536
Years	%	%	%
0	100.0	100.0	100.0
1	24.6	27.4	37.9
2		14.1	22.0
3		8.7	16.4
4		6.4	13.1
5			10.7
6			8.9
7			7.6

Table 5f. Observed post-progression (distant metastasis) survival of patients with pharynx cancer for period 1988-2019 by period of progression (N=974).

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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