

Munich Cancer Registry



- ▶ Survival
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

ICD-10 C25: Pancreas cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	13,862
Diseases	13,866
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 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/base/bC25__E-ICD-10-C25-Pancreas-cancer-incidence-and-mortality.pdf

Index of figures and tables

Fig./Tbl.		Page
1	Annual cases, DCO, mult. malignancies, follow-up / yr	4
2	Incidence by year of diagnosis	7
3	Age distribution parameters by year of diagnosis	8
4	Age distribution by 5-year age group and sex	9
5	Age-specific incidence, DCO rate, proportion malignancies	10
6	Age distribution and age-specific incidence (chart)	11
6a	Age-specific incidence internationally (chart)	12
7	Standardized incidence ratio of further malignancies	13
8a	Map of cancer incidence (WS) by county (chart)	15
8b	Standardized incidence ratio (SIR) by county (chart)	16
9a	Pts incident cohorts and mortality / yr	17
9b	Incidence and mortality by year of diagnosis	18
9c	Cancer-related deaths, death certification available / yr	19
10	Medians of age at death / yr	20
11	Mortality by year of death	22
12	Distribution of age at death	23
13	Age-specific mortality	24
14	Further malignancies in deaths	25
15	Age-specific mortality (first primaries)	27
16	Age-specific mortality (single primaries)	28
17	Age distribution and age-specific mortality (chart)	29
18a	Map of cancer mortality (WS) by county (chart)	30
18b	Standardized mortality ratio (SMR) by county (chart)	31

**Global Statements about the statistics on the Internet –
Baseline Statistics** (grey button ) , **Survival** (red button )

In these analyses, the clinics and physicians of Upper Bavaria and the city and county of Landshut[#], with a total of 4.69 million inhabitants, account for the frequency of cancer diseases^{##} and the achieved long term results. Additionally, the long term survival evaluated by the Munich Cancer Registry (MCR) is compared with the results of the population-based registry in the USA (SEER), which is useful for checking the consistency of the data on an international level.

In comparing several tables, inconsistent figures may be detected. This is based on the fact that different patient cohorts are included in the base calculation, for example when proportions of multiple tumors or DCO-cases^{###} are concerned. In other cases the individual tumor diagnosis is the basis for calculation, for example with incidence.

The foot notes describe the currentness of the data. The baseline statistics and survival data are updated annually. This yearly analysis comprises the Annual Report of the MCR.

Clinics and physicians have access to essentially more detailed data, with which they can check, compare and in the best case optimize their own data and results.

We would be pleased to receive corrections, critique and useful suggestions. Just send an e-mail to tumor@ibe.med.uni-muenchen.de.

Munich Cancer Registry, August 2018

[#] Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.65 million to 4.10 in 2002, and to 4.69 million in 2007).

^{##} Due to the high frequency and good prognosis of non-malignant skin cancer (C44), no systematic ascertainment is performed for this diagnosis. C44 is not designated as a primary, but rather as a secondary tumor.

^{###} DCO (death certificate only) identifies a cancer case that first becomes available to the MCR through the death certificate.

ICD-10 codes (ICD-10 2015) used for specifying cancer site

Code	Description
C25.-	Malignant neoplasm of pancreas
C25.0	Head of pancreas
C25.1	Body of pancreas
C25.2	Tail of pancreas
C25.3	Pancreatic duct
C25.4	Endocrine pancreas
C25.7	Other parts of pancreas
C25.8	Overlapping lesion of pancreas
C25.9	Pancreas, unspecified

INCIDENCE

Table 1

Cases with invasive cancer by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (ALL PATIENTS) (incl. DCO)

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	322	104	32.3	9.3	2.1	98.1	99.7
1999	373	132	35.4	11.4	2.1	97.6	99.5
2000	338	138	40.8	11.5	2.2	97.9	99.7
2001	418	159	38.0	11.2	2.2	97.4	98.8
2002	663	272	41.0	12.1	2.2	97.1	99.1 #
2003	612	211	34.5	12.5	2.2	96.9	99.3
2004	665	215	32.3	12.5	2.2	95.9	99.2
2005	717	205	28.6	13.3	2.1	96.1	99.2
2006	734	201	27.4	13.6	2.1	96.0	99.5
2007	820	223	27.2	13.8	2.1	94.8	97.2 #
2008	882	239	27.1	14.2	2.1	95.2	97.1
2009	900	236	26.2	14.8	1.9	93.6	95.8
2010	940	219	23.3	15.2	1.9	93.0	96.2
2011	913	230	25.2	15.7	1.8	92.3	95.9
2012	952	228	23.9	16.0	1.6	89.2	94.6
2013	926	215	23.2	16.5	1.5	87.9	94.9
2014	925	237	25.6	16.7	1.3	86.1	94.9
2015	926	233	25.2	17.0	1.2	76.9	99.4
2016	840	248	29.5	17.3	0.7	59.4	84.9 ##
1998-2016	13866	3945	28.5	17.3	2.1	90.4	96.6

13,866 cases diagnosed 1998-2016 are related to a total of 13,862 patients. Currently, in 2,792 (20.1 %) of these 13,862 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 2,297 / 425 / 70 (16.6 % / 3.1 % / 0.5 %) patients exist having 2 / 3 / 4+ malignancies.

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 925 cases has been diagnosed, of which 16.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.3 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1a

Cases with invasive cancer by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (MALES) (incl. DCO)

Year of diagnosis	Males n	Males %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	144	44.7	42	29.2	7.6	2.3	97.9	99.3
1999	190	50.9	57	30.0	11.7	2.3	96.8	99.5
2000	160	47.3	56	35.0	12.1	2.4	98.1	100.0
2001	200	47.8	69	34.5	11.4	2.4	97.5	98.0
2002	311	46.9	109	35.0	12.6	2.4	95.8	98.7 #
2003	301	49.2	93	30.9	13.6	2.4	97.3	99.7
2004	298	44.8	75	25.2	13.5	2.4	95.3	99.0
2005	351	49.0	81	23.1	14.3	2.3	97.2	98.6
2006	371	50.5	77	20.8	14.7	2.3	94.3	99.5
2007	418	51.0	81	19.4	14.8	2.2	93.1	96.4 #
2008	414	46.9	92	22.2	15.5	2.1	95.2	96.9
2009	456	50.7	108	23.7	16.0	2.0	94.5	96.1
2010	447	47.6	85	19.0	16.4	1.9	92.2	95.5
2011	443	48.5	110	24.8	16.8	1.8	91.2	95.0
2012	485	50.9	90	18.6	17.1	1.6	89.7	95.3
2013	461	49.8	96	20.8	17.5	1.3	87.6	93.9
2014	453	49.0	120	26.5	17.7	1.3	85.7	94.9
2015	460	49.7	86	18.7	18.0	1.4	74.1	99.1
2016	443	52.7	113	25.5	18.4	0.7	60.3	84.0 ##
1998-2016	6806	49.1	1640	24.1	18.4	2.3	89.7	96.2

6,806 cases diagnosed 1998-2016 are related to a total of 6,805 patients. Currently, in 1,455 (21.4 %) of these 6,805 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,191 / 221 / 43 (17.5 % / 3.2 % / 0.6 %) patients exist having 2 / 3 / 4+ malignancies.

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 453 cases has been diagnosed, of which 17.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.3 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1b

Cases with invasive cancer by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (FEMALES) (incl. DCO)

Year of diagnosis	Females n	Females %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	178	55.3	62	34.8	10.7	2.0	98.3	100.0
1999	183	49.1	75	41.0	11.1	2.0	98.4	99.5
2000	178	52.7	82	46.1	10.9	2.0	97.8	99.4
2001	218	52.2	90	41.3	11.0	2.0	97.2	99.5
2002	352	53.1	163	46.3	11.5	2.0	98.3	99.4 #
2003	311	50.8	118	37.9	11.5	2.0	96.5	99.0
2004	367	55.2	140	38.1	11.6	2.0	96.5	99.5
2005	366	51.0	124	33.9	12.3	1.9	95.1	99.7
2006	363	49.5	124	34.2	12.6	1.9	97.8	99.4
2007	402	49.0	142	35.3	12.8	2.0	96.5	98.0 #
2008	468	53.1	147	31.4	13.1	2.0	95.3	97.2
2009	444	49.3	128	28.8	13.6	1.8	92.6	95.5
2010	493	52.4	134	27.2	14.0	1.8	93.7	96.8
2011	470	51.5	120	25.5	14.6	1.8	93.4	96.8
2012	467	49.1	138	29.6	15.1	1.7	88.7	94.0
2013	465	50.2	119	25.6	15.5	1.7	88.2	95.9
2014	472	51.0	117	24.8	15.8	1.4	86.4	94.9
2015	466	50.3	147	31.5	16.0	1.1	79.6	99.6
2016	397	47.3	135	34.0	16.3	0.8	58.4	85.9 ##
1998-2016	7060	50.9	2305	32.6	16.3	2.0	91.0	97.0

7,060 cases diagnosed 1998-2016 are related to a total of 7,057 patients. Currently, in 1,337 (18.9 %) of these 7,057 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,106 / 204 / 27 (15.7 % / 2.9 % / 0.4 %) patients exist having 2 / 3 / 4+ malignancies.

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 472 cases has been diagnosed, of which 15.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.4 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	144	178	13.0	15.1	7.7	5.9	11.7	9.2	15.4	12.7
1999	190	183	17.0	15.4	10.0	5.7	15.3	9.0	20.9	12.7
2000	160	178	14.0	14.8	8.1	5.8	12.6	9.0	16.6	12.2
2001	200	218	17.3	17.9	9.9	7.2	15.1	11.2	19.7	14.9
2002	311	352	16.7	18.0	9.4	6.6	14.1	10.4	18.1	14.2
2003	301	311	16.1	15.8	8.8	6.3	13.3	9.7	17.3	12.7
2004	298	367	15.8	18.6	8.6	6.9	12.9	10.7	16.7	14.5
2005	351	366	18.5	18.4	9.6	7.1	14.5	10.9	19.2	14.4
2006	371	363	19.4	18.1	10.3	6.5	15.4	10.1	20.0	13.8
2007	418	402	18.9	17.4	9.9	6.4	14.9	10.0	19.2	13.2
2008	414	468	18.6	20.2	9.3	7.4	14.2	11.3	18.6	15.2
2009	456	444	20.4	19.1	10.1	6.8	15.3	10.6	20.0	14.2
2010	447	493	19.8	21.1	9.4	7.4	14.3	11.5	19.1	15.7
2011	443	470	19.8	20.1	9.2	7.1	14.0	11.0	18.4	14.9
2012	485	467	21.4	19.8	10.2	7.1	15.3	10.9	20.0	14.6
2013	461	465	20.0	19.5	9.3	6.8	14.1	10.5	18.4	14.2
2014	453	472	19.4	19.6	8.7	6.9	13.3	10.7	17.7	14.2
2015	460	466	19.3	19.1	8.5	6.5	13.0	10.1	17.5	13.7
2016	443	397	18.4	16.2	8.2	5.8	12.5	8.8	16.5	11.8
1998-2016	6806	7060	18.5	18.4	9.2	6.7	14.0	10.3	18.4	13.9

The computation of the incidence measures includes all cancers, irrespective of first or subsequent malignancy.

Table 3

Age distribution parameters by year of diagnosis (ALL PATIENTS)
(incl. DCO)

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	322	71.8	12.6	28.2	98.1	55.0	62.9	73.5	80.4	86.5
1999	373	72.6	11.8	27.6	98.8	56.3	64.4	74.2	80.8	86.6
2000	338	71.5	13.0	21.7	98.5	54.2	62.1	73.9	80.5	87.3
2001	418	71.7	11.7	35.1	97.7	56.4	64.3	72.0	80.7	87.0
2002	663	72.2	11.8	35.3	98.6	56.1	63.7	73.2	80.9	87.3
2003	612	71.4	12.1	33.2	98.4	55.3	63.2	72.7	80.2	87.3
2004	665	72.3	11.4	38.5	100	57.3	64.6	72.4	81.3	86.6
2005	717	72.1	11.6	36.2	99.8	57.9	64.3	71.9	80.7	86.2
2006	734	72.4	11.9	12.3	97.7	57.8	64.8	73.7	81.5	86.3
2007	820	72.1	12.0	25.6	97.2	55.4	64.0	72.6	81.2	87.1
2008	882	72.7	12.2	22.9	98.5	56.4	65.5	73.3	81.9	87.1
2009	900	72.8	11.6	27.9	102	57.4	65.4	73.3	82.1	87.1
2010	940	73.1	11.4	15.4	98.6	57.7	66.5	74.0	81.8	86.6
2011	913	73.1	11.4	34.6	99.1	57.7	67.0	73.7	81.7	87.0
2012	952	72.5	11.8	0.0	101	57.2	65.8	73.4	80.8	86.5
2013	926	73.3	11.3	14.2	99.4	57.8	66.7	74.6	81.1	87.0
2014	925	73.7	11.2	24.8	99.2	58.8	67.0	74.8	81.9	87.4
2015	926	73.5	11.4	23.4	101	56.6	67.3	75.1	80.9	87.1
2016	840	72.9	12.5	18.8	101	55.4	65.8	75.0	81.4	87.0
1998-2016	13866	72.6	11.8	0.0	102	56.7	65.3	73.8	81.2	86.9

Table 3a

Age distribution parameters by year of diagnosis (MALES)
(incl. DCO)

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	144	68.1	11.5	36.3	97.7	53.3	59.5	69.8	75.7	80.1
1999	190	69.3	11.8	27.6	93.0	54.3	61.5	69.5	78.3	84.4
2000	160	69.4	11.9	41.1	97.8	54.3	60.8	69.6	78.5	85.5
2001	200	68.8	11.7	35.1	94.0	54.7	61.5	68.7	78.0	84.6
2002	311	68.8	11.8	35.3	97.5	53.8	61.6	69.1	76.7	82.8
2003	301	69.4	11.3	33.2	98.0	55.1	63.0	69.3	77.0	82.9
2004	298	69.2	11.1	38.5	94.9	54.5	62.6	69.5	76.8	84.2
2005	351	69.7	10.8	36.2	98.5	56.4	62.4	69.2	78.2	83.7
2006	371	69.3	12.0	12.3	94.8	55.5	62.5	70.3	77.2	83.4
2007	418	69.5	11.7	25.6	95.5	53.2	62.0	69.8	77.8	85.1
2008	414	70.3	11.7	22.9	94.5	54.8	63.4	70.6	79.3	84.8
2009	456	70.5	11.1	29.0	102	55.6	63.5	70.9	78.5	85.1
2010	447	71.1	10.7	42.2	98.6	57.4	64.2	71.7	79.0	84.6
2011	443	71.2	11.0	38.8	96.2	56.1	64.8	72.3	78.7	84.5
2012	485	70.5	11.4	0.0	96.8	56.0	63.8	71.8	78.3	84.4
2013	461	71.6	10.7	34.4	98.1	57.5	64.7	72.7	78.4	85.1
2014	453	72.4	11.2	24.8	98.0	57.8	66.3	73.7	80.2	86.1
2015	460	71.6	11.3	23.4	96.6	54.3	65.5	73.3	79.7	84.1
2016	443	71.7	12.2	18.8	94.8	55.0	64.7	73.8	79.9	85.6
1998-2016	6806	70.4	11.4	0.0	102	55.2	63.3	71.3	78.5	84.5

Table 3b

Age distribution parameters by year of diagnosis (FEMALES)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min. Max.		10% 25%		Median		
				Min.	Max.	10%	25%	50%	75%	90%
1998	178	74.7	12.6	28.2	98.1	56.0	66.6	77.6	84.2	87.7
1999	183	76.0	10.9	44.6	98.8	60.8	69.5	76.8	84.1	88.6
2000	178	73.4	13.8	21.7	98.5	53.8	65.5	76.9	82.6	87.8
2001	218	74.3	11.1	38.6	97.7	58.3	67.7	74.9	82.1	88.0
2002	352	75.2	11.0	38.1	98.6	61.0	68.2	76.7	82.4	88.2
2003	311	73.3	12.6	37.1	98.4	55.6	63.8	76.0	82.7	88.6
2004	367	74.8	11.0	38.8	100	60.1	67.1	75.9	83.3	88.0
2005	366	74.4	11.8	36.3	99.8	60.2	66.3	75.0	82.4	90.6
2006	363	75.5	11.1	32.2	97.7	60.4	68.5	76.9	84.5	87.9
2007	402	74.9	11.6	37.8	97.2	59.1	67.6	75.9	84.1	88.6
2008	468	74.8	12.2	23.8	98.5	58.7	67.7	76.0	84.4	88.0
2009	444	75.2	11.7	27.9	101	59.5	67.5	76.6	84.0	88.6
2010	493	74.8	11.8	15.4	97.6	59.5	69.3	76.2	83.7	87.3
2011	470	74.8	11.5	34.6	99.1	59.0	68.5	75.8	83.7	88.0
2012	467	74.5	11.9	19.5	101	58.7	68.7	75.3	83.3	88.3
2013	465	75.0	11.6	14.2	99.4	58.2	69.0	76.3	83.6	88.3
2014	472	74.9	11.1	29.9	99.2	60.0	67.7	75.6	83.4	88.8
2015	466	75.5	11.2	42.7	101	60.6	69.2	76.4	82.8	89.8
2016	397	74.2	12.6	26.3	101	56.1	67.0	76.1	82.3	88.8
1998-2016	7060	74.8	11.7	14.2	101	59.0	67.9	76.1	83.5	88.3

Table 4

Age distribution by 5-year age group and sex for period 2007-2016
(incl. DCO)

Age at diagnosis Years	Cases n	Males			Females				
		%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	1	0.0	0.0	1	0.0	0.0			0.0
5-9	0	0.0	0.0			0.0			0.0
10-14	1	0.0	0.0			0.0	1	0.0	0.0
15-19	4	0.0	0.1	1	0.0	0.0	3	0.1	0.1
20-24	5	0.1	0.1	3	0.1	0.1	2	0.0	0.1
25-29	11	0.1	0.2	5	0.1	0.2	6	0.1	0.3
30-34	13	0.1	0.4	9	0.2	0.4	4	0.1	0.4
35-39	30	0.3	0.7	16	0.4	0.8	14	0.3	0.7
40-44	78	0.9	1.6	39	0.9	1.7	39	0.9	1.5
45-49	225	2.5	4.1	140	3.1	4.8	85	1.9	3.4
50-54	341	3.8	7.9	198	4.4	9.2	143	3.1	6.5
55-59	516	5.7	13.6	315	7.0	16.2	201	4.4	11.0
60-64	812	9.0	22.6	482	10.8	27.0	330	7.3	18.2
65-69	1180	13.1	35.6	673	15.0	42.0	507	11.2	29.4
70-74	1609	17.8	53.5	840	18.8	60.8	769	16.9	46.3
75-79	1564	17.3	70.8	792	17.7	78.4	772	17.0	63.3
80-84	1259	14.0	84.8	525	11.7	90.2	734	16.2	79.4
85+	1375	15.2	100.0	441	9.8	100.0	934	20.6	100.0
All ages	9024	100.0		4480	100.0		4544	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers for period 2007-2016

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid.	Females Age- spec. incid.	Males DCO rate n=980 %	Females DCO rate n=1327 %	Males	Females
							Prop.all cancers n=113978 %	Prop.all cancers n=112253 %
0- 4	1		0.1		100.0		0.5	
5- 9								
10-14		1		0.1				1.0
15-19	1	3	0.1	0.3			0.4	1.4
20-24	3	2	0.2	0.1			0.7	0.5
25-29	5	6	0.3	0.4			0.7	0.7
30-34	9	4	0.6	0.3			0.9	0.3
35-39	16	14	1.0	0.9	6.3	14.3	1.2	0.6
40-44	39	39	2.1	2.2	5.1	2.6	1.8	0.9
45-49	140	85	7.1	4.5	4.3	2.4	3.6	1.2
50-54	198	143	11.5	8.4	11.1	5.6	3.2	1.6
55-59	315	201	22.3	13.7	10.8	7.5	3.4	2.2
60-64	482	330	39.3	24.8	9.3	9.4	3.7	2.9
65-69	673	507	56.8	39.0	12.2	12.6	3.6	3.6
70-74	840	768	75.9	60.7	14.2	13.2	4.0	5.2
75-79	792	772	99.4	77.1	24.2	21.9	4.8	5.8
80-84	524	734	113.9	103.7	40.5	42.1	4.8	6.7
85+	441	934	144.0	127.3	59.9	66.9	5.6	7.3
All ages	4479	4543			21.9	29.2	3.9	4.0
Incidence								
Raw			19.6	19.2				
WS			9.2	6.8				
ES			14.0	10.5				
BRD-S			18.4	14.1				

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).

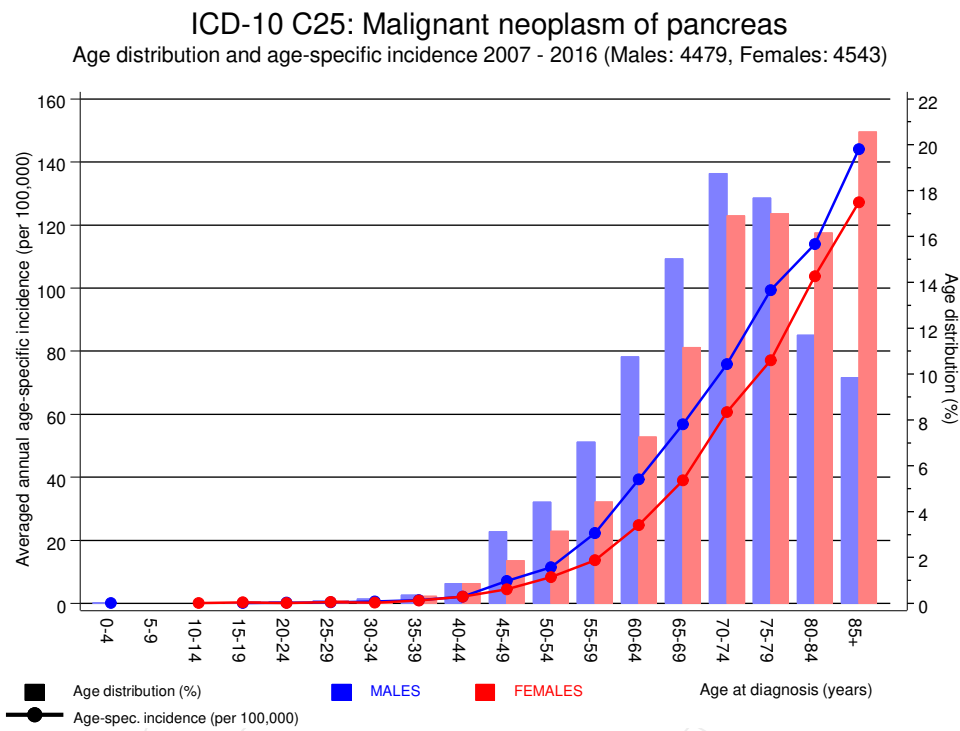


Figure 6. Age distribution (males: mean=71.0 yrs, median=72.1 yrs; females: mean=74.9 yrs, median=76.0 yrs) and age-specific incidence.

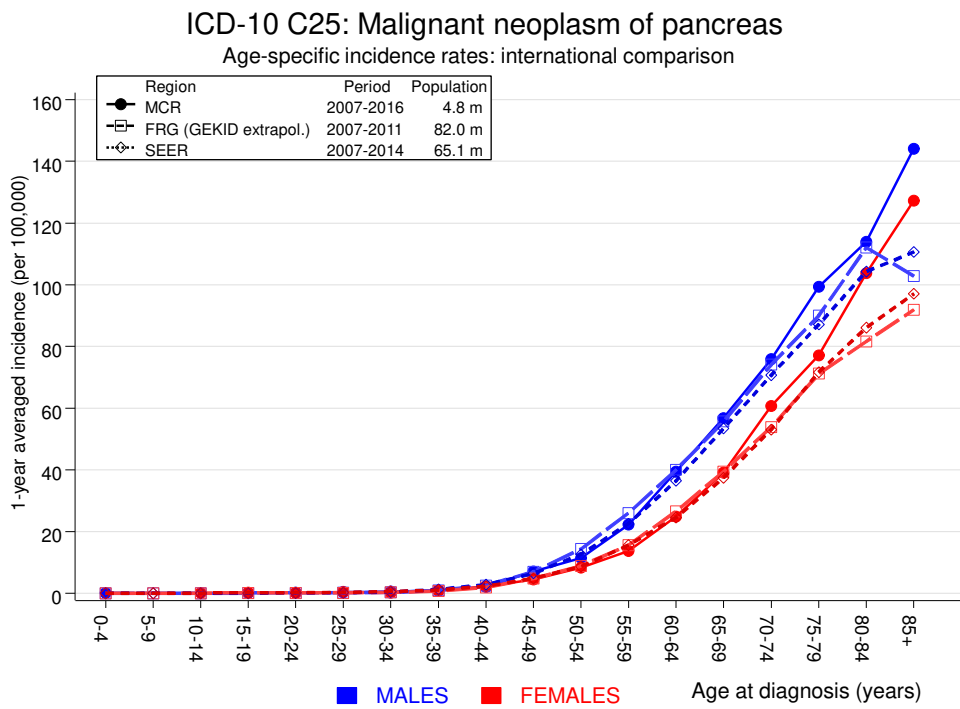


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Extrapolated age-specific patient population of Germany, data status middle of 2010. Association of Population-based Cancer Registries in Germany (GEKID e.V.). Berlin, 2014. <http://www.gekid.de>. Last access: 02/11/2015
 Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 submission. <http://www.seer.cancer.gov>.

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998–2016

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C09–C10 Oropharynx	2	1.0	2.0	0.2	7.4	1.8	50.0
C15 Oesophagus	4	1.8	2.2	0.6	5.7	3.9	
C16 Stomach	27	3.7	7.4	4.9	10.7 #	41.5	14.8
C17 Small intestine	9	0.5	17.5	8.0	33.2 #	15.1	
C18 Colon	26	8.8	2.9	1.9	4.3 #	30.5	19.2
C19–C20 Rectum	8	5.0	1.6	0.7	3.2	5.3	
C22 Liver	5	2.7	1.8	0.6	4.3	4.1	
C23–C24 Bile	2	0.9	2.2	0.3	7.8	1.9	
C33–C34 Lung	35	11.1	3.1	2.2	4.4 #	42.4	28.6
C43 Malign. melanoma	4	4.1	1.0	0.3	2.5	-0.1	
C46,C49 Soft tissue	4	0.5	7.8	2.1	19.9 #	6.2	
C61 Prostate	46	26.8	1.7	1.3	2.3 #	34.1	41.3
C64 Kidney	10	3.3	3.1	1.5	5.6 #	12.0	
C65 Renal pelvis	2	0.4	5.0	0.6	17.9	2.8	
C67 Bladder	9	4.1	2.2	1.0	4.2 #	8.7	33.3
C70–C72 CNS cancer	2	1.2	1.7	0.2	6.0	1.4	50.0
C82–C85 NHL	10	3.7	2.7	1.3	4.9 #	11.1	10.0
C91–C96 Leukaemia	2	1.5	1.3	0.2	4.8	0.9	
Others, specified	11	8.8	1.3	0.6	2.2	3.9	36.4
Not observed	0	3.7	0.0	0.0	1.0 #	-6.7	
All further malignancies	218	93.7	2.3	2.0	2.7 #	221.0	22.0

Patients	5451
Median age at next malignancy (years)	73.7
Person-years	5626
Mean observation time (years)	1.0
Median observation time (years)	0.5

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category "Others, specified".

Table 7b

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998–2016

FEMALES

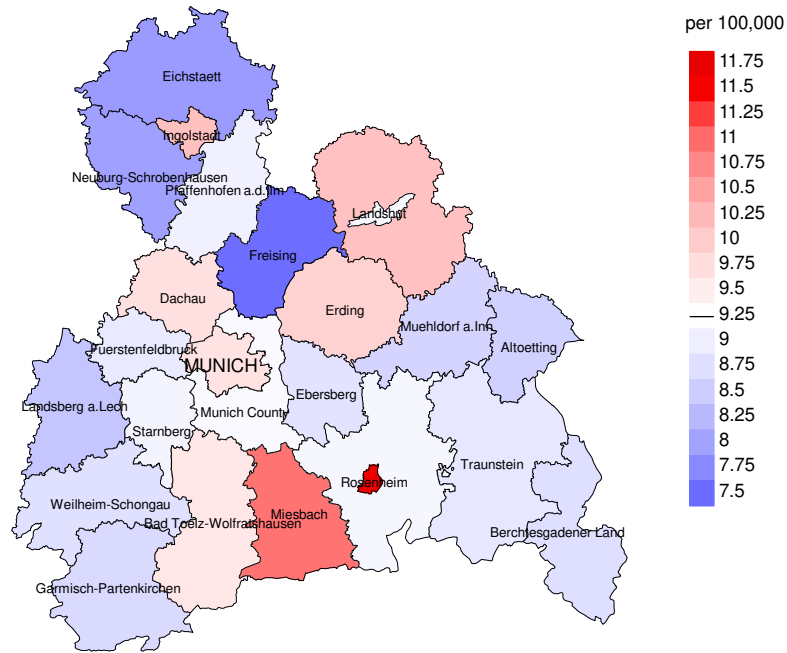
Diagnosis	Observed	Expected	SIR	CI		EAR	DCO %
	n	n		95%	95%		
C15 Oesophagus	3	0.4	7.4	1.5	21.5 #	4.9	66.7
C16 Stomach	14	2.2	6.3	3.4	10.5 #	22.1	21.4
C17 Small intestine	7	0.3	21.9	8.8	45.0 #	12.6	
C18 Colon	20	6.2	3.2	2.0	5.0 #	25.9	45.0
C19–C20 Rectum	6	2.6	2.3	0.8	5.0	6.4	50.0
C22 Liver	2	0.8	2.5	0.3	9.1	2.3	50.0
C23–C24 Bile	8	0.9	8.7	3.8	17.2 #	13.3	25.0
C25 Pancreas	2	3.0	0.7	0.1	2.4	-1.8	50.0
C33–C34 Lung	23	4.8	4.8	3.0	7.2 #	34.2	34.8
C50 Breast	44	18.6	2.4	1.7	3.2 #	47.7	29.5
C54 Corpus uteri	5	3.5	1.4	0.5	3.3	2.7	40.0
C56 Ovary	12	2.6	4.7	2.4	8.1 #	17.7	66.7
C64 Kidney	6	1.6	3.8	1.4	8.2 #	8.3	16.7
C67 Bladder	3	1.2	2.5	0.5	7.2	3.4	66.7
C76–C79 CUP	4	1.1	3.5	1.0	8.9	5.4	
C82–C85 NHL	5	2.5	2.0	0.7	4.7	4.7	40.0
C90 Mult. myeloma	4	0.8	5.0	1.4	12.8 #	6.0	25.0
C91–C96 Leukaemia	2	1.0	2.0	0.2	7.1	1.8	100.0
Others, specified	5	2.5	2.0	0.6	4.6	4.7	20.0
Not observed	0	6.4	0.0	0.0	0.6 #	-12.1	
All further malignancies	175	63.2	2.8	2.4	3.2 #	210.1	34.9

Patients	5269
Median age at next malignancy (years)	75.8
Person-years	5321
Mean observation time (years)	1.0
Median observation time (years)	0.5

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category "Others, specified".

Average incidence (world standard population) 2007 - 2016: Males



Average incidence (world standard population) 2007 - 2016: Females

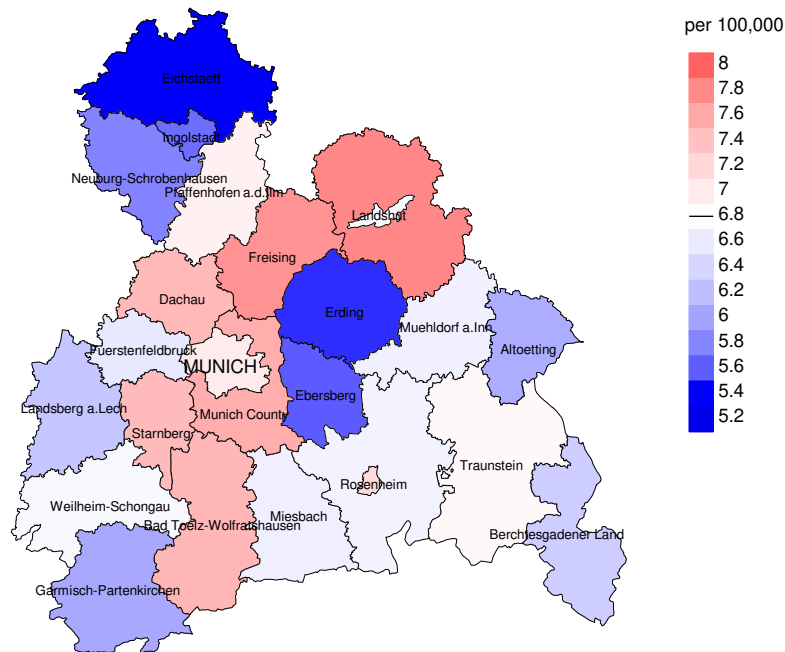
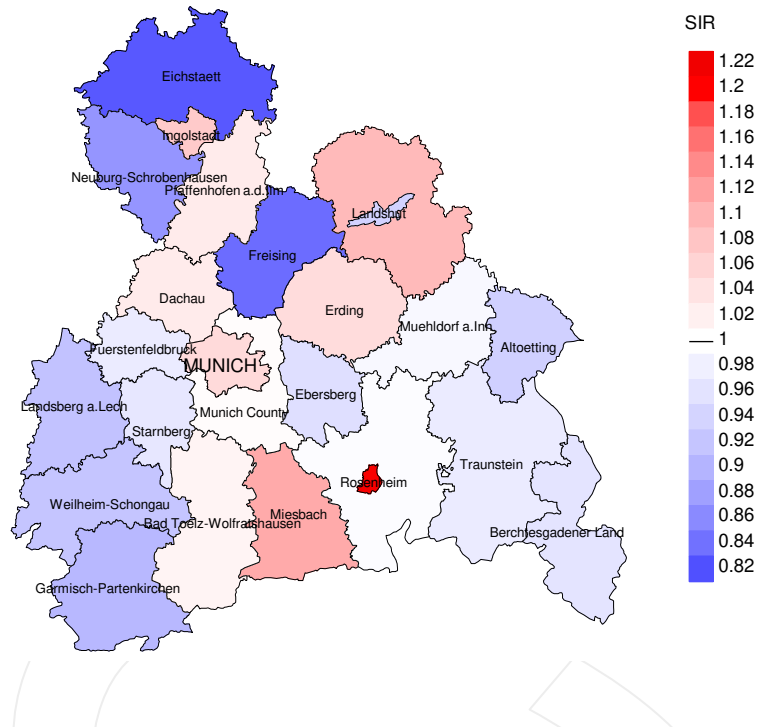


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 9.2/100,000 WS N=4,479, females 6.8/100,000 WS N=4,543).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 107 women were identified with newly diagnosed pancreas cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 5.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 4.1 and 7.5/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

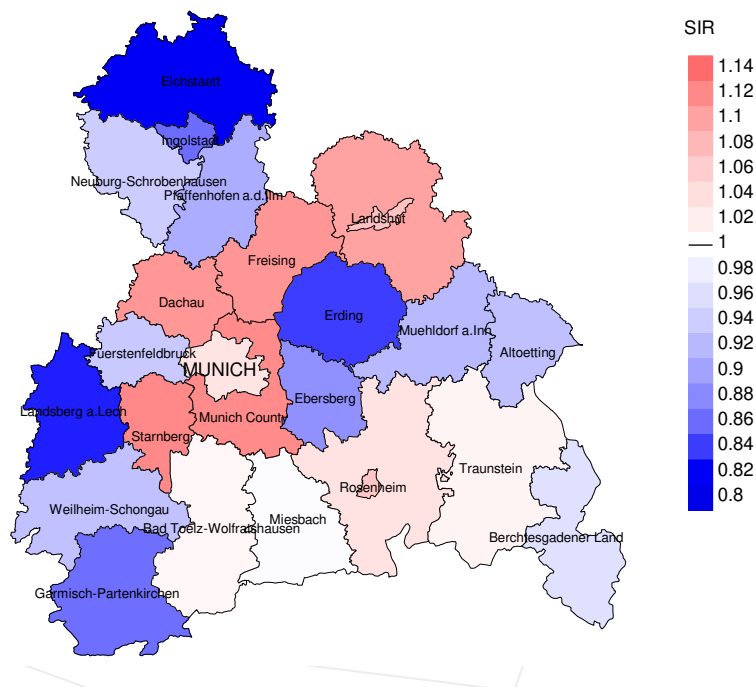


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=4,479, females N=4,543).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 107 women were identified with newly diagnosed pancreas cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.88. Though, the value of this parameter may vary with an underlying probability of 99% between 0.68 and 1.13, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	322	99.7	32.3	316	98.1	95.3
1999	373	99.5	35.4	364	97.6	95.1
2000	338	99.7	40.8	331	97.9	97.3
2001	418	98.8	38.0	407	97.4	98.0
2002	663	99.1	41.0	644	97.1	97.8
2003	612	99.3	34.5	593	96.9	98.3
2004	665	99.2	32.3	638	95.9	98.1
2005	717	99.2	28.6	689	96.1	99.3
2006	734	99.5	27.4	705	96.0	98.9
2007	820	97.2	27.2	777	94.8	99.6
2008	882	97.1	27.1	840	95.2	99.3
2009	900	95.8	26.2	842	93.6	98.9
2010	940	96.2	23.3	874	93.0	98.9
2011	913	95.9	25.2	843	92.3	98.9
2012	952	94.6	23.9	849	89.2	98.4
2013	926	94.9	23.2	814	87.9	98.3
2014	925	94.9	25.6	796	86.1	97.4
2015	926	99.4	25.2	712	76.9	97.9
2016	840	84.9	29.5	499	59.4	89.2
1998-2016	13866	96.6	28.5	12533	90.4	98.0

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	322	315	96.5	186	57.8
1999	373	354	95.2	235	63.0
2000	338	336	97.0	206	60.9
2001	418	370	95.9	253	60.5
2002	663	494	98.6	390	58.8
2003	612	524	98.9	351	57.4
2004	665	524	98.1	368	55.3
2005	717	567	97.9	370	51.6
2006	734	642	99.2	410	55.9
2007	820	670	98.8	426	52.0
2008	882	709	99.6	473	53.6
2009	900	698	98.9	464	51.6
2010	940	775	99.4	486	51.7
2011	913	793	98.7	494	54.1
2012	952	773	98.8	484	50.8
2013	926	756	98.4	453	48.9
2014	925	753	98.5	478	51.7
2015	926	802	98.6	501	54.1
2016	840	683	96.8	456	54.3
1998-2016	13866	11538	98.3	7484	54.0

Table 9c

Annual cohorts of deaths, proportion of cancer-related and non-cancer-related deaths, and cancer recorded on death certificates
(incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	315	91.1	8.9	99.0
1999	354	90.7	9.3	98.8
2000	336	94.3	5.7	98.8
2001	370	95.1	4.9	99.7
2002	494	95.7	4.3	98.8
2003	524	97.3	2.7	99.8
2004	524	98.1	1.9	99.2
2005	567	97.2	2.8	99.6
2006	642	98.0	2.0	99.2
2007	670	97.5	2.5	99.4
2008	709	97.6	2.4	98.7
2009	698	96.8	3.2	98.8
2010	775	97.5	2.5	98.6
2011	793	96.8	3.2	99.2
2012	773	96.5	3.5	99.3
2013	756	95.0	5.0	98.3
2014	753	95.9	4.1	98.8
2015	802	95.4	4.6	98.0
2016	683	95.3	4.7	98.2
1998-2016	11538	96.2	3.8	98.9

Table 10a

Medians of age at death according to the grouping in Table 9
MALES

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	145	69.8	69.8	73.0	69.8
1999	179	71.0	70.5	78.7	71.0
2000	162	70.2	69.5	80.7	70.2
2001	170	70.2	70.2	69.6	70.5
2002	231	69.5	69.3	76.5	69.5
2003	263	69.1	68.9	77.7	69.3
2004	254	70.3	70.3	73.7	70.3
2005	286	70.4	70.3	71.4	70.6
2006	312	71.1	71.2	66.8	71.1
2007	322	70.2	70.2	76.0	70.2
2008	363	71.3	71.3	70.2	71.3
2009	356	71.2	71.2	72.2	71.3
2010	380	72.3	72.2	76.4	72.4
2011	388	72.5	72.4	75.3	72.8
2012	388	72.9	72.8	77.6	73.2
2013	381	72.4	72.2	79.0	72.3
2014	381	74.0	73.9	77.4	74.1
2015	387	74.0	73.5	79.8	73.9
2016	364	75.4	75.0	82.2	75.6
1998–2016	5712	72.0	71.7	77.1	72.0

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 10b

Medians of age at death according to the grouping in Table 9
FEMALES

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	170	76.6	75.5	78.7	76.9
1999	175	79.2	79.1	80.3	79.6
2000	174	76.7	76.3	80.2	77.1
2001	200	75.5	75.2	83.7	75.9
2002	263	77.7	77.2	88.2	77.7
2003	261	77.1	76.9	85.6	77.2
2004	270	77.1	77.1	74.7	77.1
2005	281	75.8	75.6	84.3	75.9
2006	330	76.8	76.8	76.2	76.9
2007	348	75.7	75.6	78.2	75.7
2008	346	76.1	76.0	81.8	76.1
2009	342	76.8	76.6	86.4	76.8
2010	395	76.9	76.7	82.7	76.9
2011	405	76.6	76.6	78.5	76.7
2012	385	76.6	76.3	84.6	76.6
2013	375	76.1	75.9	87.3	76.1
2014	372	77.4	77.4	76.7	77.3
2015	415	75.7	75.5	81.7	75.8
2016	319	76.7	76.7	82.6	76.8
1998–2016	5826	76.7	76.5	81.7	76.7

By 2010, life expectancy at birth was 77.5 years for boys and 82.6 years for girls.

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 11a

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death

MALES

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	135	12.2	0.94	7.3	0.95	11.1	0.94	14.8	0.96
1999	161	14.4	0.85	8.4	0.84	13.0	0.85	17.7	0.85
2000	155	13.6	0.97	7.8	0.96	12.0	0.96	16.1	0.97
2001	162	14.0	0.81	7.9	0.79	12.4	0.82	16.4	0.83
2002	219	11.8	0.70	6.6	0.70	10.1	0.71	13.0	0.72
2003	258	13.8	0.86	7.5	0.85	11.3	0.85	14.6	0.84
2004	250	13.3	0.84	7.0	0.81	10.7	0.83	14.2	0.85
2005	277	14.6	0.79	7.5	0.77	11.4	0.79	15.5	0.81
2006	305	15.9	0.82	8.0	0.78	12.2	0.79	16.4	0.82
2007	312	14.1	0.75	7.2	0.73	10.9	0.73	14.2	0.74
2008	357	16.0	0.86	7.9	0.85	12.1	0.85	16.2	0.87
2009	342	15.3	0.75	7.6	0.76	11.5	0.75	15.0	0.75
2010	369	16.4	0.83	7.9	0.83	12.0	0.84	15.9	0.83
2011	371	16.6	0.84	7.6	0.83	11.7	0.84	15.5	0.85
2012	375	16.5	0.77	7.6	0.74	11.5	0.75	15.4	0.77
2013	358	15.6	0.78	7.3	0.79	11.0	0.79	14.2	0.77
2014	365	15.7	0.81	6.8	0.78	10.5	0.79	14.2	0.80
2015	367	15.4	0.80	6.8	0.80	10.4	0.80	14.1	0.81
2016	344	14.3	0.78	6.0	0.73	9.4	0.75	12.8	0.78
1998-2016	5482	14.9	0.81	7.3	0.79	11.2	0.80	14.9	0.81

Table 11b

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death

FEMALES

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	152	12.9	0.85	5.2	0.87	8.0	0.87	10.9	0.86
1999	160	13.5	0.87	4.7	0.82	7.6	0.84	11.1	0.88
2000	162	13.5	0.91	5.2	0.90	8.2	0.91	11.0	0.91
2001	190	15.6	0.87	6.2	0.86	9.7	0.87	13.0	0.88
2002	254	13.0	0.72	4.7	0.71	7.4	0.71	10.2	0.72
2003	252	12.8	0.81	4.9	0.78	7.6	0.79	10.2	0.81
2004	264	13.4	0.72	4.8	0.69	7.5	0.70	10.3	0.71
2005	274	13.8	0.75	5.3	0.74	8.1	0.75	10.8	0.75
2006	324	16.1	0.89	5.7	0.88	9.0	0.89	12.4	0.90
2007	341	14.8	0.85	5.4	0.84	8.3	0.84	11.3	0.86
2008	335	14.4	0.72	5.2	0.70	8.1	0.72	10.8	0.71
2009	334	14.4	0.75	5.0	0.74	7.8	0.74	10.7	0.75
2010	387	16.5	0.78	5.8	0.78	9.0	0.79	12.4	0.79
2011	397	17.0	0.84	5.7	0.80	8.9	0.81	12.5	0.84
2012	371	15.7	0.79	5.4	0.75	8.4	0.77	11.4	0.79
2013	360	15.1	0.77	5.2	0.77	8.1	0.77	10.9	0.77
2014	357	14.8	0.76	4.6	0.66	7.3	0.69	10.3	0.73
2015	398	16.4	0.85	5.7	0.87	8.8	0.88	11.9	0.87
2016	307	12.5	0.78	4.3	0.74	6.6	0.76	9.0	0.76
1998-2016	5619	14.6	0.80	5.2	0.77	8.1	0.78	11.1	0.79

Table 12

Age distribution of age at death (cancer-related) for period 2007-2016
(incl. multiple malignancies)

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	1	0.0	0.0	1	0.0	0.0			0.0
5-9	0	0.0	0.0			0.0			0.0
10-14	0	0.0	0.0			0.0			0.0
15-19	1	0.0	0.0	1	0.0	0.1			0.0
20-24	1	0.0	0.0	1	0.0	0.1			0.0
25-29	4	0.1	0.1	2	0.1	0.1	2	0.1	0.1
30-34	8	0.1	0.2	4	0.1	0.3	4	0.1	0.2
35-39	16	0.2	0.4	12	0.3	0.6	4	0.1	0.3
40-44	49	0.7	1.1	26	0.7	1.3	23	0.6	0.9
45-49	122	1.7	2.8	79	2.2	3.5	43	1.2	2.1
50-54	263	3.7	6.5	150	4.2	7.8	113	3.2	5.3
55-59	380	5.3	11.8	226	6.3	14.1	154	4.3	9.6
60-64	619	8.7	20.5	380	10.7	24.8	239	6.7	16.2
65-69	964	13.5	34.0	559	15.7	40.5	405	11.3	27.5
70-74	1310	18.3	52.3	695	19.5	60.0	615	17.1	44.7
75-79	1296	18.1	70.4	625	17.6	77.6	671	18.7	63.4
80-84	1062	14.9	85.3	466	13.1	90.6	596	16.6	80.0
85+	1051	14.7	100.0	333	9.4	100.0	718	20.0	100.0
All ages	7147	100.0		3560	100.0		3587	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(incl. multiple malignancies)

Age at death Years	Males		Females		Males		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4	1		0.1	1.00			6.7	
5- 9								
10-14								
15-19	1		0.1	1.00			2.3	
20-24	1		0.1	0.33			1.8	
25-29	2	2	0.1	0.40	0.1	0.33	2.7	2.7
30-34	4	4	0.3	0.44	0.3	1.00	3.8	3.3
35-39	12	4	0.7	0.75	0.3	0.29	6.0	1.4
40-44	26	23	1.4	0.67	1.3	0.59	5.3	3.4
45-49	79	43	4.0	0.56	2.3	0.51	6.9	3.3
50-54	150	113	8.7	0.76	6.6	0.79	7.3	5.7
55-59	226	154	16.0	0.72	10.5	0.77	6.7	5.4
60-64	380	239	31.0	0.79	18.0	0.72	7.6	6.4
65-69	559	405	47.2	0.83	31.2	0.80	7.7	7.6
70-74	695	615	62.8	0.83	48.6	0.80	7.5	9.1
75-79	625	671	78.4	0.79	67.0	0.87	7.0	9.6
80-84	466	596	101.3	0.89	84.2	0.81	6.2	8.7
85+	333	718	108.8	0.76	97.8	0.77	5.1	7.8
All ages	3560	3587					6.8	7.7
Mortality								
Raw			15.6	0.79	15.2	0.79		
WS			7.2	0.78	5.2	0.77		
ES			11.0	0.79	8.1	0.78		
BRD-S			14.7	0.80	11.1	0.79		
PYLL-70								
per 100,000			64.3		43.4			
ES			55.6		36.0			
AYLL-70			9.0		8.8			

Table 14a

Further malignancies in deaths in period 1998–2016
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C09–C10 Oropharynx	17	1.4	15	88.2			2	11.8
C15 Oesophagus	11	0.9	4	36.4	4	36.4	3	27.3
C16 Stomach	68	5.4	34	50.0	22	32.4	12	17.6
C17 Small intestine	13	1.0	5	38.5	6	46.2	2	15.4
C18 Colon	134	10.7	103	76.9	19	14.2	12	9.0
C19–C20 Rectum	65	5.2	50	76.9	12	18.5	3	4.6
C22 Liver	15	1.2	7	46.7	7	46.7	1	6.7
C32 Larynx	16	1.3	12	75.0	3	18.8	1	6.3
C33–C34 Lung	74	5.9	34	45.9	20	27.0	20	27.0
C43 Malign. melanoma	68	5.4	63	92.6	3	4.4	2	2.9
C44 Skin others	96	7.7	77	80.2	6	6.3	13	13.5
C61 Prostate	387	31.0	331	85.5	20	5.2	36	9.3
C62 Testis	19	1.5	18	94.7			1	5.3
C64 Kidney	53	4.2	43	81.1	9	17.0	1	1.9
C67 Bladder	53	4.2	41	77.4	9	17.0	3	5.7
C82–C85 NHL	43	3.4	33	76.7	7	16.3	3	7.0
C91–C96 Leukaemia	12	1.0	8	66.7	3	25.0	1	8.3
Others, specified	105	8.4	75	71.4	15	14.3	15	14.3
All further malignancies	1249	100.0	953	76.3	165	13.2	131	10.5

Further malignancies with number of cases 1 to 10 are pooled in category “Others, specified”.

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a further malignancy.

Table 14b

Further malignancies in deaths in period 1998–2016
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C16 Stomach	46	4.2	24	52.2	15	32.6	7	15.2
C18 Colon	120	11.0	92	76.7	18	15.0	10	8.3
C19–C20 Rectum	43	3.9	34	79.1	4	9.3	5	11.6
C23–C24 Bile	11	1.0	4	36.4	5	45.5	2	18.2
C33–C34 Lung	58	5.3	24	41.4	15	25.9	19	32.8
C43 Malign. melanoma	50	4.6	47	94.0	2	4.0	1	2.0
C44 Skin others	42	3.8	34	81.0	3	7.1	5	11.9
C50 Breast	377	34.4	330	87.5	23	6.1	24	6.4
C53 Cervix uteri	25	2.3	22	88.0	2	8.0	1	4.0
C54 Corpus uteri	81	7.4	76	93.8	3	3.7	2	2.5
C56 Ovary	40	3.7	24	60.0	5	12.5	11	27.5
C64 Kidney	42	3.8	34	81.0	5	11.9	3	7.1
C67 Bladder	24	2.2	20	83.3	1	4.2	3	12.5
C73 Thyroid	13	1.2	12	92.3			1	7.7
C82–C85 NHL	23	2.1	19	82.6	3	13.0	1	4.3
Others, specified	100	9.1	65	65.0	20	20.0	15	15.0
All further malignancies	1095	100.0	861	78.6	124	11.3	110	10.0

Further malignancies with number of cases 1 to 10 are pooled in category “Others, specified”.

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a further malignancy.

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**First primaries only** *)

Age at death Years	Males		Age- spec. mortal.		Females		Age- spec. mortal.		Males	Females
	n	n	MI-index	MI-index	MI-index	MI-index	Prop.all cancers %	Prop.all cancers %		
0- 4	1		0.1	1.00			7.1			
5- 9										
10-14										
15-19	1		0.1	1.00			2.4			
20-24	1		0.1	0.33			2.0			
25-29	2	2	0.1	0.40	0.1	0.33	3.0	3.0		
30-34	4	4	0.3	0.44	0.3	1.00	3.9	3.8		
35-39	11	3	0.7	0.73	0.2	0.27	5.8	1.2		
40-44	24	21	1.3	0.69	1.2	0.66	5.3	3.5		
45-49	72	38	3.6	0.55	2.0	0.51	6.9	3.4		
50-54	140	105	8.1	0.78	6.1	0.81	7.7	6.3		
55-59	201	136	14.2	0.72	9.3	0.80	6.8	5.7		
60-64	330	206	26.9	0.81	15.5	0.73	7.9	6.7		
65-69	461	327	38.9	0.84	25.2	0.80	7.9	7.7		
70-74	536	499	48.4	0.83	39.4	0.81	7.5	9.4		
75-79	472	529	59.2	0.83	52.8	0.88	7.1	9.8		
80-84	337	472	73.3	0.90	66.7	0.81	6.1	8.9		
85+	240	574	78.4	0.77	78.2	0.77	5.0	7.8		
All ages	2833	2916					6.9	7.9		
Mortality										
Raw			12.4	0.81	12.3	0.80				
WS			5.9	0.79	4.3	0.77				
ES			8.9	0.80	6.7	0.79				
BRD-S			11.6	0.81	9.1	0.80				
PYLL-70										
per 100,000			57.6		38.4					
ES			49.9		31.9					
AYLL-70			9.3		9.1					

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**Single primaries only** *)

Age at death Years	Males		Age- spec.		Females		Age- spec.		Males	Females
	n	n	mortal.	MI-index	mortal.	MI-index	%	%		
0- 4	1		0.1	1.00			7.1			
5- 9										
10-14										
15-19	1		0.1	1.00			2.4			
20-24	1		0.1	0.33			2.0			
25-29	2	2	0.1	0.40	0.1	0.33	3.0	3.1		
30-34	4	4	0.3	0.44	0.3	1.00	3.9	3.8		
35-39	11	2	0.7	0.73	0.1	0.20	5.9	0.8		
40-44	24	20	1.3	0.69	1.1	0.65	5.3	3.4		
45-49	72	36	3.6	0.55	1.9	0.49	6.9	3.2		
50-54	136	105	7.9	0.78	6.1	0.82	7.6	6.4		
55-59	197	136	13.9	0.72	9.3	0.81	6.8	5.8		
60-64	326	203	26.6	0.81	15.3	0.73	7.9	6.8		
65-69	447	321	37.7	0.84	24.7	0.81	7.8	7.8		
70-74	525	484	47.5	0.83	38.2	0.82	7.6	9.4		
75-79	461	516	57.9	0.83	51.5	0.87	7.3	9.8		
80-84	319	463	69.4	0.87	65.4	0.81	6.2	9.0		
85+	231	564	75.4	0.75	76.8	0.77	5.2	8.0		
All ages	2758	2856					7.0	7.9		
Mortality										
Raw			12.1	0.80	12.1	0.80				
WS			5.8	0.79	4.2	0.77				
ES			8.7	0.79	6.6	0.79				
BRD-S			11.3	0.80	8.9	0.79				
PYLL-70										
per 100,000			56.7		37.7					
ES			49.1		31.3					
AYLL-70			9.4		9.1					

* See corresponding tables with multiple malignancies.

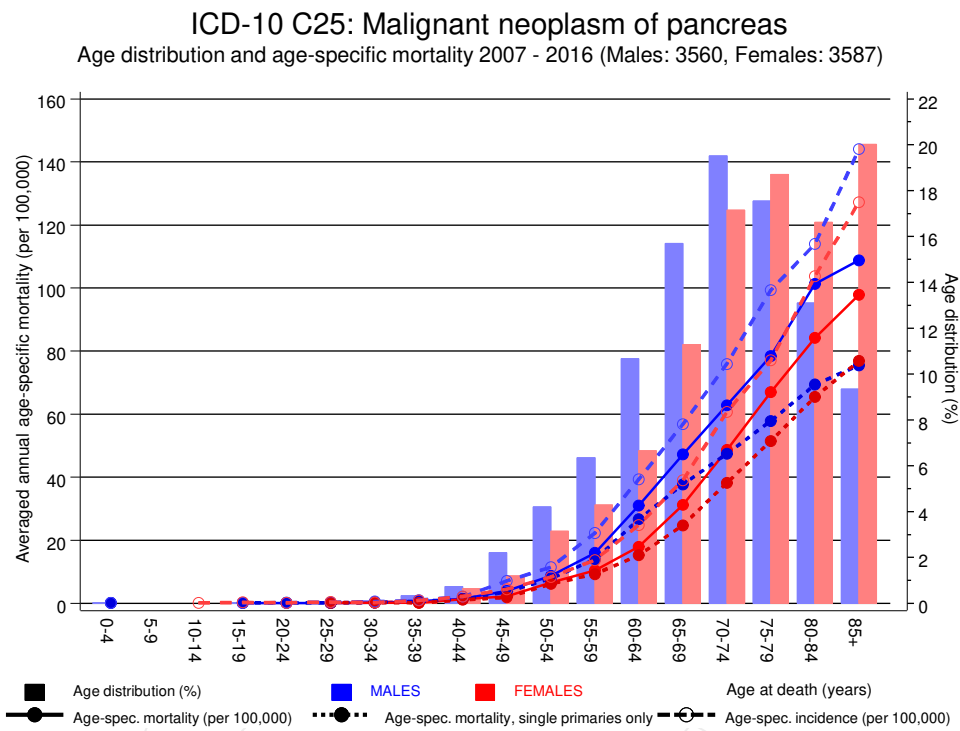
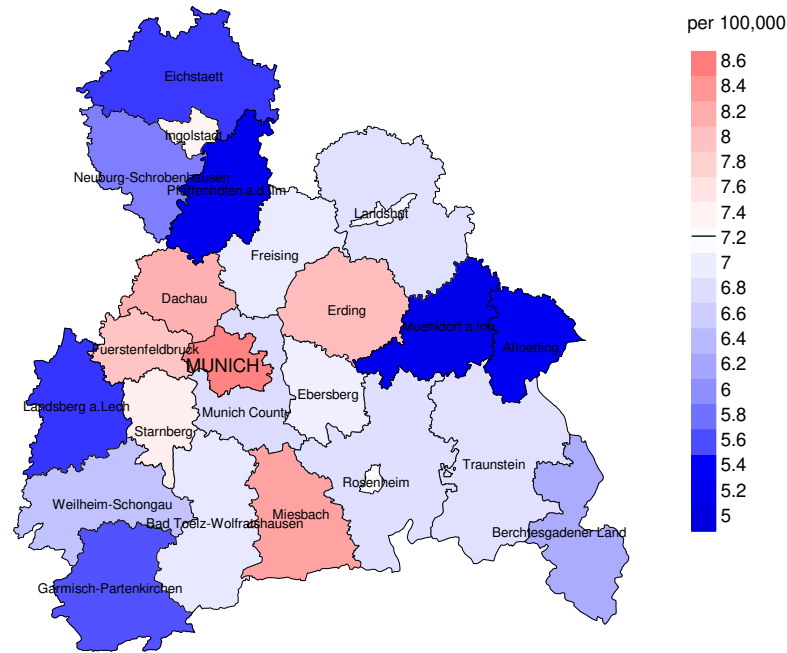


Figure 17. Distribution of age at death (bars; males: mean=70.6 yrs, median=71.6 yrs; females: mean=74.5 yrs, median=75.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at pancreas cancer-related death (see Table 10) should be considered.

Average mortality (world standard population) 2007 - 2016: Males



Average mortality (world standard population) 2007 - 2016: Females

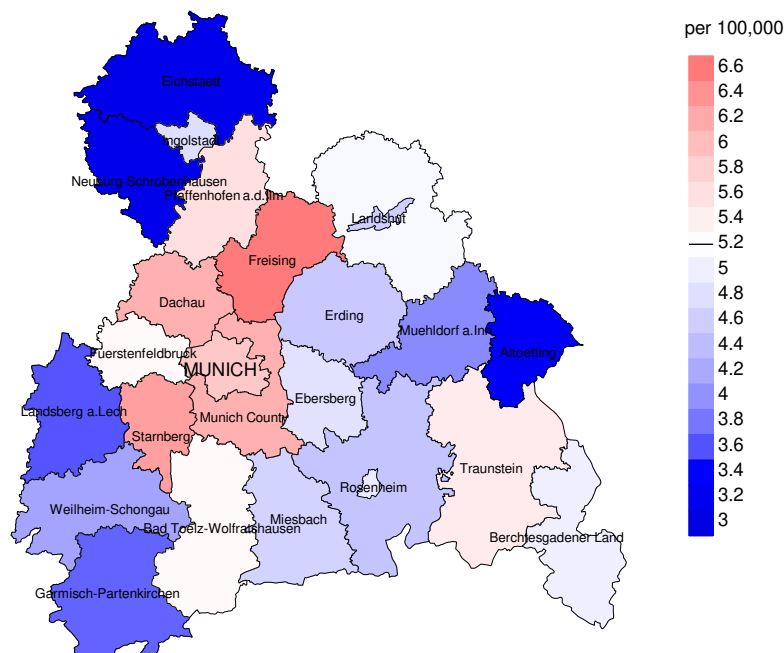
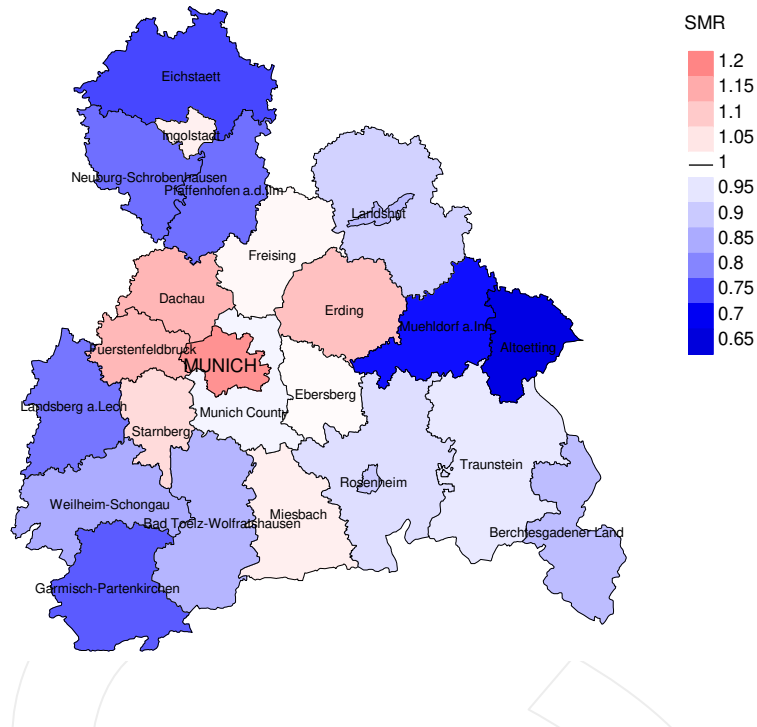


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 7.2/100,000 WS N=3,560, females 5.2/100,000 WS N=3,587).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 96 women died from pancreas cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 4.8/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 3.5 and 6.6/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

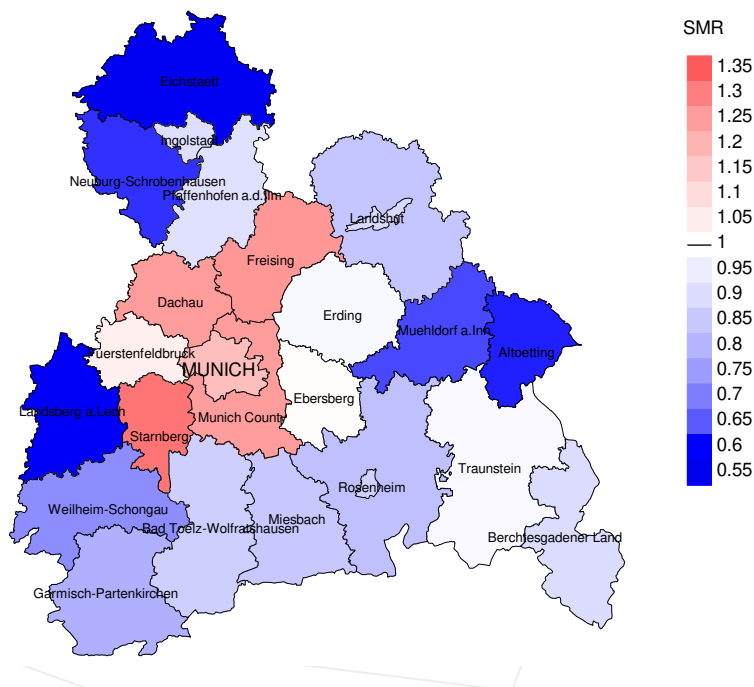


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=3,560, females N=3,587).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 96 women died from pancreas cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.01. Though, the value of this parameter may vary with an underlying probability of 99% between 0.76 and 1.30, and is therefore not statistically striking.

Statistical Notes

In all tables and figures the respective reference values should be carefully considered. The incidence rates include diagnoses (with multiple primary), and death certificate only (DCO) cases, where applicable. For mortality statistics patients, diagnoses and progressive course of disease are presented. In the calculations, all courses of disease are considered whereby progressions occurred and/or death certificate identified progressive cancers were ascertained. Additionally there are three groups of disease course to consider:

1. All multiple primaries included

The mortality statistic describes the tumor-specific death, independent of any malignancy. The patient perspective, induced secondary malignancies, and the problem of multiple malignancies from the same primary tumor all have reasons for their inclusion.

2. First singular primary (no information about other prior or synchronous malignancy)

The mortality statistic describes the cancer-related death for patients who have no therapeutic restrictions due to a previous or synchronous cancer. These statistics are comparable to studies that have exclusion criteria based on a second malignancy.

3. Single primary (no information about other prior, syn- or metachronous malignancy)

The mortality statistic describes the tumor-specific death that occurs without any impact through secondary primaries, earlier, synchronous, later or induced. Precisely the difference between disease group 1 and 2 highlight the magnitude of the problem of secondary malignancies.

For this reason differences appear concerning official mono-causal mortality statistics. To judge the maximum deviation, 2 further tables are presented. In the first table the distribution of secondary malignancies before, at or after the described cancer are shown, that could be an alternative cause of death. In the second table, the age-specific mortality rates for all courses of disease, without designation of secondary malignancies are shown.

A previously minimally acknowledged statistic is the **age at death**, which allows for a good assessment of the quality of classification of the apparent tumor-specific death. For assumed tumor-independent deaths, the age of death should be estimated from the age of diagnosis and the normal life expectancy, whereas tumor-dependent deaths can be estimated from the age of diagnosis plus the average tumor-specific life expectancy. The comparison of different tumors demonstrates this association, if the causes of cancer and the competing cause of death are independent of each other (e.g. breast and colon versus head/neck and lung).

The index from mortality and incidence (Mortality-Incidence ratio, **MI-index**) is a statistic that allows for the evaluation of the quality of data. For diseases with poor prognoses, comparable values are obtained from all age groups, because to a large extent, the numerator and denominator contain the same cases. For tumors with a good prognosis, increasing and decreasing incidence and age-specific differences in prognosis can more strongly alter the MI- index. Additionally, attention should be paid to the confidence intervals where fewer cases are reported.

The complexity of problems identified here emphasizes the importance of relative survival data for the appropriate analysis of long term results.

As a measurement of the burden of disease, the number of potential life years loss due to premature deaths in a cohort can be calculated (**PYLL**, potential years of life lost, standardized per 100,000 persons or per European standard) as well as the average loss of life years per individual (**AYLL**, average years of life lost). Depending upon the analytic aim (health economy, prevention, health care research) different methods exist for the generation of these measurements. In the results presented here, the age for a premature death is considered to be before 70 years, according to the guidelines of the OECD and the WHO (as seen in the abbreviation PYLL-70 or AYLL-70).

Shortcuts

MCR	Munich Cancer Registry (Tumorregister München)
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
SEER	Surveillance, Epidemiology, and End Results (USA)
DCO	Death certificate only
BRD-S	German standard population
ES	European standard population (old)
WS	World standard population
SIR	Standardized incidence ratio
CI	Confidence interval
EAR	Excess absolute risk = excess cancer cases (O - E) per 10,000 person-years
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
AYLL-70	Average years of life lost prior to age 70 given a person dies before that age
SMR	Standardized mortality ratio
MI-index	Ratio between mortality and incidence
FRG	Federal Republic of Germany

Recommended Citation

Munich Cancer Registry. ICD-10 C25: Pancreas cancer - Incidence and Mortality [Internet]. 2018 [updated 2018 Aug 21; cited 2018 Oct 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/base/bC25__E-ICD-10-C25-Pancreas-cancer-incidence-and-mortality.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.