

Munich Cancer Registry



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ICD-10 C51-C58: Fem. genitale cancer

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	5,417	28,074
Diseases	5,479	28,670
Cases evaluated	4,908	22,298
Creation date	01/27/2021	
Database export	01/07/2021	
Population (females)	2.48 m	



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

<https://www.tumorregister-muenchen.de/en/facts/surv/sC5158E-ICD-10-C51-C58-Fem.-genitale-cancer-survival.pdf>

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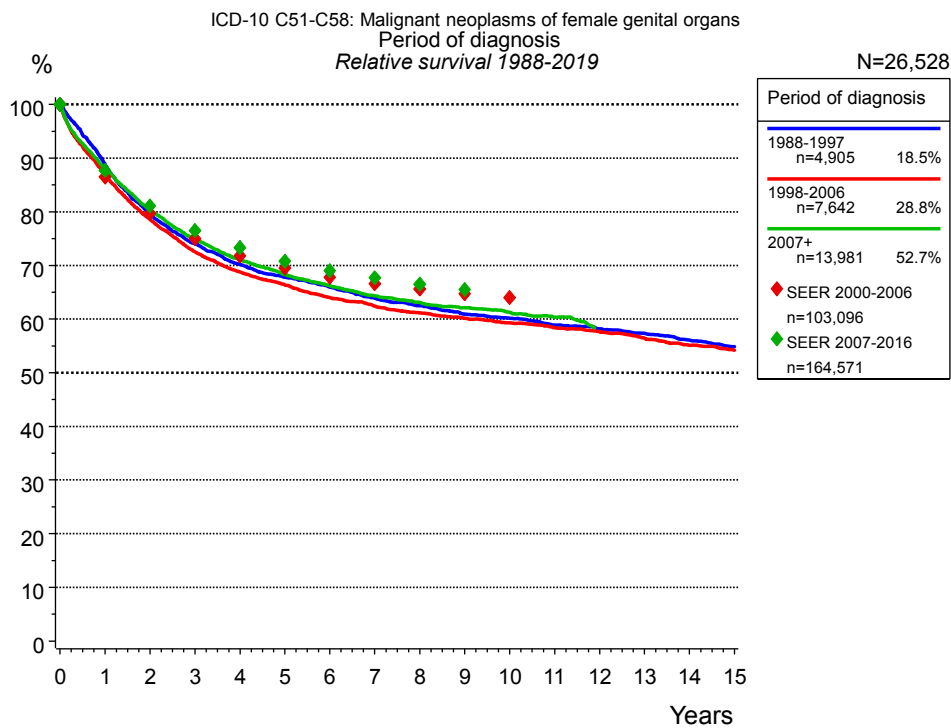


Figure 1a. Relative survival of patients with fem. genitale cancer by period of diagnosis. Included in the evaluation are 26,528 cases diagnosed between 1988 and 2019.

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=4,905		1998-2006 n=7,642		2007+ n=13,981	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	87.0	88.9	85.1	87.1	86.4	88.1
2	76.2	79.5	75.4	78.6	77.4	80.3
3	69.6	74.0	68.4	72.5	71.0	74.9
4	64.7	70.2	63.7	68.8	66.2	71.0
5	61.3	67.8	60.3	66.4	62.6	68.3
6	58.4	65.9	57.2	64.0	59.6	66.2
7	55.5	63.9	54.8	62.4	56.9	64.3
8	53.2	62.5	52.6	61.1	54.8	63.1
9	50.8	60.9	50.8	60.1	53.0	62.1
10	49.2	60.2	49.1	59.3	51.3	61.3
11	47.2	58.9	47.4	58.4	49.6	60.4
12	45.7	58.2	45.9	57.6		
13	44.1	57.3	43.9	56.4		
14	42.3	56.1	42.0	55.1		
15	40.5	54.8	40.4	54.2		
Median	9.5		9.5		10.8	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with fem. genitale cancer by period of diagnosis for period 1988-2019 (N=26,528).

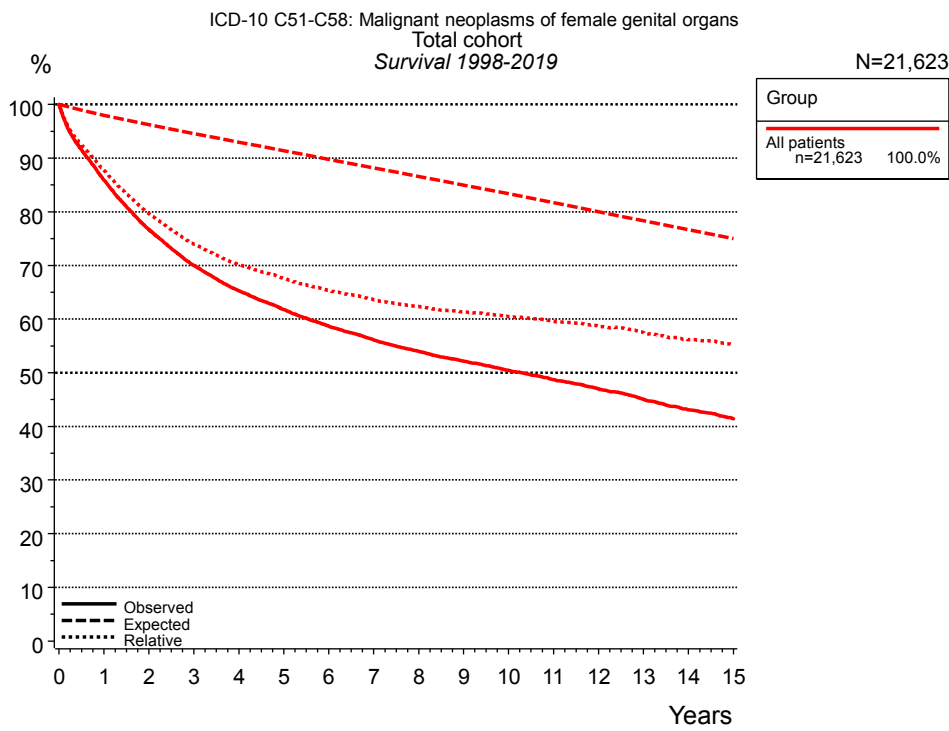


Figure 2a. Observed, expected and relative survival of the total cohort with fem. genitale cancer. Included in the evaluation are 21,623 cases diagnosed between 1998 and 2019.

Years	Group	
	obs. %	rel. %
0	100.0	100.0
1	85.9	87.7
2	76.7	79.7
3	70.0	74.0
4	65.3	70.2
5	61.7	67.6
6	58.7	65.3
7	56.1	63.6
8	54.0	62.4
9	52.1	61.4
10	50.4	60.5
11	48.7	59.6
12	47.0	58.7
13	45.1	57.5
14	43.0	56.1
15	41.4	55.2
Median	10.3	

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with fem. genitale cancer for period 1998-2019 (N=21,623).

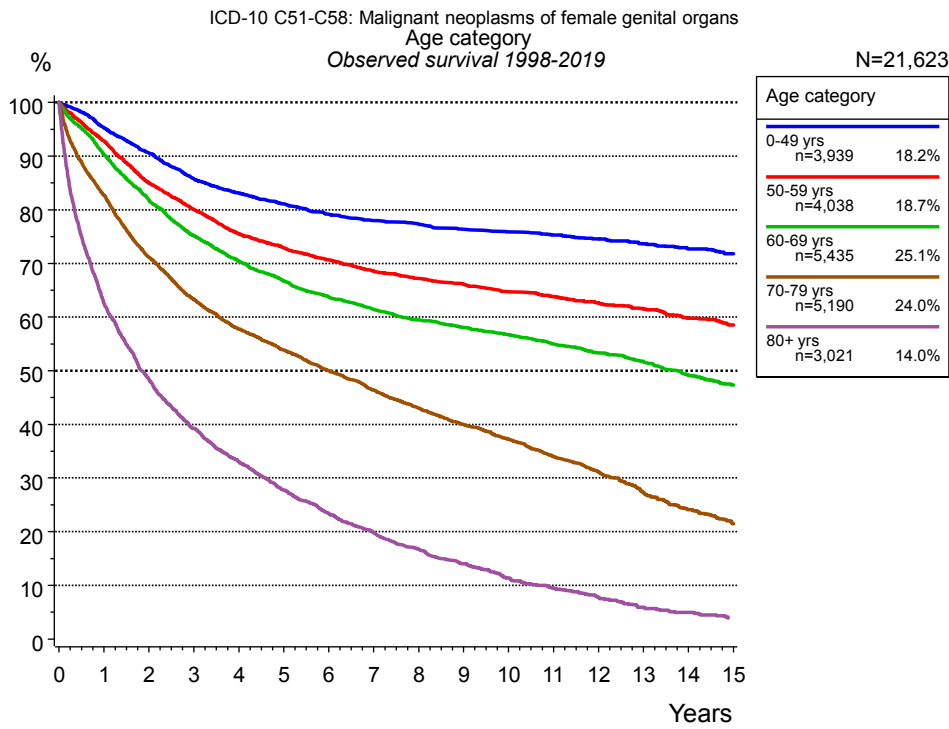


Figure 3a. Observed survival of patients with fem. genitale cancer by age category. Included in the evaluation are 21,623 cases diagnosed between 1998 and 2019.

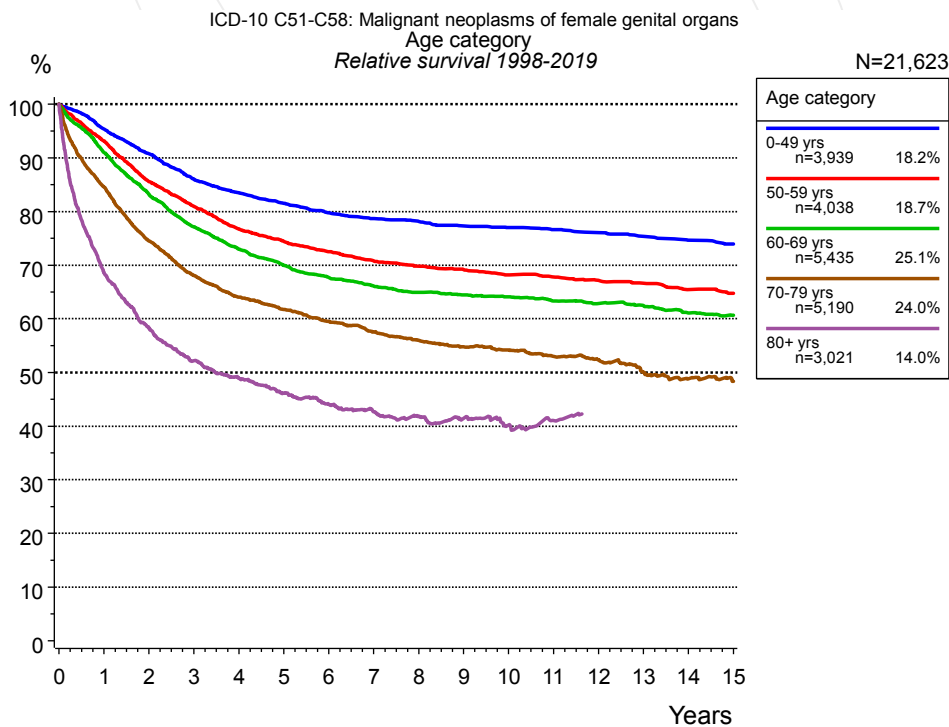


Figure 3b. Relative survival of patients with fem. genitale cancer by age category. Included in the evaluation are 21,623 cases diagnosed between 1998 and 2019.

Years	Age category									
	0-49 yrs n=3,939		50-59 yrs n=4,038		60-69 yrs n=5,435		70-79 yrs n=5,190		80+ yrs n=3,021	
	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	95.2	95.3	92.8	93.1	90.3	91.0	82.7	84.6	62.6	68.6
2	90.6	90.8	85.0	85.6	81.9	83.2	71.2	74.5	48.4	58.3
3	85.8	86.1	80.1	81.0	75.1	77.1	63.3	68.1	39.3	52.2
4	83.1	83.5	75.5	76.8	70.4	73.0	57.8	64.1	33.0	48.9
5	81.0	81.5	72.9	74.4	66.7	70.0	53.8	61.7	27.7	46.1
6	79.2	79.7	70.6	72.5	63.7	67.7	50.0	59.5	23.3	44.0
7	78.0	78.7	68.6	70.8	61.4	66.1	46.4	57.5	19.8	42.6
8	77.3	78.1	67.2	69.8	59.4	65.0	43.1	56.0	16.7	41.8
9	76.3	77.3	66.0	69.1	58.1	64.5	40.0	54.8	14.0	41.5
10	75.8	77.0	64.7	68.2	56.7	64.1	37.2	54.2	11.3	40.2
11	75.3	76.6	63.8	67.8	54.9	63.3	34.0	52.9	9.5	41.0
12	74.6	76.1	62.7	67.2	53.3	62.8	31.1	52.3	7.7	41.5
13	73.6	75.4	61.5	66.6	51.7	62.5	27.3	50.1	5.9	39.8
14	72.7	74.6	59.8	65.5	49.1	61.1	24.1	48.8	5.0	43.4
15	71.8	73.9	58.5	64.7	47.3	60.7	21.5	48.3		
Median					13.8		6.0		1.8	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with fem. genitale cancer by age category for period 1998-2019 (N=21,623).

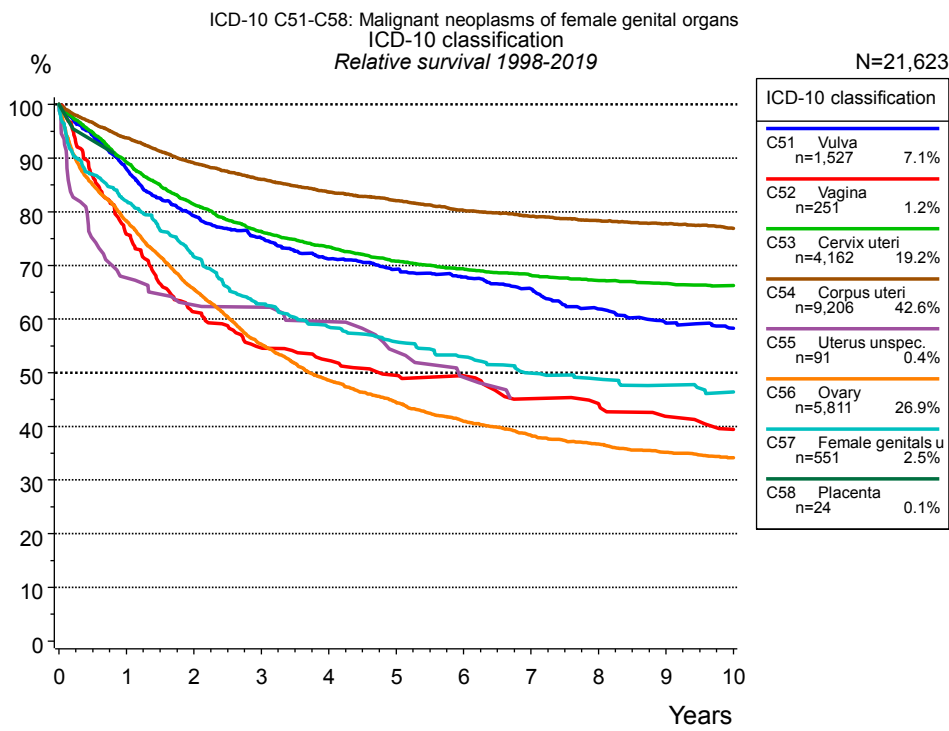


Figure 4a. Relative survival of patients with fem. genitale cancer by ICD-10 classification. Included in the evaluation are 21,623 cases diagnosed between 1998 and 2019.

Years	ICD-10 classification													
	C51 Vulva		C52 Vagina		C53 Cervix uteri		C54 Corpus uteri		C55 Uterus unspec.		C56 Ovary		C57 Female genitals unspec.	
	n=1,527	n=251	n=4,162	n=9,206	n=91	n=5,811	n=551	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	84.8	88.0	73.0	75.8	88.4	89.2	91.8	93.8	66.0	67.7	76.7	78.3	80.3	82.0
2	73.7	79.2	57.2	61.3	80.0	81.4	85.4	89.1	60.0	62.6	63.3	65.6	68.8	71.6
3	67.8	75.1	50.0	54.6	74.6	76.3	80.8	86.0	58.8	62.2	52.6	55.3	59.3	62.8
4	62.4	71.2	46.6	52.3	71.4	73.4	76.9	83.7	55.1	59.5	45.5	48.6	54.2	58.5
5	58.9	69.3	43.1	49.5	68.3	70.8	73.8	82.1	48.7	53.9	41.0	44.5	50.7	55.8
6	56.0	67.8	41.5	49.4	66.5	69.3	70.6	80.3	43.5	49.2	37.3	41.0	47.1	53.0
7	52.7	65.6	37.0	45.2	65.0	68.2	68.1	79.2	39.5	45.3	34.4	38.3	43.4	49.9
8	48.2	61.9	35.7	44.3	63.7	67.2	65.8	78.4	39.5	45.2	32.4	36.7	41.7	48.8
9	44.8	59.2	32.4	41.8	62.8	66.7	63.8	77.8	39.5	45.1	30.6	35.2	39.7	47.7
10	43.0	58.3	30.0	39.5	62.0	66.3	61.5	76.9			29.2	34.1	37.6	46.4
Median	7.4	2.9					14.6		4.8		3.4		5.3	

ICD-10 classification		
cont'd	C58 Placenta	n=24
Years	obs. %	rel. %
0	100.0	100.0
Median		

Table 4b. Observed (obs.) and relative (rel.) survival of patients with fem. genitale cancer by ICD-10 classification for period 1998-2019 (N=21,623).

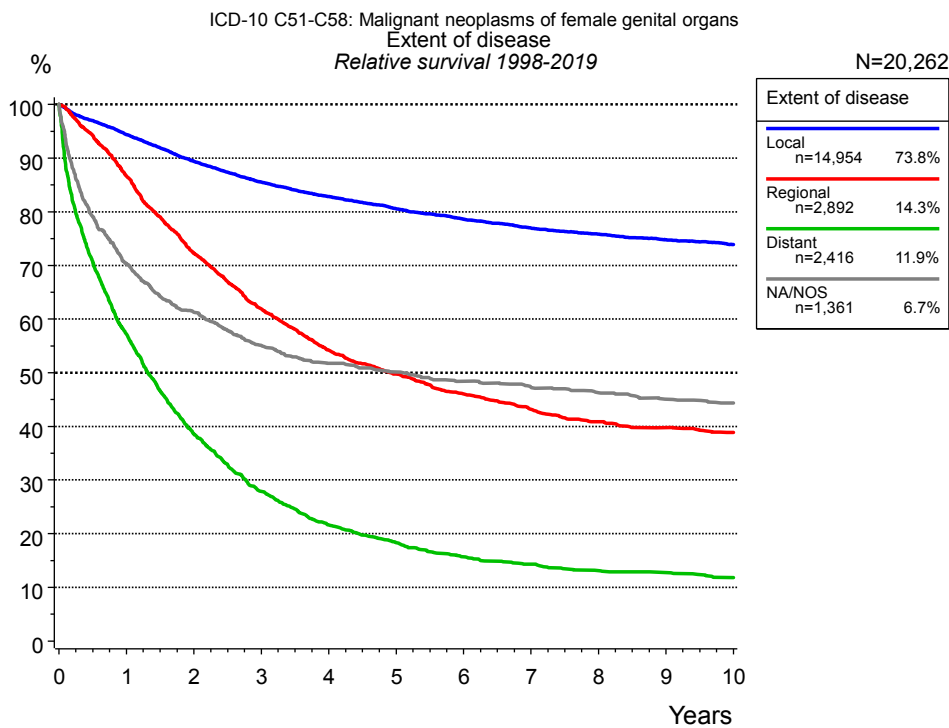


Figure 4e. Relative survival of patients with fem. genitale cancer by extent of disease. For 20,384 of 21,623 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 20,262 cases an evaluable classification was established. The grey line represents the subgroup of 1,361 patients with missing values regarding extent of disease (6.3 % of 21,623 patients, the percent values of all other categories are related to n=20,262).

Years	Extent of disease							
	Local n=14,954		Regional n=2,892		Distant n=2,416		NA/NOS n=1,361	
	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	92.6	94.4	85.4	86.7	55.9	57.2	67.6	70.3
2	86.1	89.4	70.3	72.3	37.2	38.6	57.4	61.3
3	80.9	85.5	59.5	61.9	26.5	27.9	50.6	55.1
4	76.9	82.8	51.4	54.2	20.2	21.6	46.6	51.8
5	73.5	80.6	46.6	49.7	16.8	18.3	44.5	50.1
6	70.4	78.6	42.6	46.0	14.2	15.7	42.2	48.4
7	67.6	77.0	39.5	43.2	12.7	14.3	40.8	47.2
8	65.4	75.8	36.9	40.9	11.5	13.1	39.3	46.3
9	63.2	74.8	35.5	39.8	10.9	12.8	37.6	45.1
10	61.2	73.9	34.2	38.8	10.0	11.9	36.5	44.4
Median	15.3		4.2		1.3		3.1	

Table 4f. Observed (obs.) and relative (rel.) survival of patients with fem. genitale cancer by extent of disease for period 1998-2019 (N=20,262).

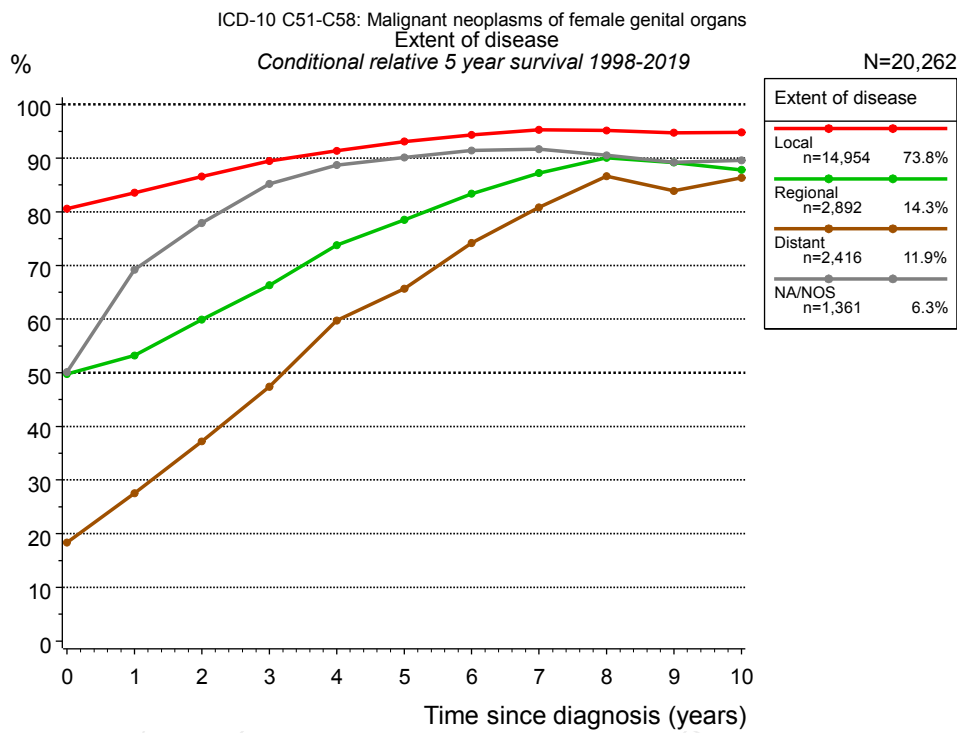


Figure 4i. Conditional relative 5-year survival of patients with fem. genitale cancer by extent of disease. For 20,384 of 21,623 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 20,262 cases an evaluable classification was established. The grey line represents the subgroup of 1,361 patients with missing values regarding extent of disease (6.3 % of 21,623 patients, the percent values of all other categories are related to n=20,262).

Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	14,954	80.6	2,892	49.7	2,416	18.3	1,361	50.1
1	12,862	83.5	2,327	53.2	1,263	27.6	855	69.2
2	11,188	86.6	1,811	59.9	770	37.2	677	77.9
3	9,811	89.5	1,407	66.3	508	47.4	571	85.2
4	8,762	91.4	1,126	73.8	349	59.7	499	88.7
5	7,742	93.1	918	78.5	260	65.7	459	90.1
6	6,846	94.3	771	83.4	198	74.2	412	91.4
7	6,029	95.3	641	87.2	153	80.8	374	91.7
8	5,284	95.2	538	90.0	115	86.6	337	90.5
9	4,581	94.8	460	89.1	98	83.9	293	89.3
10	3,945	94.8	379	87.8	80	86.4	261	89.6

Table 4j. Conditional relative 5-year survival of patients with fem. genitale cancer by extent of disease for period 1998-2019 (N=20,262).

Conditional relative survival rates refer to the relative survival probability, in this case for 5 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 4g). 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 5-year survival rate is 89.5% (n=9,811).

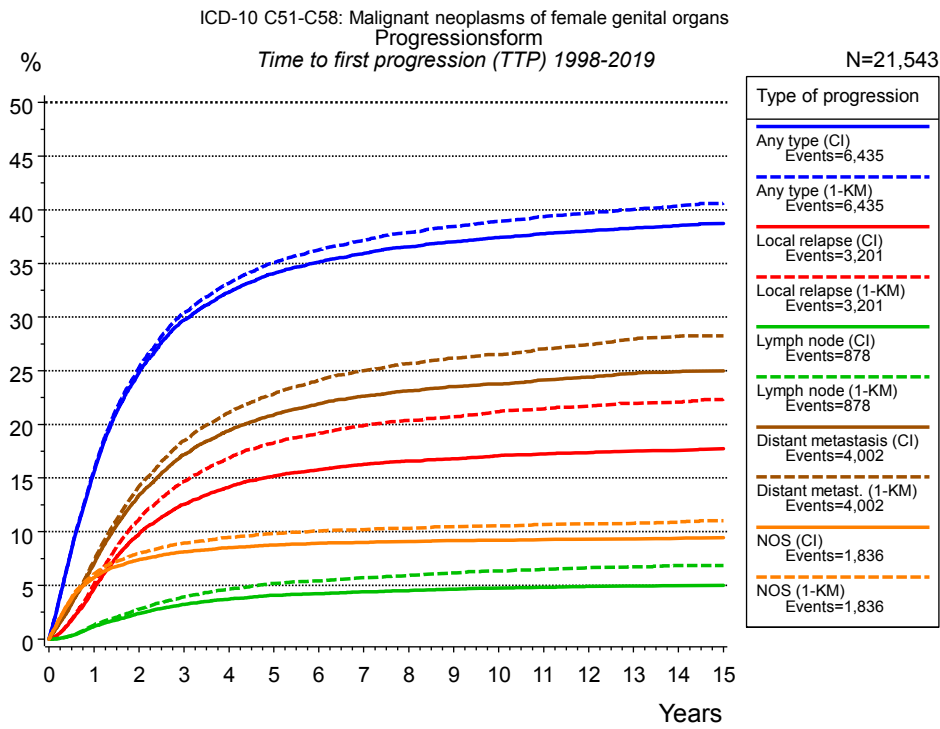


Figure 5a. Time to first progression of 21,543 patients with fem. genitale cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression							Distant metastasis (CI)
	Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)		
N	19,233	19,233	21,543	21,543	21,543	21,543	21,543	19,233
Events	6,423	6,423	3,195	3,195	874	874	874	3,992
compet.	2,245		6,859		8,685			3,965
Years	%	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	15.6	15.7	4.7	5.1	1.1	1.3	7.0	
2	24.9	25.3	9.8	11.1	2.4	2.8	13.4	
3	29.7	30.4	12.5	14.7	3.2	3.9	17.2	
4	32.3	33.2	14.1	16.8	3.7	4.6	19.4	
5	34.1	35.1	15.2	18.3	4.1	5.2	20.9	
6	35.2	36.3	15.8	19.2	4.2	5.4	21.9	
7	35.9	37.2	16.3	19.9	4.4	5.7	22.6	
8	36.6	37.9	16.6	20.4	4.5	5.9	23.1	
9	37.0	38.4	16.8	20.7	4.6	6.2	23.5	
10	37.4	38.9	17.1	21.2	4.7	6.3	23.8	
11	37.8	39.4	17.2	21.4	4.8	6.5	24.1	
12	38.0	39.7	17.4	21.7	4.9	6.7	24.4	
13	38.3	40.1	17.5	21.9	4.9	6.7	24.8	
14	38.5	40.4	17.6	22.1	5.0	6.8	24.9	
15	38.7	40.6	17.7	22.4	5.0	6.8	25.0	

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
N	19,233	21,543	21,543
Events	3,992	1,834	1,834
compet.		7,724	
Years	%	%	%
0	0.0	0.0	0.0
1	7.3	5.7	6.1
2	14.2	7.4	8.0
3	18.5	8.1	8.9
4	21.1	8.5	9.5
5	22.8	8.8	9.8
6	24.1	8.9	10.1
7	25.0	9.0	10.2
8	25.7	9.1	10.3
9	26.2	9.2	10.5
10	26.5	9.2	10.6
11	27.0	9.3	10.7
12	27.4	9.3	10.7
13	28.0	9.3	10.8
14	28.2	9.4	10.9
15	28.3	9.4	11.0

Table 5b. Time to first progression of patients with fem. genitale cancer for period 1998-2019 (N=21,543), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

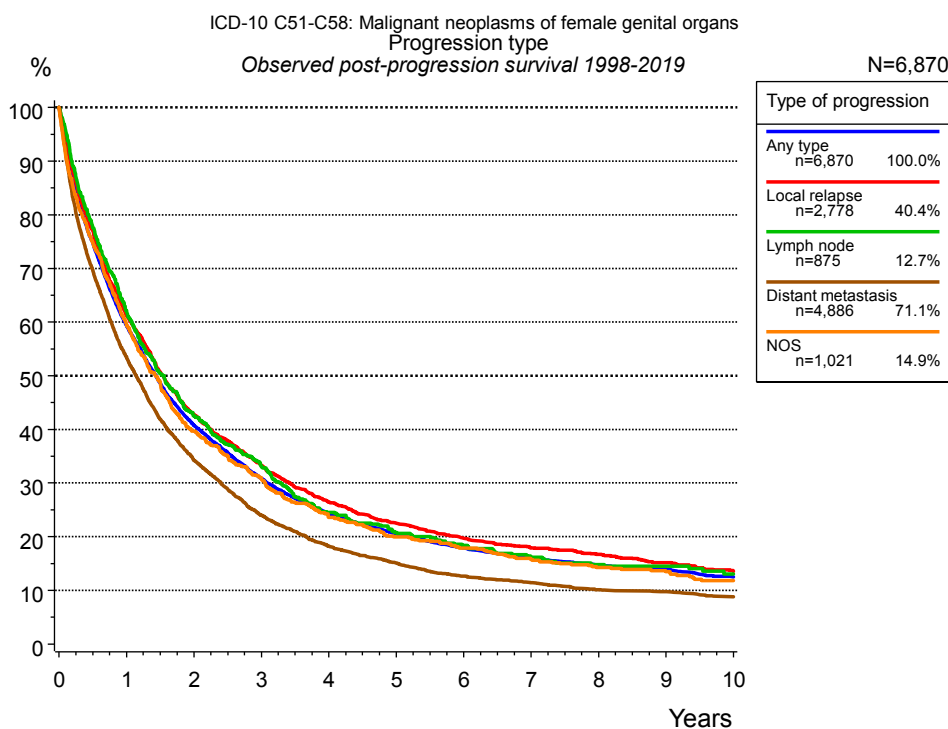


Figure 5c. Observed post-progression survival of 6,870 patients with fem. genitale cancer diagnosed between 1998 and 2019. These 6,870 patients with documented progression events during their course of disease represent 31.9 % of the totally 21,543 evaluated cases (incl. M1, n=2,310, 10.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=1,875, 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=6,870 %	Local relapse n=2,778 %	Lymph node n=875 %	Distant metastasis n=4,886 %	NOS n=1,021 %
0	100.0	100.0	100.0	100.0	100.0
1	59.4	61.3	62.2	53.4	59.6
2	40.7	42.7	42.5	34.3	39.7
3	30.8	33.3	33.1	24.0	30.8
4	24.2	26.4	24.5	18.2	23.6
5	20.5	22.4	20.8	15.1	20.0
6	17.8	19.7	18.4	12.7	17.9
7	16.0	17.9	16.2	11.4	15.8
8	14.7	16.7	14.8	10.1	14.3
9	13.9	15.2	14.5	9.7	13.5
10	12.5	13.5	13.0	8.8	11.8

Table 5d. Observed post-progression survival of patients with fem. genitale cancer for period 1998-2019 (N=6,870).

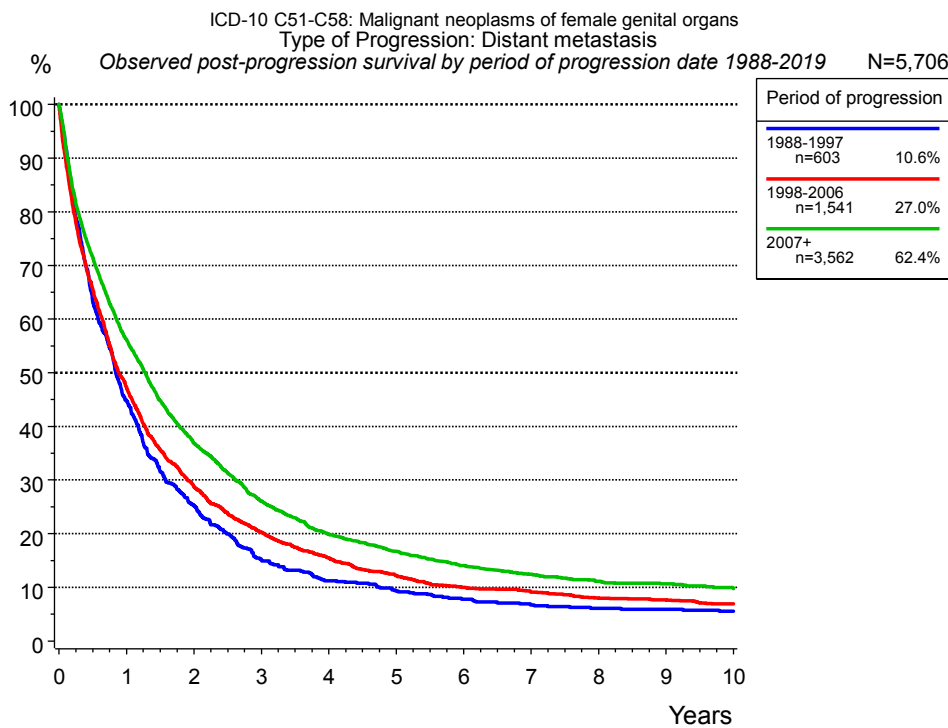


Figure 5e. Observed post-progression (distant metastasis) survival of 5,706 patients with fem. genitale cancer diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression		
	1988-1997 n=603 %	1998-2006 n=1,541 %	2007+ n=3,562 %
0	100.0	100.0	100.0
1	44.7	47.2	56.1
2	25.3	28.8	36.9
3	15.2	20.3	26.1
4	11.3	15.5	19.9
5	9.4	12.2	16.7
6	7.8	10.0	14.0
7	6.8	9.1	12.4
8	6.1	8.0	11.1
9	5.9	7.7	10.6
10	5.5	6.9	9.8

Table 5f. Observed post-progression (distant metastasis) survival of patients with fem. genitale cancer for period 1988-2019 by period of progression (N=5,706).

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

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