Munich Cancer Registry

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

ICD-10 C53: Cervical cancer

Survival

Year of diagnosis	1988-1997	1998-2014
Patients	1,238	3,716
Diseases	1,238	3,719
Cases evaluated	1,182	3,213

Creation date	04/11/2016
Export date	12/23/2015
Population (females)	2.36 m

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

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

http://www.tumorregister-muenchen.de/en/facts/surv/sC53__E-ICD-10-C53-Cervical-cancer-survival.pdf

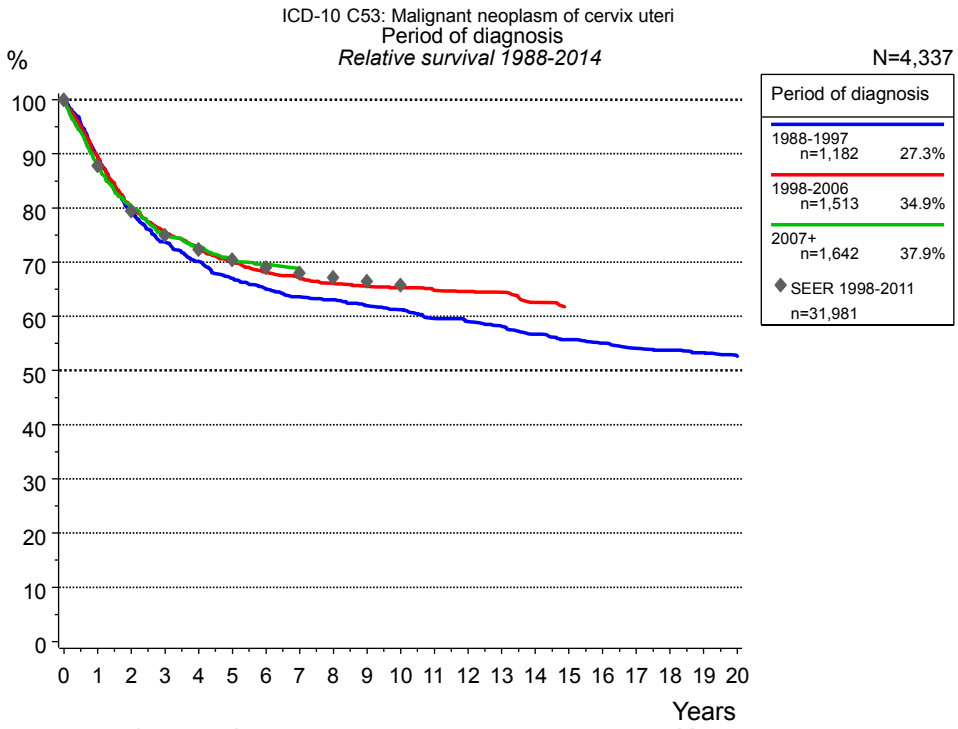

Figure 1a. Relative survival of patients with cervical cancer by period of diagnosis. Included in the evaluation are 4,337 cases diagnosed between 1988 and 2014.

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 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=1,182		1998-2006 n=1,513		2007+ n=1,642	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	88.1	89.4	88.2	89.2	86.9	87.7
2	76.9	79.1	78.6	80.2	78.9	80.2
3	70.8	73.7	73.5	75.5	73.5	75.1
4	66.7	70.2	70.4	72.8	70.9	72.9
5	62.9	67.0	67.1	70.0	68.2	70.5
6	60.4	65.0	64.9	68.1	67.0	69.6
7	58.5	63.6	63.6	67.0	66.1	68.8
8	57.4	63.1	62.2	66.0		
9	55.8	62.0	61.4	65.6		
10	54.5	61.2	60.7	65.3		
11	52.6	59.6	59.8	64.8		
12	51.6	59.1	59.3	64.6		
13	50.4	58.2	58.7	64.4		
14	48.7	56.7	56.6	62.6		
15	47.5	55.7				
16	46.4	55.1				
17	45.2	54.1				
18	44.7	53.8				
19	43.8	53.3				
20	42.6	52.7				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with cervical cancer by period of diagnosis for period 1988-2014 (N=4,337).

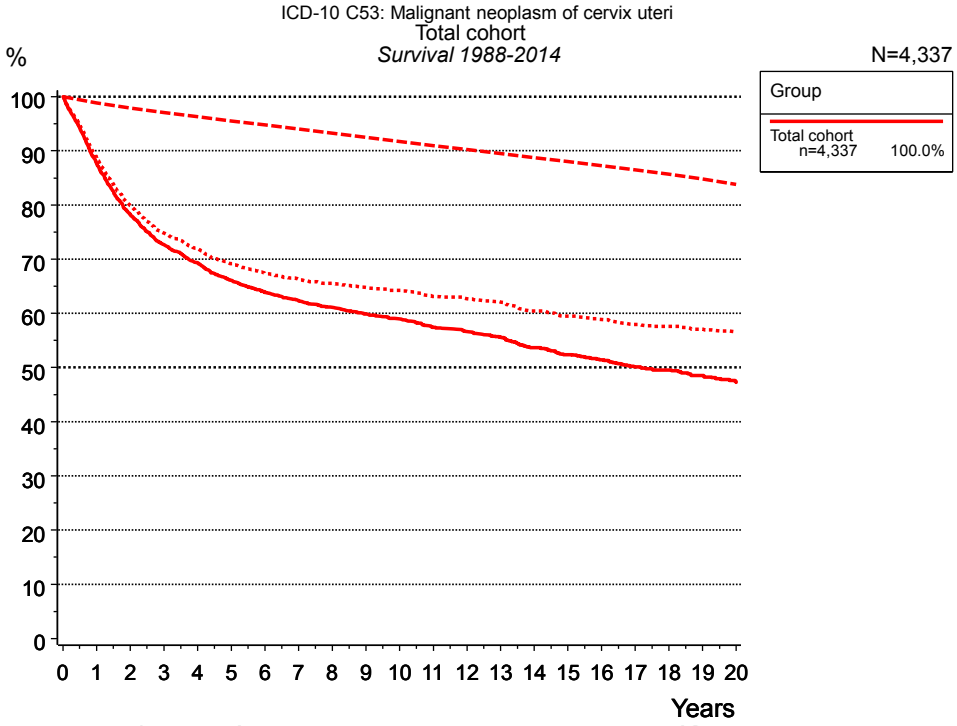

Figure 2a. Observed, expected and relative survival of the total cohort with cervical cancer. Included in the evaluation are 4,337 cases diagnosed between 1988 and 2014.

	Group	
	Total cohort n=4,337	
Years	obs. %	rel. %
0	100.0	100.0
1	87.6	88.7
2	78.2	79.9
3	72.7	74.8
4	69.4	72.0
5	66.1	69.2
6	63.9	67.4
7	62.4	66.3
8	61.1	65.5
9	59.9	64.8
10	58.9	64.2
11	57.4	63.1
12	56.6	62.7
13	55.6	62.1
14	53.7	60.4
15	52.4	59.5
16	51.4	58.9
17	50.1	58.0
18	49.6	57.6
19	48.6	57.1
20	47.3	56.4

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with cervical cancer for period 1988-2014 (N=4,337).

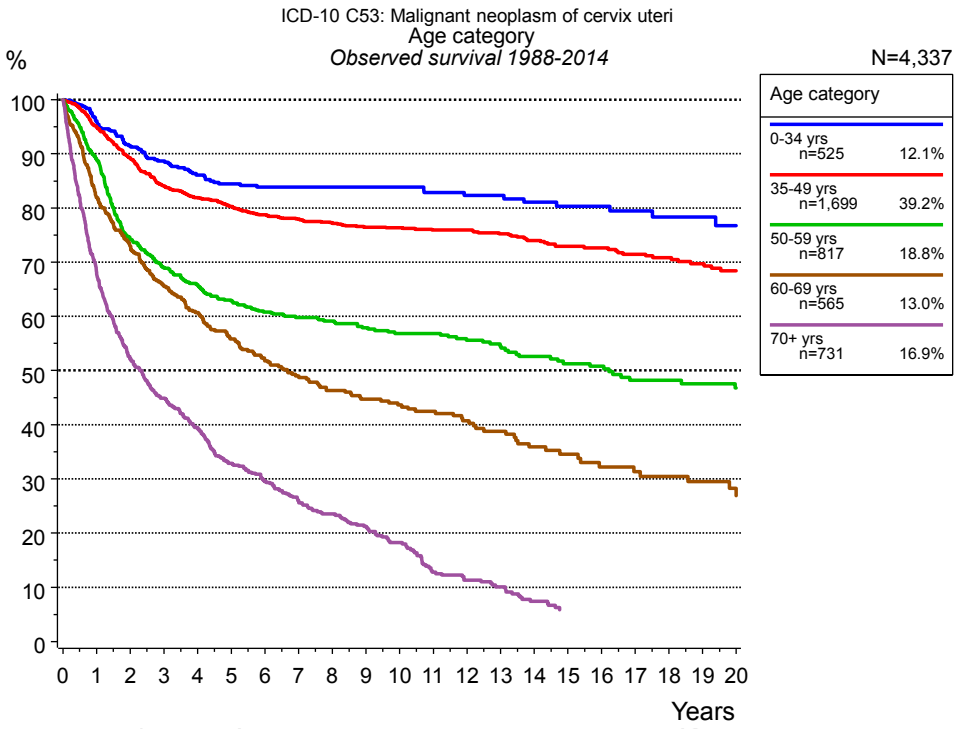

Figure 3a. Observed survival of patients with cervical cancer by age category. Included in the evaluation are 4,337 cases diagnosed between 1988 and 2014.

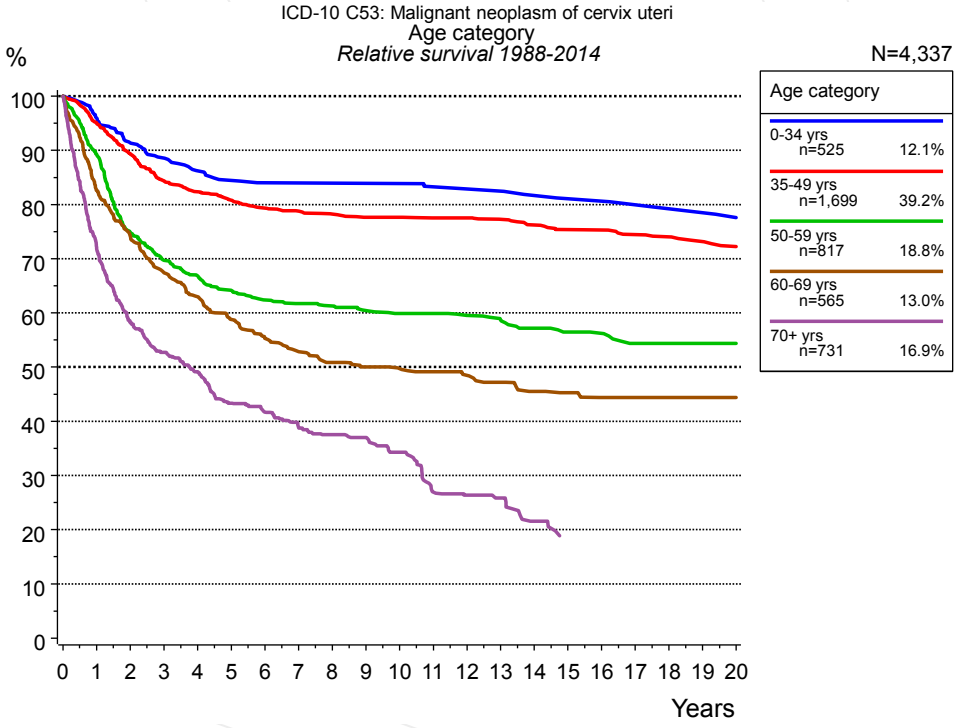

Figure 3b. Relative survival of patients with cervical cancer by age category. Included in the evaluation are 4,337 cases diagnosed between 1988 and 2014.

	Age category									
	0-34 yrs n=525		35-49 yrs n=1,699		50-59 yrs n=817		60-69 yrs n=565		70+ yrs n=731	
Years	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	96.1	96.0	94.9	95.0	88.9	89.2	81.9	82.6	68.0	72.0
2	91.5	91.4	89.2	89.4	74.2	74.7	72.9	74.0	52.2	58.3
3	88.7	88.6	84.1	84.4	68.9	69.7	65.5	67.4	44.9	52.7
4	86.1	86.2	81.9	82.3	65.9	66.8	60.7	63.0	39.5	49.1
5	84.4	84.5	80.3	80.8	62.8	64.2	55.9	58.8	32.9	43.3
6	83.8	84.0	78.7	79.3	60.8	62.4	51.8	55.3	29.5	41.7
7	83.8	84.0	78.0	78.8	59.8	61.7	49.0	52.8	26.0	38.8
8	83.8	84.0	77.3	78.2	59.1	61.3	46.3	50.9	23.5	37.5
9	83.8	83.9	76.5	77.7	57.9	60.4	44.7	50.0	21.3	37.0
10	83.8	83.9	76.3	77.6	56.9	59.9	43.7	49.7	18.3	34.3
11	82.9	83.3	75.9	77.5	56.9	59.9	42.5	49.1	12.8	26.9
12	82.3	82.9	75.9	77.5	55.6	59.6	40.8	48.5	11.4	26.4
13	82.3	82.5	75.2	77.3	54.5	58.7	38.8	47.2	10.1	25.9
14	81.1	81.6	74.0	76.2	52.6	57.2	35.9	45.5	7.4	21.5
15	80.4	81.1	72.9	75.4	51.3	56.5	34.6	45.3	5.9	18.6
16	80.4	80.6	72.6	75.3	50.8	56.3	32.2	44.4		
17	79.5	79.9	71.5	74.5	48.2	54.4	31.4	44.4		
18	78.4	79.2	70.8	74.0	48.2	54.4	30.5	44.4		
19	78.4	78.5	69.7	73.2	47.5	54.4	29.5	44.4		
20	76.8	77.6	68.4	72.2	46.8	54.4	26.9	44.4		

Table 3c. Observed (obs.) and relative (rel.) survival of patients with cervical cancer by age category for period 1988-2014 (N=4,337).

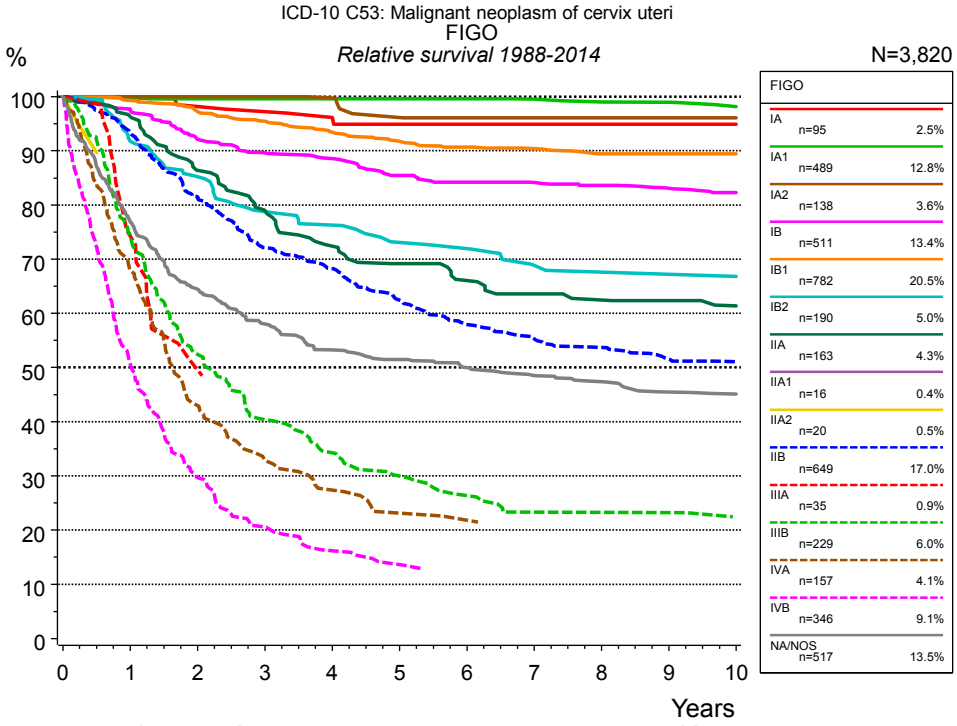

Figure 4a. Relative survival of patients with cervical cancer by FIGO. For 4,054 of 4,337 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 3,820 cases an evaluable classification was established. The grey line represents the subgroup of 517 patients with missing values regarding FIGO (11.9% of 4,337 patients, the percent values of all other categories are related to n=3,820).

	FIGO													
	IA n=95		IA1 n=489		IA2 n=138		IB n=511		IB1 n=782		IB2 n=190		IIA n=163	
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	100.0	99.8	99.8	99.9	100.0	100.0	97.0	97.7	99.0	99.3	91.0	91.7	95.4	96.3
2	97.7	98.2	99.3	99.6	100.0	100.0	90.8	92.1	96.5	97.2	84.0	85.2	84.0	86.4
3	96.5	97.2	99.3	99.6	100.0	100.0	87.7	89.6	94.5	95.5	77.3	78.8	75.8	79.0
4	95.3	96.1	99.3	99.6	99.1	99.7	86.1	88.6	92.1	93.4	74.5	76.3	68.8	72.4
5	92.9	94.9	99.0	99.6	95.2	96.1	82.4	85.5	90.0	91.8	70.4	73.1	64.5	69.2
6	92.9	94.9	98.3	99.6	94.1	96.1	80.6	84.2	88.6	90.7	69.5	72.0	60.9	66.0
7	91.6	94.9	97.9	99.5	94.1	96.1	80.1	84.2	87.9	90.4	65.4	68.8	57.9	63.6
8	91.6	94.9	97.0	99.0	94.1	96.1	78.9	83.6	86.3	89.5	64.3	67.6	56.3	62.5
9	91.6	94.9	96.5	98.9	94.1	96.1	77.7	83.1	86.0	89.5	64.3	67.2	55.4	62.3
10	91.6	94.9	95.4	98.2	92.5	96.1	76.5	82.3	86.0	89.5	64.3	66.8	53.6	61.4

	FIGO													
cont'd	IIA1 n=16		IIA2 n=20		IIB n=649		IIIA n=35		IIIB n=229		IVA n=157		IVB n=346	
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			89.5	87.3	91.9	93.4	73.5	74.2	72.7	74.2	66.2	67.9	50.0	50.6
2			89.5	82.4	79.1	81.4	49.1	49.6	50.9	52.5	41.6	43.0	29.1	29.6
3					69.0	72.1			38.5	40.4	30.6	32.9	20.5	20.6
4					64.5	68.3			32.5	34.3	25.4	27.4	15.9	16.2
5					58.0	62.4			27.9	30.0	21.1	23.2	13.7	13.6
6					53.0	57.9			24.3	26.4	19.8	21.8	12.4	12.6
7					50.0	55.3			21.0	23.4			12.4	12.3
8					48.0	53.7			21.0	23.3				
9					45.4	51.6			21.0	23.3				
10					44.2	51.1			19.3	22.4				

FIGO		
cont'd	NA/NOS	
	n=517	
Years	obs. %	rel. %
0	100.0	100.0
1	74.9	76.9
2	61.6	64.4
3	54.9	58.1
4	49.7	53.3
5	47.5	51.5
6	45.6	50.0
7	43.8	48.5
8	42.3	47.4
9	40.0	45.5
10	39.5	45.1

Table 4b. Observed (obs.) and relative (rel.) survival of patients with cervical cancer by FIGO for period 1988-2014 (N=3,820).

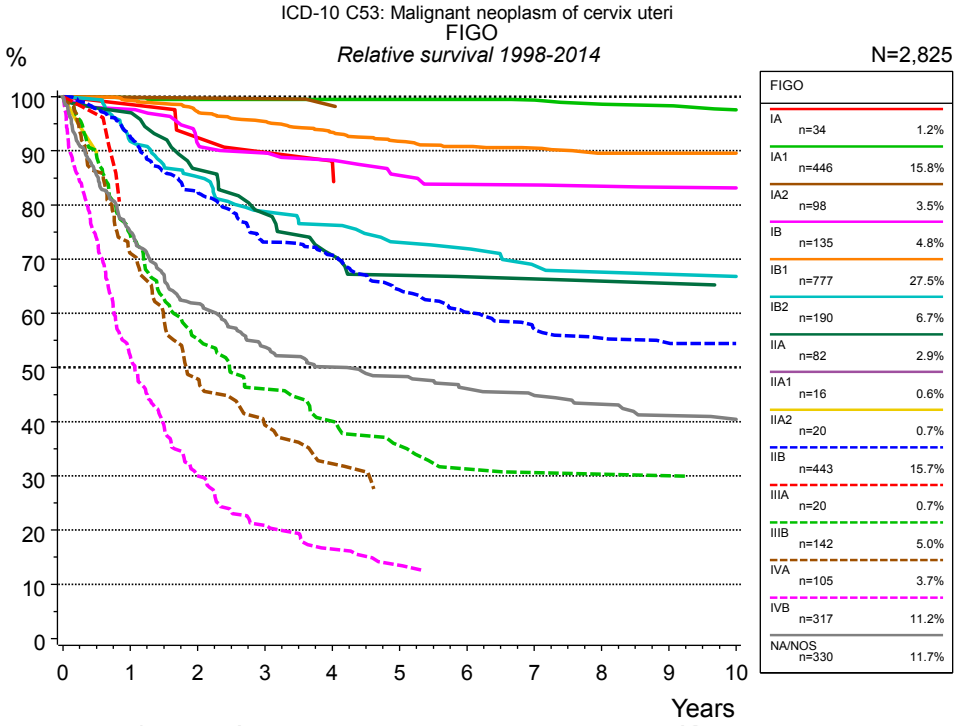

Figure 4c. Relative survival of patients with cervical cancer by FIGO. For 2,957 of 3,155 cases diagnosed between 1998 and 2014 valid data could be obtained for this item. For a total of 2,825 cases an evaluable classification was established. The grey line represents the subgroup of 330 patients with missing values regarding FIGO (10.5% of 3,155 patients, the percent values of all other categories are related to n=2,825).

	FIGO													
	IA n=34		IA1 n=446		IA2 n=98		IB n=135		IB1 n=777		IB2 n=190		IIA n=82	
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	100.0	98.6	99.8	99.8	100.0	99.9	97.7	97.7	99.0	99.3	91.0	91.7	97.4	97.1
2	92.6	92.4	99.2	99.5	100.0	99.7	90.5	91.3	96.5	97.2	84.0	85.2	85.3	86.5
3	88.9	89.7	99.2	99.5	100.0	99.6	88.8	89.6	94.5	95.4	77.3	78.8	77.0	78.4
4	88.9	88.1	99.2	99.5	98.7	98.3	87.0	88.3	92.0	93.4	74.5	76.3	68.8	70.7
5			99.2	99.5			83.0	85.4	90.0	91.8	70.4	73.1	64.5	67.0
6			98.4	99.5			81.0	83.8	88.7	90.8	69.5	72.0	63.1	66.7
7			97.9	99.3			81.0	83.7	88.0	90.5	65.4	68.8	63.1	66.3
8			96.9	98.6			79.8	83.5	86.4	89.6	64.3	67.6	61.3	65.9
9			96.3	98.3			78.5	83.3	86.0	89.6	64.3	67.2	61.3	65.5
10			94.8	97.6			78.5	83.1	86.0	89.6	64.3	66.8	59.0	63.4

	FIGO													
cont'd	IIA1 n=16		IIA2 n=20		IIB n=443		IIIA n=20		IIIB n=142		IVA n=105		IVB n=317	
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			89.5	87.3	91.4	92.6			73.3	74.4	69.6	71.1	51.4	52.0
2			89.5	82.4	80.6	82.5			54.2	55.3	47.0	47.9	29.5	30.0
3					70.4	73.2			44.6	46.1	37.1	39.4	20.8	20.9
4					67.5	70.8			38.7	40.1	30.4	32.3	16.3	16.5
5					60.4	64.3			33.6	35.6	25.1	26.9	13.7	13.5
6					56.0	60.2			29.2	31.3			12.1	12.3
7					52.8	57.1			27.9	30.6			12.1	11.9
8					50.8	55.4			27.9	30.3				
9					49.6	54.5			27.9	30.0				
10					49.0	54.4								

FIGO		
cont'd	NA/NOS	
	n=330	
Years	obs. %	rel. %
0	100.0	100.0
1	72.8	75.1
2	59.0	61.8
3	50.7	53.8
4	46.7	50.1
5	44.7	48.4
6	42.3	46.1
7	41.0	44.9
8	39.1	43.2
9	36.8	41.2
10	36.2	40.5

Table 4d. Observed (obs.) and relative (rel.) survival of patients with cervical cancer by FIGO for period 1998-2014 (N=2,825).

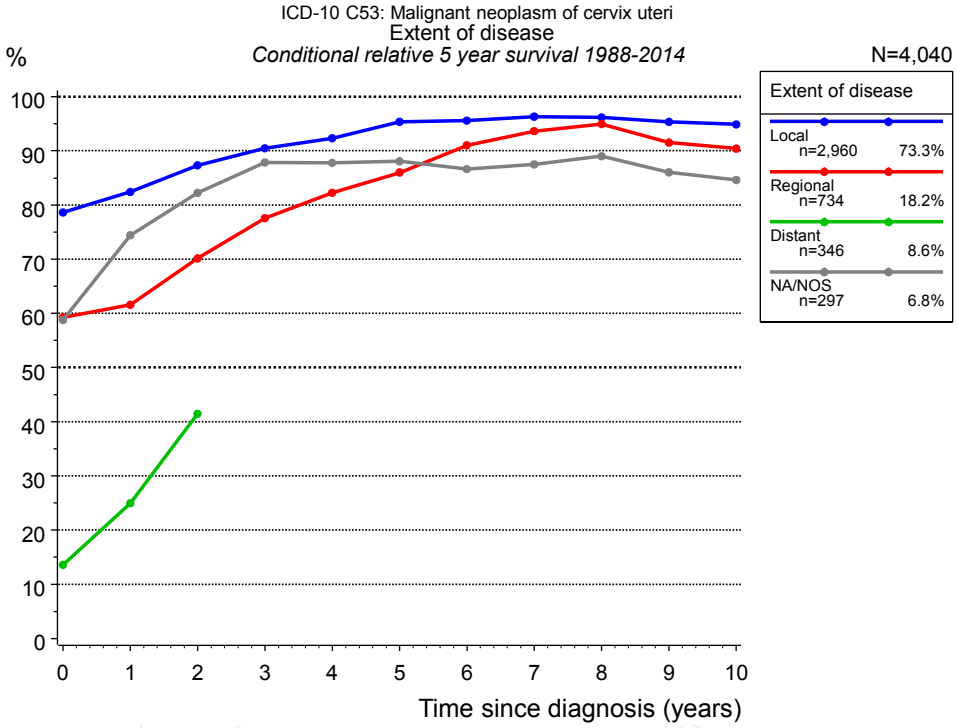

Figure 4e. Conditional relative 5-year survival of patients with cervical cancer by extent of disease. For 4,054 of 4,337 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 4,040 cases an evaluable classification was established. The grey line represents the subgroup of 297 patients with missing values regarding extent of disease (6.8% of 4,337 patients, the percent values of all other categories are related to n=4,040).

	Extent of disease							
	Local		Regional		Distant		NA/NOS	
Years	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	2,960	78.6	734	59.3	346	13.6	297	58.8
1	2,543	82.4	607	61.6	158	25.0	211	74.4
2	2,221	87.3	476	70.1	76	41.5	173	82.2
3	1,991	90.5	380	77.6			152	87.8
4	1,785	92.3	327	82.3			144	87.8
5	1,586	95.4	286	86.0			136	88.1
6	1,439	95.6	236	91.0			127	86.6
7	1,261	96.3	202	93.6			117	87.5
8	1,138	96.2	182	95.0			106	89.0
9	1,007	95.3	168	91.5			94	86.0
10	893	94.9	147	90.4			89	84.6

Table 4f. Conditional relative 5-year survival of patients with cervical cancer by extent of disease for period 1988-2014 (N=4,040).

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 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 5-year survival rate is 90.5% (n=1,991).

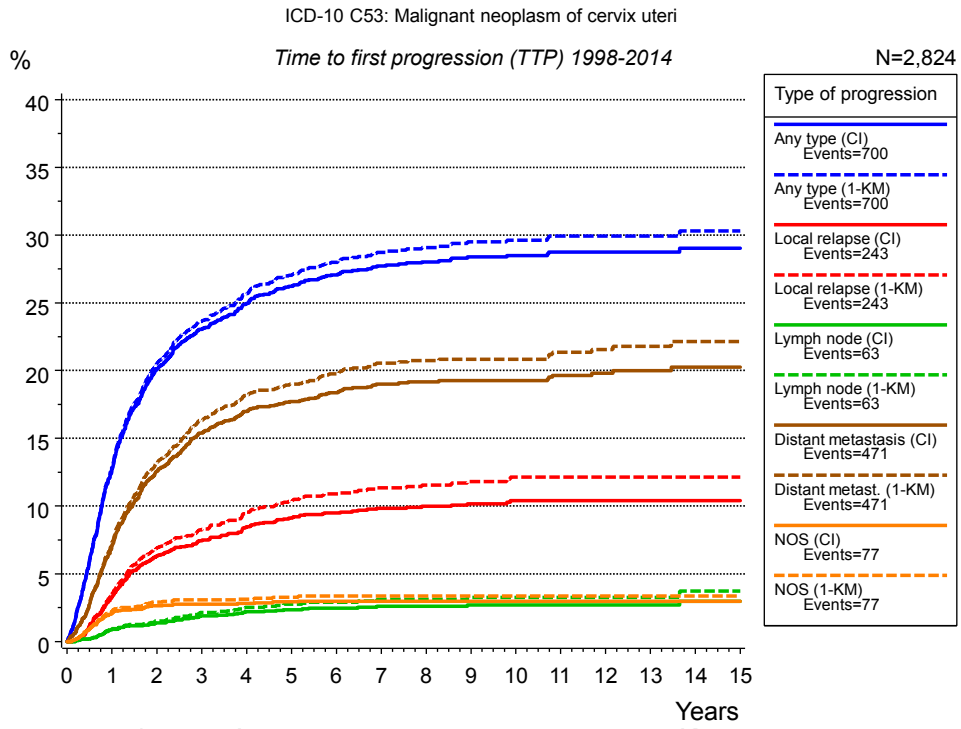

Figure 5a. Time to first progression of 2,824 patients with cervical cancer diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency 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=2,824	n=2,824	n=2,824	n=2,824	n=2,824	n=2,824	n=2,824
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	12.8	13.0	3.3	3.5	0.9	1.0	7.1
2	20.1	20.5	6.3	6.9	1.4	1.5	12.6
3	23.0	23.6	7.4	8.3	1.9	2.2	15.4
4	24.9	25.6	8.4	9.5	2.2	2.5	17.0
5	26.2	27.0	9.1	10.4	2.4	2.8	17.7
6	27.1	28.0	9.5	10.9	2.5	2.9	18.4
7	27.7	28.7	9.8	11.3	2.6	3.1	19.0
8	28.0	29.1	10.0	11.6	2.6	3.1	19.2
9	28.4	29.5	10.2	11.8	2.7	3.3	19.3
10	28.5	29.6	10.4	12.1	2.7	3.3	19.3
11	28.8	29.9	10.4	12.1	2.7	3.3	19.6
12	28.8	29.9	10.4	12.1	2.7	3.3	19.8
13	28.8	29.9	10.4	12.1	2.7	3.3	20.0
14	29.0	30.3	10.4	12.1	3.0	3.7	20.2
15	29.0	30.3	10.4	12.1	3.0	3.7	20.2

	Type of progression		
cont'd	Distant metast. (1-KM) n=2,824	NOS (CI) n=2,824	NOS (1-KM) n=2,824
Years	%	%	%
0	0.0	0.0	0.0
1	7.4	2.1	2.2
2	13.2	2.6	2.9
3	16.3	2.8	3.1
4	18.1	2.8	3.1
5	19.0	2.9	3.3
6	19.8	3.0	3.4
7	20.5	3.0	3.4
8	20.7	3.0	3.4
9	20.8	3.0	3.4
10	20.8	3.0	3.4
11	21.4	3.0	3.4
12	21.6	3.0	3.4
13	21.8	3.0	3.4
14	22.1	3.0	3.4
15	22.1	3.0	3.4

Table 5b. Time to first progression of patients with cervical cancer for period 1998-2014 (N=2,824).

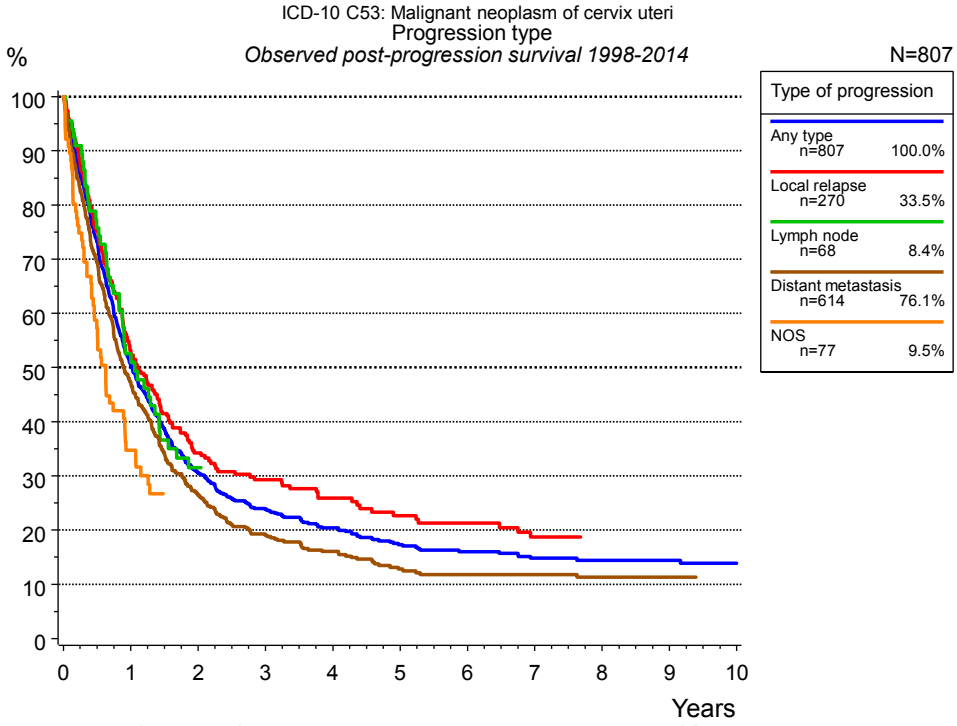

Figure 5c. Observed post-progression survival of 807 patients with cervical cancer diagnosed between 1998 and 2014. These 807 patients with documented progression events during their course of disease represent 25.8 % of the totally 3,130 evaluated cases (incl. M1, n=306, 9.8 %). Patients with cancer relapse documented via death certificates only were excluded (n=199, 6.4 %). 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 n=807	Local relapse n=270	Lymph node n=68	Distant metastasis n=614	NOS n=77
Years	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
1	50.5	53.2	52.5	47.2	34.8
2	30.5	34.2	31.5	26.4	
3	23.8	29.3		19.1	
4	20.4	25.9		16.1	
5	17.3	22.7		12.8	
6	16.1	21.3		11.8	
7	14.8	18.7		11.8	
8	14.5	18.7		11.3	
9	14.5	18.7		11.3	
10	13.9			11.3	

Table 5d. Observed post-progression survival of patients with cervical cancer for period 1998-2014 (N=807).

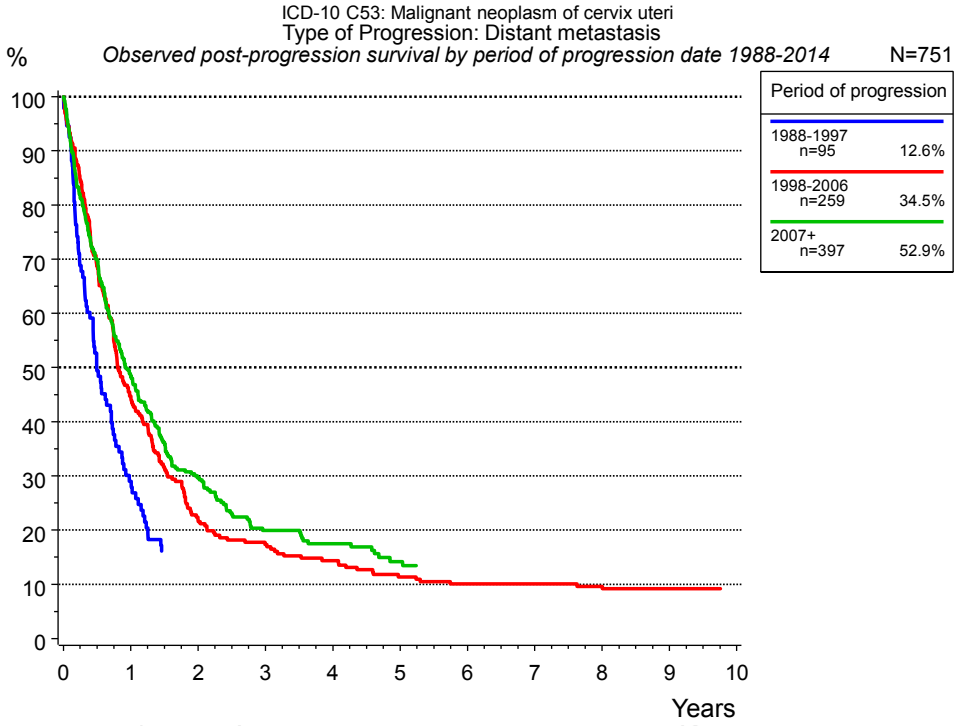

Figure 5e. Observed post-progression (distant metastasis) survival of 751 patients with cervical cancer diagnosed between 1988 and 2014 by period of progression.

	Period of progression		
	1988-1997 n=95	1998-2006 n=259	2007+ n=397
Years	%	%	%
0	100.0	100.0	100.0
1	29.0	44.7	48.3
2		22.0	29.7
3		17.4	20.0
4		14.4	17.5
5		11.4	14.2
6		10.1	13.4
7		10.1	13.4
8		9.6	
9		9.2	
10		9.2	

Table 5f. Observed post-progression (distant metastasis) survival of patients with cervical cancer for period 1988-2014 by period of progression (N=751).

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 C53: Cervical cancer [Internet]. 2016 [updated 2016 Apr 11; cited 2016 Jun 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/surv/sC53__E-ICD-10-C53-Cervical-cancer-survival.pdf

Copyright

Disclaimer

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 of total cohort (chart)	4
2b	Survival of total cohort (table)	4
3a	Observed survival by age category (chart)	5
3b	Relative survival by age category (chart)	5
3c	Survival by age category (table)	6
4a	Relative survival by FIGO 1988+ (chart)	7
4b	Survival by FIGO 1988+ (table)	7
4c	Relative survival by FIGO 1998+ (chart)	9
4d	Survival by FIGO 1998+ (table)	9
4e	Conditional survival by extent of disease (chart)	11
4f	Conditional survival by extent of disease (table)	11
5a	Time to first progression (chart)	12
5b	Time to first progression (table)	12
5c	Observed post-progression survival (chart)	14
5d	Observed post-progression survival (table)	14
5e	Observed post-progression survival by period of progression (chart)	15
5f	Observed post-progression survival by period of progression (table)	15