PATHOLOGY - BASED CANCER FREQUENCY DATA : SRI LANKA – 2017

(Pathology Based Cancer Registry, Sri Lanka)

NATIONAL CANCER CONTROL PROGRAMME

MINISTRY OF HEALTH AND INDIGENOUS MEDICAL SERVICES

Pathology - Based Cancer Frequency Data : Sri Lanka – 2017

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Ministry of Health and Indigenous Medical Services

555/5, Public Health Complex

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Sri Lanka

1st Publication Pathology Based Cancer Frequency Data - Sri Lanka: 2017

Published date 19th May 2020

Compiled by

SRI LANKA CANCER REGISTRY

Strategic Information Management (SIM) Unit

National Cancer Control Programme

Published by

National Cancer Control Programme

Ministry of Health and Indigenous Medical Services

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World Health Organization (WHO)

WHO Country Office – Sri Lanka

WHO SEARO Office – New Delhi, India

International Agency for Research on Cancer (IARC), Lyon, France

Other International Organizations & Institutes

IARC Regional Hub, Centre for Cancer Epidemiology

Advanced Centre for Treatment, Research and Education in Cancer

Tata Memorial Centre, Mumbai, India

International Association for Cancer Registries (IACR)

WIA Cancer Institute, Adyar, Chennai

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Executive Summary

Introduction

Pathology-based cancer registry collects information from one or more of the laboratories on histologically / cytologically confirmed cancers. It gives a quick '***snapshot***' of the cancer profile reported to the pathology laboratories in a defined time period. Also, the information is helpful in understanding service needs of the reported pathology laboratories.

In Sri Lanka National Cancer Control Programme (NCCP) commenced pathology-based cancer registry from year 2000 onwards as a parallel registry to the National Cancer Registry which aggregated newly registered patients with cancers from cancer treatment units. However, pathology-based data were also incorporated to the National Cancer Registry from year 2008 onwards. Considering the availability of large volume of latest data, later it was decided to publish cancer frequency data generated from the pathology-based cancer registry as a stand-alone publication using year 2017 pathology data onwards. Later these data were incorporated to the National Cancer Registry or Population Based Cancer registry as another data source to generate cancer incidence data after elimination of duplicates.

Methodology

NCCP receives data on newly diagnosed cancers at the histopathology, haematology or oral pathology laboratories through monthly Cancer Return Form - 1 (H 1290). The process is guided by the circulars 02/61/2002 and 01/22/2012 issued by the Ministry of Health.

Over the last few years due to several interventions conducted with the active participation of relevant professional colleges and key stakeholders, number of laboratories sending monthly cancer returns were increased. During the period of 01.01.2017 to 31.12.2017, 50 histopathology laboratories, six haematology laboratories and one oral pathology laboratory have sent details of 18,999 patients with cancer.

When 'Patient details' and 'Tumor details' are received through the Cancer Return Form - 1 (H 1290), cancer registry staff of NCCP code the site (Topography) and histology / cytology (Morphology) according to the International Classification of Diseases for Oncology – 3rd

edition (ICD-O 3). Coded data were entered to the CanReg 5 database of the National Cancer Registry of Sri Lanka. Cancers reported through pathology laboratories, during the whole one-year period in 2017 were identified and analyzed to generate the report.

Results

A total of 18,999 cancers were diagnosed at the pathology laboratories and 50.2% (n=9533) were among males and 49.8% (n=9466) were among females. Proportion of cancers were increased over the 5-year age groups and the highest percentage (15%, n=2852) was reported among 65-69 year age group.

Lip, tongue & mouth (15.7%, n=1495), Colon and rectum (9%, n=860), Trachea, bronchus and lungs (8.2%, n=782) and Oesophagus (7.7%, n=735) were the highest frequent cancers among males. Breast (27%, n=2558), Thyroid (11.5%, n=1086), Colon and rectum (9.5%, n=895), Uterus (6.7%, n=631) were the highest frequent cancers among females. Out of the total female breast cancers 33.5% (n=858) were detected before the age of 50 and a total of 27 female breast cancers were detected before the age of 30. Colon & rectum cancer was the second and third highest frequent cancer among males and females respectively. Skin cancers appeared within the first 10 leading cancers among both males (4.7%, n=452) and females (3.2%, n=307). Only 484 (5.4%) cervical cancers were reported through the pathology-based surveillance.

Conclusions & Recommendations

Pathology laboratory-based cancer surveillance generated a snap shot of recently diagnosed cancers in Sri Lanka. The highest frequent cancer among males is lip, tongue and mouth cancer while among females it is breast cancer.

A multifaceted approach to prevent oral cancer is mandatory as oral cancer is preventable through risk factor intervention. Since 1/3 of breast cancers are detected at the pre-menopausal age groups, early detection programmes need to be further promoted giving priority for ‘be breast aware concept’, self-breast examination and clinical breast examination.

As colo-rectal cancers are appearing at the top of the list, facilities for early detection and management need to be further improved. Detailed epidemiological studies need to be conducted to identify the reasons for the increase in colo-rectal cancer & thyroid cancer.

The reported reduction seen in the number of cervical cancer cases has to be further studied to identify the actual cause to differentiate whether it is due to a true reduction of cases or a reduction in reporting.

It is important to improve timeliness and accuracy in case reporting to strengthen the surveillance system. Regular monitoring of reporting from centres and providing feedback has to be focused on.

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IACR	International Association of Cancer Registries
IARC	International Agency for Research on Cancer
ICD 0-3	International Classification of Diseases for Oncology – 3rd Version
NCCP	National Cancer Control Programme
PBCR	Population Based Cancer Registry
WHO	World Health Organization

1. Introduction

1.1 Cancer surveillance (Cancer registration)

System to collect newly confirmed cancers following histological confirmation from one or more of the pathology laboratories is called as 'Pathology based cancer registry'. The characteristics of pathology-based cancer registry is compared with other leading types of cancer registries as shown in table 1.

Table 1: Types of cancer registry: Characteristics, purpose and utility in cancer control

Type of registry	Characteristics	Purpose	Can a registry be used in formulating cancer plan?
Hospital based cancer registry	Collects information on all cases of cancer treated in one or more hospitals.	Useful for administrative purposes and for reviewing clinical performance.	**No**. Incomplete and inaccurate sample. Dataset is based on patient attendance at given hospitals. Cancer profile will be biased, determined by facilities and expertise available within key institutions.
Pathology based cancer registry	Collects information from one or more laboratories on histologically confirmed cancers	Support needs for laboratory based services and serves as a quick 'snapshot' of cancer profile	**No.** Incomplete and inaccurate sample. Dataset is based only on laboratory-based cancers. Cancer profile will be biased, determined by cancers for which tumor tissue investigations were undertaken.
Population based cancer registry (PBCR)	Systematically collects information on all reportable neoplasms occurring in a geographically defined population from multiple sources	Compares and interprets population-based cancer incidence data Supports population-based actions aimed at reducing the cancer burden in the community	**Yes.** The systematic ascertainment of cancer incidence from multiple sources can provide an unbiased profile of the cancer burden and how it changes over a time. PBCR can play a unique role in planning and evaluating cancer control programmes.

(Bray et al., 2014)

1.2 History of pathology-based cancer surveillance in Sri Lanka

Pathology based cancer surveillance commenced in Sri Lanka based on newly reported cancers in the pathology laboratories in the year 2000 as a World Health Organization (WHO) funded collaborative research study between NCCP & Department of Pathology, Faculty of Medicine, University of Colombo (Perera, 2016). The objective of the research study was to determine the occurrence of malignancies in public and private health sectors in order to streamline the management of cancer patients. To obtain the necessary administrative clearance from the managing directors of private sector pathology laboratories, a special circular letter (Circular letter PHSD/INFO/1/2000) with a data collection sheet was issued by the Director, Private Health Sector Development of Ministry of Health. Since there were no plans to merge pathological data with data from the cancer treatment centres, personal identification data (e.g. Name, Permanent address and National Identity Card number etc.) were not collected initially. The two data bases were maintained separately at the office of NCCP.

To formalize the process further, in year 2002, a General Circular Letter (02-01/2002) was issued by the Director General of Health Services informing all heads of hospitals in both government & private sectors regarding the 'Mandatory reporting of Histologically confirmed Malignancies' to the NCCP for the pathology-based cancer surveillance.

Published data was scarce during the initial period of pathology-based cancer surveillance. The summary of pathology-based cancer surveillance from 2000 – 2004 and the common sites of cancers reported through the pathology-based cancer surveillance for the year 2001 is annexed in table 1 and table 2.

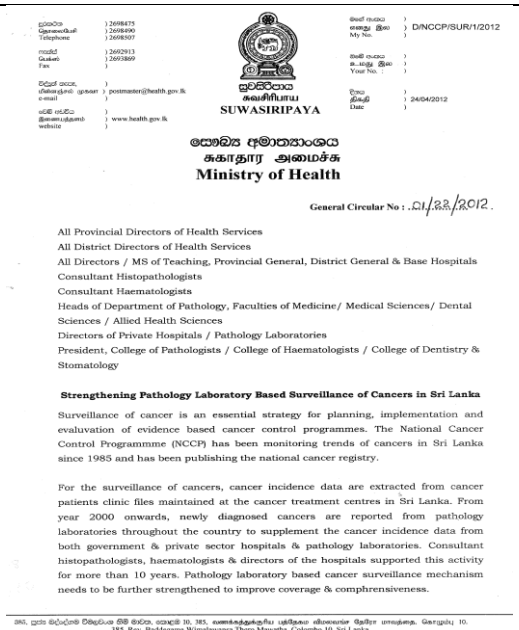
In year 2004 & 2005, a detailed review of cancer registration in Sri Lanka was conducted by Dr. R. Sankaranarayanan of International Agency for Research on Cancer (IARC) of WHO and Dr. Maxwell Parkin, President of the International Association of Cancer Registries (IACR) respectively. The review report recommended to incorporate both hospital-based cancer registry and pathology-based cancer registry to the common CANREG software developed by the IARC of WHO. Therefore, from the cancer incidence data of year 2008 onwards, data on

newly diagnosed cancers at the pathology laboratories were incorporated to the hospital-based cancer registry data through the CANREG software and generated national cancer registry. This amalgamation was timely even for the commencement of Population based cancer registry of Colombo district which was commenced with the cancer incidence data of year 2012.

During the period of 2009 – 2012, several interventions were conducted to strengthen the pathology-based cancer surveillance as part of a holistic approach in strengthening cancer registration in Sri Lanka coinciding with the commencement of population-based cancer registry of Colombo district.

1. Issuing a General Circular No. 01 - 22/2012 on Pathology Laboratory Based Cancer Surveillance in both government & private health sector.

2. Developing a booklet on pathology laboratory-based cancer surveillance (Published in year 2012) to sensitize consultants, medical officers, medical laboratory technicians etc. at pathology laboratories.



SUWASIRIPAYA

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சுகாதார அமைச்சு
Ministry of Health

My No. D/NCCP/SUR/1/2012

Date 24/04/2012

General Circular No : 01/22/2012

All Provincial Directors of Health Services
All District Directors of Health Services
All Directors / MS of Teaching, Provincial General, District General & Base Hospitals
Consultant Histopathologists
Consultant Haematologists
Heads of Department of Pathology, Faculties of Medicine/ Medical Sciences/ Dental Sciences / Allied Health Sciences
Directors of Private Hospitals / Pathology Laboratories
President, College of Pathologists / College of Haematologists / College of Dentistry & Stomatology

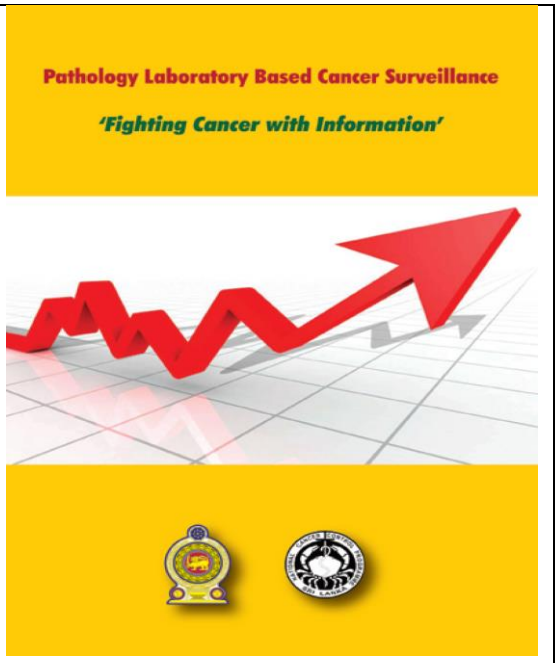
Strengthening Pathology Laboratory Based Surveillance of Cancers in Sri Lanka

Surveillance of cancer is an essential strategy for planning, implementation and evaluvation of evidence based cancer control programmes. The National Cancer Control Programmme (NCCP) has been monitoring trends of cancers in Sri Lanka since 1985 and has been publishing the national cancer registry.

For the surveillance of cancers, cancer incidence data are extracted from cancer patients clinic files maintained at the cancer treatment centres in Sri Lanka. From year 2000 onwards, newly diagnosed cancers are reported from pathology laboratories throughout the country to supplement the cancer incidence data from both government & private sector hospitals & pathology laboratories. Consultant histopathologists, haematologists & directors of the hospitals supported this activity for more than 10 years. Pathology laboratory based cancer surveillance mechanism needs to be further strengthened to improve coverage & comphrensiveness.

385, Rev. Baddegama Wimalawansa Thero Mawatha, Colombo 10, Sri Lanka.

General Circular No. 01 - 22/2012 on Pathology Laboratory Based Cancer Surveillance



Booklet on pathology laboratory-based cancer surveillance

3. Regular communications were conducted with the membership of College of Pathologists & Haematologists through their respective college councils.

4. Awareness programmes were conducted at the academic sessions of professional colleges – Annual academic sessions of College of Pathologists in 2010.

5. In addition to the above interventions, Monitoring & Evaluation report on pathology laboratory surveillance was sent to each pathology laboratory annually and reminded about missing returns.

The summary of pathology-based cancer surveillance during 2008 – 2016 is illustrated in table 2.

Table 2: Summary of pathology-based cancer surveillance for the period of 2008-2016

Year	Type of Laboratory					
	Histopathology		Haematology		Oral Pathology	
	No. of labs	No. of cases reported	No. of labs	No. of cases reported	No. of labs	No. of cases reported
2008	16					
2009	15					
2010	13					
2011	13	5,029	2	59		
2012	31	9,850	5	166	1	425
2013	38	12,299	6	378	1	429
2014	45	13,035	5	258	1	403
2015	51	16,127	6	216	1	184
2016	45	15,182	4	166	1	

1.3 Justification for publishing the report on pathology-based cancer surveillance of Sri Lanka

Pathology based cancer surveillance is a rich source of information for additional case ascertainment for the population-based cancer registry. Also, it will provide additional information on already identified patients with cancers.

While incorporating pathology-based cancer surveillance data to the National Cancer Registry and PBCR, Colombo district, NCCP decided to publish annual report on Pathology Based Cancer Registry since it would give a 'snapshot' of cancer profile of the country with improved coverage. In addition, publishing the profile of diagnosed cancers would support to identify the needs for laboratory-based services throughout the country.

2. Methodology

2.1 Study setting

All pathology laboratories (histopathology / haematology / oral pathology) in government or private sector in Sri Lanka.

2.2 Reference time period

1st January 2017 – 31st December 2017

2.3 Data collection of newly diagnosed cancers at the pathology laboratories

Details of newly diagnosed cancers from histopathology, haematology and oral pathology laboratories were received to the NCCP monthly through Cancer Return Form – 1 (H-1290).

A total of 50 histopathology, eight haematology and one oral pathology laboratory reported 18,371, 312 and 316 cases respectively giving a total number of reported cases as 18,999.

Number of cancer cases reported from histopathology (table 3), haematology (table 4) and oral pathology (5) laboratories in 2017 are annexed.

2.4 Coding & data entering

When 'Patient details' and 'Tumor details' are received through the Cancer Return Form -1 (H 1290), cancer registry staff of NCCP coded the site (Topography) and histology / cytology (Morphology) according to the International Classification of Diseases for Oncology – 3rd edition (ICD-O 3). Coded data were entered to the CanReg 5 database of the National Cancer Registry of the Sri Lanka.

2.5 Data analysis & report writing

Cancers reported through pathology laboratories, during 2017 (1st January 2017 – 31st December 2017) were identified from the CanReg 5 data base and exported to MS Excel & SPSS software for data analysis.

3. Results

3.1 Pathology-based cancer cases - 2017

Table 3: Pathology-based cancer cases, by age group and sex – 2017

Age group	Male		Female		All	
	Cases	(%)	Cases	(%)	Cases	(%)
Not known	57	0.6	30	0.3	87	0.5
00-04	64	0.7	50	0.5	114	0.6
05-09	29	0.3	18	0.2	47	0.2
10-14	30	0.3	47	0.5	77	0.4
15-19	64	0.7	66	0.7	130	0.7
20-24	59	0.6	121	1.3	180	0.9
25-29	98	1.0	160	1.7	258	1.4
30-34	117	1.2	266	2.8	383	2.0
35-39	199	2.1	533	5.6	732	3.9
40-44	252	2.6	636	6.7	888	4.7
45-49	621	6.5	868	9.2	1489	7.8
50-54	988	10.4	1082	11.4	2070	10.9
55-59	1271	13.3	1173	12.4	2444	12.9
60-64	1473	15.4	1274	13.5	2747	14.5
65-69	1620	17.0	1232	13.0	2852	15.0
70-74	1266	13.3	961	10.2	2227	11.7
75+	1325	13.9	949	10.0	2274	12.0
Total	**9533**	**100.0**	**9466**	**100.0**	**18999**	**100.0**

Pathology-based cancer cases by age group among males (table 6) and females (table 7) are annexed.

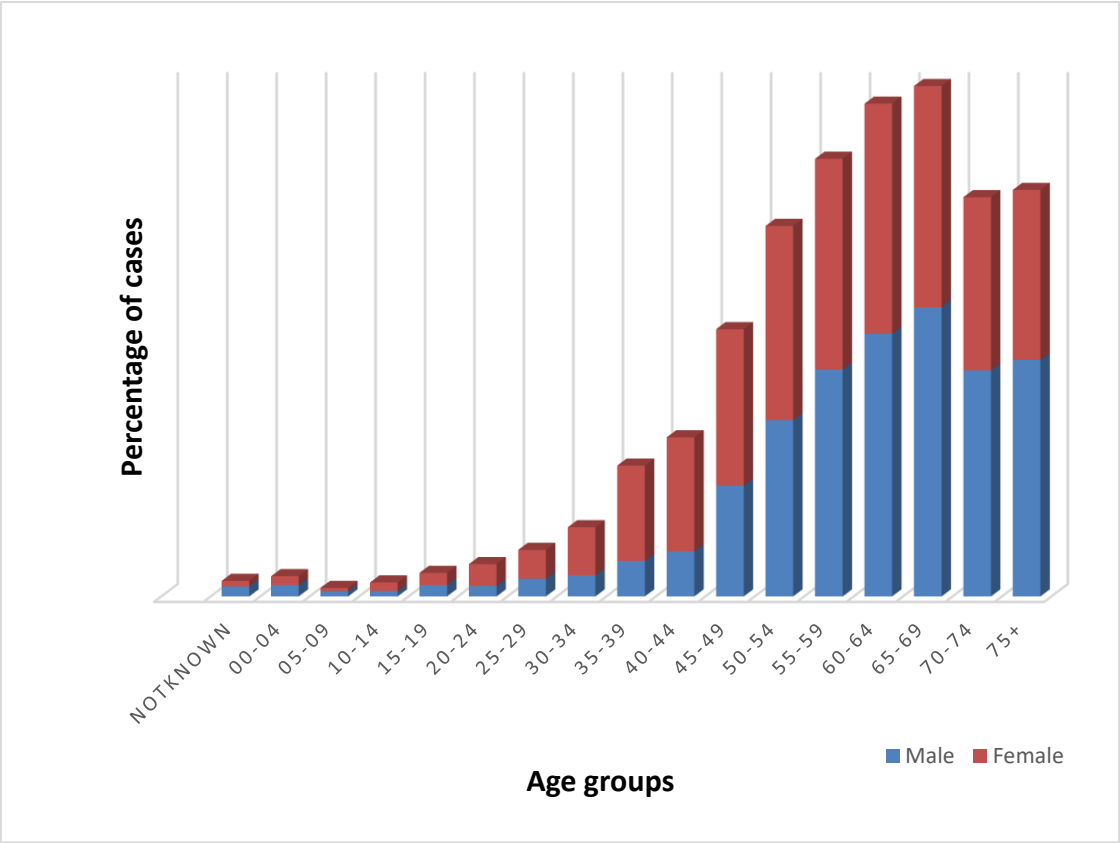


Figure 1: Percentage of pathology-based cancer cases by age group and sex - 2017

3.2 Leading cancer sites according to pathology – 2017

Table 4: Leading cancer sites according to pathology – 2017

Male			Female			Total		
ICD 10 Site	**Cases**	**Percentage**	**ICD 10 Site**	**Cases**	**Percentage**	**ICD 10 Site**	**Cases**	**Percentage**
Lip, tongue and mouth	1495	15.7	**Breast**	2558	27.0	**Breast**	2611	13.7
Colon and Rectum	860	9.0	**Thyroid gland**	1086	11.5	**Lip, tongue and mouth**	1885	9.9
Trachea, bronchus and lung	782	8.2	**Colon and Rectum**	895	9.5	**Colon and Rectum**	1755	9.2
Other and unspecified	778	8.2	**Uterus**	631	6.7	**Thyroid gland**	1309	6.9
Oesophagus	735	7.7	**Oesophagus**	542	5.7	**Other and unspecified**	1306	6.9
Prostate	622	6.5	**Other and unspecified**	528	5.6	**Oesophagus**	1277	6.7
Bladder	587	6.2	**Cervix uteri**	484	5.1	**Trachea, bronchus and lung**	1033	5.4
Larynx	507	5.3	**Lip, tongue and mouth**	390	4.1	**Skin**	756	4.0
Skin	452	4.7	**Ovary**	318	3.4	**Bladder**	728	3.8
Stomach	366	3.8	**Skin**	304	3.2	**Uterus**	631	3.3
All sites	**9533**	**100**	**All sites**	**9466**	**100**	**All sites**	**18999**	**100**

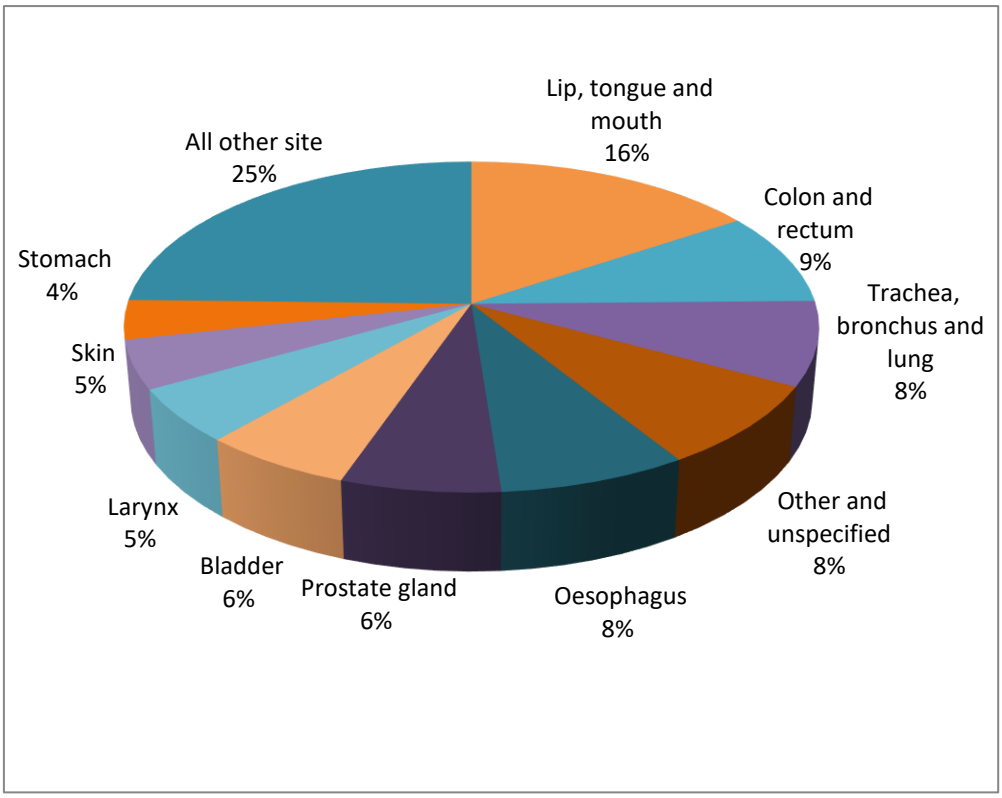


Figure 2: Proportion of pathology based leading cancers, male – 2017

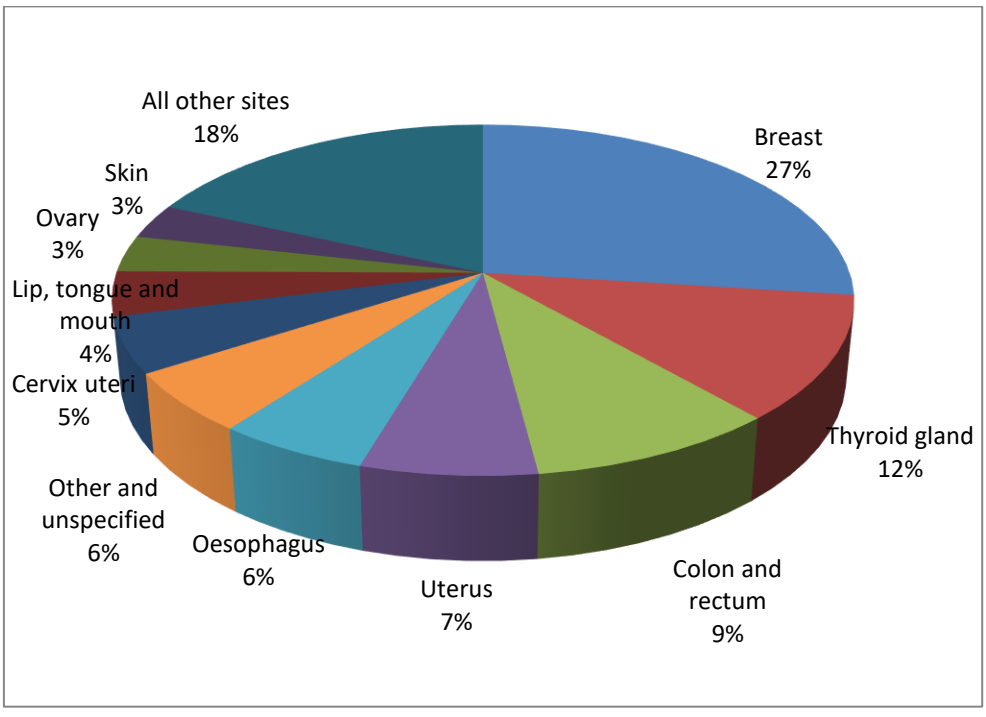


Figure 3: Proportion of pathology based leading cancers, female – 2017

3.3 Pathology-based commonest cancer cases - 2017

1. Lip, tongue and oral cavity

Table 5: Number of pathology-based cancer cases by sex: Lip, tongue and oral cavity – 2017

Group	Number	(%)
Male	1495	15.7
Female	390	4.1
Total	**1885**	**9.9**

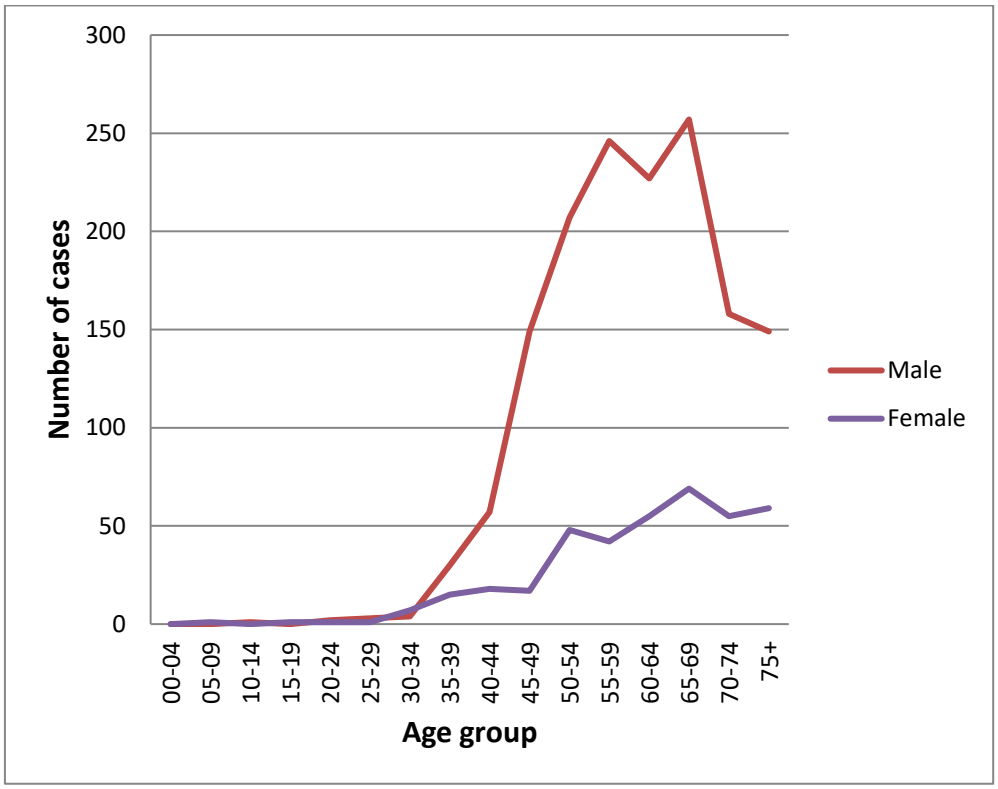


Figure 4: Number of pathology-based cancer cases by age group: Lip, tongue and mouth – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 8).

2. Oesophagus

Table 6: Number of pathology-based cancer cases by sex: Oesophagus – 2017

Group	Number	(%)
Male	735	7.7
Female	542	5.7
Total	**1277**	**6.7**

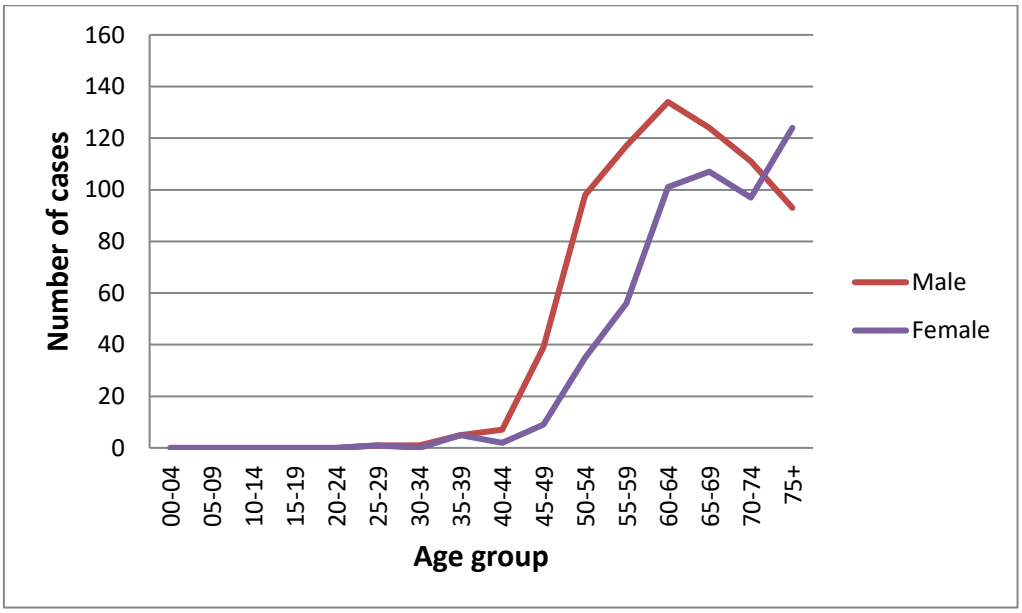


Figure 5: Number of pathology-based cases by age group: Oesophagus cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 9).

3. Stomach

Table 7: Number of pathology-based cancer cases by sex: Stomach – 2017

Group	Number	(%)
Male	366	3.8
Female	137	1.4
Total	**503**	**2.6**

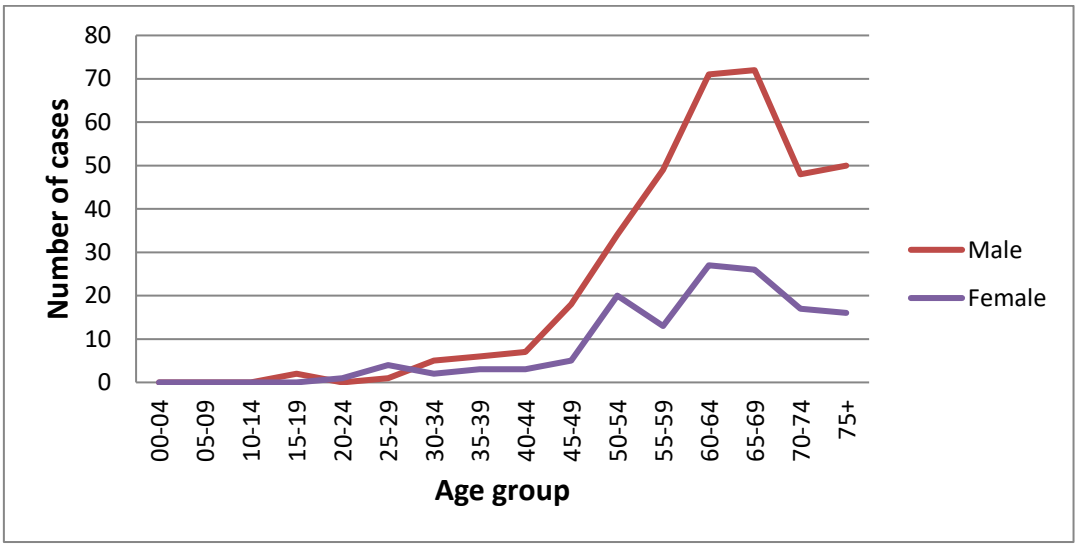


Figure 6: Number of pathology-based cases by age group: Stomach cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 10).

4. Colon and rectum

Table 8: Number of pathology-based cancer cases by sex: Colon and rectum – 2017

Group	Number	(%)
Male	860	9.0
Female	895	9.5
Total	**1755**	**9.2**

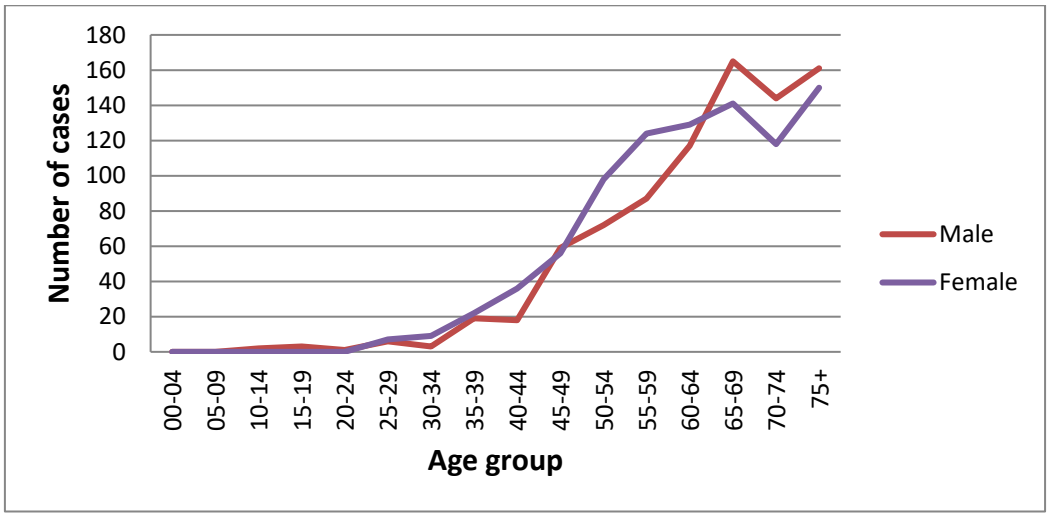


Figure 7: Number of pathology-based cases by age group: Colon & rectum cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 11).

5. Larynx

Table 9: Number of pathology-based cancer cases by sex: Larynx – 2017

Group	Number	(%)
Male	507	5.3
Female	49	0.5
Total	**556**	**2.9**

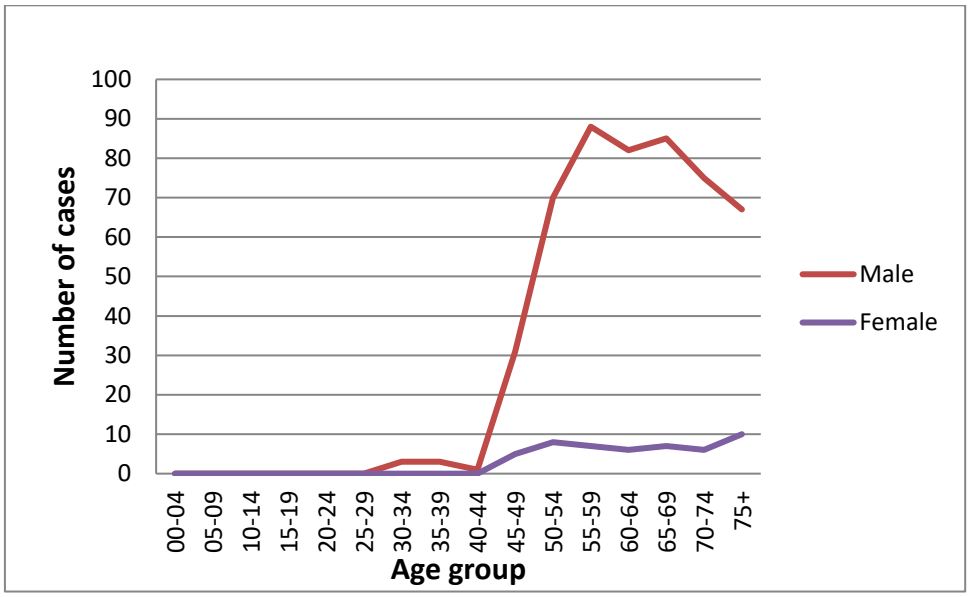


Figure 8: Number of pathology-based cases by age group: Larynx cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 12).

6. Trachea, Bronchus and lung

Table 10: Number of pathology-based cancer cases by sex: Trachea, bronchus and lung – 2017

Group	Number	(%)
Male	782	8.2
Female	251	2.7
Total	**1033**	**5.4**

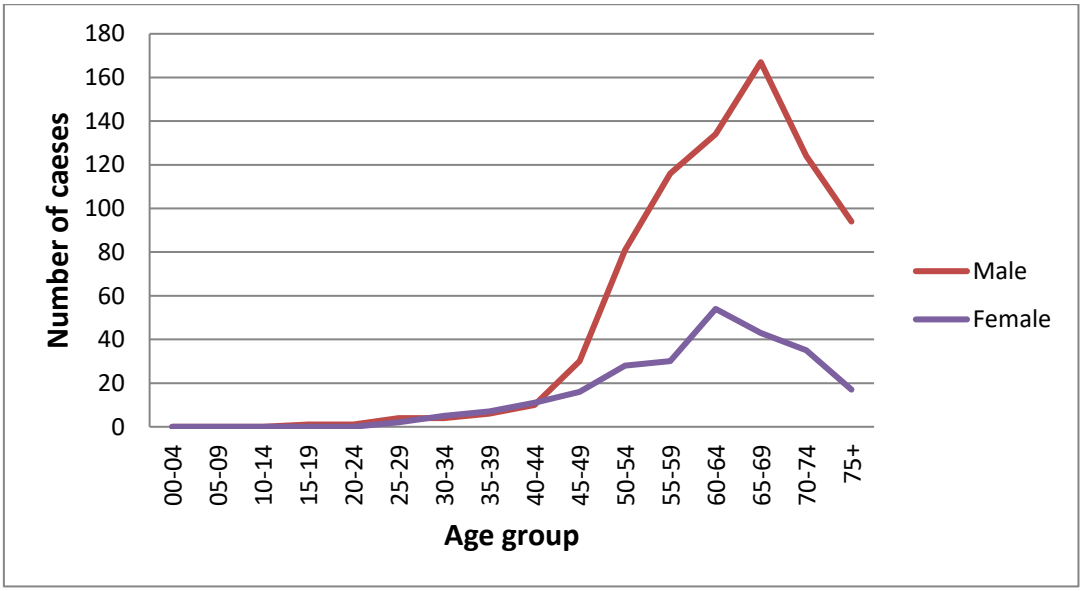


Figure 9: Number of pathology-based cases by age group: Trachea, bronchus & lung cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 13).

7. Skin

Table 11: Number of pathology-based cancer cases by sex: Skin – 2017

Group	Number	(%)
Male	452	4.7
Female	304	3.2
Total	**756**	**4.0**

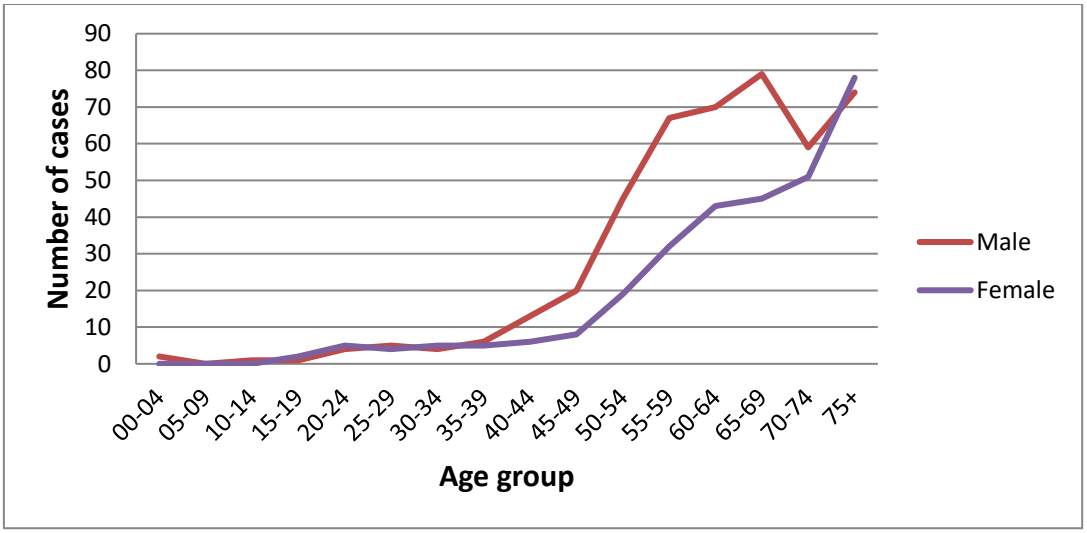


Figure 10: Number of pathology-based cases by age group: Skin cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 14).

8. Breast

Table 12: Number of pathology-based cancer cases by sex: Breast – 2017

Group	Number	(%)
Male	53	0.6
Female	2558	27
Total	**2611**	**13.7**

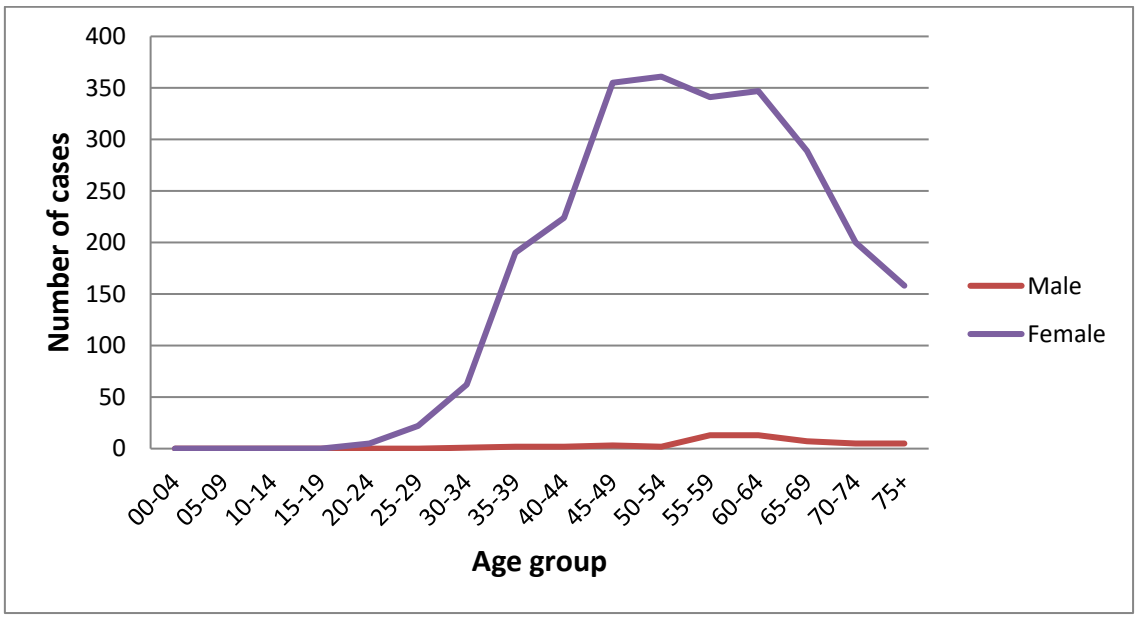


Figure 11: Number of pathology-based cases by age group: Breast cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 15).

9. Cervix

Table 13: Number of pathology-based cancer cases in females: Cervix – 2017

Group	Number	(%)
Female	484	5.1
Total	**484**	**2.5**

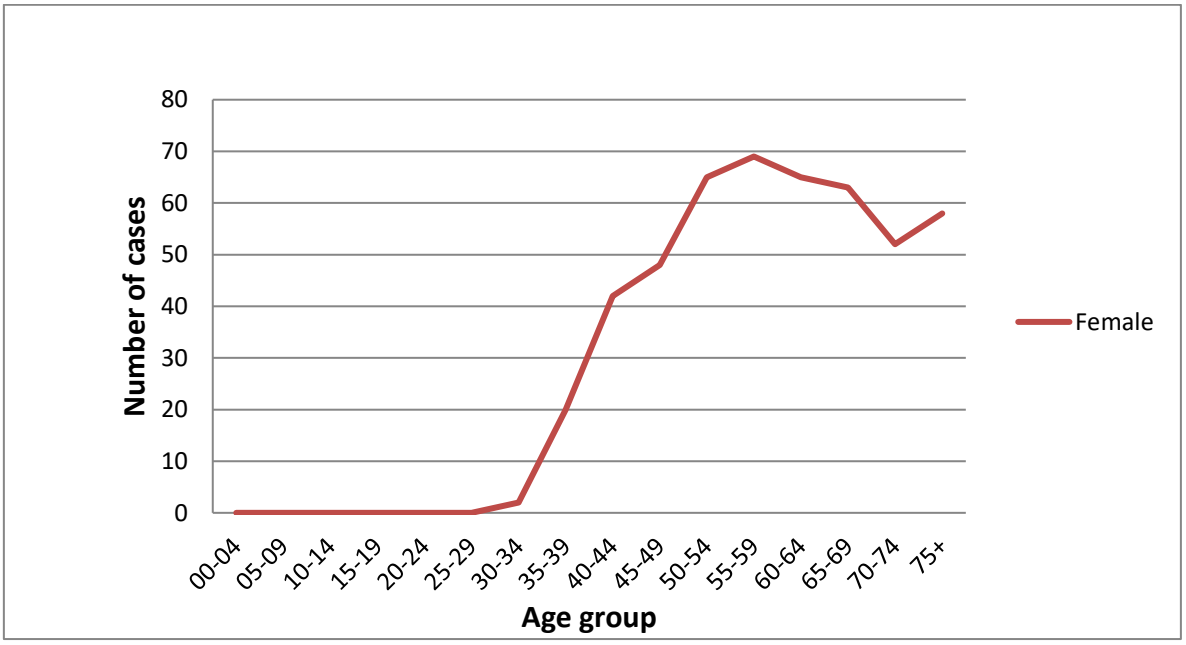


Figure 12: Number of pathology-based cases by age group: Cervical cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 16).

10. Uterus

Table 14: Number of pathology-based cancer cases in females: Uterus – 2017

Group	Number	(%)
Female	631	6.7
Total	**631**	**3.3**

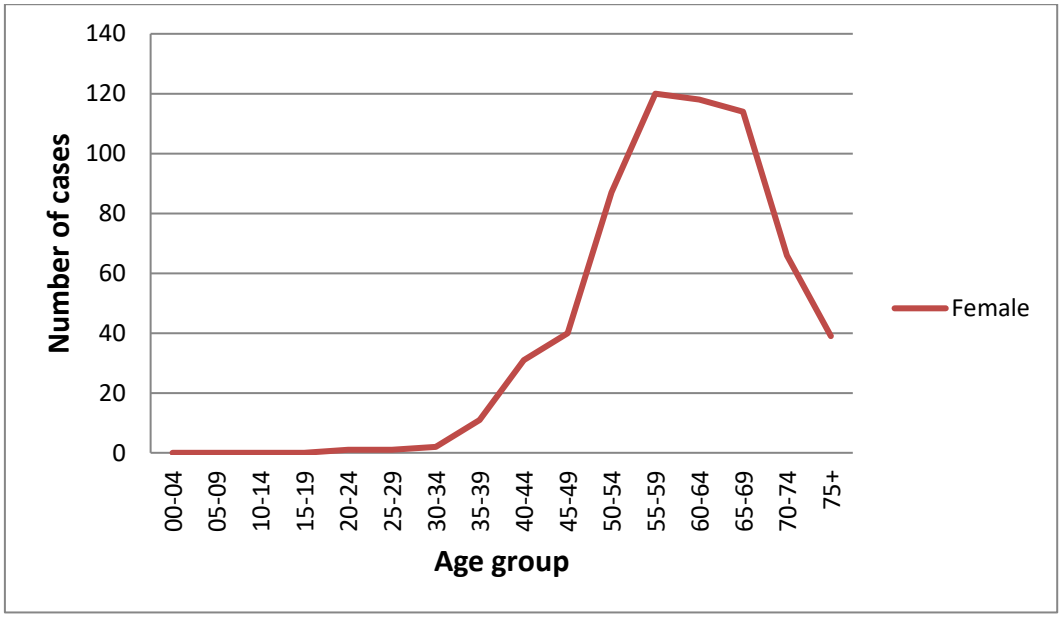


Figure 13: Number of pathology-based cases by age group: Uterine cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 17).

11. Ovary

Table 15: Number of pathology-based cancer cases in females: Ovary – 2017

Group	Number	(%)
Female	318	3.4
Total	**318**	**1.7**

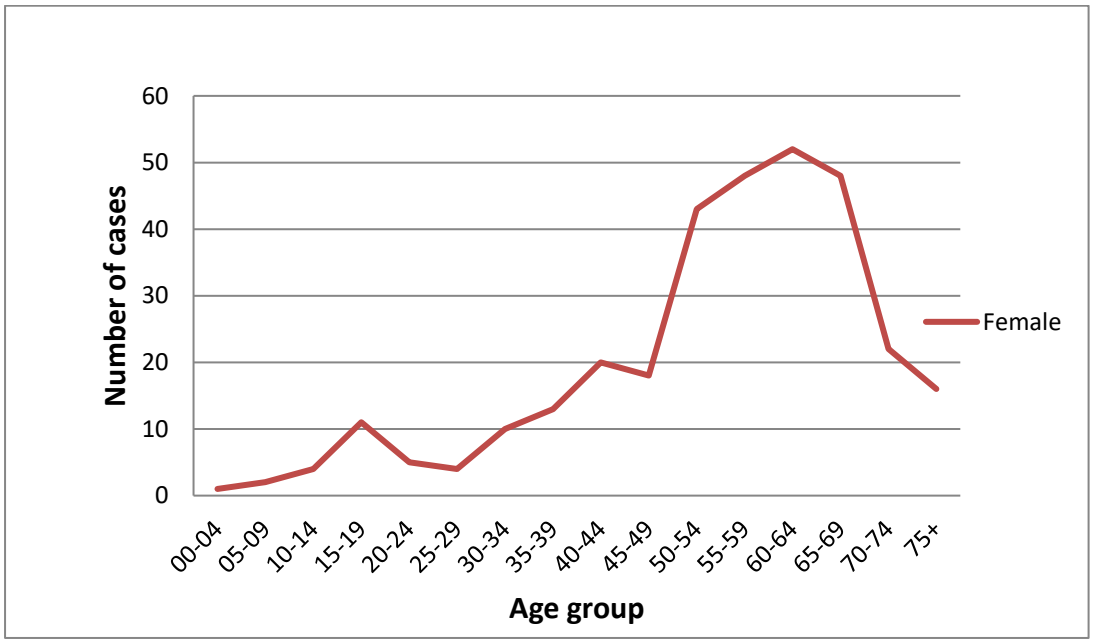


Figure 14: Number of pathology-based cases by age group: Ovarian cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 18).

12. Prostate

Table 16: Number of pathology-based cancer cases in males: Prostate – 2017

Group	Number	(%)
Male	622	6.5
Total	**622**	**3.3**

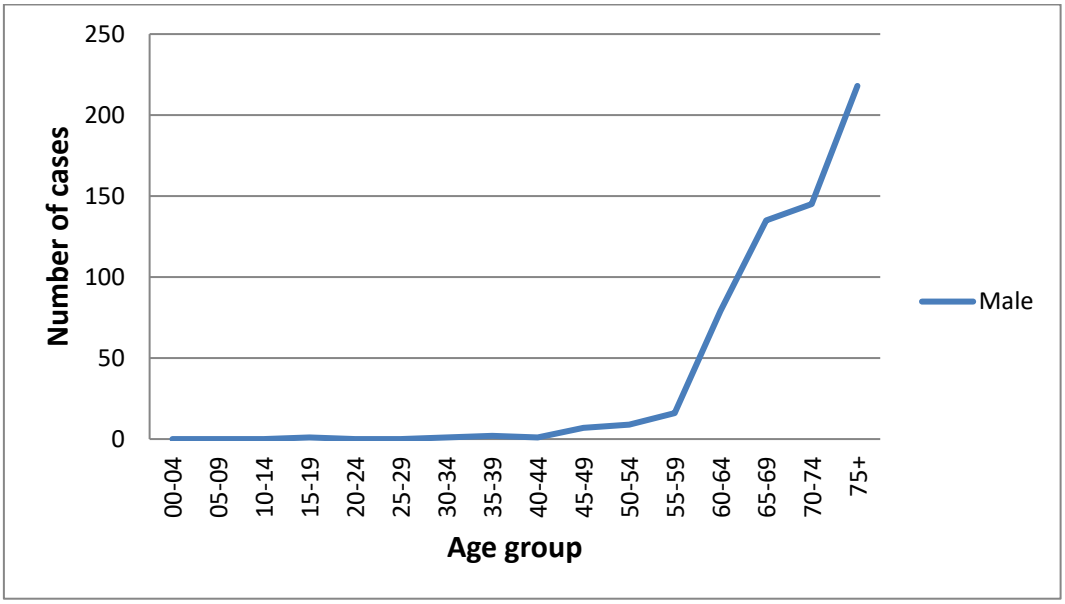


Figure 15: Number of pathology-based cases by age group: Prostatic cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 19).

13. Urinary bladder

Table 17: Number of pathology-based cancer cases by sex: Urinary bladder – 2017

Group	Number	(%)
Male	587	6.1
Female	141	1.5
Total	**728**	**3.8**

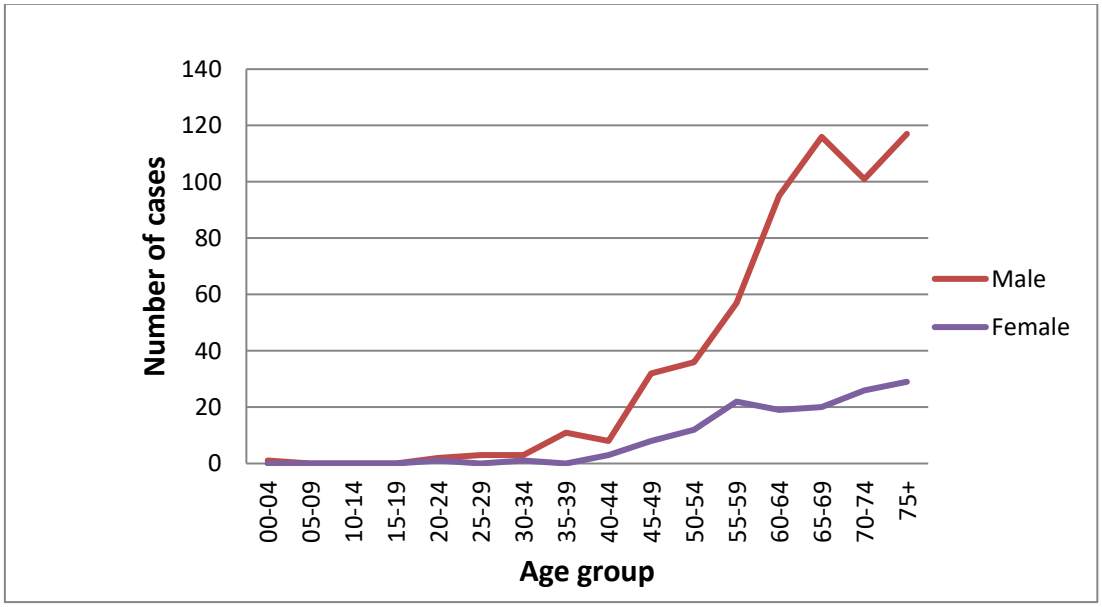


Figure 16: Number of pathology-based cases by age group: Bladder cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 20).

14. Thyroid Cancer

Table 18: Number of pathology-based cancer cases by sex: Thyroid cancer – 2017

Group	Number	(%)
Male	223	2.3
Female	1086	11.5
Total	**1309**	**6.9**

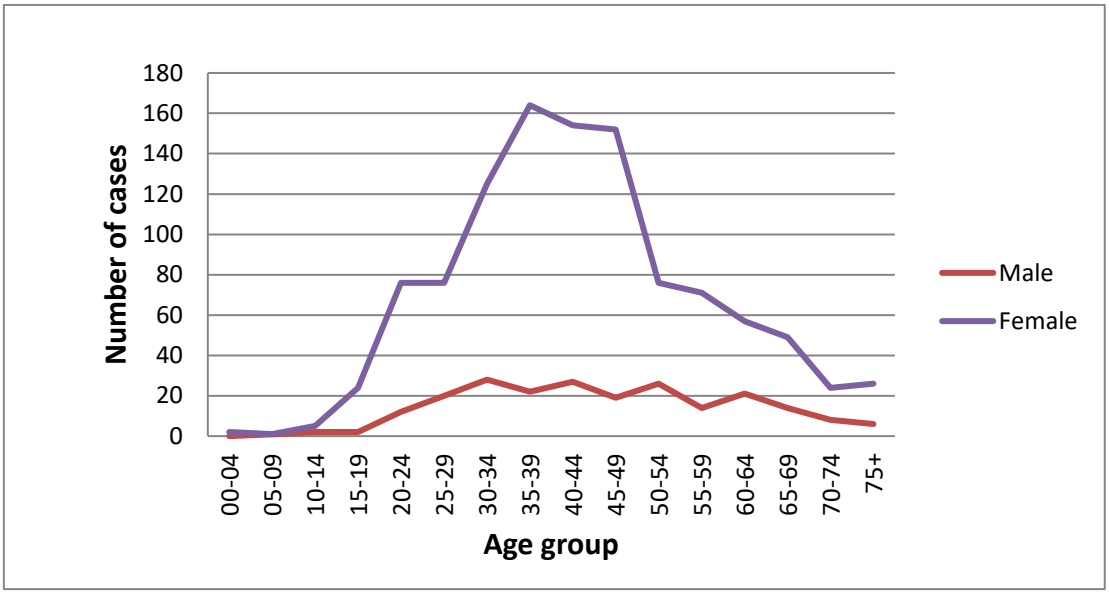


Figure 17: Number of pathology-based cases by age group: Thyroid cancer – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 21).

15. Lymphoma

Table 19: Number of pathology-based cancer cases by sex: Lymphoma – 2017

Group	Number	(%)
Male	309	3.2
Female	208	2.2
Total	**517**	**2.7**

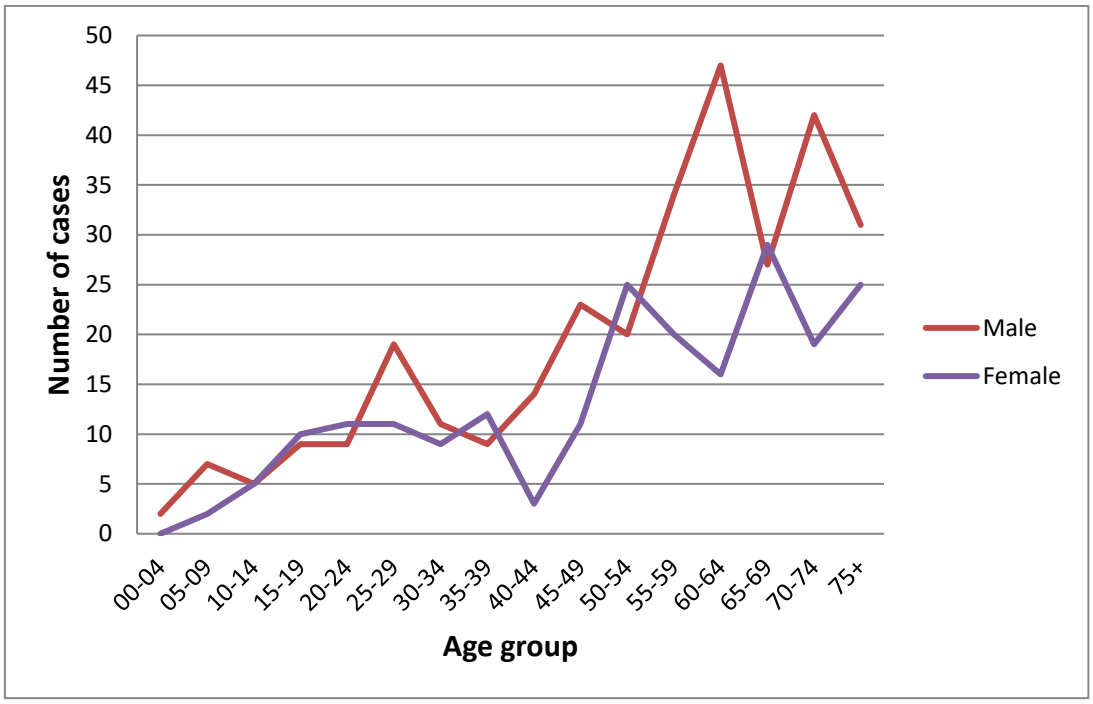


Figure 18: Number of pathology-based cases by age group: Lymphoma – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 22).

16. Leukemia

Table 20: Number of pathology-based cancer cases by sex: Leukaemia – 2017

Group	Number	(%)
Male	71	0.7
Female	67	0.7
Total	**138**	**0.7**

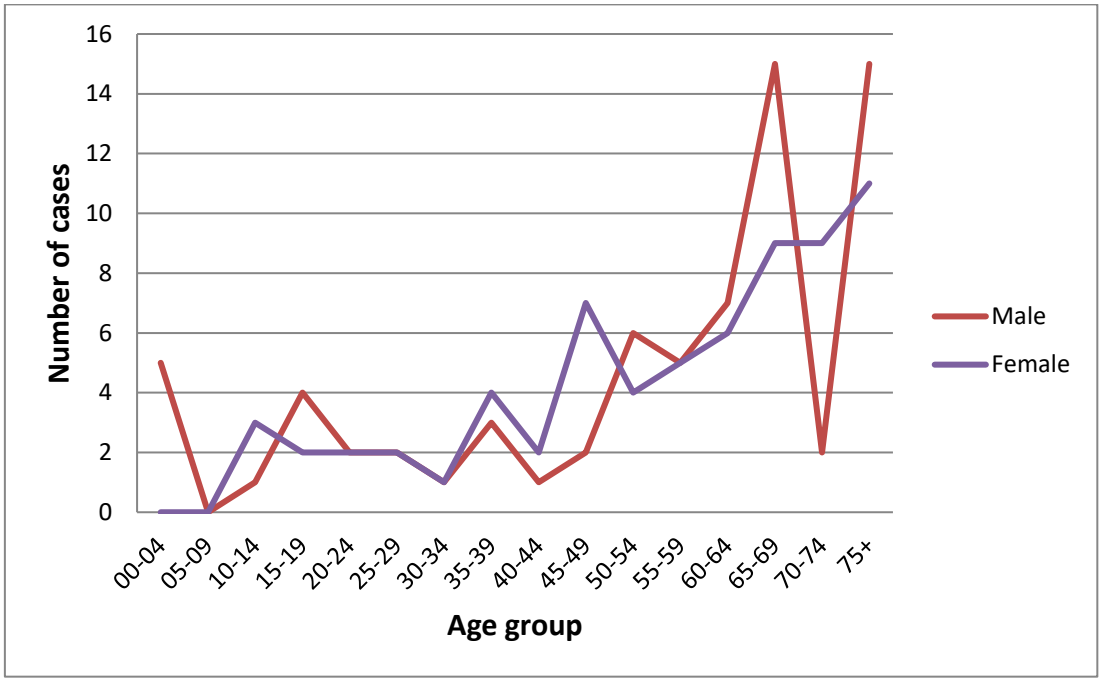


Figure 19: Number of pathology-based cases by age group: Leukaemia – 2017

Detailed analysis of pathology-based cancer cases according to ICD-O classification is annexed (table 23).

4. Conclusions and recommendations

4.1 Conclusions

The commonest cancer site among males is lip, tongue and mouth (15.7%, n=1495) while breast (27%, n=2558) is the commonest cancer site among females.

The second and third commonest cancer sites among males are colon and rectum (9%, n=860), trachea, bronchus and lung (8.2%, n=782) whereas among females they are thyroid (15.5%, n=1086), colon and rectum (9.5%, n=895).

Number of cancer cases have almost doubled in the 35-39 year age group (3.9%, n=732) compared to 30-34 year age group (2%, n=383). From 35-39 year age group onwards there is a rapid rise in the number of cases detected.

4.2 Recommendations

A multifaceted approach to prevent oral cancer is mandatory as oral cancer is preventable through risk factor intervention. Health promotion on control of tobacco (both smoking and smokeless forms), arecanut, betel chewing and alcohol are mainstay of prevention of oral cancers. Early detection and treatment are also required.

Promotion of early detection of breast cancers by giving priority to “be breast aware concept” self-breast examination and clinical breast examination is emphasized.

Early detection and management of colo-rectal cancers is highlighted. Epidemiological research on colorectal cancers has become a priority.

Since thyroid cancer is the second commonest cancer in females, early diagnosis and management is also vital. Epidemiological research on thyroid cancers is also a priority.

The reported reduction seen in the number of cervical cancer cases has to be further studied to identify the actual cause to differentiate whether it is due to a true reduction of cases or a reduction in reporting.

It is important to improve timeliness and accuracy in case reporting to strengthen surveillance system. Further, regular monitoring of reporting from centres and providing feedback has to be focused on.

This information will be helpful for allocation of physical and human resources to the laboratories.

References

Bray, F., Znaor, A., Cueva, P., Korir, A., Swaminathan, R., Ullrich, A., Wang, S., Parkin, D., Bray, F. (2020). *Planning and Developing Population-Based Cancer Registration In Low- And Middle-Income Settings*. [online] Publications.iarc.fr. Available at: https://publications.iarc.fr/Book-And-Report-Series/Iarc-Technical-Publications/Planning-And-Developing-Population-Based-Cancer-Registration-In-Low--And-Middle-Income-Settings-2014 [Accessed 13 May 2020].

Parkin, D., 2005. *Cancer Information Systems: Sri Lanka*. Report of WHO consultation, Nov - Dec 2005. Oxoford University, UK.

Perera, N., 2016. Using pathology reports as a data source for strengthening cancer surveillance. *Journal of Diagnostic Pathology*, 11(1), pp.1–4. DOI: http://doi.org/10.4038/jdp.v11i1.7688

Annex

Table 1: Summary of pathology-based cancer surveillance during 2000 - 2004

Year	No. of pathology laboratories which sent data	No. of cases reported
2000	33	7,777
2001	34	10,823
2002	30	8,459
2003	26	4,978
2004	23	4,424

(Parkin, 2005)

Table 2: Common sites of cancers reported through the pathology-based cancer surveillance - 2001

Site of the cancer	Cases	
	Total number	**Percentage**
Oral cavity & pharynx	1547	14.3%
Breast	1209	11.2%
Lymphoma and leukaemia	699	6.5%
Oesophagus	757	7.0%
Cervix	476	4.4%
Lung	327	3.0%

Table 3: Number of cancers reported from histopathology laboratories in 2017

Name of the Laboratory	No. of cancers	Name of the Laboratory	No. of cancers
Western Province		**North Western Province**	
Colombo District		**Kurunegala District**	
NHSL	1416	TH -Kurunegala	1605
DMH -Colombo	85	BH – Kuliyapitiya	214
CSTH - Kalubowila	613	BH Nikaweratiya	
Lady Ridgeway Hospital	109		
Eye Hospital	55	**Puttlam District**	
BH -Homagama	118	DGH – Chilaw	205
DGH-Avissawella	282	BH – Puttalam	115
BH Mulleriyawa	35		
Faculty of Medicine – Colombo	312	**Central Province**	
Faculty of Medicine –J'pura	389	**Kandy District**	
		TH – Kandy	501
Gampaha District		SBSCH – Peradeniya	53
Colombo North TH - Ragama	961	DGH – Nawalapitiya	134
DGH - Gampaha	307	BH – Gampola	176
DGH – Negombo	70		
NHRD - Welisara	714	**Nuwaraeliya District**	
BH -Wathupitiwala	296	DGH – Nuwaraeliya	-
Kalutara District		**Matale District**	
DGH-Kalutara	410	DGH – Matale	331
BH - Panadura	272	BH – Dambulla	-
Kethumathi Hospital	2		
		North Central Province	
Southern Province		**Anuradhapura District**	
Galle District		TH – Anuradhapura	172
TH – Karapitiya	863	BH – Thambutthegama	12
BH – Balapitiya	76		
BH – Elpitiya	36	**Polonnaruwa District**	
Faculty of Medicine – Karapitiya	155	DGH – Polonnaruwa	391

Matara District		**Uva Province**	
DGH – Matara	433	**Badulla District**	
BH Kamburupitiya		PGH – Badulla	588
		BH - Diyathalawa	42
Hambanthota District			
DGH – Hambanthota	184	**Eastern Province**	
BH – Tangalle	114	**Batticaloa District**	
BH – Embilipitiya	155	TH – Batticaloa	533
BH – Balangoda	43		
		Trincomalee District	
		DGH – Trincomalee	192
Sabaragamuwa Province		**Northern Province**	
Rathnapura District		**Jaffna District**	
PGH Rathnapura	262	TH – Jaffna	787
BH Embilipitiya	155		
		Vavuniya District	
Kegalle District		DGH – Vavuniya	163
DGH – Kegalle	363	Private sector	11
BH – Karawanella	83		

Table 4: Number of cancers reported from Haematology laboratories in 2017

Name of the Laboratory	No. of cancers	Name of the Laboratory	No. of cancers
Western Province		**North Central Province**	
DGH Kalutara	26		
		Central Province	
Southern Province			
TH Karapitiya	74	**Uva Province**	
BH Elpitiya	14		
		Eastern Province	
Sabaragamuwa Province		Trincomalee	18
PGH Rathnapura	40		
		Northern Province	
North Western Province			
TH Kurunegala	103		
DGH Chilaw	20		
BH Kuliyapitiya	17	**Total**	**312**

Table 5: Number of cancers reported from Oral Pathology laboratories in 2017

Name of the Laboratory	No. of cancers
Faculty of Dental Sciences	316

Table 6: Pathology-based cancer cases by age group - Male 2017

ICD 10 code and site		Age group																	
		Unknown	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
C00	**Lip**	0	0	0	0	0	0	0	0	2	1	12	8	8	12	3	7	1	**54**
C01-C02	**Tongue**	0	0	0	0	0	2	0	16	27	55	78	107	83	82	52	33	2	**537**
C03-C06	**Mouth**	0	0	1	0	2	1	4	14	28	93	117	131	136	163	103	109	2	**904**
C07-C08	**Salivary gland**	0	1	1	1	4	3	0	2	4	1	7	10	11	6	4	3	3	**61**
C09	**Tonsil**	0	0	0	0	0	0	1	2	4	17	32	28	21	27	11	10	1	**154**
C10	**Other oropharynx**	0	0	0	0	0	0	0	1	1	7	11	16	9	6	8	6	0	**65**
C11	**Nasopharynx**	0	0	0	0	0	1	0	2	0	1	1	3	3	1	0	1	0	**13**
C12-C13	**Hypopharynx**	0	0	0	0	0	0	0	0	3	11	28	33	36	28	39	27	1	**206**
C14	**Pharynx unspecified**	0	0	0	0	0	0	0	0	2	5	6	12	5	7	11	8	0	**56**
C15	**Oesophagus**	0	0	0	0	0	1	1	5	7	39	98	117	134	124	111	93	5	**735**
C16	**Stomach**	0	0	0	2	0	1	5	6	7	18	34	49	71	72	48	50	3	**366**
C17	**Small intestine**	1	1	0	1	0	0	0	1	2	3	6	9	4	12	4	3	1	**48**
C18	**Colon**	0	0	2	3	1	2	2	10	14	34	34	41	61	77	61	69	1	**412**
C19-C20	**Rectum**	0	0	0	0	0	4	1	9	4	25	38	46	56	88	83	92	2	**448**
C21	**Anus**	0	0	0	0	0	0	0	0	0	2	8	6	6	4	9	13	0	**48**
C22	**Liver**	4	2	0	2	0	0	0	1	3	4	9	17	21	18	11	11	1	**104**
C23-C24	**Gallbladder etc.**	0	0	0	0	0	0	1	0	3	3	1	6	7	2	4	1	0	**28**

ICD 10 code and site		Age group																	
		Unknown	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
C25	**Pancreas**	0	0	0	0	0	0	1	1	0	3	1	8	4	9	2	2	0	**31**
C30-C31	**Nose, sinuses**	0	0	3	0	4	0	3	3	6	1	7	8	14	10	4	4	0	**67**
C32	**Larynx**	0	0	0	0	0	0	3	3	1	31	70	88	82	85	75	67	2	**507**
C33-C34	**Trachea bronchus and lung**	0	0	0	1	1	4	4	6	10	30	81	116	134	167	124	94	10	**782**
C37-C38	**Other thoracic organs**	1	1	2	3	2	5	4	3	0	3	5	6	4	8	7	4	0	**58**
C40-41	**Bone**	2	5	5	19	7	7	5	6	1	1	2	1	2	3	1	0	0	**67**
C43	**Melanoma of skin**	0	0	0	0	0	2	0	0	0	0	4	5	1	16	7	5	0	**40**
C44	**Other skin**	2	0	1	1	4	3	4	6	13	20	41	62	69	63	52	69	2	**412**
C45	**Mesothelioma**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	**2**
C47, C49	**Connective and soft tissue**	10	3	3	8	2	3	4	9	4	10	6	9	13	7	8	14	0	**113**
C50	**Breast**	0	0	0	0	0	0	1	2	2	3	2	13	13	7	5	5	0	**53**
C60	**Penis**	1	0	0	0	0	1	0	8	8	13	16	8	13	18	9	9	0	**104**
C61	**Prostate**	0	0	0	1	0	0	1	2	1	7	9	16	79	135	145	218	8	**622**
C62	**Testis**	1	0	0	2	4	4	8	3	3	0	1	4	2	3	1	1	0	**37**
C63	**Other male genital organs**	1	0	1	0	0	1	0	0	0	1	0	1	1	2	1	4	0	**13**
C64	**Kidney**	11	1	1	0	2	2	5	4	3	21	27	28	28	31	13	16	0	**193**
C65	**Renal pelvis**	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	**1**
C66	**Ureter**	0	0	0	0	0	0	0	0	1	0	0	2	1	1	0	1	1	**7**

ICD 10 code and site		Age group																	
		Unknown	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
C67	**Bladder**	1	0	0	0	2	3	3	11	8	32	36	57	95	116	101	117	5	**587**
C68	**Other urinary organs**	0	0	0	0	0	0	0	0	0	0	1	0	2	1	1	0	0	**5**
C69	**Eye**	11	0	0	0	0	0	0	2	0	1	1	0	2	1	0	4	0	**22**
C70-C72	**Brain and nervous system**	2	6	2	2	1	2	7	6	7	10	8	20	16	8	8	2	0	**107**
C73	**Thyroid gland**	0	1	2	2	12	20	28	22	27	19	26	14	21	14	8	6	1	**223**
C74	**Adrenal gland**	5	0	0	0	0	0	1	0	0	2	1	0	1	0	0	0	0	**10**
C75	**Other endocrine**	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	**2**
C81	**Hodgkin lymphoma**	1	1	1	4	2	9	4	3	3	7	2	1	8	3	4	3	0	**56**
C82-C85 and C96	**Non-Hodgkin lymphoma**	1	6	4	5	7	10	7	6	11	16	18	33	39	24	38	28	0	**253**
C88	**Immunoproliferative disorders**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
C90	**Multiple myeloma**	0	0	0	0	0	0	0	0	0	2	3	7	8	11	5	16	0	**52**
C91	**Lymphoid leukaemia**	3	0	1	3	0	0	0	1	0	1	0	0	0	4	0	5	0	**18**
C92-C94	**Myeloid leukaemia**	1	0	0	1	2	2	0	2	0	1	6	4	7	8	2	10	0	**46**
C95	**Leukaemia unspecified**	1	0	0	0	0	0	1	0	1	0	0	1	0	3	0	0	0	**7**
D45 and D47	**Myeloproliferative disorders**	0	0	0	0	0	1	2	2	1	1	1	1	2	2	0	1	0	**14**
D46	**Myelodysplastic syndrome**	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	2	0	**5**

ICD 10 code and site		Age group																	
		Unknown	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
C26,C48, C76 and C80	**Other and unspecified**	4	1	0	3	0	4	6	19	30	63	93	118	137	131	83	82	4	**778**
	All sites	**64**	**29**	**30**	**64**	**59**	**98**	**117**	**199**	**252**	**621**	**988**	**1271**	**1473**	**1620**	**1266**	**1325**	**57**	**9533**

Table 7: Pathology-based cancer cases by age group - Female 2017

ICD 10 Code and site		Age group																	
		Unknown	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total
C00	Lip	0	0	0	0	0	0	0	0	0	1	1	2	3	5	3	1	6	22
C01-C02	Tongue	1	0	0	0	0	1	0	1	8	11	10	18	18	16	13	12	9	117
C03-C06	Mouth	0	0	1	0	1	0	1	6	7	6	6	28	21	34	53	42	44	250
C07-C08	Salivary gland	0	1	0	2	1	0	2	0	6	3	1	5	5	4	5	4	0	39
C09	Tonsil	0	0	0	0	0	0	0	0	1	1	1	0	2	8	2	2	3	20
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	1	2	1	0	2	1	0	2	9
C11	Nasopharynx	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	1	0	5
C12-C13	Hypopharynx	0	0	0	0	0	0	0	1	1	2	2	2	3	9	14	3	6	43
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	3	2	2	2	4	2	15
C15	Oesophagus	5	0	0	0	0	0	1	0	5	2	9	35	56	101	107	97	124	542
C16	Stomach	0	0	0	0	0	1	4	2	3	3	5	20	13	27	26	17	16	137
C17	Small intestine	0	0	0	0	0	0	0	0	1	1	7	3	7	7	6	1	3	36
C18	Colon	5	0	0	0	0	0	4	6	13	20	33	48	61	57	67	60	78	452
C19-C20	Rectum	0	0	0	0	0	0	3	3	9	16	23	50	63	72	74	58	72	443
C21	Anus	0	0	0	0	0	1	0	0	1	1	1	3	5	9	5	10	8	44
C22	Liver	0	3	0	1	0	0	3	0	1	2	8	3	7	3	10	6	4	51
C23-C24	Gallbladder etc.	0	0	0	0	0	0	0	0	1	1	4	4	6	5	7	7	6	41
C25	Pancreas	0	0	0	0	2	2	0	0	0	4	1	3	4	5	1	3	1	26
C30-C31	Nose, sinuses	0	0	0	0	1	0	0	2	3	5	3	2	4	10	2	6	3	41
C32	Larynx	0	0	0	0	0	0	0	0	0	0	5	8	7	6	7	6	10	49
C33-C34	Trachea bronchus and lung	3	0	0	0	0	0	2	5	7	11	16	28	30	54	43	35	17	251
C37-C38	Other thoracic organs	0	1	2	1	0	2	0	0	1	4	0	4	4	7	3	4	4	37
C40-C41	Bone	0	0	1	11	4	5	3	2	5	1	4	1	1	5	0	1	1	45

C43	**Melanoma of skin**	0	0	0	0	1	1	0	0	0	1	0	0	3	6	6	3	17	**38**
C44	**Other skin**	1	0	0	0	1	4	4	5	5	5	8	19	29	37	39	48	61	**266**
C47, C49	**Connective and soft tissue**	0	7	3	7	3	1	3	4	9	9	9	9	16	8	7	7	4	**106**
C50	**Breast**	4	0	0	0	0	5	22	62	190	224	355	361	341	347	289	200	158	**2558**
C51	**Vulva**	0	0	0	0	0	0	0	1	0	1	3	4	0	2	3	8	5	**27**
C52	**Vagina**	0	0	0	0	0	0	1	0	0	1	3	1	7	6	6	2	12	**39**
C53	**Cervix uteri**	0	0	0	0	0	0	0	2	20	42	48	65	69	65	63	52	58	**484**
C54	**Corpus uteri**	1	0	0	0	0	1	0	1	10	21	19	59	71	81	75	51	27	**417**
C55	**Uterus unspecified**	0	0	0	0	0	0	1	1	1	10	21	28	49	37	39	15	12	**214**
C56	**Ovary**	1	1	2	4	11	5	4	10	13	20	18	43	48	52	48	22	16	**318**
C57	**Other female genital organs**	0	0	1	3	1	0	1	0	1	1	5	1	3	1	2	2	1	**23**
C58	**Placenta**	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	**4**
C64	**Kidney**	0	16	3	2	1	0	0	0	1	7	5	8	8	6	6	4	2	**69**
C66	**Ureter**	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	**4**
C67	**Bladder**	0	0	0	0	0	1	0	1	0	3	8	12	22	19	20	26	29	**141**
C68	**Other urinary organs**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
C69	**Eye**	0	11	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**13**
C70-C72	**Brain and nervous system**	0	4	1	1	1	1	1	6	7	3	11	7	6	7	9	7	4	**76**
C73	**Thyroid gland**	4	2	1	5	24	76	76	125	164	154	152	76	71	57	49	24	26	**1086**
C74	**Adrenal gland**	1	3	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0	**8**
C75	**Other endocrine**	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	**3**
C81	**Hodgkin lymphoma**	0	0	1	2	9	7	8	3	4	0	0	7	2	3	4	0	0	**50**
C82-C85, and C 96	**Non-Hodgkin lymphoma**	0	0	1	3	1	4	3	6	8	3	11	18	18	13	25	19	25	**158**
C88	**Immunoproliferative disorders**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**1**
C90	**Multiple myeloma**	0	0	0	0	0	0	0	0	0	0	2	2	6	6	9	8	10	**43**
C91	**Lymphoid leukaemia**	0	0	0	2	1	1	0	0	2	0	0	0	1	0	1	2	1	**11**

C92-C94	**Myeloid leukaemia**	0	0	0	1	1	1	2	1	2	2	7	4	4	6	8	7	9	**55**
C95	**Leukaemia unspecified**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**
D45 and D47	**Myeloproliferative disorders**	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	**3**
D46	**Myelodysplastic syndrome**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	0	**5**
C26,C48, C76 and C80	**Other and unspecified**	4	1	0	1	2	0	10	6	19	31	38	85	73	66	72	68	52	**528**
	All sites	**30**	**50**	**18**	**47**	**66**	**121**	**160**	**266**	**533**	**636**	**868**	**1082**	**1173**	**1274**	**1232**	**961**	**949**	**9466**

Number of pathology-based cancer cases by ICD-O code – 2017

Table 8: Number of pathology-based cancer cases: Lip, tongue and oral cavity - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	11	2	**13**
8010	Carcinoma, NOS	10	2	**12**
8020	Carcinoma, undifferentiated, NOS	1	0	**1**
8032	Spindle cell carcinoma, NOS	2	1	**3**
8051	Verrucous carcinoma, NOS	54	8	**62**
8070	Squamous cell carcinoma, NOS	1338	318	**1656**
8071	Squamous cell carcinoma, keratinizing, NOS	39	15	**54**
8072	Squamous cell carcinoma, large cell, non-keratin	3	2	**5**
8076	Squamous cell carcinoma, microinvasive	0	1	**1**
8083	Basaloid squamous cell carcinoma	4	1	**5**
8120	Transitional cell carcinoma, NOS	1	0	**1**
8140	Adenocarcinoma, NOS	12	7	**19**
8200	Adenoid cystic carcinoma	8	13	**21**
8310	Clear cell adenocarcinoma, NOS	1	0	**1**
8430	Mucoepidermoid carcinoma	4	10	**14**
8480	Mucinous adenocarcinoma	0	1	**1**
8525	Polymorphous low-grade adenocarcinoma	2	3	**3**
8550	Acinar cell carcinoma	1	1	**3**
8560	Adenosquamous carcinoma	2	0	**1**
8720	Malignant melanoma, NOS (except juvenile melano	0	1	**3**
8802	Giant cell sarcoma (except of bone)	0	1	**1**
8806	Desmoplastic small round cell tumor	1	2	**2**
8890	Leiomyosarcoma, NOS	0	0	**1**
8900	Rhabdomyosarcoma, NOS	1	1	**1**
8982	Malignant myoepithelioma	0	0	**1**
	Total	**1495**	**390**	**1885**

Table 9: Number of pathology-based cancer cases: Oesophagus - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	15	10	**25**
8010	Carcinoma, NOS	25	20	**45**
8041	Small cell carcinoma, NOS	1	0	**1**
8070	Squamous cell carcinoma, NOS	537	454	**991**
8071	Squamous cell carcinoma, keratinizing, NOS	11	11	**22**
8072	Squamous cell carcinoma, large cell, non-keratinizing	3	1	**4**
8076	Squamous cell carcinoma, microinvasive	0	1	**1**
8083	Basaloid squamous cell carcinoma	1	1	**2**
8140	Adenocarcinoma, NOS	129	35	**164**
8240	Carcinoid tumor, NOS	1	0	**1**
8246	Neuroendocrine carcinoma, NOS	0	1	**1**
8260	Papillary adenocarcinoma, NOS	0	1	**1**
8480	Mucinous adenocarcinoma	4	1	**5**
8490	Signet ring cell carcinoma	7	3	**10**
8560	Adenosquamous carcinoma	1	1	**2**
8890	Leiomyosarcoma, NOS	0	1	**1**
8936	Gastrointestinal stromal sarcoma	0	1	**1**
	Total	**735**	**542**	**1277**

Table 10: Number of pathology-based cancer cases: Stomach - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	12	3	**15**
8004	Malignant tumor, spindle cell type	1	0	**1**
8010	Carcinoma, NOS	36	10	**46**
8070	Squamous cell carcinoma, NOS	25	27	**52**
8071	Squamous cell carcinoma, keratinizing, NOS	0	1	**1**
8140	Adenocarcinoma, NOS	233	77	**310**
8144	Adenocarcinoma, intestinal type	18	4	**22**
8145	Carcinoma, diffuse type	4	2	**6**
8323	Mixed cell adenocarcinoma	1	0	**1**
8480	Mucinous adenocarcinoma	7	1	**8**
8490	Signet ring cell carcinoma	26	5	**31**
8550	Acinar cell carcinoma	1	0	**1**
8801	Spindle cell sarcoma	1	1	**2**
8936	Gastrointestinal stromal sarcoma	1	6	**7**
	Total	**366**	**137**	**503**

Table 11: Number of pathology-based cancer cases: Colon and rectum - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	18	23	**41**
8010	Carcinoma, NOS	15	21	**36**
8032	Spindle cell carcinoma, NOS	0	1	**1**
8070	Squamous cell carcinoma, NOS	18	21	**39**
8071	Squamous cell carcinoma, keratinizing, NOS	0	1	**1**
8072	Squamous cell carcinoma, large cell, non-keratinizing	0	1	**1**
8083	Basaloid squamous cell carcinoma	1	0	**1**
8120	Transitional cell carcinoma, NOS	0	1	**1**
8140	Adenocarcinoma, NOS	737	762	**1499**
8200	Adenoid cystic carcinoma	0	1	**1**
8211	Tubular adenocarcinoma	1	0	**1**
8240	Carcinoid tumor, NOS	2	3	**5**
8243	Goblet cell carcinoid	0	1	**1**
8246	Neuroendocrine carcinoma, NOS	9	9	**18**
8260	Papillary adenocarcinoma, NOS	0	2	**2**
8263	Adenocarcinoma in tubulovillous adenoma	1	2	**3**
8310	Clear cell adenocarcinoma, NOS	0	1	**1**
8480	Mucinous adenocarcinoma	48	28	**76**
8481	Mucin-producing adenocarcinoma	1	0	**1**
8490	Signet ring cell carcinoma	3	12	**15**
8550	Acinar cell carcinoma	1	1	**2**
8560	Adenosquamous carcinoma	0	1	**1**
8720	Malignant melanoma, NOS (except juvenile melanoma)	1	1	**2**
8772	Spindle cell melanoma, NOS	0	1	**1**
8800	Sarcoma, NOS	1	0	**1**
8854	Pleomorphic liposarcoma	0	1	**1**
8936	Gastrointestinal stromal sarcoma	3	0	**3**
	Total	**860**	**895**	**1755**

Table 12: Number of pathology-based cancer cases: Larynx - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	8	1	**9**
8010	Carcinoma, NOS	4	1	**5**
8070	Squamous cell carcinoma, NOS	463	44	**507**
8071	Squamous cell carcinoma, keratinizing, NOS	18	2	**20**
8072	Squamous cell carcinoma, large cell, non-keratinizing	3	0	**3**
8075	Squamous cell carcinoma, adenoid	2	0	**2**
8083	Basaloid squamous cell carcinoma	4	0	**4**
8140	Adenocarcinoma, NOS	1	0	**1**
8200	Adenoid cystic carcinoma	4	0	**4**
8480	Mucinous adenocarcinoma	0	1	**1**
	Total	**507**	**49**	**556**

Table 13: Number of pathology-based cancer cases: Trachea, bronchus and lung - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	25	5	**30**
8002	Malignant tumor, small cell type	1	0	**1**
8010	Carcinoma, NOS	68	16	**84**
8012	Large cell carcinoma, NOS	4	1	**5**
8032	Spindle cell carcinoma, NOS	2	0	**2**
8040	Invalid code.	2	0	**2**
8041	Small cell carcinoma, NOS	66	15	**81**
8046	Non-small cell carcinoma	207	57	**264**
8070	Squamous cell carcinoma, NOS	181	20	**201**
8071	Squamous cell carcinoma, keratinizing, NOS	1	0	**1**
8072	Squamous cell carcinoma, large cell, non-keratinizing	6	0	**6**
8140	Adenocarcinoma, NOS	175	97	**272**
8200	Adenoid cystic carcinoma	1	4	**5**
8240	Carcinoid tumor, NOS	9	8	**17**
8246	Neuroendocrine carcinoma, NOS	3	0	**3**
8249	A typical carcinoid tumor	0	2	**2**
8250	Bronchiolar-alveolar adenocarcinoma, NOS	0	1	**1**
8260	Papillary adenocarcinoma, NOS	1	0	**1**
8310	Clear cell adenocarcinoma, NOS	0	2	**2**
8430	Mucoepidermoid carcinoma	1	0	**1**
8480	Mucinous adenocarcinoma	6	10	**16**
8481	Mucin-producing adenocarcinoma	1	0	**1**
8490	Signet ring cell carcinoma	0	1	**1**
8550	Acinar cell carcinoma	7	7	**14**
8560	Adenosquamous carcinoma	0	1	**1**
8800	Sarcoma, NOS	1	2	**3**
8801	Spindle cell sarcoma	1	0	**1**
8806	Desmoplastic small round cell tumor	9	2	**11**
8852	Myxoid liposarcoma	1	0	**1**
8900	Rhabdomyosarcoma, NOS	1	0	**1**
9041	Synovial sarcoma, spindle cell	2	0	**2**
	Total	**782**	**251**	**1033**

Table 14: Number of pathology-based cancer cases: Skin - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	17	10	**27**
8004	Malignant tumor, spindle cell type	4	0	**4**
8010	Carcinoma, NOS	9	6	**15**
8021	Carcinoma, anaplastic, NOS	1	0	**1**
8022	Pleomorphic carcinoma	1	0	**1**
8032	Spindle cell carcinoma, NOS	0	2	**2**
8051	Verrucous carcinoma, NOS	13	1	**14**
8070	Squamous cell carcinoma, NOS	263	124	**387**
8071	Squamous cell carcinoma, keratinizing, NOS	6	4	**10**
8072	Squamous cell carcinoma, large cell, non-keratinizing	1	0	**1**
8075	Squamous cell carcinoma, adenoid	1	0	**1**
8083	Basaloid squamous cell carcinoma	0	1	**1**
8090	Basal cell carcinoma, NOS	61	86	**147**
8091	Multifocal superficial basal cell carcinoma	1	3	**4**
8094	Basosquamous carcinoma	2	2	**4**
8097	Basal cell carcinoma, nodular	5	1	**6**
8140	Adenocarcinoma, NOS	8	6	**14**
8200	Adenoid cystic carcinoma	2	4	**6**
8390	Skin appendage carcinoma	1	0	**1**
8409	Eccrine poroma, malignant	3	2	**5**
8410	Sebaceous adenocarcinoma	1	8	**9**
8480	Mucinous adenocarcinoma	2	0	**2**
8542	Paget disease, extramammary (*except Paget disease of bone)*	1	1	**2**
8550	Acinar cell carcinoma	0	1	**1**
8720	Malignant melanoma, NOS (*except juvenile melanoma*)	35	29	**64**
8721	Nodular melanoma	0	1	**1**
8730	Amelanotic melanoma	1	2	**3**
8742	Lentigo malignant melanoma		1	**1**
8744	Acral lentiginous melanoma, malignant	3	4	**7**
8771	Epithelioid cell melanoma	1	1	**2**
8832	Dermatofibrosarcoma, NOS	9	4	**13**
	Total	**452**	**304**	**756**

Table 15: Number of pathology-based cancer cases: Breast - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	5	157	**162**
8002	Malignant tumor, small cell type	1	0	**1**
8004	Malignant tumor, spindle cell type	0	2	**2**
8010	Carcinoma, NOS	11	790	**801**
8032	Spindle cell carcinoma, NOS	0	1	**1**
8033	Pseudosarcomatous carcinoma	0	1	**1**
8050	Papillary carcinoma, NOS	0	12	**12**
8070	Squamous cell carcinoma, NOS	6	13	**19**
8140	Adenocarcinoma, NOS	3	18	**21**
8201	Cribriform carcinoma, NOS	0	4	**4**
8211	Tubular adenocarcinoma	0	4	**4**
8246	Neuroendocrine carcinoma, NOS	0	2	**2**
8260	Papillary adenocarcinoma, NOS	0	4	**4**
8290	Oxyphilic adenocarcinoma	0	1	**1**
8320	Granular cell carcinoma	0	1	**1**
8480	Mucinous adenocarcinoma	2	54	**56**
8500	Infiltrating duct carcinoma, NOS	23	1357	**1380**
8501	Comedocarcinoma, NOS	0	1	**1**
8503	Intraductal papillary adenocarcinoma with invasion	1	3	**4**
8504	Intracystic carcinoma, NOS	0	1	**1**
8510	Medullary carcinoma, NOS	0	15	**15**
8513	Atypical medullary carcinoma	0	1	**1**
8520	Lobular carcinoma, NOS	1	80	**81**
8522	Infiltrating duct and lobular carcinoma	0	12	**12**
8540	Paget disease, mammary	0	6	**6**
8573	Adenocarcinoma with apocrine metaplasia	0	1	**1**
8575	Metaplastic carcinoma, NOS	0	6	**6**
8800	Sarcoma, NOS	0	1	**1**
8802	Giant cell sarcoma (except of bone)	0	1	**1**
8810	Fibrosarcoma, NOS	0	1	**1**
9020	Phyllodes tumor, malignant	0	6	**6**
9120	Hemangiosarcoma	0	1	**1**
9580	Granular cell tumor, malignant	0	1	**1**
	Total	**53**	**2558**	**2611**

Table 16: Number of pathology-based cancer cases: Cervix - 2017

ICD O code and histology		Female
8000	Neoplasm, malignant	**9**
8010	Carcinoma, NOS	**12**
8032	Spindle cell carcinoma, NOS	**1**
8052	Papillary squamous cell carcinoma	**2**
8070	Squamous cell carcinoma, NOS	**265**
8071	Squamous cell carcinoma, keratinizing, NOS	**54**
8072	Squamous cell carcinoma, large cell, non-keratinizing	**95**
8076	Squamous cell carcinoma, microinvasive	**2**
8083	Basaloid squamous cell carcinoma	**4**
8140	Adenocarcinoma, NOS	**30**
8260	Papillary adenocarcinoma, NOS	**2**
8310	Clear cell adenocarcinoma, NOS	**1**
8380	Endometrioid adenocarcinoma, NOS	**5**
8480	Mucinous adenocarcinoma	**2**
	Total	**484**

Table 17: Number of pathology-based cancer cases: Uterus - 2017

ICD O code and histology		Female
8000	Neoplasm, malignant	**11**
8004	Malignant tumor, spindle cell type	**2**
8010	Carcinoma, NOS	**14**
8041	Small cell carcinoma, NOS	**1**
8050	Papillary carcinoma, NOS	**2**
8052	Papillary squamous cell carcinoma	**1**
8070	Squamous cell carcinoma, NOS	**45**
8071	Squamous cell carcinoma, keratinizing, NOS	**4**
8072	Squamous cell carcinoma, large cell, non-keratinizing	**13**
8083	Basaloid squamous cell carcinoma	**1**
8140	Adenocarcinoma, NOS	**99**
8260	Papillary adenocarcinoma, NOS	**8**
8310	Clear cell adenocarcinoma, NOS	**5**
8380	Endometrioid adenocarcinoma, NOS	**385**
8480	Mucinous adenocarcinoma	**3**
8560	Adenosquamous carcinoma	**1**
8800	Sarcoma, NOS	**2**
8801	Spindle cell sarcoma	**1**
8890	Leiomyosarcoma, NOS	**2**
8896	Myxoid leiomyosarcoma	**1**
8930	Endometrial stromal sarcoma, NOS	**6**
8931	Endometrial stromal sarcoma, low grade	**3**
8935	Stromal sarcoma, NOS	**2**
8950	Mullerian mixed tumor	**5**
8980	Carcinosarcoma, NOS	**12**
9100	Choriocarcinoma, NOS	**2**
	Total	**631**

Table 18: Number of pathology-based cancer cases: Ovary - 2017

ICD O code and histology		Female
8000	Neoplasm, malignant	**10**
8004	Malignant tumor, spindle cell type	**1**
8010	Carcinoma, NOS	**8**
8050	Papillary carcinoma, NOS	**1**
8070	Squamous cell carcinoma, NOS	**10**
8140	Adenocarcinoma, NOS	**35**
8240	Carcinoid tumor, NOS	**2**
8246	Neuroendocrine carcinoma, NOS	**1**
8260	Papillary adenocarcinoma, NOS	**6**
8310	Clear cell adenocarcinoma, NOS	**9**
8380	Endometrioid adenocarcinoma, NOS	**18**
8441	Serous cystadenocarcinoma, NOS	**64**
8450	Papillary cystadenocarcinoma, NOS	**4**
8460	Papillary serous cystadenocarcinoma	**80**
8461	Serous surface papillary carcinoma	**2**
8470	Mucinous cystadenocarcinoma, NOS	**12**
8471	Papillary mucinous cystadenocarcinoma	**2**
8480	Mucinous adenocarcinoma	**11**
8490	Signet ring cell carcinoma	**1**
8620	Granulosa cell tumor, malignant	**12**
8810	Fibrosarcoma, NOS	**1**
8935	Stromal sarcoma, NOS	**1**
8951	Mesodermal mixed tumor	**1**
8980	Carcinosarcoma, NOS	**3**
9000	Brenner tumor, malignant	**1**
9060	Dysgerminoma	**7**
9064	Germinoma	**2**
9070	Embryonal carcinoma, NOS	**2**
9071	Yolk sac tumor	**7**
9080	Teratoma, malignant, NOS	**1**
9085	Mixed germ cell tumor	**2**
9580	Granular cell tumor, malignant	**1**
	Total	**318**

Table 19: Number of pathology-based cancer cases: Prostate - 2017

ICD O code and histology		Male
8000	Neoplasm, malignant	**11**
8010	Carcinoma, NOS	**2**
8070	Squamous cell carcinoma, NOS	**3**
8120	Transitional cell carcinoma, NOS	**2**
8140	Adenocarcinoma, NOS	**399**
8246	Neuroendocrine carcinoma, NOS	**1**
8490	Signet ring cell carcinoma	**1**
8550	Acinar cell carcinoma	**203**
	Total	**622**

Table 20: Number of pathology-based cancer cases: Urinary bladder- 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	11	2	**13**
8010	Carcinoma, NOS	9	4	**13**
8033	Pseudosarcomatous carcinoma	2	0	**2**
8041	Small cell carcinoma, NOS	0	1	**1**
8050	Papillary carcinoma, NOS	4	0	**4**
8070	Squamous cell carcinoma, NOS	11	5	**16**
8071	Squamous cell carcinoma, keratinizing, NOS	1	0	**1**
8120	Transitional cell carcinoma, NOS	270	51	**321**
8122	Transitional cell carcinoma, spindle cell	3	1	**4**
8130	Papillary transitional cell carcinoma	258	71	**329**
8140	Adenocarcinoma, NOS	9	4	**13**
8246	Neuroendocrine carcinoma, NOS	2	0	**2**
8260	Papillary adenocarcinoma, NOS	2	0	**2**
8480	Mucinous adenocarcinoma	2	1	**3**
8490	Signet ring cell carcinoma	2	1	**3**
8900	Rhabdomyosarcoma, NOS	1	0	**1**
	Total	**587**	**141**	**728**

Table 21: Number of pathology-based cancer cases: Throid - 2017

ICD O code and histology		Male	Female	Total
8000	Neoplasm, malignant	6	15	**21**
8010	Carcinoma, NOS	5	6	**11**
8021	Carcinoma, anaplastic, NOS	3	9	**12**
8050	Papillary carcinoma, NOS	1	8	**9**
8070	Squamous cell carcinoma, NOS	2	6	**8**
8140	Adenocarcinoma, NOS	1	2	**3**
8260	Papillary adenocarcinoma, NOS	123	490	**613**
8290	Oxyphilic adenocarcinoma	6	26	**32**
8330	Follicular adenocarcinoma, NOS	20	137	**157**
8335	Follicular carcinoma, minimally invasive	7	46	**53**
8340	Papillary carcinoma, follicular variant	13	127	**140**
8341	Papillary microcarcinoma	30	197	**227**
8342	Papillary carcinoma, oxyphilic cell	0	1	**1**
8343	Papillary carcinoma, encapsulated	0	2	**2**
8346	Mixed medullary-follicular carcinoma	0	1	**1**
8347	Mixed medullary-papillary carcinoma	0	1	**1**
8430	Mucoepidermoid carcinoma	0	1	**1**
8510	Medullary carcinoma, NOS	6	10	**16**
8560	Adenosquamous carcinoma	0	1	**1**
	Total	**223**	**1086**	**1309**

Table 22: Number of pathology-based cancer cases: Lymphoma - 2017

ICD O code and histology		Male	Female	Total
9590	Malignant lymphoma, NOS	34	18	**52**
9591	Malignant lymphoma, non-Hodgkin, NOS	127	91	**218**
9596	Composite Hodgkin and non-Hodgkin lymphoma	14	9	**23**
9650	Hodgkin lymphoma, NOS	45	36	**81**
9651	Hodgkin lymphoma, lymphocyte-rich	2	0	**2**
9652	Hodgkin lymphoma, mixed cellularity, NOS	2	2	**4**
9663	Hodgkin lymphoma, nodular sclerosis, NOS	5	10	**15**
9665	Hodgkin lymphoma, nodular sclerosis, grade 1	2	0	**2**
9667	Hodgkin lymphoma, nodular sclerosis, grade 2	0	2	**2**
9670	Malignant lymphoma, small B lymphocytic, NOS	2	0	**2**
9680	Malignant lymphoma, large B-cell, diffuse, NOS	30	11	**41**
9684	Malignant lymphoma, large B-cell, diffuse, immunoblastic, NOS	1	0	**1**
9687	Burkitt lymphoma, NOS	2	0	**2**
9689	Splenic marginal zone B-cell lymphoma	0	2	**2**
9690	Follicular lymphoma, NOS	15	9	**24**
9695	Follicular lymphoma, grade 1	1	3	**4**
9700	Mycosis fungoides	6	2	**8**
9702	Mature T-cell lymphoma, NOS	9	5	**14**
9705	Angioimmunoblastic T-cell lymphoma	1	1	**2**
9708	Subcutaneous panniculitis-like T-cell lymphoma	0	1	**1**
9709	Cutaneous T-cell lymphoma, NOS	1	2	**3**
9714	Anaplastic large cell lymphoma, T cell and	2	0	**2**
9718	Primary cutaneous CD30+ T-cell lymphoproliferative	1	0	**1**
9727	Precursor cell lymphoblastic lymphoma, NOS	1	1	**2**
9729	Precursor T-cell lymphoblastic lymphoma	5	2	**7**
9754	Langerhans cell histiocytosis, disseminated	1	0	**1**
9758	Follicular dendritic cell sarcoma	0	1	**1**
	Total	**309**	**208**	**517**

Table 23: Number of pathology-based cancer cases: Leukemia - 2017

ICD O code	and histology	Male	Female	Total
9800	Leukemia, NOS	2	0	**2**
9801	Acute leukemia, NOS	5	1	**6**
9820	Lymphoid leukemia, NOS	2	0	**2**
9823	B-cell chronic lymphocytic leukemia/small lymph	8	5	**13**
9826	Burkitt cell leukemia	1	1	**2**
9835	Precursor cell lymphoblastic leukemia, NOS	6	5	**11**
9840	Acute myeloid leukemia, M6 type	1	0	**1**
9861	Acute myeloid leukemia, NOS	20	30	**50**
9863	Chronic myeloid leukemia, NOS	15	16	**31**
9866	Acute promyelocytic leukemia,	1	2	**3**
9872	Acute myeloid leukemia, minimal differentiation	2	1	**3**
9873	Acute myeloid leukemia without maturation	1	1	**2**
9874	Acute myeloid leukemia with maturation	3	2	**5**
9891	Acute monocytic leukemia	1	1	**2**
9930	Myeloid sarcoma	0	1	**1**
9931	Acute panmyelosis with myelofibrosis	2	0	**2**
9940	Hairy cell leukemia	1	0	**1**
9945	Chronic myelomonocytic leukemia, NOS	0	1	**1**
	Total	**71**	**67**	**138**