

Munich Cancer Registry



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

ICD-10 C82-C86: NHL

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	12,053
Diseases	12,195
Creation date	01/26/2021
Database export	01/07/2021
Population	4.92 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/bC8286E-ICD-10-C82-C86-NHL-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	11
5	Age-specific incidence, DCO rate, proportion malignancies	12
6	Age distribution and age-specific incidence (chart)	13
6a	Age-specific incidence internationally (chart)	14
7	Standardized incidence ratio of further malignancies	15
8a	Map of cancer incidence (BRD-S) by county (chart)	17
8b	Standardized incidence ratio (SIR) by county (chart)	18
9a	Pts incident cohorts and mortality / yr	19
9b	Incidence and mortality by year of diagnosis	20
9c	Cancer-related deaths, death certification available / yr	21
10	Medians of age at death / yr	22
11	Mortality by year of death	24
12	Distribution of age at death	26
13	Age-specific mortality	27
14	Further malignancies in deaths	28
15	Age-specific mortality (first primaries)	30
16	Age-specific mortality (single primaries)	31
17	Age distribution and age-specific mortality (chart)	32
18a	Map of cancer mortality (BRD-S) by county (chart)	33
18b	Standardized mortality ratio (SMR) by county (chart)	34

**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, January 2021

[#] 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 2016) used for specifying cancer site

Code	Description
C82.-	Follicular lymphoma
C83.-	Non-follicular lymphoma
C84.-	Mature T/NK-cell lymphomas
C85.-	Other and unspecified types of non-Hodgkin lymphoma
C86.-	Other specified types of T/NK-cell lymphoma

INCIDENCE

Table 1

Cases 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	326	40	12.3	8.9	12.3	77.6	98.2
1999	328	54	16.5	8.3	12.3	76.8	98.2
2000	291	43	14.8	8.7	12.2	74.9	96.9
2001	330	46	13.9	9.6	12.1	70.6	96.4
2002	541	105	19.4	10.8	11.9	74.3	98.7 #
2003	543	69	12.7	11.7	11.8	68.5	97.1
2004	592	62	10.5	11.9	11.7	65.9	96.3
2005	548	59	10.8	12.0	11.3	63.9	94.9
2006	595	49	8.2	12.3	10.9	63.4	95.1
2007	688	71	10.3	12.8	10.6	65.0	93.6 #
2008	668	47	7.0	13.3	10.2	61.2	98.2
2009	728	44	6.0	13.9	9.6	55.2	98.1
2010	698	51	7.3	14.4	9.2	58.3	97.7
2011	712	64	9.0	14.9	8.7	59.4	98.2
2012	687	41	6.0	15.4	8.3	52.3	98.4
2013	766	44	5.7	16.2	7.6	50.3	97.3
2014	695	39	5.6	16.6	7.2	48.1	96.0
2015	686	45	6.6	17.2	6.6	45.6	96.4
2016	591	53	9.0	17.5	5.5	47.9	99.0
2017	531	45	8.5	17.9	4.7	37.7	99.2
2018	377	11	2.9	18.1	4.7	25.7	98.4
2019	274	4	1.5	18.3	2.3	20.1	74.5 ##
1998-2019	12195	1086	8.9	18.3	12.3	57.1	96.7

12,195 cases diagnosed 1998-2019 are related to a total of 12,053 patients. Currently, in 3,428 (28.4 %) of these 12,053 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 2,543 / 648 / 237 (21.1 % / 5.4 % / 2.0 %) 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 2017, a subgroup of 531 cases has been diagnosed, of which 17.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.7 % 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 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	170	52.1	20	11.8	8.2	12.8	80.0	98.8
1999	166	50.6	25	15.1	7.7	12.7	80.1	98.8
2000	152	52.2	23	15.1	8.8	12.7	75.0	96.1
2001	166	50.3	21	12.7	9.3	12.5	71.7	96.4
2002	282	52.1	50	17.7	11.1	12.4	75.9	98.6 #
2003	264	48.6	37	14.0	12.1	12.3	67.0	96.6
2004	311	52.5	29	9.3	12.4	12.1	65.3	96.5
2005	281	51.3	24	8.5	12.7	11.6	63.7	95.0
2006	334	56.1	27	8.1	12.9	11.3	65.0	95.5
2007	367	53.3	40	10.9	13.2	11.1	67.3	93.7 #
2008	368	55.1	26	7.1	13.9	10.6	62.0	98.4
2009	395	54.3	25	6.3	14.6	9.9	55.2	99.0
2010	370	53.0	28	7.6	15.3	9.5	61.6	97.8
2011	394	55.3	27	6.9	15.7	8.8	60.4	98.0
2012	368	53.6	22	6.0	16.3	8.3	52.2	98.6
2013	414	54.0	27	6.5	17.1	7.7	55.3	97.1
2014	401	57.7	19	4.7	17.4	7.4	50.1	95.3
2015	397	57.9	24	6.0	18.1	6.3	46.3	97.2
2016	352	59.6	32	9.1	18.5	4.9	46.6	98.3
2017	289	54.4	21	7.3	18.8	4.0	37.0	99.7
2018	222	58.9	6	2.7	18.9	3.9	26.6	99.5
2019	147	53.6	3	2.0	19.1	1.4	17.7	76.2 ##
1998-2019	6610	54.2	556	8.4	19.1	12.8	57.7	96.9

6,610 cases diagnosed 1998-2019 are related to a total of 6,535 patients. Currently, in 1,960 (30.0 %) of these 6,535 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,457 / 364 / 139 (22.3 % / 5.6 % / 2.1 %) 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 2017, a subgroup of 289 cases has been diagnosed, of which 18.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.0 % 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 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	156	47.9	20	12.8	9.6	11.8	75.0	97.4
1999	162	49.4	29	17.9	8.8	11.7	73.5	97.5
2000	139	47.8	20	14.4	8.5	11.6	74.8	97.8
2001	164	49.7	25	15.2	10.0	11.5	69.5	96.3
2002	259	47.9	55	21.2	10.5	11.3	72.6	98.8 #
2003	279	51.4	32	11.5	11.2	11.3	69.9	97.5
2004	281	47.5	33	11.7	11.3	11.2	66.5	96.1
2005	267	48.7	35	13.1	11.2	10.9	64.0	94.8
2006	261	43.9	22	8.4	11.7	10.5	61.3	94.6
2007	321	46.7	31	9.7	12.3	10.1	62.3	93.5 #
2008	300	44.9	21	7.0	12.6	9.7	60.3	98.0
2009	333	45.7	19	5.7	13.0	9.3	55.3	97.0
2010	328	47.0	23	7.0	13.4	8.9	54.6	97.6
2011	318	44.7	37	11.6	13.9	8.4	58.2	98.4
2012	319	46.4	19	6.0	14.5	8.2	52.4	98.1
2013	352	46.0	17	4.8	15.1	7.6	44.3	97.4
2014	294	42.3	20	6.8	15.8	6.9	45.2	96.9
2015	289	42.1	21	7.3	16.1	7.1	44.6	95.2
2016	239	40.4	21	8.8	16.2	6.3	49.8	100.0
2017	242	45.6	24	9.9	16.7	5.5	38.4	98.8
2018	155	41.1	5	3.2	17.0	5.9	24.5	96.8
2019	127	46.4	1	0.8	17.2	3.3	22.8	72.4 ##
1998-2019	5585	45.8	530	9.5	17.2	11.8	56.4	96.5

5,585 cases diagnosed 1998-2019 are related to a total of 5,518 patients. Currently, in 1,468 (26.6 %) of these 5,518 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,086 / 284 / 98 (19.7 % / 5.1 % / 1.8 %) 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 2017, a subgroup of 242 cases has been diagnosed, of which 16.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 5.5 % 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 4.92 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	170	156	15.3	13.3	10.1	6.9	14.1	9.5	18.0	11.7
1999	166	162	14.8	13.7	9.7	6.9	13.4	9.6	16.7	11.9
2000	152	139	13.3	11.6	8.7	5.8	12.0	8.3	15.3	10.4
2001	166	164	14.3	13.5	9.1	6.6	12.8	9.4	16.0	11.5
2002	282	259	15.1	13.2	9.1	6.0	12.8	8.7	16.1	11.0
2003	264	279	14.1	14.2	8.7	7.3	12.1	10.1	15.0	12.2
2004	311	281	16.5	14.2	10.2	6.9	14.1	9.5	16.9	11.9
2005	281	267	14.8	13.4	9.1	6.5	12.4	9.1	15.4	11.2
2006	334	261	17.4	13.0	10.0	6.3	14.1	8.8	17.7	11.0
2007	367	321	16.6	13.9	9.3	6.7	13.3	9.4	16.8	11.6
2008	368	300	16.5	12.9	9.1	6.0	12.8	8.4	16.2	10.5
2009	395	333	17.7	14.3	10.0	6.5	13.7	9.2	16.9	11.5
2010	370	328	16.4	14.0	8.8	6.7	12.5	9.3	15.7	11.4
2011	394	318	17.6	13.6	9.3	6.1	13.1	8.6	16.6	10.6
2012	368	319	16.2	13.5	8.0	6.2	11.6	8.7	15.2	10.7
2013	414	352	18.0	14.8	9.7	6.9	13.3	9.6	16.9	11.8
2014	401	294	17.2	12.2	9.1	5.3	12.8	7.6	15.7	9.5
2015	397	289	16.7	11.9	8.7	5.0	12.2	7.1	15.5	9.2
2016	352	239	14.6	9.7	7.1	4.3	10.3	6.1	13.2	7.7
2017	289	242	12.0	9.8	5.7	4.2	8.3	6.0	10.6	7.5
2018	222	155	9.1	6.2	4.6	2.6	6.6	3.7	8.2	4.7
2019	147	127	6.0	5.1	3.0	2.0	4.2	3.0	5.4	3.9
1998-2019	6610	5585	15.0	12.2	8.3	5.7	11.6	8.0	14.6	9.9

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	326	64.7	17.2	5.9	100	41.9	55.2	67.4	77.7	84.2
1999	328	64.4	17.4	2.8	93.9	41.3	55.4	65.8	77.9	84.7
2000	291	64.6	16.6	3.8	91.6	41.6	55.9	67.9	76.6	82.5
2001	330	64.2	16.7	4.9	98.7	38.5	54.4	66.0	77.0	84.7
2002	541	66.8	15.4	1.2	95.5	44.9	58.6	68.8	78.5	84.4
2003	543	64.8	16.0	10.9	96.3	42.1	55.6	66.9	76.8	82.9
2004	592	65.9	15.5	3.8	97.8	47.1	57.1	67.0	77.1	83.4
2005	548	65.4	16.0	3.4	98.4	44.5	56.9	67.9	77.0	83.4
2006	595	66.2	15.5	1.9	98.5	43.3	59.5	68.6	77.1	82.8
2007	688	66.7	16.0	4.0	101	45.0	57.4	69.3	78.1	84.5
2008	668	67.1	15.9	2.3	96.2	45.1	59.7	70.0	77.8	84.3
2009	728	66.7	15.7	4.3	95.2	45.5	59.6	69.0	77.7	84.5
2010	698	67.4	15.6	0.3	96.7	44.5	59.7	70.3	78.2	84.9
2011	712	67.2	15.9	7.8	99.2	44.5	58.0	70.9	78.1	84.6
2012	687	68.6	14.5	1.5	97.7	48.9	60.7	71.1	78.9	84.4
2013	766	67.1	16.3	1.0	96.3	45.1	59.0	71.0	78.4	84.7
2014	695	68.0	15.1	2.5	97.5	48.0	59.1	71.1	78.3	85.2
2015	686	68.5	15.8	1.5	98.5	47.3	59.6	72.6	79.8	85.5
2016	591	68.7	15.1	5.2	96.4	49.6	59.6	71.9	79.7	85.0
2017	531	69.7	14.9	2.4	104	49.7	61.6	72.5	80.2	86.2
2018	377	68.3	14.6	23.0	94.2	47.1	59.2	71.7	78.8	83.5
2019	274	69.4	14.8	20.3	98.3	48.5	61.9	72.0	80.3	84.3
1998-2019	12195	67.0	15.8	0.3	104	45.6	58.4	69.8	78.3	84.4

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	170	62.4	17.5	6.6	91.4	36.3	51.9	65.1	76.3	82.7
1999	166	61.8	17.6	2.8	93.8	37.6	55.1	63.4	74.4	82.8
2000	152	62.5	17.4	3.8	90.0	37.8	54.8	65.3	75.3	81.3
2001	166	62.0	16.3	4.9	90.3	38.0	54.3	64.6	74.7	79.8
2002	282	64.6	15.0	1.2	95.5	44.1	56.9	65.7	74.8	81.9
2003	264	63.1	16.2	19.0	94.3	39.5	54.3	66.2	75.0	81.6
2004	311	63.4	14.9	8.4	97.8	44.7	54.5	64.6	74.1	81.6
2005	281	62.9	16.7	3.4	90.9	41.7	54.6	64.9	75.4	81.2
2006	334	65.1	16.1	1.9	98.5	42.3	58.3	67.8	76.9	80.9
2007	367	65.2	16.0	10.6	94.8	43.0	54.5	68.7	76.9	82.8
2008	368	65.4	16.1	2.3	93.1	43.3	57.3	68.8	76.2	82.3
2009	395	64.3	15.8	6.6	94.8	42.7	53.5	67.9	75.5	81.9
2010	370	66.8	15.5	3.7	92.2	45.0	58.2	69.7	78.0	84.9
2011	394	65.8	15.7	7.8	94.6	44.0	56.6	69.8	77.2	82.7
2012	368	67.9	14.7	1.5	96.0	48.3	58.9	71.2	78.2	83.3
2013	414	66.3	17.0	1.0	96.3	44.8	58.4	70.2	78.3	83.9
2014	401	66.7	15.6	2.5	97.5	46.9	57.3	69.5	77.6	83.8
2015	397	66.9	16.5	7.8	93.1	45.0	58.0	70.9	79.2	84.9
2016	352	68.4	15.0	5.2	93.5	50.4	59.4	72.1	78.8	84.5
2017	289	69.6	14.5	2.4	97.4	49.5	61.6	71.9	79.5	85.9
2018	222	67.1	14.8	23.0	94.2	47.1	58.3	70.5	77.7	82.4
2019	147	67.8	15.6	20.3	98.3	47.0	59.5	70.9	79.6	83.8
1998-2019	6610	65.6	16.0	1.0	98.5	43.9	56.7	68.6	77.2	83.0

Table 3b

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	156	67.3	16.6	5.9	100	46.4	58.4	69.3	79.4	85.8
1999	162	67.0	16.9	4.2	93.9	45.0	56.1	71.9	79.3	87.3
2000	139	66.9	15.4	15.7	91.6	48.6	57.2	71.4	78.8	84.4
2001	164	66.4	16.8	27.1	98.7	40.7	55.8	69.2	79.8	86.6
2002	259	69.1	15.5	6.6	94.6	45.6	60.1	72.7	80.2	87.1
2003	279	66.4	15.7	10.9	96.3	45.1	56.9	68.1	78.6	84.6
2004	281	68.6	15.7	3.8	94.2	49.7	62.0	70.2	79.7	84.5
2005	267	68.0	14.9	10.7	98.4	48.8	61.1	69.3	78.5	85.0
2006	261	67.6	14.7	19.9	95.8	46.0	61.1	69.6	77.5	84.8
2007	321	68.4	15.8	4.0	101	47.2	60.2	70.7	79.9	85.7
2008	300	69.2	15.5	5.4	96.2	49.0	62.6	70.8	79.9	85.8
2009	333	69.5	15.0	4.3	95.2	50.3	62.4	70.9	80.3	86.1
2010	328	67.9	15.8	0.3	96.7	44.1	60.8	70.8	78.8	84.9
2011	318	69.0	16.1	14.1	99.2	47.6	60.2	72.0	80.3	87.8
2012	319	69.3	14.2	6.4	97.7	50.2	61.5	71.0	80.1	86.7
2013	352	67.9	15.5	3.3	92.0	46.6	59.5	71.6	78.9	85.2
2014	294	69.7	14.2	15.7	96.9	50.4	61.7	73.4	79.2	86.0
2015	289	70.7	14.6	1.5	98.5	48.6	62.4	74.8	80.4	86.4
2016	239	69.2	15.3	16.6	96.4	48.7	60.5	71.9	80.2	86.3
2017	242	69.9	15.4	19.6	104	49.7	62.2	73.0	81.0	87.2
2018	155	70.1	14.2	32.6	93.7	47.3	60.7	73.3	80.4	85.1
2019	127	71.1	13.7	30.1	97.2	51.6	63.8	73.6	81.4	85.0
1998-2019	5585	68.6	15.4	0.3	104	48.1	60.4	71.2	79.7	85.7

Table 4

Age distribution by 5-year age group and sex for period 2007-2019
(incl. DCO)

Age at diagnosis Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	14	0.2	0.2	9	0.2	0.2	5	0.1	0.1
5-9	15	0.2	0.4	11	0.2	0.4	4	0.1	0.2
10-14	18	0.2	0.6	12	0.3	0.7	6	0.2	0.4
15-19	34	0.4	1.0	19	0.4	1.1	15	0.4	0.8
20-24	52	0.6	1.6	36	0.8	1.9	16	0.4	1.3
25-29	80	1.0	2.6	49	1.1	3.0	31	0.9	2.1
30-34	98	1.2	3.8	62	1.4	4.4	36	1.0	3.1
35-39	165	2.0	5.9	93	2.1	6.5	72	2.0	5.1
40-44	232	2.9	8.7	140	3.1	9.6	92	2.5	7.7
45-49	350	4.3	13.1	228	5.1	14.7	122	3.4	11.0
50-54	475	5.9	18.9	289	6.4	21.1	186	5.1	16.2
55-59	553	6.8	25.7	316	7.0	28.2	237	6.6	22.7
60-64	718	8.9	34.6	391	8.7	36.9	327	9.0	31.8
65-69	1043	12.9	47.5	596	13.3	50.2	447	12.4	44.1
70-74	1271	15.7	63.2	688	15.3	65.5	583	16.1	60.2
75-79	1243	15.3	78.5	710	15.8	81.4	533	14.7	75.0
80-84	966	11.9	90.4	498	11.1	92.5	468	12.9	87.9
85+	774	9.6	100.0	337	7.5	100.0	437	12.1	100.0
All ages	8101	100.0		4484	100.0		3617	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers for period 2007-2019

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid.	Females Age- spec. incid.	Males DCO rate n=300 %	Females DCO rate n=259 %	Males Prop.all cancers n=143063 %	Females Prop.all cancers n=144724 %
0- 4	9	5	0.6	0.4			4.3	3.1
5- 9	11	4	0.8	0.3			9.6	4.3
10-14	12	6	0.8	0.4			9.0	5.1
15-19	19	15	1.2	1.0	5.3		6.4	6.1
20-24	36	16	1.9	0.9			6.1	3.4
25-29	49	31	2.3	1.5			5.6	2.8
30-34	62	36	2.9	1.7	3.2		5.2	1.8
35-39	93	72	4.3	3.4		1.4	5.5	2.2
40-44	139	92	5.9	4.1	0.7		5.4	1.6
45-49	228	122	9.1	5.0	0.4		4.8	1.4
50-54	287	186	12.3	8.0	2.4	1.1	3.7	1.6
55-59	314	237	16.2	11.9	1.6	1.7	2.7	1.9
60-64	390	326	23.9	18.6	3.3	1.8	2.4	2.2
65-69	596	445	39.2	26.4	4.5	3.6	2.6	2.5
70-74	687	582	49.0	36.2	6.4	4.3	2.7	3.1
75-79	708	532	63.9	38.6	8.1	7.3	3.2	2.9
80-84	497	467	75.7	48.0	11.3	12.4	3.5	3.3
85+	337	437	79.0	45.3	25.5	24.7	3.4	2.8
All ages	4474	3611			6.7	7.2	3.1	2.5
Incidence								
Raw			14.8	11.6				
WS			7.8	5.2				
ES			11.0	7.4				
BRD-S			13.8	9.2				

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).

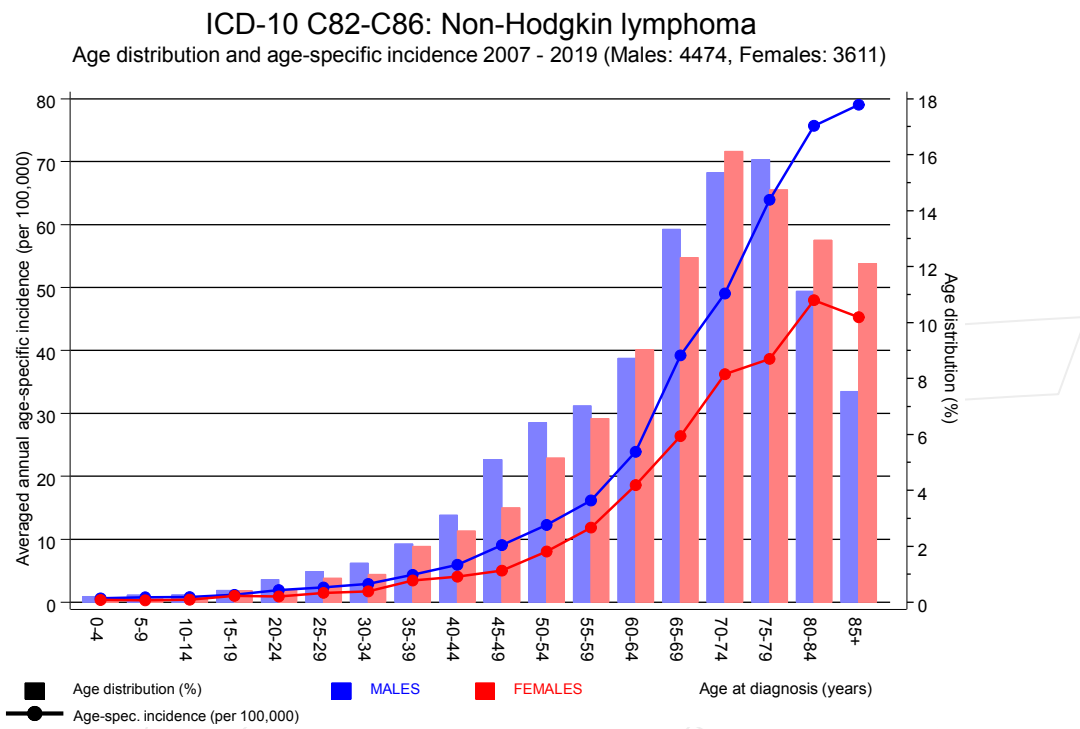


Figure 6. Age distribution (males: mean=66.7 yrs, median=69.9 yrs; females: mean=69.2 yrs, median=71.9 yrs) and age-specific incidence.

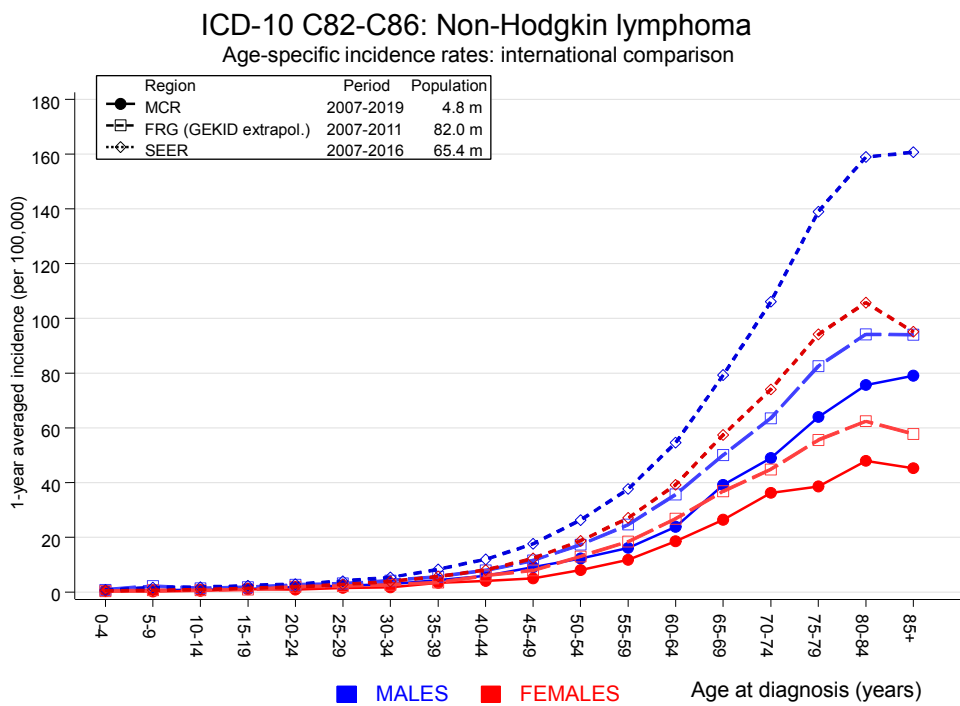


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

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 2019, based on the November 2018 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 1998-2019

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03-C06 Oral cavity	14	2.5	5.6	3.0	9.3 #	5.5	
C07-C08 Salivary gland	4	0.7	5.7	1.6	14.6 #	1.6	
C09-C10 Oropharynx	5	3.1	1.6	0.5	3.8	0.9	
C14 ENT cancer	2	0.1	26.1	3.2	94.2 #	0.9	50.0
C15 Oesophagus	9	5.9	1.5	0.7	2.9	1.5	
C16 Stomach	22	12.0	1.8	1.1	2.8 #	4.8	4.5
C17 Small intestine	5	1.8	2.7	0.9	6.4	1.5	
C18 Colon	53	29.2	1.8	1.4	2.4 #	11.4	3.8
C19-C20 Rectum	31	15.9	2.0	1.3	2.8 #	7.3	3.2
C21 Anus/canal	5	0.7	6.8	2.2	15.9 #	2.1	
C22 Liver	12	8.8	1.4	0.7	2.4	1.6	8.3
C23-C24 Bile	6	3.2	1.9	0.7	4.1	1.3	
C25 Pancreas	19	11.9	1.6	1.0	2.5	3.4	
C32 Larynx	11	3.0	3.7	1.8	6.6 #	3.9	9.1
C33-C34 Lung	105	35.6	2.9	2.4	3.6 #	33.4	6.7
C37 Thymus	3	0.2	17.1	3.5	49.9 #	1.4	
C38,C45 Mesothelioma	6	2.1	2.8	1.0	6.2 #	1.9	
C43 Malign. melanoma	45	13.7	3.3	2.4	4.4 #	15.1	
C44 Skin others	2	0.1	24.4	3.0	88.1 #	0.9	
C46,C49 Soft tissue	11	1.7	6.3	3.2	11.3 #	4.5	
C60 Penis	2	0.8	2.6	0.3	9.3	0.6	
C61 Prostate	159	84.0	1.9	1.6	2.2 #	36.1	3.8
C64 Kidney	36	10.4	3.4	2.4	4.8 #	12.3	
C66 Ureter	8	0.8	10.1	4.3	19.8 #	3.5	
C67 Bladder	33	14.3	2.3	1.6	3.2 #	9.0	
C68 Urethra	3	0.3	10.4	2.1	30.4 #	1.3	
C69 Eye lymphoma	3	0.1	47.2	9.7	137.8 #	1.4	
C70-C72 CNS cancer	7	3.9	1.8	0.7	3.7	1.5	28.6
C73 Thyroid	4	2.0	2.0	0.5	5.0	0.9	
C76-C79 CUP	13	5.2	2.5	1.3	4.3 #	3.8	
C81 Hodgkin lymphoma	17	0.8	22.4	13.1	35.9 #	7.8	5.9
C82-C85 NHL	87	13.0	6.7	5.4	8.2 #	35.6	2.3
C90 Mult. myeloma	11	4.0	2.7	1.4	4.9 #	3.4	
C91-C96 Leukaemia	37	4.7	7.8	5.5	10.8 #	15.5	10.8
Others, specified	7	5.1	1.4	0.6	2.8	0.9	
Not observed	0	3.4	0.0	0.0	1.1	-1.6	
All further malignancies	797	304.9	2.6	2.4	2.8 #	237.0	3.6

Patients	5945
Median age at next malignancy (years)	72.5
Person-years	20763
Mean observation time (years)	3.5
Median observation time (years)	1.8

The occurrence of further specified malignancy is statistically significant.

Further observed 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 1998-2019

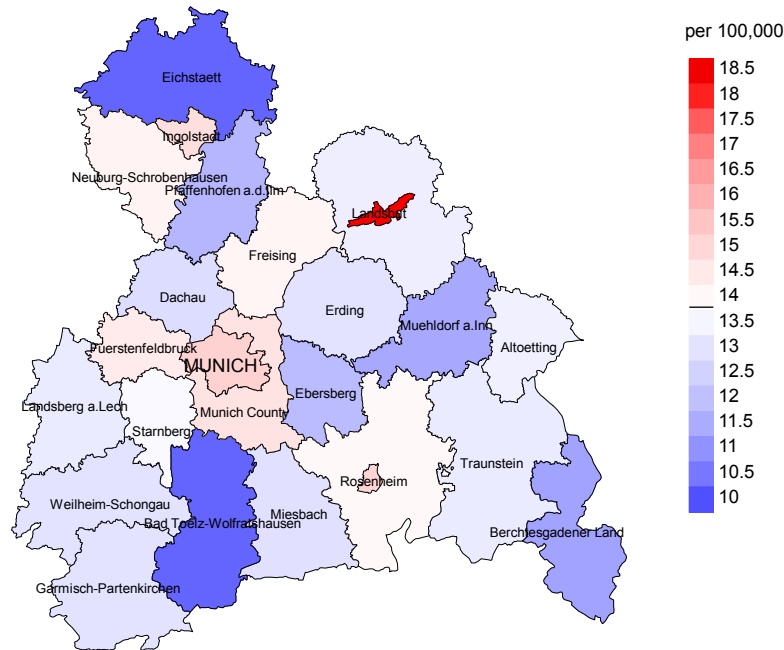
FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C07-C08 Salivary gland	3	0.4	8.5	1.8	24.9 #	1.4	33.3
C09-C10 Oropharynx	3	0.9	3.5	0.7	10.2	1.1	
C15 Oesophagus	2	1.4	1.4	0.2	5.1	0.3	
C16 Stomach	13	7.4	1.8	0.9	3.0	2.9	7.7
C17 Small intestine	6	1.2	5.2	1.9	11.3 #	2.5	
C18 Colon	46	21.1	2.2	1.6	2.9 #	12.9	6.5
C19-C20 Rectum	8	8.6	0.9	0.4	1.8	-0.3	
C21 Anus/canal	5	1.2	4.3	1.4	10.0 #	2.0	
C22 Liver	11	2.7	4.0	2.0	7.2 #	4.3	27.3
C23-C24 Bile	10	3.1	3.2	1.5	5.9 #	3.6	10.0
C25 Pancreas	14	10.3	1.4	0.7	2.3	1.9	7.1
C33-C34 Lung	44	16.4	2.7	1.9	3.6 #	14.3	4.5
C37 Thymus	2	0.1	16.3	2.0	58.9 #	1.0	
C38,C45 Mesothelioma	2	0.4	4.8	0.6	17.5	0.8	
C43 Malign. melanoma	25	8.1	3.1	2.0	4.5 #	8.7	
C46,C49 Soft tissue	5	1.2	4.1	1.3	9.5 #	1.9	
C48 Peritoneal	2	0.9	2.3	0.3	8.1	0.6	
C50 Breast	147	65.1	2.3	1.9	2.7 #	42.4	4.1
C51 Vulva	6	2.3	2.6	0.9	5.6	1.9	
C53 Cervix uteri	6	2.7	2.2	0.8	4.8	1.7	16.7
C54 Corpus uteri	25	12.0	2.1	1.3	3.1 #	6.7	
C56 Ovary	14	8.7	1.6	0.9	2.7	2.8	7.1
C64 Kidney	11	5.2	2.1	1.1	3.8 #	3.0	
C65 Renal pelvis	2	0.7	2.9	0.3	10.3	0.7	
C67 Bladder	8	4.3	1.9	0.8	3.7	1.9	
C70-C72 CNS cancer	2	2.8	0.7	0.1	2.6	-0.4	50.0
C73 Thyroid	15	3.4	4.4	2.5	7.3 #	6.0	6.7
C76-C79 CUP	6	4.0	1.5	0.5	3.2	1.0	
C81 Hodgkin lymphoma	5	0.4	12.5	4.1	29.2 #	2.4	
C82-C85 NHL	78	8.6	9.1	7.2	11.3 #	35.9	
C90 Mult. myeloma	6	2.7	2.2	0.8	4.8	1.7	
C91-C96 Leukaemia	24	3.2	7.4	4.8	11.0 #	10.7	16.7
Others, specified	6	2.0	3.1	1.1	6.7 #	2.1	
Not observed	0	3.7	0.0	0.0	1.0 #	-1.9	
All further malignancies	562	217.3	2.6	2.4	2.8 #	178.4	4.6
Patients		4956					
Median age at next malignancy (years)		74.4					
Person-years		19324					
Mean observation time (years)		3.9					
Median observation time (years)		2.2					

The occurrence of further specified malignancy is statistically significant.

Further observed malignancies with count 1 are pooled in category "Others, specified".

Average incidence (Germany 1987 standard population) 2007 - 2019: Males



Average incidence (Germany 1987 standard population) 2007 - 2019: Females

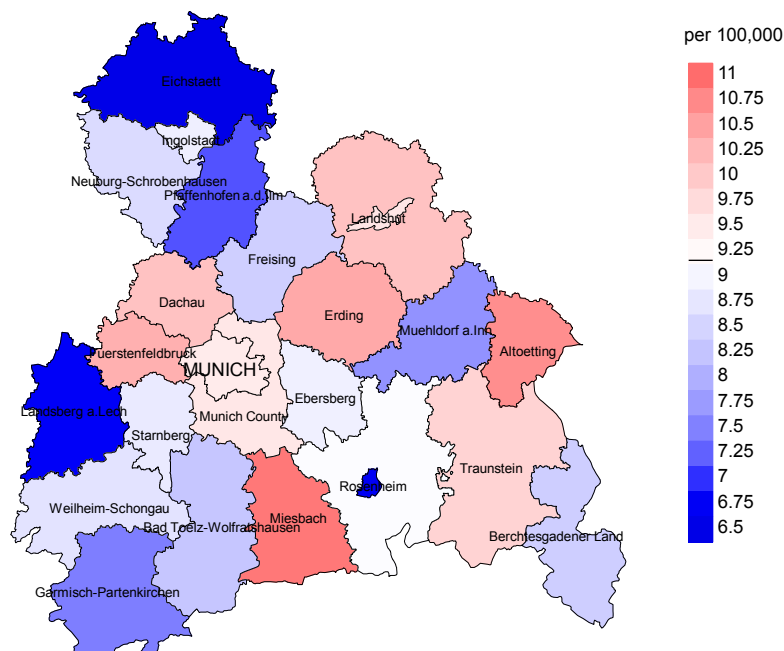
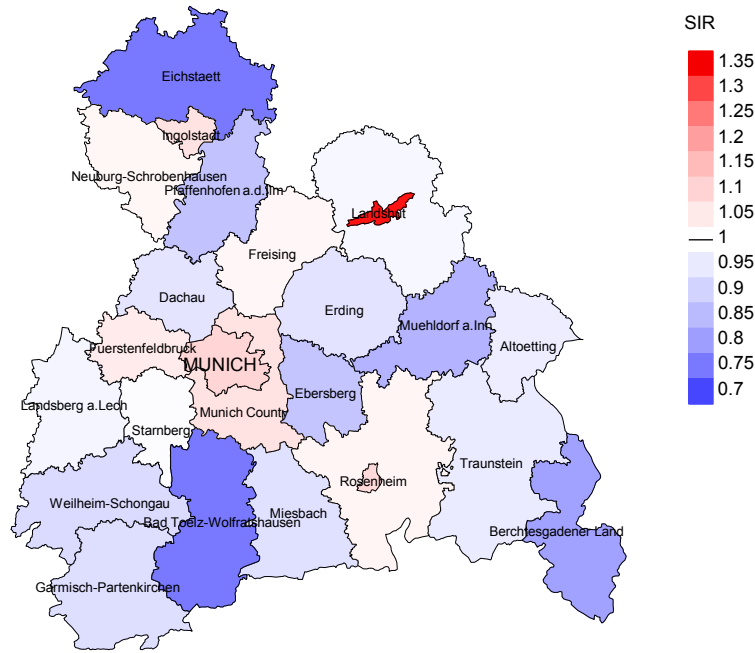


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 13.8/100,000 WS N=4,474, females 9.2/100,000 WS N=3,611).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 93 women were identified with newly diagnosed NHL. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 8.9/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 6.7 and 11.7/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

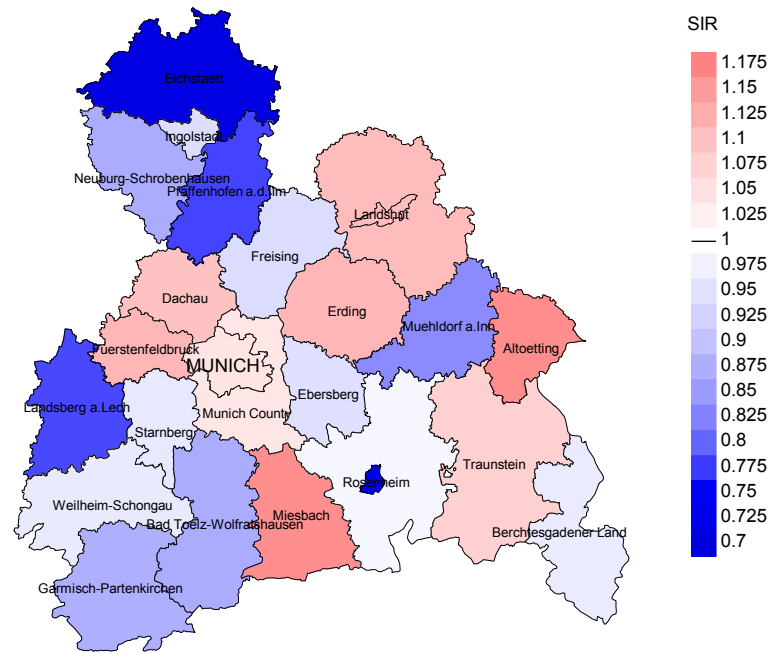


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=4,474, females N=3,611).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2019 a total of 93 women were identified with newly diagnosed NHL. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.95. Though, the value of this parameter may vary with an underlying probability of 99% between 0.71 and 1.23, 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 4.92 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	326	98.2	12.3	253	77.6	94.1
1999	328	98.2	16.5	252	76.8	94.4
2000	291	96.9	14.8	218	74.9	96.8
2001	330	96.4	13.9	233	70.6	95.7
2002	541	98.7	19.4	402	74.3	95.8
2003	543	97.1	12.7	372	68.5	96.8
2004	592	96.3	10.5	390	65.9	96.4
2005	548	94.9	10.8	350	63.9	95.1
2006	595	95.1	8.2	377	63.4	96.0
2007	688	93.6	10.3	447	65.0	95.3
2008	668	98.2	7.0	409	61.2	94.4
2009	728	98.1	6.0	402	55.2	94.3
2010	698	97.7	7.3	407	58.3	92.9
2011	712	98.2	9.0	423	59.4	93.9
2012	687	98.4	6.0	359	52.3	94.7
2013	766	97.3	5.7	385	50.3	91.2
2014	695	96.0	5.6	334	48.1	92.2
2015	686	96.4	6.6	313	45.6	90.7
2016	591	99.0	9.0	283	47.9	87.3
2017	531	99.2	8.5	200	37.7	80.5
2018	377	98.4	2.9	97	25.7	57.7
2019	274	74.5	1.5	55	20.1	81.8
1998-2019	12195	96.7	8.9	6961	57.1	93.1

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 4.92 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	326	190	95.8	75	23.0
1999	328	224	92.9	86	26.2
2000	291	186	96.2	64	22.0
2001	330	208	96.6	74	22.4
2002	541	306	97.1	148	27.4
2003	543	312	98.1	129	23.8
2004	592	335	97.6	128	21.6
2005	548	317	97.2	114	20.8
2006	595	349	98.9	118	19.8
2007	688	397	96.7	161	23.4
2008	668	363	98.1	133	19.9
2009	728	415	97.8	153	21.0
2010	698	390	97.7	134	19.2
2011	712	401	98.0	137	19.2
2012	687	444	98.2	131	19.1
2013	766	449	98.2	135	17.6
2014	695	469	97.7	140	20.1
2015	686	460	98.7	139	20.3
2016	591	451	98.7	142	24.0
2017	531	509	98.2	124	23.4
2018	377	342	36.0	46	12.2
2019	274	270	55.9	36	13.1
1998–2019	12195	7787	93.5	2547	20.9

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 4.92 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	190	66.8	33.2	92.3
1999	224	71.4	28.6	92.8
2000	186	81.7	18.3	92.7
2001	208	80.3	19.7	93.0
2002	306	80.4	19.6	91.9
2003	312	81.4	18.6	92.5
2004	335	86.0	14.0	93.6
2005	317	80.1	19.9	92.2
2006	349	80.2	19.8	90.4
2007	397	82.4	17.6	91.7
2008	363	79.6	20.4	89.9
2009	415	77.1	22.9	87.2
2010	390	76.7	23.3	84.0
2011	401	75.6	24.4	86.8
2012	444	76.6	23.4	85.6
2013	449	74.4	25.6	84.4
2014	469	70.8	29.2	86.9
2015	460	74.1	25.9	82.6
2016	451	71.4	28.6	81.3
2017	509	73.7	26.3	84.4
2018	342	42.7	57.3	70.7
2019	270	48.5	51.5	74.8
1998–2019	7787	74.3	25.7	87.4

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	92	73.4	71.8	80.2	73.1
1999	125	72.0	67.0	77.0	72.0
2000	97	69.4	68.2	72.5	69.7
2001	94	69.2	67.9	75.6	68.4
2002	161	73.1	72.5	75.7	72.7
2003	159	71.7	69.6	78.9	71.4
2004	175	73.8	73.8	73.9	74.1
2005	171	74.9	74.9	73.8	74.9
2006	183	72.2	71.6	77.3	72.2
2007	216	72.2	72.1	73.9	71.6
2008	191	73.8	73.2	76.5	73.5
2009	230	75.5	74.9	80.3	74.9
2010	217	75.2	73.6	78.0	73.5
2011	221	75.2	73.7	79.6	74.2
2012	237	75.6	75.5	75.9	75.5
2013	256	77.4	76.7	80.2	77.4
2014	264	76.0	75.1	79.3	75.7
2015	253	78.4	76.6	83.5	77.3
2016	252	78.3	76.5	82.1	77.7
2017	279	79.1	77.7	82.8	78.1
2018	198	79.0	79.5	78.8	79.8
2019	150	79.4	76.5	80.3	75.5
1998-2019	4221	75.5	74.3	79.2	74.8

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	98	80.1	74.7	84.6	80.2
1999	99	78.3	76.3	83.7	78.9
2000	89	77.6	76.9	84.5	75.9
2001	114	77.9	77.1	83.5	77.9
2002	145	78.5	77.7	81.3	78.5
2003	153	78.2	76.0	82.9	77.0
2004	160	78.0	77.9	82.6	78.0
2005	146	79.1	76.2	84.6	78.3
2006	166	77.9	77.3	82.3	76.7
2007	181	79.2	78.4	81.7	78.4
2008	172	80.4	77.8	84.6	79.2
2009	185	81.1	80.1	83.9	80.5
2010	173	78.7	76.7	84.1	77.9
2011	180	78.9	77.9	83.0	77.9
2012	207	79.5	78.4	84.5	78.8
2013	193	78.7	76.5	83.0	77.4
2014	205	78.5	77.6	82.1	78.2
2015	207	79.2	78.8	81.8	79.0
2016	199	80.5	79.9	82.5	79.9
2017	230	81.1	79.2	85.3	79.4
2018	144	81.2	80.8	81.3	82.2
2019	120	81.9	80.4	83.0	79.9
1998-2019	3566	79.3	78.0	83.1	78.6

By 2018, Bavarians' life expectancy at birth is estimated at 79.3 years for boys and 83.8 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	59	5.3	0.35	3.3	0.32	5.0	0.35	6.9	0.38
1999	91	8.1	0.55	4.9	0.51	7.3	0.55	9.2	0.55
2000	79	6.9	0.52	4.2	0.49	6.2	0.51	8.1	0.53
2001	76	6.6	0.46	4.0	0.44	5.9	0.46	7.6	0.47
2002	134	7.2	0.48	4.0	0.44	6.1	0.48	8.3	0.52
2003	135	7.2	0.51	4.0	0.47	6.0	0.50	8.0	0.53
2004	147	7.8	0.47	4.0	0.40	6.3	0.45	8.8	0.52
2005	143	7.5	0.51	3.6	0.39	5.8	0.47	8.4	0.54
2006	146	7.6	0.44	3.8	0.38	5.9	0.42	7.9	0.45
2007	178	8.0	0.49	4.2	0.45	6.3	0.48	8.5	0.50
2008	156	7.0	0.42	3.4	0.37	5.2	0.41	7.2	0.44
2009	174	7.8	0.44	3.6	0.36	5.6	0.41	7.9	0.46
2010	175	7.8	0.47	3.5	0.40	5.4	0.44	7.6	0.49
2011	161	7.2	0.41	3.4	0.36	5.1	0.39	6.9	0.42
2012	175	7.7	0.48	3.3	0.42	5.2	0.45	7.4	0.49
2013	189	8.2	0.46	3.3	0.35	5.4	0.41	7.6	0.46
2014	194	8.3	0.48	3.5	0.39	5.6	0.44	7.5	0.48
2015	184	7.7	0.46	3.3	0.38	5.1	0.42	7.0	0.45
2016	175	7.3	0.50	3.0	0.42	4.7	0.45	6.5	0.49
2017	214	8.9	0.74	3.4	0.61	5.6	0.67	7.7	0.72
2018	85	3.5	0.38	1.2	0.27	2.0	0.31	2.9	0.36
2019	73	3.0	0.50	1.3	0.43	1.9	0.46	2.6	0.48
1998-2019	3143	7.1	0.48	3.3	0.40	5.2	0.45	7.1	0.49

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	68	5.8	0.44	2.5	0.36	3.7	0.39	4.9	0.42
1999	69	5.8	0.43	2.3	0.33	3.6	0.38	5.0	0.42
2000	73	6.1	0.53	2.3	0.40	3.7	0.44	4.9	0.47
2001	91	7.5	0.55	3.0	0.45	4.6	0.49	6.3	0.55
2002	112	5.7	0.43	2.1	0.35	3.2	0.37	4.5	0.41
2003	119	6.0	0.43	2.4	0.34	3.6	0.36	4.8	0.40
2004	141	7.1	0.50	2.7	0.40	4.1	0.44	5.8	0.49
2005	111	5.6	0.42	2.1	0.32	3.2	0.35	4.3	0.38
2006	134	6.7	0.52	2.4	0.39	3.8	0.43	5.2	0.47
2007	149	6.5	0.46	2.3	0.34	3.6	0.38	4.8	0.42
2008	133	5.7	0.44	2.0	0.33	3.1	0.36	4.2	0.40
2009	146	6.3	0.44	1.9	0.29	3.1	0.34	4.5	0.39
2010	126	5.4	0.38	1.9	0.28	2.9	0.31	4.0	0.35
2011	142	6.1	0.45	2.0	0.33	3.1	0.37	4.4	0.42
2012	165	7.0	0.52	2.2	0.36	3.5	0.40	4.8	0.45
2013	145	6.1	0.41	2.0	0.29	3.2	0.33	4.5	0.38
2014	138	5.7	0.47	1.8	0.34	2.9	0.38	4.0	0.43
2015	157	6.5	0.55	2.1	0.42	3.2	0.46	4.5	0.50
2016	150	6.1	0.63	1.8	0.41	2.9	0.48	4.1	0.53
2017	162	6.6	0.67	1.9	0.45	3.0	0.51	4.4	0.59
2018	65	2.6	0.42	0.7	0.28	1.2	0.31	1.7	0.35
2019	58	2.3	0.46	0.6	0.31	1.0	0.35	1.5	0.39
1998-2019	2654	5.8	0.48	2.0	0.35	3.1	0.39	4.3	0.43

Table 12

Age distribution of age at death (cancer-related) for period 2007-2019
(incl. multiple malignancies)

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9	1	0.0	0.0	1	0.0	0.0			0.0
10-14	4	0.1	0.1	2	0.1	0.1	2	0.1	0.1
15-19	6	0.2	0.3	5	0.2	0.4	1	0.1	0.2
20-24	4	0.1	0.4	4	0.2	0.6			0.2
25-29	10	0.3	0.6	4	0.2	0.8	6	0.3	0.5
30-34	14	0.4	1.0	9	0.4	1.2	5	0.3	0.8
35-39	17	0.4	1.4	11	0.5	1.7	6	0.3	1.2
40-44	38	1.0	2.4	29	1.4	3.0	9	0.5	1.7
45-49	79	2.0	4.5	60	2.8	5.9	19	1.1	2.8
50-54	114	2.9	7.4	72	3.4	9.2	42	2.4	5.2
55-59	149	3.9	11.3	98	4.6	13.8	51	2.9	8.1
60-64	249	6.4	17.7	157	7.4	21.2	92	5.3	13.4
65-69	389	10.1	27.8	238	11.2	32.3	151	8.7	22.1
70-74	587	15.2	42.9	326	15.3	47.6	261	15.0	37.2
75-79	760	19.6	62.6	437	20.5	68.1	323	18.6	55.8
80-84	692	17.9	80.5	350	16.4	84.5	342	19.7	75.5
85+	756	19.5	100.0	330	15.5	100.0	426	24.5	100.0
All ages	3869	100.0		2133	100.0		1736	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(incl. multiple malignancies)

Age at death Years	Males n	Females n	Males Age- spec. mortal.	Males MI-index	Females Age- spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9	1		0.1	0.09			4.0	
10-14	2	2	0.1	0.17	0.1	0.33	7.4	8.7
15-19	5	1	0.3	0.26	0.1	0.07	10.6	4.0
20-24	4		0.2	0.11			6.0	
25-29	4	6	0.2	0.08	0.3	0.19	4.7	6.5
30-34	9	5	0.4	0.15	0.2	0.14	7.0	3.1
35-39	11	6	0.5	0.12	0.3	0.08	4.5	1.6
40-44	29	9	1.2	0.21	0.4	0.10	5.1	1.1
45-49	60	19	2.4	0.26	0.8	0.16	4.5	1.2
50-54	72	42	3.1	0.25	1.8	0.23	2.9	1.7
55-59	98	51	5.0	0.31	2.6	0.22	2.4	1.4
60-64	157	92	9.6	0.40	5.2	0.28	2.6	2.0
65-69	238	151	15.7	0.40	9.0	0.34	2.8	2.3
70-74	326	261	23.3	0.47	16.3	0.45	2.9	3.2
75-79	437	323	39.5	0.62	23.5	0.61	3.8	3.6
80-84	350	342	53.3	0.70	35.1	0.73	3.7	4.0
85+	330	426	77.4	0.98	44.1	0.97	4.0	3.9
All ages	2133	1736					3.3	3.1
Mortality								
Raw			7.1	0.48	5.6	0.48		
WS			3.1	0.39	1.8	0.34		
ES			4.8	0.44	2.8	0.38		
BRD-S			6.6	0.48	3.9	0.43		
PYLL-70								
per 100,000			29.8		15.0			
ES			26.3		12.8			
AYLL-70			11.4		10.2			

Table 14a

Further malignancies in deaths in period 1998-2019
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C00 Lip	5	0.4	2	40.0			3	60.0
C03-C06 Oral cavity	12	0.9	3	25.0	3	25.0	6	50.0
C07-C08 Salivary gland	6	0.4	2	33.3			4	66.7
C09-C10 Oropharynx	9	0.7	6	66.7			3	33.3
C15 Oesophagus	10	0.7	2	20.0	1	10.0	7	70.0
C16 Stomach	41	3.0	12	29.3	7	17.1	22	53.7
C17 Small intestine	10	0.7	5	50.0			5	50.0
C18 Colon	89	6.5	41	46.1	17	19.1	31	34.8
C19-C20 Rectum	48	3.5	22	45.8	5	10.4	21	43.8
C22 Liver	20	1.5	3	15.0	2	10.0	15	75.0
C23-C24 Bile	7	0.5	2	28.6			5	71.4
C25 Pancreas	26	1.9	2	7.7	3	11.5	21	80.8
C30-C31 Sinuses	3	0.2	2	66.7			1	33.3
C32 Larynx	15	1.1	8	53.3	2	13.3	5	33.3
C33-C34 Lung	128	9.3	20	15.6	12	9.4	96	75.0
C38,C45 Mesothelioma	10	0.7	2	20.0	3	30.0	5	50.0
C43 Malign. melanoma	55	4.0	22	40.0	3	5.5	30	54.5
C44 Skin others	216	15.8	70	32.4	16	7.4	130	60.2
C46,C49 Soft tissue	15	1.1	9	60.0	2	13.3	4	26.7
C48 Peritoneal	3	0.2	1	33.3			2	66.7
C60 Penis	4	0.3	2	50.0	1	25.0	1	25.0
C61 Prostate	240	17.5	156	65.0	27	11.3	57	23.8
C62 Testis	8	0.6	5	62.5	1	12.5	2	25.0
C64 Kidney	40	2.9	27	67.5	7	17.5	6	15.0
C65 Renal pelvis	3	0.2	1	33.3	1	33.3	1	33.3
C66 Ureter	6	0.4	1	16.7	1	16.7	4	66.7
C67 Bladder	46	3.4	18	39.1	6	13.0	22	47.8
C68 Urethra	4	0.3	2	50.0	1	25.0	1	25.0
C70-C72 CNS cancer	10	0.7	2	20.0	1	10.0	7	70.0
C73 Thyroid	9	0.7	8	88.9			1	11.1
C76-C79 CUP	28	2.0	5	17.9	2	7.1	21	75.0
C81 Hodgkin lymphoma	33	2.4	19	57.6	2	6.1	12	36.4
C82-C85 NHL	115	8.4	3	2.6	4	3.5	108	93.9
C90 Mult. myeloma	29	2.1	14	48.3	8	27.6	7	24.1
C91-C96 Leukaemia	51	3.7	14	27.5	9	17.6	28	54.9
Others, specified	15	1.1	6	40.0	2	13.3	7	46.7
All further malignancies	1369	100.0	519	37.9	149	10.9	701	51.2

Further malignancies with number of cases 1 to 2 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 1998-2019
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	8	0.8	6	75.0	1	12.5	1	12.5
C07-C08 Salivary gland	6	0.6	4	66.7			2	33.3
C09-C10 Oropharynx	4	0.4	2	50.0	1	25.0	1	25.0
C15 Oesophagus	4	0.4					4	100.0
C16 Stomach	33	3.4	10	30.3	5	15.2	18	54.5
C17 Small intestine	4	0.4	2	50.0	1	25.0	1	25.0
C18 Colon	75	7.7	28	37.3	9	12.0	38	50.7
C19-C20 Rectum	25	2.6	13	52.0	5	20.0	7	28.0
C21 Anus/canal	9	0.9	4	44.4			5	55.6
C22 Liver	11	1.1			2	18.2	9	81.8
C23-C24 Bile	14	1.4	1	7.1	1	7.1	12	85.7
C25 Pancreas	16	1.6	1	6.3	2	12.5	13	81.3
C30-C31 Sinuses	2	0.2	1	50.0			1	50.0
C32 Larynx	3	0.3	2	66.7			1	33.3
C33-C34 Lung	53	5.4	5	9.4	2	3.8	46	86.8
C38,C45 Mesothelioma	2	0.2					2	100.0
C43 Malign. melanoma	29	3.0	13	44.8	2	6.9	14	48.3
C44 Skin others	103	10.5	35	34.0	3	2.9	65	63.1
C46,C49 Soft tissue	7	0.7			3	42.9	4	57.1
C48 Peritoneal	2	0.2			2	100.0		
C50 Breast	223	22.8	133	59.6	22	9.9	68	30.5
C51 Vulva	10	1.0	5	50.0			5	50.0
C53 Cervix uteri	14	1.4	9	64.3	1	7.1	4	28.6
C54 Corpus uteri	31	3.2	23	74.2	1	3.2	7	22.6
C55,C57 Fem. genitals un	7	0.7	7	100.0				
C56 Ovary	27	2.8	9	33.3	3	11.1	15	55.6
C64 Kidney	24	2.5	12	50.0	3	12.5	9	37.5
C65 Renal pelvis	2	0.2	1	50.0			1	50.0
C67 Bladder	15	1.5	5	33.3			10	66.7
C70-C72 CNS cancer	9	0.9	4	44.4	1	11.1	4	44.4
C73 Thyroid	12	1.2	9	75.0			3	25.0
C76-C79 CUP	16	1.6	5	31.3	1	6.3	10	62.5
C81 Hodgkin lymphoma	15	1.5	11	73.3	1	6.7	3	20.0
C82-C85 NHL	106	10.8	1	0.9	2	1.9	103	97.2
C90 Mult. myeloma	18	1.8	8	44.4	6	33.3	4	22.2
C91-C96 Leukaemia	31	3.2	3	9.7	4	12.9	24	77.4
Others, specified	7	0.7	1	14.3	1	14.3	5	71.4
All further malignancies	977	100.0	373	38.2	85	8.7	519	53.1

Further malignancies with number of cases 1 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 2007-2019
(**First primaries only ***)

Age at death Years	Males n	Females n	Males Age- spec. mortal. MI-index	Females Age- spec. mortal. MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4						
5- 9	1		0.1	0.09	4.2	
10-14	2	2	0.1	0.17	7.4	10.5
15-19	5	1	0.3	0.28	11.1	4.3
20-24	3		0.2	0.09	5.0	
25-29	4	5	0.2	0.09	5.2	5.8
30-34	9	4	0.4	0.15	7.3	2.9
35-39	10	5	0.5	0.12	4.4	1.5
40-44	20	8	0.9	0.16	3.8	1.1
45-49	56	17	2.2	0.27	4.6	1.3
50-54	60	32	2.6	0.23	2.7	1.5
55-59	78	43	4.0	0.29	2.2	1.5
60-64	128	74	7.8	0.41	2.6	2.0
65-69	186	105	12.2	0.40	2.7	2.0
70-74	244	207	17.4	0.49	2.9	3.3
75-79	335	255	30.3	0.71	4.0	3.7
80-84	255	266	38.8	0.76	3.8	4.0
85+	221	337	51.8	1.02	3.7	3.9
All ages	1617	1361			3.3	3.0
Mortality						
Raw			5.4	0.47	4.4	0.48
WS			2.4	0.38	1.4	0.33
ES			3.7	0.42	2.2	0.37
BRD-S			5.0	0.47	3.1	0.42
PYLL-70						
per 100,000			25.1		12.3	
ES			22.3		10.6	
AYLL-70			11.9		10.8	

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(**Single primaries only** *)

Age at death Years	Males		Males		Females		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4								
5- 9	1		0.1	0.09			4.2	
10-14	2	1	0.1	0.17	0.1	0.17	7.4	5.3
15-19	5	1	0.3	0.29	0.1	0.07	11.1	4.5
20-24	3		0.2	0.09			5.0	
25-29	4	4	0.2	0.09	0.2	0.15	5.2	4.8
30-34	8	4	0.4	0.14	0.2	0.12	6.5	2.9
35-39	10	4	0.5	0.12	0.2	0.06	4.4	1.2
40-44	20	6	0.9	0.16	0.3	0.07	3.8	0.9
45-49	52	16	2.1	0.26	0.7	0.16	4.3	1.2
50-54	53	28	2.3	0.22	1.2	0.18	2.4	1.4
55-59	70	34	3.6	0.29	1.7	0.19	2.0	1.2
60-64	100	57	6.1	0.36	3.2	0.26	2.0	1.5
65-69	154	81	10.1	0.41	4.8	0.27	2.3	1.6
70-74	187	171	13.3	0.45	10.6	0.47	2.3	2.8
75-79	265	204	23.9	0.64	14.8	0.57	3.3	3.1
80-84	208	222	31.7	0.71	22.8	0.68	3.3	3.5
85+	173	292	40.6	0.84	30.2	0.89	3.2	3.5
All ages	1315	1125					2.8	2.6
Mortality								
Raw			4.4	0.43	3.6	0.44		
WS			2.0	0.35	1.1	0.29		
ES			3.0	0.39	1.8	0.34		
BRD-S			4.1	0.43	2.5	0.38		
PYLL-70								
per 100,000			22.7		10.0			
ES			20.3		8.6			
AYLL-70			12.5		11.1			

* See corresponding tables with multiple malignancies.

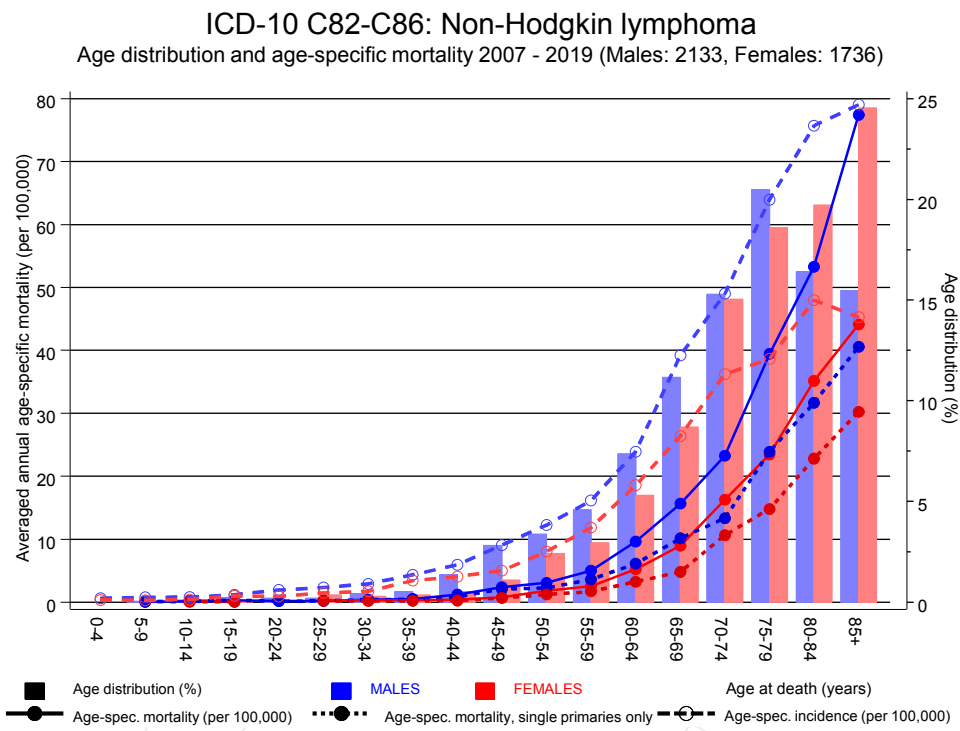
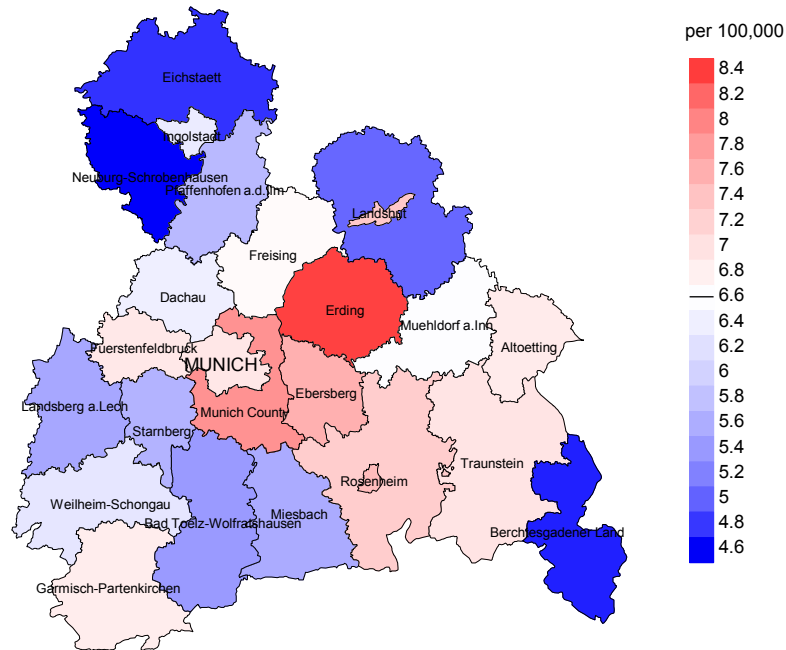


Figure 17. Distribution of age at death (bars; males: mean=69.0 yrs, median=71.3 yrs; females: mean=72.5 yrs, median=74.5 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (Germany 1987 standard population) 2007 - 2019: Males



Average mortality (Germany 1987 standard population) 2007 - 2019: Females

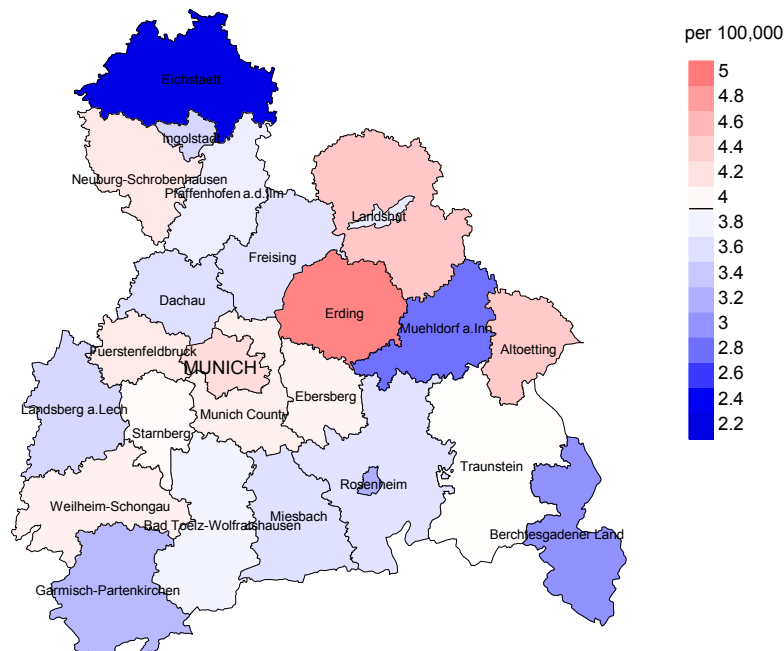
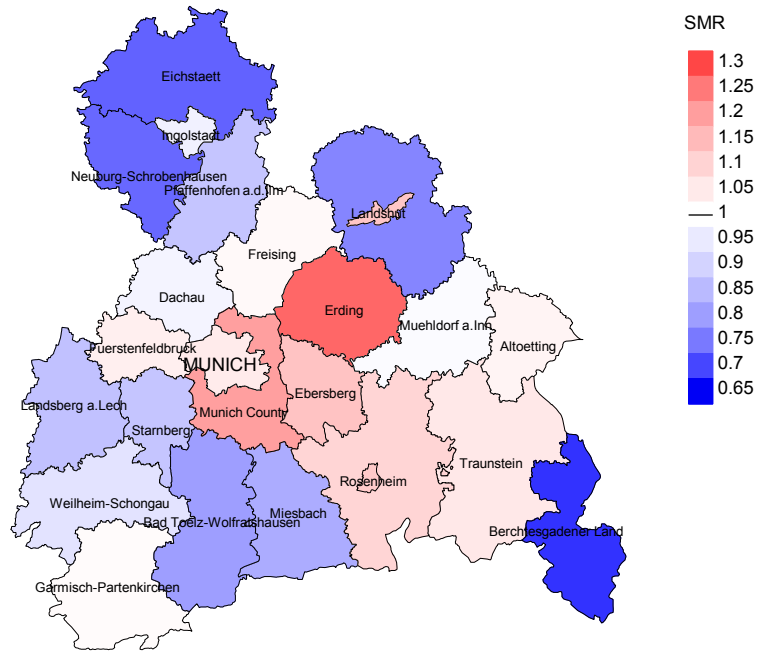


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 6.6/100,000 WS N=2,133, females 3.9/100,000 WS N=1,736).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 47 women died from NHL. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 4.0/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.7 and 5.9/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

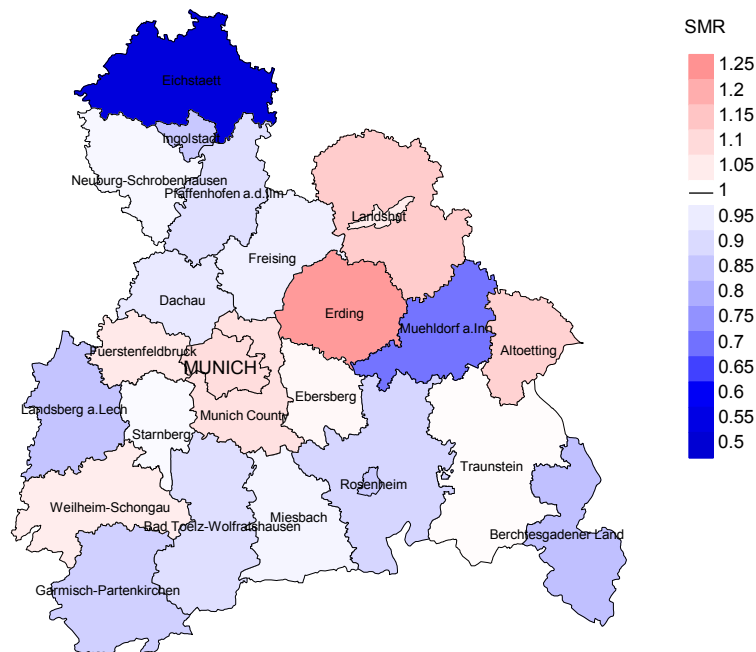


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,133, females N=1,736).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2019 a total of 47 women died from NHL. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.02. Though, the value of this parameter may vary with an underlying probability of 99% between 0.68 and 1.47, 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 ratio of mortality and incidence (mortality-to-incidence ratio, **MIR, MI-Index**) is a statistical index 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 MIR. 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 (FRG) 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 of mortality to incidence, MIR
FRG	Federal Republic of Germany

Recommended Citation

Munich Cancer Registry. ICD-10 C82-C86: NHL - Incidence and Mortality [Internet]. 2021 [updated 2021 Jan 26; cited 2021 Mar 1]. Available from: <https://www.tumorregister-muenchen.de/en/facts/base/bC8286E-ICD-10-C82-C86-NHL-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.