

# Munich Cancer Registry



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

## ICD-10 C51: Vulva cancer

### Survival

Year of diagnosis	1988-1997	1998-2019
Patients	280	2,063
Diseases	280	2,066
Cases evaluated	230	1,577
Creation date	01/27/2021	
Database export	01/07/2021	
Population (females)	2.48 m	



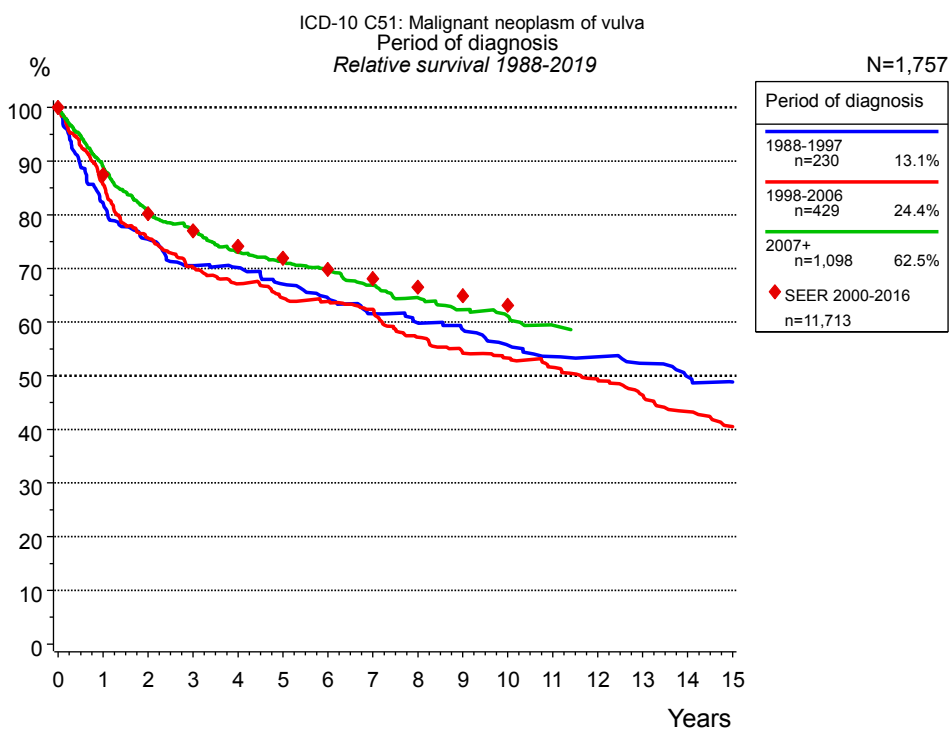
Munich Cancer Registry  
Cancer Registry Bavaria - Upper Bavaria Regional Center  
at Klinikum Grosshadern/IBE  
Marchioninstr. 15  
Munich, 81377  
Germany

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

[https://www.tumorregister-muenchen.de/en/facts/surv/sC51\\_\\_E-ICD-10-C51-Vulva-cancer-survival.pdf](https://www.tumorregister-muenchen.de/en/facts/surv/sC51__E-ICD-10-C51-Vulva-cancer-survival.pdf)

**Index of figures and tables**

Fig./Tbl.		Page
1a	Relative survival by period of diagnosis (chart)	3
1b	Survival by period of diagnosis (table)	3
2a	Survival of total cohort (chart)	4
2b	Survival of total cohort (table)	4
3a	Relative survival by age category (chart)	5
3b	Survival by age category (table)	5
4a	Relative survival by FIGO (chart)	6
4b	Survival by FIGO (table)	6
5a	Time to first progression (chart)	7
5b	Time to first progression (table)	7
5c	Observed post-progression survival (chart)	9
5d	Observed post-progression survival (table)	9
5e	Observed post-progression survival by period of progression (chart)	10
5f	Observed post-progression survival by period of progression (table)	10



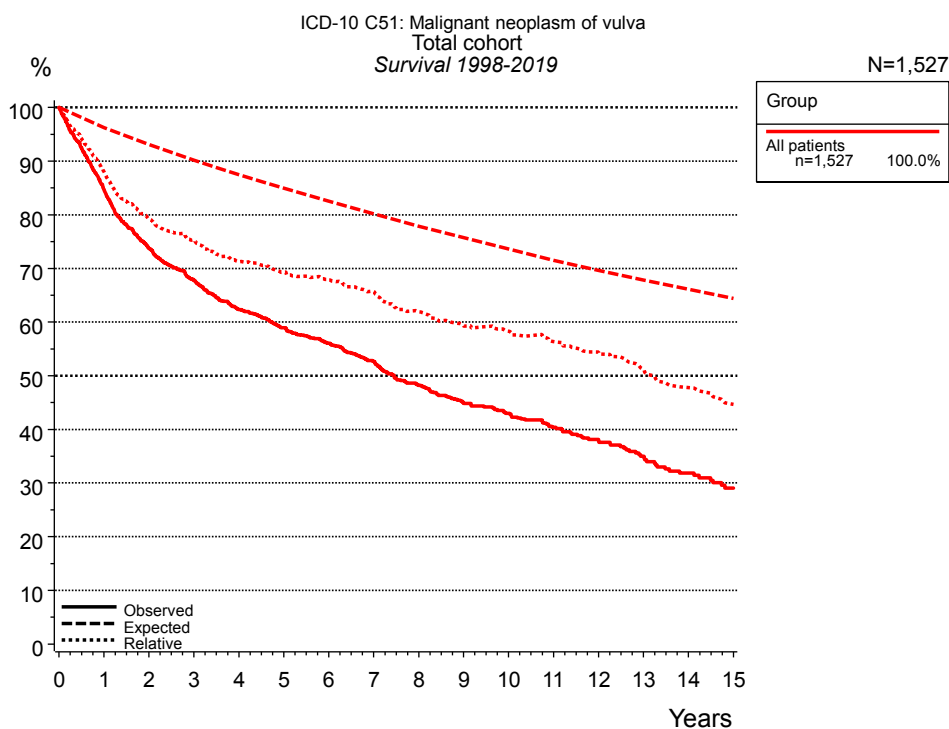
**Figure 1a.** Relative survival of patients with vulva cancer by period of diagnosis. Included in the evaluation are 1,757 cases diagnosed between 1988 and 2019.

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 2016, 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=230		1998-2006 n=429		2007+ n=1,098	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	79.0	82.2	81.9	85.7	86.0	88.9
2	70.1	75.4	69.6	75.7	75.4	80.6
3	63.9	70.5	62.2	70.1	70.2	77.3
4	61.6	70.2	57.7	67.1	64.4	73.0
5	57.1	67.1	53.9	64.5	61.3	71.4
6	53.4	64.5	51.7	63.8	58.0	69.5
7	49.7	61.5	49.0	62.4	54.2	66.8
8	47.3	59.8	43.4	57.2	51.0	64.5
9	45.0	58.6	40.0	54.2	47.9	62.3
10	41.7	55.7	38.5	53.3	45.8	61.1
11	39.3	53.5	36.2	51.6	42.8	59.4
12	38.4	53.5	33.9	49.4		
13	36.5	52.3	31.1	46.4		
14	34.0	49.8	28.3	43.3		
15	32.6	48.8	25.8	40.5		
Median	6.9		6.6		8.4	

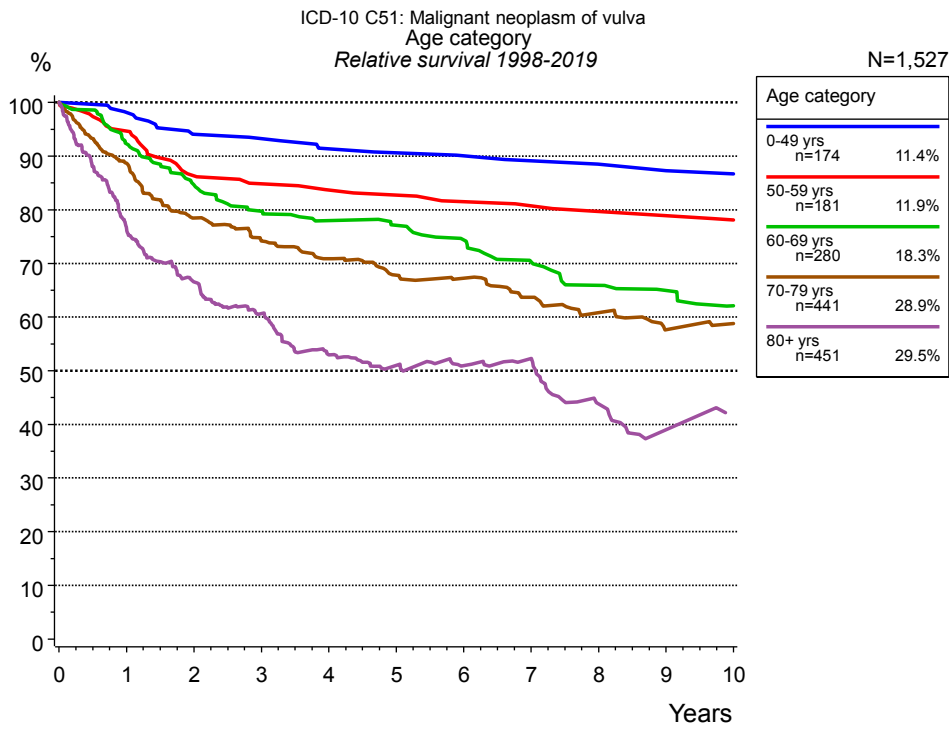
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with vulva cancer by period of diagnosis for period 1988-2019 (N=1,757).



**Figure 2a.** Observed, expected and relative survival of the total cohort with vulva cancer. Included in the evaluation are 1,527 cases diagnosed between 1998 and 2019.

Years	Group	
	obs. %	rel. %
0	100.0	100.0
1	84.8	88.0
2	73.7	79.2
3	67.8	75.1
4	62.4	71.2
5	58.9	69.3
6	56.0	67.8
7	52.7	65.6
8	48.2	61.9
9	44.8	59.2
10	43.0	58.3
11	40.4	56.4
12	38.1	54.4
13	35.0	51.2
14	31.9	47.8
15	29.1	44.7
Median	7.4	

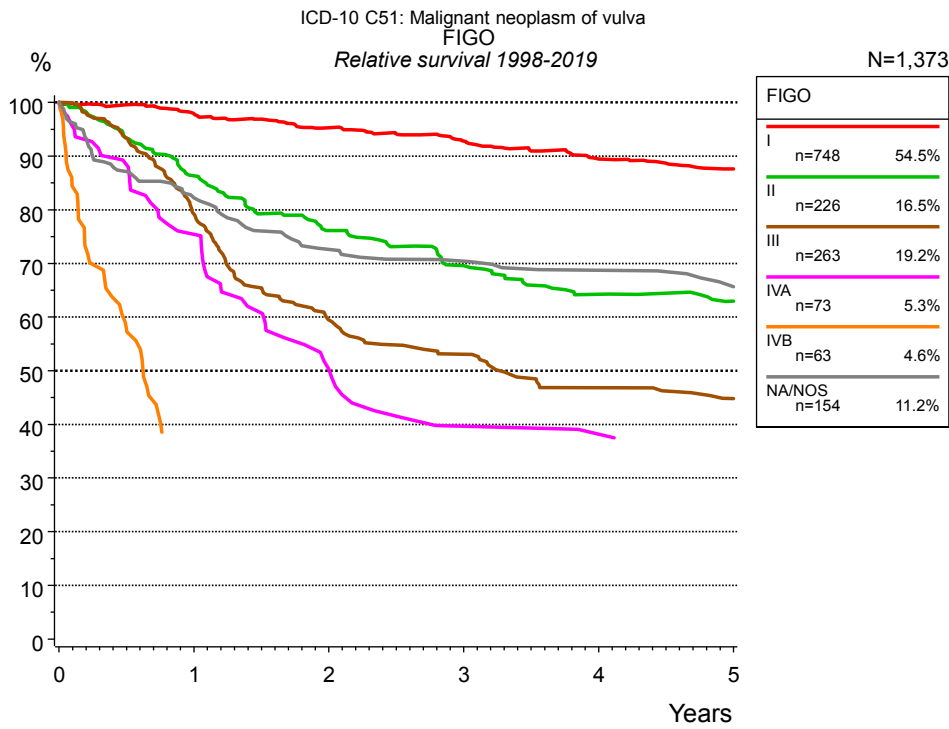
**Table 2b.** Observed (obs.) and relative (rel.) survival of the total cohort with vulva cancer for period 1998-2019 (N=1,527).



**Figure 3a.** Relative survival of patients with vulva cancer by age category. Included in the evaluation are 1,527 cases diagnosed between 1998 and 2019.

Years	Age category									
	0-49 yrs n=174		50-59 yrs n=181		60-69 yrs n=280		70-79 yrs n=441		80+ yrs n=451	
	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
1	98.2	98.2	94.8	94.7	91.7	92.3	86.8	88.7	69.3	76.5
2	93.8	94.0	86.2	86.3	83.2	84.7	74.8	78.5	54.0	66.6
3	93.2	93.2	84.1	84.9	78.0	79.7	68.7	74.2	44.2	60.7
4	91.0	91.3	82.5	83.7	75.2	78.0	63.8	70.9	34.5	53.0
5	90.2	90.6	81.7	82.8	73.5	77.1	59.0	67.8	29.4	51.0
6	89.4	90.0	79.7	81.5	70.1	74.4	56.3	67.2	25.6	51.0
7	88.5	89.1	78.7	80.7	65.3	70.3	51.2	63.7	23.2	52.3
8	87.4	88.5	77.6	79.7	60.6	65.9	46.5	60.8	16.6	43.8
9	86.0	87.3	76.2	78.9	58.5	65.0	41.5	57.6	12.5	39.0
10	86.0	86.7	74.6	78.1	54.6	62.1	40.3	58.8		
Median					13.8		7.1		2.3	

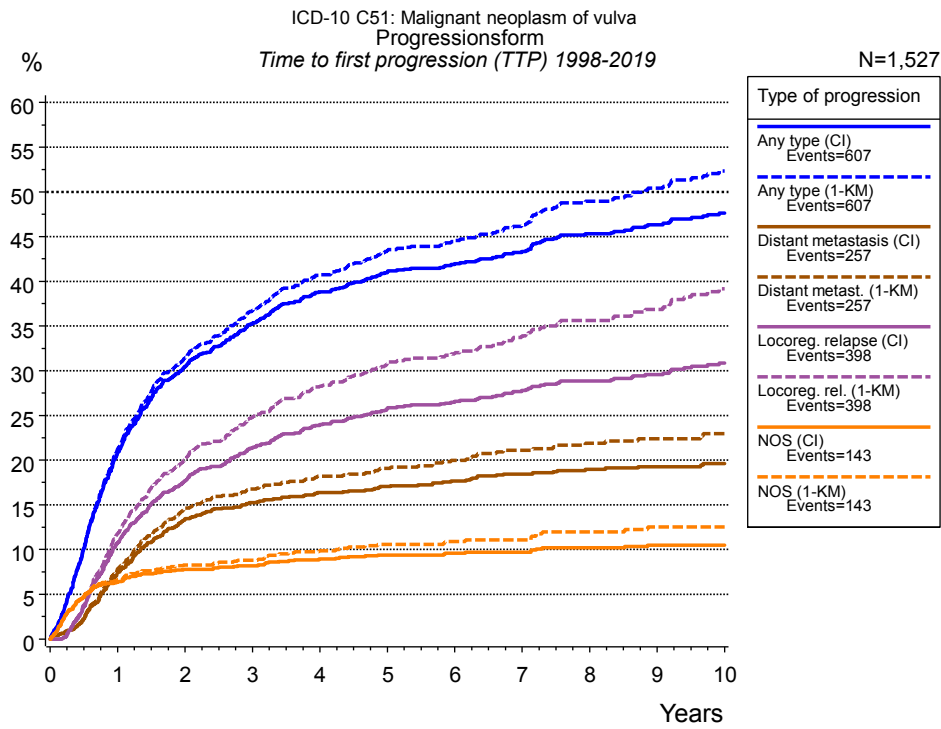
**Table 3b.** Observed (obs.) and relative (rel.) survival of patients with vulva cancer by age category for period 1998-2019 (N=1,527).



**Figure 4a.** Relative survival of patients with vulva cancer by FIGO. For 1,422 of 1,527 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 1,373 cases an evaluable classification was established. The grey line represents the subgroup of 154 patients with missing values regarding FIGO (10.1 % of 1,527 patients, the percent values of all other categories are related to n=1,373).

Years	FIGO											
	I n=748		II n=226		III n=263		IVA n=73		IVB n=63		NA/NOS n=154	
	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
1	95.1	97.9	81.9	86.3	76.5	79.2	73.1	75.4	37.4	37.8	78.9	82.2
2	89.7	95.3	68.7	76.1	55.5	59.5	46.5	50.2			67.5	72.6
3	84.9	92.8	59.8	69.6	48.2	53.1	36.0	39.7			64.0	70.4
4	79.7	89.5	53.1	64.2	41.1	46.8	34.4	38.2			60.4	68.7
5	75.8	87.6	49.7	63.0	38.4	44.8					57.3	65.6
Median	12.8		4.9		2.6		1.9		0.6		8.4	

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with vulva cancer by FIGO for period 1998-2019 (N=1,373).



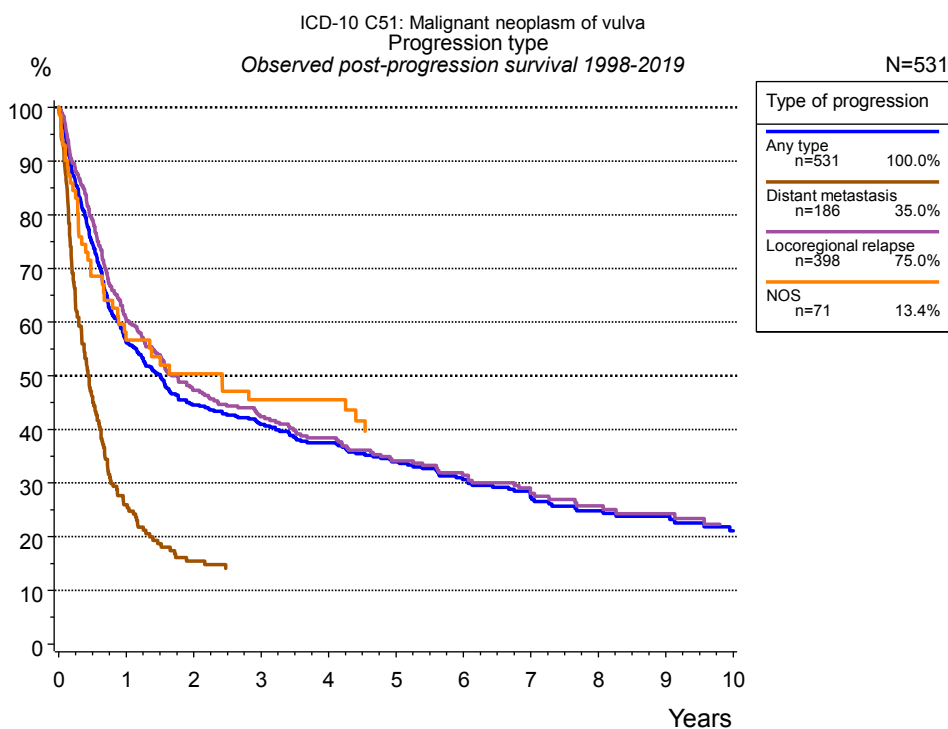
**Figure 5a.** Time to first progression of 1,527 patients with vulva cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression							
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)	
N	1,470	1,470	1,470	1,470	1,527	1,527	1,527	
Events	598	598	247	247	391	391	142	
compet.	221		404		444		569	
Years	%	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	20.8	21.2	7.4	7.8	10.8	11.8	6.3	
2	30.5	31.4	13.4	14.6	17.7	20.1	7.8	
3	35.3	36.7	15.2	16.8	21.4	24.8	8.2	
4	38.8	40.8	16.4	18.2	23.9	28.2	8.9	
5	41.1	43.4	17.0	19.1	25.8	30.9	9.4	
6	42.0	44.6	17.7	20.0	26.6	32.0	9.6	
7	43.3	46.3	18.5	21.1	27.8	33.9	9.7	
8	45.3	48.9	19.0	21.9	28.9	35.6	10.2	
9	46.3	50.4	19.3	22.4	29.6	36.9	10.5	
10	47.7	52.3	19.6	23.0	30.8	39.2	10.5	

Type of progression	
<i>cont'd</i>	NOS (1-KM)
N	1,527
Events	142
compet.	
Years	%
0	0.0
1	6.6
2	8.3
3	8.8
4	9.9
5	10.6
6	10.9
7	11.1
8	12.0
9	12.5
10	12.5

**Table 5b.** Time to first progression of patients with vulva cancer for period 1998-2019 (N=1,527), also showing the total of progression events (Events) and of deaths as competing risk (compet.).



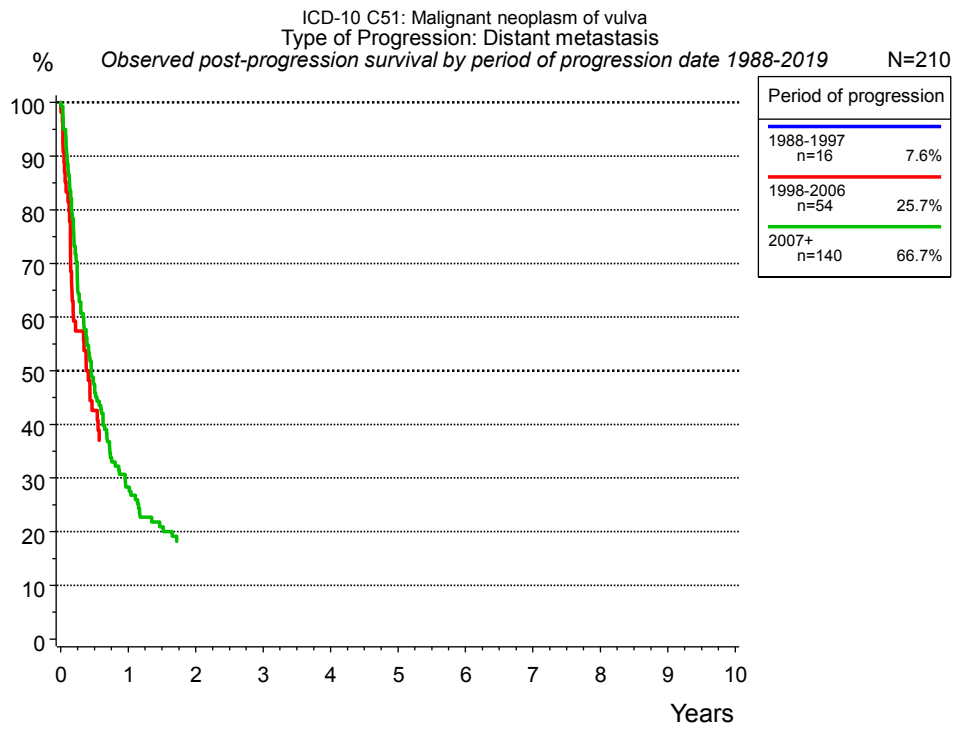


**Figure 5c.** Observed post-progression survival of 531 patients with vulva cancer diagnosed between 1998 and 2019. These 531 patients with documented progression events during their course of disease represent 34.8 % of the totally 1,527 evaluated cases (incl. M1, n=57, 3.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=133, 8.7 %). 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=531 %	Distant metastasis n=186 %	Locoregional relapse n=398 %	NOS n=71 %
0	100.0	100.0	100.0	100.0
1	56.1	25.9	60.3	56.6
2	44.6	15.5	47.2	50.3
3	40.9		42.3	45.5
4	37.5		38.4	45.5
5	34.0		34.1	
6	30.6		31.4	
7	27.3		28.1	
8	24.8		25.7	
9	23.8		24.3	
10	21.1			

**Table 5d.** Observed post-progression survival of patients with vulva cancer for period 1998-2019 (N=531).



**Figure 5e.** Observed post-progression (distant metastasis) survival of 210 patients with vulva cancer diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression	
	1998-2006 n=54 %	2007+ n=140 %
0	100.0	100.0
1		28.3

**Table 5f.** Observed post-progression (distant metastasis) survival of patients with vulva cancer for period 1988-2019 by period of progression (N=210).

**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 C51: Vulva cancer [Internet]. 2021 [updated 2021 Jan 27; cited 2021 Mar 1]. Available from: [https://www.tumorregister-muenchen.de/en/facts/surv/sC51\\_\\_E-ICD-10-C51-Vulva-cancer-survival.pdf](https://www.tumorregister-muenchen.de/en/facts/surv/sC51__E-ICD-10-C51-Vulva-cancer-survival.pdf)

**Copyright**

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

**Disclaimer**

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.