

Munich Cancer Registry



- ▶ Baseline statistics
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

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

Cancer statistics: Survival

C02-C06: Oral cavity cancer

Year of diagnosis	1988-2013
Patients	3,781
Diseases	3,824
Cases evaluated	2,304
Creation date	05/13/2015
Export date	12/30/2014
Population	4.64 m



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C0206E.pdf

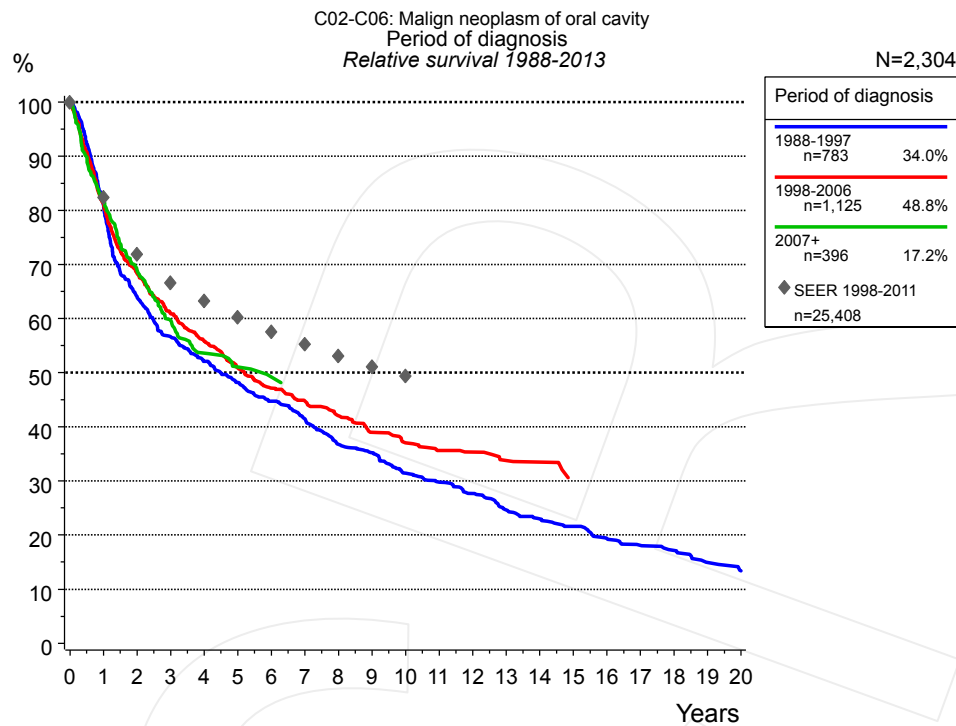


Figure 1a. Relative survival of patients with oral cavity cancer by period of diagnosis. Included in the evaluation are 2,304 cases diagnosed between 1988 and 2013.

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 1998 to 2011, and are represented by gray 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 1988, 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=783		1998-2006 n=1,125		2007+ n=396	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	79.2	80.6	79.7	81.1	80.3	81.6
2	62.0	64.0	66.1	68.3	66.8	68.9
3	53.9	56.6	58.0	60.9	57.0	59.7
4	48.7	52.1	52.3	55.8	50.6	53.6
5	44.3	48.2	46.9	50.9	47.4	51.1
6	40.5	44.7	42.7	47.1	45.3	49.2
7	37.0	41.5	39.9	44.8		
8	32.1	36.8	36.8	42.0		
9	30.3	35.2	33.5	39.0		
10	26.6	31.4	31.1	37.0		
11	24.8	29.8	29.4	35.6		
12	22.6	27.7	28.7	35.3		
13	19.7	24.6	26.8	33.8		
14	18.1	23.0	26.3	33.5		
15	16.7	21.6				
16	14.7	19.4				
17	13.5	18.1				
18	12.6	17.2				
19	10.6	14.9				
20	9.4	13.4				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with oral cavity cancer by period of diagnosis for period 1988-2013 (N=2,304).

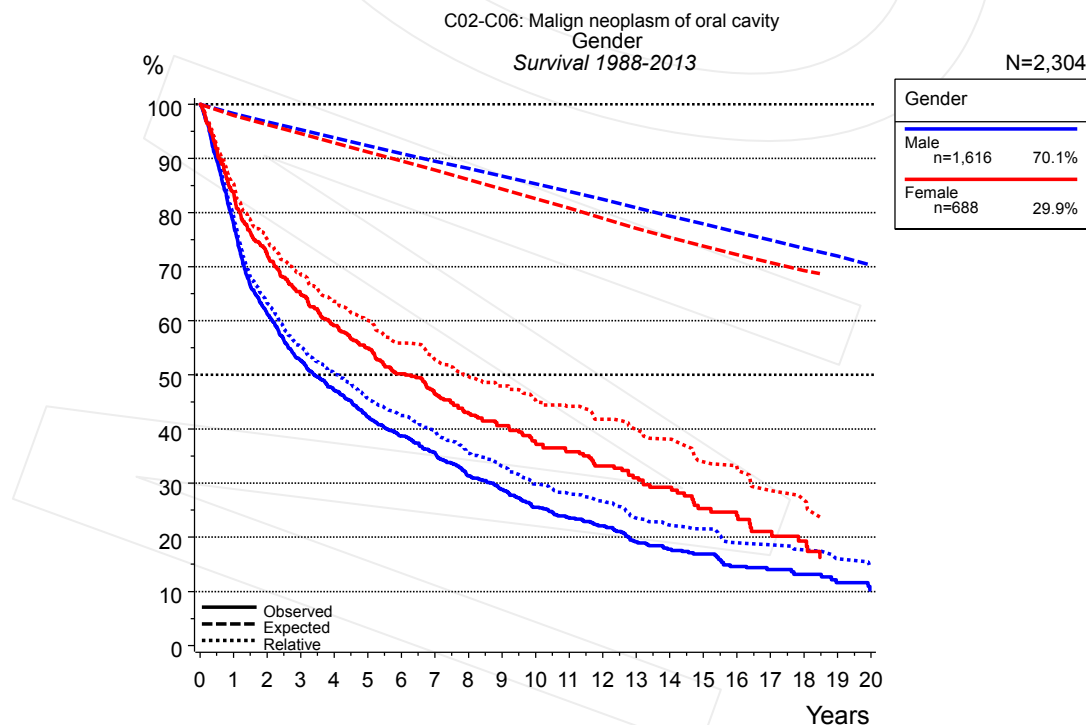


Figure 2a. Survival of patients with oral cavity cancer by gender. Included in the evaluation are 2,304 cases diagnosed between 1988 and 2013.

Years	Gender			
	Male n=1,616		Female n=688	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.9	79.1	83.5	85.3
2	61.4	63.4	72.4	75.1
3	52.7	55.3	64.9	68.5
4	47.2	50.3	59.1	63.6
5	42.2	45.7	54.9	60.1
6	38.7	42.5	50.2	55.9
7	35.7	39.8	46.6	52.8
8	31.4	35.5	42.8	49.7
9	28.8	33.2	40.6	48.0
10	25.5	29.9	37.5	45.4
11	23.7	28.0	35.8	44.2
12	22.1	26.7	33.2	41.8
13	19.2	23.6	31.0	39.9
14	17.8	22.3	29.2	38.1
15	16.9	21.6	25.3	33.9
16	14.6	19.0	24.0	32.9
17	14.0	18.6	21.1	28.6
18	13.2	17.7	19.3	26.9
19	11.6	16.1		
20	10.2	14.3		

Table 2b. Observed (obs.) and relative (rel.) survival of patients with oral cavity cancer by gender for period 1988-2013 (N=2,304).

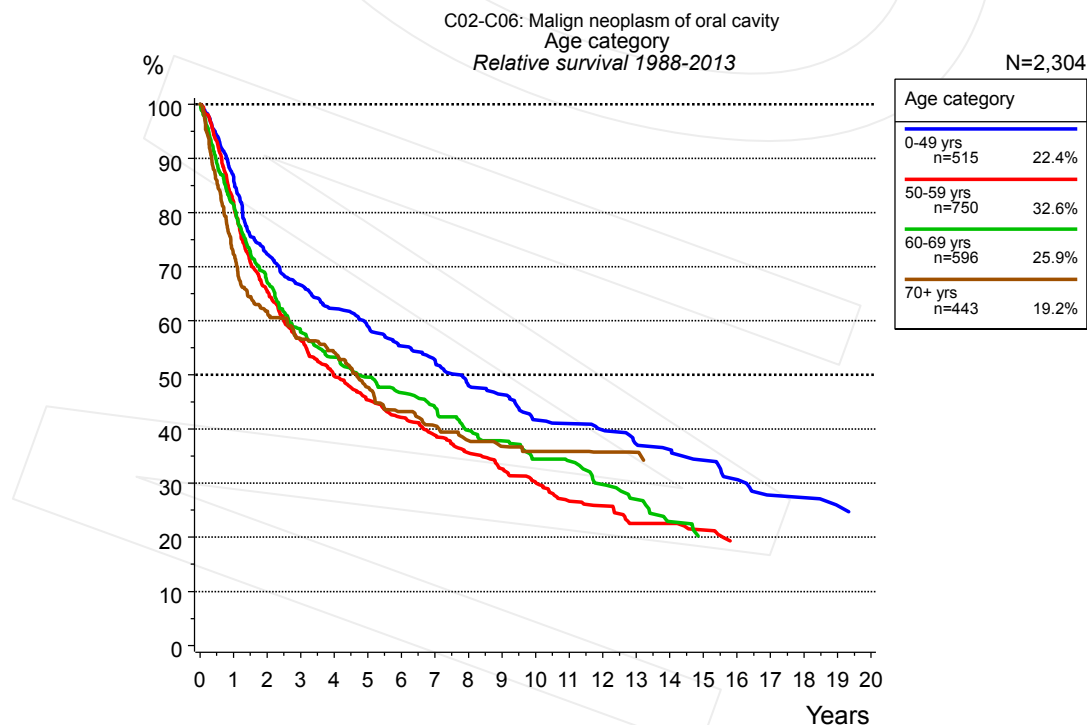


Figure 3a. Relative survival of patients with oral cavity cancer by age category. Included in the evaluation are 2,304 cases diagnosed between 1988 and 2013.

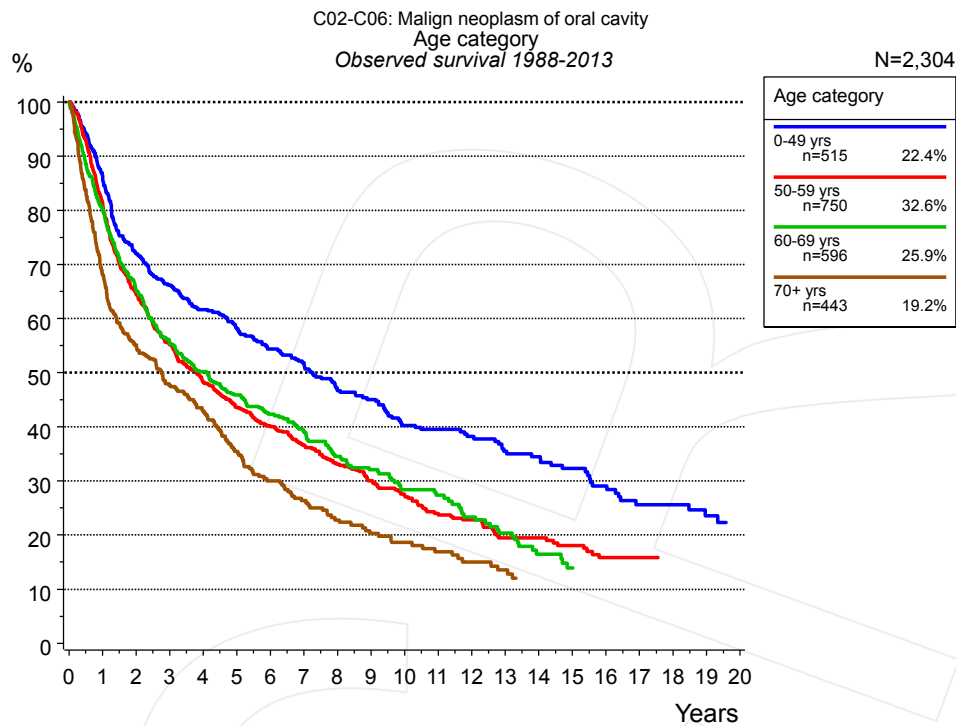


Figure 3b. Observed survival of patients with oral cavity cancer by age category. Included in the evaluation are 2,304 cases diagnosed between 1988 and 2013.

Years	Age category							
	0-49 yrs n=515		50-59 yrs n=750		60-69 yrs n=596		70+ yrs n=443	
	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	85.8	86.0	81.3	81.9	80.4	81.4	68.1	72.3
2	72.0	72.3	64.7	65.5	65.4	67.2	55.2	61.8
3	66.2	66.6	55.4	56.5	55.4	57.9	47.7	56.7
4	61.6	62.3	48.2	49.7	50.2	53.3	42.9	54.2
5	58.1	59.0	43.6	45.4	45.9	49.6	35.5	47.7
6	54.4	55.4	40.0	42.1	42.4	46.7	30.0	43.2
7	51.9	52.8	36.6	38.9	39.2	44.1	26.4	40.6
8	46.7	48.0	33.1	35.6	34.5	39.8	22.8	37.9
9	45.0	46.4	30.1	32.7	32.1	37.9	20.3	36.8
10	40.2	41.7	27.3	30.2	28.3	34.5	18.7	35.9
11	39.5	41.1	24.0	26.7	27.3	34.1	16.9	35.9
12	38.2	39.8	22.8	25.8	23.3	29.8	15.0	35.8
13	35.4	37.2	19.5	22.5	20.4	27.0	13.5	35.7
14	34.5	36.2	19.5	22.5	16.4	22.9		
15	32.3	34.3	18.1	21.3	13.9	20.2		
16	29.1	30.7	15.8	19.3	13.9	20.2		
17	25.6	27.8	15.8	19.1	13.9	20.2		
18	25.6	27.3						
19	23.6	25.9						

Table 3c. Observed (obs.) and relative (rel.) survival of patients with oral cavity cancer by age category for period 1988-2013 (N=2,304).

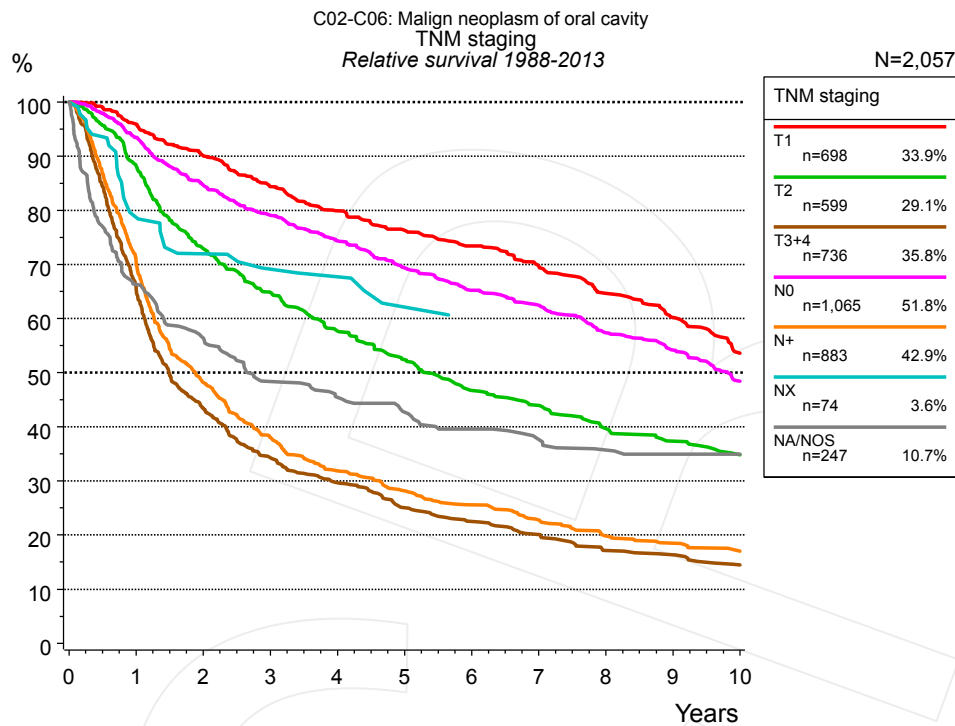


Figure 4a. Relative survival of patients with oral cavity cancer by TNM staging. For 2,070 of 2,304 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 2,057 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 247 patients with missing values regarding TNM staging (10.7% of 2,304 patients, the percent values of all other categories are related to n=2,057).

TNM staging														
	T1 n=698		T2 n=599		T3+4 n=736		N0 n=1,065		N+ n=883		NX n=74		NA/NOS n=247	
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	94.6	95.9	86.6	88.2	64.5	65.6	92.0	93.5	69.5	70.5	77.4	78.7	64.5	66.3
2	87.5	90.1	70.5	72.9	42.2	43.4	82.1	84.7	46.9	48.2	68.6	72.0	53.9	56.4
3	80.7	84.4	61.7	64.8	32.8	34.3	75.5	79.1	36.4	38.0	63.6	69.1	45.1	48.3
4	75.3	79.9	54.0	57.7	27.9	29.7	69.8	74.4	30.2	31.9	61.8	67.7	41.5	45.4
5	70.7	76.3	48.3	52.4	23.2	25.0	64.1	69.4	26.3	28.2	54.8	62.1	38.2	42.7
6	67.0	73.4	42.3	46.7	20.6	22.5	59.3	65.3	23.5	25.6	51.4	59.0	34.8	39.5
7	62.7	69.7	39.4	43.9	18.2	20.1	56.0	62.5	20.7	22.8			32.2	37.6
8	57.1	64.7	34.8	39.7	15.2	17.2	50.5	57.4	17.7	19.9			30.0	35.7
9	52.3	60.2	32.2	37.4	14.4	16.3	47.0	54.2	16.3	18.5			28.9	35.0
10	45.6	53.6	29.8	34.8	12.5	14.5	41.4	48.5	14.6	17.0			28.3	35.0

Table 4b. Observed (obs.) and relative (rel.) survival of patients with oral cavity cancer by TNM staging for period 1988-2013 (N=4,055).

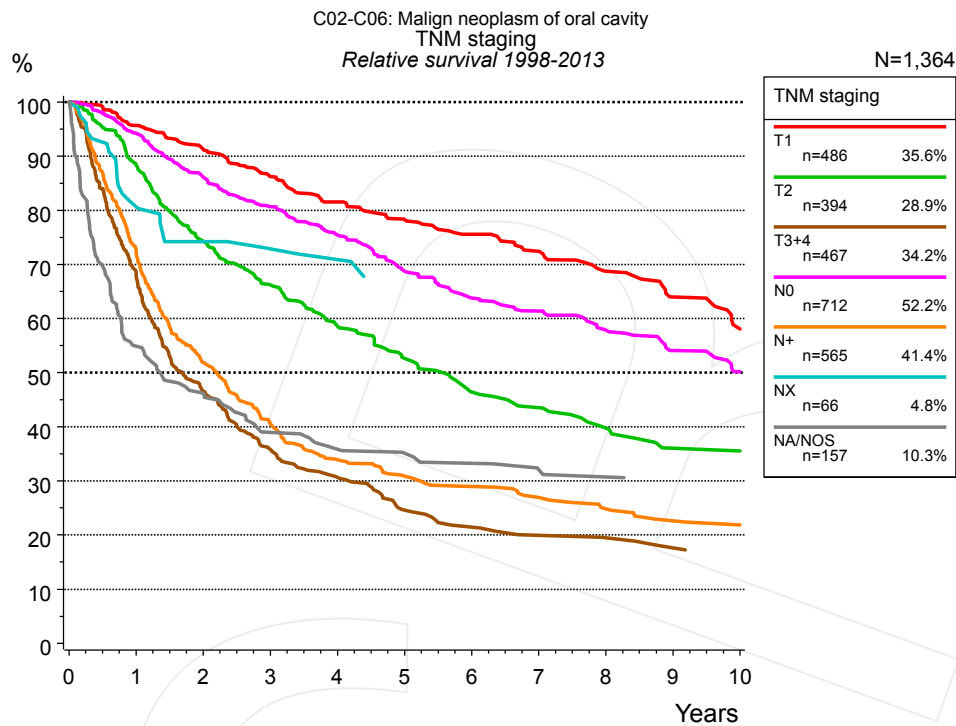


Figure 4c. Relative survival of patients with oral cavity cancer by TNM staging. For 1,375 of 1,521 cases diagnosed between 1998 and 2013 valid data could be obtained for this item. For a total of 1,364 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 157 patients with missing values regarding TNM staging (10.3% of 1,521 patients, the percent values of all other categories are related to n=1,364).

TNM staging														
	T1 n=486		T2 n=394		T3+4 n=467		N0 n=712		N+ n=565		NX n=66		NA/NOS n=157	
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	94.5	95.7	86.8	88.3	67.4	68.4	92.9	94.2	71.6	72.5	79.4	80.6	53.1	54.9
2	88.8	91.2	71.9	74.3	45.2	46.6	83.6	86.1	50.5	51.9	71.0	74.2	44.2	46.2
3	82.7	86.3	63.0	66.2	34.3	35.8	77.2	80.7	39.0	40.6	67.3	72.9	36.0	39.0
4	77.1	81.5	54.9	58.6	28.9	30.6	71.0	75.4	32.2	33.9	65.2	70.9	32.8	35.8
5	72.8	78.3	48.7	52.6	22.9	24.6	63.8	68.8	29.0	30.9	59.8	66.6	31.1	35.1
6	69.2	75.6	42.1	46.4	20.0	21.4	58.2	63.8	26.7	29.0			29.3	33.2
7	65.5	72.4	39.2	43.5	18.2	20.0	55.4	61.4	24.8	26.9			27.2	32.1
8	60.7	68.8	35.3	39.7	17.4	19.5	51.2	57.8	22.4	24.9			26.1	30.7
9	55.5	64.0	31.1	36.0	15.9	17.6	47.0	54.1	20.2	22.7			24.8	30.5
10	49.4	58.1	31.1	35.5	15.0	16.5	42.9	50.1	18.8	21.9			24.8	30.4

Table 4d. Observed (obs.) and relative (rel.) survival of patients with oral cavity cancer by TNM staging for period 1998-2013 (N=2,690).

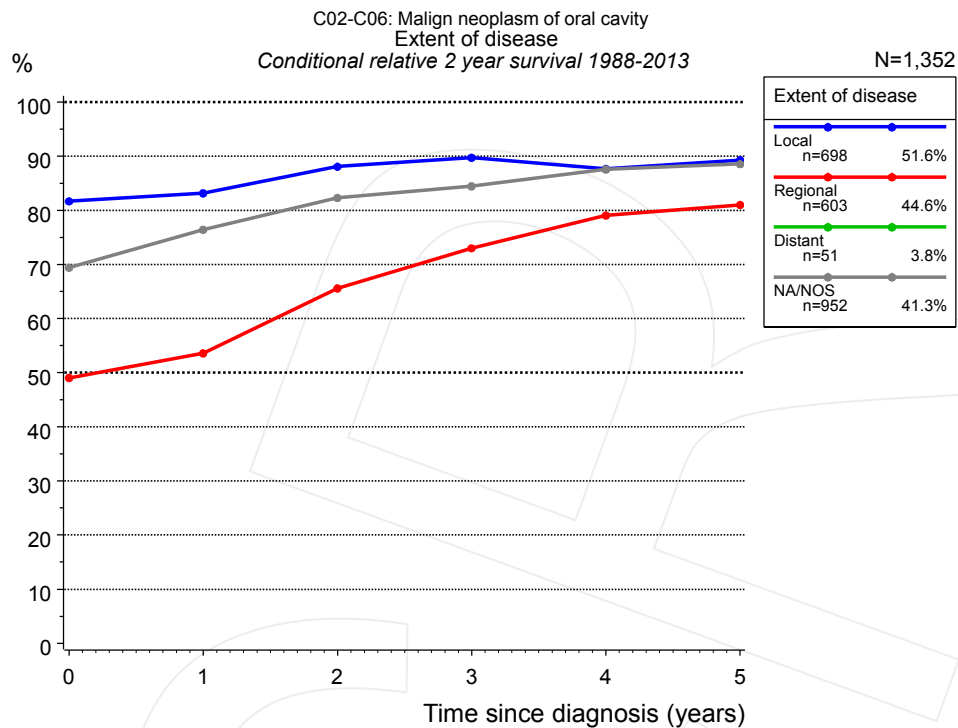


Figure 4e. Conditional relative 2-year survival of patients with oral cavity cancer by extent of disease. For 2,070 of 2,304 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 1,352 cases an evaluable classification was established. The grey line represents the subgroup of 952 patients with missing values regarding extent of disease (41.3% of 2,304 patients, the percent values of all other categories are related to n=1,352).

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	698	81.7	603	49.0	51		952	69.4
1	600	83.2	410	53.6			726	76.4
2	510	88.1	263	65.6			574	82.3
3	435	89.7	190	73.0			479	84.4
4	372	87.7	146	79.0			395	87.6
5	315	89.3	111	81.0			321	88.5

Table 4f. Conditional relative 2-year survival of patients with oral cavity cancer by extent of disease for period 1988-2013 (N=1,352).

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 4c). 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 89.7% (n=435).

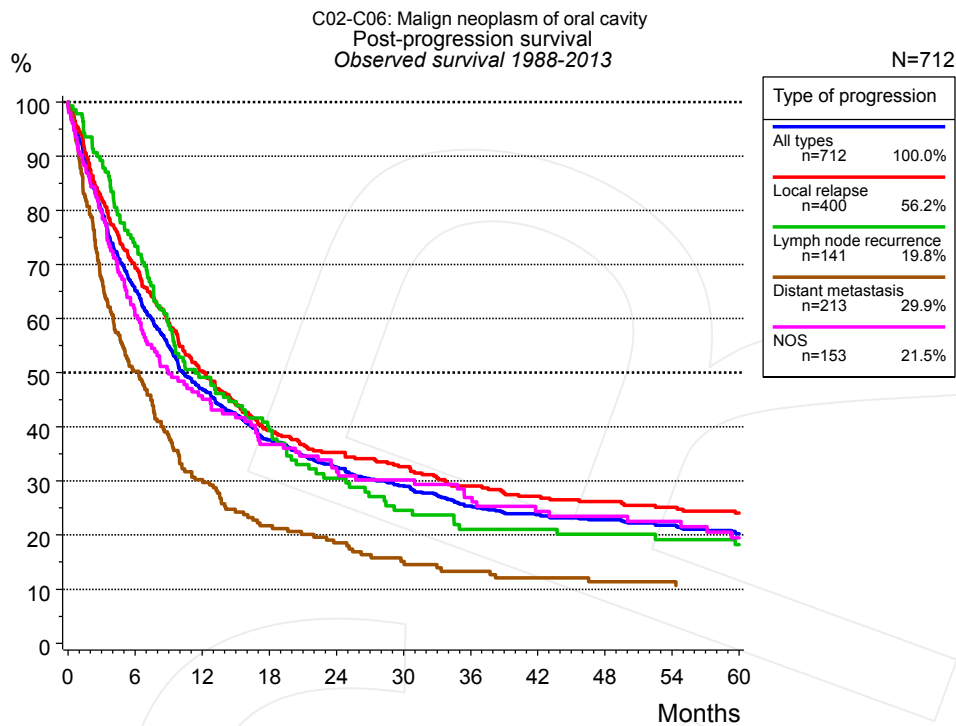


Figure 5a. Observed post-progression survival of 712 patients with oral cavity cancer diagnosed between 1988 and 2013 (incl. M1). These 712 patients with documented progression events during their course of disease represent 30.9% of the totally 2,304 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=280, 12.2%). 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 “All types” 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.

Months	Type of progression				
	All types n=712	Local relapse n=400	Lymph node recurrence n=141	Distant metastasis n=213	NOS n=153
	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
12	46.9	50.3	49.2	30.2	45.1
24	32.6	35.3	30.5	18.5	32.4
36	25.4	29.0	21.1	13.3	26.9
48	22.8	26.2	20.2	11.4	23.5
60	20.3	24.1	18.3		19.5

Table 5b. Observed post-progression survival of patients with oral cavity cancer for period 1988-2013 (N=712).

Shortcuts

MCR	Munich Cancer Registry, Germany (Tumorregister München)
NCI	National Cancer Institute, USA
SEER	Surveillance, Epidemiology, and End Results, USA
UICC	Union for International Cancer Control, Geneva
DCO	Death certificate only. The death certificate provides the only notification to the registry.
NA	Not available
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
RS	Relative survival, compared to the general population, ratio of observed to expected survival (Ederer II method), reflecting excess mortality among cancer patients
AS	Assembled survival chart (observed, expected, relative)
PPS	Post-progression survival, survival since first relapse (Kaplan-Meier estimate)
progression	Date of entry: Date of first locoregional recurrence, distant metastasis, unspecified
	Event: Death of all causes
CS	Conditional survival, survival probability under the condition of surviving a given period of time

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Index of figures and tables

Fig./Tbl.	Page
1a Relative survival by period of diagnosis (chart)	2
1b Survival by period of diagnosis (table)	3
2a Survival by gender (chart)	3
2b Survival by gender (table)	4
3a Relative survival by age category (chart)	4
3b Observed survival by age category (chart)	5
3c Survival by age category (table)	5
4a Relative survival by TNM staging 1988+ (chart)	6
4b Survival by TNM staging 1988+ (table)	6
4c Relative survival by TNM staging 1998+ (chart)	7
4d Survival by TNM staging 1998+ (table)	7
4e Conditional survival by extent of disease (chart)	8
4f Conditional survival by extent of disease (table)	8
5a Observed post-progression survival (chart)	9
5b Observed post-progression survival (table)	9