Munich Cancer Registry

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	03/02/2016	
Export date	12/23/2015	
Population (females)	2.36 m	

BERLIN

GERMANY

BAVARIA

MUNICH

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

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

ICD-10 C50: Malignant neoplasm of breast (women)
Period of diagnosis
Relative survival 1988-2014

N=53,166

| Period of diagnosis |
| --- |
| 1988-1997 n=10,558   19.9% |
| 1998-2006 n=18,977   35.7% |
| 2007+ n=23,631   44.4% |

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.

	Period of diagnosis					
	1988-1997 n=10,558		1998-2006 n=18,977		2007+ n=23,631	
Years	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).

ICD-10 C50: Malignant neoplasm of breast (women)
Year of diagnosis
Relative survival 1998-2014
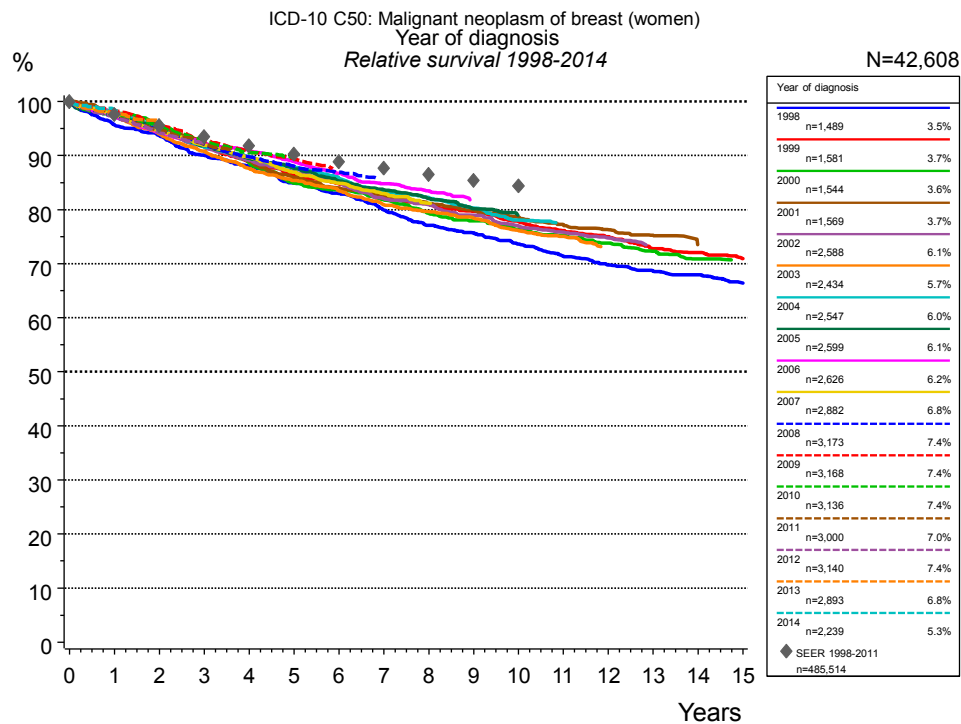
Figure 1c. Relative survival of patients with breast cancer (women) by year of diagnosis. Included in the evaluation are 42,608 cases diagnosed between 1998 and 2014.

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.

| | Year of diagnosis | | | | | | | | | | | | |
| | 1998 n=1,489 | | 1999 n=1,581 | | 2000 n=1,544 | | 2001 n=1,569 | | 2002 n=2,588 | | 2003 n=2,434 | | 2004 n=2,547 | |
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	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										

	Year of diagnosis													
cont'd	2005 n=2,599		2006 n=2,626		2007 n=2,882		2008 n=3,173		2009 n=3,168		2010 n=3,136		2011 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												

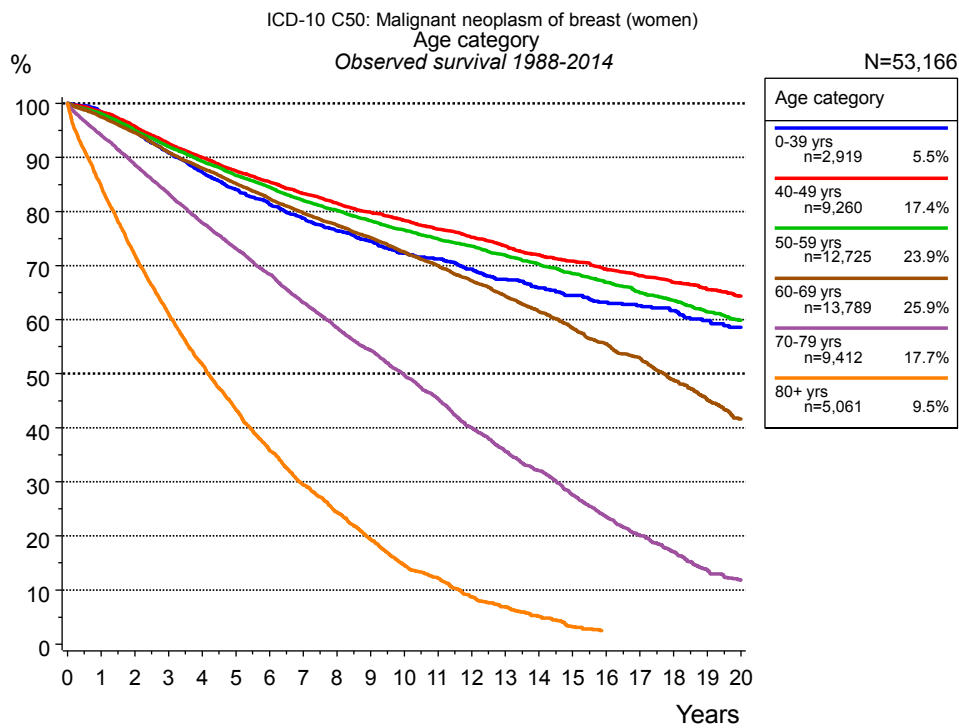|	Year of diagnosis					
cont'd	2012 n=3,140		2013 n=2,893		2014 n=2,239	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.6	97.1	96.3	97.9	97.3	98.5
2	91.2	94.2	93.5	96.3		
3	88.3	92.3				

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).

ICD-10 C50: Malignant neoplasm of breast (women)
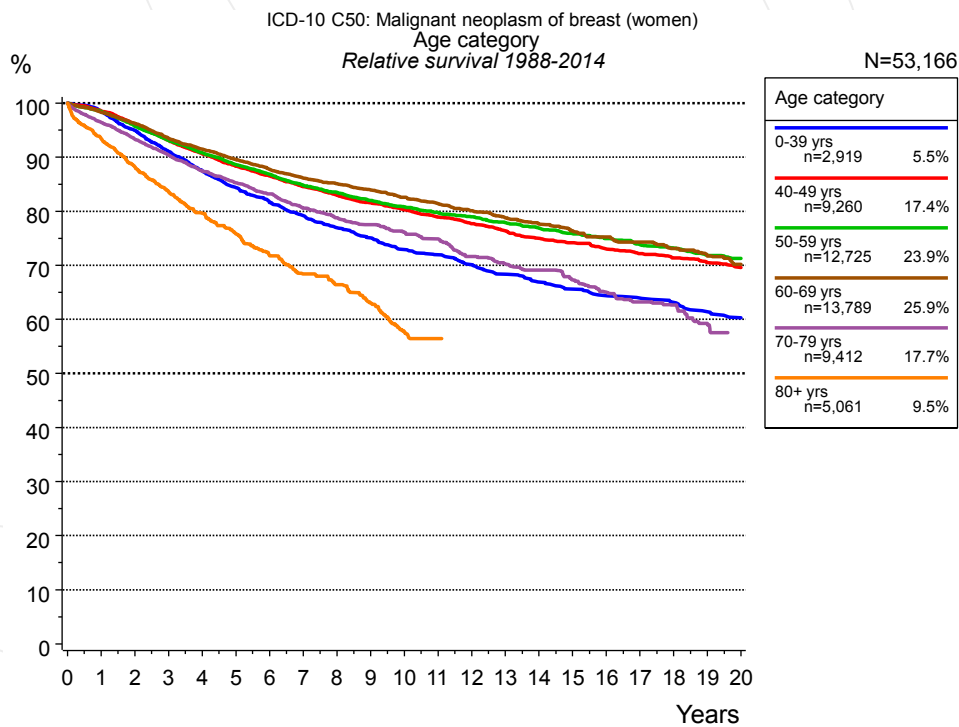Total cohort
Survival 1988-2014
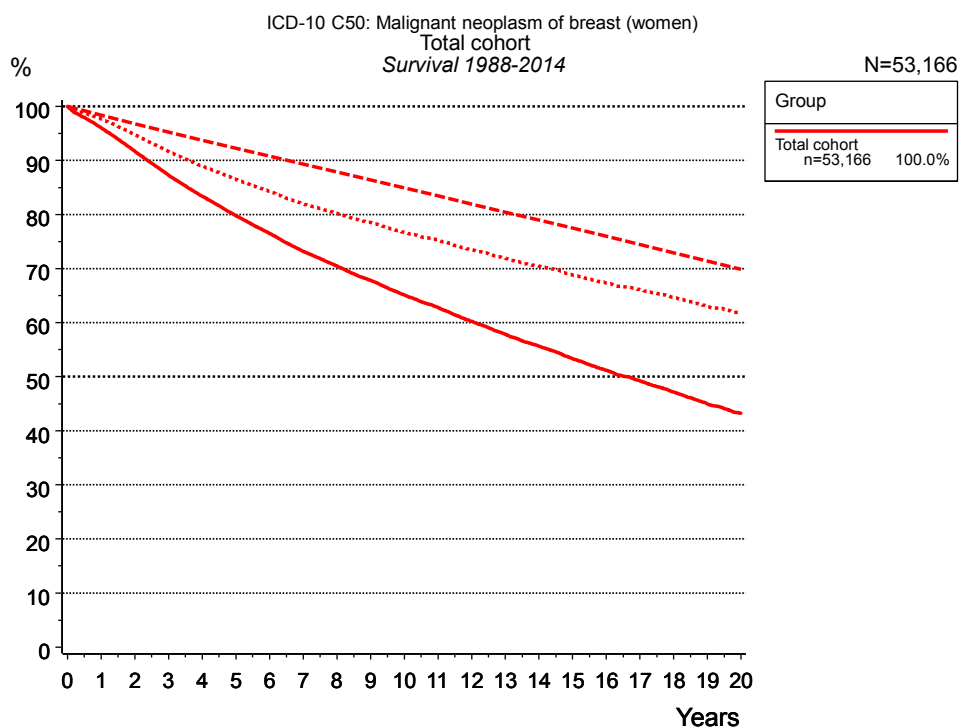
Figure 2a. Observed, expected and relative survival of the total cohort with breast cancer (women). Included in the evaluation are 53,166 cases diagnosed between 1988 and 2014.

	Group	
	Total cohort	
	n=53,166	
Years	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).

ICD-10 C50: Malignant neoplasm of breast (women)
Age category
Observed survival 1988-2014

N=53,166

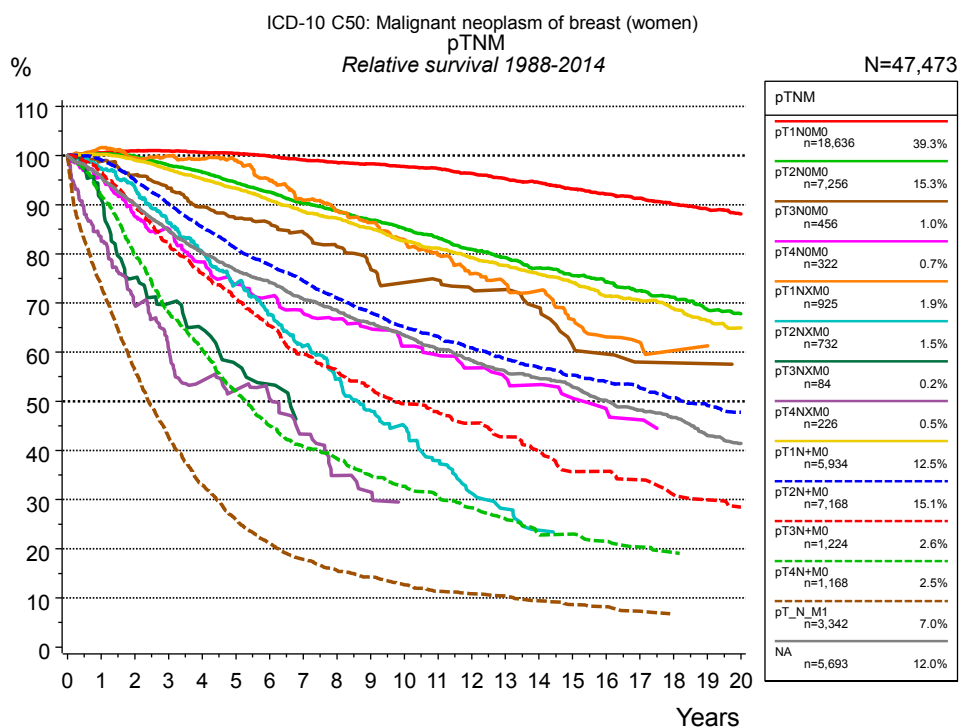| Age category		
0-39 yrs n=2,919	5.5%
40-49 yrs n=9,260	17.4%
50-59 yrs n=12,725	23.9%
60-69 yrs n=13,789	25.9%
70-79 yrs n=9,412	17.7%
80+ yrs n=5,061	9.5%

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.

ICD-10 C50: Malignant neoplasm of breast (women)
Age category
Relative survival 1988-2014

N=53,166

Age category		
0-39 yrs n=2,919	5.5%
40-49 yrs n=9,260	17.4%
50-59 yrs n=12,725	23.9%
60-69 yrs n=13,789	25.9%
70-79 yrs n=9,412	17.7%
80+ yrs n=5,061	9.5%

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.

	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	
Age category												
Years	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).

ICD-10 C50: Malignant neoplasm of breast (women)
pTNM
Relative survival 1988-2014

N=47,473

pTNM		
pT1N0M0	n=18,636	39.3%
pT2N0M0	n=7,256	15.3%
pT3N0M0	n=456	1.0%
pT4N0M0	n=322	0.7%
pT1NXM0	n=925	1.9%
pT2NXM0	n=732	1.5%
pT3NXM0	n=84	0.2%
pT4NXM0	n=226	0.5%
pT1N+M0	n=5,934	12.5%
pT2N+M0	n=7,168	15.1%
pT3N+M0	n=1,224	2.6%
pT4N+M0	n=1,168	2.5%
pT_N_M1	n=3,342	7.0%
NA	n=5,693	12.0%

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).

	pTNM													
	pT1N0M0 n=18,636		pT2N0M0 n=7,256		pT3N0M0 n=456		pT4N0M0 n=322		pT1NXM0 n=925		pT2NXM0 n=732		pT3NXM0 n=84	
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	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				

	pTNM												
cont'd	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	
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	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).

ICD-10 C50: Malignant neoplasm of breast (women)
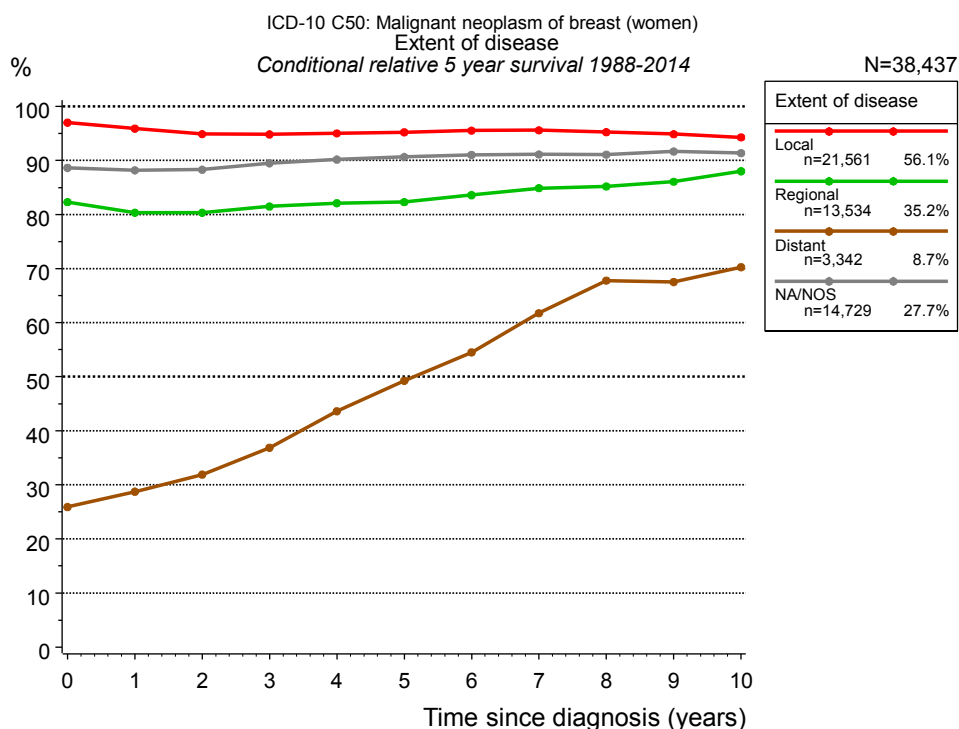pTNM
Relative survival 1998-2014
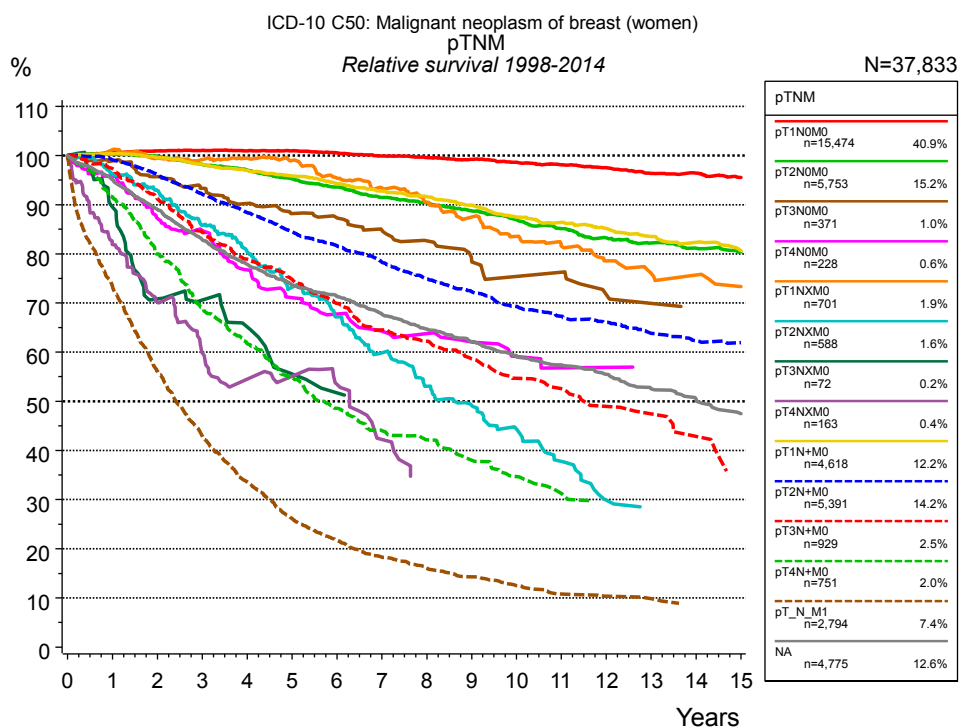
N=37,833

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).

| | pTNM | | | | | | | | | | | | | |
| | pT1N0M0 n=15,474 | | pT2N0M0 n=5,753 | | pT3N0M0 n=371 | | pT4N0M0 n=228 | | pT1NXM0 n=701 | | pT2NXM0 n=588 | | pT3NXM0 n=72 | |
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	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	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).

ICD-10 C50: Malignant neoplasm of breast (women)
Extent of disease
Conditional relative 5 year survival 1988-2014

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 38,437 cases an evaluable classification was established. The grey line represents the subgroup of 14,729 patients with missing values regarding extent of disease (27.7% of 53,166 patients, the percent values of all other categories are related to n=38,437).

	Extent of disease							
	Local		Regional		Distant		NA/NOS	
		Cond. surv. %		Cond. surv. %		Cond. surv. %		Cond. surv. %
Years	n	5 yrs	n	5 yrs	n	5 yrs	n	5 yrs
0	21,561	97.0	13,534	82.3	3,342	25.9	14,729	88.6
1	19,880	95.9	12,344	80.3	2,267	28.7	13,731	88.2
2	17,946	94.9	10,844	80.3	1,553	31.9	12,842	88.3
3	15,978	94.8	9,354	81.5	1,059	36.9	11,818	89.5
4	14,108	95.0	8,044	82.1	740	43.6	10,898	90.2
5	12,377	95.2	6,898	82.3	516	49.3	9,904	90.7
6	10,891	95.5	5,954	83.6	378	54.5	8,639	91.0
7	9,485	95.6	5,083	84.9	272	61.8	7,393	91.1
8	8,333	95.2	4,338	85.2	205	67.8	6,419	91.1
9	7,381	94.9	3,692	86.1	168	67.5	5,513	91.6
10	6,480	94.3	3,120	88.0	129	70.2	4,640	91.4

Table 4f. Conditional relative 5-year survival of patients with breast cancer (women) by extent of disease for period 1988-2014 (N=38,437).

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 94.8% (n=15,978).

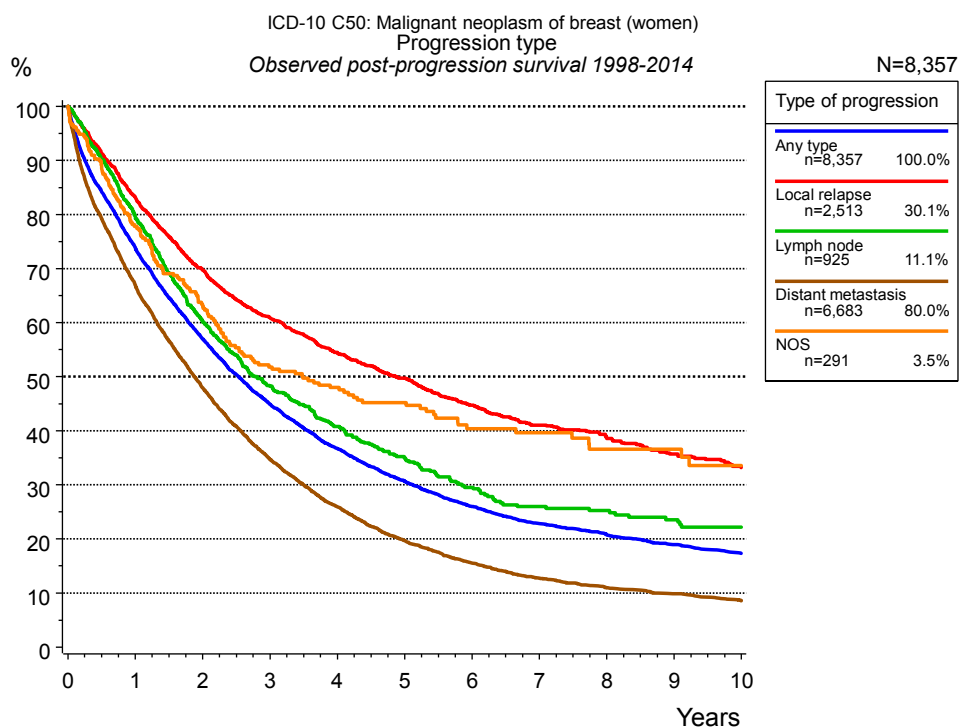ICD-10 C50: Malignant neoplasm of breast (women)
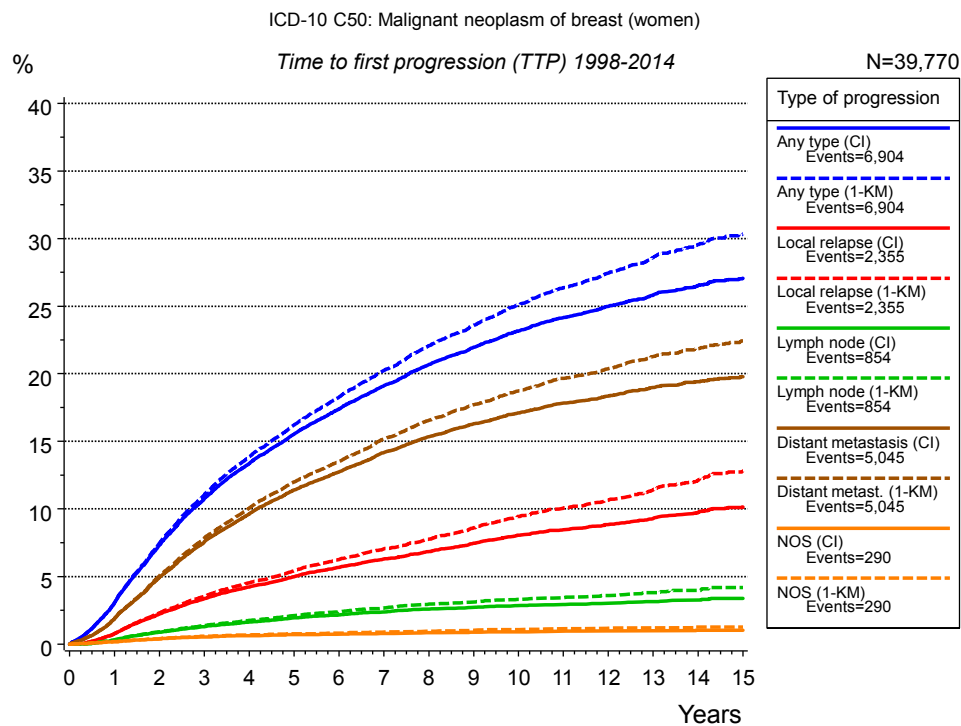
Figure 5a. Time to first progression of 39,770 patients with breast cancer (women) diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	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
Years	%	%	%	%	%	%	%
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

cont'd	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).

ICD-10 C50: Malignant neoplasm of breast (women)
Progression type
Observed post-progression survival 1998-2014   N=8,357

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 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				
Years	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).

ICD-10 C50: Malignant neoplasm of breast (women)
Type of Progression: Distant metastasis
Observed post-progression survival by period of progression date 1988-2014   N=9,574
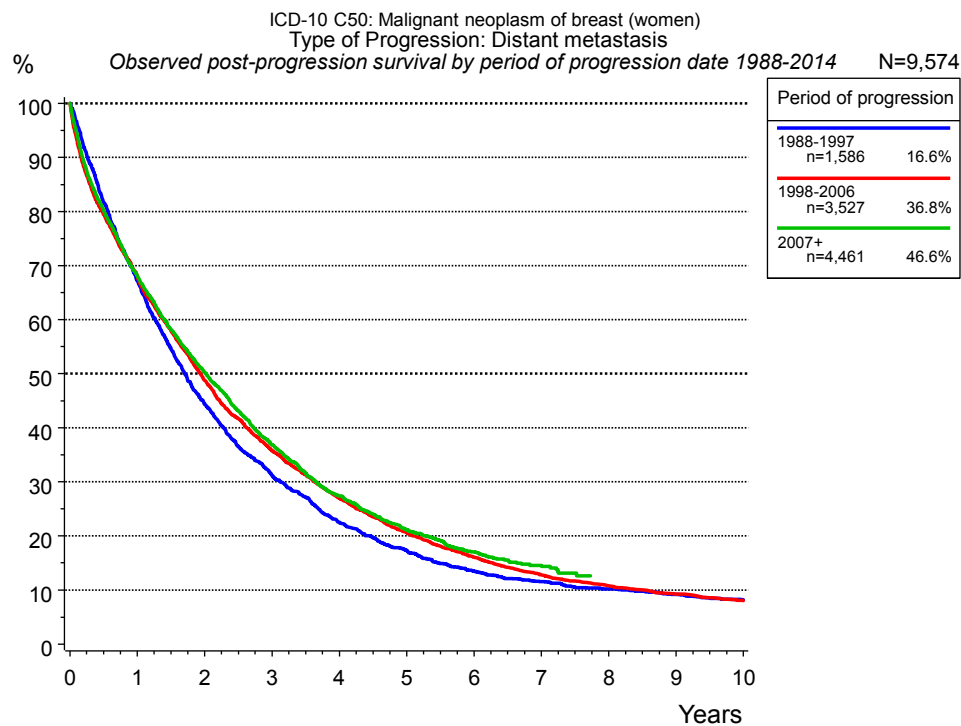
Figure 5e. Observed post-progression (distant metastasis) survival of 9,574 patients with breast cancer (women) diagnosed between 1988 and 2014 by period of progression.

	Period of progression		
	1988-1997 n=1,586	1998-2006 n=3,527	2007+ n=4,461
Years	%	%	%
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

Recommended Citation

Copyright

Disclaimer

Index of figures and tables