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Cancer incidence and mortality in Poland in 2020

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Introduction. Morbidity due to malignant neoplasms has been growing steadily during the last three decades, and cancer has become the second most widespread cause of death. The aim of this article is to present a summary of the epidemiological indicators of malignant neoplasms in Poland in 2020.

Material and methods. In the following report, we present the latest estimates of morbidity and mortality from cancer in Poland in 2020–2022 and a wide range of information on the occurrence of registered cancer cases and deaths in 2020, according to sex, age, cancer site, or Polish administrative division. Cancer data was collected by the National Cancer Registry and the Central Statistical Office.

Results. The PNCR received information about 146,181 new cases and 99,871 thousand cancer deaths in 2020. Compared to the previous year, the number of cancer cases decreased by about 12,000 in both sexes.

Conclusions. An important phenomenon that appeared in 2020 was the COVID-19 pandemic. It more than likely significantly influenced cancer cases under-registration.

Key words: mortality, morbidity, neoplasms, Poland

Introduction

Cancer is an increasing health problem in Poland. The number of cases has been growing steadily during the last three decades, and cancer has become the second most common cause of death, constituting nearly one-fifth of deaths (21% of deaths in 2020 [1]). At the beginning of the 2nd decade of the the 21st century, over 1.3 million Poles were living with a cancer diagnosis and it was estimated that in 2020, for every 100,000 inhabitants – 381 people were diagnosed with cancer [2]. The aim of the article is to present a summary of the epidemiological indicators of malignant neoplasms in Poland in 2020.

Material and methods

Source of data and identification of cancer cases

Data on cancer cases are derived from the Polish National Cancer Registry. The data is collected on the basis of a unified protocol valid in the whole country, which allows us to maintain the same cancer registration rules in Poland. The source of data on deaths from cancer is the Central Statistical Office. All presented data are collected following the 10th Revision of the International Classification of Diseases and Health Problems [3].

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Statistical analysis

In this report, the basic statistical indicators were used: absolute numbers, percentages, crude and age-standardized the World Standard Population (ASW, Segi's standard [4]), revised European Standard Population (ESP2013 [5]) rates, and 5-years survival rates. Projected data for 2020–2022 were estimated based on linear regression.

Results

Overall national analysis

In Poland, cancer is still a growing social problem and is both an economic and health challenge. The most common cancers in men in 2020 were (listed as the most common):

- prostate (20%),
- lung (16%),

Table I. Cancer incidence in Poland in 2020

Cancer site	ICD-10	Absolute number	Crude rate	Stand. rate (ESP2013)	Absolute number	Crude rate	Stand. rate (ESP2013)
		males			females		
all cancers	**C00–D09**	**72,651**	**391.6**	**466.6**	**73,530**	**371.3**	**351.5**
oral cavity and pharynx	C00–C14	2,792	15.0	16.4	1 ,108	5.6	5.2
• lip	C00	168	0.9	1.2	78	0.4	0.4
• tongue	C01–C02	560	3.0	3.2	237	1.2	1.1
• pharynx	C10–C13	668	3.6	3.8	154	0.8	0.7
digestive organs	C15–C26	16,111	86.8	104.3	12,415	62.7	58.9
• oesophagus	C15	976	5.3	5.9	343	1.7	1.6
• stomach	C16	2,856	15.4	18.8	1,649	8.3	7.8
• small intestine	C17	181	1.0	1.1	166	0.8	0.8
• colon	C18	4,978	26.8	33.1	4,366	22.0	20.7
• rectosigmoid junction	C19	823	4.4	5.4	592	3.0	2.8
• rectum	C20	3,126	16.9	19.9	1,931	9.8	9.2
• anus and anal canal	C21	83	0.4	0.5	192	1.0	0.9
• colorectum	C18–C21	9,010	48.6	58.9	7,081	35.8	33.6
• liver	C22	759	4.1	4.8	505	2.6	2.4
• gallbladder and biliary tract	C23–C24	506	2.7	3.4	761	3.8	3.6
• pancreas	C25	1,747	9.4	11.0	1,808	9.1	8.6
respiratory system	C30–C39	13,318	71.8	83.7	7,776	39.3	36.4
• larynx	C32	1,499	8.1	8.9	260	1.3	1.2
• trachea and lung	C33–C34	11,534	62.2	73.1	7,309	36.9	34.2
bone and articular cartilage	C40–C41	167	0.9	0.9	145	0.7	0.7
neoplasms of skin	C43–C44	6,702	36.1	48.4	7,135	36.0	33.9
• melanoma	C43	1 565	8.4	9.9	1,680	8.5	8.1
• other neoplasms of skin	C44	5,137	27.7	38.5	5,455	27.5	25.7
mesothelial and soft tissue	C45–C49	792	4.3	4.9	679	3.4	3.3
breast	C50	113	0.6	0.7	17,511	88.4	84.4
female genital organs	C51–C58	–	–	–	10,912	55.1	52.4
• vulva and vagina	C51–C52	–	–	–	547	2.8	2.6
• cervix uteri	C53	–	–	–	1,920	9.7	9.2

→

Table I. cont. Cancer incidence in Poland in 2020

Cancer site	ICD-10	Absolute number	Crude rate	Stand. rate (ESP2013)	Absolute number	Crude rate	Stand. rate (ESP2013)
		males			females		
• corpus uteri	C54	–	–	–	5,238	26.5	25.1
• ovary	C56	–	–	–	3,012	15.2	14.6
male genital organs	C60–C63	15,691	84.6	99.3	–	–	–
• penis	C60	273	1.5	1.8	–	–	–
• prostate	C61	14,244	76.8	91.7	–	–	–
• testis	C62	1,156	6.2	5.6	–	–	–
urinary tract	C64–C68	7,826	42.2	51.0	3,466	17.5	16.5
• kidney and renal pelvis	C64–C65	2,892	15.6	17.7	1,878	9.5	9.0
• urinary bladder	C67	4,815	26.0	32.5	1,516	7.7	7.1
eye	C69	206	1.1	1.2	219	1.1	1.1
central nervous system	C70–C72	1,353	7.3	7.9	1,229	6.2	6.0
• brain	C71	1,293	7.0	7.5	1,156	5.8	5.6
endocrine glands	C73–C75	648	3.5	3.6	2,788	14.1	13.7
• thyroid gland	C73	574	3.1	3.1	2,699	13.6	13.3
ill-defined, secondary and unspecified sites	C76–C80	1 494	8.1	10.0	1,402	7.1	6.6
lymphoid, haematopoietic and related tissue	C81–C96	4,235	22.8	26.3	3,896	19.7	18.9
• Hodgkin lymphoma	C81	340	1.8	1.8	341	1.7	1.7
• non-Hodgkin lymphoma	C82–C85	1,525	8.2	9.4	1,439	7.3	6.9
• immunoproliferative diseases	C88	28	0.2	0.2	32	0.2	0.2
• multiple myeloma	C90	714	3.8	4.6	730	3.7	3.5
• lymphoid leukaemia	C91	949	5.1	6.1	712	3.6	3.5
• myeloid leukaemia	C92	550	3.0	3.4	505	2.6	2.4
• all leukaemias	C91–C95	1,610	8.7	10.2	1,322	6.7	6.4
• other and unspecified neoplasms of lymphoid, haematopoietic and related tissue	C96	18	0.1	0.1	32	0.2	0.1
primary multiple sites	C97	0	0.0	0.0	0	0.0	0.0
cancers *in situ*	D00–D09	1,203	6.5	8.1	2,849	14.4	13.7

- colon (7%),
- bladder cancers (7%).

In women, these were:

- breast (24%),
- lung (10%),
- corpus uteri (7%),
- colon (6%),
- ovarian (4%),
- thyroid cancers (4%) (tab. I).

Among the main causes of death, the most common cancer sites were lung cancer (26% in men and 18% in women), prostate cancer (11%) in men and breast cancer in women (15%) (tab. II). Detailed data on morbidity and mortality in women and men are presented in tables I and II, respectively.

Predictions for 2020 and 2022

The precise number of cancer cases in 2022 is still unknown due to collecting data method (a 2 year delay to ensure completeness of data). The prediction of the incidence in 2020 and 2022 was made based on the trend from 2010–2019. The results of the morbidity and mortality are presented in tables III and IV, respectively.

Table II. Cancer deaths in Poland in 2020

Cancer site	ICD-10	Absolute number	Crude rate	Stand. rate (ESP2013)	Absolute number	Crude rate	Stand. rate (ESP2013)
		males			females		
all cancers	**C00–D09**	**54,370**	**293.1**	**377.7**	**45,501**	**229.8**	**213.9**
oral cavity and pharynx	C00–C14	2,253	12.1	13.4	764	3.9	3.6
• lip	C00	79	0.4	0.6	37	0.2	0.2
• tongue	C01–C02	430	2.3	2.5	141	0.7	0.7
• pharynx	C10–C13	609	3.3	3.6	137	0.7	0.6
digestive organs	C15–C26	16,133	87.0	111.3	12,066	60.9	56.7
• oesophagus	C15	1,227	6.6	7.6	355	1.8	1.7
• stomach	C16	3,115	16.8	21.6	1,657	8.4	7.8
• small intestine	C17	126	0.7	0.8	105	0.5	0.5
• colon	C18	4,415	23.8	32.3	3,535	17.9	16.6
• rectosigmoid junction	C19	424	2.3	3.0	326	1.6	1.5
• rectum	C20	2,213	11.9	15.6	1,345	6.8	6.3
• anus and anal canal	C21	129	0.7	0.9	115	0.6	0.5
• colorectum	C18–C21	7,181	38.7	51.8	5,321	26.9	24.9
• liver	C22	1,265	6.8	8.3	875	4.4	4.1
• gallbladder and biliary tract	C23–C24	592	3.2	4.1	988	5.0	4.7
• pancreas	C25	2,431	13.1	15.7	2,542	12.8	12.0
respiratory system	C30–C39	15,926	85.8	104.3	8,404	42.4	39.2
• larynx	C32	1,409	7.6	8.9	195	1.0	0.9
• trachea and lung	C33–C34	14,229	76.7	93.5	8,009	40,4	37.3
bone and articular cartilage	C40–C41	167	0.9	1.1	145	0.7	0.7
neoplasms of skin	C43–C44	1,432	7.7	11.5	1,401	7.1	6.4
• melanoma	C43	762	4.1	5.4	668	3.4	3.1
• other neoplasms of skin	C44	670	3.6	6.1	733	3.7	3.3
mesothelial and soft tissue	C45–C49	570	3.1	3.7	460	2.3	2.2
breast	C50	77	0.4	0.6	6,956	35.1	32.9
female genital organs	C51–C58	–	–	–	6,811	34.4	32.3
• vulva and vagina	C51–C52	–	–	–	409	2.1	1.9
• cervix uteri	C53	–	–	–	1,511	7.6	7.2
• corpus uteri	C54	–	–	–	1,811	9.1	8.5
• ovary	C56	–	–	–	2,688	13.6	12.8
male genital organs	C60–C63	6,010	32.4	48.4	–	–	–
• penis	C60	110	0.6	0.8	–	–	–
• prostate	C61	5,748	31.0	46.7	–	–	–
• testis	C62	137	0.7	0.7	–	–	–
urinary tract	C64–C68	4,802	25.9	35.4	1,967	9.9	9.3
• kidney and renal pelvis	C64–C65	1,521	8.2	10.4	1,001	5.1	4.8

→

Table II. cont. Cancer deaths in Poland in 2020

Cancer site	ICD-10	Absolute number	Crude rate	Stand. rate (ESP2013)	Absolute number	Crude rate	Stand. rate (ESP2013)
		males			females		
• urinary bladder	C67	3,202	17.3	24.4	915	4.6	4.3
eye	C69	57	0.3	0.4	54	0.3	0.3
central nervous system	C70–C72	1,621	8.7	10.0	1,432	7.2	6.8
• brain	C71	1,571	8.5	9.7	1,365	6.9	6.5
endocrine glands	C73–C75	187	1.0	1.2	283	1.4	1.4
• thyroid gland	C73	125	0.7	0.8	222	1.1	1.1
ill-defined, secondary and unspecified sites	C76–C80	1,768	9.5	12.5	1,775	9.0	8,2
lymphoid, haematopoietic and related tissue	C81–C96	3,304	17.8	23.5	2,945	14.9	13.9
• Hodgkin lymphoma	C81	102	0.5	0.6	65	0.3	0.3
• non-Hodgkin lymphoma	C82–C85	921	5.0	6.5	769	3.9	3.6
• immunoproliferative diseases	C88	27	0.1	0.2	13	0.1	0.1
• multiple myeloma	C90	680	3.7	4.8	770	3.9	3.7
• lymphoid leukaemia	C91	706	3.8	5.3	578	2.9	2.7
• myeloid leukaemia	C92	666	3.6	4.6	586	3.0	2.8
• all leukaemias	C91–C95	1,509	8.1	11.0	1,280	6.5	6.0
• other and unspecified neoplasms of lymphoid, haematopoietic and related tissue	C96	65	0.4	0.4	48	0.2	0.2
primary multiple sites	C97	60	0.3	0.4	37	0.2	0.2
cancers *in situ*	D00–D09	3	0.0	0.0	1	0.0	0.0

Table III. Cancer cases in Poland in 2019 and estimates for 2022. Data for 2022 is estimated on the basis of the trend from 2010–2019

Cancer site	ICD-10	2019 observed			2022 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
all cancers	**C00–D09**	**85,559**	**460.75**	**563.73**	**89,699**	**490.7**	**575.4**
oesophagus	C15	1,139	6.13	6.95	1,214	6.6	7.2
stomach	C16	3,230	17.39	21.59	3,063	16.8	20.1
colorectum	C81–C21	10,397	55.99	69.92	11,155	61.0	73.2
pancreas	C25	1,920	10.34	12.16	1,868	10.2	11.7
larynx	C32	1,688	9.09	10.19	1,638	9.0	9.8
lung	C33–C34	13,819	74.42	89.24	12,659	69.2	79.8
melanoma	C43	1,749	9.42	11.28	2,073	11.3	13.1
prostate	C61	17,638	94.98	117.93	21,093	115.4	133.5
kidney	C64	3,214	17.31	19.71	3,372	18.4	20.3
urinary bladder	C67	5,482	29.52	38.04	5,696	31.2	38.3
brain	C71	1,382	7.44	8.24	1,291	7.1	7.6
Hodgkin lymphoma	C81	365	1.97	1.98	346	1.9	1.9

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Table III. cont. Cancer cases in Poland in 2019 and estimates for 2022. Data for 2022 data is estimated on the basis of the trend from 2010–2019

Cancer site	ICD-10	2019 observed			2022 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
non-Hodgkin lymphomas	C82–C85 + C96	1,682	9.06	10.71	1,732	9.5	11.0
leukaemias	C91–C95	1,995	10.74	13.06	2,044	11.2	13.1
		females					
all cancers	**C00–D09**	**85,659**	**432.25**	**413.26**	**89,815**	**459.50**	**425.99**
stomach	C16	1,870	9.44	9.01	1,862	9.53	8.77
colorectum	C81–C21	8,117	40.96	39.04	8,554	43.76	40.39
gallbladder	C23–C24	892	4.50	4.24	746	3.82	3.45
pancreas	C25	1,932	9.75	9.20	1,990	10.18	9.28
lung	C33–C34	8,480	42.79	40.15	9,198	47.06	41.97
melanoma	C43	1,940	9.79	9.41	2,282	11.67	10.95
breast	C50	19,620	99.01	95.23	20,413	104.44	97.79
cervix uteri	C53	2,407	12.15	11.58	2,085	10.67	9.87
corpus uteri	C54	6,023	30.39	29.16	6,581	33.67	31.30
ovary	C56	3,710	18.72	18.12	3,786	19.37	18.30
kidney	C64	2,000	10.09	9.75	2,108	10.78	9.95
urinary bladder	C67	1,851	9.34	8.76	2,083	10.66	9.60
brain	C71	1,172	5.91	5.72	1,115	5.70	5.42
thyroid gland	C73	3,490	17.61	17.19	4,206	21.52	20.83
Hodgkin lymphoma	C81	334	1.69	1.70	333	1.71	1.73
non-Hodgkin lymphomas	C82–C85+C96	1,702	8.59	8.21	1,722	8.81	8.18
leukaemias	C91–C95	1,567	7.91	7.67	1,637	8.37	7.86

Table IV. Cancer deaths in Poland in 2019 and estimates for 2022. Data for 2022 is estimated on the basis of the trend from 2010–2019

Cancer site	ICD-10	2019 observed			2022 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
all cancers	**C00–D09**	**54,370**	**292.8**	**382.6**	**54,601**	**298.7**	**382.2**
oesophagus	C15	1,311	7.1	8.2	1,262	6.9	7.7
stomach	C16	3,116	16.8	21.7	2,816	15.4	19.5
colorectum	C81–C21	7,047	37.9	51.9	7,357	40.2	53.6
pancreas	C25	2,435	13.1	16.1	2,455	13.4	16.2
larynx	C32	1,267	6.8	7.9	1,327	7.3	8.4
lung	C33–C34	14,921	80.4	99.7	14,383	78.7	95.0
melanoma	C43	788	4.2	5.8	812	4.4	6.1
prostate	C61	5,618	30.3	46.4	6,202	33.9	50.5

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Table IV. cont. Cancer deaths in Poland in 2019 and estimates for 2022. Data for 2022 data is estimated on the basis of the trend from 2010–2019

Cancer site	ICD-10	2019 observed			2022 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
kidney	C64	1,504	8.1	10.5	1,524	8.3	10.6
urinary bladder	C67	3,131	16.9	24.2	3,305	18.1	25.6
brain	C71	1,462	7.9	9.3	1,511	8.3	9.5
Hodgkin lymphoma	C81	89	0.5	0.5	88	0.5	0.5
non-Hodgkin lymphomas	C82–C85 + C96	1,022	5.5	7.2	1,134	6.2	8.0
leukaemias	C91–C95	1,553	8.4	11.5	1,555	8.5	11.4
		females					
all cancers	**C00–D09**	**45,954**	**231.9**	**219.3**	**47,467**	**242.8**	**221.0**
stomach	C16	1,716	8.7	8.2	1,653	8.5	7.7
colorectum	C81–C21	5,343	27.0	25.5	5,478	28.0	25.6
gallbladder	C23–C24	1,176	5.9	5.6	1,026	5.2	4.7
pancreas	C25	2,633	13.3	12.5	2,663	13.6	12.4
lung	C33–C34	8,215	41.5	38.9	9,133	46.7	41.8
melanoma	C43	676	3.4	3.2	720	3.7	3.3
breast	C50	6,951	35.1	33.3	7,549	38.6	35.5
cervix uteri	C53	1,569	7.9	7.5	1,484	7.6	6.9
corpus uteri	C54	1,859	9.4	8.9	2,214	11.3	10.3
ovary	C56	2,777	14.0	13.4	2,845	14.6	13.5
kidney	C64	947	4.8	4.5	909	4.7	4.2
urinary bladder	C67	1,017	5.1	4.8	1,082	5.5	5.0
brain	C71	1,288	6.5	6.3	1,312	6.7	6.2
thyroid gland	C73	181	0.9	0.9	231	1.2	1.1
Hodgkin lymphoma	C81	84	0.4	0.4	74	0.4	0.4
non-Hodgkin lymphomas	C82–C85+C96	882	4.5	4.2	951	4.9	4.5
leukaemias	C91–C95	1,308	6.6	6.3	1,357	6.9	6.3

It is estimated that in 2022 the number of cancer cases will increase and the most frequently diagnosed cancer in men will be:

- prostate (24%),
- lung (14%),
- colorectal cancer (C18–C21 – 12%),

and in women:

- breast (23%),
- lung (10%),
- colorectal cancer (C18–C21 – 10%).

There will be cancers, which will also be the main causes of death. Estimated incidence and death rates for the most common cancers in 2022 are presented in table V. However, a noticeable reduction in the incidence of stomach, lung and brain cancers in men and gallbladder, cervix uteri and brain cancers in women is expected. Unfortunately, in man, colorectal, prostate and bladder and in woman, lung, breast, and corpus uteri cancer-related mortality is expected to increase in 2020.

The observed number of cancer cases in 2020 compared to the predicted values is lower in all cancer groups (tab. VI). Comparing the observed mortality rates in 2020 to the expected ones, it can be seen that they are lower in almost all presented cancer groups (except for laryngeal cancer in men and brain cancer in both sexes) – table VII. Therefore, there is a noticeable change in the trend of both morbidity and mortality in 2020.

Table V. Estimated cancer cases and deaths numbers in 2022 from the most common cancers in women and men

Cancer site	Cancer cases		Cancer deaths		
	males				
all cancers	**89,699**	**100%**	**all cancers**	**54,370**	**100%**
prostate	21,093	24%	lung	14,921	27%
lung	12,659	14%	colorectum	7,047	13%
colorectum	11,155	12%	prostate	5,618	10%
urinary bladder	5,696	6%	urinary bladder	3,131	6%
kidney	3,372	4%	stomach	3,116	6%
stomach	3,063	3%	leukaemias	1,553	3%
melanoma	2,073	2%	kidney	1,504	3%
leukaemias	2,044	2%	larynx	1,267	2%
non-Hodgkin lymphomas	1,732	2%	non-Hodgkin lymphomas	1,022	2%
larynx	1,638	2%	melanoma	788	1%
	females				
all cancers	**89,815**	**100%**	**all cancers**	**47,467**	**100%**
breast	20,413	23%	lung	9,133	19%
lung	9,198	10%	breast	7,549	16%
colorectum	8,554	10%	colorectum	5,478	12%
corpus uteri	6,581	7%	ovary	2,845	6%
ovary	3,786	4%	corpus uteri	2,214	5%
melanoma	2,282	3%	stomach	1,653	3%
kidney	2,108	2%	cervix uteri	1,484	3%
cervix uteri	2,085	2%	leukaemias	1,357	3%
urinary bladder	2,083	2%	urinary bladder	1,082	2%
stomach	1,862	2%	non-Hodgkin lymphomas	951	2%
non-Hodgkin lymphomas	1,722	2%	kidney	909	2%
leukaemias	1,637	2%	melanoma	720	2%

Table VI. The incidence of the most common cancers in 2020 – observed and expected values (estimation based on the trend from 2010–2019)

Cancer site	ICD–10	2020 observed			2020 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
all cancers	**C00–D09**	**72,651**	**391.6**	**466.6**	**88,772**	**478.5**	**573.5**
oesophagus	C15	976	5.3	5.9	1,203	6.5	7.2
stomach	C16	2,856	15.4	18.8	3,252	17.5	21.5
colorectum	C81–C21	9,010	48.6	58.9	11,049	59.6	73.1
pancreas	C25	1,747	9.4	11.0	1,887	10.2	11.9
larynx	C32	1,499	8.1	8.9	1,762	9,5	10.5

→

Table VI. cont. The incidence of the most common cancers in 2020 – observed and expected values (estimation based on the trend from 2010–2019)

Cancer site	ICD–10	2020 observed			2020 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
lung	C33–C34	11,534	62.2	73.1	13,508	72.8	85.6
melanoma	C43	1,565	8.4	9.9	1,963	10.6	12.4
prostate	C61	14,244	76.8	91.7	19,333	104.2	125.0
kidney	C64	2,727	14.7	16.6	3,340	18.0	20.2
urinary bladder	C67	4,815	26.0	32.5	5,720	30.8	38.8
brain	C71	1,293	7.0	7.5	1,340	7.2	7.9
Hodgkin lymphoma	C81	354	1.9	1.9	354	1.9	1.9
non-Hodgkin lymphomas	C82–C85 + C96	1,543	8.3	9.5	1,726	9.3	10.9
leukaemias	C91–C95	1,610	8.7	10.2	2,023	10.9	13.0
		females					
all cancers	**C00–D09**	**73,530**	**371.3**	**351.5**	**88,162**	**445.21**	**419.8**
stomach	C16	1,649	8.3	7.8	1,911	9.65	9.1
colorectum	C81–C21	7,081	35.8	33.6	8,508	42.96	40.4
gallbladder	C23–C24	761	3.8	3.6	894	4.5	4.2
pancreas	C25	1,808	9.1	8.6	1,965	9.9	9.2
lung	C33–C34	7,309	36.9	34.2	8,759	44.23	40.5
melanoma	C43	1,680	8.5	8.1	2,157	10.89	10.4
breast	C50	17,511	88.4	84.4	19,907	100.53	95.7
cervix	C53	1,920	9.7	9.2	2,288	11.55	10.9
uterus	C54	5,238	26.5	25.1	6,451	32.58	30.8
ovary	C56	3,012	15.2	14.6	3,798	19.18	18.4
kidney	C64	1,755	8.9	8.4	2,093	10.57	10.0
urinary bladder	C67	1,516	7.7	7.1	1,983	10.01	9.2
brain	C71	1,156	5.8	5.6	1,179	6.0	5.7
thyroid	C73	2,699	13.6	13.3	3,848	19.4	18.9
Hodgkin lymphoma	C81	341	1.7	1.7	343	1.7	1.7
non-Hodgkin lymphomas	C82–C85 + C96	1,471	7.4	7.1	1,694	8.56	8.1
leukaemias	C91–C95	1,322	6.7	6.4	1,619	8.17	7.8

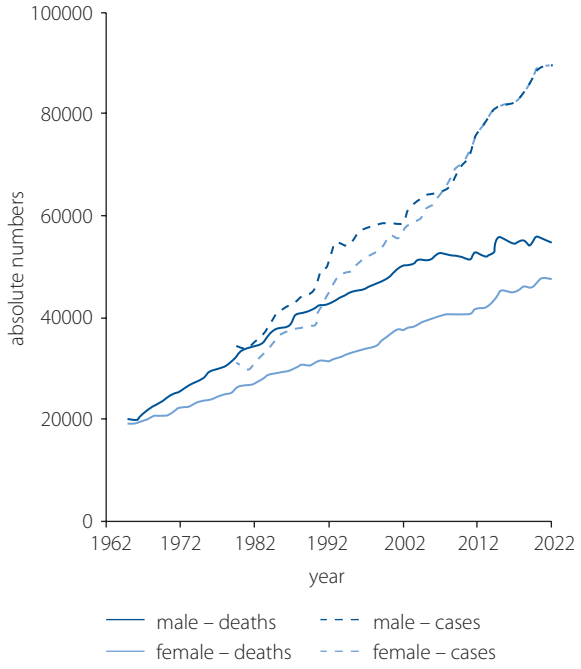
Incidence time-trends

The number of cases in men for the first three analyzed decades was higher than the number of cases in women. In 2007, this changed and the number of cases in both sexes is similar. The number of deaths in men had an upward trend until 2012, after which it stabilized. For women, the number of deaths has been steadily increasing since 1965.

The standardized rate of incidence in women and men shows an upward trend throughout the observed period. Since 1992, the trend has been flattening for men. The standardized rate of death in men had been increasing until 2002, after which it has begun to decrease. Among women throughout the observed period, the standardized death rate remains at a similar level without any particular deviations (fig. 1).

Table VII. Deaths from the most common cancers in 2020 – observed and expected values (estimation based on the trend from 2010–2019)

Cancer site	ICD-10	2020 observed			2020 expected		
		Absolute number	Crude rate	Standardized rate (ESP2013)	Absolute number	Crude rate	Standardized rate (ESP2013)
		males					
all cancers	**C00–D09**	**54,370**	**293.1**	**377.7**	**55,999**	**301.9**	**390.1**
oesophagus	C15	1,227	6.6	7.6	1,275	6.9	7.8
stomach	C16	3,115	16.8	21.6	3,062	16.5	21.2
colorectum	C81–C21	7,181	38.7	51.8	7,342	39.6	53.4
pancreas	C25	2,431	13.1	15.7	2,500	13.5	16.5
larynx	C32	1,409	7.6	8.9	1,370	7.4	8.6
lung	C33–C34	14,229	76.7	93.5	15,242	82.2	100.6
melanoma	C43	762	4.1	5.4	809	4.4	5.9
prostate	C61	5,748	31.0	46.7	6,010	32.4	48.8
kidney	C64	1,434	7.7	9.8	1,589	8.6	11.0
urinary bladder	C67	3,202	17.3	24.4	3,284	17.7	25.2
brain	C71	1,571	8.5	9.7	1,535	8.3	9.7
Hodgkin lymphoma	C81	102	0.5	0.6	94	0.5	0.6
non-Hodgkin lymphomas	C82–C85 + C96	986	5.3	6.9	1,105	6.0	7.7
leukaemias	C91–C95	1,509	8.1	11.0	1,595	8.6	11.6
		females					
all cancers	**C00–D09**	**45,501**	**229.8**	**213.9**	**47,325**	**239.0**	**221.4**
stomach	C16	1,657	8.4	7.8	1,743	8.8	8.2
colorectum	C81–C21	5,321	26.9	24.9	5,529	27.9	25.9
gallbladder	C23–C24	988	5.0	4.7	1,117	5.6	5.2
pancreas	C25	2,542	12.8	12.0	2,652	13.4	12.4
lung	C33–C34	8,009	40.4	37.3	8,719	44.0	40.3
melanoma	C43	668	3.4	3.1	719	3.6	3.3
breast	C50	6,956	35.1	32.9	7,305	36.9	34.4
cervix	C53	1,511	7.6	7.2	1,549	7.8	7.3
uterus	C54	1,811	9.1	8.5	2,039	10.3	9.5
ovary	C56	2,688	13.6	12.8	2,832	14.3	13.5
kidney	C64	946	4.8	4.5	948	4.8	4.4
urinary bladder	C67	915	4.6	4.3	1,025	5.2	4.7
brain	C71	1,365	6.9	6.5	1,351	6.8	6.5
thyroid	C73	222	1.1	1.1	226	1.1	1.1
Hodgkin lymphoma	C81	65	0.3	0.3	75	0.4	0.4
non-Hodgkin lymphomas	C82–C85 + C96	817	4.1	3.9	938	4.7	4.4
leukaemias	C91–C95	1,280	6.5	6.0	1,364	6.9	6.4



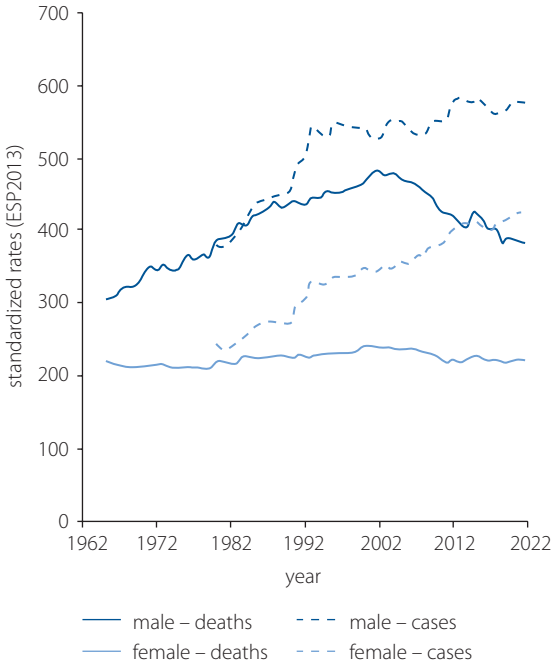
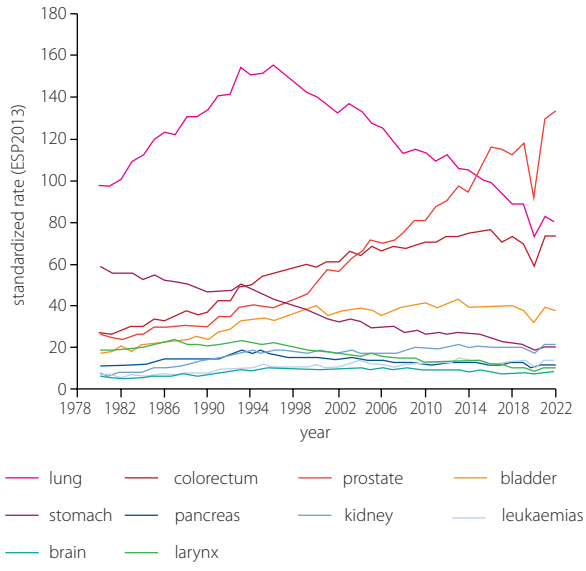


Figure 1. Cancer morbidity and mortality trends in Poland in 1965–2022*

*Values for 2021–2022 estimated based on trends in 2010–2019



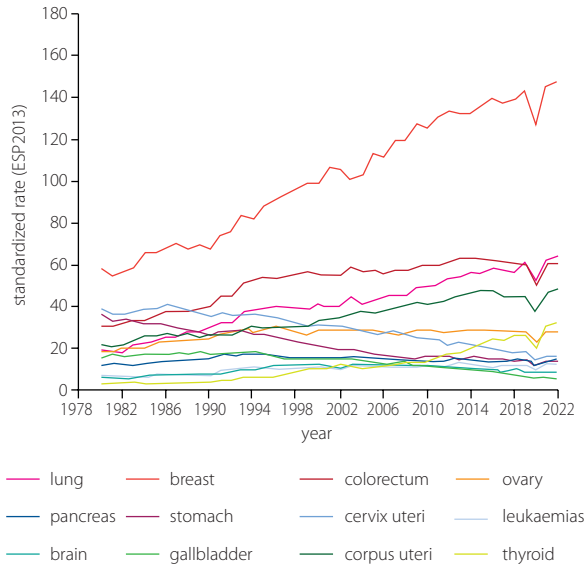


Figure 2. Incidence trends of the leading cancer sites for males, Poland 1980–2022 (2021–2022 estimation)

Figure 3. Incidence trends of the leading cancer sites for females, Poland 1980–2022 (2021–2022 estimation)

Until 2013, lung cancer was the leading cancer among men. After changing from an ascending to a declining trend in the 1990s, the continued decline led to the prostate becoming the first cancer in 2016. In third place for most of the observed time is colorectal cancer (fig. 2).

Throughout the observed period, breast cancer has been the main cancer among women. In the last 2–3 years, colorectal cancer and lung cancer rank second ex aequo; previously, colorectal cancer had a higher morbidity than lung cancer (fig. 3).

Lung cancer is the most common single cause of death in men. Lung cancer mortality had been increasing in the second part of the 20th century, but since the start of the 21st, the death rate has been declining. Colorectal cancer, the second most common cause of death, was characterized by an increasing mortality trend until the mid-first decade of the 21st century,

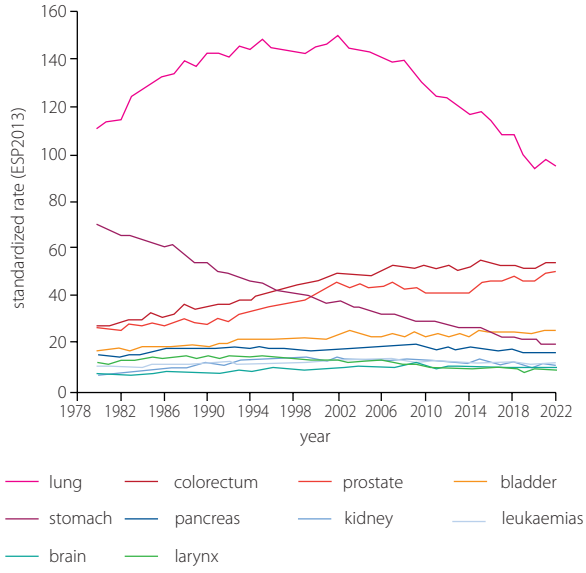


Figure 4. Mortality trends of the leading cancer sites for males, Poland 1980–2022 (2021–2022 estimation)

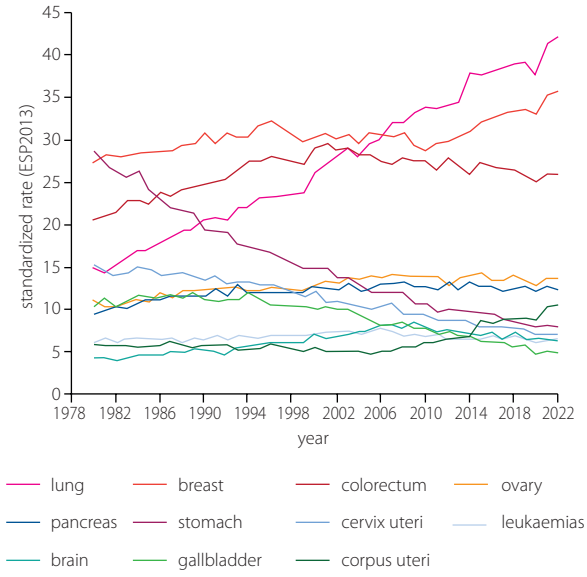


Figure 5. Mortality trends of the leading cancer sites for females, Poland 1980–2022 (2021–2022 estimation)

after which there was a clear slowdown in the growth rate. The third common cancer cause of death since the beginning of the 21st century is prostate cancer, with stabilized level of mortality (fig. 4).

Breast cancer was the most frequent cancer-related cause of death in the female population from the middle of the 1970s through the middle of the 2000s. Since 2007, cancer deaths have been most often caused by lung cancer. It is noteworthy that the decreased trend in breast cancer mortality was reversed in 2010. Lung cancer has replaced breast cancer as the top cause of cancer-related fatalities in women for more than ten years. Since the beginning of the twentieth century, the mortality rate for colorectal cancer in women has been decreasing. In the past 50 years, the mortality rate from stomach cancer has fallen by a factor of four. Additionally, over this time period, there is a declension in cervical cancer mortality (fig. 5). Stomach cancer is characterized by downward trend in both mortality and incidence throughout the observed period (about 40 years) (fig. 2–5).

Age group analysis

The incidence and mortality of malignant tumors varies with the age of the patient. In children, both among girls and boys, leukaemia is the main diagnosis. In second place are cancers of the brain and central nervous system.

In men, the incidence varies with age. Testicular cancer is the most common cancer diagnosed in young men. In the age group 45–64, the main diagnosis was lung cancer, and in older men over 65, prostate cancer. In men over 45, lung cancer remains the most common cause of death. In women over 20 years of age, the most frequently diagnosed cancer was breast cancer. Between the ages of 20 and 44, it was also the leading cause of cancer death. The highest morbidity and mortality for this cancer site were noted in patients over 65 years of age.

In adult women and men, cancers of the lungs and the second intestine were among the most frequently diagnosed causes of cancer-related deaths, regardless of age. The exact incidence and mortality values for the most common cancers by sex and age are presented in tables VIII and IX, respectively.

Spatial analysis and clustering

In 2020, among men and women, the highest cancer morbidity rates were observed in the western part of Poland, and the lowest cancer morbidity occurred in the southeastern area. In 2020, in most voivodships, the most frequent cancer in men was prostate cancer. In 15 voivodships the most lethal cancers among men are lung cancer, colorectal cancer and prostate cancer (tab. X).

Among women in all voivodships, the leading cancer site is the breast. Two patterns can be identified among the incidences. The first pattern present in mainly central and northern Poland is characterized by the second and third sites of lung cancer and colorectal cancer, respectively. Colorectal cancer takes second place and lung cancer is third in the second pattern found in the rest of Poland.

Among cancer deaths in women, two patterns also noted. In the first pattern, the most lethal is breast cancer, followed by lung cancer and it concerns the southern part of Poland and one voivodship from the eastern-northern part. In the second pattern, in the rest of the country, the situation is reversed – among cancer mortality, lung cancer leads, followed by breast cancer. In both cases, colorectal cancer ranks third among cancer deaths in women (tab. XI).

Table VIII. The incidence of the 5 most common cancer sites in Poland in 2020, depending on sex and age

Males							
age: 0–19		**age: 20–44**		**age: 45–64**		**age: 65+**	
number	**%**	**number**	**%**	**number**	**%**	**number**	**%**
all cancers		**all cancers**		**all cancers**		**all cancers**	
550		**3,578**		**21,625**		**46,898**	
leukaemias (C91–C95)		testis (C62)		lung (C33–C34)		prostate (C61)	
173	31%	914	26%	3,599	17%	10,684	23%
brain and CNS (C71–C72)		colorectum (C18–C21)		prostate (C61)		lung (C33–C34)	
85	15%	254	7%	3,540	16%	7,840	17%
non-Hodgkin lymphomas (C82–C85 + C96)		melanoma (C43)		colorectum (C18–C21)		colorectum (C18–C21)	
44	8%	238	7%	2,774	13%	5,975	13%
Hodgkin lymphoma (C81)		non-Hodgkin lymphomas (C82–C85 + C96)		urinary bladder (C67)		urinary bladder (C67)	
40	7%	231	6%	1,157	5%	3 ,008	8%
connective and soft tissue (C49)		brain and CNS (C71–C72)		kidney (C64)		stomach (C16)	
32	6%	233	6%	1,065	5%	1,911	4%
Females							
age: 0–19		**age: 20–44**		**age: 45–64**		**age: 65+**	
aumber	**%**	**number**	**%**	**number**	**%**	**number**	**%**
all cancers		**all cancers**		**all cancers**		**all cancers**	
532		**7,421**		**25,083**		**40,494**	
leukaemias (C91–C95)		breast (C50)		breast (C50)		breast (C50)	
151	28%	2,170	29%	7,790	31%	7,551	19%
brain and CNS (C71–C72)		thyroid gland (C73)		lung (C33–C34)		lung (C33–C34)	
59	11%	1,160	16%	2,160	9%	5,071	13%
Hodgkin lymphoma (C81)		cervix uteri *in situ* (D06)		corpus uteri (C54)		colorectum (C18–C21)	
53	10%	758	10%	2,154	9%	4,848	12%
thyroid gland (C73)		melanoma (C43)		colorectum (C18-C21)		corpus uteri (C54)	
46	9%	416	6%	1 ,987	8%	2,920	7%
kidney (C64)		cervix uteri (C53)		ovary (C56)		ovary (C56)	
29	5%	378	5%	1,344	5%	1,313	3%

In addition to differences in morbidity and mortality at the level of voivodeships, differences in 5-year net survival rates were also observed in Poland (diagnosis from 2015 to 2019, end point of observation on December 31, 2019). The 5-year cancer net survival rate for the whole country was 55.5%, with the highest values recorded in central and eastern Poland. In women, compared to men, higher values were found in all voivodeships (tab. XII).

Discussion

Malignant neoplasms are the second leading cause of mortality in Poland. The Polish National Cancer Registry received information about 146,181 new cases and 99,871 thousand cancer deaths in 2020. Compared to the previous year, the number of cases decreased by about 12,000 in both sexes. Mortality in men did not change compared to 2019, and in women it was decreased by about 400 events.

Table IX. The mortality of the 5 most common cancer sites in Poland in 2020, depending on sex and age

Males							
age: 0–19		age: 20–44		age: 45–64		age: 65+	
number	%	number	%	number	%	number	%
all cancers		all cancers		all cancers		all cancers	
113		1,038		13,917		39,302	
brain and CNS (C71–C72)		brain and CNS (C71–C72)		lung (C33–C34)		lung (C33–C34)	
47	42%	146	14%	4,001	29%	10,151	26%
leukaemias (C91–C95)		colorectum (C18–C21)		colorectum (C18–C21)		colorectum (C18–C21)	
23	20%	100	10%	1,550	11%	5,531	14%
connective and soft tissue (C49)		lung (C33–C34)		stomach (C16)		prostate (C61)	
9	8%	77	7%	839	6%	5,249	13%
bone and articular cartilage (C40–C41)		testis (C62)		pancreas (C25)		urinary bladder (C67)	
6	5%	73	7%	798	6%	2,679	7%
peripheral nerves and autonomic nervous system (C47)		stomach (C16)		brain and CNS (C71–C72)		stomach (C16)	
6	5%	70	7%	599	4%	2,206	6%
Females							
age: 0–19		age: 20–44		age: 45–64		age: 65+	
number	%	number	%	number	%	number	%
all cancers		all cancers		all cancers		all cancers	
78		1,133		10,500		33,790	
brain and CNS (C71–C72)		breast (C50)		lung (C33–C34)		lung (C33–C34)	
24	31%	328	29%	2,097	20%	5,869	17%
leukaemias (C91–C95)		colorectum (C18–C21)		breast (C50)		breast (C50)	
21	27%	105	9%	1,881	18%	4,747	14%
connective and soft tissue (C49)		cervix uteri (C53)		colorectum (C18–C21)		colorectum (C18–C21)	
12	15%	99	9%	972	9%	4,244	13%
bone and articular cartilage (C40–C41)		ovary (C56)		ovary (C56)		pancreas (C25)	
6	8%	88	8%	916	9%	1,952	6%
kidney (C64)		brain and CNS (C71–C72)		cervix uteri (C53)		ovary (C56)	
4	5%	86	8%	568	5%	1,683	5%

The most common male cancer is prostate cancer (almost 20% of all male cancers). The death rate for prostate cancer has been increasing year by year since 2004.

The second most common cancer among men is lung cancer (16% of all cases), despite the fact that they have been showing a decreasing trend in mortality and morbidity rates for 15 years. Right behind colorectal cancer, in third place is colorectal cancer (11% of all cases). The decrease in incidence and mortality of lung cancer can be attributed to the noticeable reduction of smoking prevalence among Polish men, which has been observed in recent decades. Despite the decrease in the mortality rate, lung cancer is still the dominant cause of male cancer death (26% of all cases), significantly affecting the all cancer mortality curve.

Among women, the three most common cancer sites are: breast, lung and colorectum. The most fatal cancer for this group was lung cancer (18%), followed by breast cancer (15%), which for the last 10 years has been on an upward trend.

Table X. Standardized rates of morbidity and mortality for the most common malignant neoplasms in men in Poland in 2020 by voivodships

Voivodship	All cancers	Stomach	Colorectum[1]	Pancreas	Lung	Melanoma	Prostate	Kidney	Bladder	non-Hodgkin lymphomas[2]	Leukaemias[3]
	incidence rates (ESP2013)										
Dolnośląskie	516.4	20.3	66.9	14.2	80.2	11.3	94.4	19.6	43.0	9.9	12.6
Kujawsko-pomorskie	540.2	22.0	68.6	11.8	101.0	10.5	101.0	23.6	40.9	9.0	6.4
Lubelskie	448.0	16.7	58.0	10.5	62.8	9.0	89.2	17.3	35.6	8.6	10.9
Lubuskie	421.5	16.6	55.3	10.1	60.7	5.6	94.3	18.2	42.7	6.7	8.5
Łódzkie	430.0	20.2	57.2	10.1	69.4	12.1	78.3	13.3	22.5	9.9	17.6
Małopolskie	406.0	15.8	45.6	8.7	67.5	8.5	81.0	10.9	22.3	8.5	9.1
Mazowieckie	401.3	16.4	51.1	10.8	63.7	11.2	71.9	15.0	24.3	11.1	7.4
Opolskie	458.8	15.4	55.3	10.6	65.2	7.7	89.0	16.3	37.2	7.1	7.5
Podkarpackie	467.8	22.4	60.9	11.2	60.9	10.7	84.5	17.1	26.3	11.0	13.0
Podlaskie	420.7	17.8	65.0	9.7	58.1	9.8	92.7	18.5	32.1	7.9	6.7
Pomorskie	465.5	15.7	48.5	9.1	77.4	7.8	103.6	19.7	39.8	10.2	6.5
Śląskie	522.0	22.9	65.2	11.4	82.1	8.6	117.1	16.4	33.9	9.5	10.7
Świętokrzyskie	479.3	15.6	52.4	12.3	72.2	11.7	93.3	13.6	42.0	11.9	15.2
Warmińsko-mazurskie	480.1	22.5	65.6	9.4	88.6	10.1	79.8	14.8	36.1	9.1	15.3
Wielkopolskie	545.7	18.9	75.0	13.8	79.4	10.0	105.4	20.4	32.0	10.4	10.1
Zachodniopomorskie	430.2	17.6	50.6	7.7	67.1	11.4	83.2	13.8	38.4	5.2	7.5
Poland	**466.6**	**18.8**	**58.9**	**11.0**	**73.1**	**9.9**	**91.7**	**16.6**	**32.5**	**9.5**	**10.2**
	mortality rates (ESP2013)										
Dolnośląskie	419.6	24.7	58.8	17.0	105.9	4.8	53.5	14.8	28.3	6.8	11.0
Kujawsko-pomorskie	416.6	24.4	62.7	16.0	106.0	6.0	49.8	8.8	29.3	7.7	11.7
Lubelskie	350.4	21.2	45.1	14.1	95.4	4.2	40.8	9.8	19.0	7.1	11.6
Lubuskie	396.2	23.8	53.9	16.9	101.9	6.8	53.0	10.3	29.2	5.7	6.5
Łódzkie	365.4	20.7	47.5	13.1	91.5	7.9	42.7	8.7	24.8	5.0	13.0
Małopolskie	367.0	21.6	47.5	14.4	85.6	6.1	43.2	9.9	25.1	6.5	11.8
Mazowieckie	363.3	18.5	48.5	15.1	92.0	5.8	47.4	8.7	22.2	7.3	9.3
Opolskie	351.5	17.4	56.1	15.3	75.9	3.7	38.0	10.7	25.6	5.5	10.6
Podkarpackie	323.8	21.1	44.0	16.3	65.0	5.0	48.4	7.5	20.7	8.2	11.5
Podlaskie	351.5	15.8	52.8	14.4	93.5	6.1	44.7	10.7	22.0	5.3	11.9
Pomorskie	383.8	21.5	49.1	18.4	100.0	4.9	48.4	10.8	24.7	7.8	9.0
Śląskie	373.4	23.2	52.9	15.5	84.3	4.8	46.4	9.5	22.6	6.1	10.8
Świętokrzyskie	350.8	20.5	44.1	14.6	92.1	5.2	42.3	7.4	21.1	6.7	10.6
Warmińsko-mazurskie	391.7	25.4	53.2	13.1	97.1	3.1	49.2	10.6	26.0	12.1	12.0
Wielkopolskie	429.9	24.9	63.4	18.2	112.5	5.2	49.9	10.2	28.4	7.8	11.6
Zachodniopomorskie	389.9	20.3	51.3	18.0	100.0	5.1	44.8	9.4	26.0	5.6	12.4
Poland	**377.7**	**21.6**	**51.8**	**15.7**	**93.5**	**5.4**	**46.7**	**9.8**	**24.4**	**6.9**	**11.0**

[1] colorectum C18–C21; [2] non-Hodgkin lymphomas C82–C85 + C96; [3] leukaemias C91–C95

Table XI. Standardized rates of morbidity and mortality for the most common malignant neoplasms in women in Poland in 2020 by voivodships

Voivodship	All cancers	Colorectum[1]	Lung	Breast	Cervix uteri	Corpus uteri	Ovary	Kidney	Bladder	non-Hodgkin lymphomas[2]	Leukaemias[3]
	incidence rates (ESP2013)										
Dolnośląskie	388.4	38.8	42.0	90.4	10.6	26.1	15.3	8.0	8.6	7.4	8.8
Kujawsko-pomorskie	421.1	38.4	45.5	89.8	8.6	28.0	17.1	11.8	8.0	8.5	4.3
Lubelskie	322.3	32.6	24.8	74.2	9.2	25.9	14.3	7.2	6.3	6.5	5.7
Lubuskie	319.9	32.2	36.9	77.0	10.3	22.0	17.2	10.1	9.2	3.8	4.8
Łódzkie	343.0	31.2	33.2	91.3	9.6	24.5	16.5	6.1	5.0	7.3	12.1
Małopolskie	293.7	24.2	25.4	60.8	9.0	26.1	12.9	6.1	4.0	6.8	5.7
Mazowieckie	322.4	26.2	32.5	92.2	6.9	20.9	10.5	7.5	5.5	7.8	4.0
Opolskie	308.8	32.4	27.3	67.5	10.7	24.6	13.6	8.2	7.9	4.,4	5.6
Podkarpackie	335.4	31.1	21.0	70.3	6.0	28.9	15.7	8.5	4.6	7.4	8.1
Podlaskie	343.0	35.7	22.4	84.4	11.0	27.2	15.8	8.6	9.0	5.5	5.4
Pomorskie	328.5	28.9	40.3	80.9	8.3	15.9	13.2	9.2	10.1	5.8	3.0
Śląskie	382.4	43.0	38.2	88.4	11.8	32.8	18.5	9.3	8.6	7.2	7.0
Świętokrzyskie	336.5	33.4	26.9	75.0	9.3	24.8	14.2	7.8	8.2	6.1	8.3
Warmińsko-mazurskie	360.0	35.3	42.4	79.9	10.0	19.7	14.2	10.0	7.2	7.3	9.1
Wielkopolskie	408.2	41.3	37.0	101.3	9.7	26.4	14.2	10.1	7.3	9.1	7.0
Zachodniopomorskie	364.0	32.1	42.6	92.2	8.8	19.1	13.2	9.5	10.3	5.1	4.5
Poland	**351.5**	**33.6**	**34.2**	**84.4**	**9.2**	**25.1**	**14.6**	**8.4**	**7.1**	**7.1**	**6.4**
	mortality rates (ESP2013)										
Dolnośląskie	233.1	27.5	46.9	32.1	7.3	7.7	12.3	4.1	5.4	3.1	6.4
Kujawsko-pomorskie	234.5	27.9	47.2	36.1	7.2	10.1	14.0	4.9	6.7	4.7	5.7
Lubelskie	179.0	21.3	29.7	24.3	5.6	6.4	11.1	4.5	3.1	3.9	6.3
Lubuskie	234.2	26.5	49.9	34.0	8.4	7.7	12.0	6.6	3.7	3.5	6.5
Łódzkie	219.1	24.8	37.2	36.1	7.2	8.8	14.9	3.8	4.1	3.2	6.9
Małopolskie	205.3	25.6	29.0	31.4	6.1	8.2	11.7	3.7	4.9	4.1	5.1
Mazowieckie	215.1	24.4	37.6	34.5	6.7	10.6	12.4	3.8	3.7	4.1	5.9
Opolskie	187.3	25.2	28.2	25.3	8.6	6.1	12.6	4.7	3.0	2.7	5.0
Podkarpackie	172.2	20.7	21.3	26.0	5.9	8.5	12.4	3.8	3.0	3.8	6.1
Podlaskie	197.1	23.2	30.2	30.5	6.3	8.0	14.3	6.6	3.6	3.3	5.8
Pomorskie	211.6	23.3	45.0	28.5	6.6	7.3	11.1	3.5	4.6	3.4	6.4
Śląskie	223.9	25.7	35.3	35.9	8.2	8.7	14.3	4.8	3.6	3.9	5.9
Świętokrzyskie	186.9	21.4	31.8	27.4	6.4	8.3	12.7	4.3	4.2	2.9	4.8
Warmińsko-mazurskie	216.2	24.5	37.9	34.6	11.0	6.9	10.6	6.1	3.5	7.6	6.8
Wielkopolskie	242.2	28.3	42.5	40.9	7.7	9.2	13.8	5.6	5.6	4.0	6.5
Zachodniopomorskie	211.2	23.8	44.4	31.0	8.0	8.2	11.8	5.6	4.7	3.4	6.3
Poland	**213.9**	**24.9**	**37.3**	**32.9**	**7.2**	**8.5**	**12.8**	**4.5**	**4.3**	**3.9**	**6.0**

[1] colorectum C18–C21; [2] non-Hodgkin lymphomas C82–C85 + C96; [3] leukaemias C91–C95

Table XII. Geographical distribution of 5-year cancer rate in both sexes (2015–2019)

Voivodship	Geographical distribution of 5-year cancer survival rate (%)	
	males	female
Dolnośląskie	48.8%	57%
Kujawsko-pomorskie	50.5%	55.3%
Lubelskie	53.4%	60.8%
Lubuskie	51.8%	58.7%
Łódzkie	51.1%	61.6%
Małopolskie	53%	59.4%
Mazowieckie	55.1%	61.5%
Opolskie	49%	58.7%
Podkarpackie	55%	61.5%
Podlaskie	50.7%	60%
Pomorskie	57.3%	61.8%
Śląskie	48.9%	55.6%
Świętokrzyskie	50.8%	58.8%
Warmińsko-mazurskie	47.3%	57%
Wielkopolskie	48.9%	56.7%
Zachodniopomorskie	50.3%	59.8%
Poland	**51.6%**	**58.9%**

Poland's cancer incidence and death trends are influenced by the population's age distribution and exposure to carcinogens, particularly cigarette smoking (female population) and poor diet. In 2020, there were more than 1000 more female lung cancer deaths than breast cancer deaths.

The Polish National Cancer Registry has received fewer incident cancer cases in 2020 than in 2019 as a result of the COVID-19 pandemic, there was a decrease of 15% for men and 14% for women. The COVID-19 pandemic (ICD-10 U07.1, U07.2) caused 41,451 deaths in Poland in 2020. 7,043 (17%) of COVID-19 deaths were related to cancer, with men accounting for 61% of these deaths [6]. The COVID-19 pandemic has resulted in limitations in performing planned procedures and diagnostic possibilities in both screening and early diagnosis [6]. It can be seen that the COVID-19 pandemic has significantly changed the trend of cancer detection in Poland, and further effects of this phenomenon will be observed in the coming years.

Conclusions

The decrease in the incidence of cancer in 2020 was probably related to the occurrence of the COVID-19 pandemic. At that time, access to public health care was limited due to the reduction of patient admission in clinics, the development of telemedicine instead of a conventional doctor's visit, and the transformation of hospitals into specialist hospitals treating only COVID-19, which could have influenced the postponement of the diagnosis of cancer.

Malignant neoplasms constitute a significant health problem, especially in young and middle-aged individuals (25–64 years old). In 2020, the most frequently diagnosed cancers among men in Poland were prostate, lung and colorectal cancers. In the female population, leading cancer sites still remain: breast, lung and colorectum. The highest mortality was observed due to lung cancer, colorectal cancer and, depending on sex, prostate or breast cancer.

Strengths and limitations of the report

The analysis covers the entire population of Poland and is the best source of data on the incidence of cancer. Registration of cancers in the Polish National Cancer Registry (PNCR) is obligatory, which allows for high completeness of data. Unfortunately, the year 2020 caused disturbances in the functioning of health care facilities, which was reflected in the number of applications to the PNCR.

Data availability

The presented data come from the Polish National Cancer Registry (PNCR) and is available at https://onkologia.org.pl/.

Conflict of interest: none declared

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