

Munich Cancer Registry



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

ICD-10 C50: Breast cancer (women)

Survival

Year of diagnosis	1988-1997	1998-2014
Patients	11,838	53,128
Diseases	12,318	55,500
Cases evaluated	10,582	43,060
Creation date	04/11/2016	
Export date	12/23/2015	
Population (females)	2.36 m	



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

http://www.tumorregister-muenchen.de/en/facts/surv/sC50f_E-ICD-10-C50-Breast-cancer-women-survival.pdf

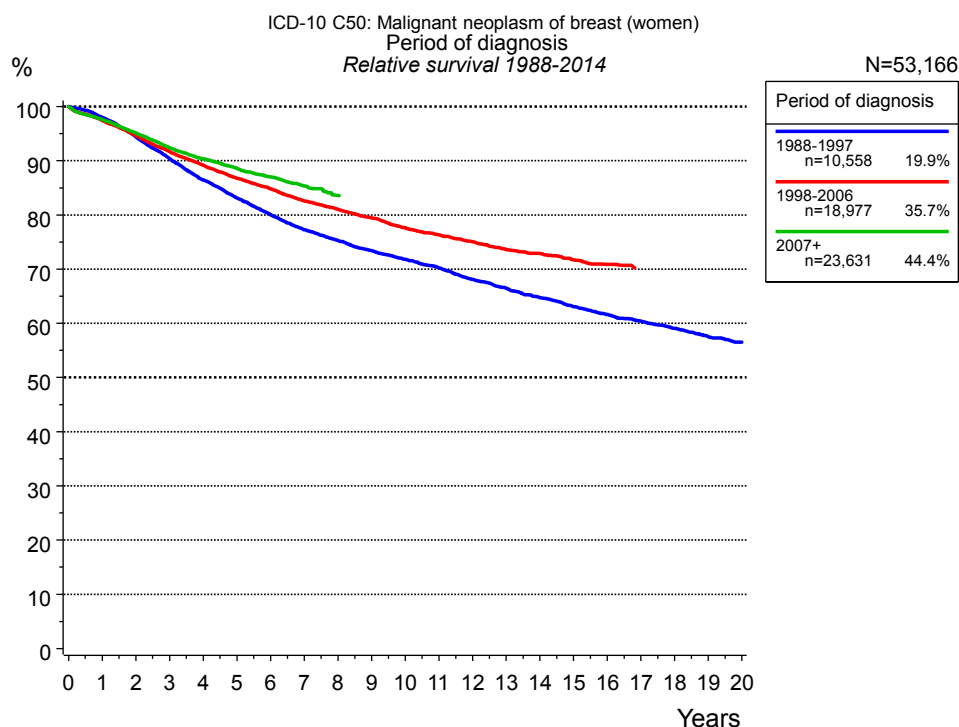


Figure 1a. Relative survival of patients with breast cancer (women) by period of diagnosis. Included in the evaluation are 53,166 cases diagnosed between 1988 and 2014.

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=10,558		1998-2006 n=18,977		2007+ n=23,631	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	96.4	98.0	95.8	97.5	96.1	97.6
2	91.4	94.4	91.4	94.6	92.1	95.1
3	86.1	90.4	87.2	91.7	88.1	92.4
4	80.9	86.4	83.5	89.2	84.8	90.3
5	76.5	83.1	79.9	86.8	82.0	88.6
6	72.5	80.0	76.9	84.8	79.2	87.0
7	68.8	77.3	73.7	82.6	76.5	85.4
8	66.0	75.3	71.1	81.0	73.9	83.6
9	63.2	73.4	68.6	79.5		
10	60.8	71.8	65.9	77.6		
11	58.4	70.2	63.7	76.3		
12	55.7	68.1	61.5	75.1		
13	53.3	66.5	59.2	73.6		
14	51.1	64.8	57.5	72.9		
15	48.8	63.1	55.5	71.7		
16	46.7	61.6	53.7	70.8		
17	44.9	60.4				
18	43.0	59.1				
19	41.0	57.5				
20	39.5	56.5				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with breast cancer (women) by period of diagnosis for period 1988-2014 (N=53,166).

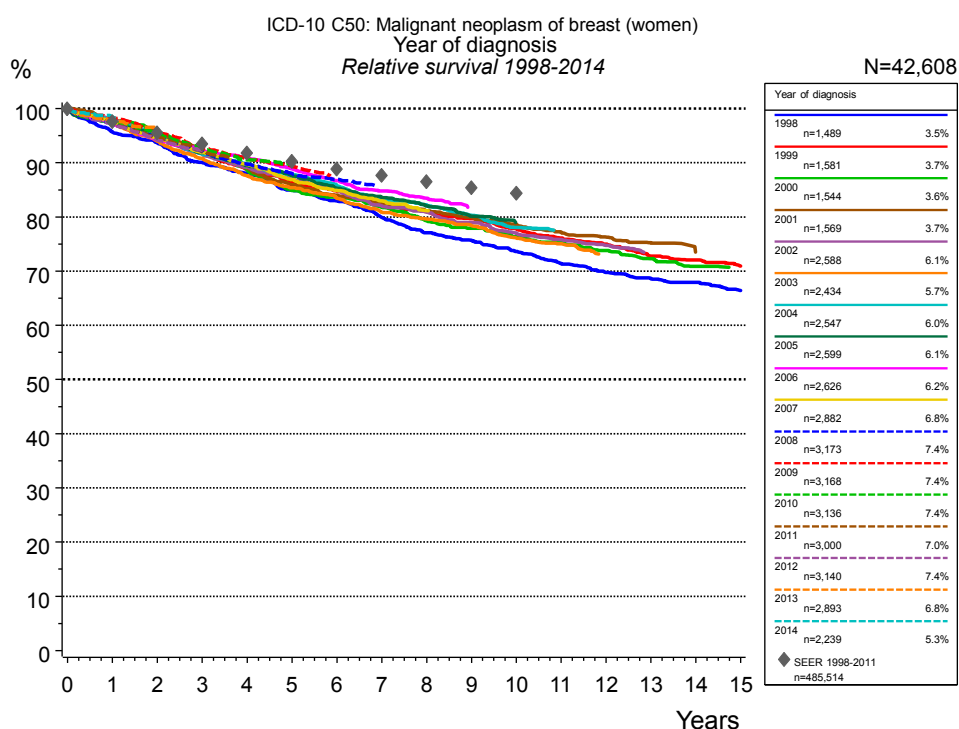


Figure 1c. Relative survival of patients with breast cancer (women) by year of diagnosis. Included in the evaluation are 42,608 cases diagnosed between 1998 and 2014.

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.

Years	Year of diagnosis													
	1998		1999		2000		2001		2002		2003		2004	
	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	93.9	95.7	95.7	97.4	96.2	97.9	96.3	97.8	96.4	98.1	95.7	97.3	96.0	97.6
2	90.5	93.7	91.4	94.6	92.4	95.7	91.7	94.7	91.5	94.7	90.8	94.0	91.8	94.9
3	85.6	90.1	87.4	92.0	87.5	92.3	88.1	92.2	87.0	91.6	86.2	90.8	87.2	91.6
4	82.2	88.0	83.0	88.8	82.8	88.7	83.7	89.0	83.3	89.1	81.8	87.6	84.2	89.8
5	78.0	84.9	79.4	86.3	77.8	84.9	79.7	86.0	79.9	87.0	78.5	85.4	81.0	87.8
6	75.0	83.0	76.6	84.7	75.4	83.6	76.9	84.0	76.8	84.9	75.4	83.4	77.9	85.8
7	71.1	79.9	73.7	82.7	72.5	81.8	74.4	82.6	73.0	82.0	71.9	80.9	74.5	83.2
8	67.5	77.1	71.0	81.0	69.2	79.3	72.0	81.1	70.8	80.9	69.6	79.6	72.5	82.3
9	65.3	75.7	68.7	79.7	67.0	77.9	69.9	80.0	67.9	78.9	67.4	78.4	69.6	80.2
10	62.4	73.7	66.0	77.8	64.5	76.4	67.7	78.6	65.0	77.0	64.2	76.1	66.5	78.0
11	59.5	71.4	63.4	76.1	62.5	75.2	65.3	77.2	62.9	75.8	62.2	75.1		
12	57.1	69.8	61.4	75.0	60.3	73.8	63.5	76.3	60.8	74.8				
13	55.1	68.6	58.5	72.8	58.0	72.3	61.5	75.3						
14	53.6	67.9	57.1	72.1	55.8	70.9								
15	51.4	66.4	54.9	71.0										

<i>cont'd</i>	Year of diagnosis													
	2005		2006		2007		2008		2009		2010		2011	
	n=2,599		n=2,626		n=2,882		n=3,173		n=3,168		n=3,136		n=3,000	
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	95.7	97.4	95.7	97.3	95.9	97.5	95.7	97.3	96.8	98.3	95.9	97.4	95.7	97.3
2	91.5	94.7	91.4	94.3	91.5	94.6	91.9	94.8	92.9	95.7	92.4	95.4	91.7	94.7
3	87.4	91.8	88.2	92.3	87.4	91.9	87.8	92.0	88.6	92.7	88.4	92.6	87.8	92.1
4	83.8	89.5	85.6	91.0	83.9	89.7	84.3	89.7	85.4	90.7	85.0	90.5		
5	80.7	87.6	82.4	88.9	80.1	86.9	81.5	88.1	82.9	89.4	83.2	89.6		
6	77.3	85.3	79.1	86.7	77.0	84.9	79.3	86.9						
7	74.7	83.7	76.1	84.8	74.0	83.0								
8	71.9	82.0	73.7	83.4	71.5	81.2								
9	69.1	80.1												

<i>cont'd</i>	Year of diagnosis					
	2012		2013		2014	
	n=3,140		n=2,893		n=2,239	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.6	97.1	96.3	97.9	97.3	98.5
2	91.2	94.2	93.5	96.3		
3	88.3	92.3				

Table 1d. Observed (obs.) and relative (rel.) survival of patients with breast cancer (women) by year of diagnosis for period 1998-2014 (N=42,608).

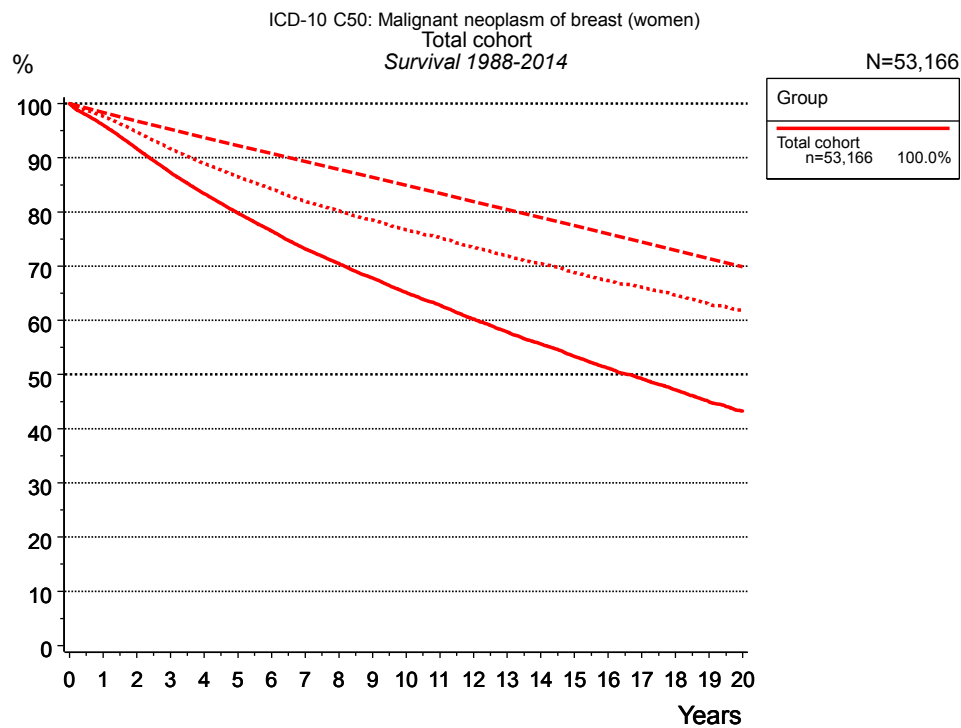


Figure 2a. Observed, expected and relative survival of the total cohort with breast cancer (women). Included in the evaluation are 53,166 cases diagnosed between 1988 and 2014.

Years	Group	
	Total cohort n=53,166	
	obs. %	rel. %
0	100.0	100.0
1	96.0	97.6
2	91.7	94.8
3	87.3	91.7
4	83.4	88.9
5	79.8	86.5
6	76.5	84.3
7	73.2	81.9
8	70.5	80.2
9	67.8	78.5
10	65.1	76.7
11	62.8	75.3
12	60.2	73.5
13	57.8	71.9
14	55.7	70.4
15	53.3	68.8
16	51.2	67.4
17	49.2	66.1
18	47.2	64.7
19	44.9	62.9
20	43.3	61.9

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with breast cancer (women) for period 1988-2014 (N=53,166).

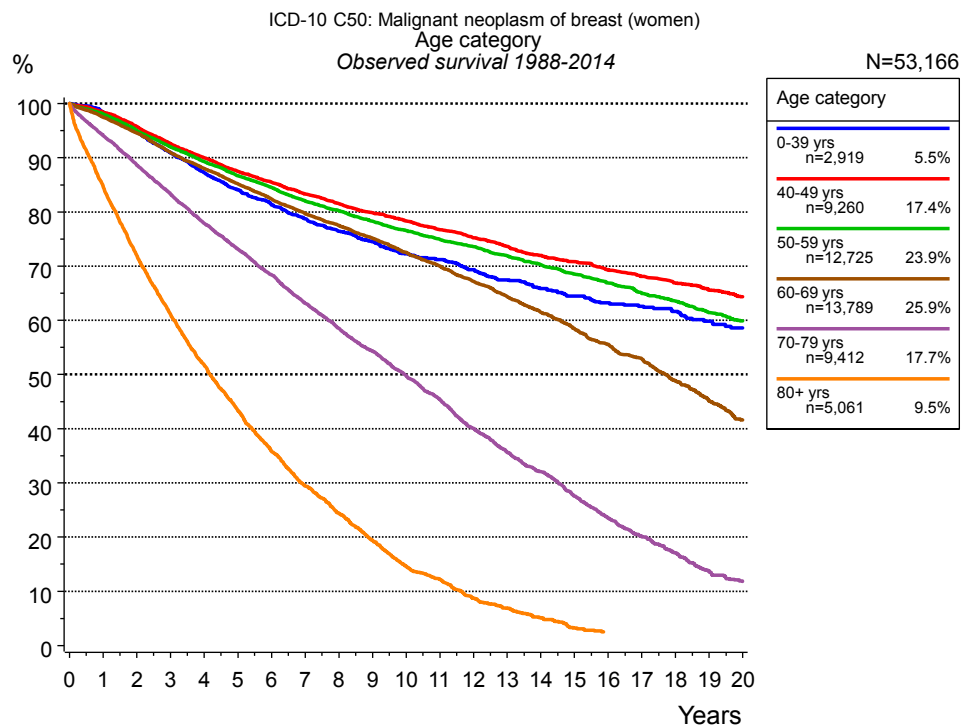


Figure 3a. Observed survival of patients with breast cancer (women) by age category. Included in the evaluation are 53,166 cases diagnosed between 1988 and 2014.

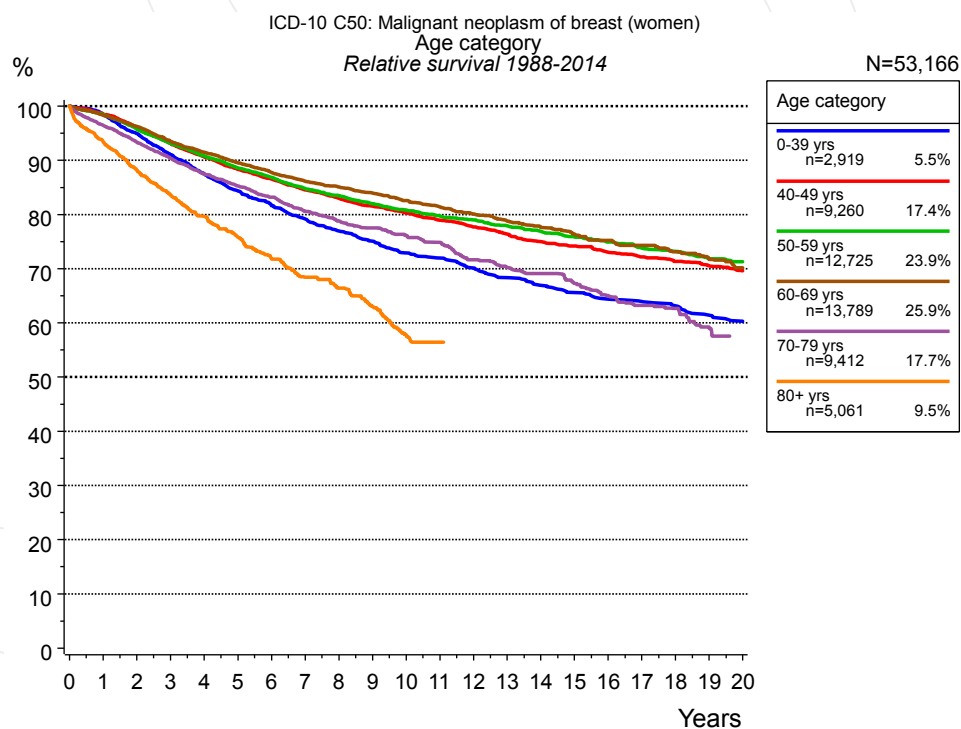


Figure 3b. Relative survival of patients with breast cancer (women) by age category. Included in the evaluation are 53,166 cases diagnosed between 1988 and 2014.

Years	Age category											
	0-39 yrs n=2,919		40-49 yrs n=9,260		50-59 yrs n=12,725		60-69 yrs n=13,789		70-79 yrs n=9,412		80+ yrs n=5,061	
	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	98.4	98.5	98.4	98.6	98.1	98.4	97.4	98.3	94.2	96.5	84.7	93.5
2	94.8	94.9	95.8	96.1	95.0	95.7	94.5	96.2	88.6	93.3	72.0	88.2
3	90.9	91.0	92.6	93.1	92.0	93.1	91.0	93.5	83.3	90.4	61.1	83.6
4	87.3	87.5	90.0	90.6	89.3	90.8	88.0	91.5	77.9	87.4	51.7	79.7
5	84.1	84.4	87.5	88.3	86.7	88.6	85.2	89.6	73.2	85.3	43.4	75.8
6	81.3	81.6	85.5	86.5	84.5	86.8	82.4	87.8	68.4	83.2	35.8	71.9
7	78.8	79.1	83.3	84.5	82.1	84.8	79.7	86.1	63.2	80.6	29.4	68.4
8	76.5	76.9	81.5	83.0	80.2	83.5	77.5	85.1	58.5	78.8	24.4	66.4
9	74.5	75.1	79.9	81.5	78.3	82.0	75.1	83.9	54.3	77.5	19.4	63.0
10	72.3	72.9	78.3	80.3	76.6	80.8	72.5	82.6	49.7	76.1	14.7	57.8
11	71.2	72.0	76.7	78.9	74.9	79.7	70.0	81.4	45.4	74.9	12.1	56.4
12	69.4	70.1	75.2	77.7	73.6	79.0	67.2	80.1	40.0	71.6		
13	67.5	68.3	73.6	76.4	71.9	77.9	64.3	78.8	35.6	70.1		
14	65.9	66.9	72.0	75.0	70.2	76.9	61.5	77.6	32.1	69.1		
15	64.5	65.6	70.8	74.2	68.5	75.8	58.5	76.4	27.5	67.2		
16	63.2	64.4	69.3	73.0	66.9	74.9	55.5	75.2	23.5	65.0		
17	62.6	64.0	68.1	72.2	65.0	73.8	52.9	74.3	20.0	63.3		
18	61.7	63.2	66.9	71.4	63.6	73.2	48.8	73.1	17.1	62.7		
19	59.8	61.4	65.6	70.5	61.4	71.8	45.1	71.7	13.7	59.3		
20	58.6	60.3	64.3	69.6	59.9	71.3	41.6	70.1				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with breast cancer (women) by age category for period 1988-2014 (N=53,166).

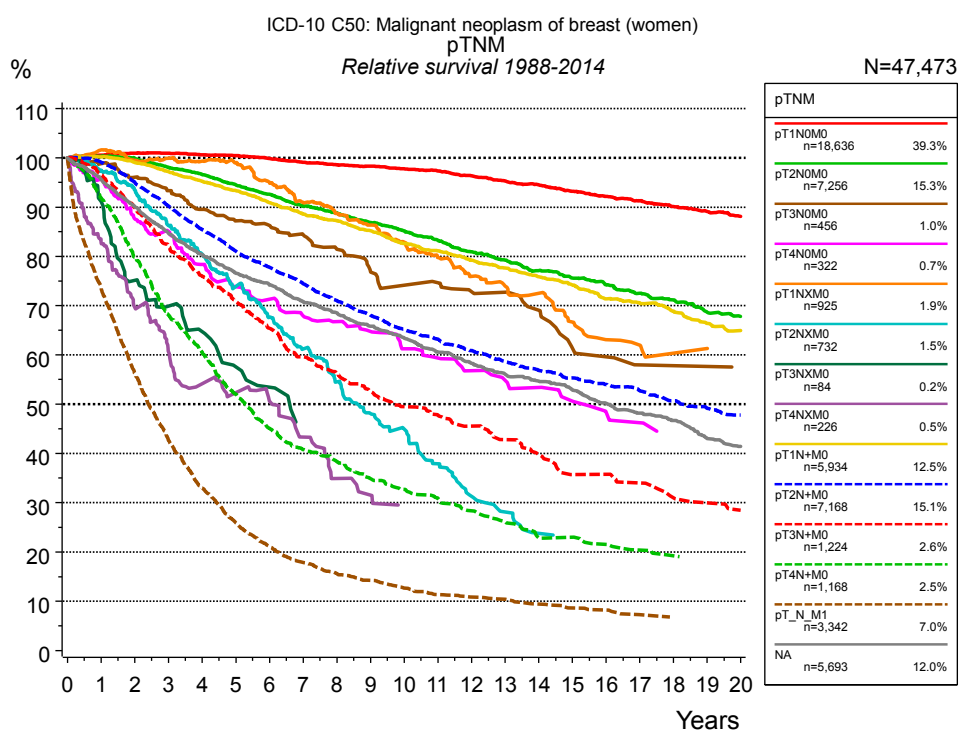


Figure 4a. Relative survival of patients with breast cancer (women) by pTNM. For 51,546 of 53,166 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 47,473 cases an evaluable classification was established. The grey line represents the subgroup of 5,693 patients with missing values regarding pTNM (10.7% of 53,166 patients, the percent values of all other categories are related to n=47,473).

Years	pTNM															
	pT1N0M0 n=18,636		pT2N0M0 n=7,256		pT3N0M0 n=456		pT4N0M0 n=322		pT1NXM0 n=925		pT2NXM0 n=732		pT3NXM0 n=84			
	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	99.5	100.6	98.7	100.3	96.2	98.8	90.9	95.6	96.8	101.6	89.9	97.4	82.9	91.1		
2	98.9	101.0	96.6	99.9	91.0	96.0	79.3	87.6	90.1	99.4	79.5	93.5	62.9	75.1		
3	97.8	101.0	93.2	98.0	86.3	93.4	73.7	85.1	86.2	99.9	67.4	86.3	52.7	69.9		
4	96.3	100.7	90.2	96.6	80.8	89.5	64.7	78.4	81.7	99.3	57.8	80.3	44.6	64.7		
5	94.9	100.4	86.7	94.5	76.7	87.2	58.6	73.9	77.5	99.0	48.9	73.9	36.1	57.6		
6	93.1	99.9	83.4	92.6	74.3	86.2	54.4	71.3	70.9	94.9	41.2	67.6	31.6	53.4		
7	91.1	99.1	79.7	90.2	70.9	84.4	49.9	67.9	65.1	91.0	34.3	61.2				
8	89.4	98.6	77.0	88.8	66.8	81.5	47.3	66.7	60.7	88.7	28.2	54.5				
9	87.8	98.3	73.9	86.9	62.1	76.9	44.4	64.8	56.8	86.3	23.1	48.1				
10	85.9	97.8	71.0	85.1	58.7	74.2	40.2	61.2	52.3	82.9	20.1	45.0				
11	84.1	97.3	68.2	83.3	58.1	74.6	38.0	59.4	48.3	79.7	16.0	37.9				
12	81.9	96.4	64.9	80.9	55.6	72.8	34.9	56.8	44.3	75.9	12.4	31.3				
13	79.5	95.3	62.3	79.2	54.8	72.7	32.8	54.8	41.6	73.9	10.7	28.1				
14	77.5	94.5	59.4	77.1	51.3	69.1	31.2	53.4	39.5	72.5	8.7	23.8				
15	75.0	93.2	57.1	75.6	44.4	61.3	28.6	50.6	35.1	66.6	8.3	23.5				
16	72.8	92.2	54.9	74.3	43.3	59.6	25.8	48.4	31.9	63.1	8.3	23.7				
17	70.7	91.3	52.4	72.5	40.6	58.0	24.8	46.2	30.8	62.0						
18	68.3	90.1	50.4	71.2	40.6	57.8	22.4	44.7	28.9	60.4						
19	66.2	89.1	47.4	68.6	40.6	57.7	22.4	45.0	28.9	61.3						
20	64.2	88.1	45.7	67.8	38.6	56.4	22.4	45.3	27.9	60.4						

cont'd	pTNM													
	pT4NXM0 n=226		pT1N+M0 n=5,934		pT2N+M0 n=7,168		pT3N+M0 n=1,224		pT4N+M0 n=1,168		pT_N_M1 n=3,342		NA n=5,693	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
Years														
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	74.7	82.5	99.2	100.2	97.6	99.1	95.0	96.6	88.4	91.9	71.8	73.5	93.7	95.6
2	57.4	69.6	97.1	99.0	92.2	95.0	86.9	89.8	74.1	79.9	53.8	56.2	86.7	90.1
3	45.5	60.7	94.2	97.2	86.2	90.2	78.1	82.0	61.1	68.1	40.0	42.6	80.3	84.7
4	37.2	54.2	91.3	95.2	80.4	85.4	71.2	75.9	52.2	60.4	30.3	32.9	75.0	80.3
5	32.8	52.3	88.4	93.3	75.2	81.1	65.5	70.9	43.5	52.1	23.4	25.9	70.5	76.6
6	28.8	50.6	85.0	90.9	71.0	77.8	59.5	65.4	36.5	45.1	18.6	21.0	67.3	74.2
7	22.8	43.3	81.8	88.6	66.9	74.5	53.6	59.6	32.1	40.8	15.5	17.8	63.4	70.8
8	17.0	34.9	79.5	87.2	62.8	71.0	49.8	56.3	29.2	38.3	13.3	15.6	60.4	68.5
9	14.8	31.5	76.7	85.2	59.2	68.1	45.7	52.6	25.9	34.9	11.9	14.2	57.2	65.8
10	12.5	28.8	73.2	82.5	55.8	65.2	42.4	49.5	23.7	32.7	10.3	12.7	54.3	63.4
11			71.0	81.1	53.2	63.2	40.3	47.8	22.0	31.0	9.1	11.3	51.0	60.6
12			68.3	79.2	50.5	60.9	37.9	45.6	19.6	28.3	8.5	10.9	48.2	58.3
13			65.8	77.6	47.7	58.5	35.0	42.8	17.5	26.1	8.0	10.4	45.5	56.0
14			63.3	75.8	45.5	56.9	32.3	39.8	15.1	22.9	7.0	9.4	43.6	54.7
15			60.9	74.2	43.6	55.3	28.3	35.7	14.9	23.0	6.2	8.6	41.3	52.8
16			57.6	71.4	41.7	54.0	28.3	35.8	13.6	21.5	5.8	8.2	38.4	50.2
17			55.9	70.6	39.9	52.7	26.6	34.0	12.5	20.4	4.9	7.3	36.1	48.2
18			53.6	68.8	37.7	50.7	23.9	31.0	11.5	19.2	4.4	6.7	34.2	46.7
19			50.7	66.4	35.9	49.2	22.7	30.0	11.2	19.1			30.8	43.0
20			48.7	64.9	34.3	47.8	21.3	28.5	11.2	19.2			29.0	41.4

Table 4b. Observed (obs.) and relative (rel.) survival of patients with breast cancer (women) by pTNM for period 1988-2014 (N=47,473).

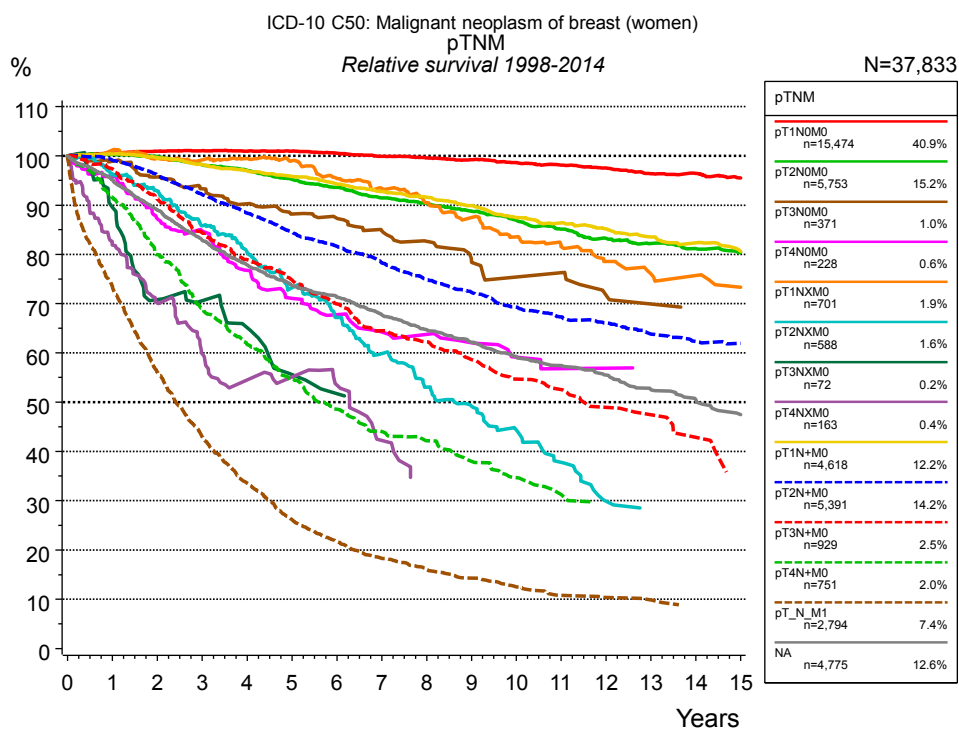


Figure 4c. Relative survival of patients with breast cancer (women) by pTNM. For 41,644 of 42,608 cases diagnosed between 1998 and 2014 valid data could be obtained for this item. For a total of 37,833 cases an evaluable classification was established. The grey line represents the subgroup of 4,775 patients with missing values regarding pTNM (11.2% of 42,608 patients, the percent values of all other categories are related to n=37,833).

Years	pTNM													
	pT1N0M0 n=15,474		pT2N0M0 n=5,753		pT3N0M0 n=371		pT4N0M0 n=228		pT1NXM0 n=701		pT2NXM0 n=588		pT3NXM0 n=72	
	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	99.6	100.5	98.6	100.3	96.1	98.9	90.7	95.8	96.5	101.2	88.7	96.3	81.4	89.5
2	98.9	101.0	96.5	99.9	90.4	95.7	78.2	87.2	90.3	99.5	78.4	92.9	59.3	70.8
3	97.9	101.1	93.2	98.2	85.6	93.3	72.5	84.7	85.7	99.2	66.2	85.8	53.2	70.6
4	96.7	101.0	90.5	97.0	80.9	90.3	62.4	76.8	81.9	99.5	57.0	80.4	45.2	65.1
5	95.5	101.0	87.2	95.3	76.7	88.2	55.5	71.1	77.8	99.0	47.7	73.2	34.8	55.6
6	93.9	100.5	84.1	93.6	74.4	87.3	50.7	67.8	71.7	95.3	40.1	67.2	31.2	51.7
7	92.0	99.9	80.6	91.4	70.1	84.8	46.2	64.2	67.3	93.4	32.8	59.8		
8	90.5	99.6	78.2	90.4	66.5	82.6	44.8	63.8	62.4	90.5	26.7	53.0		
9	88.7	99.2	75.3	88.7	62.1	78.5	42.3	62.1	58.0	87.4	22.9	49.2		
10	86.8	98.6	72.2	86.9	58.2	75.4	38.3	59.2	53.3	83.6	19.1	44.3		
11	84.9	98.1	69.3	85.1	58.2	76.3	35.9	56.8	50.0	81.5	15.3	37.8		
12	82.9	97.5	66.4	83.2	53.3	71.7	35.9	56.9	46.5	78.5	11.2	29.9		
13	80.5	96.4	64.2	82.2	51.7	69.9	33.9	53.8	43.5	76.0	10.1	28.4		
14	79.2	96.4	62.0	81.1	49.0	68.1			42.5	75.7				
15	77.0	95.6	60.1	80.4					40.3	73.3				

cont'd	pTNM													
	pT4NXM0 n=163		pT1N+M0 n=4,618		pT2N+M0 n=5,391		pT3N+M0 n=929		pT4N+M0 n=751		pT_N_M1 n=2,794		NA n=4,775	
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	73.6	81.9	99.4	100.4	97.6	99.1	95.6	97.3	87.8	91.6	71.7	73.4	93.2	95.1
2	57.3	70.2	97.6	99.6	93.2	96.1	87.9	91.2	73.6	80.0	53.7	56.1	85.7	89.0
3	43.9	59.8	95.3	98.2	88.0	92.1	79.8	84.4	61.2	69.0	40.3	42.9	78.7	82.9
4	36.4	54.5	93.0	97.0	83.1	88.4	73.4	78.9	52.7	61.7	31.0	33.6	73.0	77.8
5	33.3	55.1	90.8	95.8	78.1	84.5	68.6	74.8	45.1	54.7	23.7	26.2	68.2	73.7
6	29.1	53.5	88.3	94.3	74.3	81.6	63.1	69.9	38.7	48.6	19.2	21.6	65.2	71.3
7	20.9	42.2	85.7	92.7	70.1	78.3	57.4	64.5	33.9	44.1	16.0	18.3	61.3	67.7
8			83.5	91.6	66.0	74.9	54.6	62.2	31.3	42.2	13.7	16.1	57.8	64.7
9			80.9	89.9	62.6	72.3	50.3	58.6	27.5	38.0	12.0	14.3	54.9	62.2
10			77.6	87.5	59.0	69.3	46.3	54.7	24.5	34.7	10.2	12.5	51.8	59.2
11			75.6	86.4	56.4	67.3	44.1	52.6	21.7	31.3	8.7	10.8	49.6	57.4
12			73.3	85.2	54.5	66.1	40.5	48.9	19.9	29.7	8.1	10.4	47.3	55.5
13			70.7	83.5	51.6	63.8	38.9	47.4	19.9	29.7	7.8	9.9	44.0	52.5
14			68.7	82.3	49.6	62.3	35.0	42.8	19.9	29.6	6.7	8.7	41.9	50.5
15			66.0	80.6	48.5	62.0			19.9	29.5			38.9	47.5

Table 4d. Observed (obs.) and relative (rel.) survival of patients with breast cancer (women) by pTNM for period 1998-2014 (N=37,833).

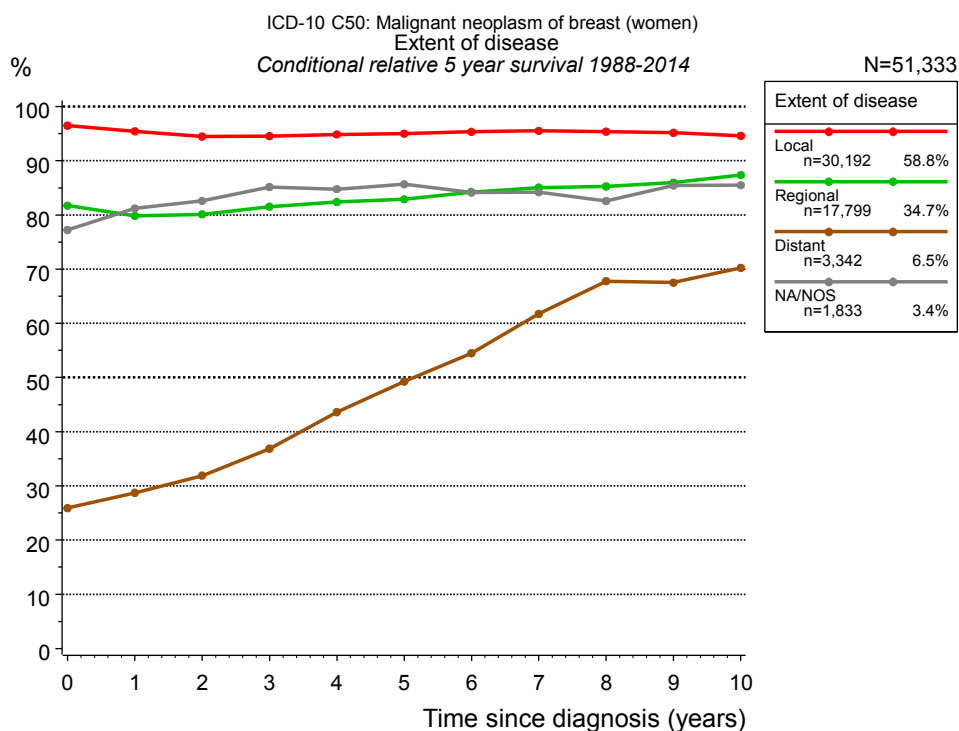


Figure 4e. Conditional relative 5-year survival of patients with breast cancer (women) by extent of disease. For 51,546 of 53,166 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 51,333 cases an evaluable classification was established. The grey line represents the subgroup of 1,833 patients with missing values regarding extent of disease (3.4% of 53,166 patients, the percent values of all other categories are related to n=51,333).

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	30,192	96.5	17,799	81.7	3,342	25.9	1,833	77.2
1	28,045	95.4	16,315	79.8	2,267	28.7	1,595	81.2
2	25,702	94.5	14,504	80.1	1,553	31.9	1,426	82.6
3	23,193	94.6	12,673	81.5	1,059	36.9	1,284	85.2
4	20,804	94.9	11,077	82.4	740	43.6	1,169	84.8
5	18,494	95.0	9,620	82.9	516	49.3	1,065	85.7
6	16,226	95.3	8,293	84.2	378	54.5	965	84.2
7	14,019	95.5	7,073	85.1	272	61.8	869	84.2
8	12,232	95.4	6,060	85.3	205	67.8	798	82.6
9	10,725	95.2	5,145	86.0	168	67.5	716	85.4
10	9,280	94.6	4,311	87.4	129	70.2	649	85.5

Table 4f. Conditional relative 5-year survival of patients with breast cancer (women) by extent of disease for period 1988-2014 (N=51,333).

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 94.6% (n=23,193).

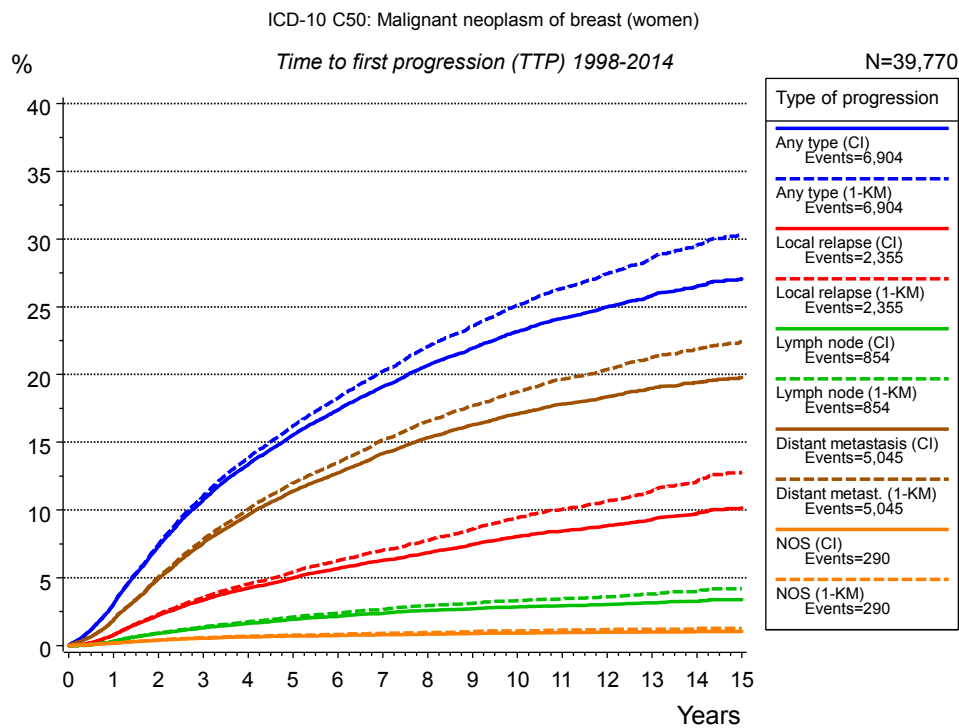


Figure 5a. Time to first progression of 39,770 patients with breast cancer (women) diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Years	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=39,770 %	n=39,770 %	n=39,770 %	n=39,770 %	n=39,770 %	n=39,770 %	n=39,770 %
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.0	3.1	0.8	0.8	0.3	0.3	1.9
2	7.3	7.5	2.2	2.3	0.9	0.9	4.9
3	10.7	11.0	3.4	3.5	1.3	1.4	7.5
4	13.4	13.8	4.2	4.5	1.6	1.8	9.6
5	15.5	16.2	5.0	5.4	1.9	2.1	11.4
6	17.4	18.3	5.7	6.3	2.2	2.4	12.7
7	19.1	20.2	6.3	7.0	2.4	2.7	14.2
8	20.7	22.1	6.9	7.8	2.6	2.9	15.3
9	22.0	23.6	7.5	8.6	2.7	3.1	16.3
10	23.2	25.1	8.1	9.5	2.9	3.3	17.1
11	24.2	26.4	8.5	10.1	2.9	3.4	17.8
12	25.0	27.5	8.8	10.7	3.0	3.6	18.4
13	25.8	28.6	9.3	11.4	3.2	3.8	19.0
14	26.5	29.5	9.7	12.1	3.3	4.0	19.4
15	27.1	30.3	10.1	12.8	3.4	4.2	19.8

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
	n=39,770	n=39,770	n=39,770
Years	%	%	%
0	0.0	0.0	0.0
1	1.9	0.2	0.2
2	5.1	0.4	0.4
3	7.8	0.5	0.6
4	10.0	0.6	0.7
5	12.0	0.7	0.8
6	13.5	0.7	0.8
7	15.2	0.8	0.9
8	16.6	0.8	1.0
9	17.7	0.9	1.0
10	18.7	0.9	1.1
11	19.7	1.0	1.1
12	20.4	1.0	1.2
13	21.3	1.0	1.2
14	21.9	1.0	1.3
15	22.4	1.0	1.3

Table 5b. Time to first progression of patients with breast cancer (women) for period 1998-2014 (N=39,770).

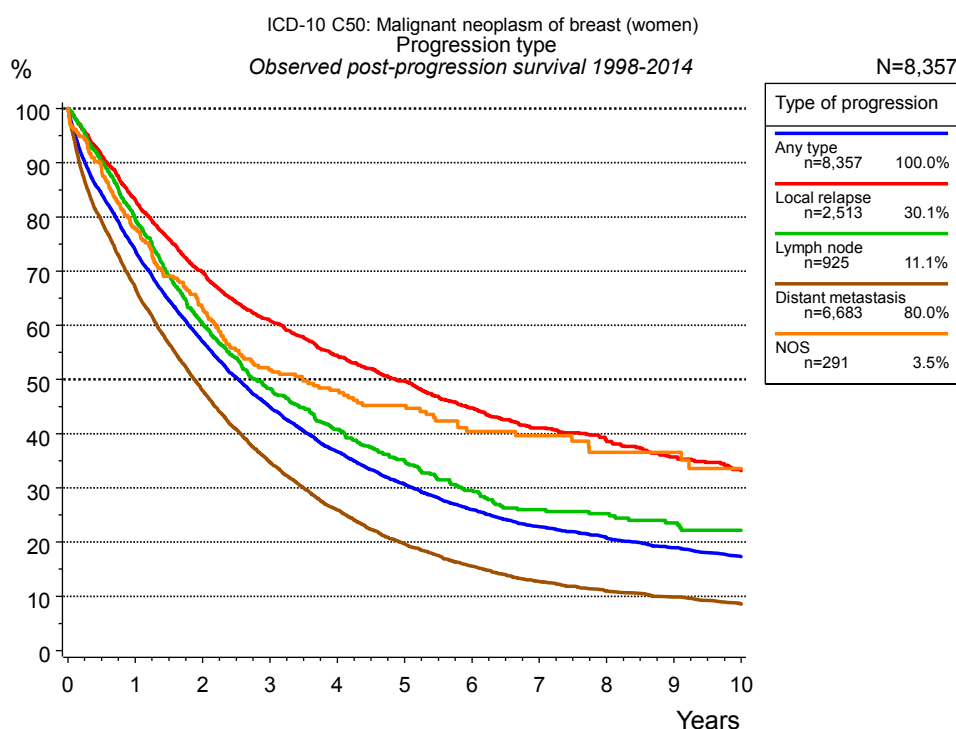


Figure 5c. Observed post-progression survival of 8,357 patients with breast cancer (women) diagnosed between 1998 and 2014. These 8,357 patients with documented progression events during their course of disease represent 19.7 % of the totally 42,515 evaluated cases (incl. M1, n=2,745, 6.5 %). Patients with cancer relapse documented via death certificates only were excluded (n=1,292, 3.0 %). 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=8,357 %	Local relapse n=2,513 %	Lymph node n=925 %	Distant metastasis n=6,683 %	NOS n=291 %
0	100.0	100.0	100.0	100.0	100.0
1	73.9	83.2	79.6	67.0	77.8
2	57.0	69.7	60.2	48.0	63.0
3	44.9	60.9	48.2	34.7	51.8
4	36.7	54.5	40.8	25.9	48.0
5	30.7	49.8	35.0	19.7	45.2
6	26.0	44.8	29.6	15.5	40.4
7	22.9	41.0	26.0	12.7	39.6
8	20.7	38.6	25.3	11.0	36.6
9	18.9	35.7	23.6	9.8	36.6
10	17.2	33.2	22.2	8.6	33.6

Table 5d. Observed post-progression survival of patients with breast cancer (women) for period 1998-2014 (N=8,357).

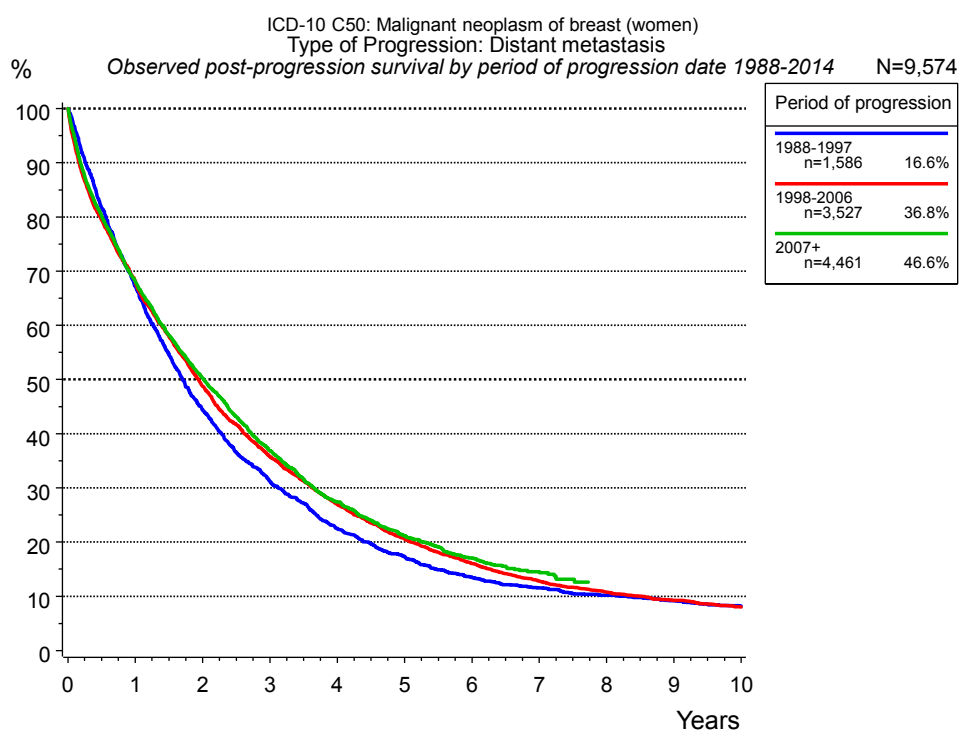


Figure 5e. Observed post-progression (distant metastasis) survival of 9,574 patients with breast cancer (women) diagnosed between 1988 and 2014 by period of progression.

Years	Period of progression		
	1988-1997 n=1,586	1998-2006 n=3,527	2007+ n=4,461
	%	%	%
0	100.0	100.0	100.0
1	67.2	68.1	68.1
2	44.4	48.8	50.3
3	31.3	35.8	36.9
4	22.5	27.0	27.4
5	17.4	20.6	21.2
6	13.5	16.0	17.1
7	11.6	12.8	14.6
8	10.2	10.8	12.6
9	9.2	9.3	
10	8.2	8.0	

Table 5f. Observed post-progression (distant metastasis) survival of patients with breast cancer (women) for period 1988-2014 by period of progression (N=9,574).

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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Index of figures and tables

Fig./Tbl.	Page
1a Relative survival by period of diagnosis (chart)	2
1b Survival by period of diagnosis (table)	2
1c Relative survival by year of diagnosis (chart)	3
1d Survival by year of diagnosis (table)	3
2a Survival of total cohort (chart)	5
2b Survival of total cohort (table)	5
3a Observed survival by age category (chart)	6
3b Relative survival by age category (chart)	6
3c Survival by age category (table)	7
4a Relative survival by pTNM 1988+ (chart)	8
4b Survival by pTNM 1988+ (table)	8
4c Relative survival by pTNM 1998+ (chart)	10
4d Survival by pTNM 1998+ (table)	10
4e Conditional survival by extent of disease (chart)	12
4f Conditional survival by extent of disease (table)	12
5a Time to first progression (chart)	13
5b Time to first progression (table)	13
5c Observed post-progression survival (chart)	15
5d Observed post-progression survival (table)	15
5e Observed post-progression survival by period of progression (chart)	16
5f Observed post-progression survival by period of progression (table)	16