Ministry of Health
The Hashemite Kingdom of Jordan

Ministry of Health
Non-Communicable Diseases Directorate

Jordan Cancer Registry

Cancer Incidence in Jordan – 2018

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His Majesty King Abdullah II

His Royal Highness the Crown Prince Al-Hussein bin Abdullah II

Foreword

It is with great pleasure that the Ministry of Health launches the 23rd Annual Report of Jordan Cancer Registry. This periodic report continues to be a consistent and comprehensive source of information on the incidence and trends of cancer in Jordan. Cancer is the second most common cause of death after cardiovascular diseases in Jordan. Both cancer incidence and prevalence have been increasing in the last few decades, and cancer patterns are changing rapidly in Jordan; the unhealthy diet consumption and the emerged increase of tobacco use became prevalent and unfortunately acceptable among Jordanians, both behaviors are known contributors to the increase of cancer incidence.

Meeting the highest attainable international standards in cancer registration, this report provides insights on the characteristics of cancer in Jordan and its distribution by age, gender, and site geographic locations. It also assists researchers, cancer control and prevention specialists, and policymakers in identifying priorities for developing cancer control plans, national strategies, alongside with cancer screening, early detection, and prevention programs. The report comprises a useful source of information for the planning of diagnostic and treatment services.

It is worth noting that this report was a result of the efforts of hardworking local staff at the Jordan Cancer Registry, and the focal points at related institutions. I extend my grateful appreciation to everyone who supported and contributed to the development of this report, and Ministry of Health commitment to the generation of this report.

Prof. Feras Ibrahim Hawari

Minister of Health, Jordan

Acknowledgment

We acknowledge all people who helped make this report possible. We would like to thank the oncologists, pathologists, palliative care professionals, and other members of the medical professional from the various governmental, universities, non-governmental and private centers, upon whose commitment, hard work, and data submission of this report ultimately depend.

We would like to thank Dr. Omar Nimri, the former head of the Cancer Control Department, for his guidance and expert advice in preparing this report. Special thanks to Dr. Marwan Al Zaghal and our focal points in all hospitals and laboratories for the collection and submission of cancer patients' data.

We are greatly thankful for the cooperation of the Hakeem program for contribution to finishing the report, through the implementation of an electronic health record solution, the Civil Status Bureau, and the Mortality Department. Last and not least, the continuous technical support and maintenance of the registry software from the Information Technology staff are highly appreciated.

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Executive Summary

There is no doubt that cancer became an overwhelming problem worldwide. In Jordan as well, the incidence and burden of cancer are increasing. Documentation of cancer cases helps to determine the magnitude of the problem and to provide suitable solutions. This is the 23rd annual report of cancer incidence and epidemiology in Jordan, which describes cancer cases in 2018.

The total number of new cancer cases was 9248 (7094 were Jordanians - 76.7%). For Jordanians, 3333 were males (47%) and 3761 were females (53%), and the male-to-female ratio was 0.89:1. Overall median age at diagnosis was 56 (59 years for males and 53 years for females). The crude incidence rate of all cancers among Jordanians was 99.4 per 100,000 (91.7 for males and 107.4 for females). The Age Standardized Incidence Rate (ASR) adjusted to the World Standard Population was 138.3 per 100,000 populations (132.4 for males and 144.0 for females).

Overall, 42.2% of the cases in 2018 were diagnosed among people aged 60 years and older, males (54.8%) were more than females in this age group. While females predominate in the age group 20-59 years (60.4%), the distribution of new cancer cases by age group showed that 4.1% of the cases were below 15 years, male (56.3%).

The top five cancers among Jordanians (males and females) were: breast 1474 (20.8%), colorectal 750 (10.6%), lymphoma 477 (6.7%), lung 458 (6.5%) and thyroid 359 (5.1%). Among Jordanian males, the top five cancer types were: colorectal 435 (13.1%), lung 365 (11.0%), urinary bladder 308 (9.2%), prostate 253 (7.6%), and NHL 179 (5.4%), while among Jordanian females the top five cancer were: breast 1463 (38.9%), colorectal 315 (8.4%), thyroid 272 (7.2%), uterus 186 (4.9%), and leukemia 135 (3.6%).

The distribution of cancer cases by region showed that 75.7% of the cases were in the central region (Amman accounted for 57.7%), 18.0% in the north region, and 5.9% in the south region.

In the pediatric age group (less than 15 years) the total number of cancer cases was 291 accounting for (4.1%) of all cancer cases in Jordan with a male to female ratio of 1.3:1. The top five cancer types in the pediatric age group were: leukemia (32.0%), brain and CNS (15.8%), lymphoma (12.4%), soft tissue and connective tissue (12.0%) and bone (7.2%).

Mortality due to cancer showed that the most common causes of death due to neoplasms in males were lung (22.4%), small intestine and colorectal (11.4 %), prostate (8.6%), leukemia, (7.1%), and pancreas (5.2%). While in females were breast (24.9%), small intestine and colorectal (8.7%), lung (8.7%), then leukemia (6%,) and pancreas (5.0%).

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1. Introduction

This is the 23rd annual report of the incidence of cancer in Jordan published by the Jordan Cancer Registry. It comprises the data for the year 2018 and a description of trends covering the period from 1996-2018. Cancer is one of the leading causes of morbidity and mortality in Jordan. It is the second cause of death (19.8%) after cardiovascular disease (43.9%) [Mortality Department-2018 Report].

Many factors play role in cancer development, but it is important to mention that many types of cancers can be prevented by simple lifestyle changes; like smoking cessation, as smoking is the most significant cancer risk factor that we can reduce. Smoking is responsible for not only lung cancer, but for many other types of cancer. A well-balanced diet is advantageous for many reasons: a diet rich in fruits and vegetables can reduce the risk of developing many health-related conditions. Fruits and vegetables contain antioxidants, which help in repairing damaged cells. Numerous studies showed that a diet high in animal fat increases the risk for several types of cancer, particularly colon cancer. Red meat contains much more fat than poultry and fish, so reducing the amount of red meat in the diet may help to prevent cancer. A diet high in fat is a major cause of obesity, which is a risk factor for many types of cancer. Physical activity is also an important indicator of cancer prevention. The American Cancer Society recommends exercising 30 or more minutes, at least 5 days a week, for cancer prevention.

The main purpose of this report is to provide health professionals, researchers, policymakers, and others who are interested in detailed information about the most common types of cancer in Jordan and their distribution by different variables. Data provided by JCR may help in promoting new research, assist in planning and evaluating cancer control strategies, and identify priorities for public health actions. Initiation of the Jordan Breast Cancer Program (JBCP) is

a good example of the utilization of Jordan cancer registry data on breast cancer epidemiology and clinical data about the stage of tumor and median age. The availability of cancer data at JCR is a solid database for initiating and establishing other screening programs.

Population & Geography

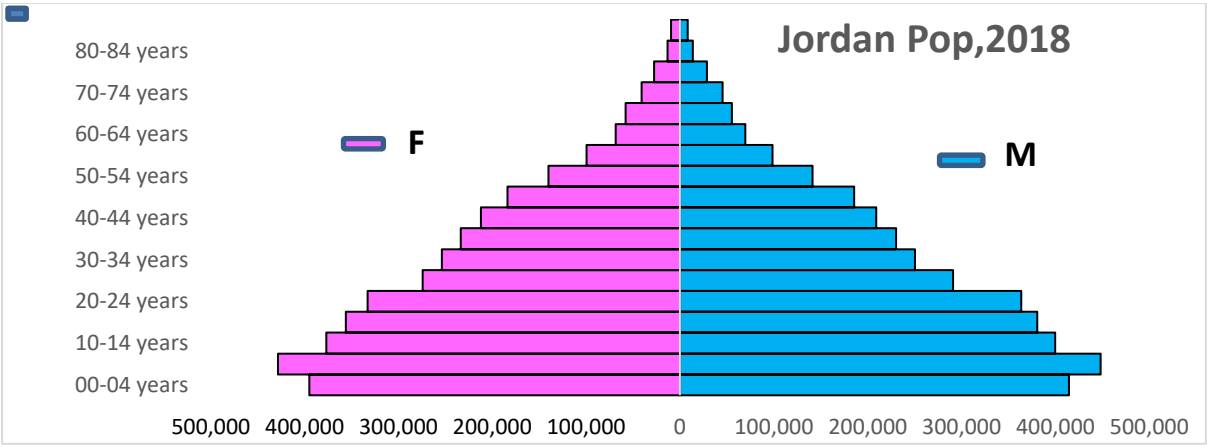
The estimated population of Jordan in 2018 reached 7,138,130, among those 3,635,170 were males and 3,502,960 were females (male: female ratio 1.04: 1) [Department of Statistics Jordan, 2018]. About 11.3 % of the population were under 5 years old, and 34.5 % were under 15 years old. Only 4.2 % of the total population was above 65 years old. The percentage of males was a little higher than females in most of the age groups of the population, except in the age groups 30-44 years, 55-59 years, 65-69 years, and above 85 years. Table (1) and Figure (1) show the age distribution of the Jordan population in 2018.

Jordan is located in the Middle East, between latitudes 29-33 north and between longitude 35-39 east, extending about 500 kilometers from north to south, it is bounded in the north by Syria, in the east by Iraq and Saudi Arabia, in the south also by Saudi Arabia, and in the west by the Occupied Palestinian Authority. The total area is 89,342 km², 75% of it is desert along the eastern part of the country. Mountain's height ranged between 1100 – 1854 meters above sea level. The Dead Sea is the lowest area in the world, and it is around 407 meters below sea level. The climate of the country is moderate, there are four seasons summer, autumn, winter, and spring. The temperature ranges from 4 C in winter to 31 C in summer. Jordan is divided from the administrative point of view into three regions (Central, North, and South) and twelve governorates.

Table 1: Estimated population of Jordan by age group and sex, 2018

Age group	Male		Female		Total		Sex Ratio
	No	%	No	%	No.	%	
0-4	414700	11.4	394850	11.3	809550	11.3	105.0
5-9	448410	12.3	428290	12.2	876700	12.3	104.7
10-14	399810	11.0	376850	10.8	776660	10.9	106.1
15-19	380920	10.5	355880	10.2	736800	10.3	107.0
20-24	363850	10.0	332960	9.5	696810	9.8	109.3
25-29	291180	8.0	274010	7.8	565190	7.9	106.3
30-34	250420	6.9	253830	7.2	504250	7.1	98.7
35-39	230280	6.3	233440	6.7	463720	6.5	98.6
40-44	209130	5.8	211920	6.0	421050	5.9	98.7
45-49	185580	5.1	183660	5.2	369240	5.2	101.0
50-54	141250	3.9	140200	4.0	281450	3.9	100.7
55-59	98720	2.7	99570	2.8	198290	2.8	99.1
60-64	69830	1.9	68490	2.0	138320	1.9	102.0
65-69	55350	1.5	57840	1.7	113190	1.6	95.7
70-74	45310	1.2	40900	1.3	86210	1.2	110.8
75-79	28620	0.8	27580	0.8	56200	0.8	103.8
80-84	13630	0.4	13300	0.4	26930	0.4	102.5
85+	8180	0.2	9390	0.1	17570	0.2	87.1
Total	3635170	100.0	3502960	100.0	7138130	100.0	103.8

Figure 1: Population Pyramid, Jordan, 2018.



2. Jordan Cancer Registry (JCR)

Jordan Cancer Registry (JCR) is a population-based registry established in 1996 under the jurisdiction of the Ministry of Health (MOH) by the order of His Excellency the Minister of Health. JCR is hosted at the Cancer Prevention Department in the Non-Communicable Disease Directorate. Cancer notification is compulsory since 1996 through a ministerial decree. JCR monitors cancer incidence and the trends in Jordan over time. The aim of it is to provide national cancer incidence data to the public in a timely and accurate manner. JCR also provides a data for clinical and epidemiological research. It plays a central role in all aspects of cancer control continuum, not only for the population covered but also for other populations with which results can be compared.

The systematic collection, recording and analysis of data relating to cancer enables interpretation of clinical and pathological characteristics of cancer incidence and mortality for various population and subgroups. It also opens the way for epidemiological research about the causes of cancer, and the effects of interventions in prevention and early diagnosis, provided that patients can be identified and linked to the database systems as mortality data and databases in other hospitals. In many countries, the cancer registry has proved to be an important tool for public health surveillance, including the planning and evaluation of health services.

Vision

To meet the highest attainable international standards in cancer registration, surveillance, and control.

Mission

To register all cancer cases reported in various health institutions in Jordan and to avail the data and /or information gathered for policy development and support in cancer research, treatment, control, prevention, and surveillance.

Objectives of JCR:

- To define the size of the cancer problem and pattern of cancer occurrence in Jordan.
- To provide data on cancer for epidemiological and clinical studies.
- To make data on cancer incidence and prevalence available for use by health planners and professionals to plan for cancer prevention, control, and management cost-effectively.

3. Methodology & Data management:

For Jordanians all, malignant and in-situ cases diagnosed from 1st Jan to 31st Dec 2018 were notified and registered in the cancer registry. For non-Jordanians all cancer patients treated in Jordanian hospitals during this year were notified to our registry.

3.1. Data Collection Methods

- Active method

Data was collected and abstracted by a trained registry staff through regular visits to all hospitals distributed over the country. The JCR endeavor for full access to cancer data from all Ministry of Health, Royal Medical Services, universities, and private hospitals as well as clinics and laboratories throughout the Kingdom. Cancer data abstracted by JCR trained staff from patients' medical records, based on clinical and/or histopathological diagnosis.

- Passive method

Trained focal point personnel abstracted cancer data from patients' files, completed a standardized form, and forwarded it to the cancer registry. The data abstracted include personal demographic and identification data like (name, ID number, sex, age, address, telephone number, and nationality), and diagnosed tumor details like (primary site, diagnosis date, histology, behavior, grade, stage, basis of diagnosis and others).

3.2. Sources of information

The registry collects the most important data about cancer patients and ensures that it is complete and of high quality. Notifications of cancer may be obtained from many sources, such as:

1. Hospital admissions and medical records from all public, private, military and universities' hospitals all over the country (hospital discharge reports), using the guidelines of the international classification of disease and operation ICD-9 or 10 morbidity and mortality coding system, and histopathology reports in all these hospitals.
2. Hospital based cancer registry such as the King Hussein Cancer Center (KHCC).
3. Histopathology laboratories: cytology, hematology in public and private histopathology laboratories.
4. Forensic medicine records through (death certificates).

Table 2: Sources of data of cancer patients to the registry 2018.

Data source	Number	%
King Hussein Cancer Center	2807	39.5
Royal Medical Services	1803	25.4
Ministry of Health	737	10.4
Universities' Hospitals	731	10.3
Private Hospitals	672	9.5
Laboratories	344	4.9
Total	7094	100

3.3. Reportable list

Reportable lists may range from a simple list of invasive and in situ tumors to a complex list that includes benign and borderline tumors. Cases with a behavior code of 2 or 3 in the International Classification of Diseases for Oncology-Third Edition (ICD-O-3) were included in the registry.

- ICD-O-3 Behavior Codes

0 Benign
1 Uncertain whether benign or malignant (borderline)
2 Carcinoma in situ,
3 Malignant, primary site

Benign (behavior code 0) or borderline (behavior code 1) cases were collected in JCR but not entered in the registry database system, CanReg4 program, instead were kept in special files especially those of brain and CNS. Localized basal cell and squamous cell carcinoma of non-genital skin sites (C44.0-C44.9) were included in our registry.

Abstracting information is the essence of the cancer registry. The accuracy and completeness with which this function is performed determines the value of the registry. Users of cancer registry data must be confident that the abstracted information is a true representation of the patients' demographics, diagnosis, and other variables. An abstract was completed for each reportable case.

3.4. Data variables

The number of assessment variables used by JCR is based on the international standard variables for all cancer registries. There are various formats that may be used. JCR used standards provided by the International Agency for Research on Cancer (IARC), which include:

1. Patients' details: first name, given/median name, last name, ID number, age/date of birth, sex current residence (governorate).
2. Tumor: incidence date, basis of diagnosis, primary site / topography (ICD-O) code, histology/morphology (ICD-O) code, behavior, grade, and stage at diagnosis (SEER summary stage)
3. Treatments: initial and subsequent treatments, surgery, radiotherapy, chemotherapy, hormonal therapy.
4. Sources of data: hospital/laboratory name, hospital / facility code number,

name, and date of abstracter.

5. Follow up: patient status (alive or dead) as of the date of incidence, last date of contact with physician/ health care provider or, if dead – date of death and cause of death.

A complete JCR abstract form is appended to this report for more details.

3.5. Classification and Coding

The primary site (topography) and histology (morphology) of the malignancies were identified and coded according to the International Classification of Diseases for Oncology Third Edition (ICDO-3), published by the World Health Organization (WHO), 2000.

3.6. Data management (storage and retrieval)

Data was managed using a server with network computers at the registry, a local area network was established to allow staff to work on the registry database simultaneously. It is expected that a simple system of receiving abstract forms electronically from health facilities with internet access will be put in place in the future, to ease and speed up the submission of abstract forms to the registry.

Data was managed using Can Reg4 Software, which also allows for statistical analysis. Abstract forms submitted from health –care facilities were kept in box files and shelved in straight numerical order in the registry cabinets.

In order to ensure a good flow of data/information between the registry and health care facilities, all cancer registrars are strictly bound by the professional code of observing confidentiality of patient information. Information users interested in JCR data and information services are required to obtain authority for access to data from the non-communicable disease directorate (NCD) director and are mutually bound to acknowledge the registry in their data usage. In order to maintain the confidentiality of facility and patient information, inclusion of facility and patient identification details is restricted.

3.7. Quality Assurance & Data analysis

Accuracy and consistency are essential in tumor registry reporting. Quality control means assessing for completeness, accuracy, and uniformity of data at the case finding, abstracting, coding, and data processing levels.

Quality control should be an ongoing process, and time should be allotted for registry personnel to carry out special quality control functions. The registry performed quality control on data before presenting reports. Every effort was made to accurately code patient and tumor information, to ensure that all data can be reviewed, linked, and consolidated, as appropriate.

Before and during the phase of data entry, validation of data was done through the following:

1. Assurance of data completeness through continuous generation of patients' lists who have rare or invalid categories or behavior of less than three to check for it.
2. Checking essential demographic data such as age, date of birth, sex, and address. Patient lists were evaluated for duplicates.
3. Internal quality checks including random selection of some records was done systematically for double checks of data abstraction and to ensure completeness.

Procedures for review included visual review, computerized data edits, and hospital queries. JCR staff performed quality assurance tasks upon receipt of abstracts from each reporting institution. Periodic review procedures also included re-abstracting of cases and cases finding studies. The reporting facility was required to resolve incomplete, incorrect, or inconsistent data upon JCR inquiry. The software used for data entry and incidence tables output was CanReg4, which was developed by the International Agency for Research on Cancer (IARC) in Lyon, France. This software has a duplicate entry checking facility.

Validity checks were performed for consistency between items: site/histology, sex/site and age/site/histology combinations by CanReg4. Epi-info and SPSS among the statistical programs were used for further analysis.

The world standard population was used for the calculation of standard rates, to facilitate national and international comparisons (Table 3).

Frequencies for most of the variables are collected and presented in this report, mainly the primary site of cancer, age group, sex, governorate, and regions. Tables and graphs for cancer cases for Jordanian and non-Jordanian and pediatric malignancy, and top ten cancer for both sexes are presented. Also, one chapter for mortality due to cancer is presented in the last chapter to identify the most common deaths due to cancer by sex and governorates.

Table 3: The World Standard Population used for Age Adjustment.

Age	Count
0- 4	120,000
5-9	100,000
10-14	90,000
15- 19	90,000
20- 24	80,000
25- 29	80,000
30- 34	60,000
35- 39	60,000
40- 44	60,000
45- 49	60,000
50- 54	50,000
55- 59	40,000
60- 64	40,000
65- 69	30,000
70- 74	20,000
75- 79	10,000
80- 84	5,000
85+	5,000
Total	1,000,000

3.8. Confidentiality

To ensure the protection and confidentiality of the identifying information collected by the JCR staff, the Procedure Manual contains, among other things:

1. Procedures to safeguard and secure the registry database and printed data generated from the database containing identifying information
2. Procedures to destroy (e.g., by shredding) all printed materials containing identifying information when such materials are to be disposed of; and
3. Procedures to make certain that all persons with access to JCR identifying information have signed a written statement acknowledging their responsibility to maintain confidentiality and subjecting them to penalties for violation of confidentiality requirements.

4. Trend of cancers of all sites (Jordanian, Non-Jordanian)

Figure (2) shows the trend of cancer cases in Jordan during the period 1980 – 2018. Before the establishment of the Jordan Cancer Registry (JCR) in 1996, the reported cancer cases presented as a Hospital-Based Registry which was mainly from Al-Basheer Hospital, while after the JCR establishment, the reported cancer cases were collected from all over the country as Population-Based Cancer Registry. The number of registered cases markedly increased after the transformation from a hospital-based to a population-based registry.

Figure 2: Trend of cancer in Jordan, 1980-2018

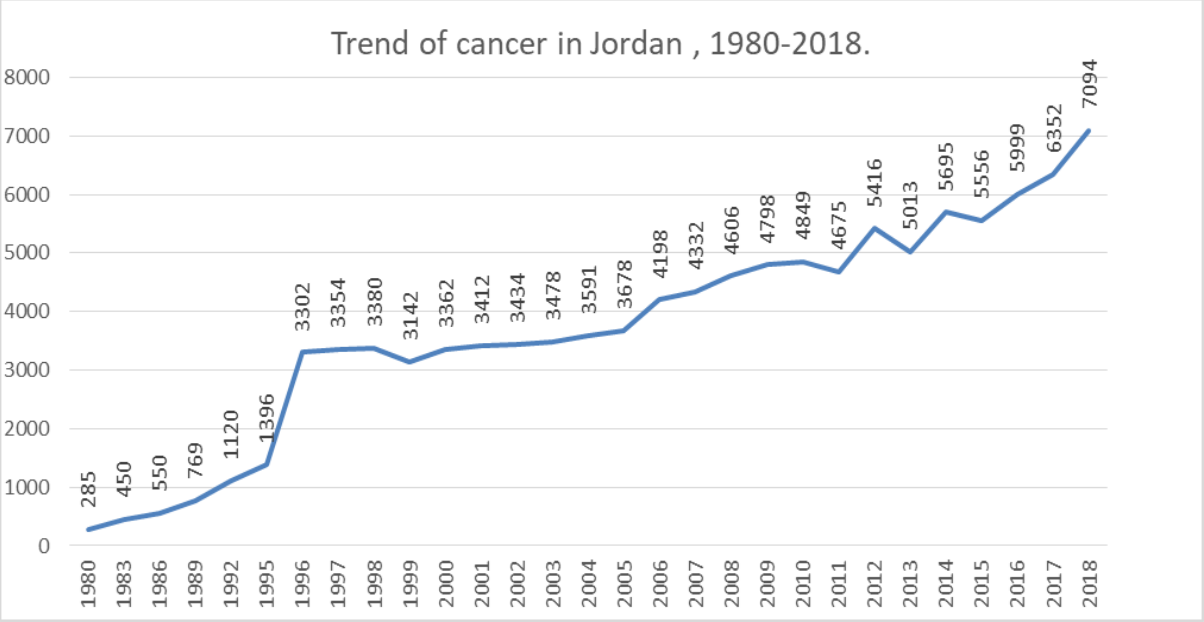


Figure (3) shows the number of reported cases to JCR by sex. This figure shows that there was an increase in the number of incidence cases among Jordanians for both males and females. The number of Jordanian male cases increased from 2262 in 2008 to 3333 in 2018, while in females there was an increase from 2309 in 2008 to 3761 in 2018.

Figure 3: Cases numbers for Jordanian by sex, 2008-2018.

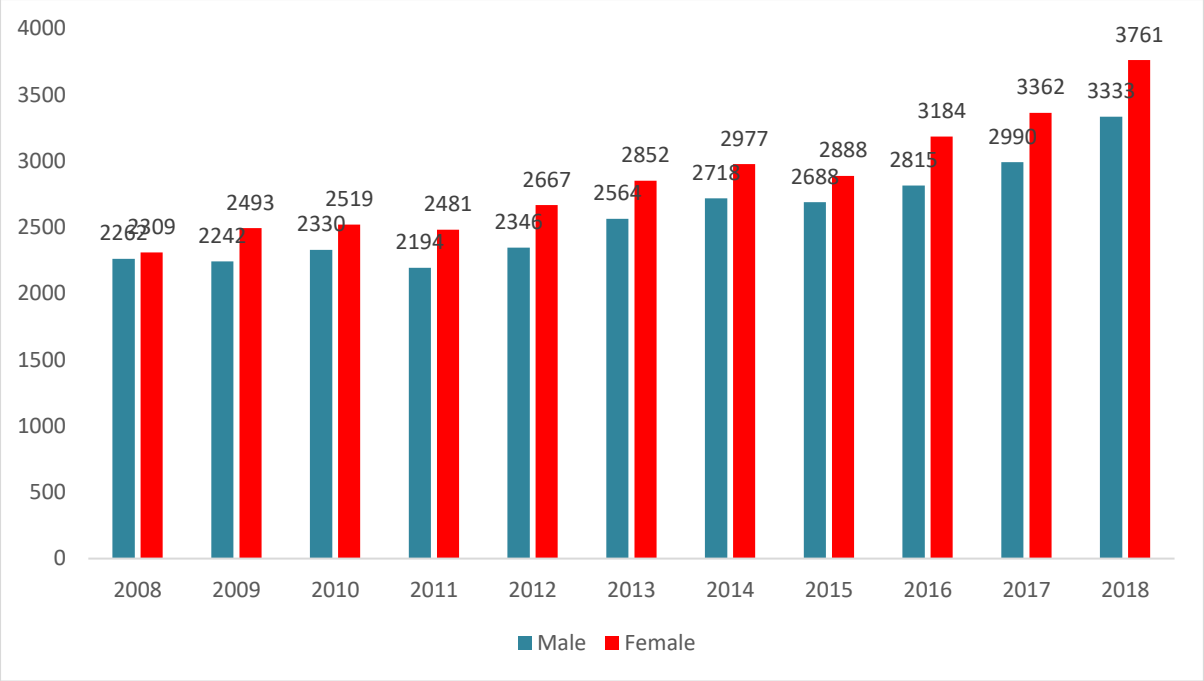
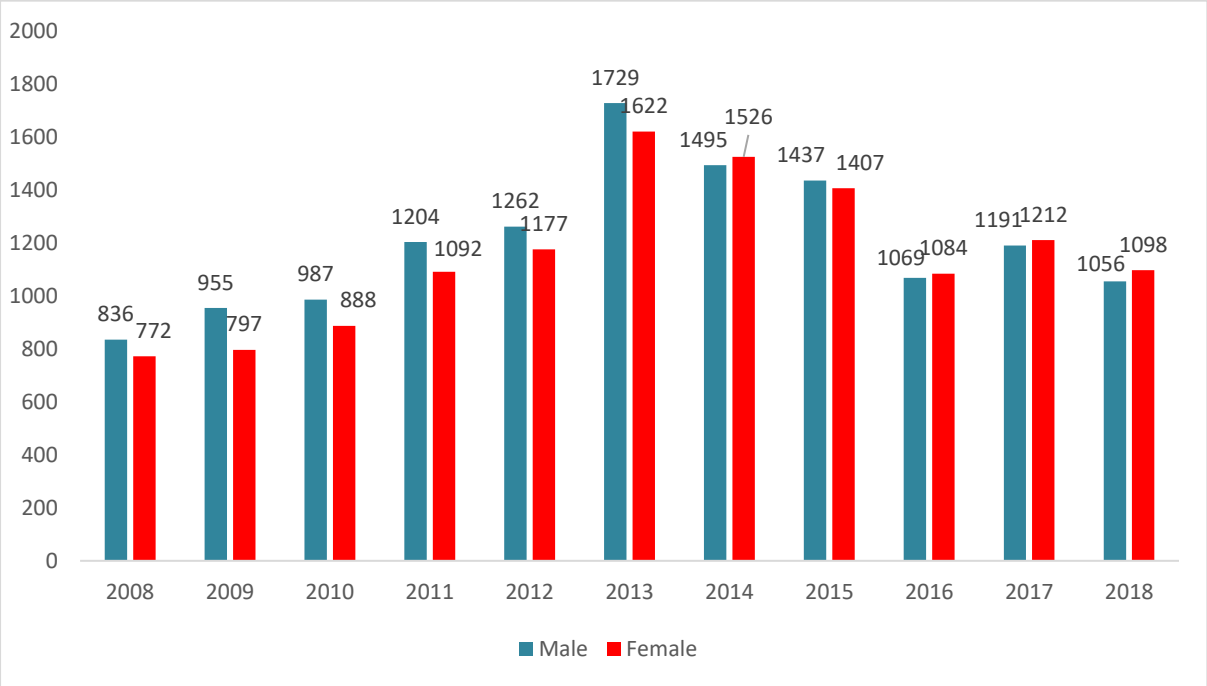


Figure (4) shows the number of reported non-Jordanian cases to JCR by sex in both males and females for the years 2008-2018 data.

Figure 4: Cancer cases numbers for non-Jordanian by sex, 2008-2018.



5. Cancer Incidence in Jordan - 2018

5.1. Summary of cancer incidence in Jordan – 2018

Table 4: Summary of cancer incidence in Jordan, 2018.

Number of cases	Male	Female	Total
Total cases	4389	4859	9248
Jordanian	3333	3761	7094
Non-Jordanian	1056	1098	2154

Jordanians – Further analysis	Male	Female	Total
Pediatric age group 0-15 years	164	127	291
Crude incidence rate	91.7	107.4	99.4
Age Standardized rate	132.4	144.0	138.3
Mean age at diagnosis	55.7	52.4	54
Median age at diagnosis	59	53	56
Mode age at diagnosis	73	47	50

5.2. Distribution of cases by Age group and sex

A total of 7094 new cases of cancer were recorded among Jordanian population for the year 2018, of those 3333 cases (47%) were males. Male to female ratio for cancer cases in Jordan was 0.88:1.

Overall, 42.2% of the cases in 2018 were diagnosed among people aged 60 years and older, males (54.8%) were more than females in this age group. While females predominate in the age group 20-59 years (60.4%).

The distribution of new cancer cases by age group showed that 4.1% of the cases were below 15 years, males (56.4%) were more than females (43.6%).

The overall median age at diagnosis was 56 (59 years for males and 53 years for females). In 2018, the crude age specific incidence rate (ASIR) of all cancers among Jordanians was 99.4 per 100,000 populations (91.7 for males and 107.4 for females). The Age-Standardized Rate (ASR) adjusted to the World Standard

Population was (138.3) per 100,000 populations (132.4 per 100,000 for males and (144.0) per 100,000 for females compared with the 2017 ASR was 127.2 (119.7 for males and 131.7 for females /100,000 population). Table (5) shows the number and age-specific incidence rate (ASIR), which increases with age for both males and females.

Table 5: Number and ASIR of cancer cases by age group and sex – Jordan, 2018.

Age group	Male		Female		Total	
	N	ASIR	N	ASIR	N	ASIR
0-4	80	19.3	66	16.7	146	18.0
5-9	42	9.4	30	7.0	72	8.2
10-14	42	10.5	31	8.2	73	9.4
15-19	62	16.3	44	12.4	106	14.4
20-24	53	14.6	80	24.0	133	19.1
25-29	90	30.9	101	36.9	191	33.8
30-34	112	44.7	177	69.7	289	57.3
35-39	129	56.0	211	90.4	340	73.3
40-44	152	72.7	350	165.2	502	119.2
45-49	221	119.1	428	233.0	649	175.8
50-54	339	240.0	466	332.4	805	286.0
55-59	369	373.8	425	426.8	794	400.4
60-64	366	524.1	371	541.7	737	532.8
65-69	372	672.1	340	587.8	712	629.0
70-74	424	935.8	309	755.5	733	850.2
75-79	283	988.8	194	703.4	477	848.8
80-84	130	953.8	86	646.6	216	802.1
85+	67	819.1	52	553.8	119	677.3
Total	3333	91.7	3761	107.4	7094	99.4

5.3. Distribution by Primary site and sex

Table 6: Number and percentage of cancer by primary site & sex - Jordan, 2018

Site / Top	Male	%	Female	%	Total	%
Lip	4	0.1	1	0.0	5	0.1
Tongue	14	0.4	8	0.2	22	0.3
Mouth	10	0.3	5	0.1	15	0.2
Salivary gland	15	0.5	9	0.2	24	0.3
Tonsils	4	0.1	1	0.0	5	0.1
Other Oropharynx	0	0.0	1	0.0	1	0.0
Nasopharynx	28	0.8	17	0.5	45	0.6
Hypopharynx	2	0.1	1	0.0	3	0.0
Pharynx, Unspecified	2	0.1	0	0.0	2	0.0
Esophagus	21	0.6	12	0.3	33	0.5
Stomach	136	4.1	78	2.1	214	3.0
Small Intestine	17	0.5	15	0.4	32	0.5
Colon	291	8.7	198	5.3	489	6.9
Rectum	136	4.1	110	2.9	246	3.5
Anus	8	0.2	7	0.2	15	0.2
Liver	40	1.2	32	0.9	72	1.0
Gall Bladder	21	0.6	30	0.8	51	0.7
Pancreas	62	1.9	39	1.0	101	1.4
Nose, Sinuses, etc	4	0.1	2	0.1	6	0.1
Larynx	89	2.7	14	0.4	103	1.5
Trachea, Bronchus, Lung	365	11.0	93	2.5	458	6.5
Other Thoracic Organs	16	0.5	2	0.1	18	0.3
Bone	37	1.1	29	0.8	66	0.9
Melanoma of skin	14	0.4	12	0.3	26	0.4
Other Skin	193	5.8	115	3.1	308	4.3
Mesothelioma	4	0.1	1	0.0	5	0.1
Kaposi Sarcoma	3	0.1	3	0.1	6	0.1
Connective, Soft Tissue	66	2.0	76	2.0	142	2.0
Breast	11	0.3	1463	38.9	1474	20.8
Vulva	0	0.0	23	0.6	23	0.3

Site / Top	Male	%	Female	%	Total	%
Vagina	0	0.0	8	0.2	8	0.1
Cervix Uteri	0	0.0	39	1.0	39	0.5
Corpus Uteri	0	0.0	186	4.9	186	2.6
Uterus, Unspecified	0	0.0	25	0.7	25	0.4
Ovary	0	0.0	101	2.7	101	1.4
Other Female Genital	0	0.0	3	0.1	3	0.0
Placenta	0	0.0	0	0.0	0	0.0
Penis	2	0.1	0	0.0	2	0.0
Prostate	253	7.6	0	0.0	253	3.6
Testis	86	2.6	0	0.0	86	1.2
Other Male Genital	0	0.0	0	0.0	0	0.0
Kidney	122	3.7	61	1.6	183	2.6
Renal Pelvis	9	0.3	2	0.1	11	0.2
Ureter	16	0.5	2	0.1	18	0.3
Bladder	308	9.2	41	1.1	349	4.9
Other Urinary Organs	5	0.2	0	0.0	5	0.1
Eye	17	0.5	10	0.3	27	0.4
Brain, Nervous System	125	3.8	73	1.9	198	2.8
Thyroid	87	2.6	272	7.2	359	5.1
Adrenal glands	7	0.2	8	0.2	15	0.2
Other Endocrine	3	0.1	1	0.0	4	0.1
Hodgkin disease	106	3.2	90	2.4	196	2.8
NHL	179	5.4	102	2.7	281	4.0
Immune proliferative	1	0.0	0	0.0	1	0.0
Multiple Myeloma	58	1.7	43	1.1	101	1.4
Lymphoid Leukemia	65	2.0	56	1.5	121	1.7
Myeloid Leukemia	70	2.1	58	1.5	128	1.8
Leukemia Unspecified	29	0.9	21	0.6	50	0.7
Other & Unspecified	91	2.7	101	2.7	192	2.7
Unknown	81	2.4	61	1.6	142	2.0
Total	3333	100.0	3761	100.0	7094	100.0

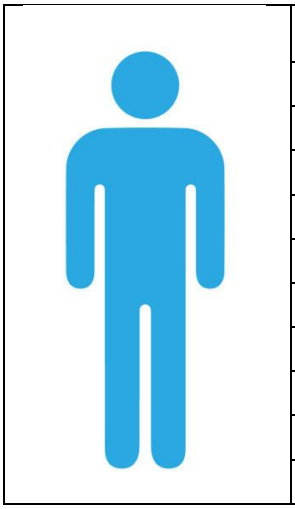
5.4. Top Cancers among Jordanian population by sex, 2018

Table 7: Ten most common cancers among Jordanians, both sexes, 2018.

Rank	Cancer	No	%
1	Breast	1474	20.8
2	Colorectal	750	10.6
3	Lymphoma	477	6.7
4	Lung	458	6.5
5	Thyroid	359	5.1
6	Bladder	349	4.9
7	Leukemia	299	4.2
8	Prostate	253	3.6
9	Stomach	214	3.0
10	Brain, Nervous System	198	2.8

N.B: The total of the top Ten cancers accounted, 4831 (68.1%)

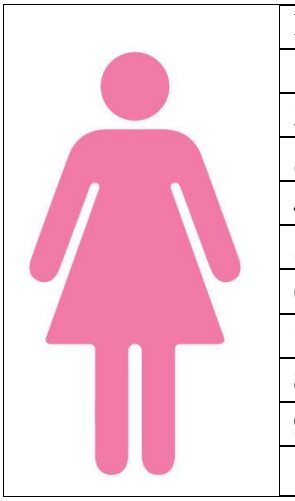
Table 8: Ten most common cancers among Jordanian Males, 2018



Rank	Site	Frequency	Percent
1	Colorectal	435	13.1
2	Trachea, bronchus, lung	365	11.0
3	Bladder	308	9.2
4	Prostate	253	7.6
5	NHL	179	5.4
6	Leukemia	164	4.9
7	Stomach	136	4.1
8	Brain, Nervous system	125	3.8
9	Kidney	122	3.7
10	Hodgkin disease	106	3.2

N.B: The total of the top Ten male cancers accounted, 2193(65.8%)

Table 9: Ten most common cancers among Jordanian Females, 2018



Rank	Site	Frequency	Percent
1	Breast	1463	38.9
2	Colorectal	315	8.4
3	Thyroid	272	7.2
4	Corpus Uteri	186	4.9
5	Leukemia	135	3.6
6	NHL	102	2.7
7	Ovary	101	2.7
8	Trachea, Bronchus, Lung	93	2.5
9	Hodgkin Disease	90	2.4
10	Stomach	78	2.1

N.B: Total top ten female cancers accounted for 2835 (75.4%)

5.5. Distribution of cancer cases by governorate /regions and sex with crude rates

The numbers and rates of cancer cases scattering by governorates and regions. Amman, the capital reported (57.7 %) of all cases followed by Irbid (11.8%), Zarqa (10.6 %), and Balqa (5.4%), however 0.8% was reported from Ma'an which was the lowest. Regarding the crude cancer incidence rate per 100,000 populations by governorates, Amman showed the highest rate (148.5) per 100,000 populations and the lowest was in Ma'an (38.9) /100,000 population. This is all shown in table (10).

Table 10: Number of cancer cases and crude incidence rates, by governorates and sex, 2018.

Governorate	Male		Female		Total		
	N	CR*	N	CR	N	CR	%
Amman	1971	140.9	2125	156.4	4096	148.5	57.7
Zarka	330	64.6	421	86.7	751	75.4	10.6
Balqa	185	85.2	201	95.3	386	90.2	5.4
Madaba	48	55.6	89	107.6	137	81.0	1.9
Central Region -CR	2534	114.5	2836	132.7	5370	123.4	75.7
Irbid	392	54.0	448	64.6	840	59.2	11.8
Jarash	61	65.7	73	83.0	134	74.1	1.9
Ajloun	64	74.1	67	80.6	131	77.3	1.8
Mafraq	84	48.4	91	55.1	175	51.7	2.5
North Region CR	601	55.7	679	65.9	1280	60.7	18.0
Karak	93	62.7	115	79.0	208	70.8	2.9
Aqaba	38	50.6	50	70.9	88	60.4	1.2
Maan	34	48.3	25	30.8	59	38.9	0.8
Tafiela	22	44.3	42	88.6	64	65.9	0.9
South Region- CR	187	54.4	232	67.3	419	60.9	5.9
Not Resident	11		14		25		0.4
Total- CR	3333	91.7	3761	107.4	7094	99.4	100.0

*(CR, crude rate)

6. Pediatric Malignancies in Jordan, 2018

There were (291) children in the age-group 0-14 years diagnosed with new cancer among Jordanians, and this constitutes about (4.1%) of all registered malignant tumors in the year 2018 compared with 235 (3.7%) in the year 2017.

The distribution of cases by sex shows that it was higher in males (164) (56.3%) than females (127) (43.7%), as shown in figure (5). The male to female ratio was 1.3: 1. The crude incidence rate for all cancers in this age group was (118.1) per million (129.8 per million for boys and 105.8 per million for girls).

The mean age at diagnosis was (5.6) years. Children aged less than 1 year were 30, accounted for 10.3% of all pediatric cancer cases, and half of them were male. Connective tissue, soft tissue tumor ranked 1st among children aged less than one year (26.7%), followed by Retina (20%). About 50% of registered cases were under the age of five years, figure (6). Figure (7) shows top 10 cancer among Jordanians below 15 years old. Leukemia ranked first (32.0%), followed by brain, CNS (15.8%), and lymphoma (12.4%). Figure (8) shows top five pediatric cancer cases by sex, Jordan, 2018.

Figure 5: Distribution of pediatric cancer cases percentage by sex, 2018, Jordanians.

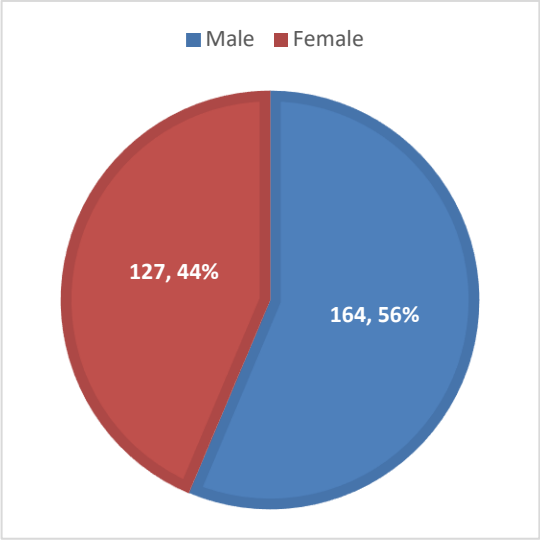


Figure 6: Distribution of pediatric cancer cases percentage by age group, 2018, Jordanians.

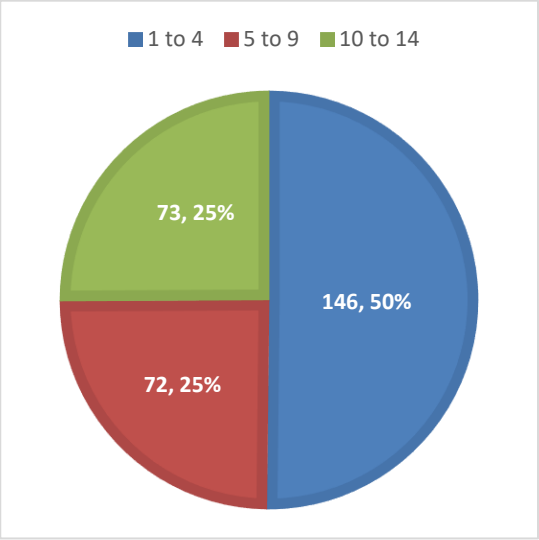


Figure 7: Percentage of top ten cancers in Pediatric age group (both sexes), 2018.

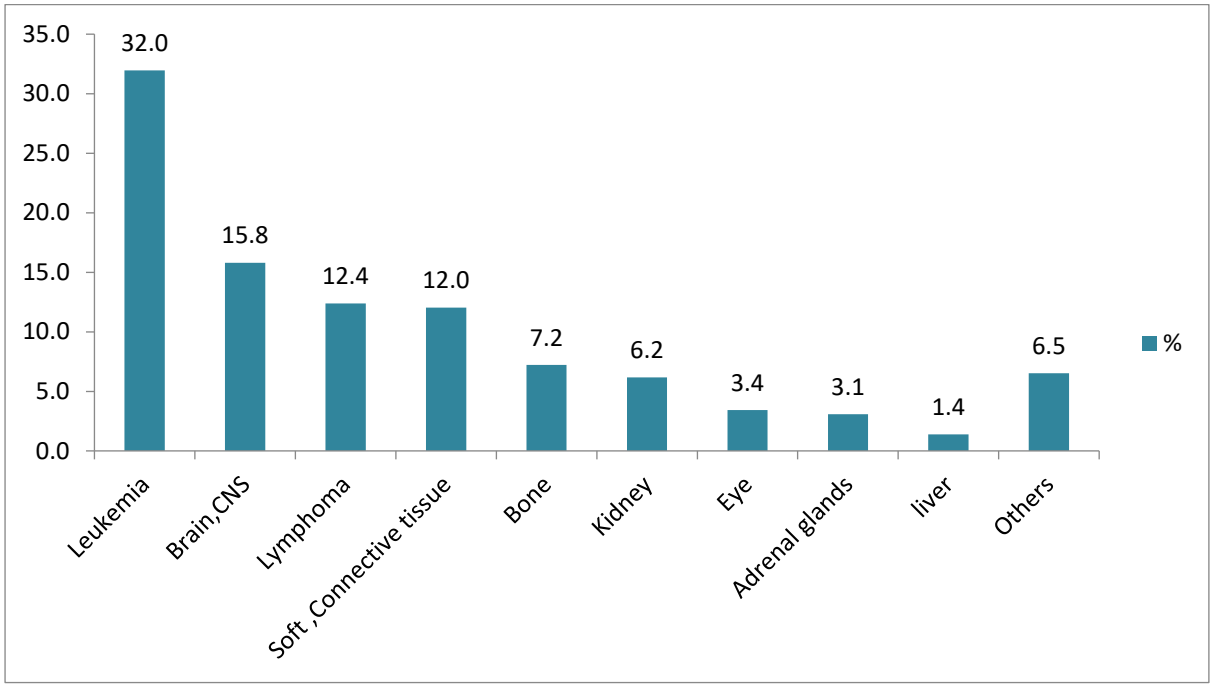
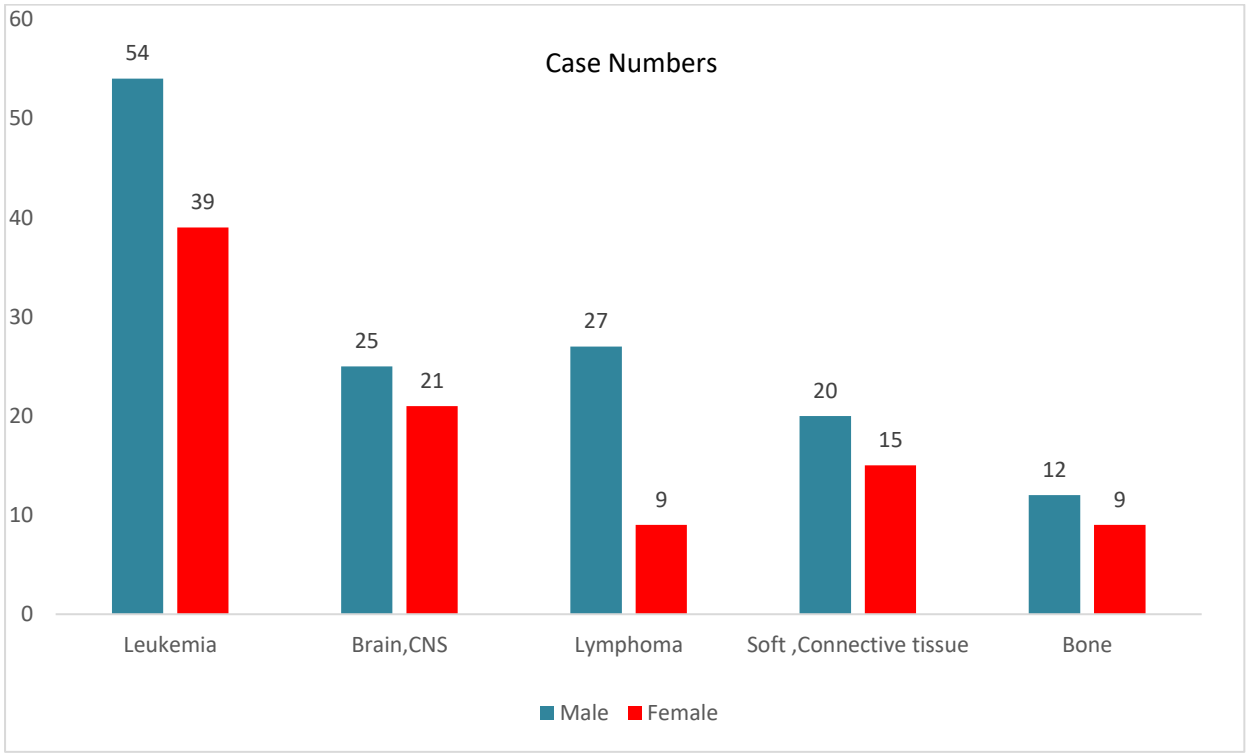


Figure 8: Top five Pediatric cancer cases by sex, Jordan, 2018.



7. Cancer among Non-Jordanians, 2018

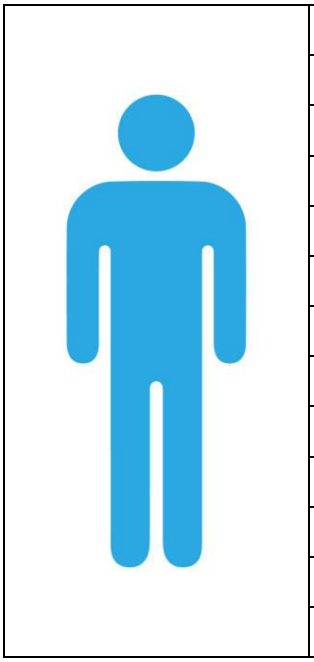
The total number of cancer cases among non-Jordanians was 2154, accounting for 23.3% of all cancers reported and registered in JCR for the year 2018. The distribution of cases by sex shows that males were 1056 (49%) while females were 1098 (51%). Male to female ratio of (0.96:1). The mean age for diagnosis of the registered cases among non-Jordanians was 52.7 years (53.4 for males and 51.2 for females). The commonest types of cancers among non-Jordanians were breast, colorectal, Lymphoma, lung cancer and prostate, as shown in table (11). Tables (12) & (13) show the most frequent types of cancer among non-Jordanian among males and females, respectively.

There were 111 cases below the age of 15 years, which accounted for 5.2% of all non-Jordanians registered in JCR for the year 2018. There were 12 pediatric cases aged below 1 year, 10.8% of all pediatric cases, of which 8 were males. Retina ranked 1st among all cancer cases of children aged less than one year (33.3%). 60% of all pediatric cases were males, figure (9). Majority of cases were below 5 years (45%), followed by the age group (5-9) (29%), and age group (10-14) (26%) as shown in figure (10). Figure (11) shows percentage of top ten cancers of Pediatric age group among non-Jordanian (both sexes).

Table 11: The most frequent types of cancer among non-Jordanian (Both sexes), 2018

Rank	Primary site	No.	%
1	Breast	394	18.3
2	Colorectal	224	10.4
3	Lymphoma	142	6.6
4	Trachea, Bronchus, Lung	120	5.6
5	Prostate	105	4.9
6	Thyroid	93	4.3
7	Leukemia	92	4.3
8	Bladder	89	4.1
9	Stomach	83	3.9
10	Brain, Nervous System	76	3.5

Table 12: The most frequent types of cancer among non-Jordanian males, 2018.



Rank	Primary site	N	%
1	Colorectal	121	11.5
2	Prostate	105	9.9
3	Lymphoma	97	9.2
4	Trachea, Bronchus, Lung	96	9.1
5	Bladder	78	7.4
6	Leukemia	52	4.9
7	Brain, Nervous System	46	4.4
8	Kidney	45	4.3
9	Stomach	43	4.1
10	Larynx	32	3.0
11	Others	341	32.3
Total		1056	100

Table 13: The most frequent types of cancer among non-Jordanian females, 2018.

Rank	Primary site	N	%
1	Breast	392	35.7
2	Colorectal	103	9.4
3	Thyroid	63	5.7
4	Corpus Uteri	49	4.5
5	Lymphoma	45	4.1
6	Leukemia	40	3.6
7	Stomach	40	3.6
8	Ovary	32	2.9
9	Brain, Nervous System	30	2.7
10	Trachea, Bronchus, Lung	24	2.2
11	Others	280	25.8
Total		1098	100

Figure 9: Percentage distribution of pediatric cancer among non-Jordanians by sex, 2018.

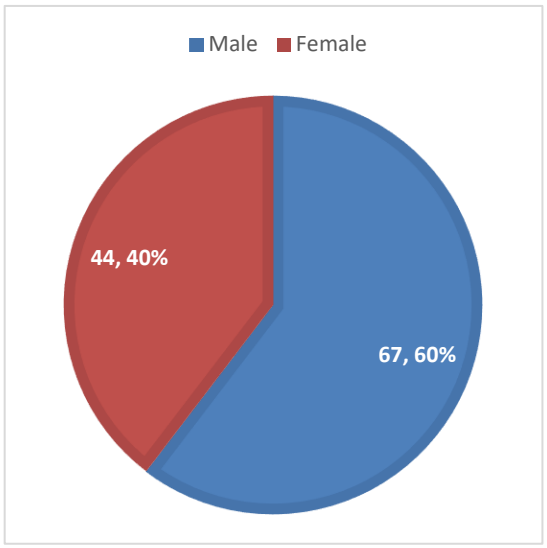


Figure 10: Percentage distribution of pediatric cancer among non-Jordanians by age, 2018.

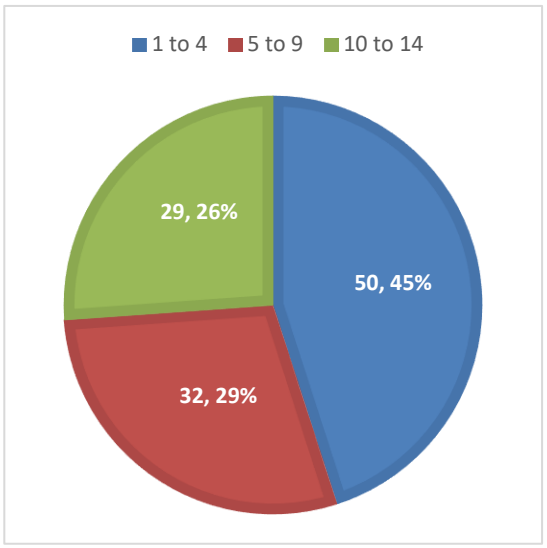
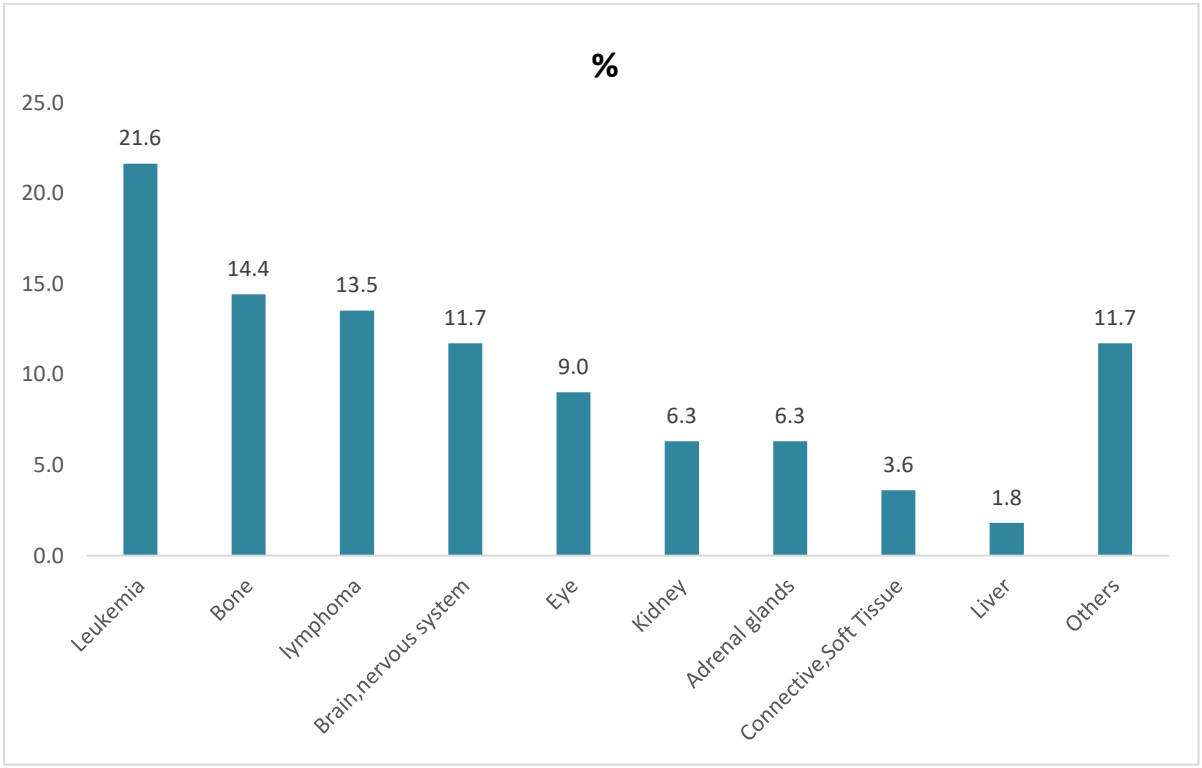


Figure 11: Percentage of top ten cancers of pediatric age group among non-Jordanians (both sexes), 2018.



8. Cancer mortality 2018

There are two mortality data sets: one data set of all causes of death obtained from the National Registry for Mortality (NCD-MOH) for the year 2018, and the second one obtained from JCR.

- National Mortality Registry showed that the leading cause of death in Jordan was cardiovascular and circulatory diseases representing (43.9%) followed by neoplasms which constitute (19.8%), therefore cancer is ranked as the second cause of death in Jordan.

Mortality due to cancer was taken out of mortality registry data report for the year 2018. Data collected out of death notification forms received from all hospitals and forensic medicine for the year 2018, data included here was coded using ICD-10 mortality coding system from (C00- D48). Malignant, in situ and uncertain behavior neoplasm were included in this chapter, data was centrally checked and coded then entered into special software used for this purpose. Number of deaths due to cancer were 3184/16072 [19.8%]. Male to female ratio was 1.2:1. The median age for mortality due to cancer was 64 (66 years for males and 61 for females). The distribution of the number of deaths by age group is shown in figure (12). The strongest predictors of mortality (cancer) were advanced age. Figures (13-15) show more mortality data.

Figure 12: Number of cancer deaths by age group – National Mortality Registry 2018.

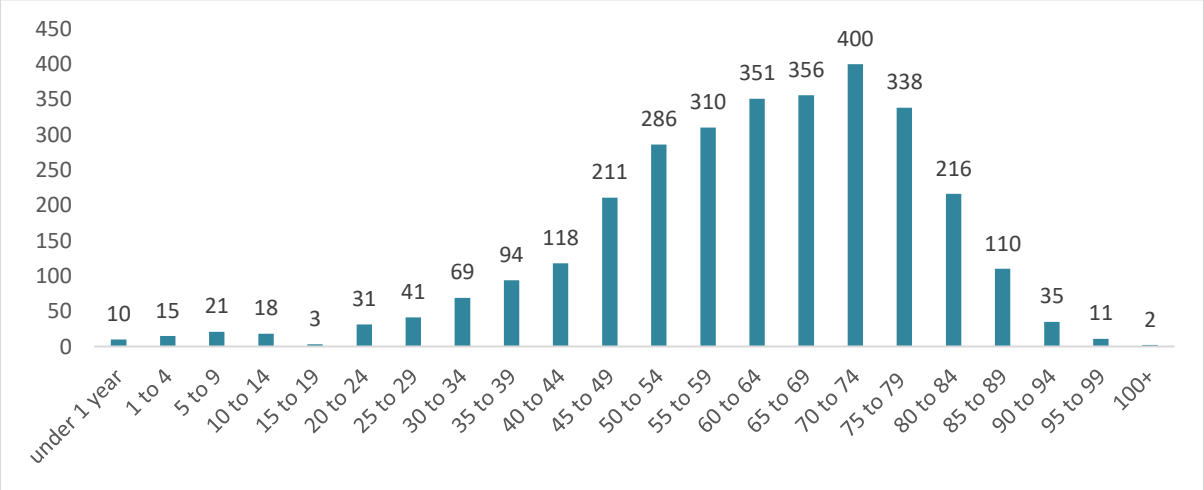


Figure 13: Top five-death percentage distribution due to cancer, males - National Mortality Registry 2018.

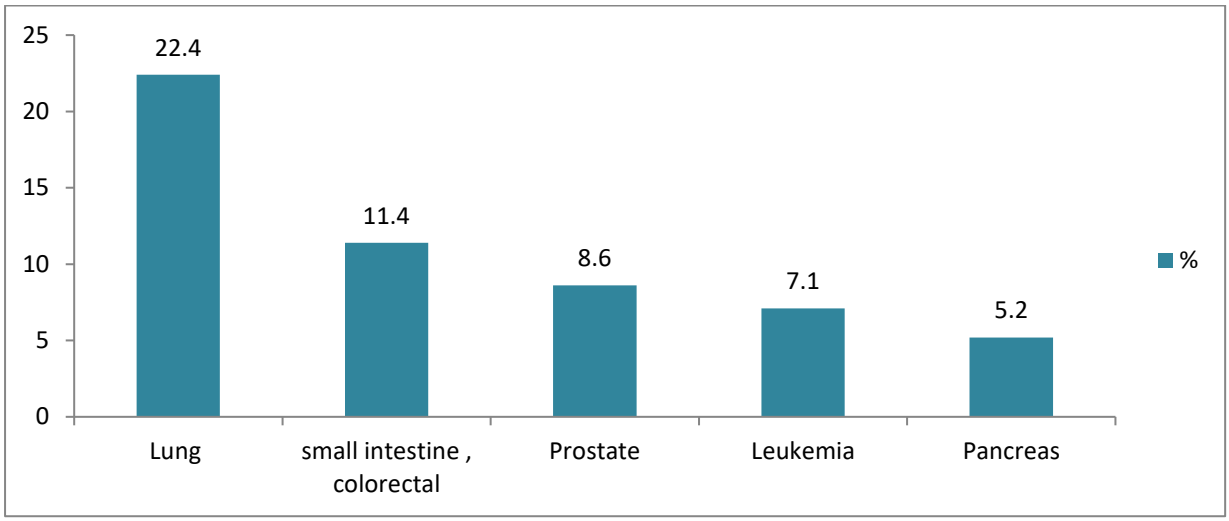


Figure 14:Top five-death percentage distribution due to cancer, females - National Mortality Registry 2018.

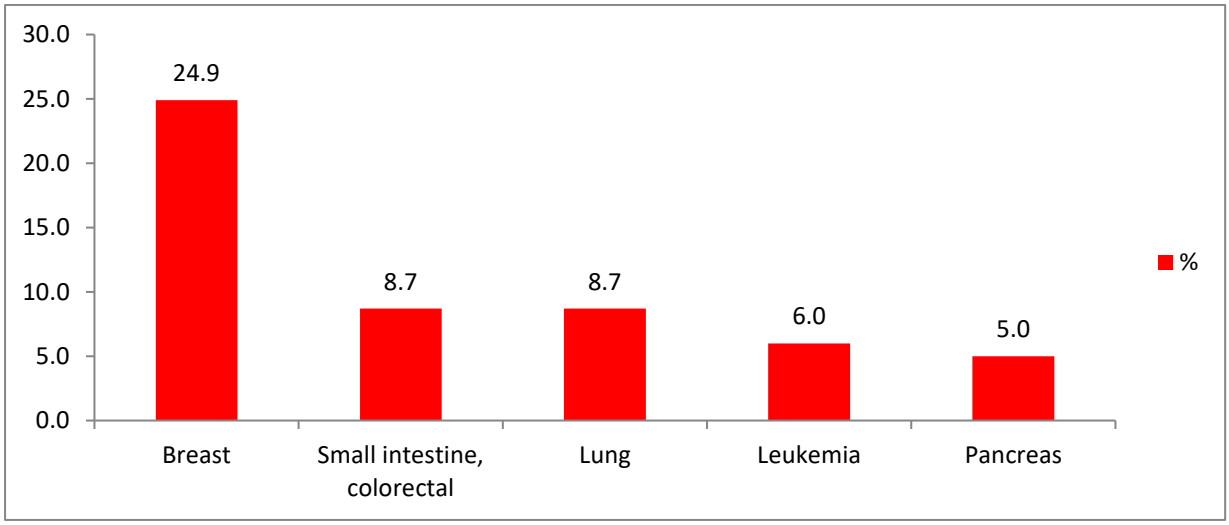
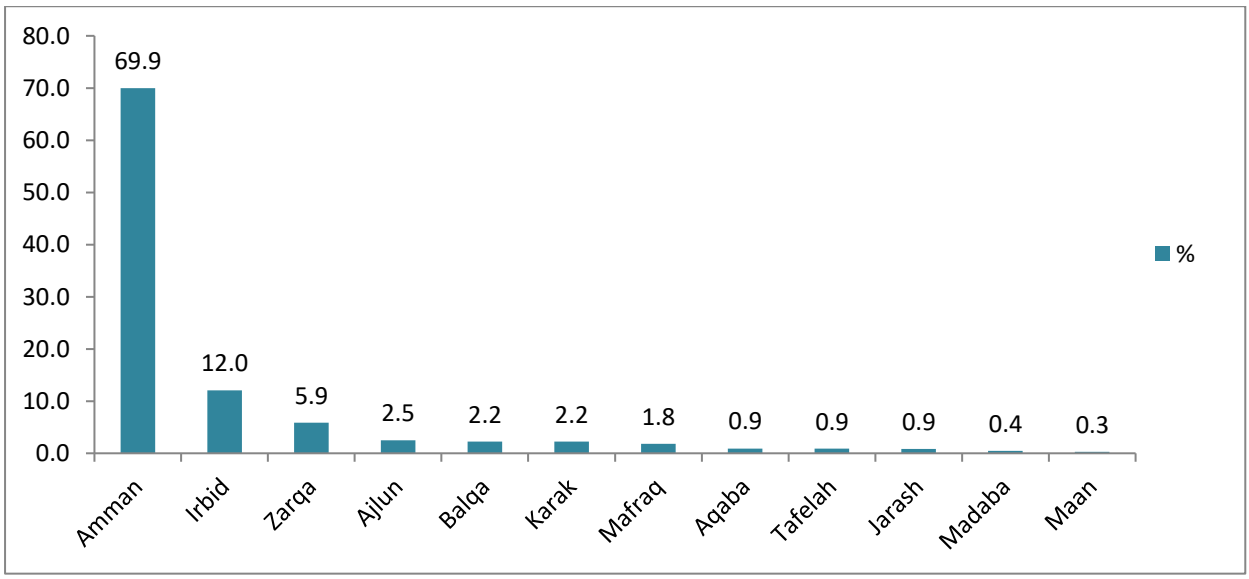


Figure 15: Percentage distribution of deaths due to cancer by governorates. National Mortality Registry 2018



- Jordan cancer registry: mortality data showed that 1081 cancer cases were diagnosed and died in 2018 (649 (60%) males, 432 (40%) Females). Figure (16) shows the number of cancer deaths by age group, according to JCR in 2018.

The top five-death due of cancer among Males were Lung (27.1%), Colorectal (10.5%), stomach (6.8%), Leukemia (6%), and lymphoma (4.6%) as shown in Figure (17). While Top five-death due to cancer among Females were breast (15.7%), colorectal (9%), stomach (7.9%), Leukemia (7.6%), and lung (6.9%), as shown in Figure (18). Figure (19) shows the percentage distribution of deaths due to cancer by governorates, according to JCR 2018.

Figure 16: Number of cancer deaths by age group – JCR 2018.

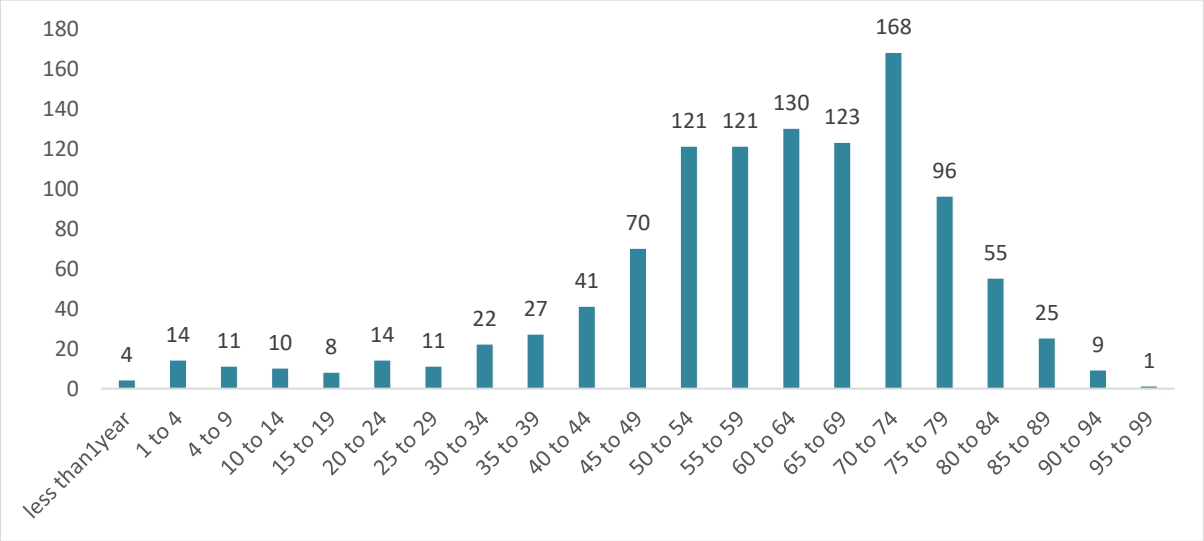


Figure 17: Top five-death percentage distribution due to cancer, males – JCR 2018.

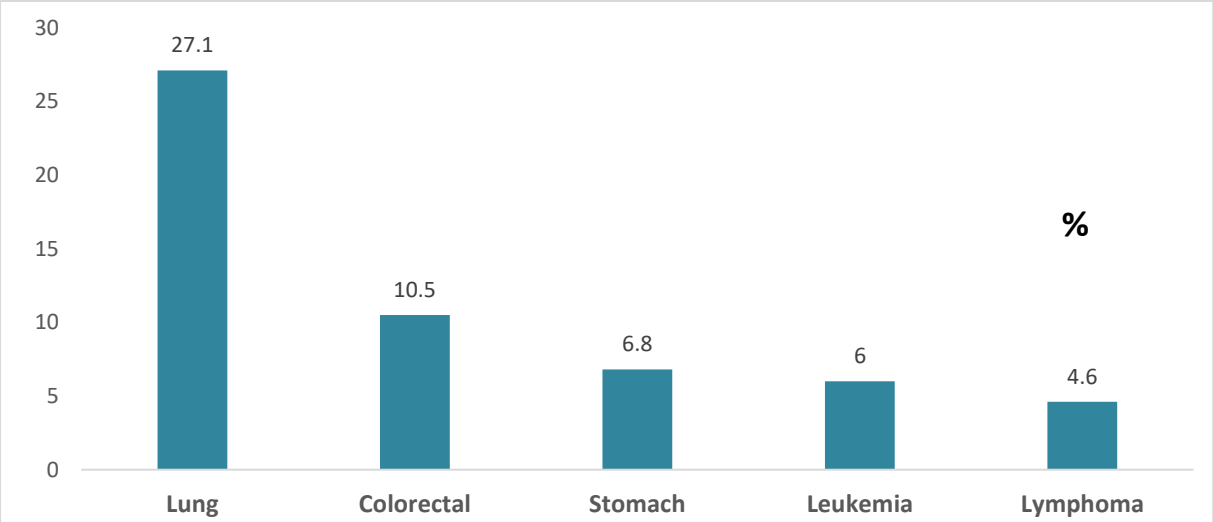


Figure 18: Top five-death percentage distribution due to cancer, females – JCR 2018.

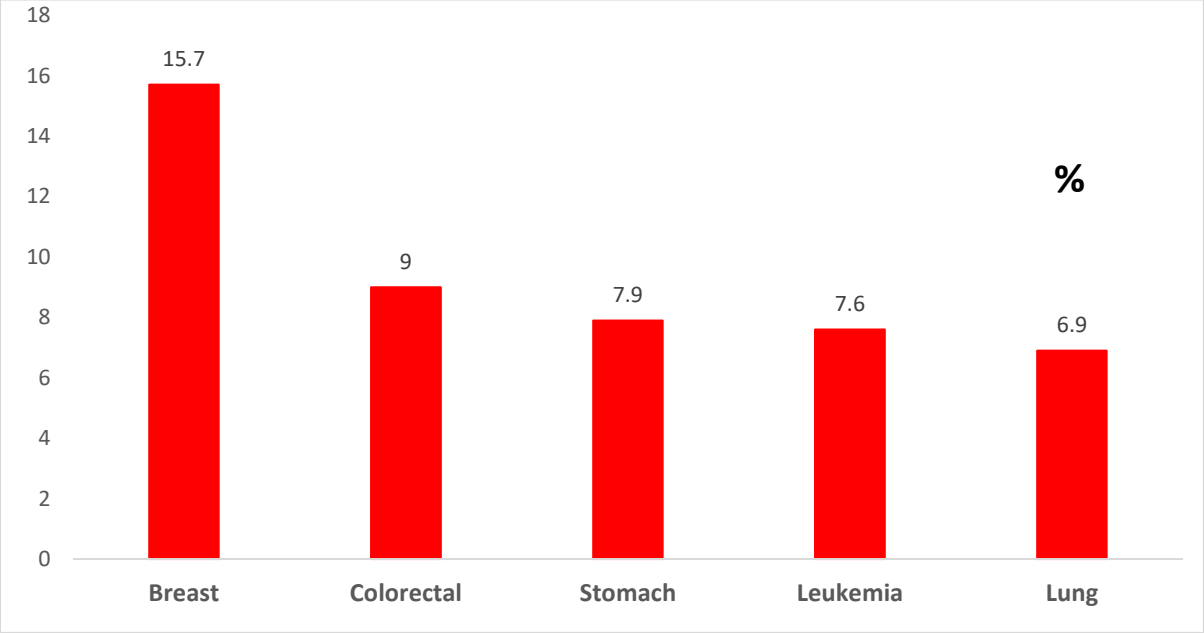
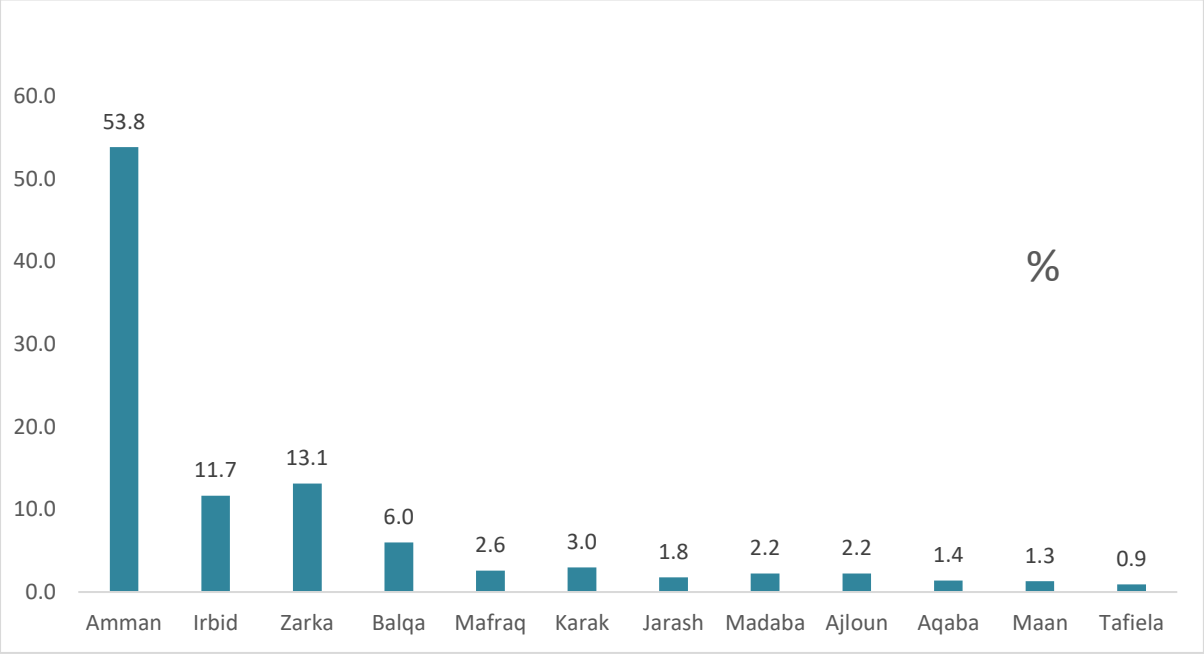


Figure 19: Percentage distribution of deaths due to cancer by governorates - JCR 2018.



Appendix 1: Jordan Cancer Registry Form

Ministry of Health–NCDD

Jordan Cancer Registry

4 JORDAN

Patient Information

1 . الرقم الوطني:			
2 . إسم المريض: إسم الأب:	إسم الجد:	إسم العائلة:	
3 . الحالة الإجتماعية: 1. أعزب 2. متزوج 3. منفصل 4. مطلق 5. أرمل 9. غير معروف	4 . إسم الزوج:		
5 . تاريخ الميلاد: سنة / شهر / يوم	6 . العمر عند التشخيص:		
7 . العنوان الدائم: المدينة القرية	8 . الجنس: 1. ذكر 2. أنثى 9. غير معروف		
9 . رقم التلفون:	10. المحافظة:		
11. الجنسية: 1. أردني 2. غير أردني ( )	9. غير معروف		
12. المهنة:	13. التدخين: 0. غير مدخن 1. مدخن 2. مدخن سابق 9. غير معروف		

Cancer Information

INSURANCE 1. مشترك 2. منتفع 3. قادر 4. غير قادر 5. عسكري 9. غير معروف

14.PRIMARY SITE (text)	15. ICD-O-CODE (topography) C ●	16. LATERALITY 0. Not a paired site 1. right 2. Left 3. One side only NOS 4. Bilateral 9. Unknown
17. CYTOHISTOPATHOLOGY	18. ICD-O-3-CODE morphology / behavior / grade	19. DATE OF DIAGNOSIS Day / Month / Year

20. BASIS OF DIAGNOSIS 0. Death.Cert.Only 1.Clin.Only 2. Clin.invest 3. Surg/Aut. 4. Lab 5.Cyt./Hem 6. Histo.of mets 7. Histo.of prim 8. Autopsy with Hist. 9. Unknown

21. SUMMARY STAGE 0. In situ 1. Localized 2. Reg. (DIR) 3. Reg. (L.N) 4. Reg. (DIR & L.N) 5. Reg. (NOS) 7. Distant/Systemic 9. Unknown/Unstaged

22. TREATMENT Surgery Radio Chemo. Immuno. Hermonal Others

23. STATUS 0. Alive 1. Dead 9. Unknown

24. CAUSE OF DEATH 1. Cancer 2. Non Cancer 9. Unknown

25. DATE LAST CONTACT / /

Facility Information

26. DATE OF ABSTRACT Day / Month / Year	27. ABSTRACTOR'S NAME	28. HOSPITAL FACILITY CODE
29. MEDICAL RECORD - SOURCE NUMBER	30. PATIENT'S DOCTOR	
31. HOSPITAL REFERRED FROM:	32. HOSPITAL REFERRED TO:	

Ministry of Health-NCDD - Jordan Cancer Registry وزارة الصحة / السجل الوطني للسرطان

*Telefax 00962 6 5694324 E-mail: icancerr@nets.jo

Appendix 2: JCR Data Request Application Form

Ministry of Health - Jordan Cancer Registry(JCR)

Amman-Ph.962 6 5662067

Data Request / Non-Confidential Data

Name : ....

Address : ....

Institution : ....

Phone No :.. **Fax No :** .... **Email :**..

Required data :
(Specify ,Time Period ,Site,Histology,Region,etc.......)

Data Required For :
(Presentation / conference/ publication/clinical,epidemiological study,Commercial Need,etc....................)

Collaborators and Co-authors(If Present):

Avowal Declaration:

I hereby, supplicant of the above data affirm that the data given to me from the National Jordan Cancer Registry - JCR- will be treated with extreme confidentiality concerning patient's identity, I also confirm that the data given to me will not be presented or published by me or any of my collaborators as an original work but rather can be used in my presentation and/or publication with acknowledgement to the JCR .also confirm to provide copy of my work and feed-back to the JCR soon after.

Requester's Signature:... **Date Submittted** ....

For administrative use only :

Request:/ Approved : ....***Not Approved***..

Director of Jordan Cancer Registry.. ***Sign***...

Director of Non-Communicable Disease Directorate.................................... ..***Sign***...

Date:...........................

Appendix 3: Definitions of Terms

Incidence

A cancer incidence rate is the number of new cancers of a specific site/type occurring in a specified population during a year, usually expressed as the number of cancers per 100,000 populations at risk.

That is, Incidence rate = (New cancers / Population) × 100,000

The numerator of the incidence rate is the number of new cancers; the denominator is the size of the population. The number of new cancers may include multiple primary cancers occurring in one patient. The primary site reported is the site of origin and not the metastatic site.

Prevalence

Prevalenc**e** is defined as the number or percent of people alive on a certain date in a population who previously had a diagnosis of the disease. It includes new (incidence) and pre-existing cases and is a function of both past incidence and survival. Information on prevalence can be used for health planning, resource allocation, and an estimate of cancer survivorship.

Crude incidence rate (CR)

The number of new cancer cases (incidence cases) observed in the population during a defined period, is divided by the number of populations at risk in the same period. It is usually expressed per 100,000.

Age-Specific Incidence Rate (ASIR)

The number of cancer cases occurring during a specific period in a population of a specific age group and sex, divided by the number of mid-year population of that age group and sex, multiplying by 100,000.

$AR = N_i / P_i \times 100,000$

N_i- Number of new cancer cases occurring in the i^{th} age group

P_i – person-years at risk in the i^{th} age group

Age-Standardized Rate (ASR)

An age-adjusted rate is a weighted average of the age-specific rates, where the weights are the proportions of persons in the corresponding age groups of a standard population. The potential confounding effect of age is reduced when comparing age-adjusted rates computed using the same standard population.

The most frequently used standard population is the world standard population. The calculated incidence is known as the world standardized incidence rate. The rate is expressed per 100,000 population

Rank

This measure reflects the importance of a specific cancer site relative to other sites, in terms of the number of registrations. Ranking illustrates the most and least frequent cancer sites in a population according to their frequency.

وبائية السرطان لعام 2018 – الملخص التنفيذي

التقرير السنوي الثالث والعشرون للسجل الوطني للسرطان

مديرية الأمراض غير السارية - قسم مكافحة السرطان - السجل الوطني للسرطان

الرسـالة: تخفيف عبء مرض السرطان من خلال خفض معدلات الإصابة وذلك بتبني سياسات وبرامج وطنية لمكافحة السرطان تتضمن زيادة تدابير الوقاية والكشف والتشخيص المبكر.

الـرؤية: نحو مجتمع واعي للتدابير الوقائية من السرطان وطرق الكشف المبكر وبمشاركة كافة الجهات الوطنية وصولاً إلى معدلات متدنية من الإصابة وبالتالي الوفيات من هذا المرض.

الأهـداف:

- الرصد المستمر (الذاتي والنشط) لتسجيل حالات السرطان في المملكة اعتماداً على المعايير العالمية.
- إعداد استراتيجية وخطة وطنية شاملة لمكافحة مرض السرطان في المملكة.
- إعداد البرامج الوطنية لمكافحة السرطان بناءً على معدلات الحدوث في المملكة.
- نشر الوعي الصحي حول أهمية الكشف والتشخيص المبكر لمرض السرطان.
- إعداد دلائل إرشادية وطنية للكشف المبكر عن السرطانات الأكثر شيوعاً (الثدي، القولون)

السجل الوطني للسرطان

أنشئ السجل الوطني للسرطان كوحدة في وزارة الصحة بموجب قرار وزاري وترتبط إداريا بمعالي الوزير في عام 1996 حيث كانت حالات السرطان الخبيث قبل ذلك تسجل من مستشفى واحد يتبع لوزارة الصحة. بعد ذلك أصبحت جميع حالات السرطان المكتشفة والمشخصة في الأردن ومن كافة القطاعات الصحية والمختبرات ترصد من خلال السجل الوطني للسرطان وذلك باتباع أسلوبين في عملية الرصد لتلك الحالات أولها أسلوب **الرصد الذاتي** حيث يتم التبليغ الذاتي عن وجود حالات سرطانية عن طريق تعبئة استمارة أعدت خصيصا تتضمن مجموعة من البيانات حول المرض وترسل مباشرة إلى السجل وذلك من خلال ضباط ارتباط أكفياء مدربين وموزعين على كافة المستشفيات في القطاعين العام والخاص ومستشفيات الخدمات الطبية الملكية ومستشفيات الجامعات بالإضافة إلى مختبرات القطاع العام والقطاع الخاص. أما الطريقة الثانية المتبعة في رصد حالات السرطان في الأردن فهي من خلال **الرصد النشط** حيث يقوم فريق من كادر السجل الوطني بزيارة المستشفيات والمختبرات والجهات ذات العلاقة واستنباط الحالات السرطانية المشخصة في تلك الأماكن وارسالها للسجل الوطني للسرطان.

فيما بعد تتم عملية مراجعة وتنقيح للمعلومات والبيانات وعملية الترميز باستخدام (ICD-O3) ومن ثم إدخال الحالات إلى نظام رصد في الحاسوب باستعمال برنامج معد خصيصاً من قبل معهد البحوث السرطانية IARC (إحدى فروع منظمة الصحة العالمية WHO) ويراعي أعلى درجات الدقة والحرص لتجنب ازدواجية في الحالات المدخلة وذلك من خلال عدة آليات ومستويات من الرقابة الذاتية والداخلية وأيضاً الرقابة الخارجية على مجريات عمل وإنجازات السجل.

بعد الانتهاء من إدخال كافة الحالات المشخصة للفترة الزمنية المحددة (سنة) يتم تحليل تلك المعلومات باستخدام برامج التحليل الإحصائية ليصار بعد ذلك إلى إعداد التقرير ومن ثم نشر التقرير السنوي الذي يبين نمطية وانتشار مرض السرطان في الأردن حيث يبين التقرير وجود حالات السرطان من حيث مكان الإصابة والعمر والجنس والتوزيع الجغرافي. كما يتم إعداد جزء خاص بسرطانات الأطفال وآخر خاص بالسرطان بين غير الأردنيين في الأردن، ويتم أيضا إعداد جزء خاص بالوفيات بسب السرطان موزعة حسب أنواع السرطانات والفئات العمرية والجنس وكذلك التوزيع الجغرافي.

وقد عمل السجل على إيجاد قاعدة بيانات للمرضى حسب المعايير العالمية المتبعة في استنباط وترميز واستعمال هذه البيانات في رفد متخذي القرار وجميع المهن في مجال مرض السرطان على جميع المستويات والأصعدة (إدارية وتخطيط وعلمية...). وقد عمل السجل على إصدار تقرير سنوي لوجود الحالات السرطانية المكتشفة في فترة عام واحد Incidence Cancer وحفاظا على أعلى درجات الدقة في جمع وترميز الحالات السرطانية، ويقوم السجل وبشكل دوري بعقد العديد من الدورات التدريبية لضباط الارتباط العاملين بجمع واستنباط البيانات من سجلات السرطان. وحيث إن السجل الوطني للسرطان من الأوائل والرواد في السجلات المجتمعية (Community Based Registry) في الإقليم فانه يقوم بتدريب كوادر من الدول العربية.

في عام 2008 تم إلغاء مديرية مكافحة السرطان واستحدث قسم مكافحة السرطان وتم الإبقاء على وحدة السجل الوطني للسرطان ليتبع كل منهما إلى مديرية الإمراض غير السارية حيث يتابع قسم مكافحة السرطان والسجل الوطني للسرطان أعماله من تسجيل الحالات السرطانية المكتشفة وتطبيق نشاطات الاستراتيجية الوطنية في مجال مكافحة السرطان في الأردن. قدم السجل العديد من الأوراق العلمية في الموتمرات المحلية والدولية وقد أصبحت قاعدة البيانات المتراكمة لدى السجل مقصد العديد من الباحثين لإجراء الدراسات والبحوث العلمية.

أهم إحصائيات التقرير السنوي الثالث والعشرون لعام 2018

تم تجميع الحالات اعتماداً على تاريخ التشخيص من تاريخ 2018/1/1 حتى تاريخ 2018/12/31. بلغ مجموع الحالات المسجلة (9248) حالة منها (7094) أردنيين ما نسبته 76.7 % من إجمالي عدد الحالات، مقارنة مع (8755) حالة في العام 2017. وبلغ عدد الحالات بين الذكور الأردنيين (3333) (47%) والإناث (3761) (53%) في حين بلغ إجمالي الحالات بين غير الأردنيين للعام 2018 (2154) حالة ما نسبته (23.3 %) من مجموع الحالات.

السرطانات الخمس الأكثر شيوعاً بين الأردنيين للجنسين:

احتل سرطان الثدي المرتبة الأولى حيث بلغ إجمالي الحالات المسجلة ب (1474) حالة ما نسبته 20.8% تلاها سرطانات القولون والمستقيم حيث بلغ إجمالي الحالات (750) ما نسبته 10.6% ثم سرطان الغدد الليمفاوي (477) حالة (6.7%) ثم سرطان الرئة (458) حالة ما نسبته 6.5 %. ثم سرطان الغدة الدرقية (359) بنسبة (5.1%).

السرطانات الخمس الأكثر شيوعاً بين الذكور كانت على النحو التالي:

سرطان القولون والمستقيم (435) حالة بنسبة (13.1%) ثم سرطان الرئة (365) حالة (11.0%)، سرطان المثانة (308) بنسبة (9.2%)، سرطان البروستات (253) بنسبة (7.6 %)، ثم سرطانات الليمفوما لا هودجكنز 179 (5.4 %).

السرطانات الخمس الأكثر شيوعاً بين الإناث كانت على النحو التالي:

سرطان الثدي (1463) حالة بنسبة (38.9%)، القولون والمستقيم (315) بنسبة (8.4%)، سرطانات الغدة الدرقية (272) بنسبة (7.2%) ثم سرطان الرحم (186) بنسبة (4.9%) ثم سرطان الدم (135) بنسبة (3.6%) من مجموع سرطانات الإناث.

في حين بلغ مجموع سرطانات الأطفال للأعمار أصغر من 15 سنة (291 حالة) بنسبة 4.1 % من مجموع السرطانات الكلي، منها (164) بين الذكور بنسبة (56.3%) و(127) بين الإناث بنسبة (43.7%) من الحالات. حوالي (50%) من الحالات المسجلة هي لأطفال دون سن 5 سنوات.

وكانت أكثر السرطانات شيوعا في هذه الفترة العمرية (الأطفال أصغر من 15 سنة) هي كالتالي:

سرطان الدم 32.0%، سرطان الدماغ والأعصاب 15.8%، السرطانات الليمفاوية 12.4%، ثم سرطان الأنسجة الضامة والرخوة بنسبة 12.0%، وأخيرا سرطان العظم 7.2%.

معدلات الإصابة بالسرطان لعام 2018

- المعدل الخام للإصابة بالسرطان بشكل عام لكافة الأعمار بلغ (99.4) لكل (مئة ألف) من السكان (للذكور 91.7، وللإناث 107.4).
- معدل الإصابة المعاير عمريا لكل مئة ألف من السكان للجنسين 138.3 (للذكور 132.4 وللإناث 144.0).
- معدل الإصابة الخام للأطفال فقد بلغ 118.1 (لكل مليون طفل) 129.8 للذكور و105.8 للإناث.

التوزيع النسبي لحالات السرطان حسب المحافظات:

- محافظات الوسط (75.7%): عمان 57.7%، الزرقاء 10.6%، البلقاء 5.4 % ثم مادبا 1.9%
- محافظات الشمال (18.0%): اربد 11.8 %، المفرق 2.5 %، جرش 1.9% ثم عجلون 1.8%
- محافظات الجنوب (5.9%): الكرك 2.9%، العقبة 1.2 % الطفيلة 0.9%، ثم معان 0.8%

معدل الحدوث الخام لحالات السرطان حسب المحافظات لكل 100,000:

- محافظات الوسط (123.4): عمان 148.5، الزرقاء 75.4، البلقاء 90.2، ثم مادبا 81.0.
- محافظات الشمال (60.7): عجلون 77.3، جرش 74.1، اربد 59.2، ثم المفرق 51.7.
- محافظات الجنوب (60.9): الكرك 70.8، الطفيلة 65.9، العقبة 60.4 ثم معان 38.9.