Munich Cancer Registry

ICD-10 C00-C14,C30-C32: HN cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	3,455	15,202
Diseases	3,549	15,934
Cases evaluated	3,166	11,932
Creation date	04/15/2022	
Database export	12/20/2021	
Population	4.92 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

https://www.tumorregister-muenchen.de/en/facts/surv/sC0032E-ICD-10-C00-C14-C30-C32-HN-cancer-survival.pdf

Index of figures and tables

ICD-10 C00-C14,C30-C32: Head and neck cancer
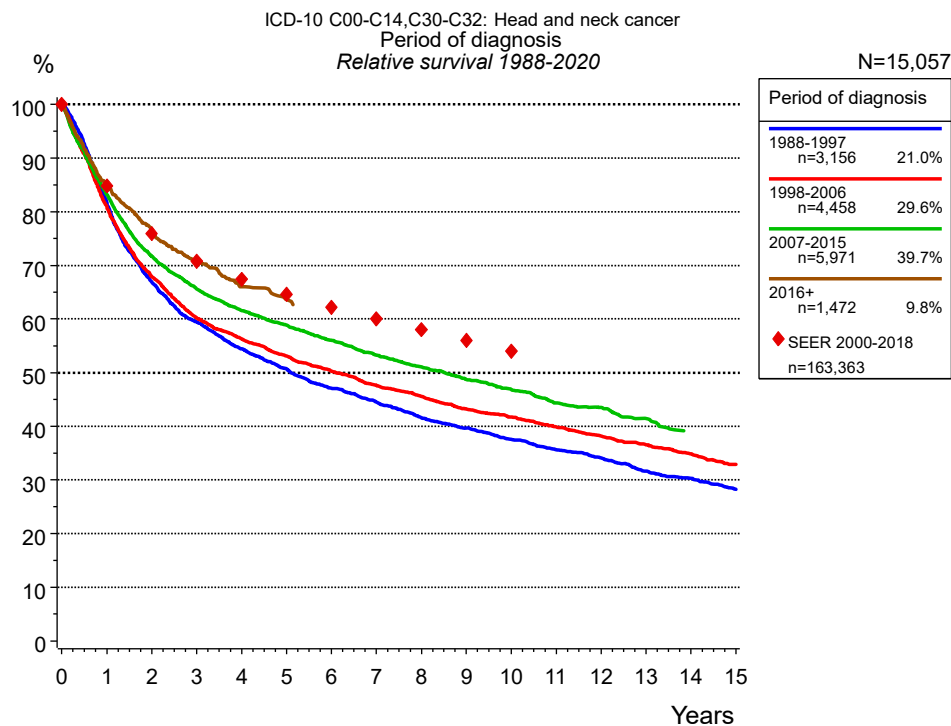Period of diagnosis
Relative survival 1988-2020

Figure 1a. Relative survival of patients with HN cancer by period of diagnosis. Included in the evaluation are 15,057 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=3,156		1998-2006 n=4,458		2007-2015 n=5,971		2016+ n=1,472	
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	80.0	81.6	79.4	80.9	81.6	83.2	83.1	84.9
2	64.3	66.9	65.5	67.9	69.0	71.7	73.3	76.4
3	56.1	59.4	57.1	60.2	62.0	65.6	66.7	70.9
4	50.4	54.5	52.3	56.2	57.1	61.6	60.8	66.0
5	46.0	50.7	48.5	53.1	53.5	58.8	57.3	63.6
6	41.9	47.1	45.1	50.3	49.9	56.0		
7	38.8	44.5	41.9	47.6	46.5	53.3		
8	35.5	41.6	39.3	45.6	43.6	51.0		
9	33.2	39.7	36.6	43.3	40.7	48.7		
10	30.9	37.6	34.6	41.8	38.3	46.8		
11	28.7	35.7	32.3	39.9	35.5	44.4		
12	26.8	34.1	30.3	38.2	34.0	43.5		
13	24.4	31.6	28.3	36.5	31.6	41.4		
14	22.8	30.3	26.4	34.9				
15	20.9	28.3	24.3	33.0				
Median	4.1		4.6		6.0			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with HN cancer by period of diagnosis for period 1988-2020 (N=15,057).
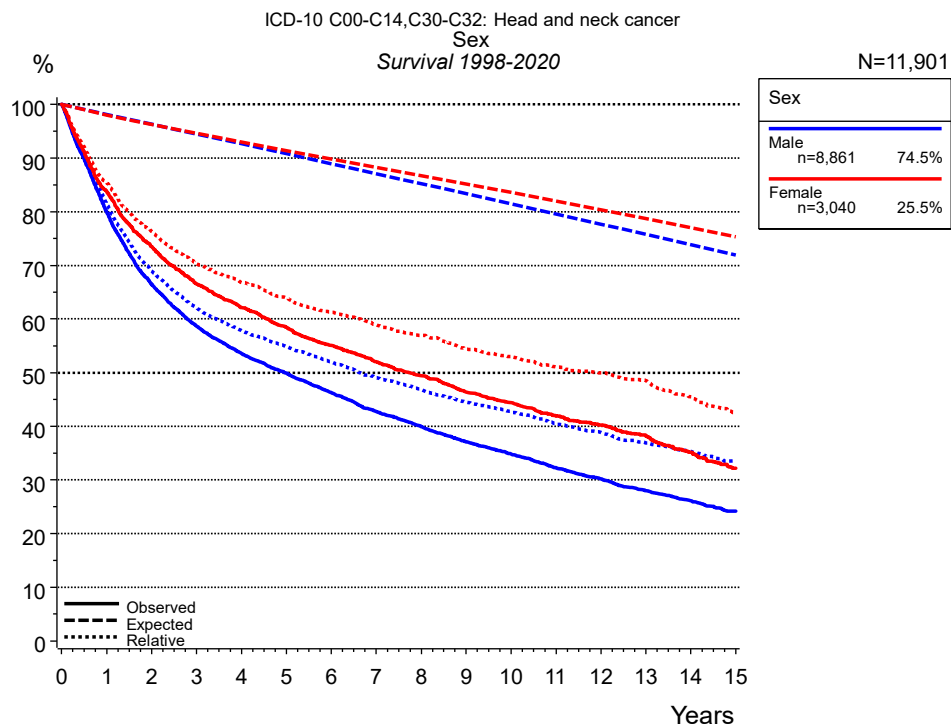
ICD-10 C00-C14,C30-C32: Head and neck cancer
Sex
Survival 1998-2020

Figure 2a. Survival of patients with HN cancer by sex. Included in the evaluation are 11,901 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=8,861		Female n=3,040	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	80.0	81.5	83.8	85.5
2	66.4	68.9	73.5	76.3
3	58.7	62.1	66.5	70.2
4	53.6	57.8	62.1	66.8
5	49.8	54.9	58.4	63.9
6	46.3	52.0	55.0	61.3
7	42.8	49.1	52.0	58.9
8	39.9	46.8	49.4	56.9
9	37.1	44.5	46.3	54.4
10	34.8	42.7	44.4	53.0
11	32.3	40.5	41.9	51.0
12	30.2	38.8	40.2	50.0
13	28.0	36.9	38.2	48.4
14	26.1	35.3	35.1	45.5
15	24.2	33.6	32.1	42.6
Median	5.0		7.7	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with HN cancer by sex for period 1998-2020 (N=11,901).

ICD-10 C00-C14,C30-C32: Head and neck cancer
Age category
Observed survival 1998-2020

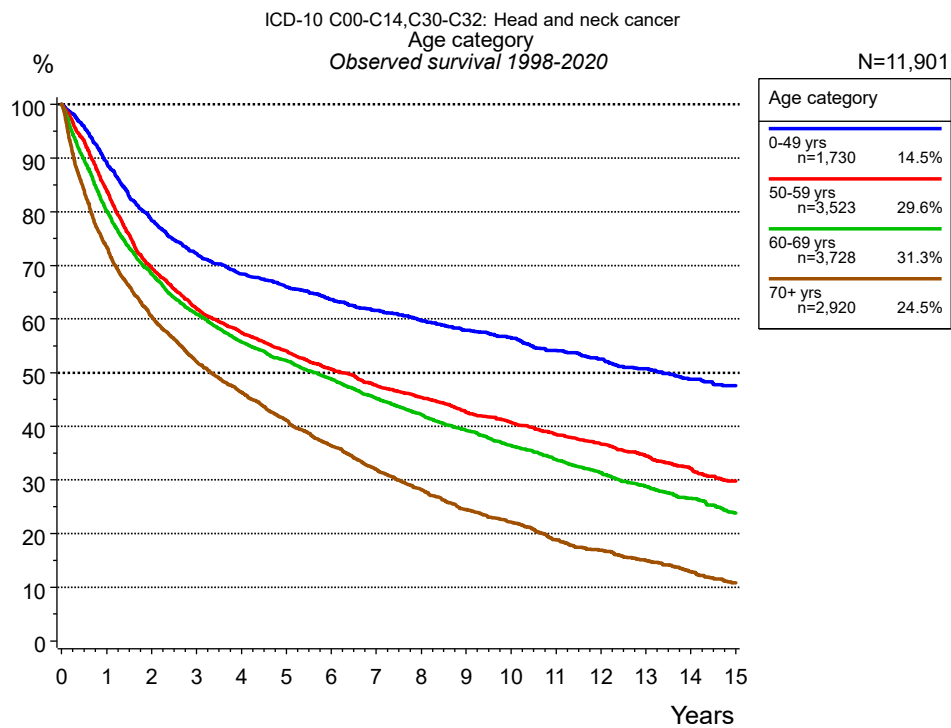**Figure 3a.** Observed survival of patients with HN cancer by age category. Included in the evaluation are 11,901 cases diagnosed between 1998 and 2020.

ICD-10 C00-C14,C30-C32: Head and neck cancer
Age category
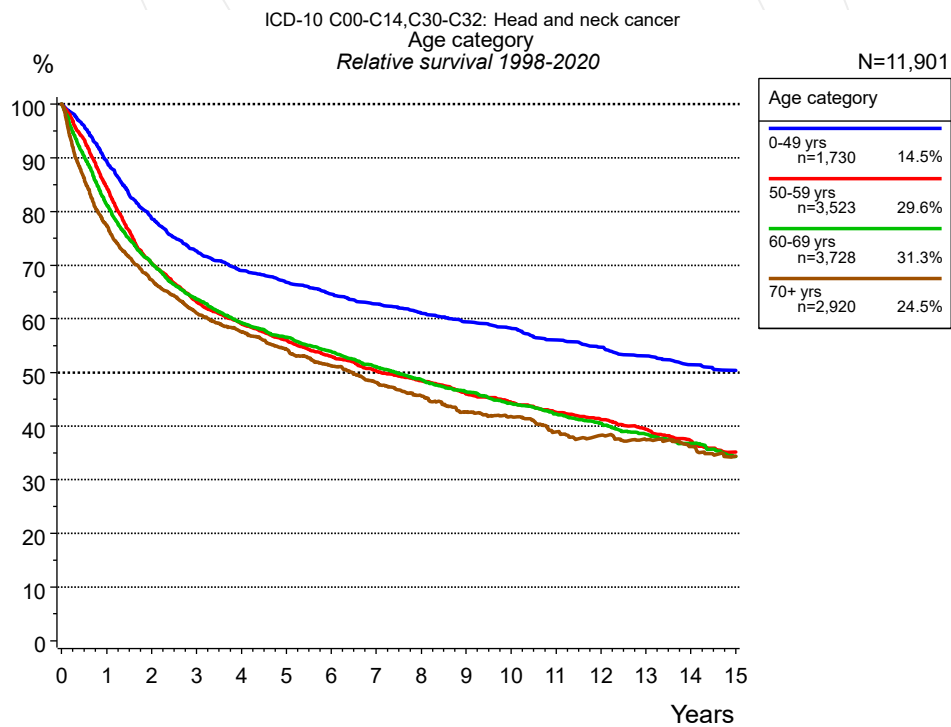*Relative survival 1998-2020*

Figure 3b. Relative survival of patients with HN cancer by age category. Included in the evaluation are 11,901 cases diagnosed between 1998 and 2020.

| | Age category | | | | | | | |
| | 0-49 yrs n=1,730 | | 50-59 yrs n=3,523 | | 60-69 yrs n=3,728 | | 70+ yrs n=2,920 | |
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	89.1	89.3	84.0	84.5	80.1	81.2	73.5	77.5
2	78.4	78.7	69.5	70.4	68.3	70.3	60.5	67.2
3	72.1	72.6	61.9	63.2	60.9	63.6	52.1	61.1
4	68.3	69.0	57.5	59.0	55.7	59.2	46.4	57.6
5	65.9	66.7	54.0	56.0	52.2	56.6	41.1	54.3
6	63.6	64.6	50.7	53.0	48.8	53.9	36.4	51.2
7	61.6	62.8	47.6	50.3	45.3	51.0	31.9	48.1
8	59.7	61.1	45.4	48.4	42.2	48.7	28.2	45.6
9	57.9	59.4	42.6	46.0	39.2	46.4	24.5	42.7
10	56.5	58.2	40.7	44.5	36.4	44.2	22.1	41.8
11	54.2	56.1	38.5	42.6	33.8	42.2	18.9	38.9
12	52.5	54.7	36.7	41.2	31.4	40.5	16.9	38.3
13	50.7	53.1	34.5	39.4	28.8	38.5	14.9	37.5
14	48.8	51.4	32.1	37.3	26.6	36.8	12.9	36.2
15	47.5	50.4	29.8	35.2	23.8	34.3	10.8	34.4
Median	13.4		6.2		5.6		3.3	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with HN cancer by age category for period 1998-2020 (N=11,901).
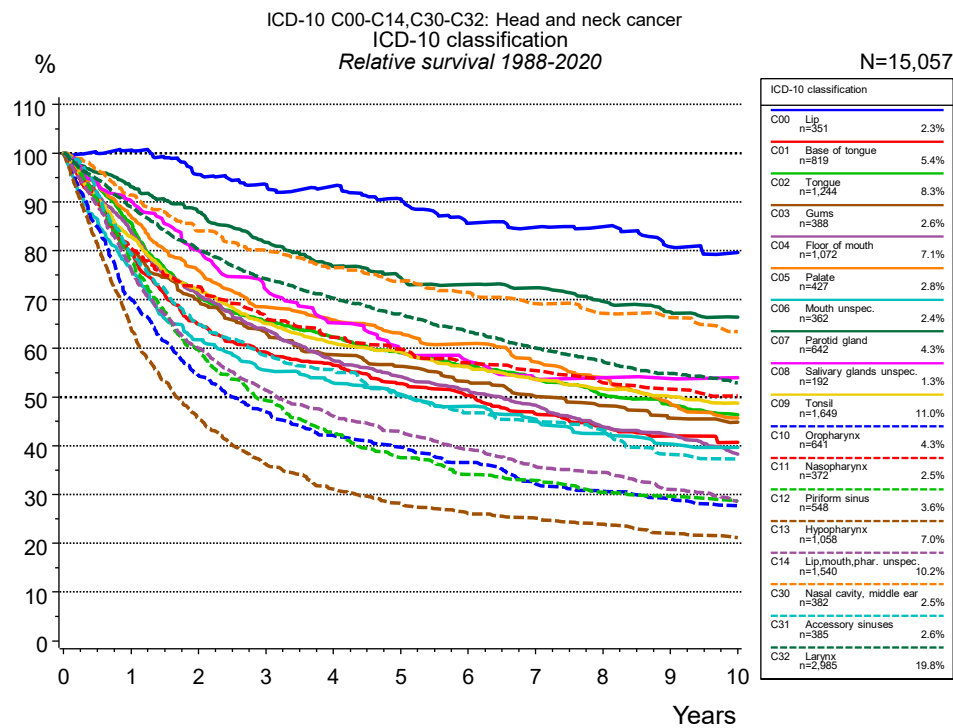
Figure 4a. Relative survival of patients with HN cancer by ICD-10 classification. Included in the evaluation are 15,057 cases diagnosed between 1988 and 2020.

| | ICD-10 classification | | | | | | | | | | | | | |
| | C00 Lip n=351 | | C01 Base of tongue n=819 | | C02 Tongue n=1,244 | | C03 Gums n=388 | | C04 Floor of mouth n=1,072 | | C05 Palate n=427 | | C06 Mouth unspec. n=362 | |
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	96.5	100.6	78.2	79.4	84.2	85.7	77.8	80.0	82.7	83.8	86.0	87.0	74.0	76.0
2	87.7	95.7	62.9	64.9	68.2	70.7	66.2	69.7	69.3	71.0	74.0	76.0	59.0	61.7
3	82.3	93.6	56.5	59.2	62.1	65.4	58.9	63.3	61.4	63.8	65.7	68.5	51.9	55.5
4	78.7	93.2	52.9	56.5	58.1	62.3	53.3	58.7	54.8	57.5	62.5	65.8	48.4	52.9
5	73.3	90.6	48.6	52.8	54.2	59.1	49.8	56.3	50.9	54.2	59.2	63.1	45.2	50.6
6	66.3	85.6	45.5	50.4	50.7	56.3	46.0	53.2	47.7	51.4	56.3	60.9	42.1	48.1
7	63.5	84.8	41.3	46.5	47.5	53.8	42.4	50.1	44.3	48.4	52.0	57.2	39.0	45.4
8	61.2	84.9	38.0	43.8	43.8	50.5	39.5	48.2	39.5	43.8	48.4	54.0	35.6	42.5
9	56.1	80.8	35.9	42.0	41.2	48.4	36.4	45.6	37.6	42.3	42.7	48.7	33.1	40.4
10	53.6	79.6	34.1	40.7	38.7	46.3	34.7	44.8	33.5	38.3	39.5	45.7	31.9	39.7
Median	10.9		4.6		6.2		4.9		5.2		7.5		3.6	

	ICD-10 classification												
cont'd	C07 Parotid gland		C08 Salivary glands unspec.		C09 Tonsil		C10 Oropharynx		C11 Nasopharynx		C12 Piriform sinus		C13 Hypopharynx	
	n=642		n=192		n=1,649		n=641		n=372		n=548		n=1,058	
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	90.4	93.1	88.1	90.2	81.5	82.8	69.2	70.1	79.7	80.5	76.9	77.9	62.9	63.9
2	83.3	88.0	76.3	80.0	69.8	72.0	52.9	54.4	71.1	72.6	58.0	59.6	44.2	45.5
3	75.4	81.7	67.6	72.0	62.0	65.0	45.1	47.0	64.0	66.3	47.3	49.3	34.8	36.2
4	69.2	76.8	59.7	65.2	57.4	61.1	39.9	42.1	59.5	62.2	40.5	42.8	29.2	31.1
5	65.6	74.6	53.4	59.4	54.8	59.2	37.2	39.7	56.6	59.8	34.8	37.6	26.1	28.1
6	62.8	73.1	50.9	57.3	51.2	56.2	33.8	36.6	53.3	57.0	31.2	34.1	23.9	26.1
7	60.9	72.4	46.1	53.6	48.2	53.7	29.1	32.2	51.1	55.5	29.6	32.9	22.6	25.2
8	57.2	69.6	46.1	54.0	45.6	51.7	27.5	30.7	47.9	52.9	27.0	30.5	21.2	23.9
9	54.3	67.5	45.3	53.8	43.3	50.0	25.8	29.1	46.2	51.6	25.7	29.7	19.3	22.1
10	52.3	66.4	44.3	54.0	41.4	48.7	24.2	27.7	44.3	50.2	24.4	28.5	18.1	21.2
Median	11.0		6.2		6.4		2.3		7.3		2.7		1.6	

	ICD-10 classification							
cont'd	C14 Lip,mouth,phar. unspec.		C30 Nasal cavity, middle ear		C31 Accessory sinuses		C32 Larynx	
	n=1,540		n=382		n=385		n=2,985	
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	75.0	76.1	89.1	91.4	77.4	79.4	87.1	89.0
2	58.3	60.0	79.6	84.0	61.9	64.8	76.7	80.1
3	49.2	51.4	74.0	80.0	54.5	58.5	69.4	74.2
4	43.6	46.1	68.9	76.5	50.9	55.6	64.2	70.3
5	39.7	42.8	64.9	73.8	45.1	50.3	59.8	67.0
6	35.8	39.2	61.5	71.5	40.9	46.7	55.2	63.4
7	32.1	35.7	58.1	69.2	38.7	45.0	51.1	60.1
8	30.5	34.5	55.1	67.1	36.3	43.2	47.5	57.3
9	26.9	31.1	53.2	66.3	31.7	38.2	44.3	54.8
10	24.5	28.7	49.9	63.4	30.1	37.2	41.7	52.9
Median	2.9		9.9		4.3		7.3	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with HN cancer by ICD-10 classification for period 1988-2020 (N=15,057).

ICD-10 C00-C14,C30-C32: Head and neck cancer
Extent of disease
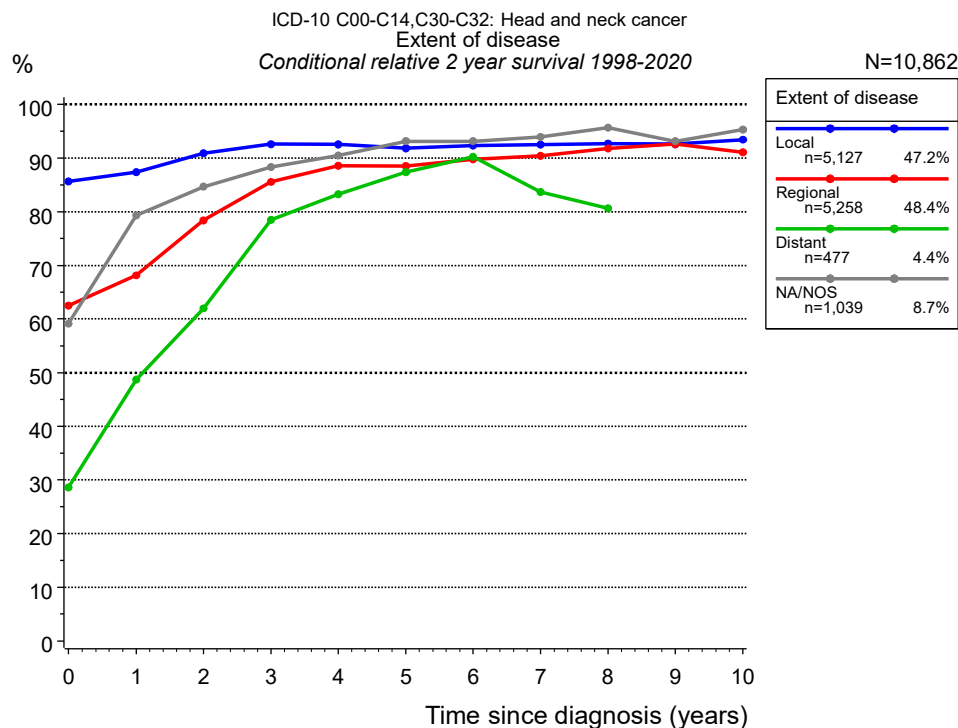*Conditional relative 2 year survival 1998-2020*

Figure 4c. Conditional relative 2-year survival of patients with HN cancer by extent of disease. For 10,916 of 11,901 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 10,862 cases an evaluable classification was established. The grey line represents the subgroup of 1,039 patients with missing values regarding extent of disease (8.7 % of 11,901 patients, the percent values of all other categories are related to n=10,862).

	Extent of disease							
	Local		Regional		Distant		NA/NOS	
		Cond. surv. %		Cond. surv. %		Cond. surv. %		Cond. surv. %
Years	n	2 yrs	n	2 yrs	n	2 yrs	n	2 yrs
0	5,127	85.7	5,258	62.5	477	28.6	1,039	59.1
1	4,558	87.4	3,998	68.1	200	48.7	652	79.3
2	4,030	90.9	3,067	78.4	126	62.0	550	84.7
3	3,648	92.6	2,514	85.5	85	78.5	470	88.3
4	3,286	92.5	2,169	88.6	63	83.2	414	90.5
5	2,963	91.8	1,887	88.5	56	87.4	371	93.1
6	2,612	92.3	1,609	89.7	44	90.2	336	93.2
7	2,305	92.5	1,358	90.4	38	83.7	304	94.0
8	1,991	92.7	1,165	91.8	33	80.7	270	95.7
9	1,693	92.6	980	92.6			237	93.1
10	1,453	93.5	835	91.0			209	95.4

Table 4d. Conditional relative 2-year survival of patients with HN cancer by extent of disease for period 1998-2020 (N=10,862).

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 92.6% (n=3,648).
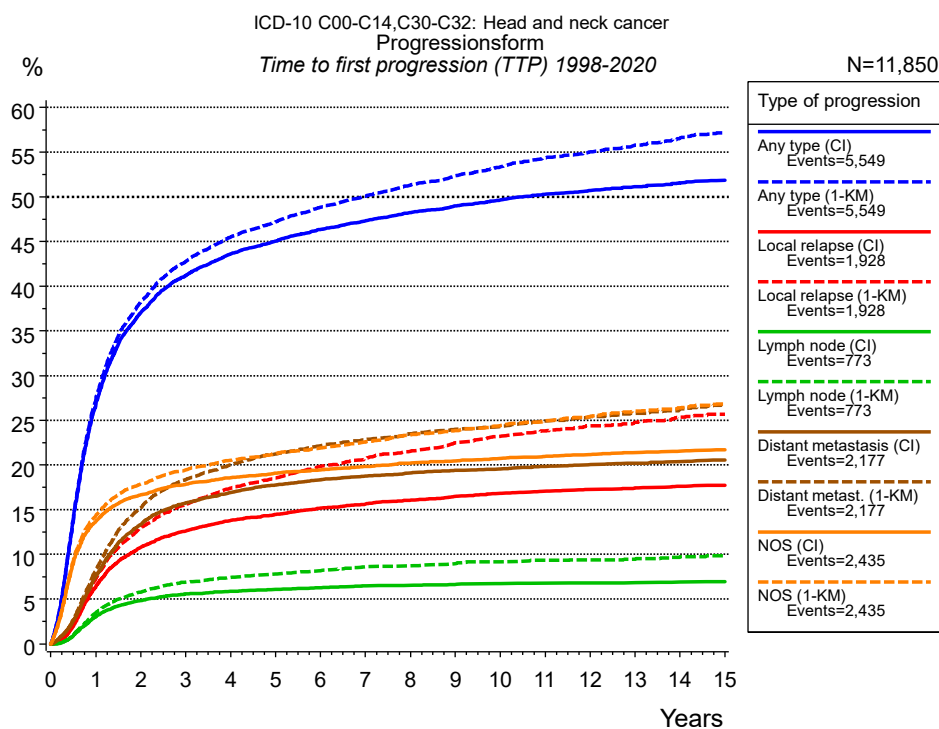
ICD-10 C00-C14,C30-C32: Head and neck cancer
Progressionsform
Time to first progression (TTP) 1998-2020   N=11,850

Figure 5a. Time to first progression of 11,850 patients with HN 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)	Lymph node (CI)	Lymph node (1-KM)	Distant metastasis (CI)
N	11,395	11,395	11,850	11,850	11,850	11,850	11,398
Events	5,511	5,511	1,914	1,914	771	771	2,168
compet.	2,257		5,862		6,723		4,916
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	26.9	27.4	6.5	7.3	3.1	3.5	7.6
2	37.1	38.2	10.8	13.0	4.8	5.8	13.3
3	41.2	42.8	12.6	15.6	5.6	6.9	15.8
4	43.6	45.5	13.8	17.4	5.9	7.4	16.9
5	45.0	47.2	14.5	18.6	6.1	7.8	17.8
6	46.4	48.8	15.2	19.8	6.3	8.2	18.3
7	47.3	50.1	15.7	20.7	6.5	8.6	18.8
8	48.3	51.3	16.1	21.6	6.6	8.7	19.1
9	49.0	52.4	16.5	22.5	6.7	9.0	19.4
10	49.7	53.4	16.8	23.3	6.8	9.2	19.6
11	50.3	54.4	17.1	23.8	6.8	9.4	19.8
12	50.7	55.0	17.3	24.4	6.8	9.4	20.1
13	51.2	55.8	17.4	24.8	6.8	9.5	20.2
14	51.6	56.6	17.6	25.3	6.9	9.8	20.4
15	51.9	57.2	17.7	25.7	7.0	9.9	20.6

cont'd	Type of progression		
	Distant metast. (1-KM)	NOS (CI)	NOS (1-KM)
N	11,398	11,847	11,847
Events	2,168	2,411	2,411
compet.		5,178	
Years	%	%	%
0	0.0	0.0	0.0
1	8.3	13.7	14.4
2	15.2	16.7	17.9
3	18.4	17.8	19.4
4	20.0	18.6	20.5
5	21.3	19.1	21.3
6	22.1	19.5	21.9
7	22.8	19.8	22.6
8	23.5	20.2	23.4
9	24.0	20.5	23.9
10	24.3	20.8	24.4
11	24.9	21.0	24.9
12	25.4	21.2	25.4
13	25.8	21.4	26.0
14	26.3	21.6	26.4
15	26.8	21.7	26.8

Table 5b. Time to first progression of patients with HN cancer for period 1998-2020 (N=11,850), also showing the total of progression events (Events) and of deaths as competing risk (compet.).
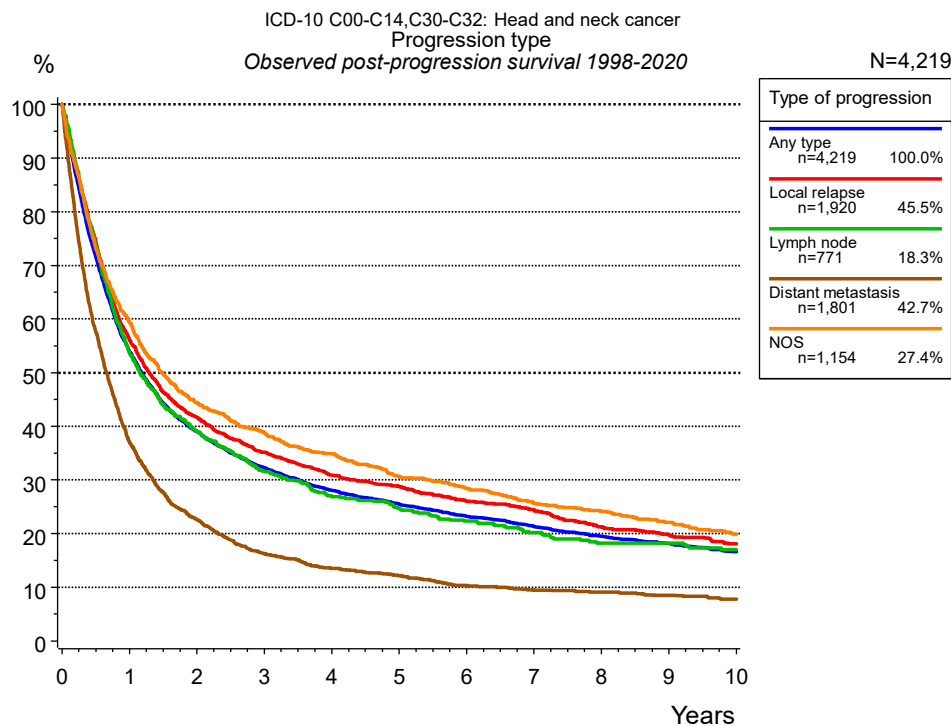
ICD-10 C00-C14,C30-C32: Head and neck cancer
Progression type
Observed post-progression survival 1998-2020

N=4,219

Type of progression	
Any type n=4,219	100.0%
Local relapse n=1,920	45.5%
Lymph node n=771	18.3%
Distant metastasis n=1,801	42.7%
NOS n=1,154	27.4%

Figure 5c. Observed post-progression survival of 4,219 patients with HN cancer diagnosed between 1998 and 2020. These 4,219 patients with documented progression events during their course of disease represent 35.6 % of the totally 11,850 evaluated cases (incl. M1, n=455, 3.8 %). Patients with cancer relapse documented via death certificates only were excluded (n=1,785, 15.1 %). 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	Lymph node	Distant metastasis	NOS
	n=4,219	n=1,920	n=771	n=1,801	n=1,154
Years	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
1	53.9	56.1	53.8	37.1	59.3
2	39.0	41.7	39.1	22.6	44.4
3	32.3	35.1	31.6	16.2	38.9
4	28.1	30.9	27.0	13.5	34.8
5	25.4	28.8	24.8	12.1	30.6
6	23.2	26.0	22.3	10.3	28.5
7	21.4	24.4	20.2	9.4	25.7
8	19.5	21.3	18.2	9.1	24.1
9	18.2	19.8	18.2	8.5	22.1
10	16.6	18.0	17.0	7.8	19.9

Table 5d. Observed post-progression survival of patients with HN cancer for period 1998-2020 (N=4,219).

ICD-10 C00-C14,C30-C32: Head and neck cancer
Type of Progression: Distant metastasis
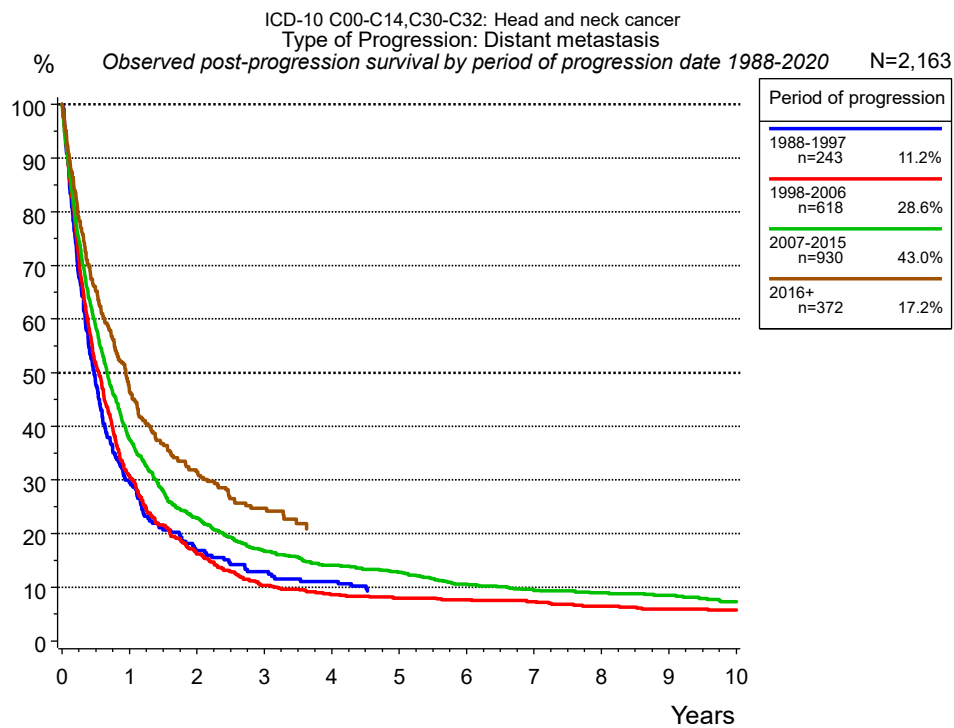*Observed post-progression survival by period of progression date 1988-2020*   N=2,163

Figure 5e. Observed post-progression (distant metastasis) survival of 2,163 patients with HN cancer diagnosed between 1988 and 2020 by period of progression.

| | Period of progression | | | |
| | 1988-1997 n=243 | 1998-2006 n=618 | 2007-2015 n=930 | 2016+ n=372 |
Years	%	%	%	%
0	100.0	100.0	100.0	100.0
1	29.5	30.9	37.7	46.8
2	16.8	16.2	22.8	31.5
3	12.9	10.3	16.7	24.7
4	11.1	8.7	14.1	
5		8.0	12.8	
6		7.7	10.6	
7		7.3	9.4	
8		6.4	8.9	
9		5.9	8.4	
10		5.7	7.3	

Table 5f. Observed post-progression (distant metastasis) survival of patients with HN cancer for period 1988-2020 by period of progression (N=2,163).

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

Munich Cancer Registry. Survival ICD-10 C00-C14,C30-C32: HN cancer [Internet]. 2022 [updated 2022 Apr 15; cited 2022 Jun 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/surv/sC0032E-ICD-10-C00-C14-C30-C32-HN-cancer-survival.pdf

Copyright

Disclaimer