Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage
- *Deutsch*

ICD-10 C83.1: Mantle cell lymphoma

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	749
Diseases	750
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
Marchioninistr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/base/bC831_E-ICD-10-C83.1-Mantle-cell-lymphoma-incidence-and-mortality.pdf

Index of figures and tables

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 2015) used for specifying cancer site

Code	Description
C83.1	Mantle cell lymphoma

INCIDENCE

Table 1

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

Year of diagnosis	All cases n	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	8	25.0	14.0	87.5	100.0
1999	14	13.6	14.0	78.6	100.0
2000	18	15.0	14.2	88.9	100.0
2001	25	13.8	14.2	92.0	96.0
2002	19	13.1	13.6	73.7	100.0 #
2003	21	14.3	13.3	76.2	100.0
2004	33	14.5	13.4	81.8	100.0
2005	35	13.3	13.0	60.0	88.6
2006	48	15.4	12.7	72.9	97.9
2007	44	14.3	11.5	75.0	95.5 #
2008	43	14.3	10.7	69.8	100.0
2009	39	15.0	9.4	59.0	100.0
2010	51	16.1	9.1	70.6	100.0
2011	39	15.8	9.8	64.1	100.0
2012	45	15.8	11.0	53.3	100.0
2013	49	17.3	10.6	53.1	95.9
2014	47	17.1	11.6	51.1	100.0
2015	41	17.3	10.7	39.0	100.0
2016	45	17.8	9.4	51.1	97.8
2017	43	18.1	7.2	32.6	97.7
2018	18	18.2	4.9	27.8	100.0
2019	25	18.3	0.0	16.0	84.0 ##
1998–2019	750	18.3	14.0	60.4	97.9

750 cases diagnosed 1998-2019 are related to a total of 749 patients. Currently, in 224 (29.9 %) of these 749 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 158 / 48 / 18 (21.1 % / 6.4 % / 2.4 %) 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 retreived from the respective headings.

How to interpret:
In 2017, a subgroup of 43 cases has been diagnosed, of which 18.1 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 7.2 % 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 further malignancies, deaths, and active follow-up (MALES)

Year of diagnosis	Males n	Males %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	5	62.5	40.0	14.7	100.0	100.0
1999	9	64.3	21.4	14.7	77.8	100.0
2000	11	61.1	24.0	15.0	81.8	100.0
2001	16	64.0	17.1	14.9	100.0	100.0
2002	16	84.2	15.8	14.5	75.0	100.0 #
2003	16	76.2	16.4	14.2	75.0	100.0
2004	23	69.7	15.6	14.2	87.0	100.0
2005	28	80.0	13.7	13.6	57.1	89.3
2006	35	72.9	13.8	13.3	77.1	97.1
2007	33	75.0	13.5	12.3	81.8	97.0 #
2008	33	76.7	14.2	11.2	66.7	100.0
2009	23	59.0	13.7	10.1	56.5	100.0
2010	34	66.7	15.2	9.2	73.5	100.0
2011	28	71.8	15.5	9.6	60.7	100.0
2012	35	77.8	14.8	10.8	51.4	100.0
2013	33	67.3	16.9	9.5	48.5	93.9
2014	36	76.6	16.7	10.3	47.2	100.0
2015	32	78.0	17.0	8.3	40.6	100.0
2016	34	75.6	18.1	6.8	44.1	97.1
2017	28	65.1	18.3	3.7	32.1	96.4
2018	13	72.2	18.4	0.0	30.8	100.0
2019	14	56.0	18.5	0.0	14.3	85.7 ##
1998-2019	535	71.3	18.5	14.7	60.2	97.9

535 cases diagnosed 1998-2019 are related to a total of 535 patients. Currently, in 167 (31.2 %) of these 535 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 121 / 32 / 14 (22.6 % / 6.0 % / 2.6 %) 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 retreived from the respective headings.

How to interpret:
In 2017, a subgroup of 28 cases has been diagnosed, of which 18.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.7 % 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 1b

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

Year of diagnosis	Females n	Females %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	3	37.5	0.0	12.0	66.7	100.0
1999	5	35.7	0.0	12.1	80.0	100.0
2000	7	38.9	0.0	12.4	100.0	100.0
2001	9	36.0	8.3	12.4	77.8	88.9
2002	3	15.8	7.4	11.4	66.7	100.0 #
2003	5	23.8	9.4	11.0	80.0	100.0
2004	10	30.3	11.9	11.3	70.0	100.0
2005	7	20.0	12.2	11.4	71.4	85.7
2006	13	27.1	19.4	11.2	61.5	100.0
2007	11	25.0	16.4	9.4	54.5	90.9 #
2008	10	23.3	14.5	9.4	80.0	100.0
2009	16	41.0	18.2	7.8	62.5	100.0
2010	17	33.3	18.1	8.9	64.7	100.0
2011	11	28.2	16.5	10.4	72.7	100.0
2012	10	22.2	18.2	11.8	60.0	100.0
2013	16	32.7	18.3	13.2	62.5	100.0
2014	11	23.4	18.3	15.0	63.6	100.0
2015	9	22.0	17.9	16.3	33.3	100.0
2016	11	24.4	16.8	15.0	72.7	100.0
2017	15	34.9	17.6	13.8	33.3	100.0
2018	5	27.8	17.6	14.3	20.0	100.0
2019	11	44.0	17.7	0.0	18.2	81.8 ##
1998-2019	215	28.7	17.7	12.0	60.9	97.7

215 cases diagnosed 1998-2019 are related to a total of 214 patients. Currently, in 57 (26.6 %) of these 214 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 37 / 16 / 4 (17.3 % / 7.5 % / 1.9 %) 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 retreived from the respective headings.

How to interpret:
In 2017, a subgroup of 15 cases has been diagnosed, of which 17.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 13.8 % 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
(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	5	3	0.5	0.3	0.3	0.1	0.4	0.2	0.5	0.3
1999	9	5	0.8	0.4	0.5	0.2	0.7	0.2	0.8	0.3
2000	11	7	1.0	0.6	0.6	0.3	0.8	0.5	1.0	0.6
2001	16	9	1.4	0.7	0.8	0.4	1.2	0.6	1.5	0.7
2002	16	3	0.9	0.2	0.5	0.1	0.7	0.1	0.9	0.1
2003	16	5	0.9	0.3	0.5	0.1	0.7	0.2	0.8	0.2
2004	23	10	1.2	0.5	0.7	0.3	1.0	0.4	1.1	0.4
2005	28	7	1.5	0.4	0.8	0.2	1.2	0.2	1.6	0.3
2006	35	13	1.8	0.6	0.9	0.3	1.4	0.4	1.9	0.5
2007	33	11	1.5	0.5	0.8	0.2	1.2	0.3	1.5	0.4
2008	33	10	1.5	0.4	0.7	0.2	1.1	0.3	1.4	0.4
2009	23	16	1.0	0.7	0.5	0.3	0.7	0.5	0.9	0.6
2010	34	17	1.5	0.7	0.7	0.4	1.1	0.5	1.4	0.6
2011	28	11	1.3	0.5	0.7	0.2	0.9	0.3	1.1	0.4
2012	35	10	1.5	0.4	0.7	0.2	1.1	0.3	1.4	0.3
2013	33	16	1.4	0.7	0.8	0.3	1.1	0.4	1.3	0.5
2014	36	11	1.5	0.5	0.8	0.2	1.1	0.3	1.4	0.4
2015	32	9	1.3	0.4	0.7	0.1	1.0	0.2	1.2	0.3
2016	34	11	1.4	0.4	0.6	0.2	0.9	0.3	1.3	0.4
2017	28	15	1.2	0.6	0.6	0.2	0.8	0.4	1.0	0.4
2018	13	5	0.5	0.2	0.2	0.1	0.4	0.1	0.5	0.2
2019	14	11	0.6	0.4	0.3	0.2	0.4	0.3	0.5	0.3
1998–2019	535	215	1.2	0.5	0.6	0.2	0.9	0.3	1.2	0.4

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)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	8	64.9	10.7	49.9	83.8	49.9	57.2	65.0	70.6	83.8
1999	14	63.1	14.7	35.1	88.1	43.2	54.3	65.0	74.2	78.7
2000	18	66.5	10.2	46.4	81.4	49.9	63.4	66.7	73.5	80.1
2001	25	65.5	9.7	51.5	90.3	55.2	57.7	63.5	70.4	79.2
2002	19	60.5	10.7	39.2	82.4	45.2	54.8	60.1	65.2	82.0
2003	21	66.5	9.3	48.5	80.9	54.7	58.5	66.9	74.4	77.6
2004	33	65.2	14.2	36.4	92.0	38.8	58.2	67.1	74.1	79.7
2005	35	66.2	14.8	22.8	88.2	45.8	58.2	69.8	76.5	81.7
2006	48	69.7	11.1	38.0	87.3	51.8	63.5	71.7	77.7	81.6
2007	44	68.4	9.5	47.7	90.7	54.5	61.0	69.1	75.9	78.0
2008	43	69.5	10.3	47.2	88.5	50.7	67.0	70.4	76.3	82.1
2009	39	67.5	9.4	40.6	80.6	51.8	64.7	68.7	73.5	78.5
2010	51	66.4	12.1	42.1	88.1	48.4	55.2	70.1	75.3	80.5
2011	39	66.3	10.7	42.2	86.8	47.8	58.5	68.6	73.2	79.5
2012	45	68.8	11.9	26.0	90.2	54.1	65.0	72.0	75.7	77.7
2013	49	68.6	12.6	21.2	88.1	49.5	65.0	69.9	76.9	82.9
2014	47	67.8	11.4	41.1	96.9	52.1	60.7	66.5	75.7	82.5
2015	41	69.5	11.9	28.5	90.0	54.6	64.1	70.8	77.9	81.5
2016	45	72.2	11.3	37.2	87.4	55.4	68.4	73.8	80.6	84.5
2017	43	70.5	13.4	40.3	91.2	53.2	61.6	71.5	81.4	88.1
2018	18	70.4	10.3	51.2	83.4	53.7	63.8	71.5	80.0	82.2
2019	25	69.0	12.8	40.6	91.2	53.0	58.6	71.1	80.9	83.5
1998–2019	750	68.0	11.7	21.2	96.9	51.8	61.0	69.4	76.3	81.8

Table 3a

Age distribution parameters by year of diagnosis (MALES)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	5	64.5	7.4	53.3	72.0	53.3	61.0	66.7	69.3	72.0
1999	9	59.2	9.7	43.2	74.2	43.2	54.3	59.9	65.3	74.2
2000	11	66.1	9.2	46.4	80.1	56.5	63.4	66.0	73.5	74.0
2001	16	67.3	10.2	55.2	90.3	55.9	59.4	64.4	73.8	81.8
2002	16	61.0	11.5	39.2	82.4	45.2	55.3	61.2	65.3	82.0
2003	16	65.3	8.5	48.5	79.5	54.7	57.5	66.9	71.7	74.7
2004	23	64.5	13.3	36.4	92.0	37.7	60.9	65.9	73.1	76.1
2005	28	65.7	15.3	22.8	88.2	45.7	58.4	69.9	76.0	81.7
2006	35	68.6	11.6	38.0	87.3	49.4	62.2	71.1	77.5	79.6
2007	33	67.8	9.5	47.7	90.7	54.5	61.0	68.0	74.5	78.0
2008	33	68.7	10.6	47.2	88.5	50.0	67.4	70.1	75.1	81.3
2009	23	67.5	8.3	44.3	80.2	62.4	65.2	68.0	71.0	77.0
2010	34	68.1	11.8	42.4	88.1	48.4	63.3	71.1	75.7	80.7
2011	28	64.7	11.7	42.2	86.8	46.9	56.5	66.0	71.9	81.0
2012	35	68.6	11.8	26.0	87.1	54.1	65.0	71.8	75.7	77.3
2013	33	67.5	13.2	21.2	85.6	49.5	65.0	69.8	74.3	79.7
2014	36	66.7	11.3	41.1	85.2	51.8	58.0	66.8	74.9	81.8
2015	32	67.7	12.5	28.5	90.0	54.5	60.5	68.6	76.5	81.5
2016	34	71.8	11.4	37.2	87.4	55.4	68.4	73.4	80.5	84.3
2017	28	69.2	13.6	40.3	88.8	47.7	59.0	69.8	79.7	86.0
2018	13	71.1	9.2	53.7	82.2	57.0	68.1	70.4	80.0	80.2
2019	14	67.4	10.1	52.8	82.9	53.0	58.6	66.7	76.4	80.9
1998–2019	535	67.3	11.6	21.2	92.0	50.7	60.7	69.0	75.3	80.7

Table 3b

Age distribution parameters by year of diagnosis (FEMALES)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	3	65.6	17.1	49.9	83.8	49.9	49.9	63.2	83.8	83.8
1999	5	70.1	20.4	35.1	88.1	35.1	72.7	76.0	78.7	88.1
2000	7	67.1	12.3	49.9	81.4	49.9	51.8	68.4	78.9	81.4
2001	9	62.4	8.5	51.5	79.2	51.5	57.6	61.2	66.0	79.2
2002	3	58.0	5.2	52.1	61.8	52.1	52.1	60.1	61.8	61.8
2003	5	70.3	11.8	52.8	80.9	52.8	63.5	76.5	77.6	80.9
2004	10	67.0	16.7	38.8	89.0	44.1	54.8	68.7	79.7	88.6
2005	7	68.3	13.2	48.4	83.1	48.4	54.0	69.8	81.7	83.1
2006	13	72.7	9.7	57.6	85.3	62.7	64.2	74.6	81.6	83.9
2007	11	70.5	9.6	51.7	84.8	57.5	65.9	72.6	76.7	77.1
2008	10	72.2	9.4	52.5	84.6	59.3	67.0	72.6	78.9	83.5
2009	16	67.7	11.0	40.6	80.6	51.8	60.9	69.1	76.3	79.3
2010	17	63.2	12.3	42.1	81.9	42.2	52.6	63.6	72.0	80.5
2011	11	70.3	6.5	56.5	79.5	64.1	67.7	69.1	75.4	77.5
2012	10	69.4	12.9	44.1	90.2	50.6	61.1	73.3	77.5	83.9
2013	16	70.8	11.2	47.7	88.1	52.5	65.0	72.1	79.9	82.9
2014	11	71.4	11.4	60.9	96.9	63.4	63.5	64.5	78.9	85.1
2015	9	75.9	6.8	64.4	86.4	64.4	70.8	78.4	79.4	86.4
2016	11	73.4	11.4	47.9	84.9	60.5	66.8	73.8	82.3	84.5
2017	15	72.9	13.2	49.7	91.2	53.2	62.5	74.9	86.4	88.2
2018	5	68.4	13.8	51.2	83.4	51.2	56.8	72.6	77.8	83.4
2019	11	71.0	15.8	40.6	91.2	53.4	53.5	72.0	83.5	84.7
1998–2019	215	69.5	11.9	35.1	96.9	52.3	62.7	71.1	78.9	83.5

Table 4

Age distribution by 5-year age group and sex for period 2007–2019

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0–4									
5–9									
10–14									
15–19									
20–24	1	0.2	0.2	1	0.3	0.3			0.0
25–29	2	0.4	0.6	2	0.5	0.8			0.0
30–34	0	0.0	0.6			0.8			0.0
35–39	1	0.2	0.8	1	0.3	1.1			0.0
40–44	14	2.6	3.4	9	2.4	3.5	5	3.3	3.3
45–49	20	3.8	7.2	17	4.5	8.0	3	2.0	5.2
50–54	33	6.2	13.4	22	5.9	13.8	11	7.2	12.4
55–59	37	7.0	20.4	28	7.4	21.3	9	5.9	18.3
60–64	57	10.8	31.2	40	10.6	31.9	17	11.1	29.4
65–69	91	17.2	48.4	69	18.4	50.3	22	14.4	43.8
70–74	109	20.6	69.0	81	21.5	71.8	28	18.3	62.1
75–79	83	15.7	84.7	55	14.6	86.4	28	18.3	80.4
80–84	55	10.4	95.1	35	9.3	95.7	20	13.1	93.5
85+	26	4.9	100.0	16	4.3	100.0	10	6.5	100.0
All ages	529	100.0		376	100.0		153	100.0	

Table 5

Age-specific incidence 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 Prop.all cancers n=143063 %	Females Prop.all cancers n=144724 %
0- 4						
5- 9						
10-14						
15-19						
20-24	1		0.1		0.2	
25-29	2		0.1		0.2	
30-34						
35-39	1		0.0		0.1	
40-44	9	5	0.4	0.2	0.3	0.1
45-49	17	3	0.7	0.1	0.4	0.0
50-54	22	11	0.9	0.5	0.3	0.1
55-59	28	9	1.4	0.5	0.2	0.1
60-64	40	17	2.5	1.0	0.2	0.1
65-69	69	22	4.5	1.3	0.3	0.1
70-74	81	28	5.8	1.7	0.3	0.2
75-79	55	28	5.0	2.0	0.2	0.2
80-84	35	20	5.3	2.1	0.2	0.1
85+	16	10	3.8	1.0	0.2	0.1
All ages	376	153			0.3	0.1
Incidence						
Raw			1.2	0.5		
WS			0.6	0.2		
ES			0.9	0.3		
BRD-S			1.1	0.4		

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).

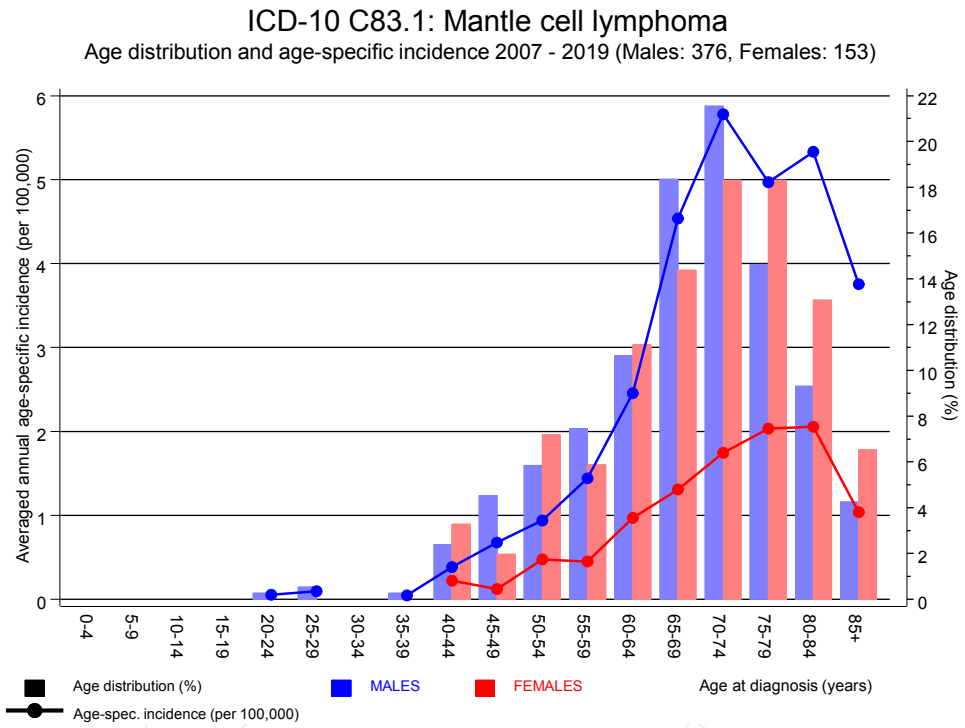


Figure 6. Age distribution (males: mean=68.1 yrs, median=69.9 yrs; females: mean=70.2 yrs, median=72.0 yrs) and age-specific incidence.

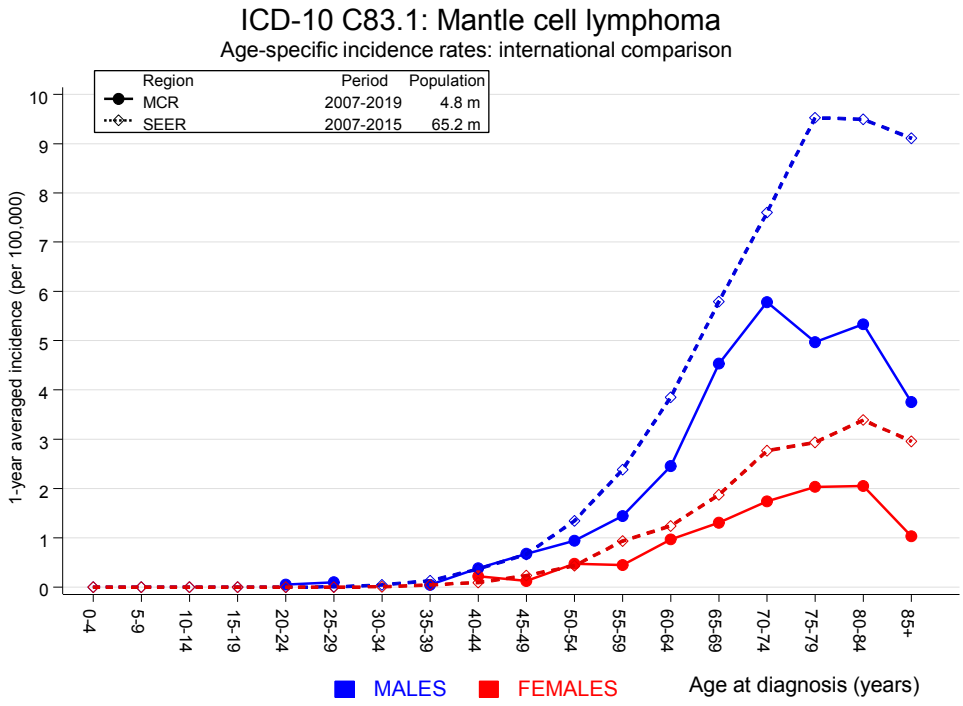


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:
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	2	0.3	7.8	0.9	28.0		8.9	
C09–C10	Oropharynx	2	0.3	6.3	0.8	22.7		8.5	
C16	Stomach	2	1.2	1.6	0.2	5.9		3.9	
C18	Colon	5	3.1	1.6	0.5	3.8		9.9	
C22	Liver	1	1.0	1.0	0.0	5.8		0.2	
C23–C24	Bile	1	0.3	2.9	0.1	16.0		3.3	
C32	Larynx	1	0.3	3.2	0.1	17.6		3.5	
C33–C34	Lung	10	3.8	2.6	1.3	4.8	#	31.4	10.0
C43	Malign. melanoma	5	1.5	3.4	1.1	8.0	#	17.9	
C46,C49	Soft tissue	1	0.2	5.6	0.1	31.4		4.2	
C48	Peritoneal	1	0.0	38.7	1.0	215.9		4.9	
C61	Prostate	13	9.0	1.4	0.8	2.5		20.1	
C64	Kidney	2	1.1	1.8	0.2	6.5		4.5	
C66	Ureter	1	0.1	11.6	0.3	64.4		4.6	
C67	Bladder	3	1.5	2.0	0.4	5.9		7.7	
C69	Eye lymphoma	1	0.0	161.0	4.1	897.2	#	5.0	
C73	Thyroid	1	0.2	4.9	0.1	27.5		4.1	
C76–C79	CUP	2	0.5	3.8	0.5	13.6		7.5	
C82–C85	NHL	1	1.4	0.7	0.0	4.1		-1.9	
C90	Mult. myeloma	1	0.4	2.3	0.1	13.0		2.9	
C91–C96	Leukaemia	3	0.5	6.1	1.3	17.9	#	12.8	
Not observed		0	5.6	0.0	0.0	0.7	#	-28.6	
All further malignancies		59	32.3	1.8	1.4	2.4	#	135.5	1.7

Patients	522
Median age at next malignancy (years)	74.8
Person-years	1968
Mean observation time (years)	3.8
Median observation time (years)	2.6

The occurrence of further specified malignancy is statistically significant.

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 %
C16	Stomach	1	0.3	3.6	0.1	20.1		10.1	
C17	Small intestine	1	0.0	22.2	0.6	124.0		13.3	
C18	Colon	3	0.8	3.8	0.8	11.1		30.8	
C25	Pancreas	1	0.4	2.5	0.1	14.2		8.5	
C33–C34	Lung	5	0.6	7.9	2.6	18.5	#	61.0	20.0
C46,C49	Soft tissue	1	0.0	21.7	0.5	121.0		13.3	
C50	Breast	5	2.5	2.0	0.7	4.7		35.0	
C82–C85	NHL	1	0.3	3.1	0.1	17.3		9.4	
C90	Mult. myeloma	1	0.1	9.9	0.2	55.0		12.5	
C91–C96	Leukaemia	1	0.1	8.2	0.2	45.5		12.2	
Not observed		0	3.0	0.0	0.0	1.2		-42.0	
All further malignancies		20	8.2	2.4	1.5	3.8	#	164.3	5.0

Patients	202
Median age at next malignancy (years)	73.3
Person-years	717
Mean observation time (years)	3.5
Median observation time (years)	2.5

The occurrence of further specified malignancy is statistically significant.

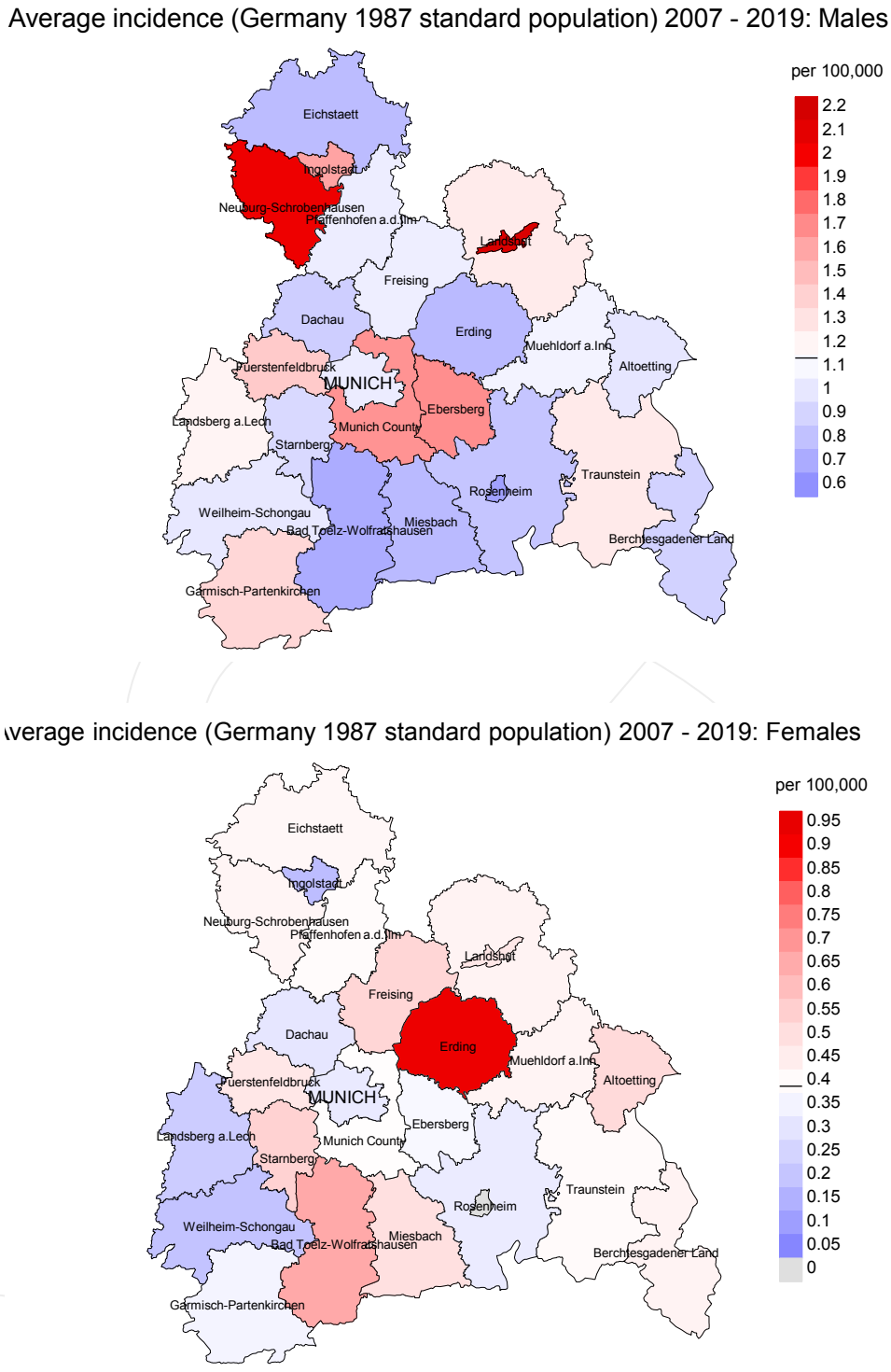
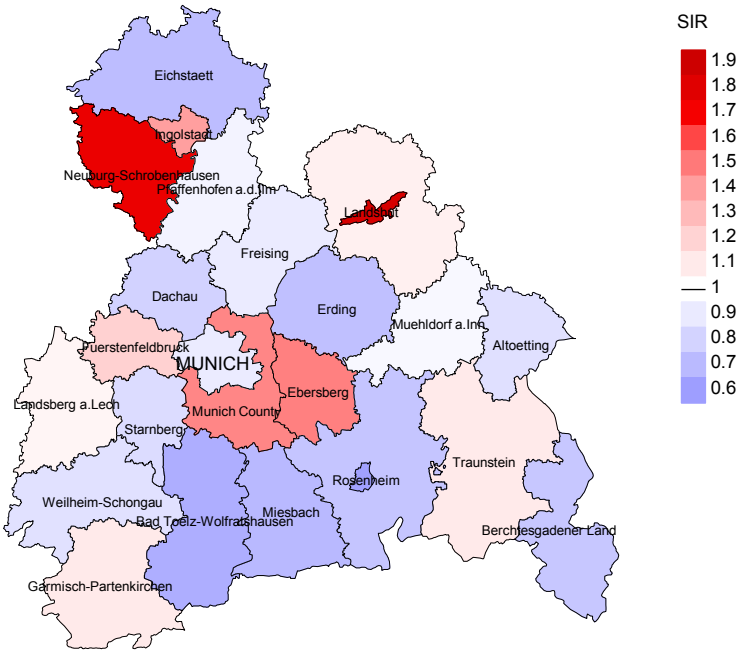


Figure 8a. Map of cancer incidence (german standard population) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.1/100,000 WS N=376, females 0.4/100,000 WS N=153).

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 4 women were identified with newly diagnosed mantle cell lymphoma. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.4/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.2/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

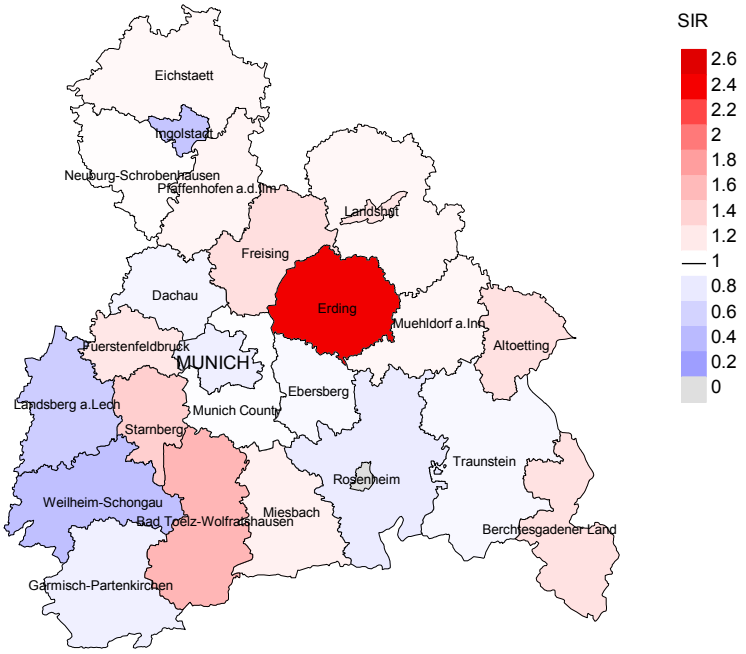


Figure 8b. Map of standardized incidence ratio (SIR) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=376, females N=153).

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 4 women were identified with newly diagnosed mantle cell lymphoma. 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 0.16 and 3.00, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status,
and deaths among the annual cohorts

(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 %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	8	100.0	7	87.5	100.0
1999	14	100.0	11	78.6	90.9
2000	18	100.0	16	88.9	100.0
2001	25	96.0	23	92.0	100.0
2002	19	100.0	14	73.7	100.0
2003	21	100.0	16	76.2	93.8
2004	33	100.0	27	81.8	100.0
2005	35	88.6	21	60.0	95.2
2006	48	97.9	35	72.9	97.1
2007	44	95.5	33	75.0	90.9
2008	43	100.0	30	69.8	100.0
2009	39	100.0	23	59.0	95.7
2010	51	100.0	36	70.6	91.7
2011	39	100.0	25	64.1	96.0
2012	45	100.0	24	53.3	87.5
2013	49	95.9	26	53.1	84.6
2014	47	100.0	24	51.1	95.8
2015	41	100.0	16	39.0	87.5
2016	45	97.8	23	51.1	73.9
2017	43	97.7	14	32.6	92.9
2018	18	100.0	5	27.8	60.0
2019	25	84.0	4	16.0	100.0
1998–2019	750	97.9	453	60.4	93.2

Table 9b

Annual cohorts of incident cancers and deaths,
and cases deceased within the same year of being diagnosed with cancer

(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	Deaths in same year n	Prop. deaths in same year %
1998	8	15		
1999	14	4	1	7.1
2000	18	11	1	5.6
2001	25	9	1	4.0
2002	19	9	1	5.3
2003	21	15	1	4.8
2004	33	24	4	12.1
2005	35	27	5	14.3
2006	48	19	2	4.2
2007	44	17	3	6.8
2008	43	33	4	9.3
2009	39	29	3	7.7
2010	51	30	4	7.8
2011	39	32	2	5.1
2012	45	33	7	15.6
2013	49	35	8	16.3
2014	47	35	6	12.8
2015	41	29	5	12.2
2016	45	37	5	11.1
2017	43	39	7	16.3
2018	18	34	2	11.1
2019	25	16	1	4.0
1998–2019	750	532	73	9.7

Table 9c

Annual cohorts of deaths, and proportion of cancer-related and non-cancer-related deaths

(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	15	73.3	26.7	100.0
1999	4	50.0	50.0	100.0
2000	11	81.8	18.2	88.9
2001	9	88.9	11.1	100.0
2002	9	88.9	11.1	100.0
2003	15	93.3	6.7	100.0
2004	24	79.2	20.8	91.7
2005	27	92.6	7.4	100.0
2006	19	94.7	5.3	100.0
2007	17	76.5	23.5	100.0
2008	33	78.8	21.2	96.8
2009	29	89.7	10.3	96.6
2010	30	90.0	10.0	100.0
2011	32	81.3	18.8	84.4
2012	33	87.9	12.1	97.0
2013	35	85.7	14.3	90.9
2014	35	85.7	14.3	94.3
2015	29	86.2	13.8	79.3
2016	37	83.8	16.2	91.9
2017	39	82.1	17.9	82.1
2018	34	50.0	50.0	66.7
2019	16	75.0	25.0	100.0
1998-2019	532	82.3	17.7	92.8

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	10	67.4	64.6	84.2	64.7
1999	4	75.8	86.1	63.3	75.8
2000	6	72.2	72.3	65.3	72.2
2001	6	66.3	66.3		66.3
2002	6	78.6	82.3	75.0	78.6
2003	13	69.2	68.1	91.9	69.2
2004	11	69.4	69.4	74.3	69.4
2005	21	73.6	72.9	83.4	73.6
2006	12	65.7	66.6	59.8	65.7
2007	14	71.0	71.9	61.2	71.0
2008	26	71.8	69.5	78.8	73.2
2009	25	75.0	75.1	69.5	75.0
2010	13	71.2	71.3	70.4	71.2
2011	22	75.5	77.3	67.6	76.4
2012	24	76.1	76.4	68.9	75.8
2013	26	73.6	71.7	85.0	73.1
2014	25	73.6	73.3	74.1	73.6
2015	21	76.5	72.9	82.8	72.5
2016	25	78.3	77.3	82.5	78.2
2017	26	77.5	77.3	87.4	76.7
2018	22	79.0	79.9	78.8	87.6
2019	15	79.3	79.3	79.3	79.1
1998–2019	373	74.0	73.6	75.6	73.6

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	5	71.9	67.7	86.6	71.9
1999					
2000	5	85.5	84.4	85.5	84.4
2001	3	77.9	76.2	88.6	77.9
2002	3	62.2	62.2		62.2
2003	2	77.9	77.9		77.9
2004	13	80.5	77.9	90.8	77.9
2005	6	73.4	73.4		73.4
2006	7	78.8	78.8		78.8
2007	3	66.7	66.7		66.7
2008	7	82.0	82.0		83.6
2009	4	76.8	71.6	81.9	74.4
2010	17	73.7	73.7	76.1	73.7
2011	10	77.8	77.2	89.1	77.2
2012	9	69.2	69.0	89.5	69.2
2013	9	81.4	81.4	81.4	81.4
2014	10	73.8	71.6	79.2	73.8
2015	8	72.1	72.1	75.5	69.0
2016	12	78.9	78.9		78.9
2017	13	82.2	81.6	92.9	80.4
2018	12	81.1	81.5	79.2	84.6
2019	1	73.7	73.7		73.7
1998–2019	159	78.5	77.3	85.0	77.9

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	7	0.6	1.40	0.4	1.34	0.6	1.34	0.6	1.34
1999	2	0.2	0.22	0.1	0.16	0.2	0.23	0.2	0.28
2000	5	0.4	0.45	0.2	0.41	0.4	0.49	0.5	0.52
2001	6	0.5	0.38	0.3	0.40	0.4	0.38	0.5	0.37
2002	5	0.3	0.31	0.1	0.22	0.2	0.28	0.4	0.41
2003	12	0.6	0.75	0.4	0.68	0.5	0.72	0.7	0.79
2004	8	0.4	0.35	0.2	0.30	0.3	0.31	0.4	0.37
2005	19	1.0	0.68	0.5	0.60	0.8	0.67	1.1	0.67
2006	11	0.6	0.31	0.3	0.33	0.5	0.32	0.6	0.32
2007	10	0.5	0.30	0.2	0.25	0.3	0.27	0.5	0.31
2008	19	0.9	0.58	0.4	0.62	0.7	0.60	0.8	0.59
2009	24	1.1	1.04	0.5	0.92	0.8	1.07	1.1	1.19
2010	12	0.5	0.35	0.2	0.30	0.3	0.32	0.5	0.35
2011	18	0.8	0.64	0.3	0.49	0.6	0.59	0.8	0.72
2012	21	0.9	0.60	0.4	0.51	0.6	0.58	0.9	0.66
2013	22	1.0	0.67	0.5	0.59	0.7	0.63	0.9	0.68
2014	21	0.9	0.58	0.4	0.48	0.6	0.51	0.8	0.59
2015	19	0.8	0.59	0.4	0.54	0.5	0.55	0.8	0.61
2016	19	0.8	0.56	0.3	0.46	0.5	0.49	0.7	0.56
2017	21	0.9	0.75	0.3	0.54	0.5	0.61	0.8	0.74
2018	9	0.4	0.69	0.1	0.63	0.2	0.69	0.3	0.66
2019	11	0.5	0.79	0.2	0.62	0.3	0.67	0.4	0.78
1998-2019	301	0.7	0.56	0.3	0.49	0.5	0.53	0.7	0.58

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	4	0.3	1.33	0.2	1.06	0.2	1.20	0.3	1.16
1999									
2000	4	0.3	0.57	0.1	0.30	0.2	0.35	0.2	0.38
2001	2	0.2	0.22	0.1	0.15	0.1	0.17	0.2	0.23
2002	3	0.2	1.00	0.1	0.68	0.1	0.70	0.1	0.88
2003	2	0.1	0.40	0.0	0.32	0.1	0.33	0.1	0.37
2004	11	0.6	1.10	0.2	0.75	0.3	0.88	0.5	1.08
2005	6	0.3	0.86	0.1	0.68	0.2	0.76	0.3	0.86
2006	7	0.3	0.58	0.1	0.47	0.2	0.53	0.3	0.56
2007	3	0.1	0.27	0.1	0.29	0.1	0.27	0.1	0.24
2008	7	0.3	0.70	0.1	0.54	0.2	0.60	0.2	0.59
2009	2	0.1	0.13	0.0	0.12	0.1	0.11	0.1	0.10
2010	15	0.6	0.88	0.2	0.60	0.4	0.66	0.5	0.83
2011	8	0.3	0.73	0.1	0.46	0.2	0.53	0.3	0.69
2012	8	0.3	0.80	0.2	0.84	0.2	0.83	0.3	0.84
2013	8	0.3	0.50	0.1	0.30	0.2	0.37	0.3	0.51
2014	9	0.4	0.82	0.1	0.64	0.2	0.69	0.3	0.83
2015	6	0.2	0.67	0.1	0.93	0.2	0.81	0.2	0.76
2016	12	0.5	1.09	0.1	0.70	0.2	0.84	0.3	0.85
2017	11	0.4	0.73	0.1	0.54	0.2	0.58	0.3	0.69
2018	8	0.3	1.60	0.1	1.03	0.1	1.16	0.2	1.29
2019	1	0.0	0.09	0.0	0.10	0.0	0.10	0.0	0.10
1998-2019	137	0.3	0.64	0.1	0.49	0.2	0.53	0.2	0.60

Table 12

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

Age at death	Cases			Males			Females		
Years	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24									
25-29	1	0.3	0.3	1	0.4	0.4			0.0
30-34	0	0.0	0.3			0.4			0.0
35-39	0	0.0	0.3			0.4			0.0
40-44	0	0.0	0.3			0.4			0.0
45-49	8	2.5	2.8	6	2.7	3.1	2	2.0	2.0
50-54	8	2.5	5.2	6	2.7	5.8	2	2.0	4.1
55-59	17	5.2	10.5	13	5.8	11.5	4	4.1	8.2
60-64	24	7.4	17.9	17	7.5	19.0	7	7.1	15.3
65-69	42	13.0	30.9	31	13.7	32.7	11	11.2	26.5
70-74	52	16.0	46.9	39	17.3	50.0	13	13.3	39.8
75-79	72	22.2	69.1	49	21.7	71.7	23	23.5	63.3
80-84	61	18.8	88.0	40	17.7	89.4	21	21.4	84.7
85+	39	12.0	100.0	24	10.6	100.0	15	15.3	100.0
All ages	324	100.0		226	100.0		98	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								
10-14								
15-19								
20-24								
25-29	1		0.0	0.50			1.2	
30-34								
35-39								
40-44								
45-49	6	2	0.2	0.35	0.1	0.67	0.4	0.1
50-54	6	2	0.3	0.27	0.1	0.18	0.2	0.1
55-59	13	4	0.7	0.46	0.2	0.44	0.3	0.1
60-64	17	7	1.0	0.43	0.4	0.41	0.3	0.2
65-69	31	11	2.0	0.45	0.7	0.50	0.4	0.2
70-74	39	13	2.8	0.48	0.8	0.46	0.4	0.2
75-79	49	23	4.4	0.89	1.7	0.82	0.4	0.3
80-84	40	21	6.1	1.14	2.2	1.05	0.4	0.2
85+	24	15	5.6	1.50	1.6	1.50	0.3	0.1
All ages	226	98					0.4	0.2
Mortality								
Raw			0.8	0.60	0.3	0.64		
WS			0.3	0.51	0.1	0.49		
ES			0.5	0.55	0.2	0.53		
BRD-S			0.7	0.61	0.2	0.60		
PYLL-70								
per 100,000			2.4		0.8			
ES			2.1		0.6			
AYLL-70			8.8		8.1			

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	1	0.8					1	100.0
C03–C06	Oral cavity	2	1.6					2	100.0
C09–C10	Oropharynx	2	1.6	1	50.0			1	50.0
C15	Oesophagus	1	0.8	1	100.0				
C16	Stomach	6	4.9	2	33.3			4	66.7
C18	Colon	13	10.6	5	38.5	4	30.8	4	30.8
C19–C20	Rectum	2	1.6	2	100.0				
C22	Liver	2	1.6					2	100.0
C23–C24	Bile	1	0.8					1	100.0
C25	Pancreas	1	0.8	1	100.0				
C32	Larynx	1	0.8					1	100.0
C33–C34	Lung	11	8.9	2	18.2	2	18.2	7	63.6
C37	Thymus	1	0.8	1	100.0				
C43	Malign. melanoma	9	7.3	5	55.6			4	44.4
C44	Skin others	22	17.9	4	18.2	3	13.6	15	68.2
C46,C49	Soft tissue	1	0.8	1	100.0				
C48	Peritoneal	1	0.8					1	100.0
C60	Penis	1	0.8					1	100.0
C61	Prostate	19	15.4	16	84.2	1	5.3	2	10.5
C64	Kidney	3	2.4	2	66.7	1	33.3		
C65	Renal pelvis	1	0.8			1	100.0		
C67	Bladder	7	5.7	3	42.9	1	14.3	3	42.9
C69	Eye lymphoma	1	0.8					1	100.0
C73	Thyroid	1	0.8	1	100.0				
C76–C79	CUP	3	2.4					3	100.0
C82–C85	NHL	5	4.1			1	20.0	4	80.0
C90	Mult. myeloma	2	1.6					2	100.0
C91–C96	Leukaemia	3	2.4			1	33.3	2	66.7
All further malignancies		123	100.0	47	38.2	15	12.2	61	49.6

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 ←%
C16	Stomach	3	5.6	1	33.3			2	66.7
C17	Small intestine	1	1.9			1	100.0		
C18	Colon	6	11.1	4	66.7			2	33.3
C19–C20	Rectum	2	3.7	2	100.0				
C25	Pancreas	1	1.9					1	100.0
C33–C34	Lung	7	13.0	1	14.3	1	14.3	5	71.4
C43	Malign. melanoma	3	5.6	2	66.7			1	33.3
C44	Skin others	7	13.0	1	14.3			6	85.7
C46,C49	Soft tissue	1	1.9					1	100.0
C50	Breast	8	14.8	4	50.0	1	12.5	3	37.5
C53	Cervix uteri	1	1.9	1	100.0				
C54	Corpus uteri	1	1.9	1	100.0				
C55,C57	Fem. genitals un	2	3.7	2	100.0				
C56	Ovary	1	1.9					1	100.0
C64	Kidney	2	3.7	2	100.0				
C81	Hodgkin lymphoma	1	1.9					1	100.0
C82–C85	NHL	7	13.0					7	100.0
All further malignancies		54	100.0	21	38.9	3	5.6	30	55.6

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.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29	1		0.0	0.50			1.3	
30-34								
35-39								
40-44								
45-49	6	2	0.2	0.35	0.1	0.67	0.5	0.1
50-54	5	1	0.2	0.25	0.0	0.11	0.2	0.0
55-59	10	4	0.5	0.40	0.2	0.50	0.3	0.1
60-64	17	7	1.0	0.46	0.4	0.47	0.3	0.2
65-69	30	10	2.0	0.52	0.6	0.63	0.4	0.2
70-74	30	10	2.1	0.50	0.6	0.45	0.4	0.2
75-79	38	17	3.4	1.06	1.2	0.74	0.5	0.2
80-84	32	15	4.9	1.45	1.5	0.88	0.5	0.2
85+	17	12	4.0	1.70	1.2	1.71	0.3	0.1
All ages	186	78					0.4	0.2
Mortality								
Raw			0.6	0.62	0.3	0.63		
WS			0.3	0.52	0.1	0.51		
ES			0.4	0.56	0.1	0.54		
BRD-S			0.6	0.64	0.2	0.59		
PYLL-70								
per 100,000			2.2		0.7			
ES			1.9		0.6			
AYLL-70			8.6		7.9			

* 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 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								
10-14								
15-19								
20-24								
25-29	1		0.0	0.50			1.3	
30-34								
35-39								
40-44								
45-49	6	2	0.2	0.35	0.1	0.67	0.5	0.1
50-54	5	1	0.2	0.25	0.0	0.11	0.2	0.0
55-59	9	4	0.5	0.38	0.2	0.50	0.3	0.1
60-64	15	7	0.9	0.42	0.4	0.50	0.3	0.2
65-69	24	7	1.6	0.52	0.4	0.50	0.4	0.1
70-74	27	8	1.9	0.53	0.5	0.42	0.3	0.1
75-79	33	16	3.0	1.14	1.2	0.76	0.4	0.2
80-84	22	12	3.4	1.38	1.2	0.80	0.3	0.2
85+	13	10	3.0	1.30	1.0	1.43	0.2	0.1
All ages	155	67					0.3	0.2
Mortality								
Raw			0.5	0.59	0.2	0.59		
WS			0.2	0.49	0.1	0.48		
ES			0.4	0.53	0.1	0.51		
BRD-S			0.5	0.60	0.2	0.55		
PYLL-70								
per 100,000			2.1		0.7			
ES			1.8		0.6			
AYLL-70			9.2		8.7			

* See corresponding tables with multiple malignancies.

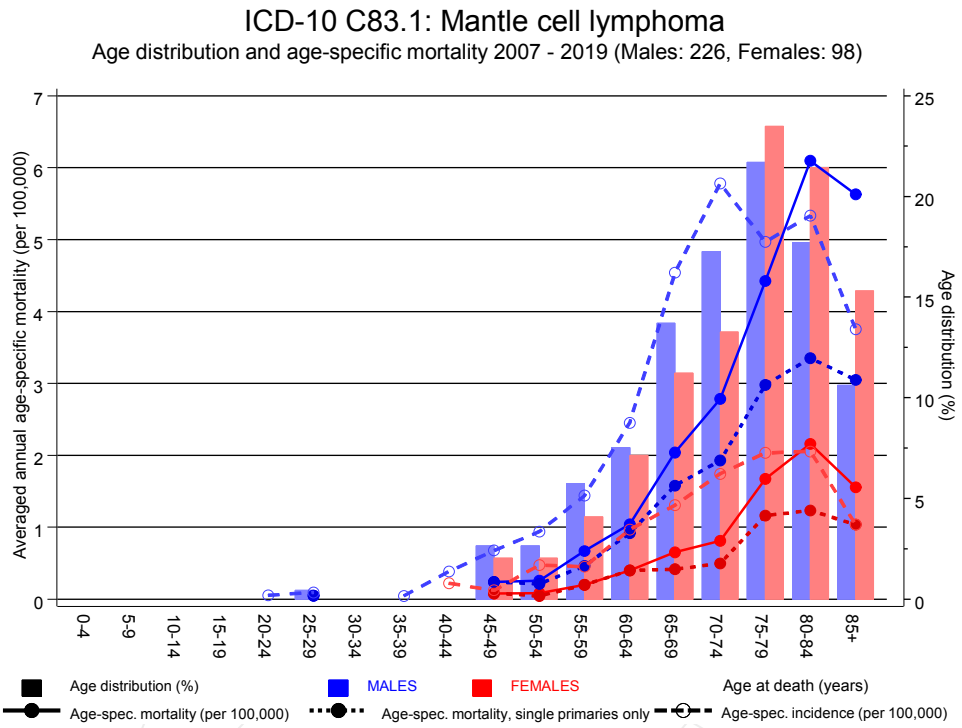


Figure 17. Distribution of age at death (bars; males: mean=69.2 yrs, median=70.9 yrs; females: mean=71.5 yrs, median=73.3 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

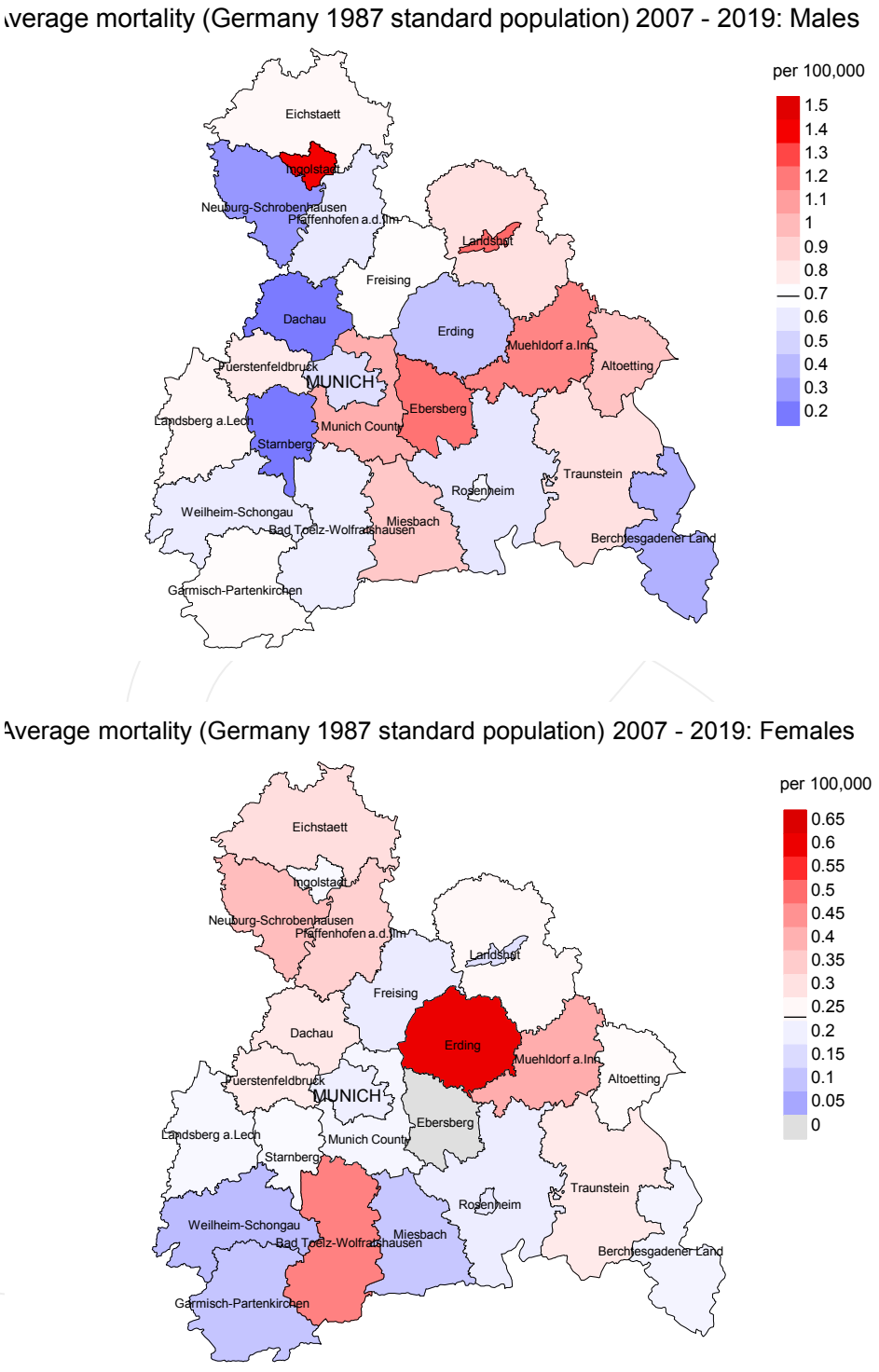
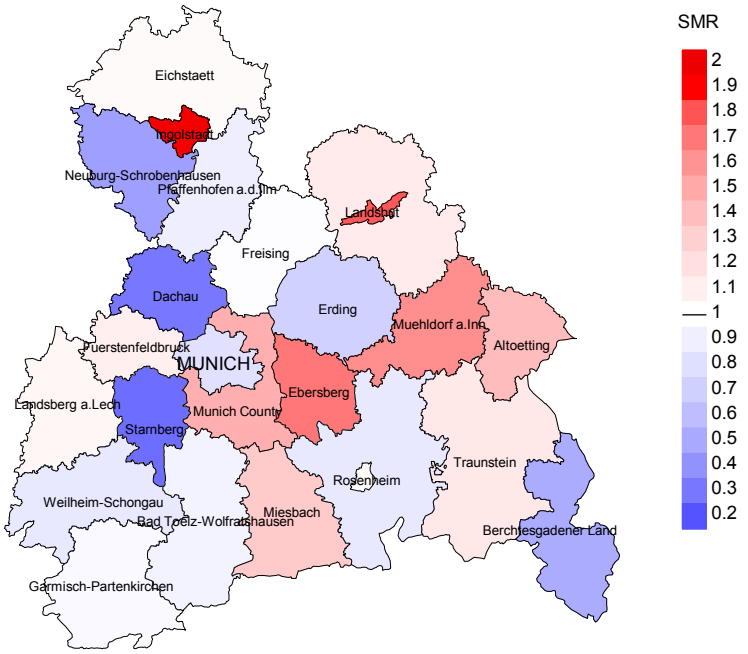


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.7/100,000 WS N=226, females 0.2/100,000 WS N=98).

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 0 women died from mantle cell lymphoma. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.0/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

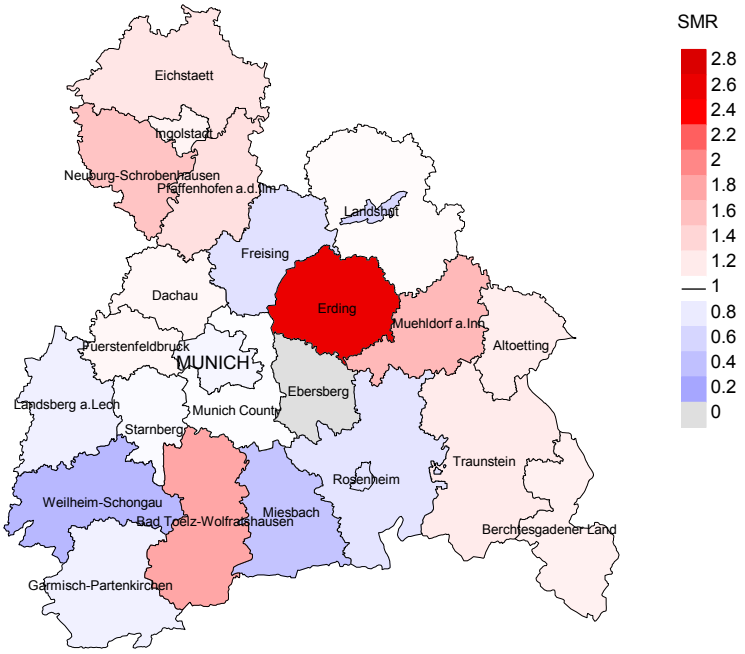


Figure 18b. Map of standardized mortality ratio (SMR) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=226, females N=98).

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 0 women died from mantle cell lymphoma. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.00. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 2.01, 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 C83.1: Mantle cell lymphoma - Incidence and Mortality [Internet]. 2021 [updated 2021 Jan 26; cited 2021 Mar 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/base/bC831_E-ICD-10-C83.1-Mantle-cell-lymphoma-incidence-and-mortality.pdf

Copyright

Disclaimer