Population-based cancer registry

Results of the 4-years implementation

Georgia

2015–2018

Introduction

Since January 1, 2015, Georgia has started implementation of the Population Cancer Registry, in order to improve the epidemiological surveillance of cancer. This was a significant step in the right direction. The existence of a cancer register is one of the most important features of the healthcare system. Such registries are implemented in all developed and in many developing countries.

The introduction of the cancer registry changed existed data collection technology: a personalized data system was implemented; The registration has been developing for four years, the quality and quality of data quality is improving, but there are still some challenges that are the basis for future activities.

This publication includes analysis of the data collected by the Cancer Registry in 2015 - 2018.

Content

Summary

I. Cancer registry, basic statistics, 2015-2018

1. In 2015-2018, the number of new cancer cases (including tumors in situ) varies from ~9500 to 11000. In 2018, a total of 9635 new cases of cancer of all sites were registered (incidence rate per 100,000 population - 258.5).
2. Incidence rates of almost all sites of cancer in males and females are smaller, compared to the indicators of the European region and the EU countries, and are approaching the average value for the CIS countries
3. 56-57% of all cancer cases were reported in females, 43-44% - in males.
4. About 70% of new cases are registered in the working age population (30 to 70 years of the age), a quarter of cases in the population aged over 70 years. One percent of cases occur in the population aged under-15 and 15 - 20 years. The share of new cancer cases in women of reproductive age (15-49 years) is 24-27%.
5. The top five sites of cancer in women are the following: breast, thyroid gland, colorectum, corpus uterus, cervix uteri.
6. Thyroid gland cancers are the second frequent among all new cases of cancers, registered in women. As a result, since 2015, on the background of decrease of the number of new cases of all sites cancer, the number of female thyroid cancer, and the incidence rate per 100,000 population have been increased (2015 - 33.5, 2016 - 42.8, 2017 – 40.8, 2018 – 48.3). Also the share of thyroid cancer in the new cases of all sites cancers in women has increased from 10% to 15%. In women, thyroid cancer is registered in almost all age groups. In 2018, 57 new cases of thyroid gland cancer were registered in women aged under-25 years (in 2015 - 41, in 2016 – 50, in 2017 – 55), this is 51.8% of all new cases of cancer registered this age group. Increase of the thyroid gland cancer in females is general in the world and can be somehow linked to the modern diagnostic technologies.

In most areas of the world, thyroid cancer incidence has been appreciably increasing over the last few decades, whereas mortality has steadily declined. The rise is mainly occurred among women's populations. They distinguish four histological groups of TGC (thyroid gland cancer): papillary, follicular, medullary, or anaplastic; increasing of MDF morbidity is largely due to the increase in the histologic type of papillary (non-aggressive, characterized by slow growth) microcarstinoma, which is the best predictor.

Countries with female morbidity more than 10 cases per 100,000 females are considered as countries with high morbidity. In Georgia, according to the Population Cancer Registry, the above mentioned indicator is 48 per 100,000 females (2018). Globally, the TGC males-to-females ratio is about 1: 3.3, while imbalance in Georgia is much more than 1: 6.

During the last decades, increasing tendency of thyroid cancer could not be explained only by improved detection of disease. Increasing incidence is supposedly related with two co-existing factors: improved detection and real increase of cases, caused by unknown environmental thyroid-specific cancerogens (identification and evaluation of their role is not available till now)[1] . If the improvement of detection is the only cause of the increased morbidity, then it is expected that this phenomenum is equally likely to be revealed in all age and sex categories. In case of thyroid gland cancer, there is a difference between sex and age groups.

[1] Vigneri R, Malandrino P, Vigneri P. The changing epidemiology of thyroid cancer: why is incidence increasing? Cur Opin Oncol. 2015 Jan;27(1):1-7

Recommendation: in Georgia, thyroid gland cancer requires special discussions with participation of national and international experts.

7. Lung, prostate, urinary bladder, colorectum, and larinx cancers are the top five sites in men

8. In 2018 about 41% of all sites cancers are registered at the first and second stages; 40% - at the III and IV stages; for rest percents of cases a stage was not identified***.***

Recommendation: *Increasing awareness of population of the importance of cancer screening is necessary, and, in addition, high oncological vigilance (knowledge of early symptoms) of sites, which are not screened but have got high morbidity. It is necessary at the expert level to review and change a format of the state screening program, including of the primary health care in screening programs*

Cancer diagnosis. According to the registry, in 89% of cases the diagnosis was confirmed histomorphologically or cytologically.

According to the information provided by the Georgian Association of Pathologists and Cytologists, 60% of laboratory laboratories in the country are working using automatic mode, 20% - in half automatic mode, and 20% still uses a manual mode of processing (in 2014, 30% of laboratories worked in automatic mode, the rest - in the manual mode). Ander the agreement with the Ministry of Health, Tbilisi State Medical University has increased annual quota in the residency program for pathologists. Now up to seven residents will be trained (in 2014, the quota considered training of one resident). The first time during the last 20 years, the Ministry of Health, with support of the Association of Pathologists and Cytologists of Georgia, has developed an order on the necessity of certification of histopathological laboratories, which has been inforced since 2018. The first time In Georgia, in certification conditions, an existence of quality control of diagnostics and laboratory activity are mentioned.

Recommendation: *Support of increasing of regional accessebility of pathological diagnostics.*

9. **Cancer treatment.** In Georgia, according to the US National Cancer Institute[2] estimates (the methodology provided by the International Atomic Energy Agency (IAEA) was used for calculations), 51% of new cases of cancer require surgery, 72% chemotherapy, and 57% radiotherapy. According to the Population Cancer Registry, surgery was carried out in 54.7% of new cases, chemotherapy – in 32.6%, radiotherapy – in 16.4%.

According to the National Cancer Institute, the shares of new cases of cancer that require different types of medical services are as follows:

[2] Human Resources Needed for Cancer Control in Low & Middle Income Countries. National Cancer Institute. Radiation Research Program

Country	**Surgery (%)**	**Chemotherapy (%)**	***Radiotherapy (%)***
Armenia	42	67	52
Belarus	51	70	55
Lithuania	51	75	60
Moldova	65	74	59
Russia	51	70	55
Uzbekistan	42	71	56
Turkey	51	75	60
Range (all mentioned country)	42–65	67–75	52–60

The table shows a high variation in the need of surgical interventions by countries. The need for surgical intervention is correlated with the stage at the moment of diagnosis - in the case of early detection the need for surgery is high.

At present, several adequately equipped departments with appropriate personnel and quality control are operating in Georgia, which provide radiation therapy service for oncological patients. The most of radio-therapy machines are gathered in Tbilisi, capital city of Georgia: seven linear accelerators, four brachytherapy, and two cobalt distance beam radiation therapy equipment; in addition, two linear accelerators are functioning in the west part of the country, in Kutaisi and Batumi – single machines in each city, that supports regional accessibility to radio-therapy.

In Georgia, with implemention nuclear medicine, all types of services are provided to cancer patients: conventional nuclear diagnostics using technetium TN-99m, radiotherapy, and positron emission tomography (PET-SCANING).

Recommendation:

- *Assessment of using of effective methods of treatment (chemistry and radiotherapy), and the affecting factors is necessary.*
- *Coordination with the experts panel on the implementation of treatment methods.*
- *Coordination with the state universal insurance program (comparison of data on treatment methods implemented).*

II. Achievements related to the implementation of cancer registry

II.1 Improvement of statistics

A complete and accurate information on cancer morbidity determines the importance of cancer registry, which enables cancer control, epidemiological studies, public health programs planning, and assessment of prevention and treatment methods. Prior to introduction of the cancer registry, cancer data collection in Georgia had got significant shortcomings, which led to the distortion of the real picture. International organizations such as the International Agency for Research on Cancer (IARC) and the Washington University Institute for Health Metrics and Evaluation (IHME) are comparing morbidity of different diseases, including cancer, for different countries. For Georgia, the incidence rate of all cancers was estimated as 280 per 100,000 population. However, until 2015, incidence rate, registered in the country, was only 140 per 100,000 population. The introduction of the cancer registry and changes in the data collection concept caused a sharp difference between the data from previous years and the cases registered by the registry. The incidence rate became close to estimates. This increase was not caused by a real growth of the number of new cases but, rather, by the improved registration.

Recommendation: *It is necessary to organize a monitoring of data collection, including completeness of data, field visits, human resource retrainings, a comparison with oncological component data of the universal healthcare program, etc.*

II.2 Improvement of analytical capabilities

The cancer entry includes personalized data, which enables researches for extended analysis of data according to the following characteristics: gender, age, place of residence, place of received service, service providing institution; tumor site, morphology, degree of differentiation, stage, type of confirmation, treatment method / methods, outcome.

Recommendation: *For the purpose of enabling the quality of analysis it is recommended to establish a panel of experts, which will include public health specialists and clinicians.*

II.3 Supervision of the treatment process

The advantage of the population cancer registry is an ability of supervision of the stages of treatment for each of the diseases over the time. This provides a basis for analysis of the effectiveness of the treatment. Each patient is described by a separate window, which includes the data about him. Each subsequent stage of treatment is added to the patient's window and enables supervision of the full course of treatment by treatment methods and dates.

Recommendation: *Based on the supervision capabilities it is necessary to establish permanent monitoring and data comparison.*

II.4 The opportunities of geographical distribution

For the first time, using the population cancer registry, analysis by the geographical distribution according to the place of residence (instead of place of service provision) became possible.

Recommendation: *conducting in-depth analysis to identify environmental and other risk-factors.*

III. Chalenges related to the implamentation of the Cancer Registry

III.1 Quality of reporting

According to the registry data, in 2016-2017 the number of annually registered new cases is decreasing, in 2018 number of new cases insignificantly increased. On one hand, it could be explained by the expected shortcomings of a new system – “old” cases were registered as “new” during the first year, which artificially increased the number of new cases. In addition, it was evaluated if providers registered all new cases in the registry. This makes possible to elaborate and implement an appropriate monitoring and evaluation mechanisms of the efficiency of the reporting system.

Recommendation:

- *To develop an efficient mechanism for monitoring and assessment of validity of the reporting system.*
- *The data of the registry must be compared with the universal healthcare program for the purpose of assessing the completeness of the registry.*

In 2015-2018 the data for the cancer registry are collected using paper-based forms. Consequently, validations could not be implemented, often errors that are caused by negligence, speed of completion of a document, and lack of motivation. There are errors that reflect gaps of providers knowledge, e.g., the change of the stage. Since 2019, reporting on cancer has shifted to an electronic format, allowing for synchronization with other electronic modules. Errors were also identified that reflect providers' knowledge gaps, such as changing the stage.

Recommendation:

- *Trainings of providers.*

III.2 Lack of staff and professionalism

Three data recorders were working full-time; in addition, two more specialists were involved in this process time-to-time. For example: the recommendation of the Dutch Cancer Registry Center is that, in the case of 5000-6000 new cases per year, only for data registration 6-7 full-time working data recorders are in need. There are 5 analysts working in the data analysis group; they produce statistical analysis of any diseases, including cancer statistics. For comparison: in Holland, 30 specialists have been employed in the cancer registry; in Norway - more than 170 specialists, including 20 IT specialists; in Izmir – 26, including 20 data recorders.

III.3 Survival rate

Only new cases of cancer are collected by the cancer registry, this does not allow calculation the 5-year survival rate. Taking into consideration shortcomings and limitations during the first years of the registry operation, the valid 5 year survival rate could be calculated for 2016-2020.

Future plans

1. Improvement of the quality of data collection through monitoring quality and completeness of data

2. Comparison of the data from the cancer registry with the data of the universal healthcare program
3. Comparison of the data of the beneficiaries of cancer screening program with the cancer registry data
4. Reflection of personalized treatment approach in the cancer registry - adding results of immunohistochemical tests
5. Increase of analytical capabilities
6. Renewal of the National Cancer Strategy, and preparation for approval
7. Establishin of the Independent Expert Panel in the field of oncology
8. Establishing and development of relationships with international cancer centers
9. Joining the International Agency for Research on Cancer

IV. Global and Regional data for cancer morbidity

IV.1 Global burden of cancer

- The International Agency for Research on Cancer (IARC) estimates 18.1 million new cases of cancer and 9.6 million deaths globally in 2018.
- One out of every five men in the world and one in six women ever develop cancer, and one in eight men and one in 11 women die from these diseases.
- In 2018, lung cancer, breast cancer and colorectal cancer were the three highest incidence of oncology globally, with the top five cancer-related deaths (first, fifth and second, respectively). One third of all morbidity and mortality in cancer worldwide comes from these three localizations.
- In 2018, 2.1 million lung cancers, 2.1 million breast cancers (in women), 1.8 million colon cancer, 1.3 million prostate cancer and one million new cases of gastric cancer were identified.
- By mortality rate in 2018, lung cancer was the leading cause (1.8 million deaths) followed by colorectal (881,000 deaths), gastric (783,000 deaths), liver (782,000 deaths) and breast cancer (627,000 deaths). The number of new cancer cases worldwide in the next 20 years will increase by 70%.
- 70% of cancer deaths are reported in low- and middle-income countries.
- About one-third of all cases of cancer-related death are caused by five major risk factors that relate to behavior and nutrition. This is due to the high body mass index, low levels of fruit and vegetable consumption, low physical activity, alcohol and tobacco consumption.
- Tobacco consumption among the risk factors is crucial - 22% of cancer deaths is related with tobacco using.
- 25% of cancer cases in low and middle income countries are caused by cancer-causing infections such as hepatitis B and C and human papilloma virus, *helicobacer pylori*.
- Only a fifth of low and middle income countries have evidence data to the development policies in oncological diseases.

IV.2 Cancer morbity in Georgia

According to the Cancer Registry, in Georgia, in 2015-2018, the number of new cases of malignant neoplasms is from 9500-11000. This number includes cancer in situ.

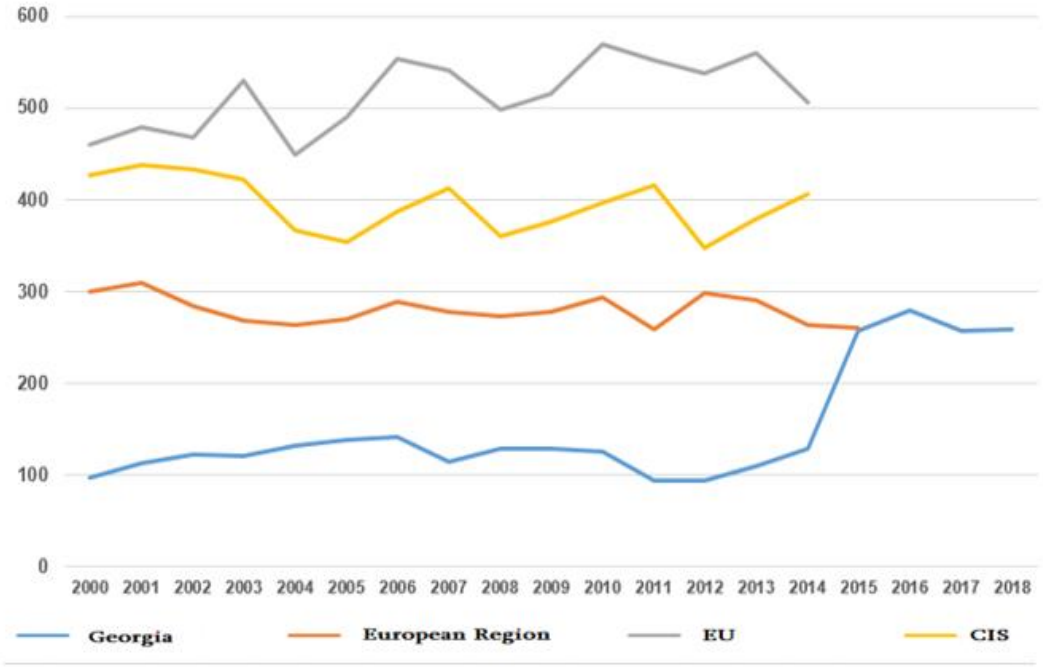
ყველა ლოკალიზაციის კიბოს ახალი შემთხვევები, საქართველო, 2015-2018

	2015	2016	2017	2018
Number of cases	10881	10404	9562	9635
Incidence per 100000 population	291.9	279.1	256.6	258.5

The data received from cancer registry may be avalueted by the International Agency for Cancer Research.

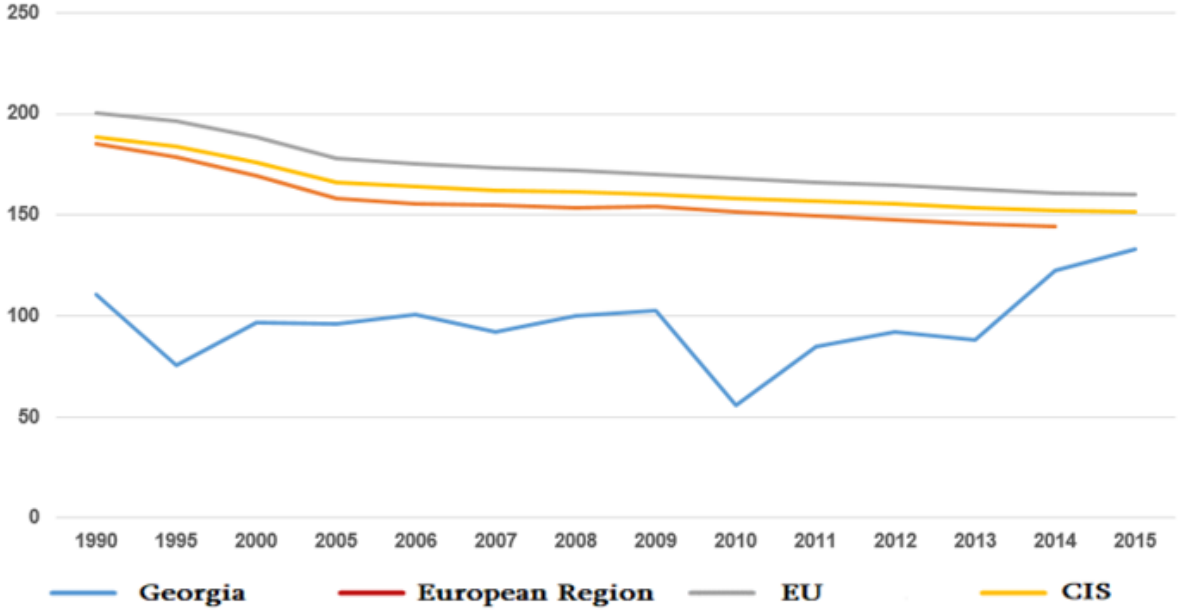
Incidence of malignant neoplasms in Georgia is lower, that in European region, EU and CIS countries. The high morbidity and mortality of oncological diseases in the European region is explained by the aging population (predictable growth of life expectancy).

Incidence of Malignant neoplasms per 100 000 population[3]



Source: WHO database "Health for all", NCDC

Cancer mortality rate per 100 000 population



Source: WHO database "Health for all"

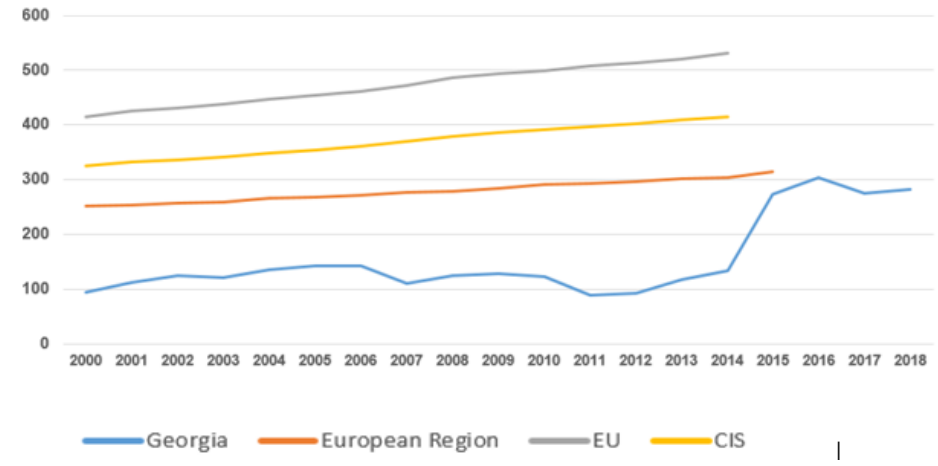
[3] *According to recommendations of the International Agency for Research on Cancer (IARC), all cancer cases, except non-melanoma skin cancers and cancers in situ, must be used for statistical calculations*

V. Distribution of malignant neoplazms by age and sex

In 2015-2018, 56%-57% of all new cases were registered in women; 43%-44% - in men.

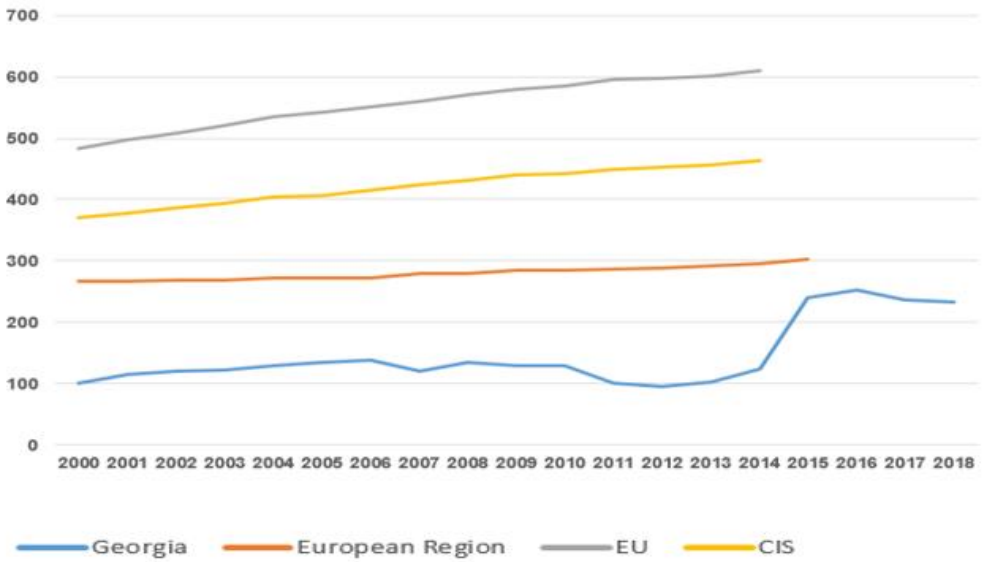
Both in women and in men, all the local cancer incidence rates are lower than the average rate of the European region, EU and CIS countries.

Incidence of cancer per 100 000, all sites, women



Source: WHO database "Health for all", NCDC

Incidence of cancer per 100 000, all sites, men

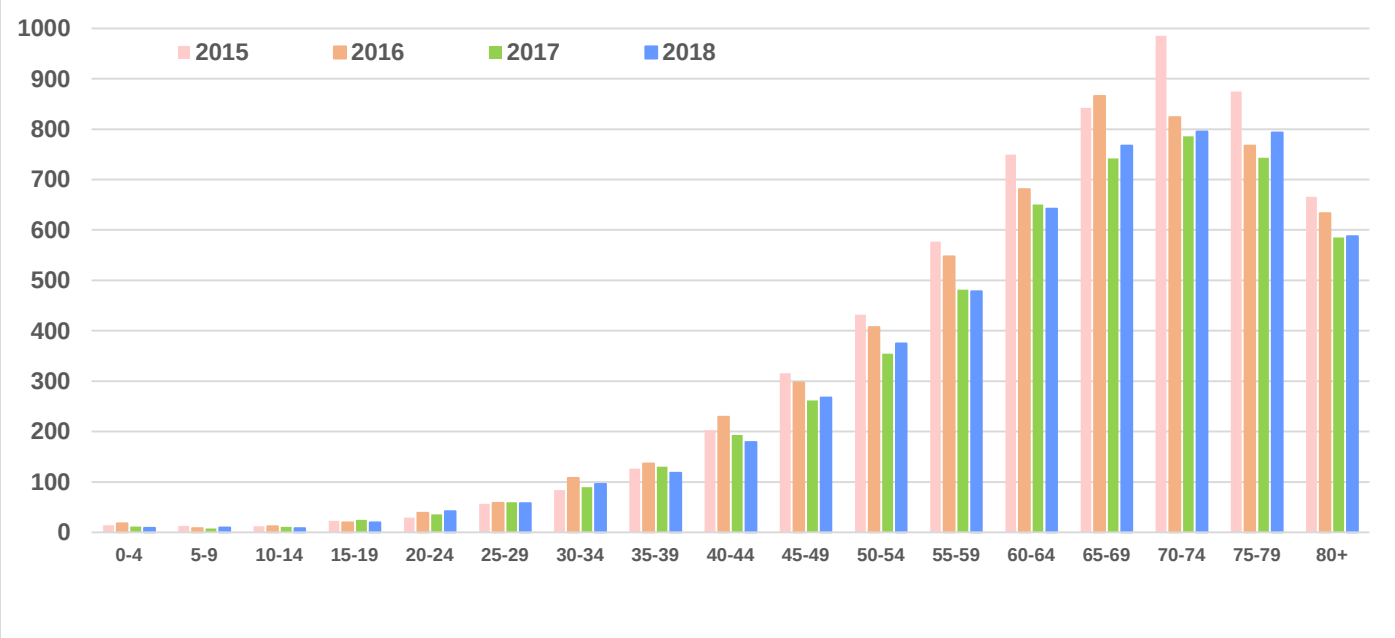


Source: WHO database "Health for all", NCDC

70% of all localized cancer cases are registered in the most active age group - from 30 to 70 years, and about a quarter of cases - over 70 years in age group. 1% of the cases are located in age groups from 0 to 15 years and from 15 to 20.

The previous report presents the number of new cases according to age groups, as well as the number of new cases of age-specified incidence, or the number of new cases for each age group, divided by the number of population of the same age group, and the risk of this age group can be assessed.

New cases of cancer by age groups, all sites, both sexes, Georgia, 2015-2018



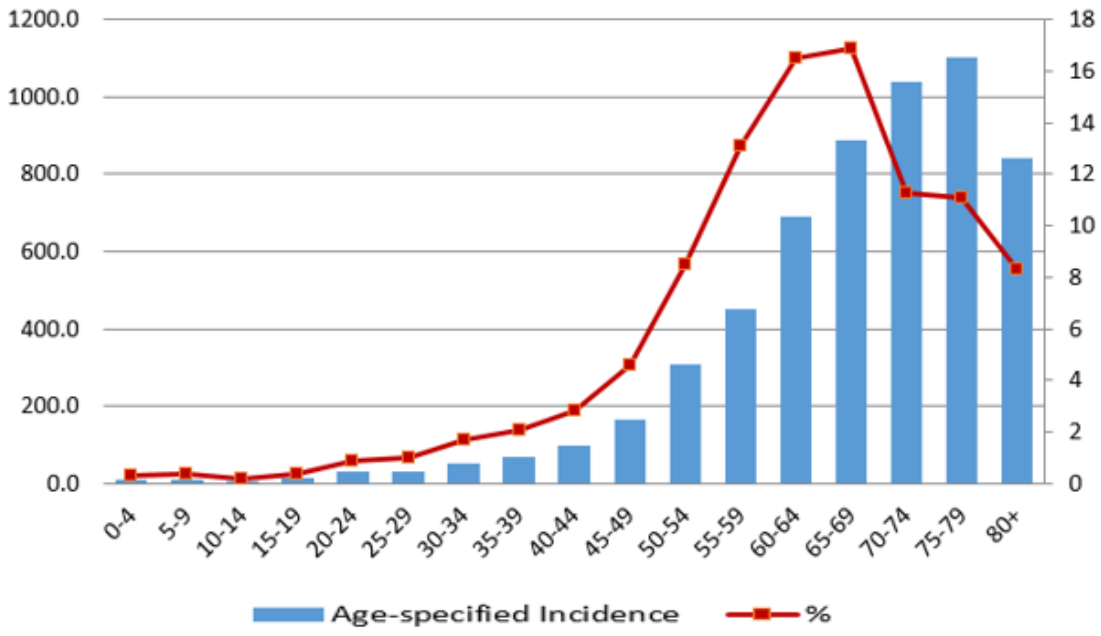
New cases of cancer by age groups, all sites, both sexes, Georgia, 2017-2018

Age groups	Male		Female	
	Number of cases	Share in the total number	Number of cases	Share in the total number
2017				
0-4	17	0.4	15	0.3
5-9	10	0.2	9	0.2
10-14	12	0.3	12	0.2
15-19	20	0.5	37	0.7
20-24	21	0.5	58	1.1
25-29	52	1.2	114	2.1
30-34	69	1.6	174	3.3
35-39	74	1.7	249	4.7
40-44	142	3.3	331	6.2
45-49	189	4.5	427	8.0
50-54	355	8.4	532	10.0
55-59	609	14.4	650	12.2
60-64	696	16.4	764	14.4
65-69	737	17.4	649	12.2
70-74	426	10.0	408	7.7
75-79	482	11.4	506	9.5

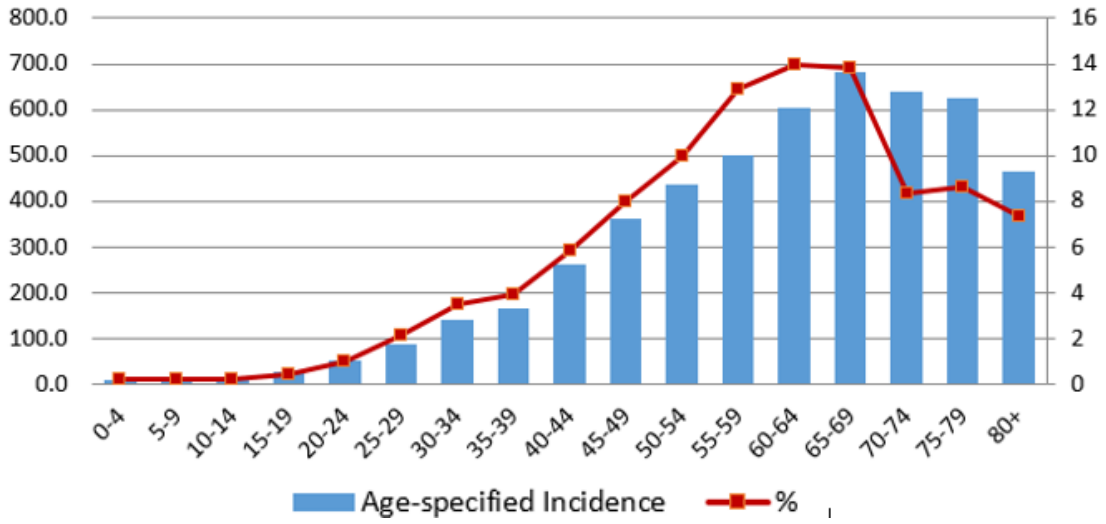
80-84	230	5.4	272	5.1
85-89	85	2.0	94	1.8
90-94	11	0.3	19	0.4
95-99	2	0.05	3	0.1
სულ	4239	100.0	5323	100.0
		2018		
0-4	12	0.3	13	0.2
5-9	16	0.4	9	0.2
10-14	9	0.2	9	0.2
15-19	17	0.4	24	0.4
20-24	38	0.9	55	1.0
25-29	40	1.0	115	2.1
30-34	71	1.7	191	3.5
35-39	86	2.1	211	3.9
40-44	116	2.8	317	5.8
45-49	192	4.6	436	8.0
50-54	353	8.5	548	10.0
55-59	546	13.1	707	12.9
60-64	688	16.5	764	14.0
65-69	702	16.9	753	13.8
70-74	472	11.3	452	8.3
75-79	461	11.1	469	8.6
80-84	270	6.5	265	4.8
85-89	65	1.6	100	1.8
90-94	6	0.1	31	0.6
95-99	2	0.05	4	0.1
სულ	**4162**	**100.0**	**5473**	**100.0**

24%-27% of all new cases of cancer were registered in women of reproductive age (15-49).

Malignant neoplasms, all sites, age-specified incidence rates, male, Georgia, 2018



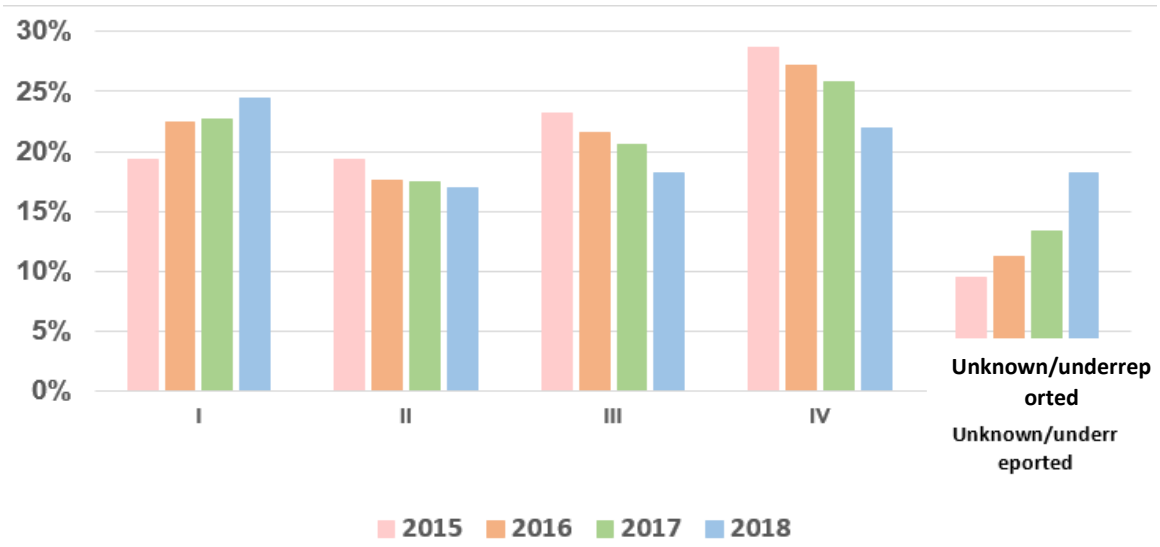
Malignant neoplasms, all sites, age-specifeid incidence rates, female, Georgia, 2018



V.1 Stages[4]

In 2015-2018, according to the data of the Cancer registry, the share of cancers diagnosed at the I and II stages constitutes 36.5%. Although, the share of cases diagnosed at III and IV stage is higher and in 2015-2018 years total number of malignant neoplasms equels 46.8%; In 13.1% the stage was not specified.

New cases of cancer by stages (%), Georgia, 2015-2018



[4] *"Malignant neoplasms of lymphoid, hematopoietic and related tissue" have been excluded*

New cases of malignant neoplasms, share by stages (%), Georgia, 2015-2018

Stages	2015	2016	2017	2018
I	19.3	22.4	22.7	24.5
II	19.3	17.6	17.5	17.0
III	23.2	21. 6	20.6	18.2
IV	28.7	27.2	25.8	22.0
Unknown/underreported	9.5	11.2	13.4	18.2
Total	**100%**	**100%**	**100%**	**100%**

Despite the fact that the breast, cervical and colorectal cancer screening in the country (breast and cervical cancer screening has been introduced since 2008, and in 2011 localized through the whole country) as well as prostate cancer management, in 2016.

Cancer screening indicator based on cancer localization, Georgia , 2014-2018

Cancer sites	Target population (%)									
	Tbilisi					Other Regions				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Breast	15.0	16.0	18.0	15.0	17.0	7.4	7.3	9.2	8.9	8.6
Cervix	16.0	16.0	18.0	14.0	17.0	8.7	9.3	11.5	9.7	11.2
Prostate cancer	4.0	6.0	5.0	5.0	6.0	2.3	3.6	3.3	2.7	2.8
Colorectal	1.0	1.0	3.0	3.0	4.0	1.0	2.0	1.6	2.0	1.5

VI. Sites of cancer

Number of new cases of cancer differ depending of sites, sex, and age.

Cancers, new cases by site, bouth sex, Georgia, 2015-2018

	2015	2016	2017	2018
Lips, oral cavity organs and pharynx	240	240	218	223
Digestive organs	1798	1668	1550	1492
Respiratory system and thoracic cavity organs	1222	1124	1068	957
Bone and articular cartilage	60	48	43	100
Malignant melanoma	111	119	90	68
Other and unspecified malignant neoplasm of skin	808	681	580	675
Mesothelial and soft tissue	172	126	124	105
Breast	1939	1813	1688	1624
Female genital organs	1095	1054	925	909
Male genital organs	692	540	500	560
Urinary system	808	815	828	807
Eye, brain and other parts of central nervous system	254	266	229	201
Thyroid and other endocrine glands	725	901	921	1102
Ill-defined, secondary and unspecified sites	299	287	219	284
Lymphoid, haematopoietic and related tissues	558	589	535	507
In situ	100	133	44	21
Total	**10881**	**10404**	**9562**	**9635**

VI.1 Five Most Common Types of Cancer in Women

Structure of registered new cases in women is identical in 2015-2018. 29-32% of all cases are breast cancer, and 10-17% - thyroid cancer.

5 Most common sites of cancer in women, Georgia, 2015-2018

Site	Number of Cases	Share in all new cases registered in women (%)
2015		
Breast	1919	31.8
Thyroid gland	601	10.0
Colorectal	416	6.9
Corpus uteri	360	6.0
Cervix uteri	349	5.8
2016		
Breast	1793	30.6
Thyroid gland	759	13.0
Cervix uteri	380	6.5
Corpus uteri	364	6.2
Colorectal	361	6.2
2017		
Breast	1661	31.0
Thyroid gland	766	14.4
Colorectal	316	5.9
Corpus uteri	315	5.9
Cervix uteri	291	5.5
2018		
Breast	1603	29.3
Thyroid gland	934	17.0
Colorectal	332	6.1
Corpus uteri	328	6.0
Cervix uteri	276	5.0

VI.1.1 Breast cancer

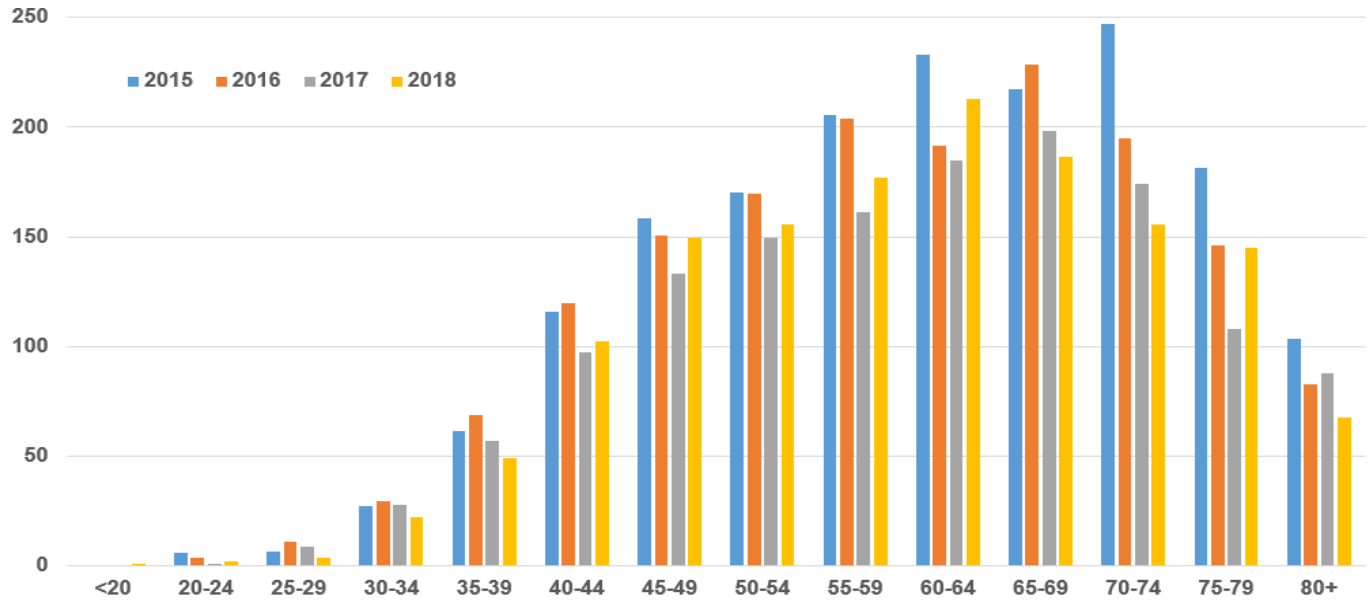
According to the Cancer registry, breast cancer is the most common site in females. Incidence rate of breast cancer reached 97.5 per 100 000 women in 2015, 92.3 - in 2016, 85.6 – in 2017 and 82.8 – in 2018.

Breast cancer in women, new cases by age groups, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)
<20	0	0	0	0.0	0	0.0	1	0.1
20-24	7	0.4	4	0.2	1	0.1	2	0.1
25-29	9	0.5	14	0.8	15	0.9	5	0.3
30-34	38	2.0	42	2.3	38	2.3	30	1.9
35-39	78	4.1	87	4.9	78	4.7	62	3.9
40-44	148	7.7	153	8.5	136	8.2	125	7.8
45-49	201	10.5	184	10.3	183	11.0	180	11.2
50-54	250	13.0	239	13.3	214	12.9	196	12.2
55-59	281	14.6	283	15.8	233	14.0	250	15.6
60-64	278	14.5	231	12.9	256	15.4	269	16.8
65-69	216	11.3	237	13.2	205	12.3	206	12.9
70-74	168	8.8	120	6.7	115	6.9	110	6.9
75-79	162	8.4	132	7.4	108	6.5	109	6.8
80+	83	4.3	67	3.7	79	4.8	58	3.6
სულ	**1919**	**100%**	**1793**	**100%**	**1661**	**100%**	**1603**	**100%**

Most number of new cases are identified in 50-70 age group.

Breast cancer in women, new cases by age-specified, Georgia, 2015-2018



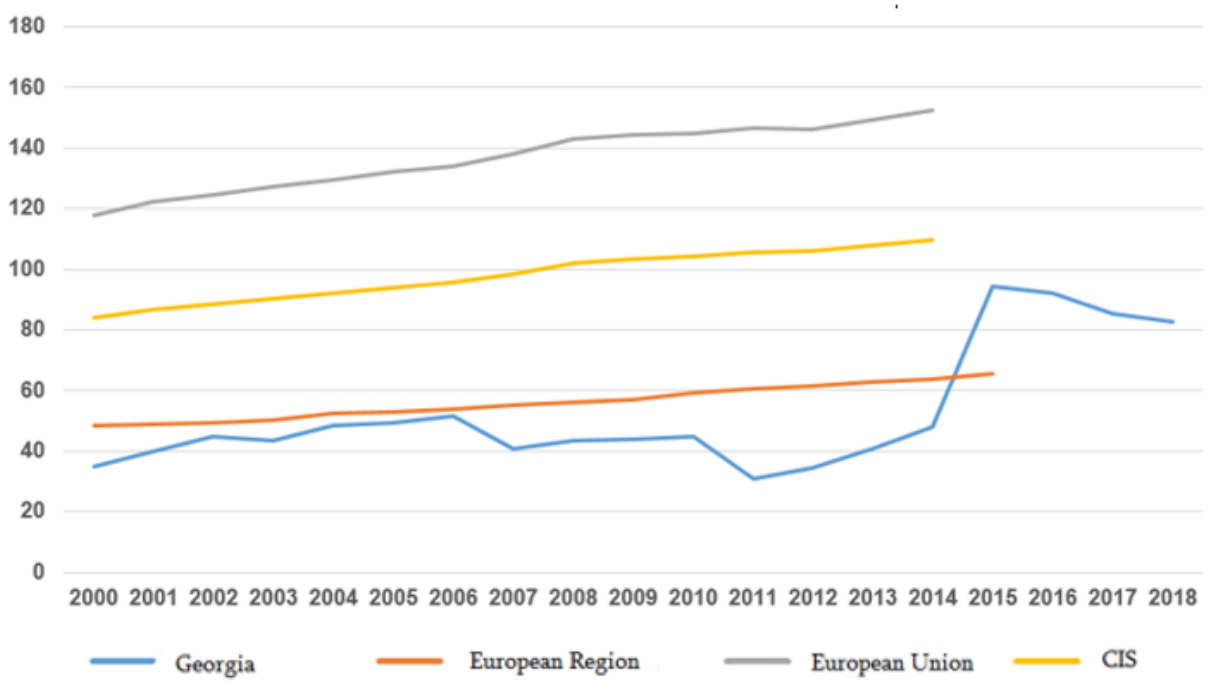
In 2018, 51% of new cases of breast cancer were detected at early (I and II) stages.

Breast cancer in women, new cases share by the stages (%), Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in women (%)			
	2015	2016	2017	2018	2015	2016	2017	2018
I	324	375	349	307	16.9	20.9	21.0	19.2
II	663	575	573	505	34.5	32.1	34.5	31.5
III	496	436	335	308	25.8	24.3	20.2	19.2
IV	310	277	234	151	16.2	15.4	14.1	9.4
Unknown	126	130	170	332	6.6	7.3	10.2	20.7
Total	**1919**	**1793**	**1661**	**1603**	**100**	**100**	**100**	**100**

The incidence of breast cancer per 100,000 women in Georgia is less than in European region and in EU and exceeds the average indicator of CIS countries.

Breast cancer incidence per 100 000 women



Source: WHO database "Health for all", NCDC

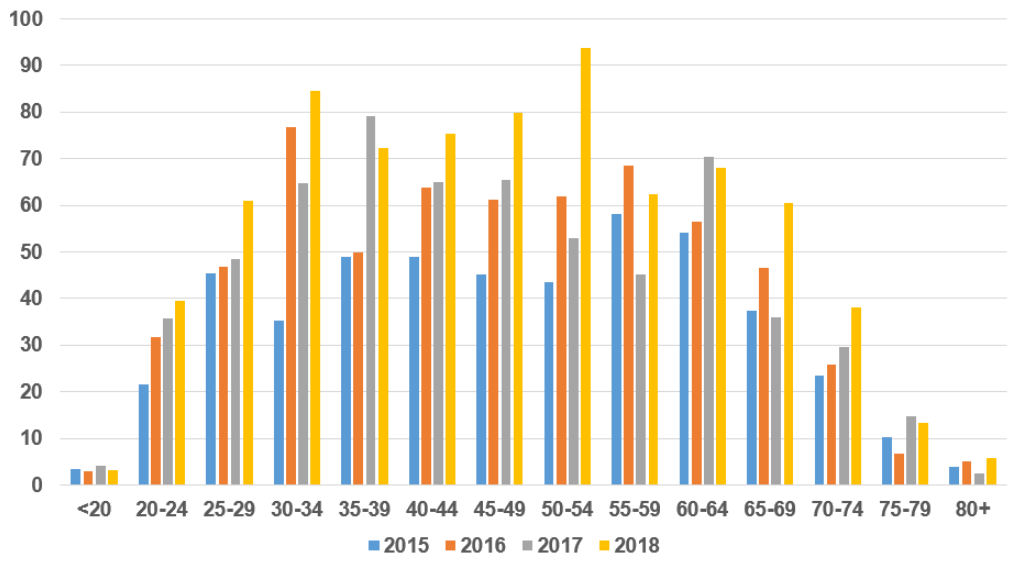
VI.1.2 Thyroid gland cancer

Malignant neoplasms of thyroid gland keeps the second place among all new cases of cancer in women. In general, in the backgroup of decrease incidence of cancer, registered thyroid cancer cases in women in 2015 has been increased, as well as the incidence rate for 100,000 women (2015 – 30.9, 2016 – 39.1, 2017 – 39.5, 2018 – 48.3). Also from 10% to 17% increase of thyroid cancer in new cases of all localized cancer cases registered with women. In women, thyroid cancer is registered in almost every age group.

New cases of thyroid gland cancer by age groups, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)
<20	15	2.5	13	1.7	19	2.5	15	1.6
20-24	27	4.5	37	4.9	40	5.2	42	4.5
25-29	63	10.5	65	8.6	67	8.7	81	8.7
30-34	47	7.8	104	13.7	88	11.5	115	12.3
35-39	62	10.3	63	8.3	100	13.1	92	9.9
40-44	61	10.1	79	10.4	80	10.4	92	9.9
45-49	56	9.3	75	9.9	80	10.4	96	10.3
50-54	62	10.3	85	11.2	71	9.3	118	12.6
55-59	79	13.1	95	12.5	63	8.2	88	9.4
60-64	65	10.8	69	9.1	87	11.4	86	9.2
65-69	36	6.0	48	6.3	38	5.0	67	7.2
70-74	16	2.7	16	2.1	18	2.3	27	2.9
75-79	9	1.5	6	0.8	13	1.7	10	1.1
80+	3	0.5	4	0.5	2	0.3	5	0.5
Total	**601**	**100**	**759**	**100**	**766**	**100**	**934**	**100**

New cases of thyroid gland cancer in women age-specified, Georgia, 2015-2018



In 2018, 57 new cases of thyroid gland cancer were registered in women aged under-25 (in 2015 – 41 cases, in 2016 – 50, in 2017 - 55). This is about 51.8% of all new cases of cancer registered in that age group in women. The major number of cases of thyroid cancer were identified at the first stage.

New cases of thyroid gland cancer by stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in women (%)			
	2015	2016	2017	2018	2015	2016	2017	2018
I	370	536	534	732	61.6	70.6	69.7	78.4
II	36	33	25	51	6.0	4.3	3.3	5.5
III	151	146	157	72	25.1	19.2	20.5	7.7
IV	32	26	31	11	5.3	3.4	4.0	1.2
Unknown	12	18	19	68	2.0	2.4	2.5	7.3
Total	**601**	**759**	**766**	**934**	**100**	**100**	**100**	**100**

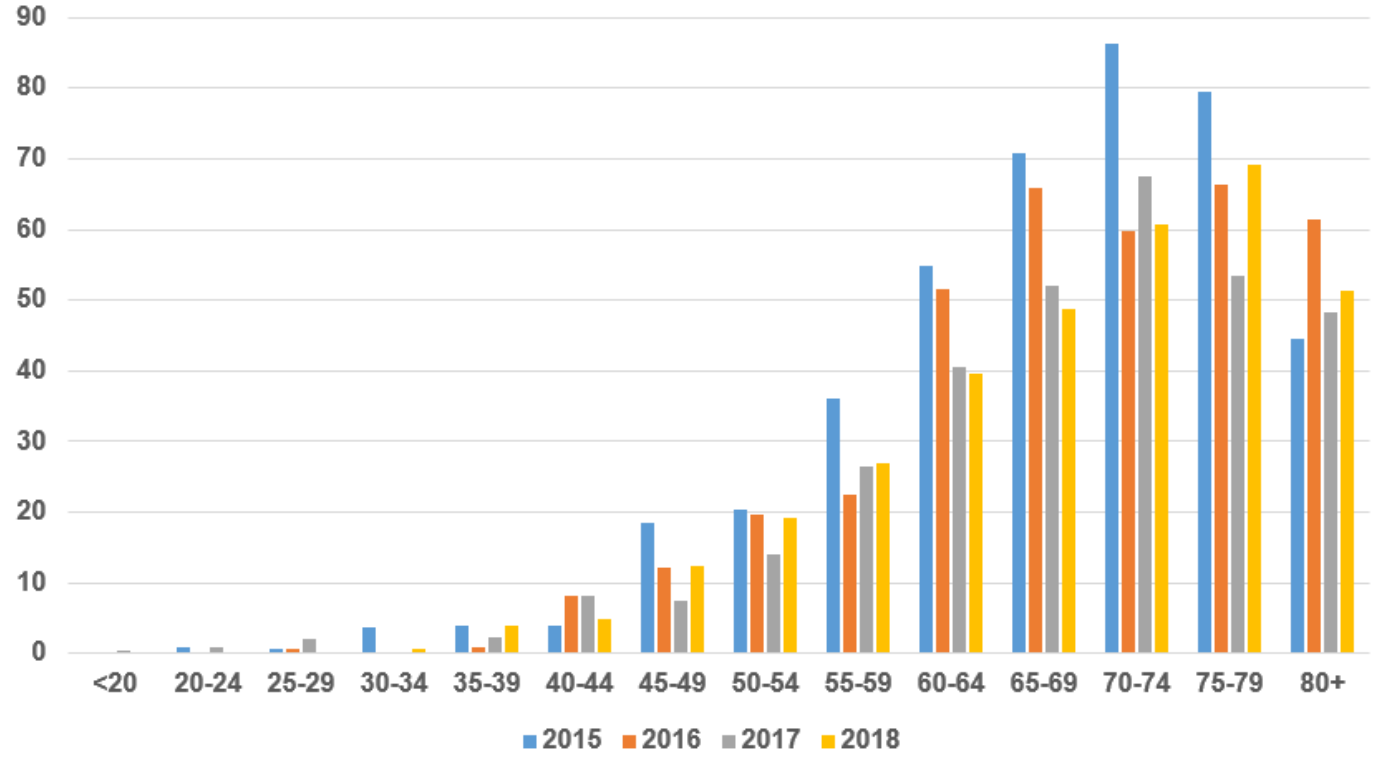
VI.1.3 Colorectal cancer

Out of all the local cancer cases registered in women in 2018, there is 3rd place of colorectal cancer. In 2015-2018 the incidence of colorectal cancer in women for 100,000 women decreased (the figures are 21.3, 18.6, 16.3 and 17.1 respectively).

Colorectal cancer in women, new case by age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)
<20	0	0	0	0	2	0.6	0	0
20-24	1	0.2	0	0	1	0.3	0	0
25-29	1	0.2	1	0.3	3	0.9	0	0
30-34	5	1.2	0	0.0	0	0.0	1	0.3
35-39	5	1.2	1	0.3	3	0.9	5	1.5
40-44	5	1.2	10	2.8	10	3.2	6	1.8
45-49	23	5.5	15	4.2	9	2.8	15	4.5
50-54	29	7.0	27	7.5	19	6.0	24	7.2
55-59	49	11.8	31	8.6	37	11.7	38	11.4
60-64	66	15.9	63	17.5	50	15.8	50	15.1
65-69	68	16.3	68	18.8	55	17.4	54	16.3
70-74	59	14.2	37	10.2	41	13.0	43	13
75-79	70	16.8	59	16.3	47	14.9	52	15.7
80+	35	8.4	49	13.6	39	12.3	44	13.3
Total	**416**	**100**	**361**	**100**	**316**	**100**	**332**	**100**

Colorectal cancer in women, new case age-specified, Georgia, 2015-2018



According to the Registy 2015-2018, more than 60% of new cases of colorectal cancer have been reported in the III and IV stage of the disease.

Colorectal cancer in women, new cases by stage, Georgia, 2015-2018

Stage	New cases				Share in all new cases registered in women			
	2015	2016	2017	2018	2015	2016	2017	2018
I	26	14	12	19	6.3	3.9	3.8	5.7
II	88	84	63	58	21.2	23.3	19.9	17.5
III	141	115	113	126	33.9	31.9	35.8	38.0
IV	135	115	99	94	32.5	31.9	31.3	28.3
Unknown	26	33	29	35	6.3	9.1	9.2	10.5
Total	**416**	**361**	**316**	**332**	**100.0**	**100.0**	**100.0**	**100.0**

VI.1.4 Corpus uteri cancer

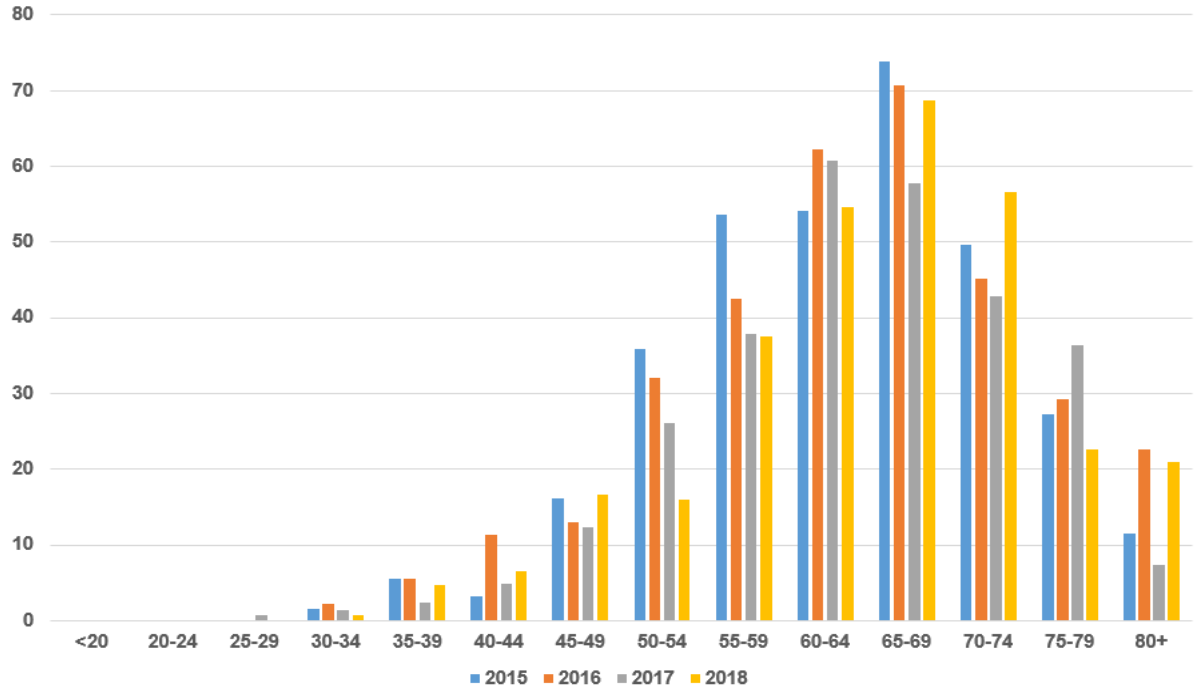
According to the Cancer Registry data, in the area of localization cervical cancer is the fourth most common cancer in women.

In 2015–2018, according to the Cancer registry, cervical cancer incidence rate was 18.5, 18.7, 16.2, 16.9 per 100000 women. Most of new cases show up between 50-70 age groups.

Corpus uteri cancer, new cases by age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)	Number of cases	Share in the total number (%)
<20	0	0.0	0	0.0	0	0.0	0	0.0
20-24	0	0.0	0	0.0	0	0.0	0	0.0
25-29	0	0.0	0	0.0	1	0.3	0	0.0
30-34	2	0.6	3	0.8	2	0.6	1	0.3
35-39	7	1.9	7	1.9	3	1.0	6	1.8
40-44	4	1.1	14	3.8	6	1.9	8	2.4
45-49	20	5.6	16	4.4	15	4.8	20	6.1
50-54	51	14.2	44	12.1	35	11.1	20	6.1
55-59	73	20.3	59	16.2	53	16.8	53	16.2
60-64	65	18.1	76	20.9	75	23.8	69	21.0
65-69	71	19.7	73	20.1	61	19.4	76	23.2
70-74	34	9.4	28	7.7	26	8.3	40	12.2
75-79	24	6.7	26	7.1	32	10.2	17	5.2
80+	9	2.5	18	4.9	6	1.9	18	5.5
Total	**360**	**100**	**364**	**100**	**315**	**100**	**328**	**100**

Corpus uteri cancer, age-specified incidence, Georgia, 2015-2018



The Cancer registry shows that more than 69% of all cases of cervix uteri cancer were diagnosed at the first and second stages.

Corpus uteri cancer, new cases by the stages (%), Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in women			
	2015	2016	2017	2018	2015	2016	2017	2018
I	193	203	179	166	53.6	55.8	56.8	50.6
II	58	56	43	47	16.1	15.4	13.7	14.3
III	43	47	39	45	11.9	12.9	12.4	13.7
IV	29	31	26	27	8.1	8.5	8.3	8.2
Unknown	37	27	28	43	10.3	7.4	8.9	13.1
Total	**360**	**364**	**315**	**328**	**100**	**100**	**100**	**100**

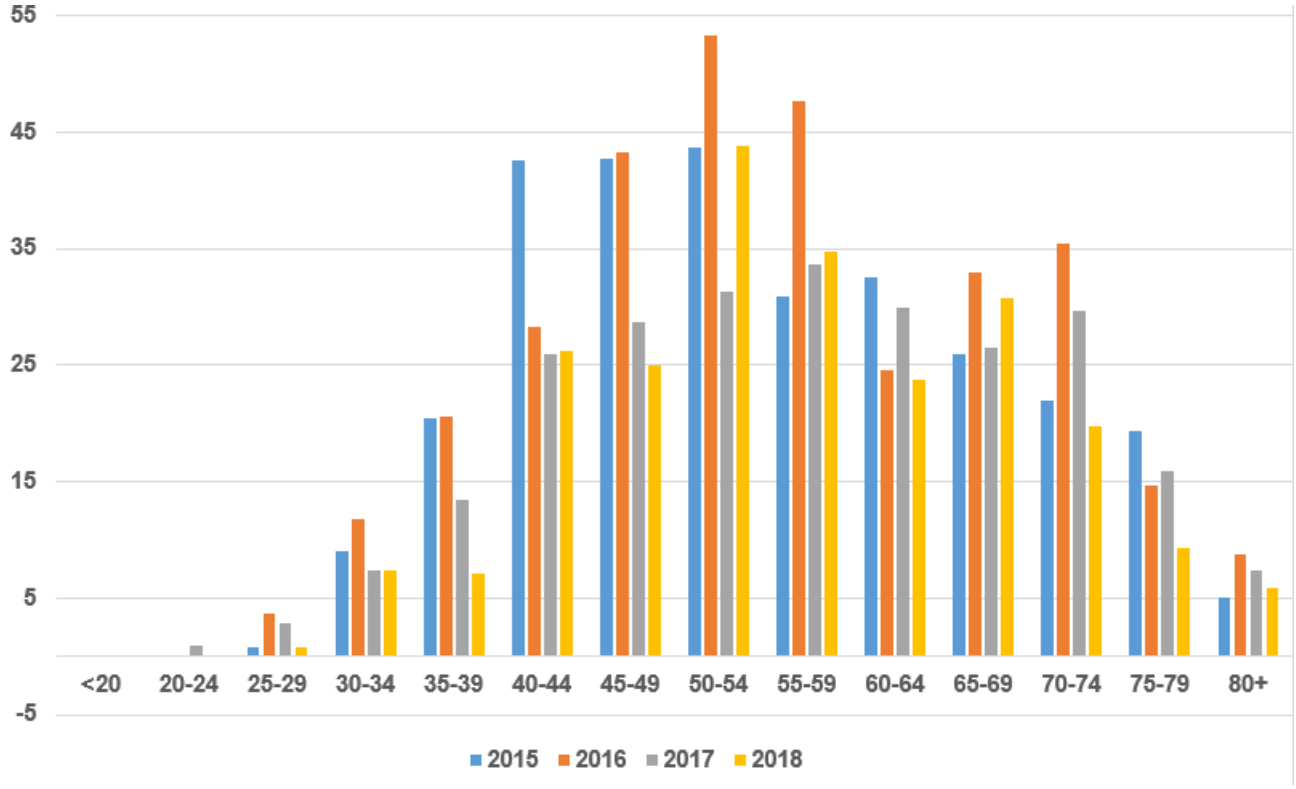
VI.1.5 Cervix uteri cancer

According to the Registry data, after increased in 2015-2016, the incidence of cervical cancer per 100,000 women in 2018 was significantly reduced (respectively 19.4; 20.8; 14.3). In the age group of 25 years, only 1 case has been reported.

Cervical cancer new cases by age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	0	0.0	0	0.0	0	0.0
20-24	0	0.0	0	0.0	1	0.3	0	0.0
25-29	1	0.3	5	1.3	4	1.4	1	0.4
30-34	12	3.4	16	4.2	10	3.4	10	3.6
35-39	26	7.4	26	6.8	17	5.8	9	3.3
40-44	53	15.2	35	9.2	32	11.0	32	11.6
45-49	53	15.2	53	13.9	35	12.0	30	10.9
50-54	62	17.8	73	19.2	42	14.4	55	19.9
55-59	42	12.0	66	17.4	47	16.2	49	17.8
60-64	39	11.2	30	7.9	37	12.7	30	10.9
65-69	25	7.2	34	8.9	28	9.6	34	12.3
70-74	15	4.3	22	5.8	18	6.2	14	5.1
75-79	17	4.9	13	3.4	14	4.8	7	2.5
80+	4	1.1	7	1.8	6	2.1	5	1.8
Total	**349**	**100.0**	**380**	**100.0**	**291**	**100.0**	**276**	**100.0**

Cervical cancer, age-specified Incidence, Georgia, 2015-2018

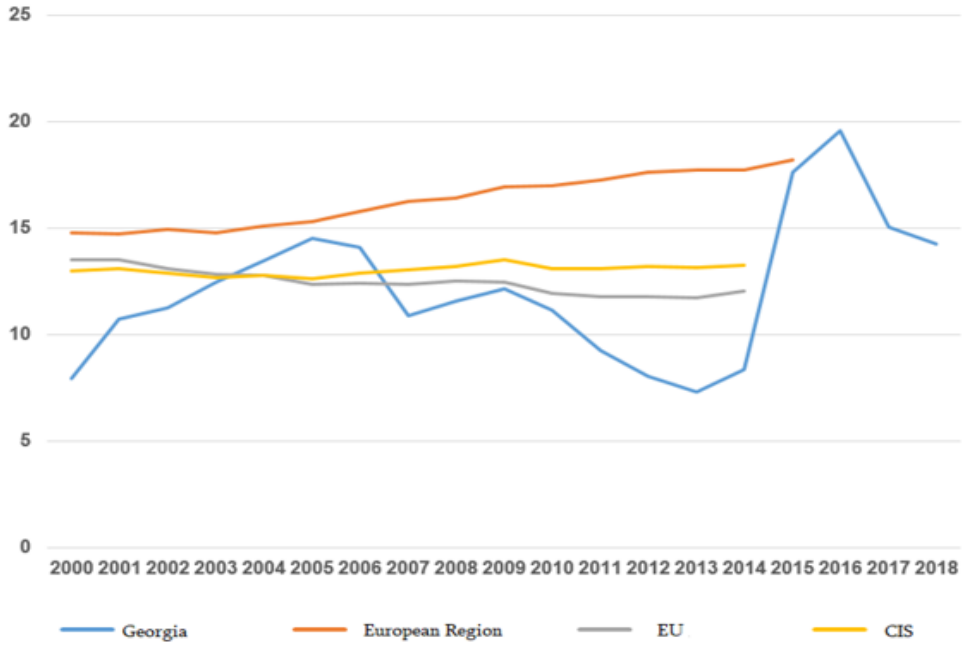


According to the Cancer Registry, between 50%-52% corpus uteri cancer were detected at the first and second stages.

Cervical cancer, new cases by the stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in women			
	2015	**2016**	**2017**	**2018**	**2015**	**2016**	**2017**	**2018**
I	92	129	69	67	26.4	33.9	23.7	24.3
II	85	71	82	73	24.4	18.7	28.2	26.4
III	107	84	70	80	30.7	22.1	24.1	29.0
IV	48	47	42	30	13.8	12.4	14.4	10.9
Unknown	17	49	28	26	4.9	12.9	9.6	9.4
Total	**349**	**380**	**291**	**276**	**100%**	**100%**	**100%**	**100%**

Incidence of cervical cancer per 100000 women



Source: WHO database "Health for all", NCDC

VI.2 Five Most Common Types of Cancer in Men

The 5 most common sites of malignant neoplasms in men were not strictly equal in 2015- 2018.

Five most common types of cancer in men, Georgia, 2015-2018

Site	Number of cases	Share in all new cases registered in men
2015		
Trachea, bronchus, lung	734	15.1
Prostate	595	12.2
Bladder	421	8.7
Colorectal	412	8.5
Larynx	297	6.1
2016		
Trachea, bronchus, lung	712	15.5
Prostate	448	9.8
Colorectal	407	8.9
Bladder	405	8.8
Lymphoid, haematopoietic and related tissues	313	6.8
2017		
Trachea, bronchus, lung	667	15.7
Bladder	434	10.2
Prostate	399	9.4
Colorectal	392	9.2
Lymphoid, haematopoietic and related tissues	280	6.6
2018		
Trachea, bronchus, lung	580	13.9
Prostate	460	11.1
Bladder	405	9.7
Colorectal	373	9.0
Larynx	230	5.5

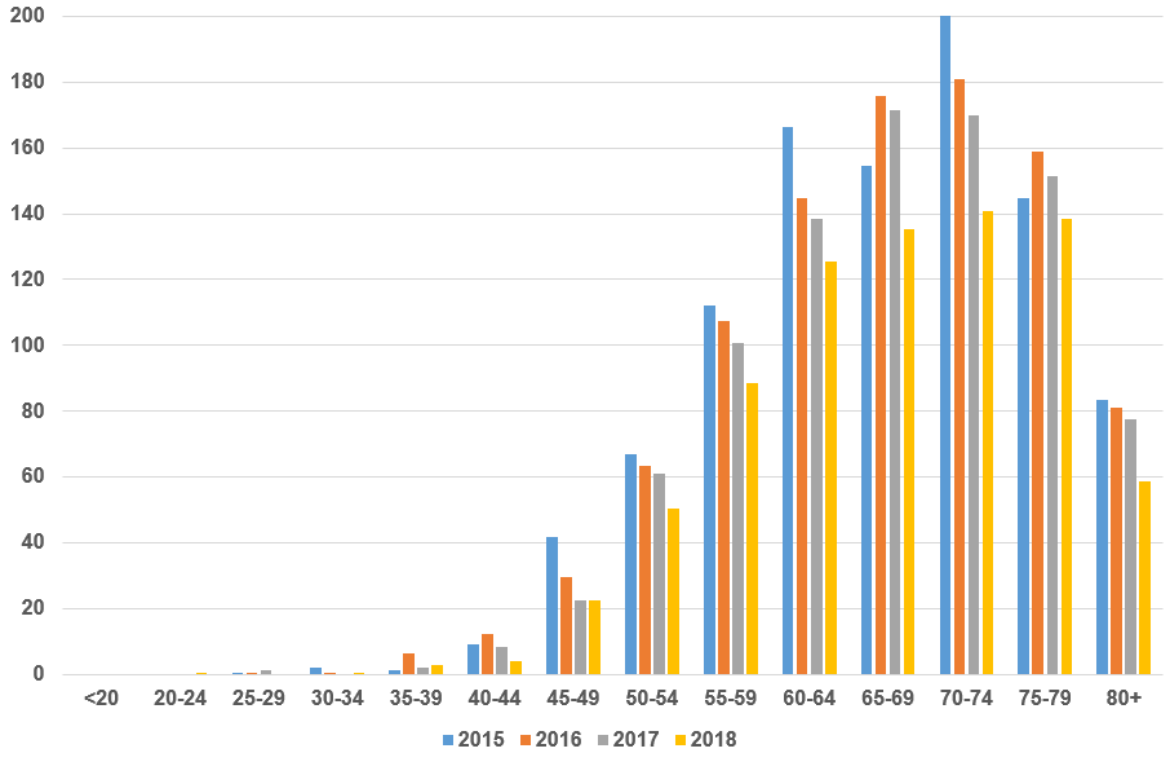
VI.2.1 Trachea, bronchus, lung cancer

Malignant neoplasms of trachea, bronchus, lung are the most common cancer in men. In 2015-2018, the incidence rate per 100000 men was 41.2, 39.9, 37.3 and 32.4. In the age group of 25 years only one case have been registered in 2018.

New cases of trachea, bronchus, lung cancer by age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	0	0.0	0	0.0	0	0.0
20-24	0	0.0	0	0.0	0	0.0	1	0.2
25-29	1	0.1	1	0.1	2	0.3	0	0.0
30-34	3	0.4	1	0.1	0	0.0	1	0.2
35-39	2	0.3	8	1.1	3	0.4	4	0.7
40-44	11	1.5	15	2.1	10	1.5	5	0.9
45-49	48	6.5	34	4.8	26	3.9	26	4.5
50-54	84	11.4	77	10.8	73	10.9	58	10.0
55-59	128	17.4	126	17.7	119	17.8	107	18.4
60-64	155	21.1	138	19.4	134	20.1	125	21.6
65-69	106	14.4	129	18.1	129	19.3	107	18.4
70-74	92	12.5	72	10.1	66	9.9	64	11.0
75-79	73	9.9	80	11.2	75	11.2	58	10.0
80+	31	4.2	31	4.4	30	4.5	24	4.1
Total	**734**	**100.0**	**712**	**100.0**	**667**	**100.0**	**580**	**100.0**

New cases of trachea, bronchus, lung cancer age-specified, Georgia, 2015-2018



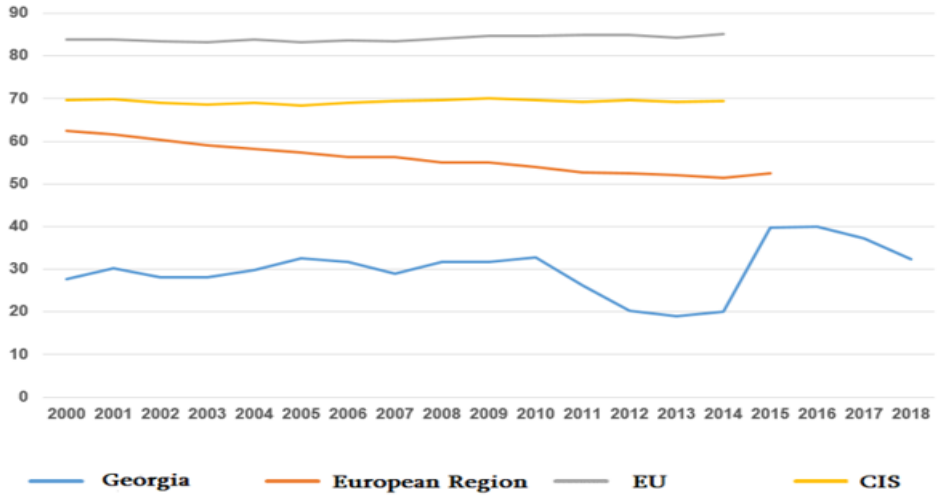
10% of the new cases of trachea, bronchus and lung cancer registered at first and second stages and more than 60% on fourth stage.

New cases of trachea, bronchus, lung cancer by stages (%), Georgia, 2015-2018

	Number of cases				Share in all new cases registered in men			
	2015	**2016**	**2017**	**2018**	**2015**	**2016**	**2017**	**2018**
I	24	25	17	14	3.3	3.5	2.5	2.4
II	27	43	43	33	3.7	6.0	6.4	5.7
III	177	155	134	109	24.1	21.8	20.1	18.8
IV	443	435	413	354	60.4	61.1	61.9	61.0
Unknown	63	54	60	70	8.6	7.6	9.0	12.1
Total	**734**	**712**	**667**	**580**	**100.0**	**100.0**	**100.0**	**100.0**

Trachea, bronchus, lung cancer incidence in Georgia is significantly lower than the average rate of the European region, EU and CIS countries.

Trachea, bronchus, lung cancer incidence per 100000 men



Source: WHO database "Health for all", NCDC

VI.2.2 Prostata cancer

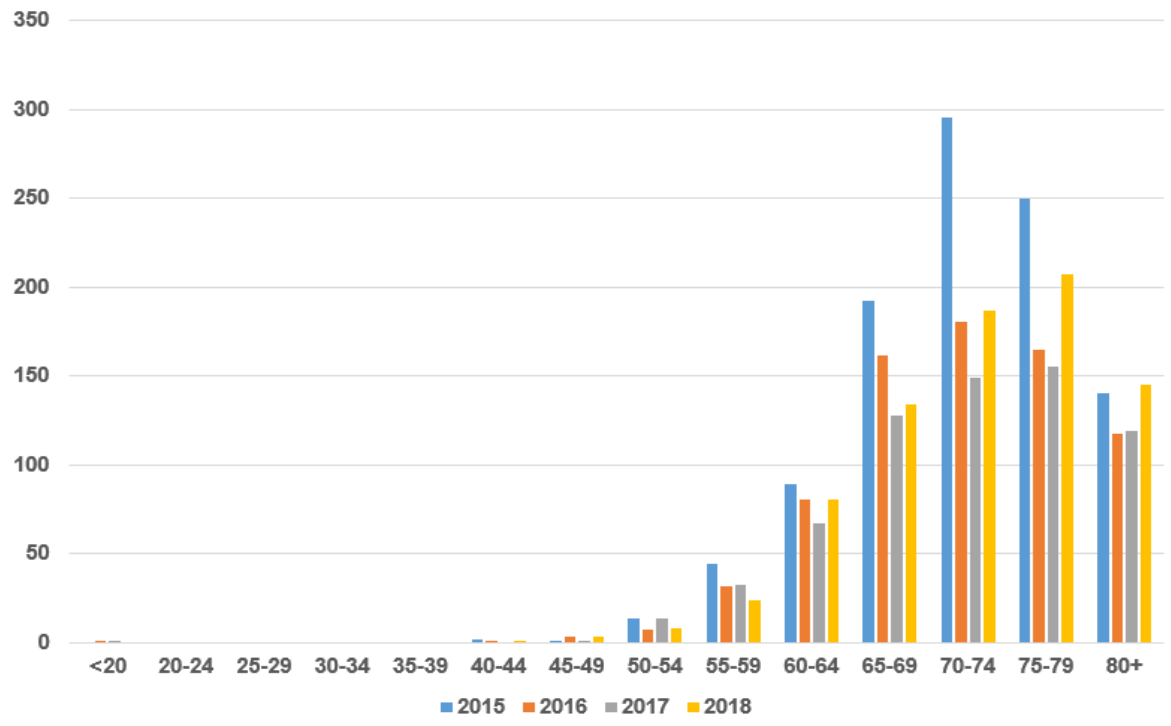
According to the Cancer Registry data in 2018, the number of prostate cancer was on 2nd place. In the age group of 40 years only one case have been registered.

In 2015-2018, the incidence rate of prostata cancer was reduced per 100 000 men (according to the rate - 33.4, 25.1, 22.3, 25.7).

Prostate cancer, new cases by the age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	1	0.2	1	0.3	0	0.0
20-24	0	0.0	0	0.0	0	0.0	0	0.0
25-29	0	0.0	0	0.0	0	0.0	0	0.0
30-34	0	0.0	0	0.0	0	0.0	0	0.0
35-39	0	0.0	0	0.0	0	0.0	0	0.0
40-44	2	0.3	1	0.2	0	0.0	1	0.2
45-49	1	0.2	4	0.9	1	0.3	4	0.9
50-54	17	2.9	9	2.0	16	4.0	9	2.0
55-59	51	8.6	37	8.3	39	9.8	29	6.3
60-64	83	13.9	77	17.2	65	16.3	80	17.4
65-69	132	22.2	119	26.6	96	24.1	106	23.0
70-74	131	22.0	72	16.1	58	14.5	85	18.5
75-79	126	21.2	83	18.5	77	19.3	87	18.9
80+	52	8.7	45	10.0	46	11.5	59	12.8
Total	**595**	**100.0**	**448**	**100.0**	**399**	**100.0**	**460**	**100.0**

Prostate cancer, age-specified incidence, Georgia, 2015-2018



According to new data 1/2 of the cases of prostate cancer were detected at the fourth stage and 50% and more were diagnosed on third and fourth stage.

Prostate cancer, new cases by the stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in men			
	2015	2016	2017	2018	2015	2016	2017	2018
I	73	60	48	36	12.3	13.4	12.0	7.8
II	136	85	75	98	22.9	19.0	18.8	21.3
III	96	85	87	102	16.1	19.0	21.8	22.2
IV	221	156	143	165	37.1	34.8	35.8	35.9
Unknown	69	62	46	59	11.6	13.8	11.5	12.8
Total	**595**	**448**	**399**	**460**	**100.0**	**100.0**	**100.0**	**100.0**

VI.2.3 Malignant neoplasms of urinary bladder

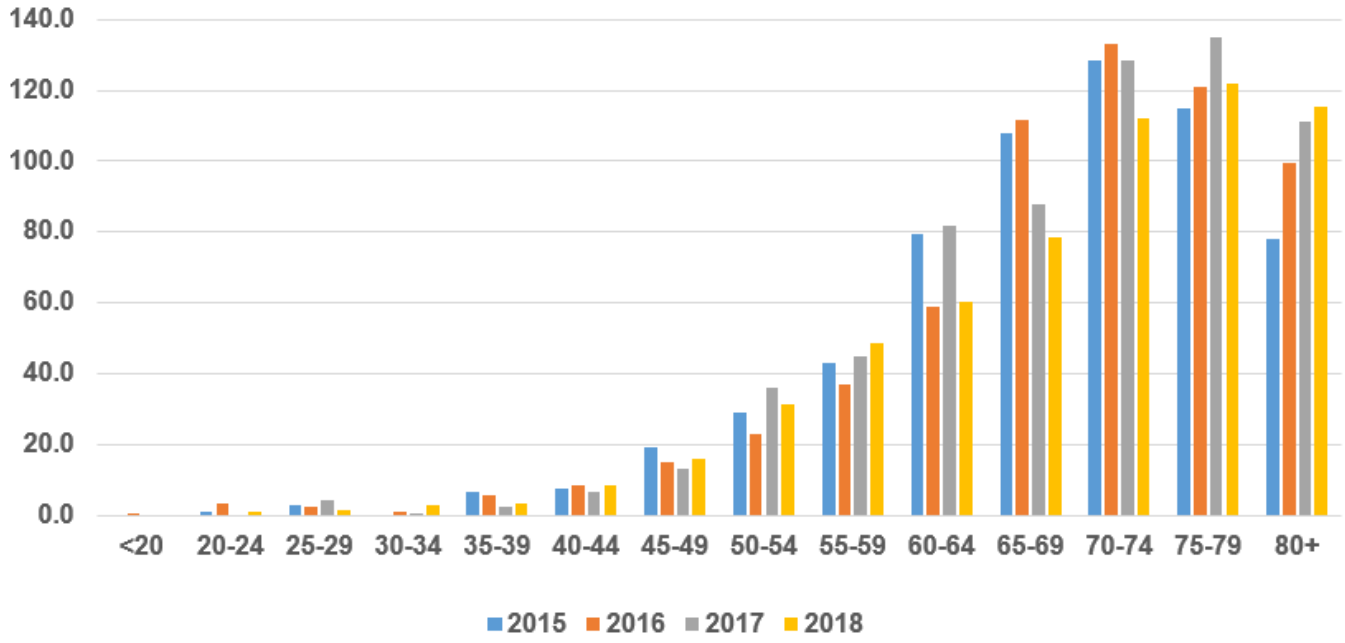
In 2018, according to the Cancer registry, the malignant neoplasms of urinary bladder moved to second place from third. The number of new cases prevails over the age of 55 years.

In 2015-2018 incidence of urinary bladder cancer were almost unchanged per 100000 men (accordingly 23.6, 22.7, 24.3, 22.6).

Urinary bladder cancer, new cases by age, in men, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	2	0.5	0	0.0	0	0.0
20-24	1	0.2	4	1.0	0	0.0	1	0.2
25-29	4	1.0	3	0.7	6	1.4	2	0.5
30-34	0	0.0	1	0.2	1	0.2	4	1.0
35-39	8	1.9	7	1.7	3	0.7	4	1.0
40-44	9	2.1	10	2.5	8	1.8	10	2.5
45-49	22	5.2	17	4.2	15	3.5	18	4.4
50-54	36	8.6	28	6.9	43	9.9	36	8.9
55-59	49	11.6	43	10.6	53	12.2	59	14.6
60-64	74	17.6	56	13.8	79	18.2	60	14.8
65-69	74	17.6	82	20.2	66	15.2	62	15.3
70-74	57	13.5	53	13.1	50	11.5	51	12.6
75-79	58	13.8	61	15.1	67	15.4	51	12.6
80+	29	6.9	38	9.4	43	9.9	47	11.6
Total	**421**	**100.0**	**405**	**100.0**	**434**	**100.0**	**405**	**100.0**

Urinary bladder cancer in men, age-specified incidence, Georgia, 2015-2018



Data of the Cancer registry shows that mostly all new cases of urinary bladder cancer was registered at the first and second stage. According to the three-year recording of the registration, only 25% of the cases in the 4th stage were revealed.

Urinary bladder cancer, new cases by the stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in men			
	2015	2016	2017	2018	2015	2016	2017	2018
I	195	180	185	157	46.3	44.4	42.6	38.8
II	118	83	95	81	28.0	20.5	21.9	20.0
III	24	32	25	26	5.7	7.9	5.8	6.4
IV	36	44	37	41	8.6	10.9	8.5	10.1
Unknown	48	66	92	100	11.4	16.3	21.2	24.7
Total	**421**	**405**	**434**	**405**	**100.0**	**100.0**	**100.0**	**100.0**

VI.2.4 Colorectal cancer

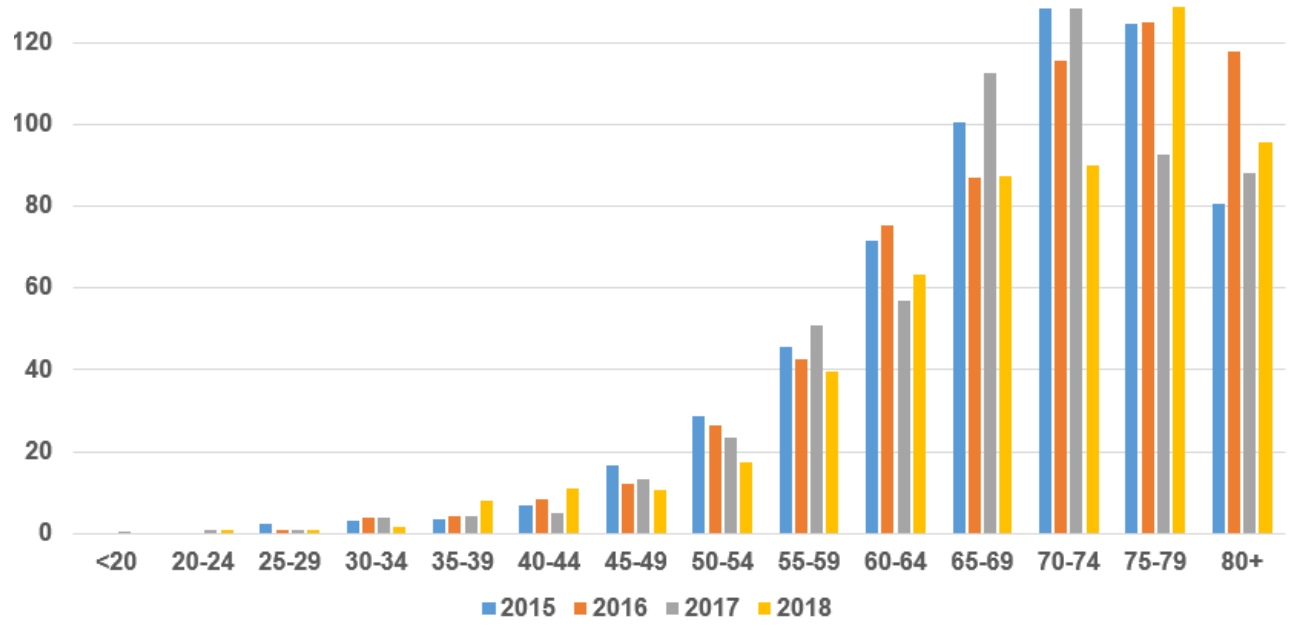
In 2018, among all localization new cases of cancer in men, colorectal cancer were on 4th place.

In 2015-2018, colorectal cancer incidence rate per 100000 men have been decreased (rate per years: 23.1, 22.8, 21.9 და 20.8)

Colorectal cancer in men, new cases by age, Georgia, 2015-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	0	0.0	1	0.3	0	0.0
20-24	0	0.0	0	0.0	1	0.3	1	0.3
25-29	3	0.7	1	0.2	1	0.3	1	0.3
30-34	4	1.0	5	1.2	5	1.3	2	0.5
35-39	4	1.0	5	1.2	5	1.3	10	2.7
40-44	8	1.9	10	2.5	6	1.5	13	3.5
45-49	19	4.6	14	3.4	15	3.8	12	3.2
50-54	36	8.7	32	7.9	28	7.1	20	5.4
55-59	52	12.6	50	12.3	60	15.3	48	12.9
60-64	67	16.3	72	17.7	55	14.0	63	16.9
65-69	69	16.7	64	15.7	85	21.7	69	18.5
70-74	57	13.8	46	11.3	50	12.8	41	11.0
75-79	63	15.3	63	15.5	46	11.7	54	14.5
80+	30	7.3	45	11.1	34	8.7	39	10.5
Total	**412**	**100.0**	**407**	**100.0**	**392**	**100.0**	**373**	**100.0**

Colorectal cancer in men, new cases age-specified, Georgia 2015 – 2018



According to the Cancer registry 70% of colorectal cancer cases were detected on third and fourth stage.

Colorectal cancer in men, new cases by stages, Georgia 2015 – 2018

Stage	Number of cases				Share in all new cases registered in men			
	2015	2016	2017	2018	2015	2016	2017	2018
I	24	20	13	16	5.8	4.9	3.3	4.3
II	83	74	63	81	20.1	18.2	16.1	21.7
III	143	129	160	146	34.7	31.7	40.8	39.1
IV	130	148	124	98	31.6	36.4	31.6	26.3
Unknown/ not mentioned	32	36	32	32	7.8	8.8	8.2	8.6
Total	**412**	**407**	**392**	**373**	**100.0**	**100.0**	**100.0**	**100.0**

VI.2.5 Larinx Cancer

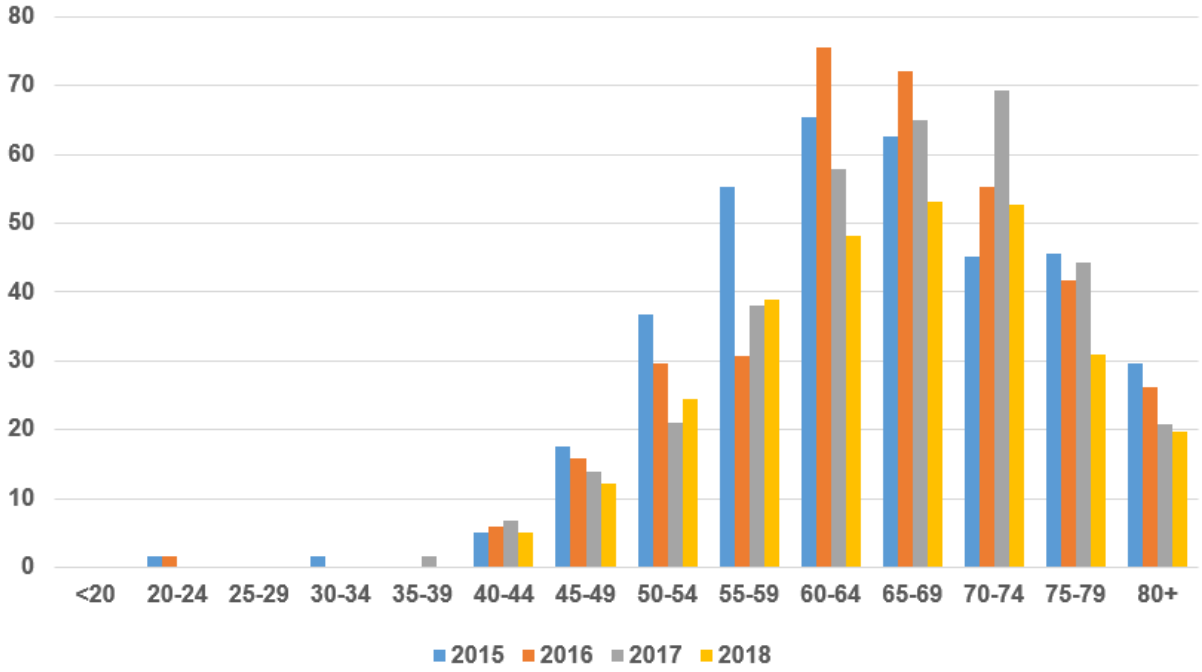
According to the Cancer Population Registry, in the top five malignant tumors in men in 2018 larynx cancer is on 5th place.

In 2015-2018 the incidence of larinx cancer per 100000 men was 2015 - 16.7, 2016 - 15.5, 2017 - 14.4 and 2018 - 12.8 respectively.

Larinx cancer in men, new cases by age, Georgia, 2016-2018

Age	2015		2016		2017		2018	
	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number	Number of cases	Share in the total number
<20	0	0.0	0	0.0	0	0.0	0	0.0
20-24	2	0.7	2	0.7	0	0.0	0	0.0
25-29	0	0.0	0	0.0	0	0.0	0	0.0
30-34	2	0.7	0	0.0	0	0.0	0	0.0
35-39	0	0.0	0	0.0	2	0.8	0	0.0
40-44	6	2.0	7	2.5	8	3.1	6	2.6
45-49	20	6.7	18	6.5	16	6.2	14	6.1
50-54	46	15.5	36	13.0	25	9.7	28	12.2
55-59	63	21.2	36	13.0	45	17.4	47	20.4
60-64	61	20.5	72	26.0	56	21.7	48	20.9
65-69	43	14.5	53	19.1	49	19.0	42	18.3
70-74	20	6.7	22	7.9	27	10.5	24	10.4
75-79	23	7.7	21	7.6	22	8.5	13	5.7
80+	11	3.7	10	3.6	8	3.1	8	3.5
Total	**297**	**100.0**	**277**	**100.0**	**258**	**100.0**	**230**	**100.0**

Larinx cancer in men, new cases age-specified, Georgia, 2015-2018



Around 70% of larinx cancer in men have been registered at the third and fourth stages.

Larinx cancer in men, new cases by stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in men			
	2015	2016	2017	2018	2015	2016	2017	2018
I	29	32	38	40	9.8	11.6	14.7	17.4
II	69	48	49	33	23.2	17.3	19.0	14.3
III	127	118	95	92	42.8	42.6	36.8	40.0
IV	54	50	62	57	18.2	18.1	24.0	24.8
Unknown	18	29	14	8	6.1	10.5	5.4	3.5
Total	**297**	**277**	**258**	**230**	**100.0**	**100.0**	**100.0**	**100.0**

VII. Cancer in adolescents (aged 15-19)

In 2015-2018, according to the Cancer registry, 0.5% of all new cases of malignant neoplasms was registered in adolescents aged 15-19 years. The incidence rate varied between 20 and 27 per 100000 adolescents.

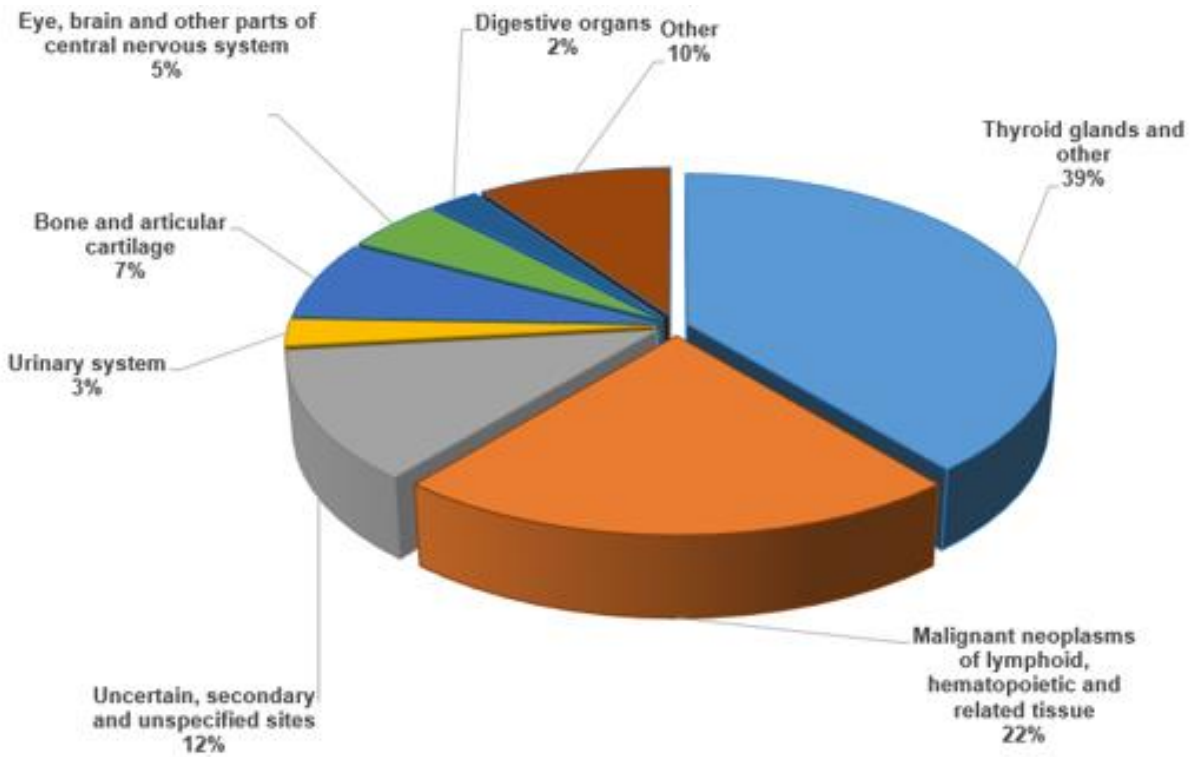
In 2015 in 15-19 aged group the shares of cases is almost the same for both sexes: 48% of all new cases cancer were registered in girls, and 52% in boys; in 2016, 56% - in girls and 44% - in boys, in 2017- 44% and 56% and in 2018 – 41% in girls and 59% in boys.

Thyroid gland is the most common site of malignant neoplasms for both sexes. The majority of new cases of thyroid gland cancer is registered in 15-19 age group in girls.

Malignant neoplasms in adolescents by site, Georgia, 2015-2018

Site	2015	2016	2017	2018
Malignant neoplasm of thyroid gland	17	13	20	16
Malignant neoplasms of lymphoid, hematopoietic and related tissue	14	11	15	10
Ill-defined, secondary and unspecified sites	1	1	2	3
Male genital organs other	6	5	4	3
Malignant neoplasms of bones and articular cartilage	5	3	2	3
Malignant neoplasm of Brain	5	4	1	2
Malignant neoplasm of ovary	2	0	4	1
Brest cancer	0	0	0	1
Malignant neoplasm of urinary sistem	0	0	0	1
Benign neoplasms of Brain	0	0	0	1
Malignant neoplasms of eye, brain and other parts of central nervous system	0	1	1	0
Colorectum cancer	0	0	2	0
Malignant neoplasm of stomach	0	0	1	0
Malignant neoplasm of mesothelial and soft tissue	3	2	0	0
Respiratory system and thoracic cavity organs	1	0	0	0
Malignant neoplasm of other endocrine glands and related structures	0	0	1	0
Trachea, bronchus, lung cancer	0	1		0
Lips, oral cavity organs and pharynx	0	1	3	0
Urinaru Bladder	0	1		0
Prostata cancer	0	0	1	0
Total	**54**	**43**	**57**	**41**

Malignant neoplasms in adolescents by site, Georgia, 2018



Malignant neoplasms in adolescents by site and sex, Georgia, 2015-2018

	2015		2016		2017		2018	
	Male	Female	Male	Female	Male	Female	Male	Female
Malignant neoplasm of thyroid gland	4	13	2	11	4	17	3	13
Malignant neoplasms of lymphoid, hematopoietic and related tissue	7	7	7	4	6	9	5	4
Ill-defined, secondary and unspecified sites	1	0	1	0	0	2	2	3
Female genital organs	0	2	0	0	0	4	0	2
Urinary system	0	0	1	0	0	0	0	1
Bone and articular cartilage	3	2	2	1	1	1	2	1
Breast Cancer	0	0	0	0	0	0	0	0
Benign neoplasms of Brain	0	0	0	0	0	0	0	0
Eye, brain and other parts of central nervous system	4	1	4	1	2	0	2	0
Male genital organs	6	0	5	0	5	0	3	0
Malignant neoplasm of mesothelial and soft tissue	2	1	2	0	0	0	0	0
Brest cancer	0	0	0	0	0	0	0	0
Respiratory system and thoracic cavity organs	1	0	0	1	0	0	0	0
Digestive organs	0	0	0	0	0	3	0	0
Lips, oral cavity organs and pharynx	0	0	0	1	2	1	0	0
Total	**28**	**26**	**24**	**19**	**20**	**37**	**17**	**24**

Around 50% of new cases were registered at the first and second stages, the most part is coming from thyroid gland cancer, although ~10% - at the fourth stages[5].

Malignant neoplasms in adolescents, new cases by stages, Georgia, 2015-2018

Stage	Number of cases				Share in all new cases registered in men			
	2015	2016	2017	2018	2015	2016	2017	2018
I	17	12	21	17	31.5	27.9	36.8	41.5
II	10	6	5	4	18.5	14.0	8.8	9.8
III	9	7	5	6	16.7	16.3	8.8	14.6
IV	6	5	9	2	11.1	11.6	15.8	4.9
Unknown	12	13	17	12	22.2	30.2	29.8	29.3
Total	**54**	**43**	**57**	**41**	**100.0**	**100.0**	**100.0**	**100.0**

VIII. Cancer in children (aged 0-15)

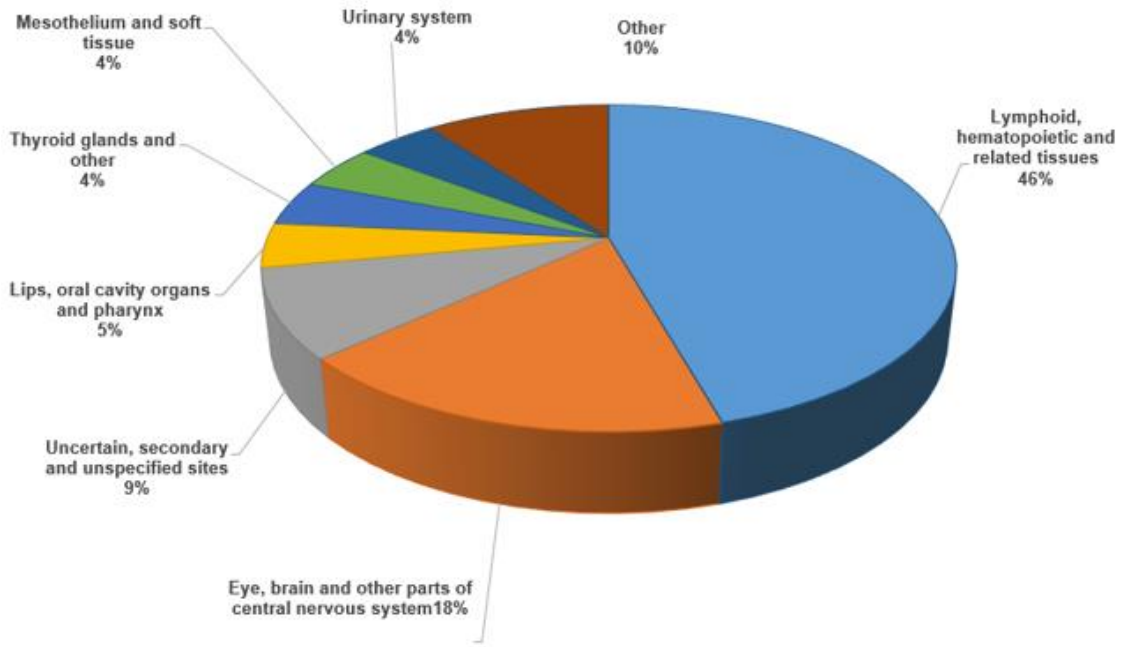
In 2015-2018, in Georgia, about 1% of new cases of the malignant neoplasms was registered in children aged under-14. The incidence rate was varied from 9 to 13 per 100000 children. The cases were distributed almost equally between sexes.

[5] *Malignant neoplasms of lymphoid, hematopoietic and related tissue have been excluded*

Cancer in children, new cases by site, Georgia, 2015-2018

	2015	2016	2017	2018
Lymphoid, hematopoietic and related tissues	47	47	38	31
Eye, brain and other parts of central nervous system	21	21	14	12
Uncertain, secondary and unspecified sites	5	3	0	6
Thyroid glands and other endocrine glands	6	7	7	3
Urinary system	5	7	4	3
Mesothelial and soft tissue	5	4	4	3
Lips, oral cavity organs and pharynx	1	0	0	3
Male genital organs	0	1	0	2
Bone and articular cartilage	7	4	5	2
Female genital organs	0	1	1	1
Respiratory system and thoracic cavity organs	0	0	0	1
Digestive organs	0	1	2	1
Total	**97**	**96**	**75**	**68**

Cancer in children, new cases by site, Georgia, 2018



Cancer in children, new cases by site and sex, Georgia, 2015-2018

	2015		2016		2017		2018	
	Male	Female	Male	Female	Male	Female	Male	Female
Lymphoid, hematopoietic and related tissues	26	21	23	24	22	16	17	14
Eye, brain and other parts of central nervous system	10	11	12	9	5	9	6	6
Uncertain, secondary and unspecified sites	3	2	3	0	0	0	3	3
Lips, oral cavity organs and pharynx	1	0	0	0	0	0	1	2
Thyroid glands and other	3	3	4	3	4	3	1	2
Mesothelium and soft tissue	1	4	1	3	3	1	2	1
Urinary system	1	4	3	4	0	4	2	1
Female genital organs	0	0	0	1	0	1		1

Bone and articular cartilage	4	3	3	1	3	2	1	1
Male genital organs	0	0	1	0	0	0	2	0
Respiratory system and thoracic cavity organs	0	0	0	0	0	0	1	0
Digestive organs	0	0	1	0	2	0	1	0
Total	**49**	**48**	**51**	**45**	**39**	**36**	**37**	**31**

14% - 22% of new cases were registered at the first and second stages, although 47% - 59% - at the third and fourth stages[6].

New cases of malignant neoplasms in children (malignant neoplasms of lymphoid, hematopoietic and related tissue have been excluded) according to the stages, Georgia, 2015-2018

Stages	Number of cases				Share in new cases (malignant neoplasms of lymphoid, hematopoietic and related tissue have been excluded)			
	2015	2016	2017	2018	2015	2016	2017	2018
I	2	4	3	5	4.0	8.2	8.1	13.5
II	6	6	3	1	12.0	12.2	8.1	2.7
III	8	6	9	4	16.0	12.2	24.3	10.8
IV	16	19	10	10	32.0	38.8	27.0	27.0
Unknown	18	14	12	17	36.0	28.6	32.4	45.9
Total	**50**	**49**	**37**	**37**	**100.0**	**100.0**	**100.0**	**100.0**

IX. Diagnostic and treatment of malignant neoplasms

2015-2018 data from the Cancer registry shows, that in 89% of cases the diagnosis was confirmed by hystomorphology and cytology.

Method of treatment of malignant neoplasms, Georgia, 2015-2018

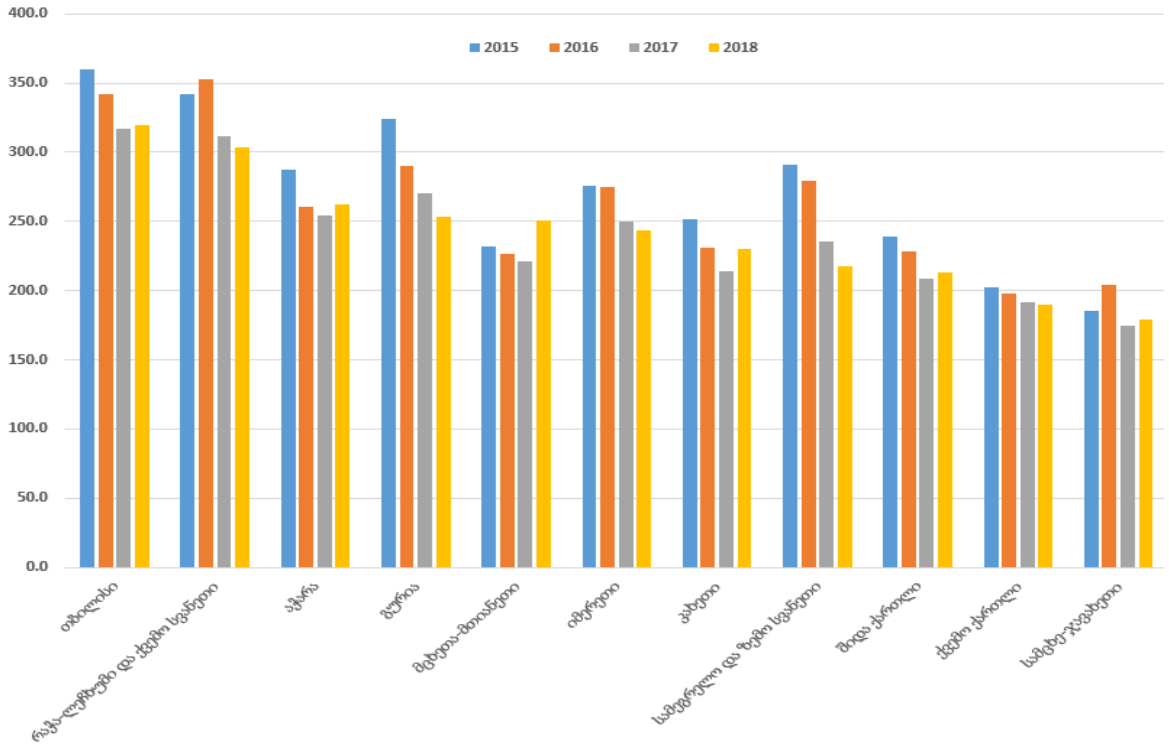
	Number of cases				% of new cases out of the total number			
	2015	2016	2017	2018	2015	2016	2017	2018
Chemotherapy	3650	3208	2545	3143	33.5	30.8	26.6	32.6
Radio-therapy	2498	2443	2065	1576	23.0	23.5	21.6	16.4
Surgical	6283	6368	5754	5275	57.7	61.2	60.2	54.7
Palliative care	1533	1345	1100	978	14.1	12.9	11.5	10.2

[6] *Malignant neoplasms of lymphoid, hematopoietic and related tissue have been excluded*

X. Distribution of new cases of malignant neoplasms by the place of residence

The first time geographical distribution of cancer incidence by place of residence of patients (not by the place of receiving medical services) can be estimated using the Cancer Population Registry.

Distribution of new cases of malignant neoplasms by the place of residence, Georgia, 2015-2018



As a first step, new cases registered during 2015-2018 in the cancer registry were distributed according to the geographical location (region, municipality and village / community level).

A cancer cluster is defined as more than expected number of cases of the same localization or similar etiology, which are revealed during the specific period of time and in the specific population (common age group, impacts of professional factors, etc.). Age-standardized incidence rate, instead of a crude incidence, has been used for a cluster revealing. Age-standartized rates allows comparison of regions / municipalities eliminating the influence of the internal age structures (for example, excessive number of elderly population with high cancer incidence). Thus, the variation of the age-standardized incidence rate indicates only the difference of intensity of risk factors. All indicators are calculated using the results of the population census of 2014.

At the initial stage a reference (comparable) population was selected, the incidence rate of this territory was compared to the incidence of regions. In the given case the population of the whole country is taken as a reference. Following expert opinion if in a selected area the age-standardized rate of a selected cancer site is twice or more times higher the rate of the reference population that could be considered a cluster. As calculations show, the age-standardized incidence rate in the country is 258.5 per 100,000 population. In 12 municipalities, the age-standardized incidence exceeds the reference indicator. In the above-mentioned municipalities the indicator ranges from 265 (Signagi) to 378 (Batumi), thus, the age-standardized incidence is not twice or more times higher

than the average. Particular differences in the incidence of cancer between the regions of the country have not been revealed.

Four-year average age-standardized incidence in some municipalities of Georgia 2015–2018

Municipalities	Age-standardized incidence rate (standardized using population of Georgia)
Batumi	378.6
Tbilisi	372.4
Foti	325.2
Mestia municipaliti	311.4
Kutaisi	310.5
Khelvachauri municipaliti	299.0
Kazbegi municipaliti	294.5
Oni municipaliti	293.5
Rustavi	290.3
Ozurgeti	284.5
Sachkherte municipaliti	266.6
Signagi municipaliti	265.2
Georgia	**258.5**

Acording to the professional guidelines, the existence of a cancer cluster may be suspected if at least one of the following three characteristics is identified: (1) the incidence of **one site oncological diseases or similar etiology** is greater than the reference population; (2) increasing frequency of **rare site cancers** (which is not widespread in a given population and does not include in the top five or ten of the most common localizations-sites); (3) the incidence of this site cancer has increased in an **unusual age group** - at a later stage, the data, where the maximum age-standardized incidence was reported, were divided according by tumor localization (Ozurgeti Municipality, Akhaltsikhe Municipality).

Note: It should be borne in mind that the cancer cluster should not be looked only for the types of cancer that are widespread and are in the top five or top ten. As experts point out, cluster spreading is often a rare spreading cancer.

Average age-standardized incidence in males, selected sites, Batumi, Georgia, 2015-2018

Site	Batumi	Georgia
Trachea, bronchus, lung	61.6	29.8
Skin, other cancer	32.8	14.9
Colorectal	24.3	17.1
Urinary Bladder	24.0	17.8
Prostata	22.9	20.3
Larinx	17.9	11.7
Stomach	16.4	11.4
Lymphoid, haematopoietic and related tissues	14.7	12.4

Urinary system, other cancer	11.3	7.9
Lips, oral cavity organs and pharynx	9.7	7.5
Digestive organs	8.6	6.6
Thyroid gland	7.6	5.4
Ill-defined, secondary and unspecified sites	6.7	6.5
Brain	6.2	4.6
Pancreas	5.8	3.3
Mesothelium and soft tissue	4.6	3.3
Male genital organs	3.3	4.1
Respiratory system and thoracic cavity organs	2.3	1.0
Esophagus	2.3	1.4
Brest cancer	1.8	1.3
Melanoma	1.7	1.9
Eye, brain and other parts of central nervous system	1.2	0.8
Bone and articular cartilage	1.0	1.2
Cancer of other endocrine glands	1.0	0.4

Average age-standardized incidence in females, selected sites, Batumi, Georgia, 2015-2018

Site	Batumi	Georgia
Brest cancer	138.7	108.1
Thyroid gland	48.2	50.4
Skin, other cancer	31.4	20.9
Colorectal	31.4	22.4
Corpus uteri	29.3	21.4
Cervical cancer	28.3	19.7
Ovarium	28.0	16.2
Digestive organs, other cancer	17.2	6.6
Pancreas	16.6	4.8
Lymphoid, haematopoietic and related tissues	15.2	16.3
Trachea, bronchus, lung	14.6	6.6
Ill-defined, secondary and unspecified sites	12.0	7.3
Stomach	10.7	9.7
Urinary bladder	8.7	7.4
Urinary system, other cancer	7.6	6.3
Brain	6.5	6.1
Lips, oral cavity organs and pharynx	3.7	3.4
Female genital organs, other cancer	3.5	3.8
Melanoma	3.3	3.2
Mesothelium and soft tissue	3.2	3.7
Esophagus	2.8	0.7
Larinx	2.3	0.9
Respiratory system and thoracic cavity organs	2.2	0.8
Bone and articular cartilage	1.2	1.7
Eye, brain and other parts of central nervous system	1.1	1.0
In situ	0.9	3.7

APPENDIX 1

Average crude and age-standardized incidences by municipalities, Georgia, 2015 - 2018

Municipality	Crude incidence rate	Municipality	Age-standardized incidence rate (reference population – Georgia)
Oni municipality	391.5	Batumi	378.6
Tbilisi	345.3	Tbilisi	372.4
Kazbegi municipality	329.4	Foti	325.2
Ambrolauri municipality	328.5	Mestia municipality	311.4
Batumi	328.0	Kutaisi	310.5
Foti	320.8	Khelvachaurimunicipality	299.0
Mestia municipality	319.3	Kazbegi municipality	294.5
Ozurgeti municipality	315.4	Onis municipality	293.5
Signagi municipality	313.0	Rustavi	290.3
Kutaisi	296.5	Ozurgeti municipality	284.5
Sachkhere municipality	287.9	Sachkhere municipality	266.6
Tianeti municipality	279.9	Signagi municipality	265.2
Tsageri municipality	276.8	Ambrolauri municipality	248.2
Lentekhi municipality	267.9	Aspindza municipality	243.2
Khoni municipality	264.1	Zugdidi municipality	238.5
Gurdjaani municipality	260.9	Kobuleti municipality	238.2
Dedoplis tskaro municipality	260.4	Zestafoni municipality	235.9
Khelvachauri municipality	259.8	Tianeti municipality	235.5
Abasha municipality	258.5	Lentekhi municipality	234.5
Zestafoni municipality	253.8	Gurdjaani municipality	231.4
Zugdidi municipality	252.6	Khonimunicipality	230.0
Dusheti municipality	250.4	Dedoplis tskaro municipality	229.9
Rustavi	250.2	Abasha municipality	229.5
Chiatura municipality	248.2	Borjomi municipality	229.0
Tsalendjikha municipality	245.6	Keda municipality	228.3
Borjomi municipality	242.9	Akhaltsixe municipality	227.3
Senaki municipality	242.7	Telavi municipality	225.0
Tkibuli municipality	242.3	Adigeni municipality	223.8
Aspindza municipality	241.0	Shuakhevi municipality	223.5
Lanchkhuti municipality	240.6	Dusheti municipality	223.0
Bagdadi municipality	238.6	Gori municipality	221.7
Kaspi municipality	238.2	Khashuri municipality	221.3
Tskaltubo municipality	235.6	Tsalendjikha municipality	220.2
Telavi municipality	232.2	Senaki municipality	219.8
Kharagauli municipality	229.8	Chiatura municipality	219.6
Cholhatauri municipality	228.9	Kaspi municipality	219.0
Khashuri municipality	228.1	Tskaltubo municipality	218.2
Adigeni municipality	226.3	Akhmeta municipality	215.4
Akhaltsixe municipality	224.3	Lanchkhuti municipality	215.4
Keda municipality	222.3	Gardabani municipality	215.3
Samtredia municipality	219.8	Bagdadi municipality	210.7
Kobuleti municipality	219.3	Tkibuli municipality	207.5
Gori municipality	218.8	Tsageri municipality	206.7
Akhmeta municipality	218.5	Kareli municipality	203.8
Shuakhevi municipality	217.7	Samtredia municipality	202.9
Martvili municipality	217.4	Kharagauli municipality	202.9
Kareli municipality	210.0	Cholhatauri municipality	200.3
Kvarlis municipality	202.8	Lagodekhi municipality	200.1
Khobi municipality	202.1	Khulo municipality	200.0
Lagodekhi municipality	200.9	Mtskheta municipality	195.3
Gardabani municipality	197.9	Marneuli municipality	194.4
Mtskheta municipality	191.4	Kvarlis municipality	189.6
Chkhorotsku municipality	187.1	Martvili municipality	189.0
Khulo municipality	185.4	Sagarejo municipality	187.7
Dmanisi municipality	182.9	Dmanisi municipality	187.5
Terjola municipality	181.4	Khobi municipality	186.4
Sagarejo municipality	180.6	Bolnisi municipality	170.2
Tetri Tslaromunicipality	179.9	Tetri Tslaromunicipality	169.9
Marneuli municipality	169.0	Chkhorotsku municipality	167.6

Bolnisi municipality	165.6	Terjola municipality	163.7
Vani municipality	161.1	Ninotsminda municipality	161.5
Ninotsminda municipality	147.0	Tsalka municipality	149.3
Tsalka municipality	139.3	Vani municipality	134.6
Akhalkalaki municipality	117.6	Akhalkalaki municipality	126.4

The publication was prepared by the Department for Medical Statistics of the National Centre for Disease Control and Public Health of The Ministry of Labour, Health and Social Affires of Georgia.

In any question applications, should be made to the National Centre for Disease Control and Public Health named after L.Sakvarelidze at 99, Kakheti Highway, Tbilisi, Georgia

Phones: (+995 32) 219 25 95 (ext. 664)

E-mail: statistics@ncdc.ge

Web-site: www.ncdc.ge

FREE EDITION