

# Munich Cancer Registry



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## ICD-10 C09, C10: Oropharynx cancer

### Survival

Year of diagnosis	1988-1997	1998-2019
Patients	566	2,303
Diseases	566	2,327
Cases evaluated	492	1,746
Creation date	01/27/2021	
Database export	01/07/2021	
Population	4.92 m	



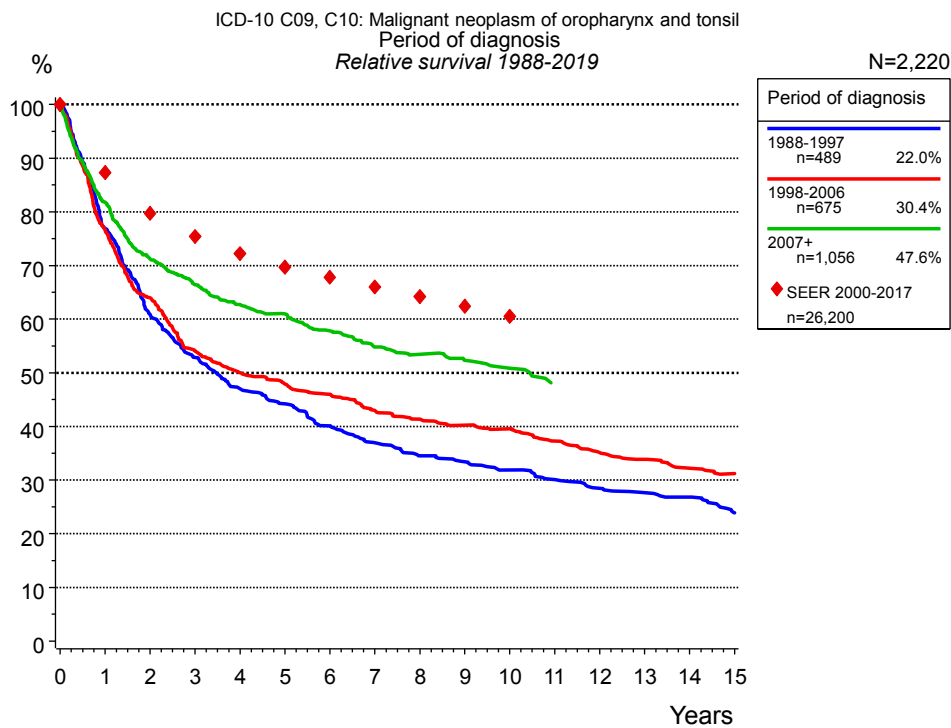
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<https://www.tumorregister-muenchen.de/en>

<https://www.tumorregister-muenchen.de/en/facts/surv/sC0910E-ICD-10-C09-C10-Oropharynx-cancer-survival.pdf>

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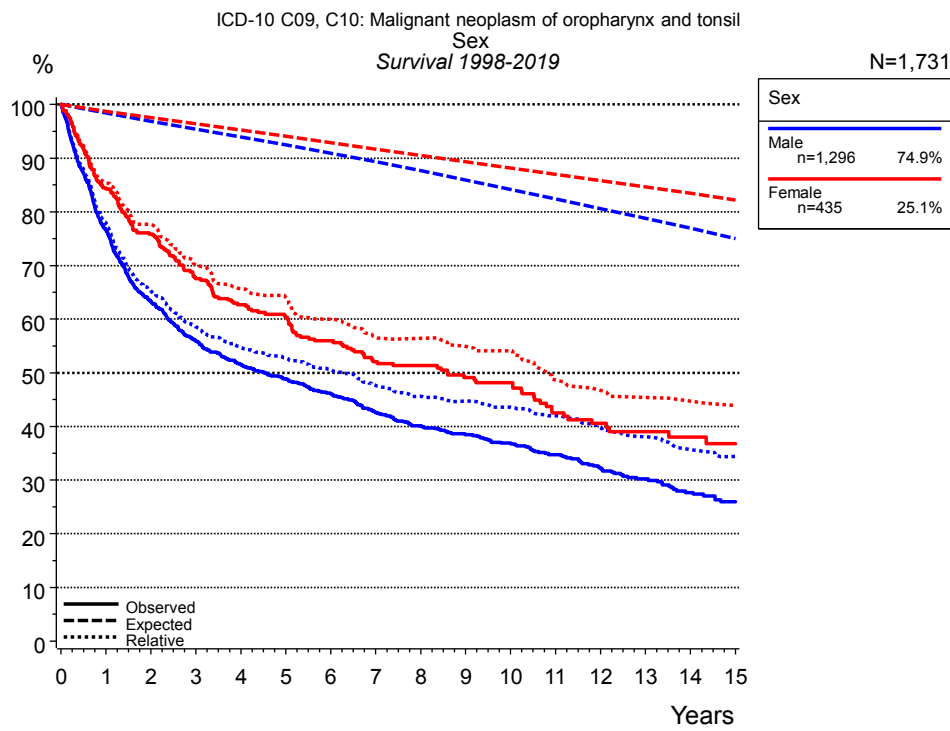
**Figure 1a.** Relative survival of patients with oropharynx cancer by period of diagnosis. Included in the evaluation are 2,220 cases diagnosed between 1988 and 2019.

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.

Years	Period of diagnosis					
	1988-1997 n=489		1998-2006 n=675		2007+ n=1,056	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	75.6	76.9	75.6	76.6	80.5	81.8
2	59.1	60.9	62.2	64.0	69.1	71.2
3	50.4	52.9	51.9	54.0	63.4	66.4
4	44.2	47.0	47.4	50.0	59.1	62.7
5	41.0	44.2	44.7	47.9	56.5	60.9
6	36.6	40.1	42.4	46.0	52.7	57.8
7	33.1	37.0	39.0	43.0	49.1	54.8
8	30.5	34.6	37.1	41.3	47.0	53.4
9	29.1	33.4	35.5	40.2	45.1	52.3
10	27.3	31.9	34.3	39.6	43.3	50.8
11	25.5	30.1	31.7	37.3	39.8	47.9
12	23.6	28.5	29.3	35.1		
13	22.4	27.7	27.8	33.9		
14	21.5	26.8	25.9	32.2		
15	18.6	23.9	24.5	31.2		
Median	3.1		3.4		6.8	

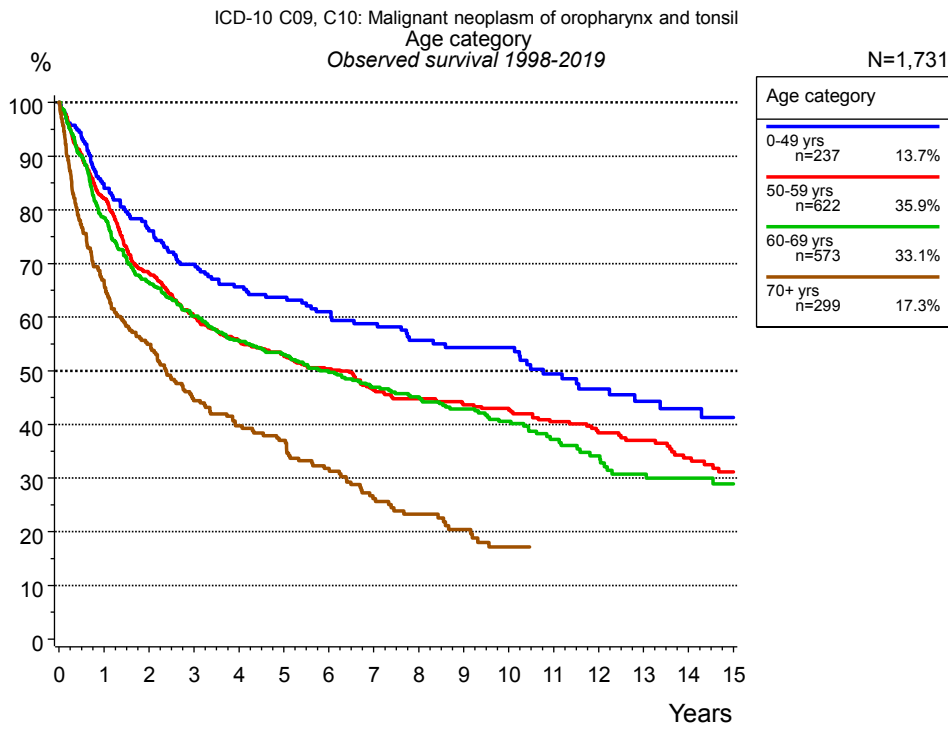
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with oropharynx cancer by period of diagnosis for period 1988-2019 (N=2,220).



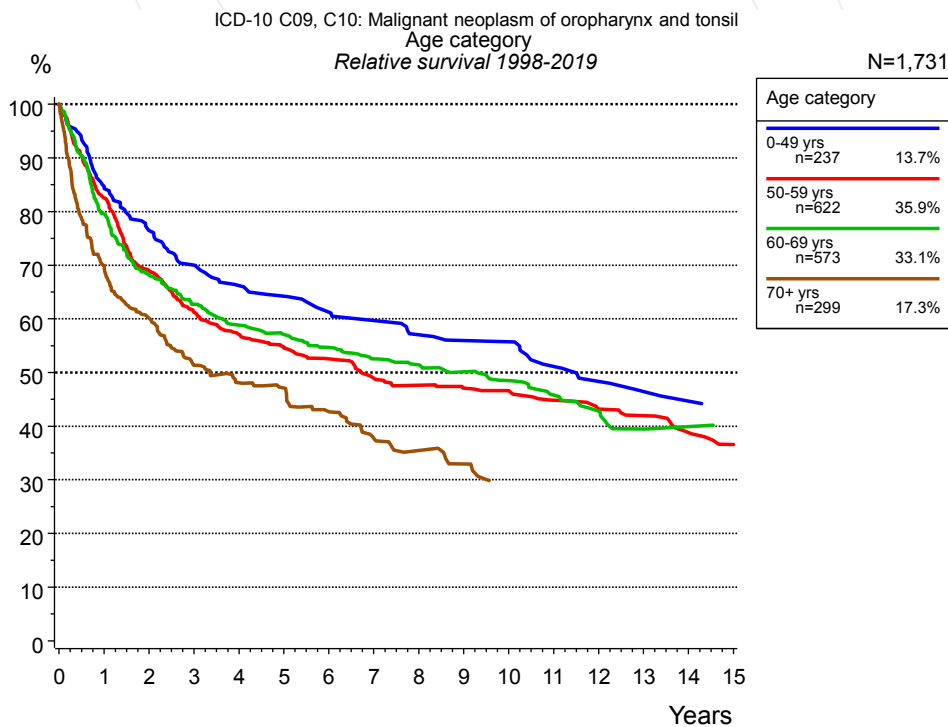
**Figure 2a.** Survival of patients with oropharynx cancer by sex. Included in the evaluation are 1,731 cases diagnosed between 1998 and 2019.

Years	Sex			
	Male n=1,296		Female n=435	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	76.7	77.9	84.3	85.4
2	63.2	65.2	75.8	77.6
3	55.8	58.5	67.5	70.0
4	51.6	54.8	62.7	65.7
5	48.8	52.8	60.3	64.0
6	46.1	50.6	56.0	60.0
7	42.5	47.6	52.1	56.6
8	40.1	45.6	51.3	56.4
9	38.4	44.7	49.1	54.9
10	36.9	43.6	48.2	54.1
11	34.7	42.0	42.5	48.6
12	32.1	39.8	40.6	46.7
13	30.2	38.0	39.1	45.4
14	27.6	35.7	38.0	44.7
15	26.0	34.4	36.8	43.9
Median	4.5		8.6	

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with oropharynx cancer by sex for period 1998-2019 (N=1,731).



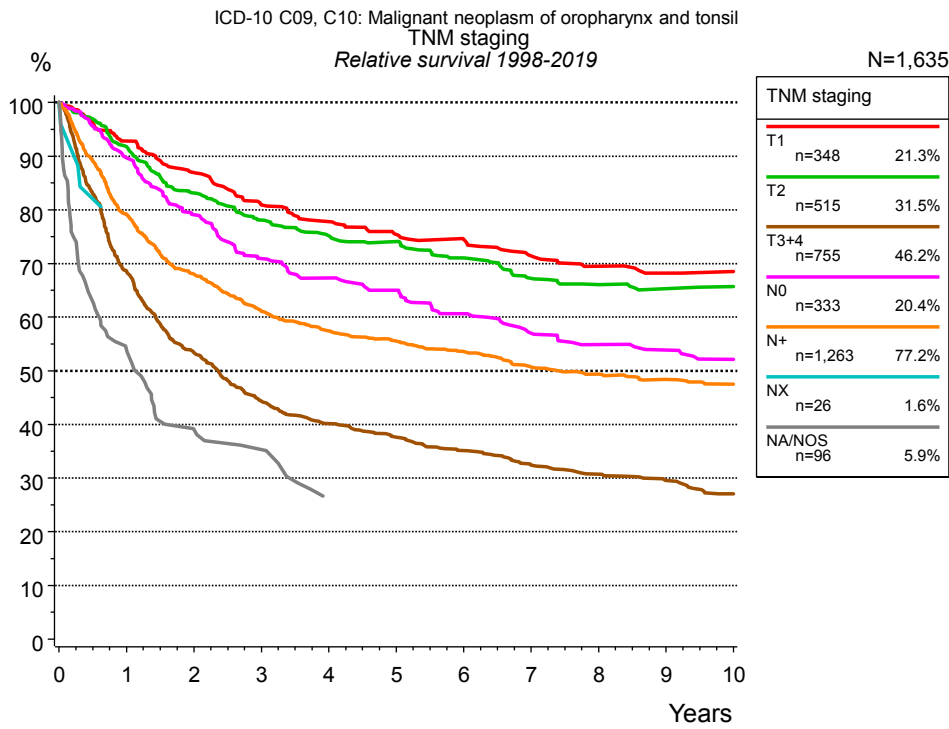
**Figure 3a.** Observed survival of patients with oropharynx cancer by age category. Included in the evaluation are 1,731 cases diagnosed between 1998 and 2019.



**Figure 3b.** Relative survival of patients with oropharynx cancer by age category. Included in the evaluation are 1,731 cases diagnosed between 1998 and 2019.

Years	Age category							
	0-49 yrs n=237		50-59 yrs n=622		60-69 yrs n=573		70+ yrs n=299	
	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	84.5	84.6	82.0	82.5	78.5	79.5	66.9	70.0
2	76.1	76.5	68.2	69.0	66.3	68.2	54.9	60.1
3	69.8	70.0	60.0	61.2	60.2	62.7	44.5	51.4
4	65.7	66.2	55.6	57.1	55.7	58.8	39.7	48.1
5	63.7	64.2	52.7	54.6	53.0	57.1	37.0	47.1
6	61.0	61.2	50.4	52.5	49.7	54.7	31.8	42.7
7	58.8	59.7	46.3	48.9	46.9	52.5	26.2	37.7
8	55.7	57.0	44.8	47.6	45.1	51.5	23.3	35.5
9	54.3	56.0	43.6	47.1	42.9	50.1	20.4	33.0
10	54.3	55.7	43.0	46.6	40.5	48.5	17.2	30.3
11	49.4	51.1	40.5	44.8	37.2	45.8		
12	46.6	48.3	38.4	43.2	34.1	42.8		
13	44.3	46.4	37.0	41.9	30.7	39.5		
14	42.9	44.6	33.7	38.8	29.9	39.9		
15	41.3	43.3	31.1	36.6	28.9	40.1		
Median	10.8		6.2		5.8		2.4	

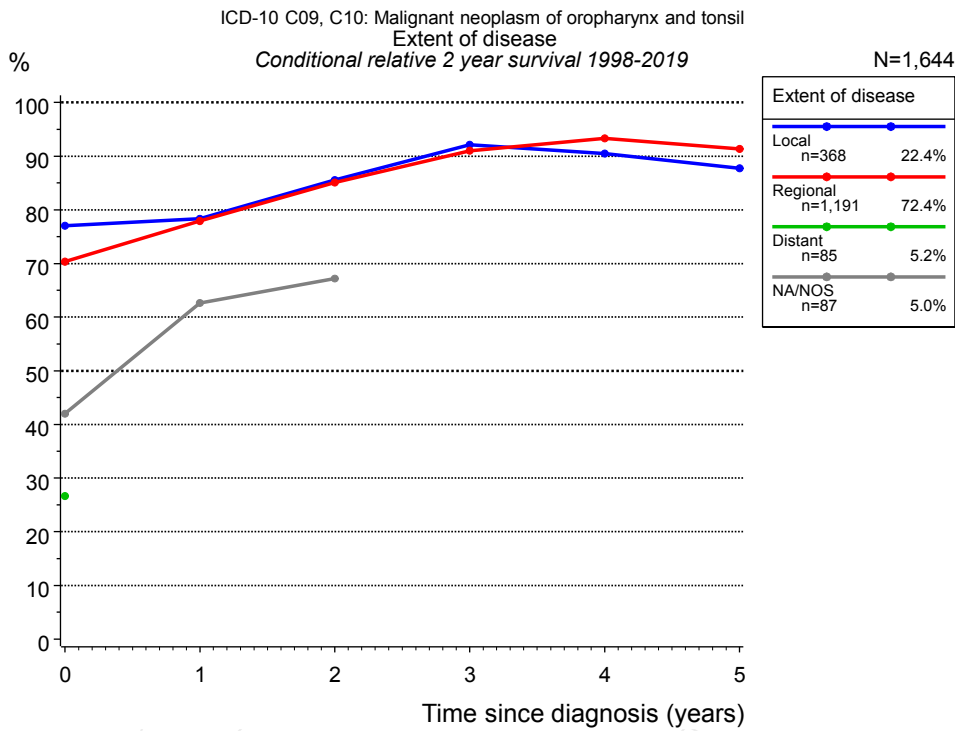
**Table 3c.** Observed (obs.) and relative (rel.) survival of patients with oropharynx cancer by age category for period 1998-2019 (N=1,731).



**Figure 4a.** Relative survival of patients with oropharynx cancer by TNM staging. For 1,646 of 1,731 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 1,635 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 96 patients with missing values regarding TNM staging (5.5 % of 1,731 patients, the percent values of all other categories are related to n=1,635).

Years	TNM staging													
	T1 n=348		T2 n=515		T3+4 n=755		N0 n=333		N+ n=1,263		NX n=26		NA/NOS n=96	
	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	91.8	92.8	90.5	91.7	67.6	68.6	88.6	89.7	78.0	79.2	80.0	77.5	52.8	53.9
2	85.1	86.9	81.0	83.1	51.7	53.4	77.3	79.1	66.0	68.0			37.1	39.1
3	78.0	80.9	75.1	78.1	42.3	44.3	68.5	70.9	58.4	61.1			33.7	35.3
4	74.2	77.8	71.2	75.1	37.7	40.1	64.4	67.3	54.2	57.4			24.3	25.4
5	70.9	75.4	69.3	74.1	34.8	37.6	61.5	65.0	51.6	55.5				
6	69.0	74.5	65.4	71.0	32.1	35.1	56.5	60.6	49.0	53.6				
7	65.2	71.4	60.8	67.2	29.0	32.4	52.3	57.0	45.5	50.7				
8	62.4	69.5	58.9	66.1	27.2	30.7	49.6	54.9	43.7	49.4				
9	60.3	68.2	57.0	65.3	25.6	29.5	48.0	53.9	41.9	48.4				
10	59.8	68.5	56.6	65.7	23.1	27.1	45.8	52.2	40.6	47.5				
Median	13.1		11.2		2.2		7.7		5.4				1.1	

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with oropharynx cancer by TNM staging for period 1998-2019 (N=1,635).



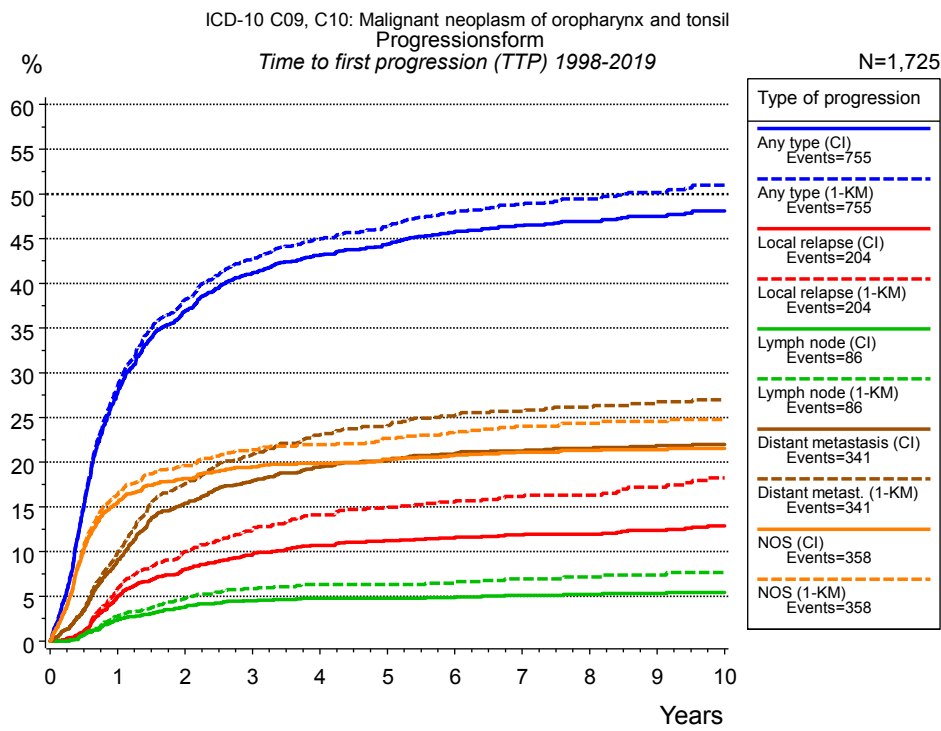
**Figure 4c.** Conditional relative 2-year survival of patients with oropharynx cancer by extent of disease. For 1,646 of 1,731 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 1,644 cases an evaluable classification was established. The grey line represents the subgroup of 87 patients with missing values regarding extent of disease (5.0 % of 1,731 patients, the percent values of all other categories are related to n=1,644).

Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	368	77.0	1,191	70.3	85	26.6	87	42.0
1	309	78.3	927	77.9			47	62.6
2	259	85.6	759	85.1			32	67.2
3	222	92.2	639	91.0				
4	197	90.5	549	93.3				
5	180	87.8	486	91.4				

**Table 4d.** Conditional relative 2-year survival of patients with oropharynx cancer by extent of disease for period 1998-2019 (N=1,644).

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 92.2% (n=222).



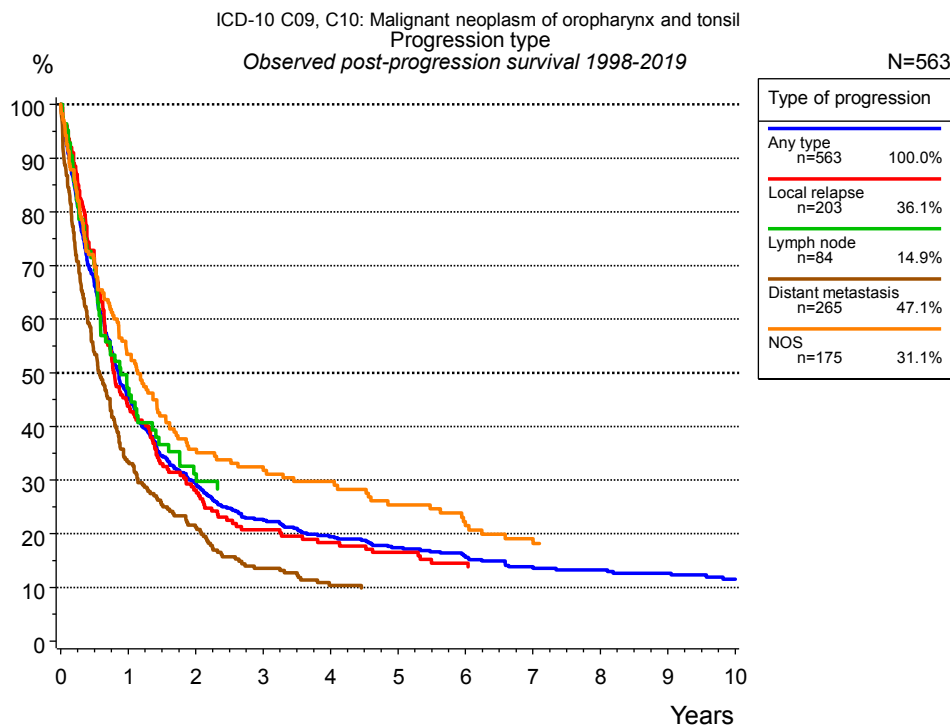


**Figure 5a.** Time to first progression of 1,725 patients with oropharynx cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The 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	1,648	1,648	1,725	1,725	1,725	1,725	1,648
Events	746	746	200	200	86	86	337
compet.	209		761		854		543
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	27.8	28.5	5.0	5.9	2.4	2.8	9.1
2	36.9	38.2	8.1	10.0	3.8	4.7	15.4
3	41.2	42.8	9.6	12.4	4.5	5.9	17.9
4	43.1	44.9	10.7	14.1	4.8	6.3	19.4
5	44.4	46.4	11.2	15.0	4.8	6.3	20.2
6	45.7	48.0	11.5	15.5	4.9	6.5	20.9
7	46.5	48.8	11.9	16.2	5.1	7.0	21.3
8	46.9	49.4	11.9	16.3	5.2	7.2	21.5
9	47.5	50.2	12.4	17.2	5.3	7.4	21.9
10	48.1	51.0	12.8	18.2	5.4	7.7	22.0

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
N	1,648	1,725	1,725
Events	337	355	355
compet.		611	
Years	%	%	%
0	0.0	0.0	0.0
1	10.1	15.4	16.3
2	17.6	18.2	19.6
3	20.9	19.5	21.4
4	23.0	19.9	22.0
5	24.1	20.3	22.7
6	25.2	20.8	23.4
7	25.7	21.1	24.0
8	26.2	21.3	24.4
9	26.7	21.4	24.6
10	27.0	21.5	24.8

**Table 5b.** Time to first progression of patients with oropharynx cancer for period 1998-2019 (N=1,725), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

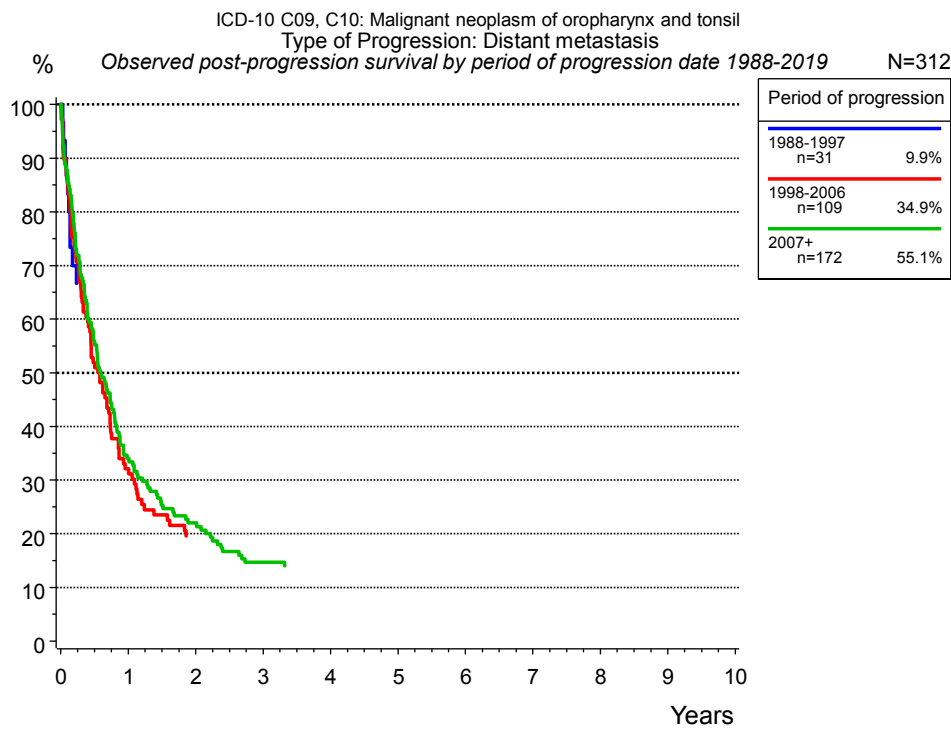


**Figure 5c.** Observed post-progression survival of 563 patients with oropharynx cancer diagnosed between 1998 and 2019. These 563 patients with documented progression events during their course of disease represent 32.6 % of the totally 1,725 evaluated cases (incl. M1, n=77, 4.5 %). Patients with cancer relapse documented via death certificates only were excluded (n=269, 15.6 %). 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=563 %	Local relapse n=203 %	Lymph node n=84 %	Distant metastasis n=265 %	NOS n=175 %
0	100.0	100.0	100.0	100.0	100.0
1	45.3	43.8	47.1	33.4	53.4
2	29.4	28.1	31.1	21.2	35.7
3	22.7	20.7		13.6	32.4
4	19.4	18.3		10.4	29.7
5	17.4	16.5			25.4
6	15.9	14.5			22.3
7	13.8				19.0
8	13.3				
9	12.6				
10	11.5				

**Table 5d.** Observed post-progression survival of patients with oropharynx cancer for period 1998-2019 (N=563).



**Figure 5e.** Observed post-progression (distant metastasis) survival of 312 patients with oropharynx cancer diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression		
	1988-1997 n=31 %	1998-2006 n=109 %	2007+ n=172 %
0	100.0	100.0	100.0
1		32.1	34.0
2			22.0
3			14.7

**Table 5f.** Observed post-progression (distant metastasis) survival of patients with oropharynx cancer for period 1988-2019 by period of progression (N=312).

## 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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