CANCER STATISTICS (2013-2017)

NAY PYI TAW UNION TERRITORY

POPULATION BASED CANCER REGISTRY REPORT

BY

NAY PYI TAW CANCER REGISTRY

NAY PYI TAW, MYANMAR

OCTOBER, 2022

ACKNOWLEDGMENTS

This is the first five year report of Nay Pyi Taw Cancer Registry to provide cancer incidence and mortality (from 2013 to 2017) on cancer cases of Nay Pyi Taw residents which were reported and recorded. Although there might be underreporting of some cancer cases during this research period, the cancer information in this report are crucial and potential to serve as an important information for future cancer control activities of Myanmar. This report will be baseline for future cancer report of the Nay Pyi Taw Cancer Registry and registries of other states and divisions of the country.

Special thanks go to Union Minister and Deputy Union Minister of the Ministry of Health, authorities from Department of Medical Services, Department of Public Health, Department of Medical Research and Nay Pyi Taw General Hospital (1,000 Bedded) for their valuable support and encouragement to the work of Nay Pyi Taw Cancer Registry. Nay Pyi Taw Cancer Registry acknowledges the officials and staffs of medical records departments from all Public and private hospitals and laboratories of Nay Pyi Taw union territory including No.2 Defence Services General Hospital (1000 Bedded), Yangon and Mandalay General Hospital, Yangon and Mandalay Children Hospitals, Public health unit of Nay Pyi Taw Council and Vital Registration Section of the Central Statistical Organization for sharing the data. We are also thankful to WHO, IAEA, IARC, IACR , GICR and IARC Regional Hub (Mumbai), National Cancer Institute (Thailand), Chiang Mai Cancer Registry, Lampang Cancer Registry and National Cancer Center of Japan for the technical help and kind support for all cancer registration activities in Myanmar.

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EXECUTIVE SUMMARY

1. Nay Pyi Taw is the capital of the Republic of the Union of Myanmar which is situated at the center of the country and all government offices including Ministry of Health are located. Nay Pyi Taw Cancer Registry covers 1,160,242 persons which represented 2.3 percent of the total population of Myanmar (2014 Nationwide census). Of these, 565,155 were males (48.71%) and 595,087 (51.29%) were females. The sex ratio was 95 males per 100 females. Urban population was 375,189 (32%) while rural population was 785,053 (68%).
2. This is the first five consecutive year's report of the cancer registry and provides descriptive analysis of data for all cancer sites in terms of both incidence and mortality in Nay Pyi Taw Union Territory, Myanmar.
3. The Cancer Registry team collected data of new cancer cases both actively and passively from all data sources in the Nay Pyi Taw Union Territory and some data sources in other states and divisions where Nay Pyi Taw residents potentially got the cancer treatments. This data were registered, updated, cross-checked, quality-assured, and analyzed in CanReg5. The results were presented as the number of cases by site, sex, and age, cumulative risk (CR), crude rate, age-specific, and age-standardized incidence rates (ASRs) per 100,000.
4. The total number of new cancer cases in Nay Pyi Taw Union Territory was steadily increasing in every year between 2013 and 2017. This increasing incidence trends were observed especially in the top five cancers.
5. Between 2013 and 2017, 5,952 cancer cases were registered of which 2,835 (47.6%) were males and 3,117 (52.4%) were females. In both sexes combined, lung cancer was the most common (14%), followed by breast (11.4%), liver (10.2%), mouth & pharynx (8.5%), stomach (7.8%), cervix (6.8%), colon, rectum, and anus (6.8%), larynx (4.0%), oesophagus (3.3%) and lymphoma (3.0%). Overall, the top ten cancer types accounted for 75.8% of the total newly diagnosed cancer cases.
6. In males, top ten cancer types were cancers of lung (n=512, 18.1%, Crude Rate=17.5, CR=3.38, ASR=26.1), liver (n=419, 14.8%, Crude Rate=14.3, CR=2.09, ASR=17.8), mouth & pharynx (n=369, 13%, Crude Rate= 12.6, CR=1.80, ASR=15.8), stomach (n=251, 8.9%, Crude Rate=8.6, CR=1.50, ASR=12, colon, rectum and anus (n=209, 7.4%, Crude Rate=7.2, CR=1.14, ASR=9.4), larynx (n=182, 6.4%, Crude Rate=6.2, CR=0.99, ASR=8.5), oesophagus (n=141, 5%, Crude Rate=4.8, CR=0.77, ASR=6.8), lymphoma (n=103, 3.6%, CR=0.41, ASR=4.0), leukaemia (n=84, 3.0%, CR=0.22, ASR=2.9) and penis (n=57, 2%, Crude Rate=2.0, CR=0.28, ASR=2.4) respectively. Total ASR for all male new cancer cases, excluding non-melanoma skin cancer cases (C44), was 125.9.
7. In females, top ten most common cancers were breast (n=661, 21.2%, Crude Rate=21.4, CR=2.41, ASR=22.2), cervix (n=406, 13.0%, Crude Rate=13.2%, CR=1.64, ASR=14.1), lung (n=321, 10.3%, Crude Rate=10.4, CR=1.55, ASR=12.1), stomach (n=216, 6.9%, Crude Rate=7.0, CR=0.93, ASR=7.8), colon, rectum and anus (n=195,

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6.3%, Crude Rate=6.4, CR=0.71, ASR=6.6), liver (n=190, 6.1%, Crude Rate=6.2, CR=0.80, ASR=6.9), ovary (n=136, 4.4%, Crude Rate=4.4, CR=0.48, ASR=4.5), mouth & pharynx (n=134, 4.3%, Crude Rate=4.3, CR=0.64, ASR=5.0), lymphoma (n=77, 2.5%, CR=0.28, ASR=2.6), corpus uteri (n=69, 2.2%, Crude Rate=2.2, CR=0.29, ASR=2.5) respectively. Total ASR for all new female cancer cases, excluding non-melanoma skin cancer cases (C44), was 107.3.

8. Pediatric cancers contributed to 2.1% in males and 1.9% in females for all new cancer cases for the age group between 0 and 14. The most common cancers in this age group were Leukemia (33.3%, ASR=22.8), Lymphoma (15.8%, ASR= 10.5) and CNS neoplasms (7.9%, ASR=5.0). The overall ASR was 67.6 per million children and the highest age-specific incidence rate was observed for children aged 10–14 years (85.7 per million).
9. Tobacco-related cancers (cancers of the lung, oral cavity, nasal cavity, and paranasal sinuses, oropharynx, hypopharynx, larynx, esophagus, stomach, colon & rectum, pancreas, liver, kidney (body and pelvis), ureter, urinary bladder, cervix, and myeloid leukemia) contributed 80.6% of all male cancer cases, 59.3% of all female cancer cases, and 67.8% of all cases in both sexes combined.
10. Infections-related cancers (carcinoma of the oral cavity, oropharynx including tonsil and base of tongue, larynx, anal squamous cell carcinoma, cervix, vulva, vagina, penis, adult T-cell leukemia and lymphoma, Kaposi sarcoma, Hodgkin lymphoma, Burkitt lymphoma, nasopharyngeal carcinoma, gastric carcinoma, gastric non-Hodgkin lymphoma, Hepatocellular carcinoma, cholangiocarcinoma and bladder) contributed to 41.4% for all new cancer cases in both sexes combined, 49.6% in males and 36.2% in females.
11. One in every seven men and one in every eight women of Nay Pyi Taw residents are likely to develop cancer in his or her life before the age of 75. The top five cancers which present the highest lifetime risks were lung (1 in 30), liver (1 in 48), mouth and pharynx (1 in 56), stomach (1 in 67), and colon, rectum and anus (1 in 88) for males while breast (1 in 41), cervix (1 in 61), lung (1 in 65), stomach (1 in 108), and liver (1 in 125) for females.
12. The average ages (in years) at the time of diagnosis for the top 10 cancer types were 63.1 (lung), 51.7 (breast), 55.8 (liver), 54.6 (mouth & pharynx), 58.6 (stomach), 54 (cervix), 56.1 (colon, rectum, and anus), 60.5 (larynx), 62.4 (oesophagus) and 41.6 (lymphoma) respectively.
13. Total number of deaths in Nay Pyi Taw Union Territory during the research period was 23,429 of which 1,874 (8%) people died from various types of cancer. Among these cancer deaths, the most common cancers for both sexes combined were liver (20.8%) followed by lung (15.7%), mouth and pharynx (9.3%), stomach (7.5%), colon, rectum, and anus (6.8%) respectively. Overall, the top ten cancer deaths contributed to 80.3% of all cancer deaths in both sexes combined.
14. By sex, liver cancer was the leading cause of cancer deaths in males (27%), followed by lung (18.4%), mouth & pharynx (11.4%), stomach (7.9%), and colon, rectum &

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anus (6.1%). Among females, liver cancer was again the leading cause of cancer deaths (14.2%), followed by lung (12.8%), breast (11.5%), cervix (10.3%), and colon, rectum & anus (7.3%).

15. The percentage of morphologically verification (MV %) is 61.44 in males and 71.04 in females, whereas the percentage of death certificate only (DCO %) is 16.08 in males and 15.15 in females.

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1 BACKGROUND AND POPULATION

1.1 BACKGROUND

Nay Pyi Taw is the capital of the Republic of the Union of Myanmar which is situated at the center of the country and all government offices including Ministry of Health are located. Regarding the cancer treatment, Nay Pyi Taw General Hospital (1000-Bedded) is major hospital for cancer treatment in this region providing both diagnostic facilities like nuclear medicine, diagnostic radiology departments and therapeutic facilities like radiotherapy and chemotherapy. Nay Pyi Taw cancer registry is located in Nay Pyi Taw General Hospital (1000 Bedded) and began collection of cancer cases seen at this hospital and in the Nay Pyi Taw Union Territory region since 2012 by using standardized abstraction form, installation of an electronic data entry system (CanReg5) which was modified according to local situations and local needs. CanReg5 is an open source tool developed by International Association of Cancer Registries (IACR) to input, store, and check and analyzes cancer registry data.

The objectives of Nay Pyi Taw Cancer Registry are

(a) To do sustainable cancer registration activities by both HBCR and PBCR approaches in Nay Pyi Taw Union Territory

(b) To determine the incidence, mortality and survival of cancers in Nay Pyi Taw Union Territory

(c) To contribute reliable cancer data to the epidemiological research, planning and monitoring of public health cancer programs

(d) To disseminate scientific cancer information to the medical education

(e) To support initiatives for the establishment of new cancer registries in Myanmar (either hospital or population-based) where needed.

1.2 POPULATION

According to the 2014 census, the total population for Nay Pyi Taw Union Territory was 1,160,242 persons which represented 2.3 percent of the total population of Myanmar. Of these, 565,155 were males (48.71%) and 595,087 (51.29%) were females. The sex ratio was 95 males per 100 females. It ranked

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thirteenth in population size when compared with other States/Regions in the country. Urban population was 375,189 (32%) while rural population was 785,053 (68%).[1]

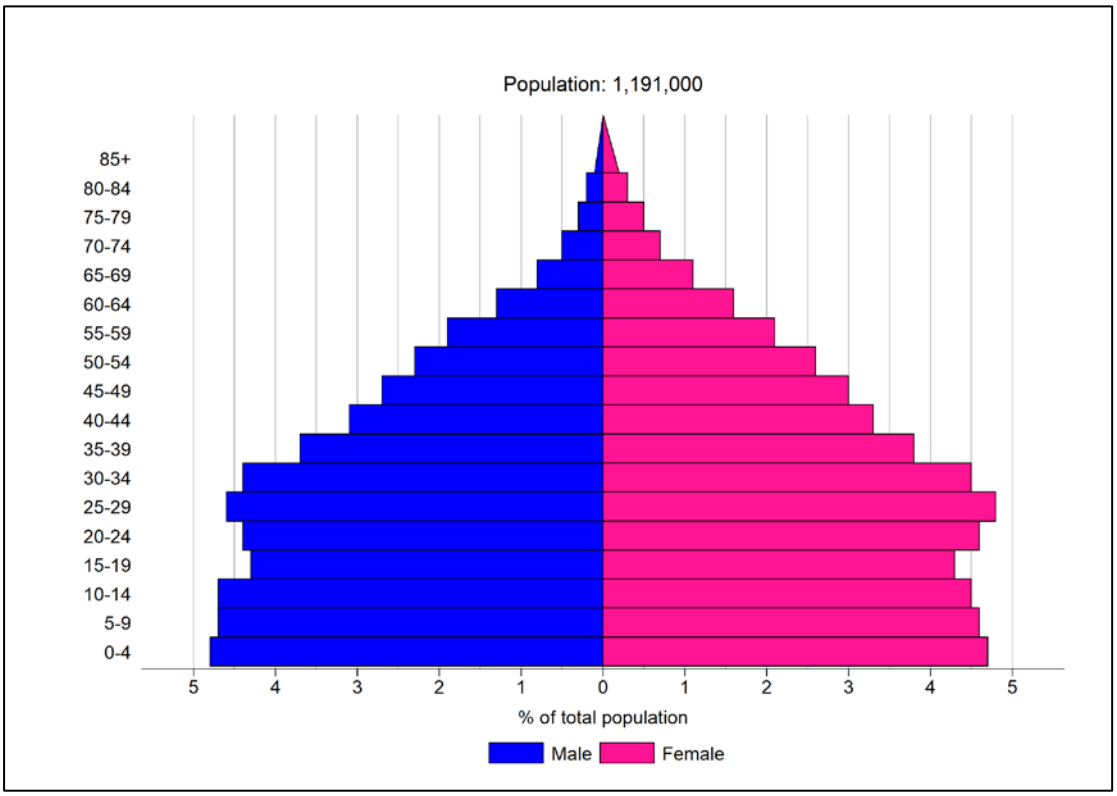

Figure 1. Estimated population of NPT Union Territory (2014 census)

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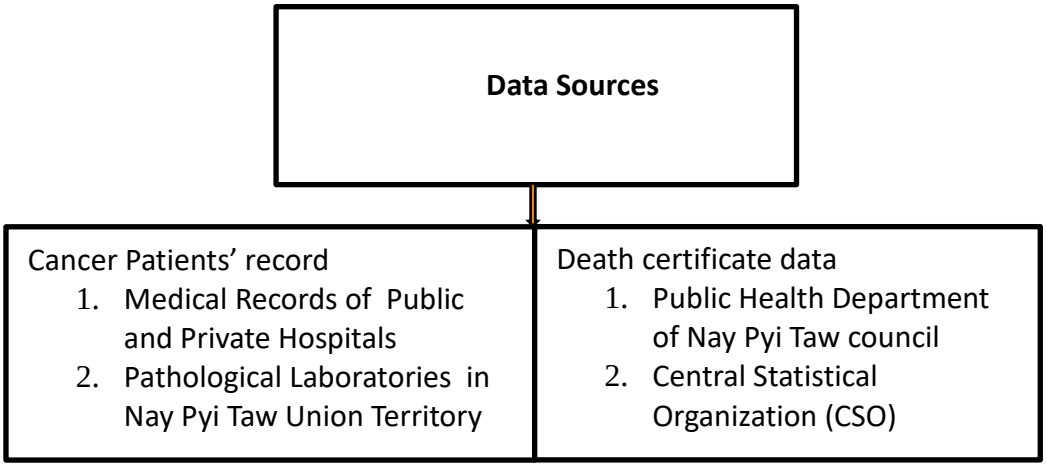
Figure 2. Geographical map of Nay Pyi Taw Union Territory

2 METHODS

2.1 SOURCES OF DATA



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2.2 METHODS OF DATA COLLECTION

The cancer registry team collected data on all new cases of cancer diagnosed or treated in the resident population of Nay Pyi Taw region. Both active and passive data collection method were carried out and trained data abstractors visited to all data sources like cancer diagnostic pathological laboratories, public, private and military tertiary- care hospitals, and pathological laboratories in Nay Pyi Taw Union Territory to abstract cancer. For some cancers, the data were also collected from the hospitals of other states and divisions of Myanmar which are outside of Nay Pyi Taw Union Territory. For example, hematogical cancers data were collected from haematology unit of Yangon General Hospital and Mandalay General Hospital. For paediatric cancers, the data were collected from Child cancer unit of Yangon and Mandalay Children Hospitals. The abstractors extracted data from patient medical records of hospitals and from the pathology records to cancer registration form. The filled registration forms were checked by oncologist for completeness and accuracy. The cases registered were invasive cancers, in situ lesions, and borderline tumors in all anatomical sites (including non-melanoma skin cancers), but only invasive cancers are considered in the calculation of the incidence rates.

The cases were coded according to the third edition of the International Classification of Disease for Oncology (ICD-O-3), and coding practices (including the basis and date of diagnosis, multiple primaries tumors) were defined according to the current IARC's guidelines.[2] The data were stored in CanReg5 and checked for consistency and duplications are performed.[3] To check the internal consistency (the validity) of the data, CanReg5 internal check engine had searched for aberrations or incompatibilities between different variables in the same record, such as age/topography, topography/morphology, sex/topography etc.

2.3 DEATH CERTIFICATES

Death certificate data were collected from the Central Statistical Organization of Ministry of Planning and Finance, Regional Public health department of Nay Pyi Taw Council and Forensic medicine department of Nay Pyi Taw General Hospital. Usually, death certificates were issued for all deaths occurring in hospital and copied into a death register in the hospital mortuary. This source of information was used by the registry. For unregistered subjects, an attempt was made to locate their hospital record. If this fails, the case was registered as "Death Certificate Only" with date of incidence = date of death.

2.4 THE DATABASE

The registry uses CanReg5 software (http://www.iacr.com.fr/CanReg5) for data entry, management and analysis. Major modifications according to local situations and needs were made in CanReg5. They were changing variables such as Myanmar naming system, Father's name, Myanmar national Identification number, Address (regions to sub-township for the whole country), addition of some

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dictionaries (Tribe, Addresses, Hospitals) in Myanmar Language and setting up all data sources including all Public, private, military hospitals and private labs and imaging centers of whole country in CanReg5.

The data were analyzed by principal investigators using R software embedded in CanReg5. The results were presented as the number of cases by site, sex, and age, cumulative risk (CR), crude rate, age-specific, and age-standardized incidence rates (ASRs) per 100,000. The calculation of the ASR was carried out by direct methods and world standard population. The cumulative risk of developing or dying from cancer before age 75 years, assuming the absence of competing causes of death, also was calculated. The population denominator used to calculate the rates were based on the 2014 Myanmar population and housing census. This census reported the Nay Pyi Taw Union Territory population in world standard five-year age groups. The population beyond 2014 was estimated and reported from the department of the population of the Ministry of Labour, Immigration and Population, Myanmar in March 2017.[4] We used these population projection estimates for the calculation of rates in subsequent years after 2014.

2.4.1 Ethical Consideration and Confidentiality

The registry adheres to the guidelines of the IACR/IARC (2004) with respect to the preservation of confidentiality in connection with or during the process of collection, storage, use and transmission of identifiable data.[5] Ethical approval for the use of data from the Cancer Registry for the purpose of this study was obtained from the Research and Ethics Review Committee of University of Medicine (1) and Department of Medical Research. The data entry form for cancer registration was marked with confidential sign and the filled-up cancer registration forms were stored in secure storage box. All computer systems for using cancer registration were password protected. For data base security, the CanReg5 software provided data base password of minimum 8 characters. The user levels in CanReg5 were divided into 3 categories (supervisor, registrar and analyst). Each user has their own password, login name and permission levels. Supervisor can use all options; A Registrar can perform most of data entry except to confirm rare cases or possible duplicates. Changing the Dictionary and User Administration (adding users, changing user levels) were also prohibited. An Analyst cannot make any changes to the database. Only analysis options are available for analyst.

2.4.2 Data Availability Statement

This report was not registered in any registering dataset. All data generated or analyzed in this report are in the custody of the researchers of the registry and will be made available upon request.

2.4.3 Conflict of Interest

Nay Pyi Taw Cancer Registry declares that there is no competing interest.

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2.5 DEFINITIONS, STATISTICAL TERMS AND METHODS

2.5.1 Cancer Registration

It is defined as the process of continuing, systematic collection of data on the occurrence and characteristics of reportable neoplasms to help assess and control the impact of malignancies on the community.

2.5.2 Cancer Registry

It is the office or institution that attempts to collect, store, analyze and interpret data on cancer patients.

2.5.3 Hospital Based Cancer Registry (HBCR)

HBCR collects and records the information on the treatment, management and outcome of cancer patients registered in a particular hospital.

2.5.4 Population Based Cancer Registry (PBCR)

PBCR systematically collects information on a reportable neoplasm from multiple sources in a geographically defined population residing in the area for one year.

2.5.5 Incidence

Cancer incidence is the number of new cancer cases arising in a specified population over a given period of time (typically 1 year). It can be expressed as an absolute number of cases within the entire population per year or as a rate per 100 000 persons per year. The cancer incidence rate provides an approximation of the average risk of developing a cancer. Incidence data are routinely collected by national or subnational population-based cancer registries.

2.5.6 Mortality

Cancer mortality is the number of deaths due to cancer occurring in a specified population over a given period of time (typically 1 year). It can be expressed as an absolute number of deaths within the entire population per year or as a rate per 100 000 persons per year. Mortality data by cause are routinely collected by national vital registration systems.

2.5.7 World Standard Population

In order to make rates of cancer comparable between countries/population, a world standard population is used to calculate at age specific rates or age standardised rates.

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Age Distribution of World Standard Population (Segi.et.al)

Age Group	World Standard Population
00-04	12000
05-09	10000
10-14	9,000
15-19	9,000
20-24	8,000
25-29	8,000
30-34	6,000
35-39	6,000
40-44	6,000
45-49	6,000
50-54	5,000
55-59	4,000
60-64	4,000
65-69	3,000
70-74	2,000
75+	2,000
All Ages	100,000

2.5.8 Age-specific rate (ASpR)

The age-specific rate is calculated simply by dividing the number of cancer cases observed in a given age category (5 years age group) during a given time period by the corresponding number of person years in the population at risk in the same age category and time period. For cancer, the result is usually expressed as an annual rate per 100,000 person-years.

$$\text{Age Specific Rate (ASpR)} = \frac{\text{New Cancer cases of a particular year in the given age group}}{\text{Estimated population of the same year for the given age group}} \times 100000$$

2.5.9 Age-Standardized Rate (ASR)

An age-standardized rate (ASR) is a summary measure of the rate that would have been observed if the population had a standard age structure. Standardization is necessary when comparing several populations that differ with respect to age, because age has a strong influence on the risk of cancer. An ASR is a weighted mean of the age-specific rates; the weighting is based on the population distribution of a standard population. The most frequently used standard population is the World (W) Standard Population. The calculated incidence or mortality rate is then called the age-standardized incidence or mortality rate (W), and is expressed per 100 000 person-years. It is calculated by summing the age-specific rates weighting to the world standard population.

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2.5.10 Crude Rate

For a specific tumour in a given population, crude rates are calculated simply by dividing the number of new cancers or cancer deaths observed during a given time period by the corresponding number of individuals in the population at risk. For cancer, the result is commonly expressed as an annual rate per 100 000 individuals at risk.

$$\textbf{Crude Incidence Rate (CR)} \quad \frac{\textbf{New Cases of cancer of a particular year}}{\textbf{Estimated population of the same year}} \quad \textbf{X 100000}$$

2.5.11 Cumulative risk

Cumulative incidence/mortality is the probability or risk of individuals developing/dying from the disease during a specified period. For cancer, it is expressed as the number of newborn children (out of 100) who would be expected to develop/die from a particular cancer over a lifetime (commonly defined for the age range 0-74 years), assuming that they had the rates of cancer observed in the period of observation and that there is an absence of competing causes of death.

2.5.12 Standard error (SE)

As with any measurement of a population, incidence rates have a certain amount of chance of variation. The index measure of this variability is known as the standard error and is computed as follows:

$$\textbf{SE} = \sqrt{\Sigma i\ di(wi/yi)2}$$

di - Number of cases of the cancer of interest in the age class i

wi - Standard world population for age class i

yi - Person-years at risk for age class i

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3 RESULTS

3.1 THE DATA INCLUDED WERE THE NEW CANCER CASES OF THE RESIDENTS OF NAY PYI TAW COUNCIL REGION BETWEEN THE PERIODS OF 1ST JANUARY 2013 TO 31ST DECEMBER 2017. BETWEEN 2013 AND 2017, 5,952 CASES OF CANCERS WERE REGISTERED: (2,835 MEN AND 3,117 WOMEN)

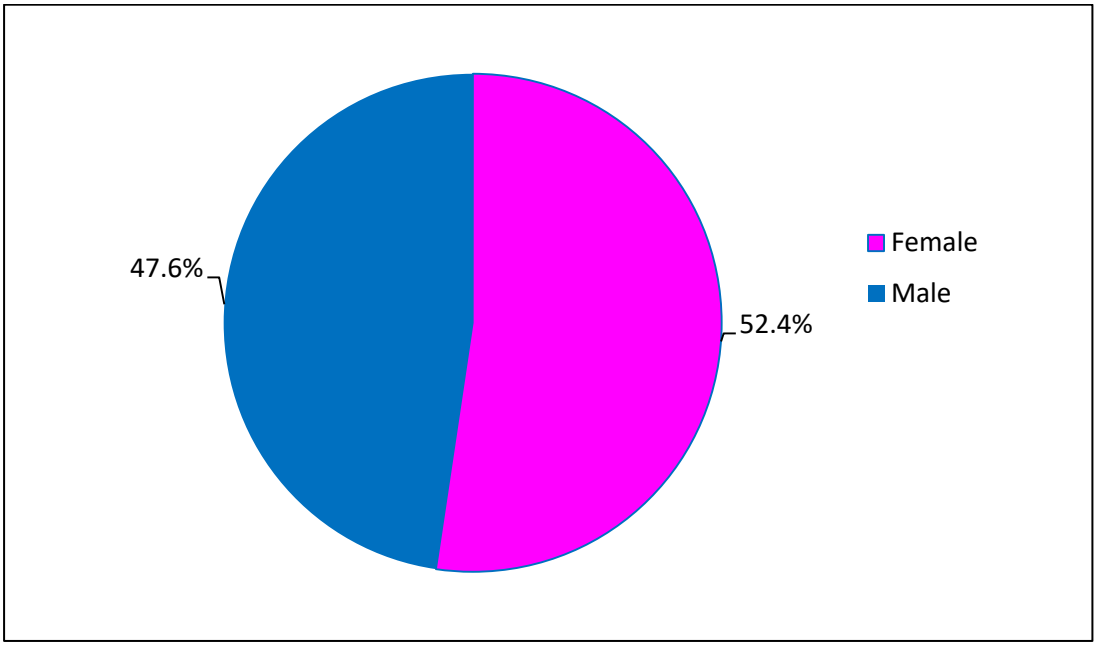

Figure 3. Distribution of cancer cases by sex

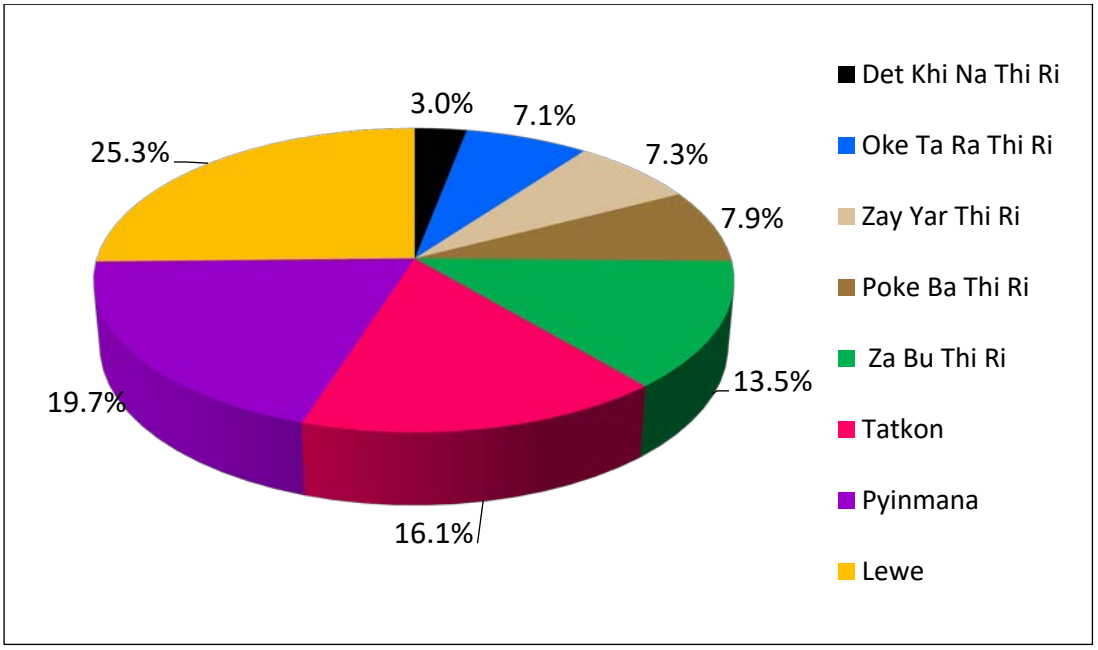

Figure 4. Distribution of cancer cases according to patients' addresses in Nay Pyi Taw Union Territory

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3.2 NUMBER OF CASES IN PERIOD, BY AGE GROUP & SEX

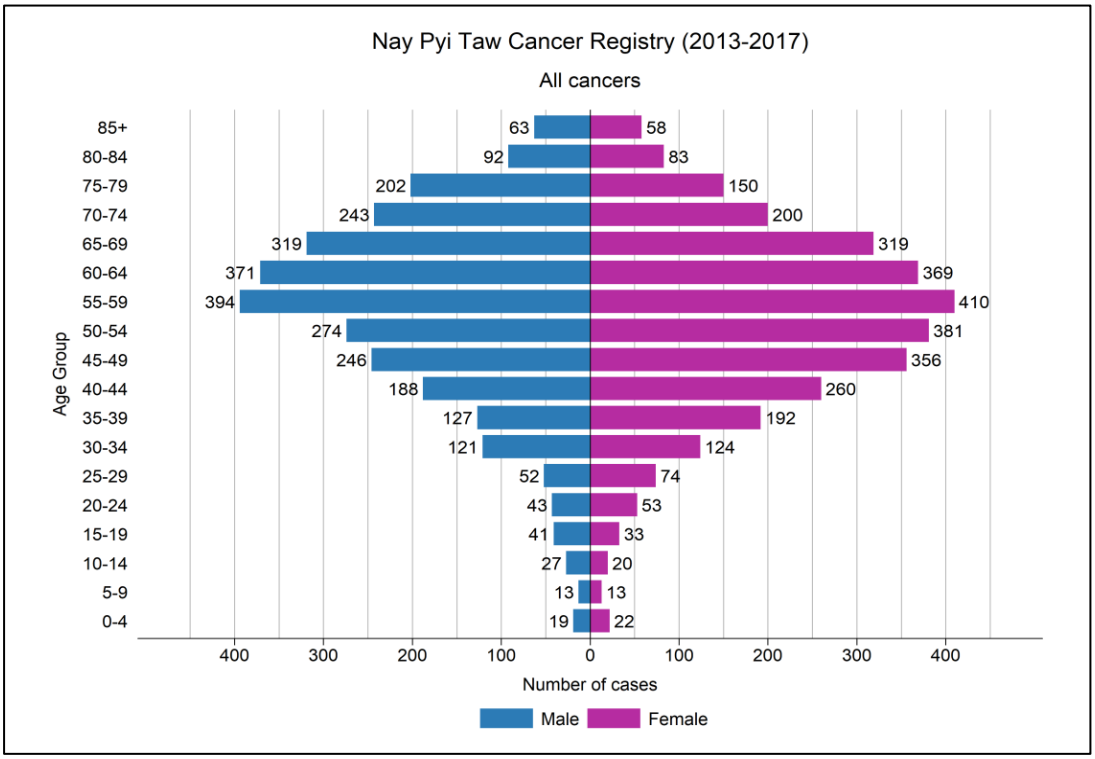

Figure 5. Bar chart, distribution of cases by 5 years age group interval in both male and female

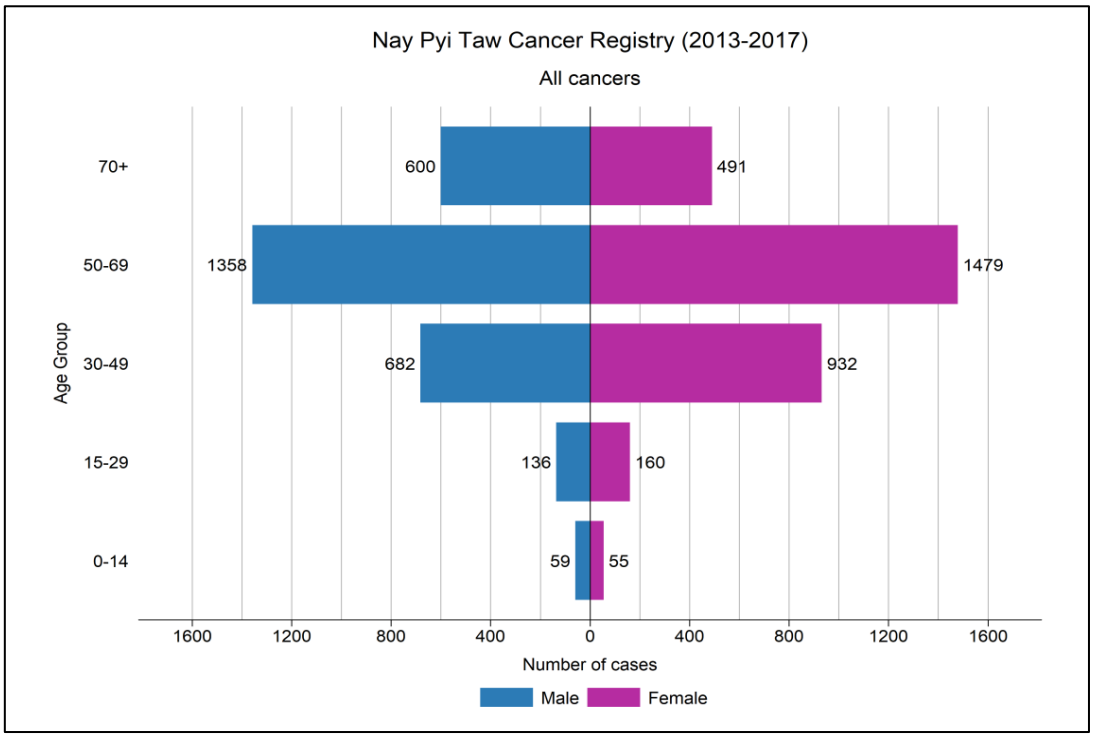

Figure 6. Bar chart, distribution of cases by 15 years age group interval in both male and female

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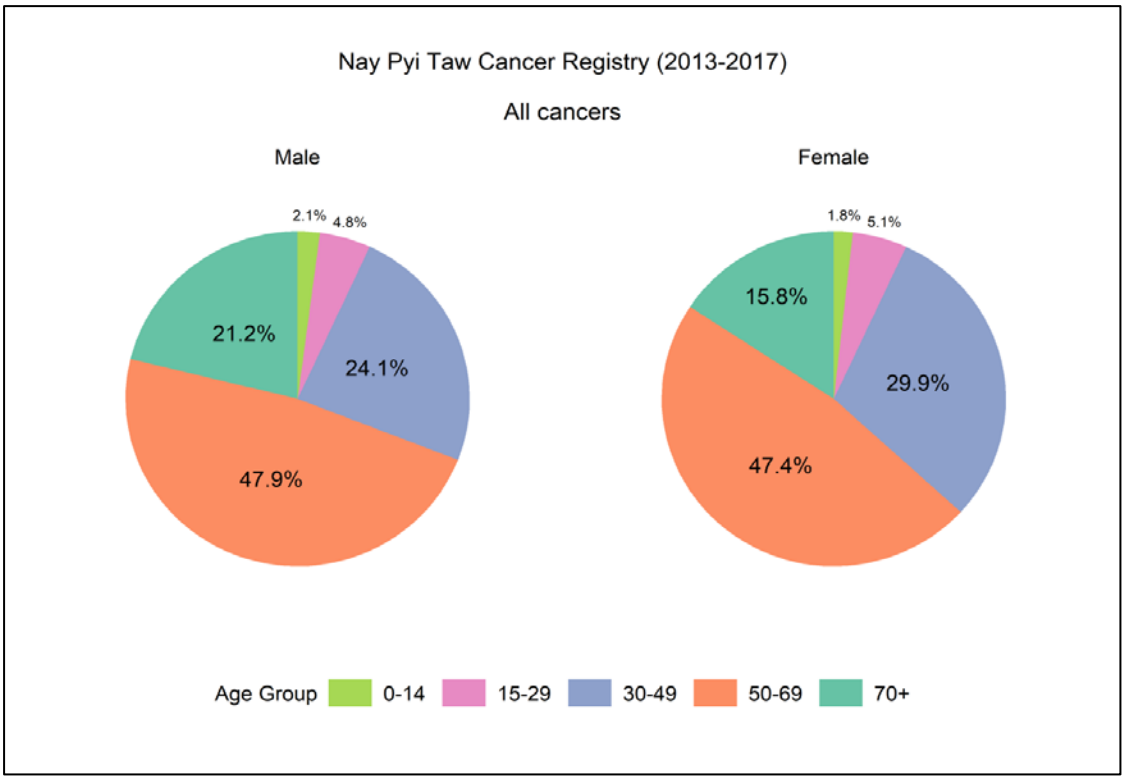

Figure 7. Pie chart, distribution of cases by age group and sex

3.3 NUMBER OF CASES AND ASR BY YEAR

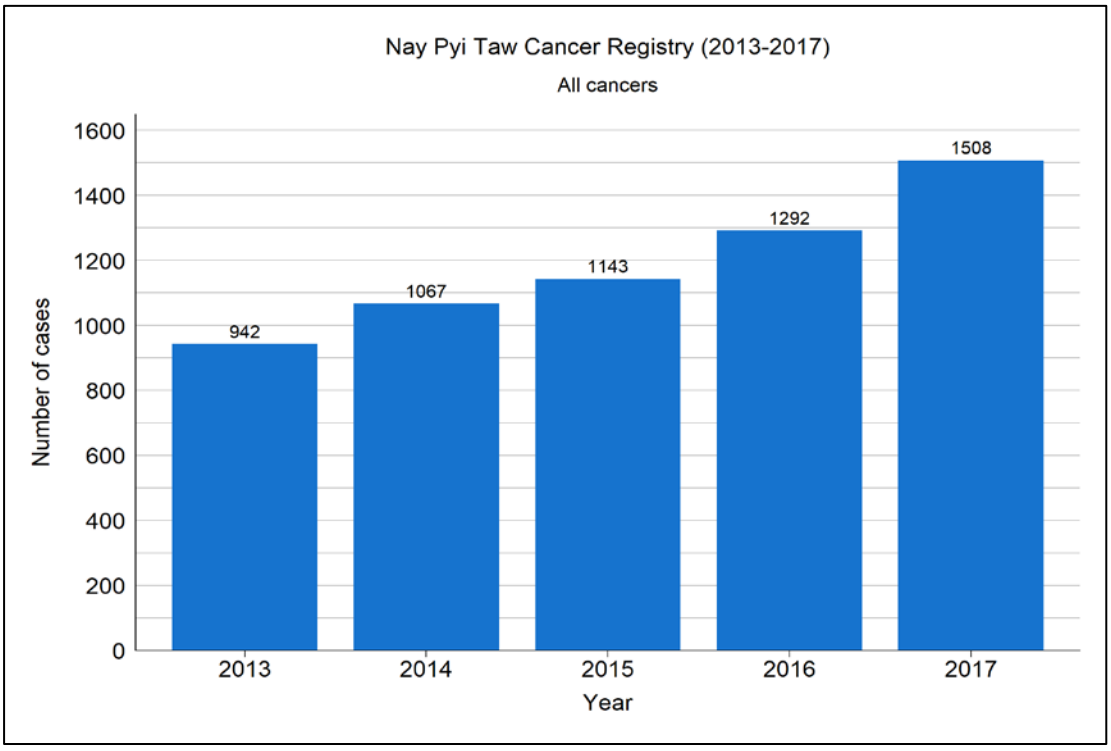

Figure 8. Number of cases by year

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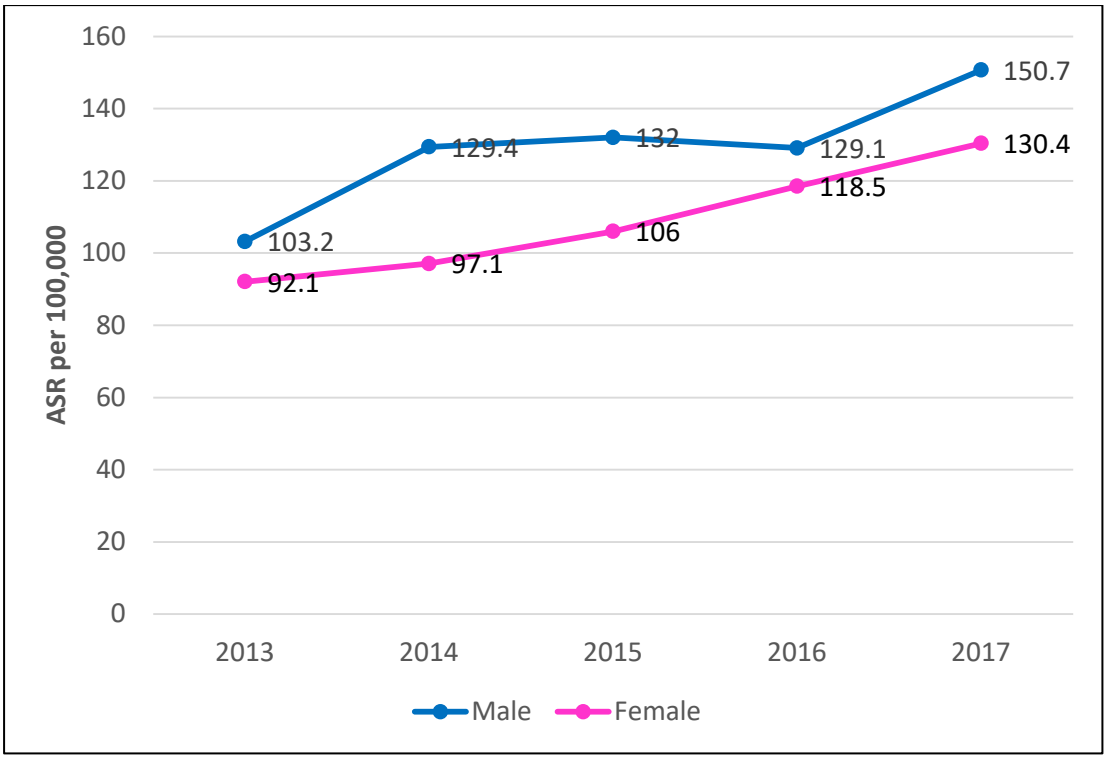

Figure 9. Annual age-standardized incidence rate (ASR) by sex (2013-2017)

3.4 THE MOST COMMON CANCERS, BY SEX

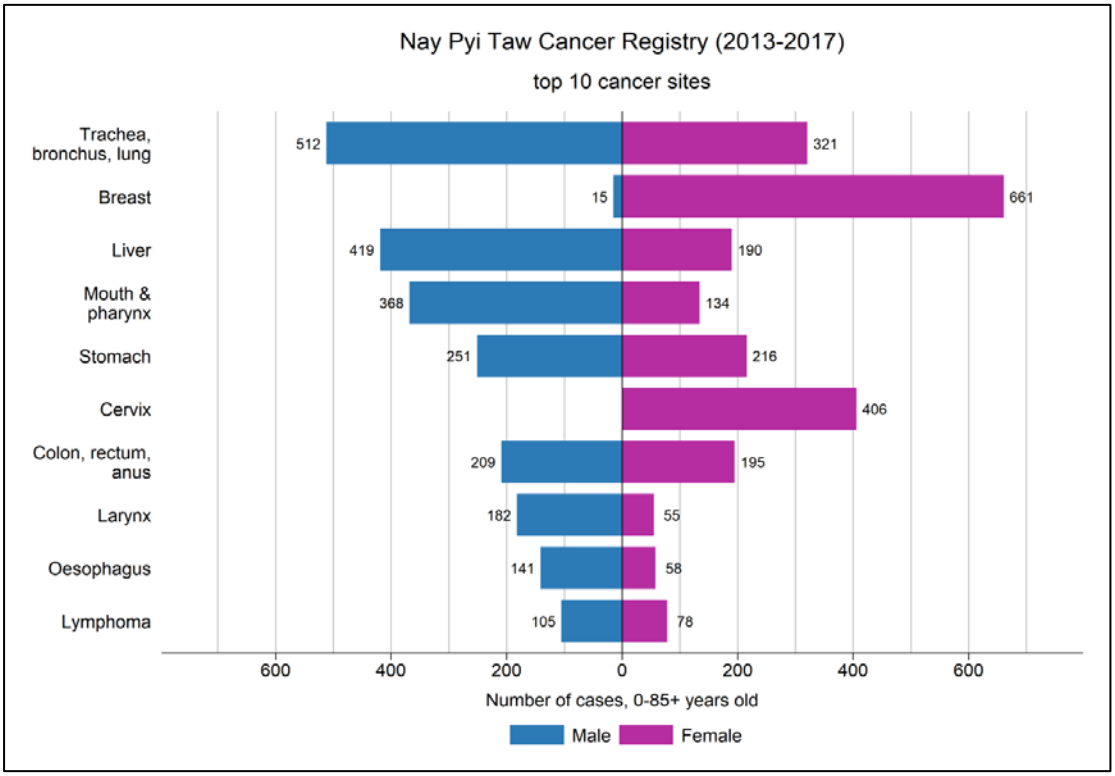

Figure 10. Top 10 cancers, both sexes (Number of cases)

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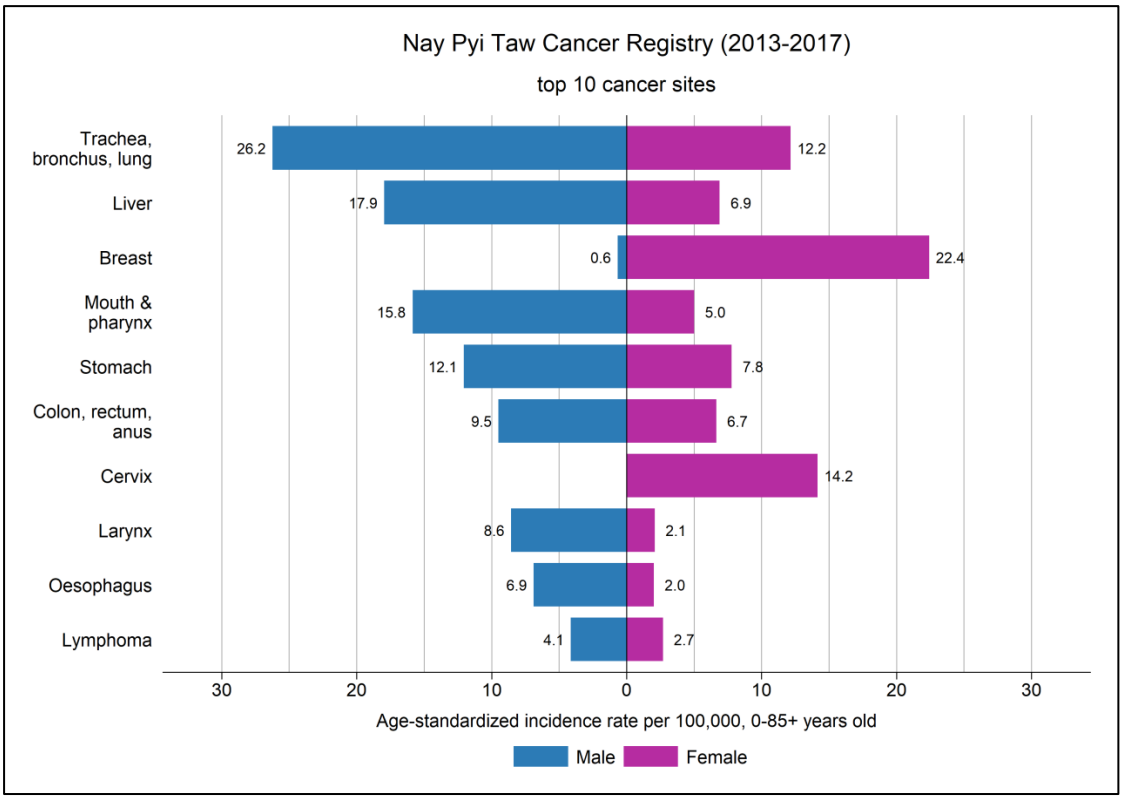

Figure 11. Top 10 cancers, both sexes (Age-standardized rate per 100,000)

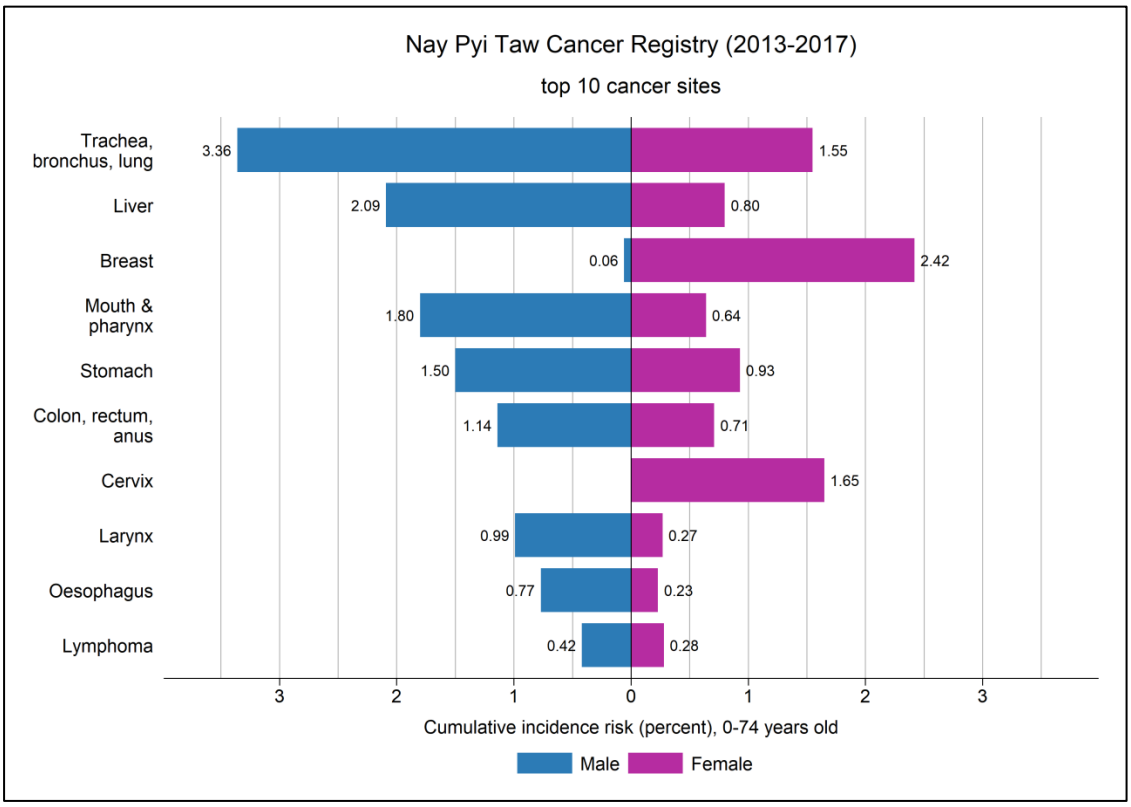

Figure 12. Top 10 cancers, both sexes (Cumulative Risk)

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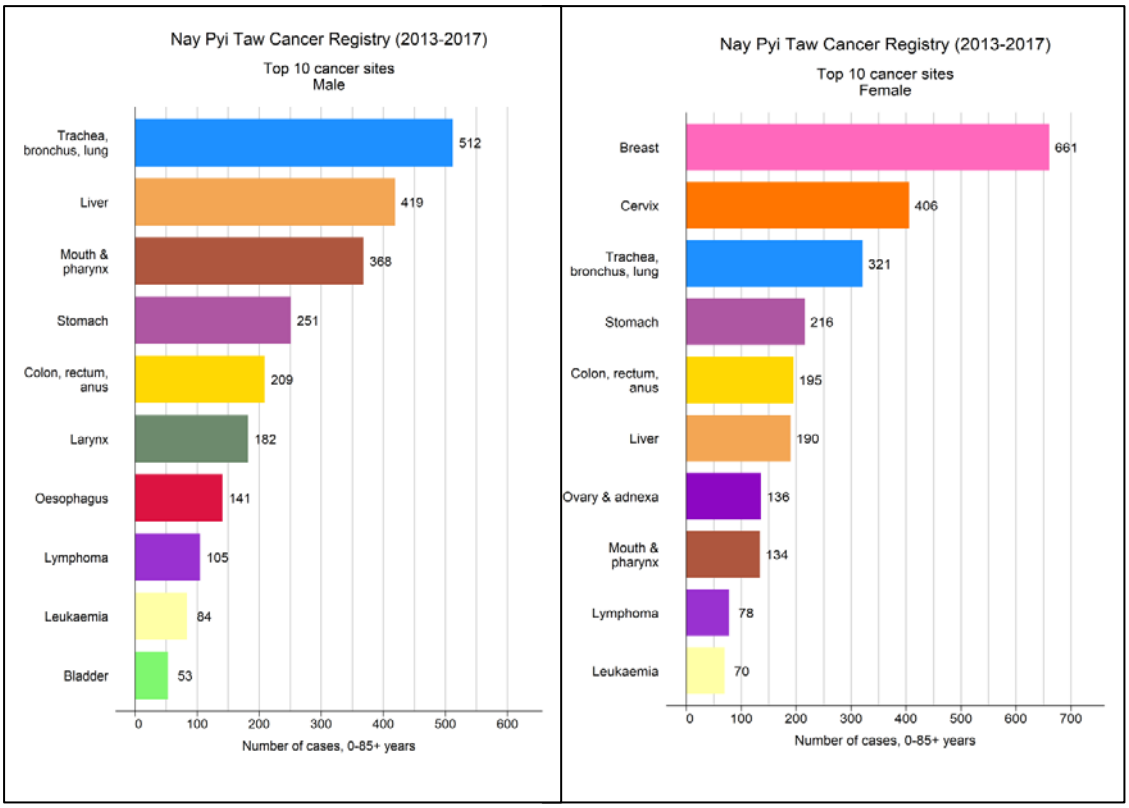

Figure 13. Top 10 cancers by sexes (number of cases)

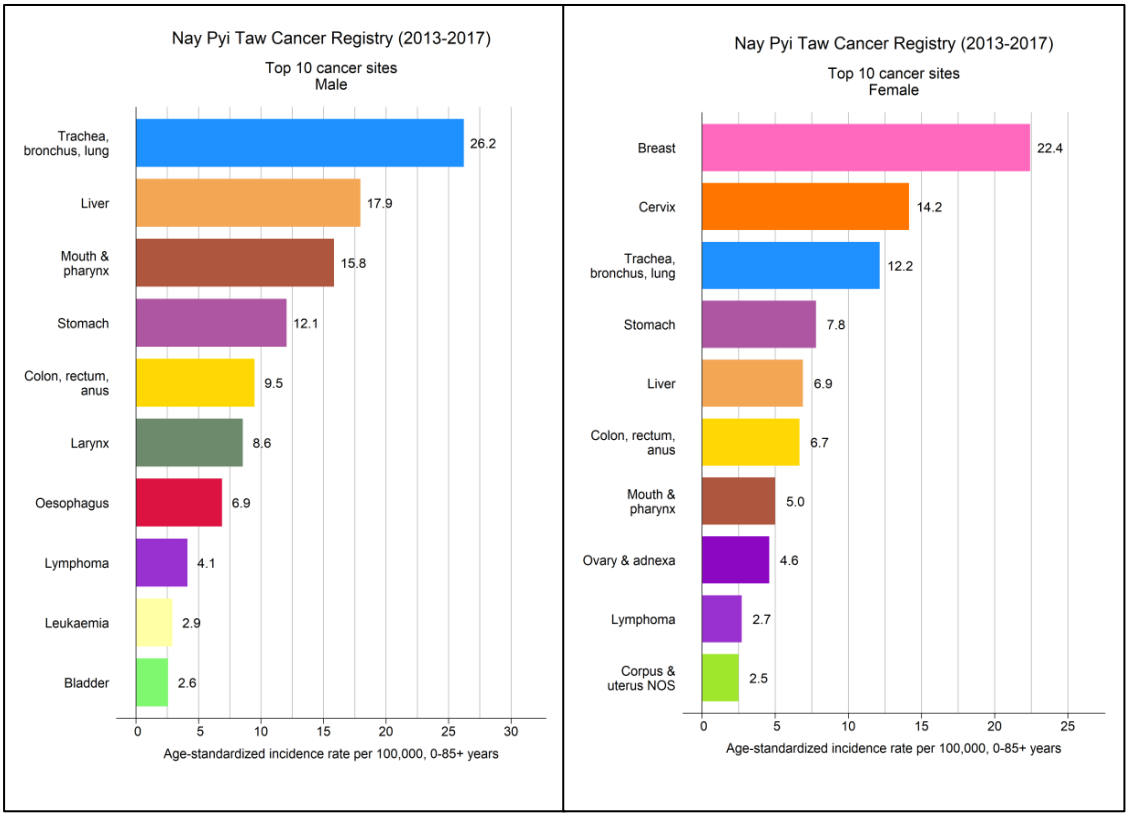

Figure 14. Top 10 cancers by sexes (ASR)

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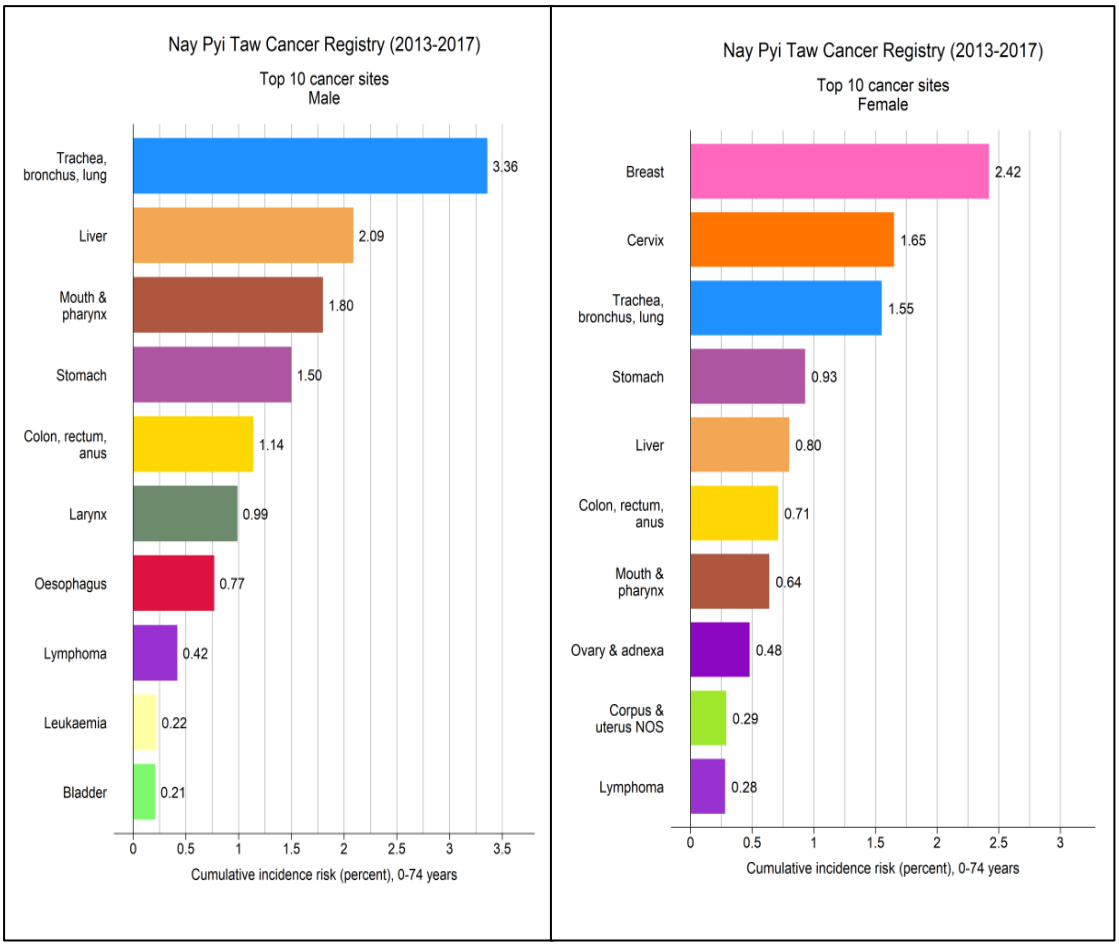

Figure 15. Top 10 cancers by sexes (cumulative risk, 0-74 years)

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3.5 AGE GROUPS AND CANCERS

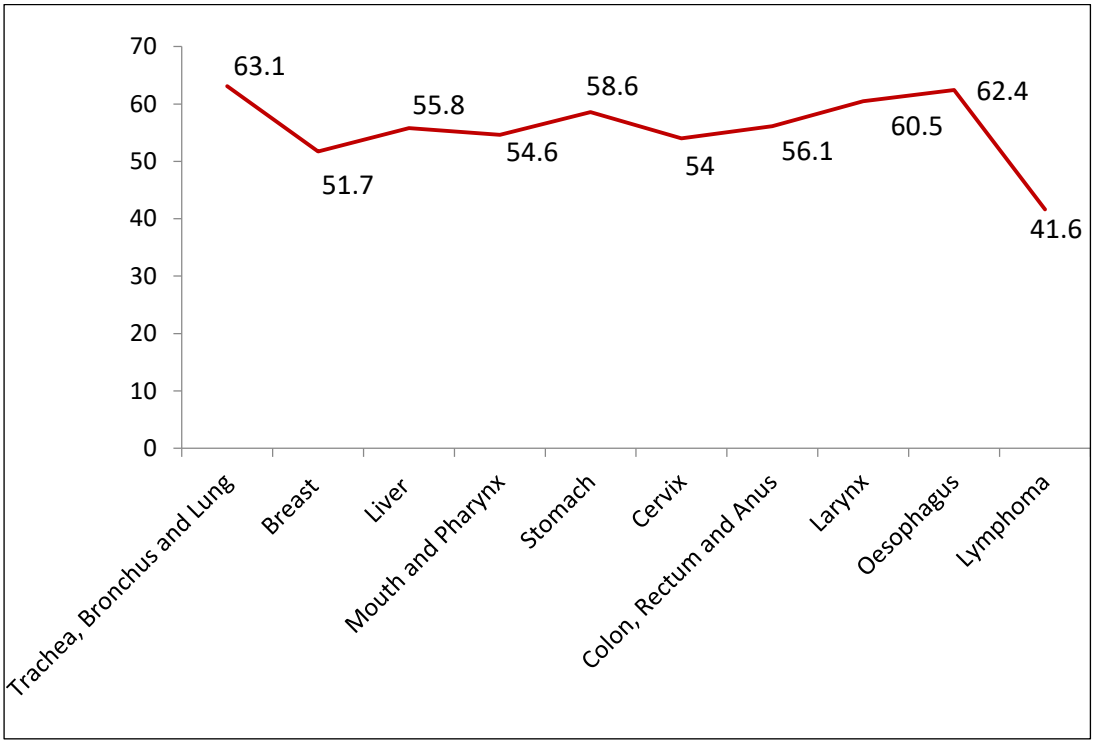

Figure 16. Average ages of patients at the time of diagnosis in Top common cancer sites (Both Sexes)

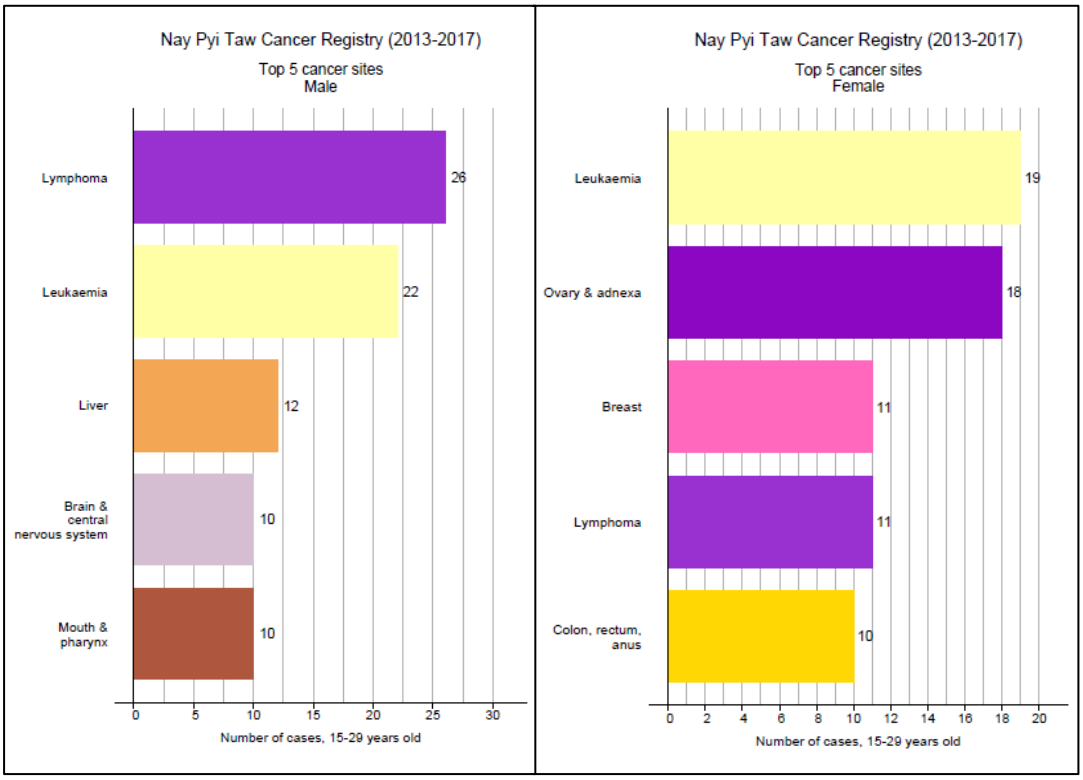

Figure 17. Top five cancers in 15-29 years age group (Male and Female)

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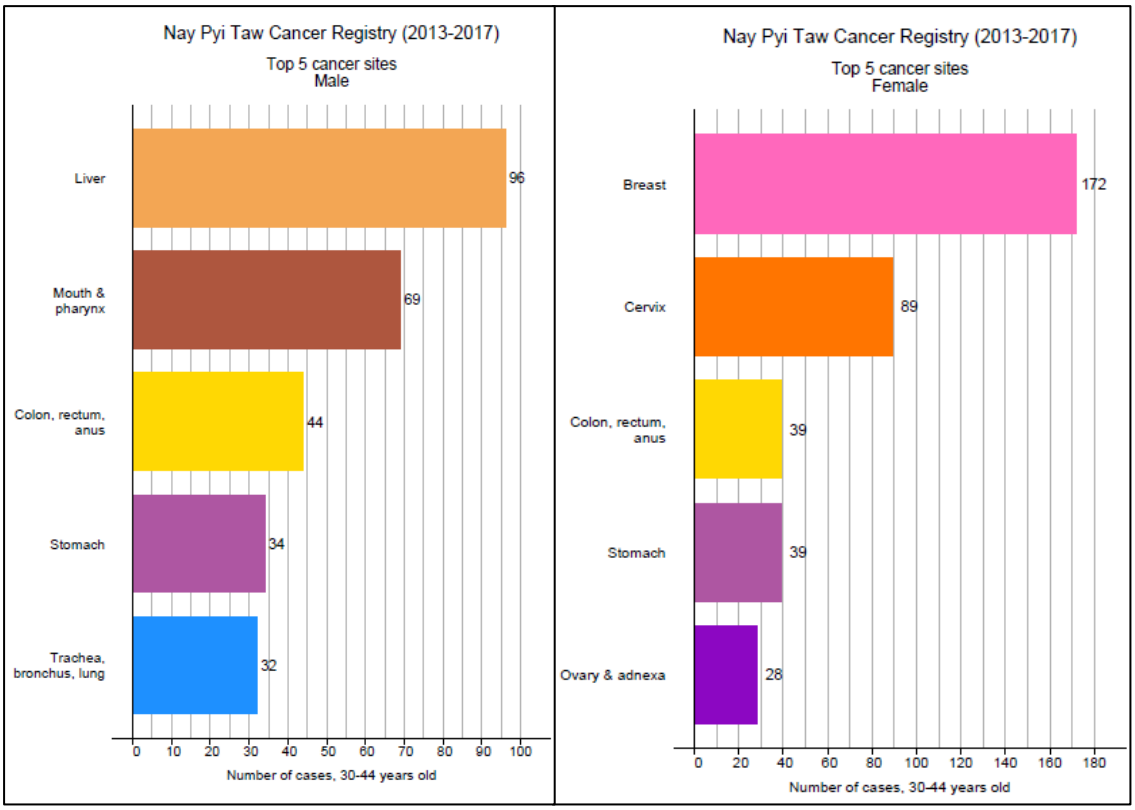

Figure 18. Top five cancers in 30-44 years age group (Male and Female)

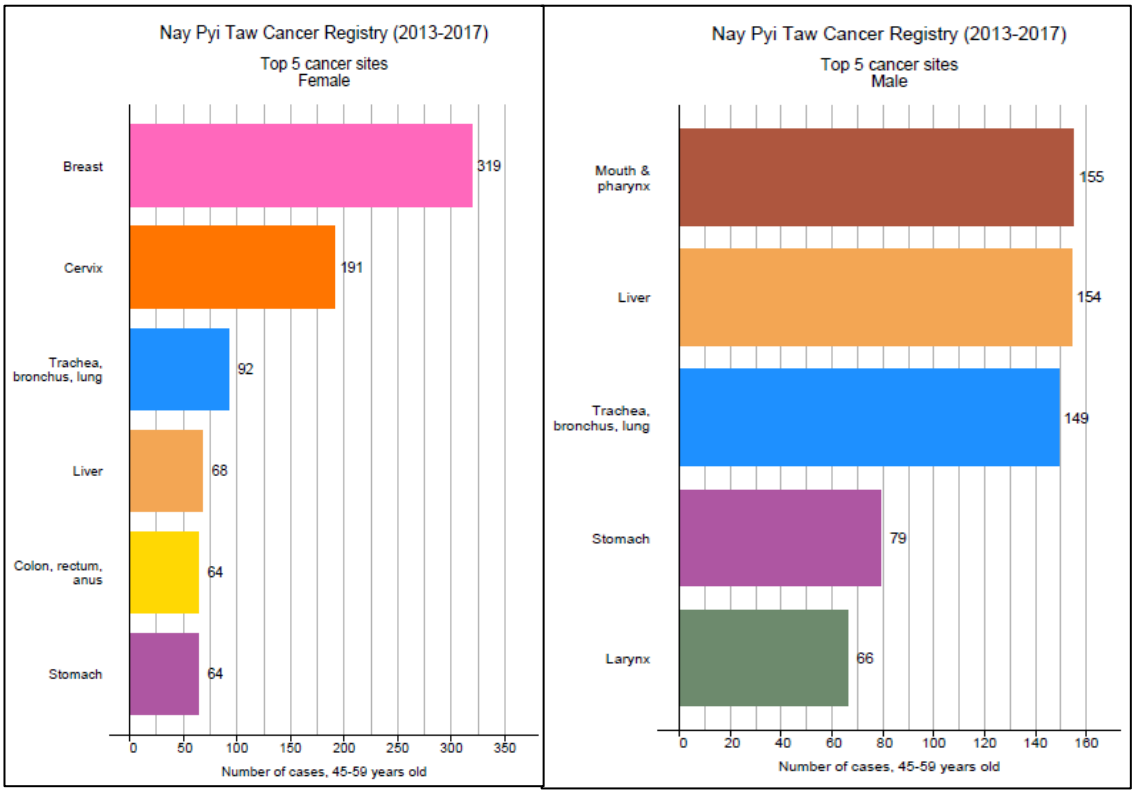

Figure 19. Top five cancers in 45-59 years age group (Male and Female)

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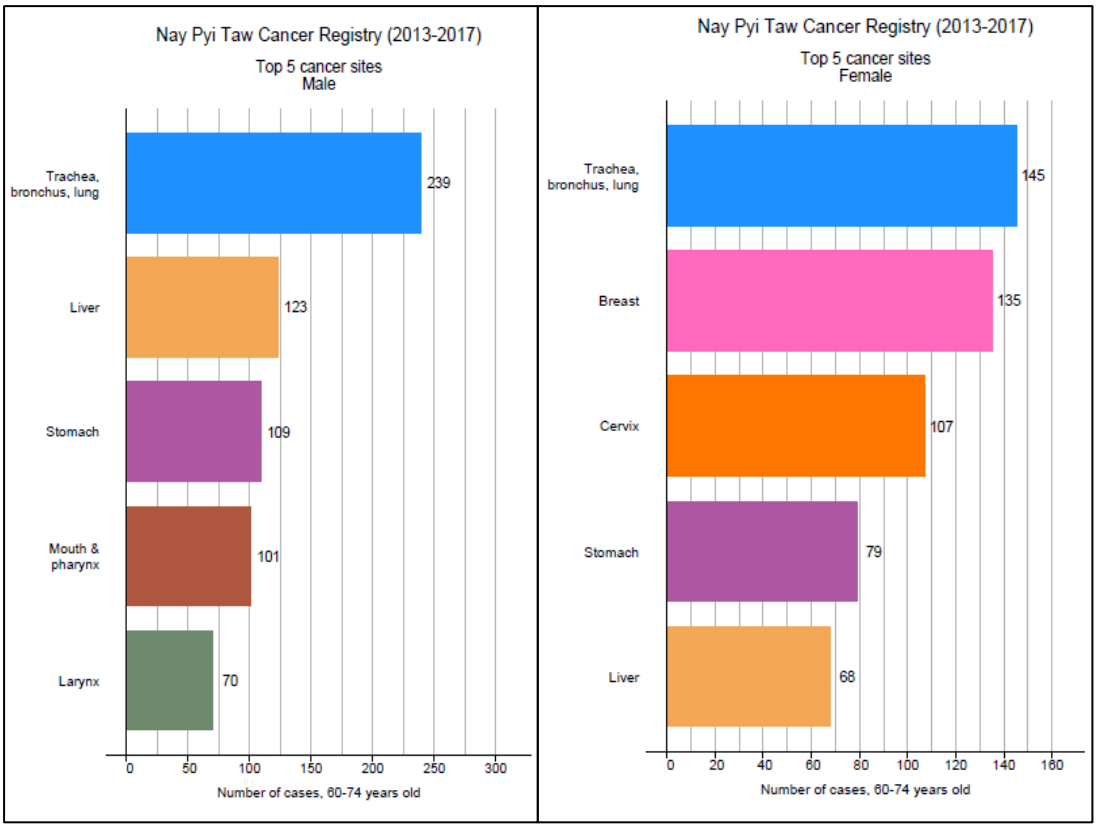

Figure 20. Top five cancers in 60-74 years age group (Male and Female)

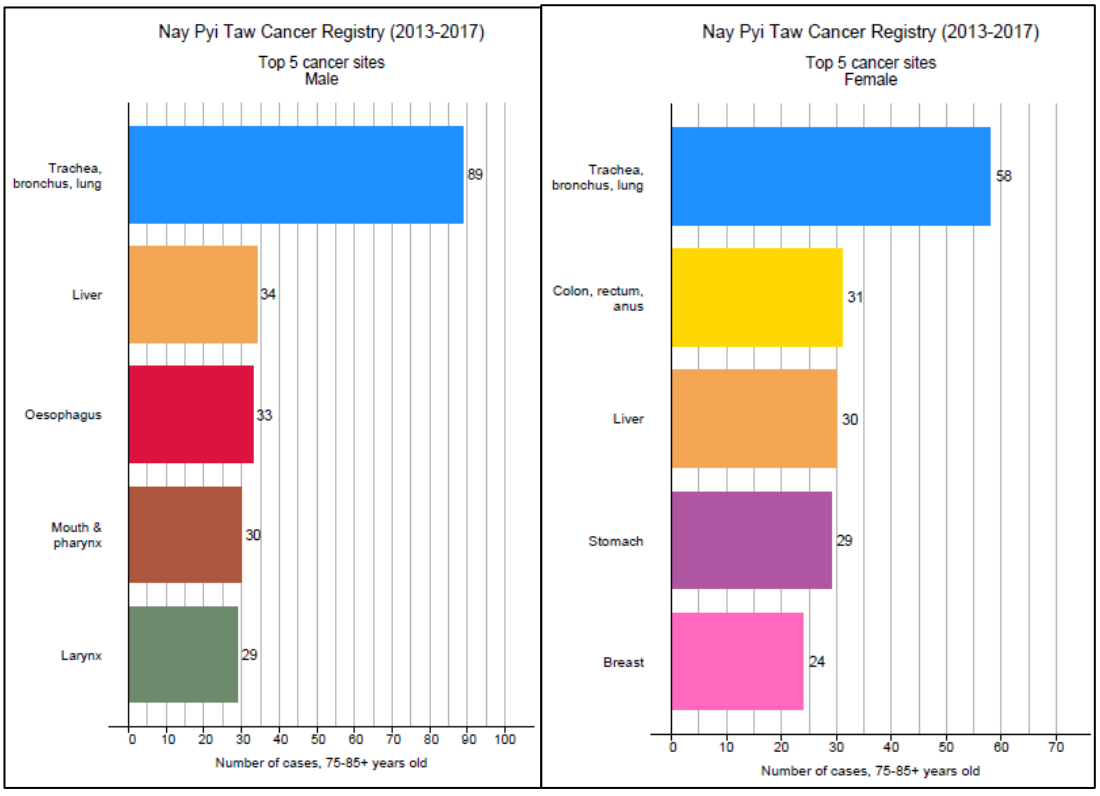

Figure 21. Top five cancers in 75 years and above age group (Male and Female)

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3.6 CHILDHOOD CANCERS (0 TO 14 YEARS)

TABLE 1 SHOWS THE INCIDENCE OF CHILDHOOD CANCER, CLASSIFIED ACCORDING TO THE INTERNATIONAL CLASSIFICATION OF CHILDHOOD CANCER (ICCC-3)

ICCC3		Number of cases						Rates per million				
		0-4	5-9	10-14	All	M/F	% total	0-4	5-9	10-14	crude	ASR
	All	41	26	47	114	1.1	100.0	72.7	46.9	85.4	68.3	68.1
I	Leukaemias	14	13	11	38	1.2	33.3	24.8	23.5	20.0	22.8	23.0
II	Lymphomas	5	5	8	18	1.0	15.8	8.9	9.0	14.5	10.8	10.6
III	CNS neoplasms	1	2	6	9	2.0	7.9	1.8	3.6	10.9	5.4	5.0
IV	Neuroblastoma	2	0	0	2	1.0	1.8	3.5	0.0	0.0	1.2	1.4
IX	Soft tissue sarcomas	2	0	3	5	4.0	4.4	3.5	0.0	5.5	3.0	3.0
V	Retinoblastoma	5	1	0	6	1.0	5.3	8.9	1.8	0.0	3.6	4.0
VI	Renal tumors	2	0	0	2	0.0	1.8	3.5	0.0	0.0	1.2	1.4
VII	Hepatic tumors	1	0	1	2	0.0	1.8	1.8	0.0	1.8	1.2	1.2
VIII	Malignant bone tumors	0	1	4	5	0.2	4.4	0.0	1.8	7.3	3.0	2.7
X	Germ cell tumors	0	1	3	4	0.0	3.5	0.0	1.8	5.5	2.4	2.2
XI-XII	Other	9	3	11	23	1.1	20.2	15.9	5.4	20.0	13.8	13.7

3.7 TOBACCO RELATED CANCERS

Tobacco related cancers identified by the IARC monograph include cancers of the lung, oral cavity, nasal cavity, and paranasal sinuses, oropharynx, hypopharynx, larynx, esophagus, stomach, pancreas, colon & rectum, liver, kidney (body and pelvis), ureter, urinary bladder, cervix, ovary and myeloid leukemia. [6]

TABLE 2 SHOWS THE INCIDENCE OF TOBACCO RELATED CANCERS

Cancer Sites	**Incidence (Male)**			**Incidence (Female)**		
	Cases	**%**	**ASR**	**Cases**	**%**	**ASR**
Lip (C00)	4	0.1	0.1	2	0.1	0.1
Tongue (C01-02)	82	3.0	3.7	20	0.7	0.7
Mouth (C03-06)	159	5.8	6.4	59	1.9	2.1
Oropharynx (C10)	25	1.0	1.3	7	0.2	0.3
Hypopharynx (C12-13)	53	1.9	2.5	14	0.5	0.6
Pharynx Unspecified (C14)	6	0.2	0.2	4	0.1	0.1
Oesophagus (C15)	141	5.1	6.9	58	1.9	2.0

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Stomach (C16)	251	9.1	12.1	216	7.1	7.8
Colon and Rectum (C18-20)	204	7.4	9.3	187	6.1	6.4
Liver (C22)	419	15.2	17.9	190	6.2	6.9
Pancreas (C25)	24	0.9	1.0	31	1.0	1.2
Larynx (C32)	182	6.6	8.6	55	1.8	2.1
Trachea, Bronchus and Lung (C33-34)	512	18.5	26.2	321	10.5	12.1
Cervix (C53)				406	13.3	14.2
Ovary (C56)				136	4.5	4.6
Kidney and renal pelvic (C64-65)	25	0.9	1.2	14	0.5	0.6
Urinary Bladder (C67)	53	1.9	2.6	25	0.8	1.0
Leukaemia (C92-95)	83	3.0	2.9	67	2.2	2.2
Total	**2223**	**80.6**	**102.9**	**1812**	**59.3**	**64.9**

3.8 INFECTIONS RELATED CANCERS

Infections-related cancers include carcinoma of the oral cavity, oropharynx including tonsil and base of tongue, larynx, anal squamous cell carcinoma, cervix, vulva, vagina, penis, adult T-cell leukemia and lymphoma, Kaposi sarcoma, Hodgkin lymphoma, Burkitt lymphoma, nasopharyngeal carcinoma, gastric carcinoma, gastric non-Hodgkin lymphoma, Hepatocellular carcinoma, cholangiocarcinoma and bladder. [7]

TABLE 3 SHOWS THE INCIDENCE OF INFECTIONS RELATED CANCERS

Cancer Sites	**Incidence (Male)**			**Incidence (Female)**		
	Cases	**%**	**ASR**	**Cases**	**%**	**ASR**
Cancer of the oral cavity (C02–06)	241	8.8	10.1	79	2.6	2.8
Carcinoma of the oropharynx, including tonsils and base of tongue (C09-10)	38	1.4	1.8	16	0.5	0.7
Nasopharyngeal carcinoma (C11)	18	0.7	0.7	15	0.5	0.6
Stomach (C16.0)	251	9.1	12.1	216	7.1	7.8
Anal carcinoma (C21)	5	0.2	0.2	8	0.3	0.2
Liver cancer including bile duct (C22)	419	15.2	17.9	190	6.2	6.9
Laryngeal cancer (C32)	182	6.6	8.6	55	1.8	2.1
Kaposi's sarcoma (C46)						
Vulvar carcinoma (C51)				13	0.4	0.5
Vaginal carcinoma (C52)				11	0.4	0.4
Cervix uteri carcinoma (C53)				406	13.3	14.1
Penile carcinoma (C60)	57	2.1	2.4			
Bladder carcinoma (C67)	53	1.9	2.6	25	0.8	1
Hodgkin's lymphoma (C81)	5	0.2	0.2	8	0.3	0.3
Non-Hodgkin lymphomas (C82–85, C96)	94	3.4	3.6	61	2	2.1
Adult T-cell leukaemia and lymphoma (C91.5)						
Total	**1363**	**49.6**	**60.2**	**1103**	**36.2**	**39.5**

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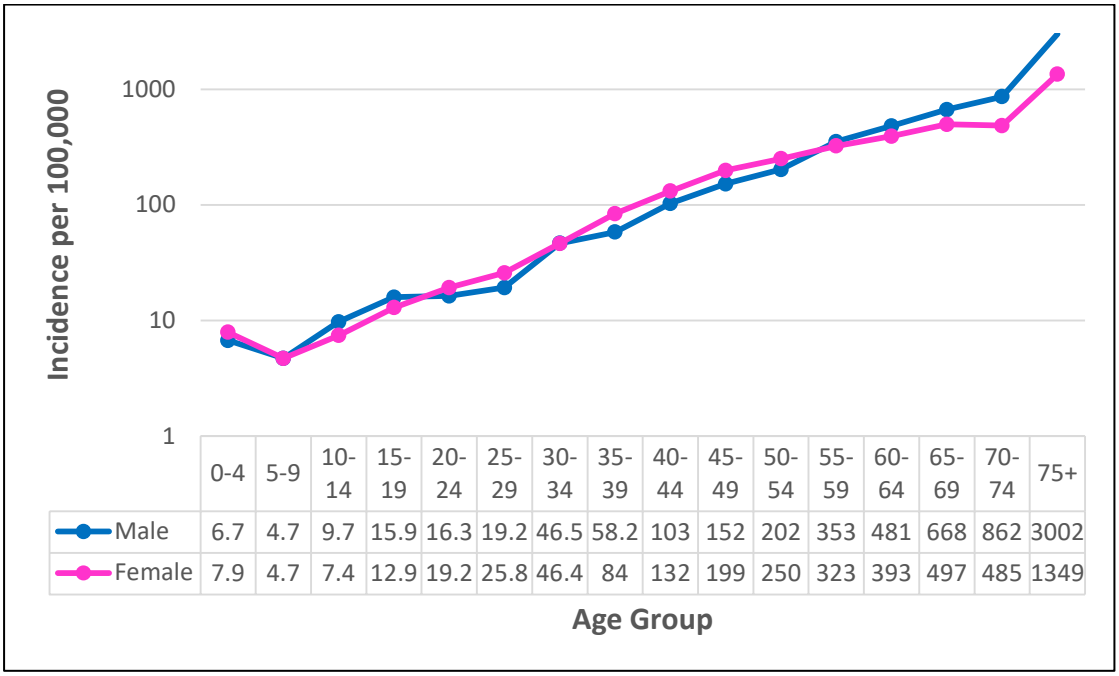
3.9 AGE-SPECIFIC INCIDENCE RATES BY SEX, ALL SITES



	0-4	5-9	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+
Male	6.7	4.7	9.7	15.9	16.3	19.2	46.5	58.2	103	152	202	353	481	668	862	3002
Female	7.9	4.7	7.4	12.9	19.2	25.8	46.4	84	132	199	250	323	393	497	485	1349

Figure 22. Age-specific incidence rate by sex, all sites, (2013-2017)

3.9.1 Age-specific incidence rates by sex (most common sites)

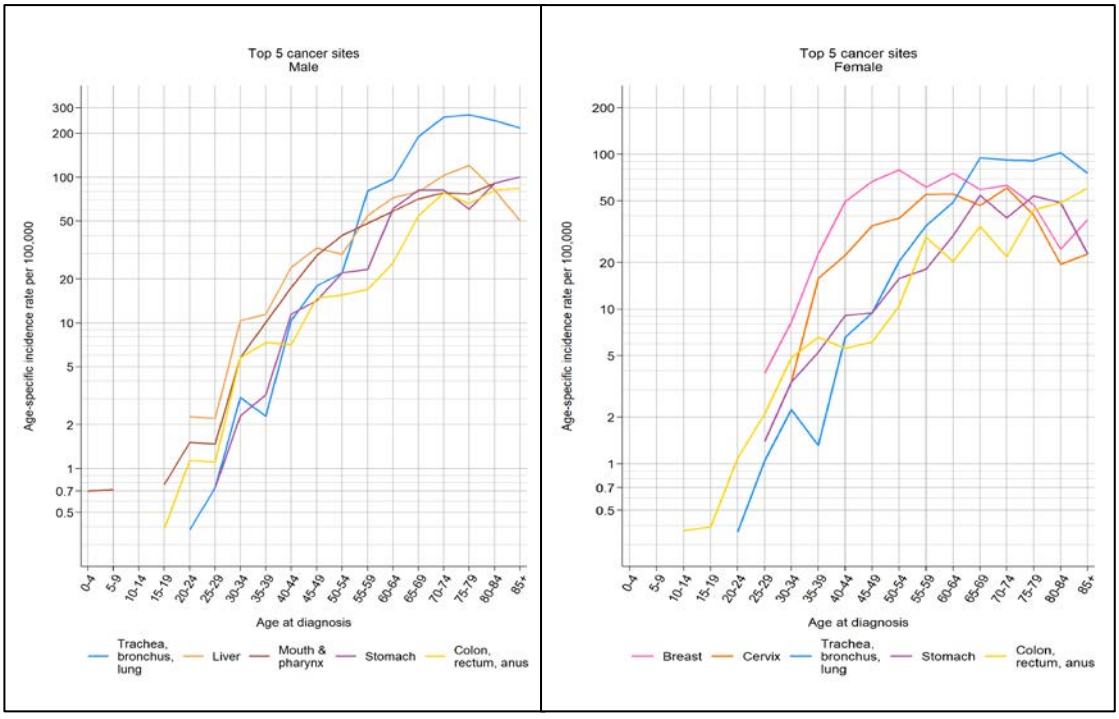


Figure 23. Age-specific incidence rates of top cancer sites

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3.9.2 AGE-SPECIFIC INCIDENCE RATES OF CANCER SITES

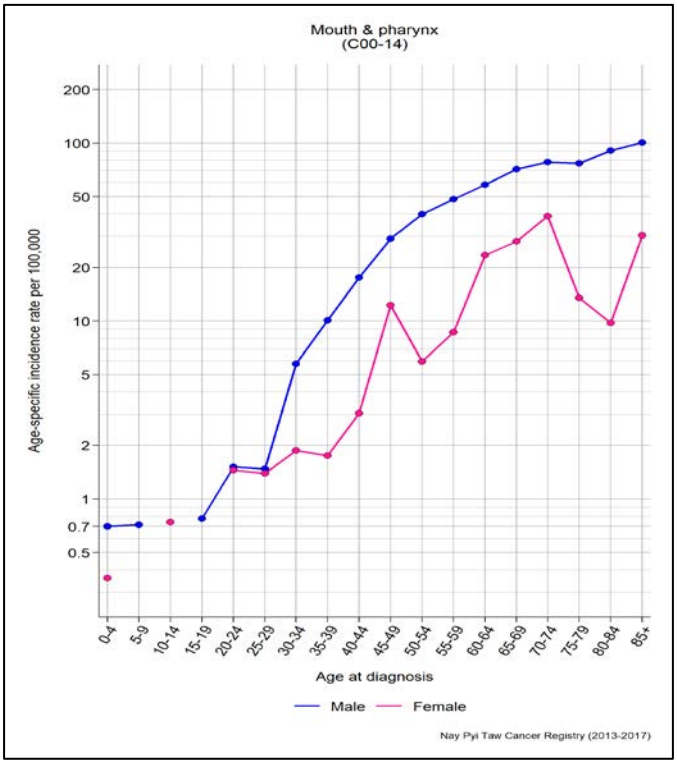

Figure 24. Mouth & pharynx: Age-specific incidence rate per 100,000

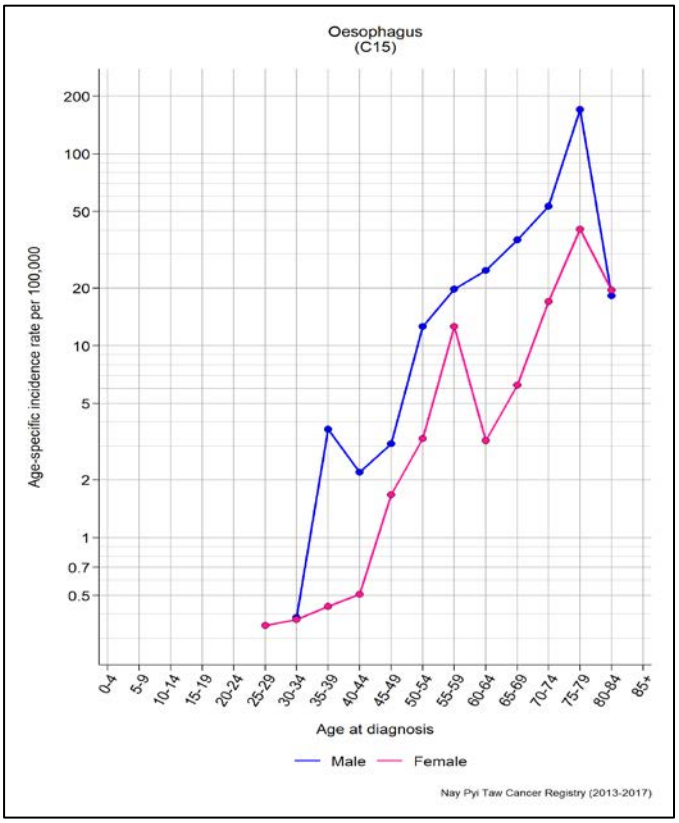

Figure 25. Oesophagus: Age-specific incidence rate per 100,000

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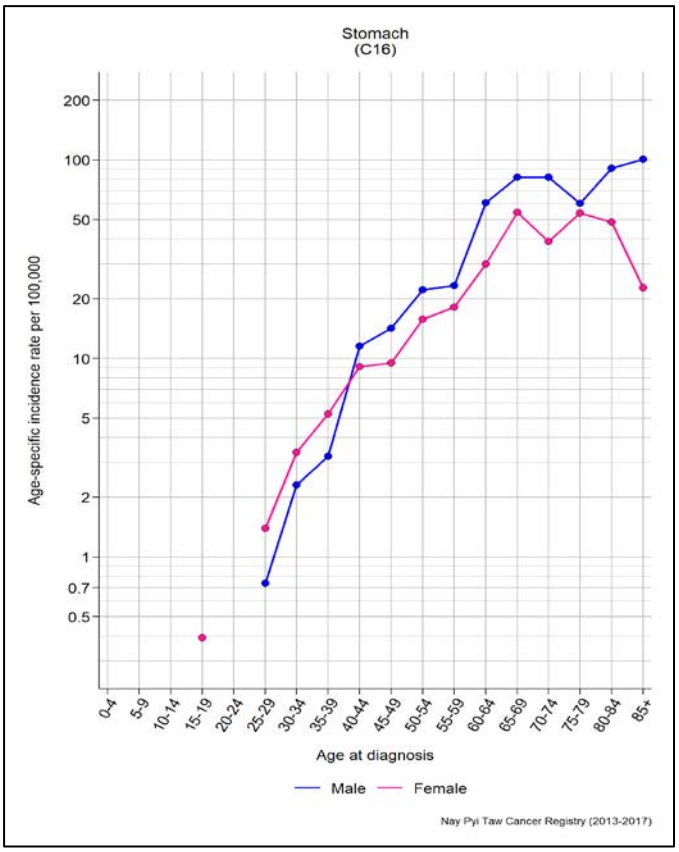

Figure 26. Stomach: Age-specific incidence rate per 100,000

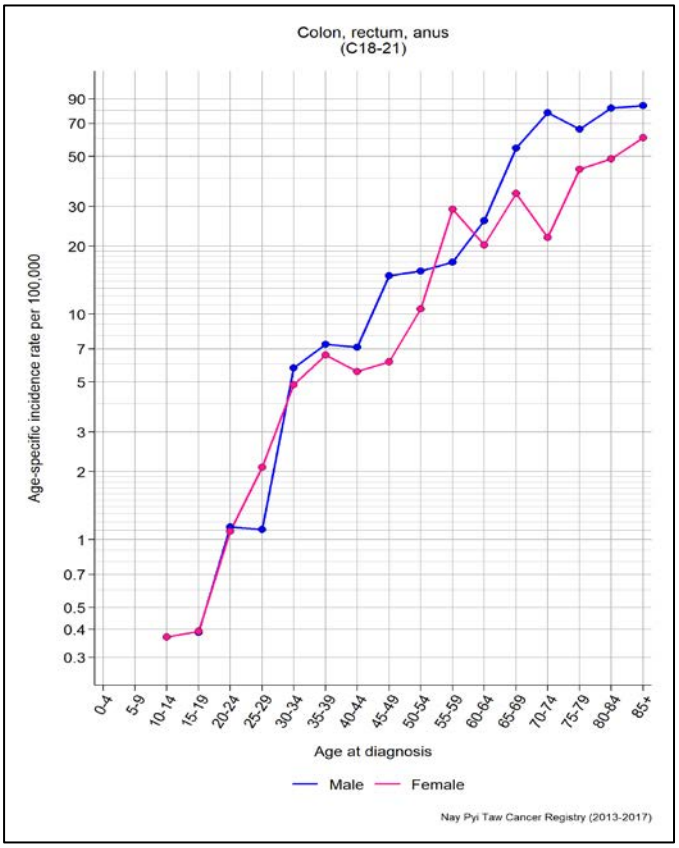

Figure 27. Colon, rectum, anus: Age-specific incidence rate per 100,000

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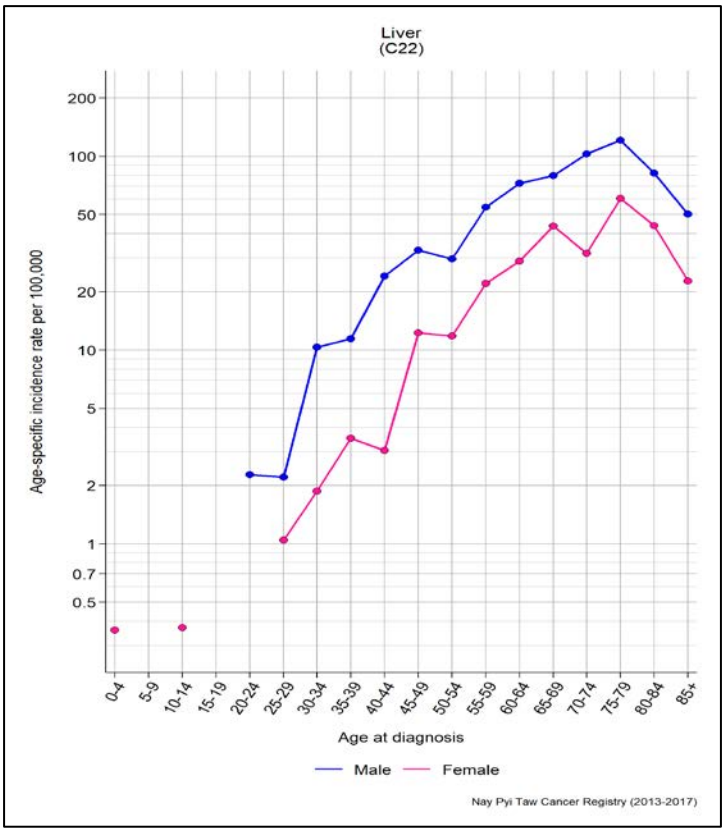

Figure 28. Liver: Age-specific incidence rate per 100,000

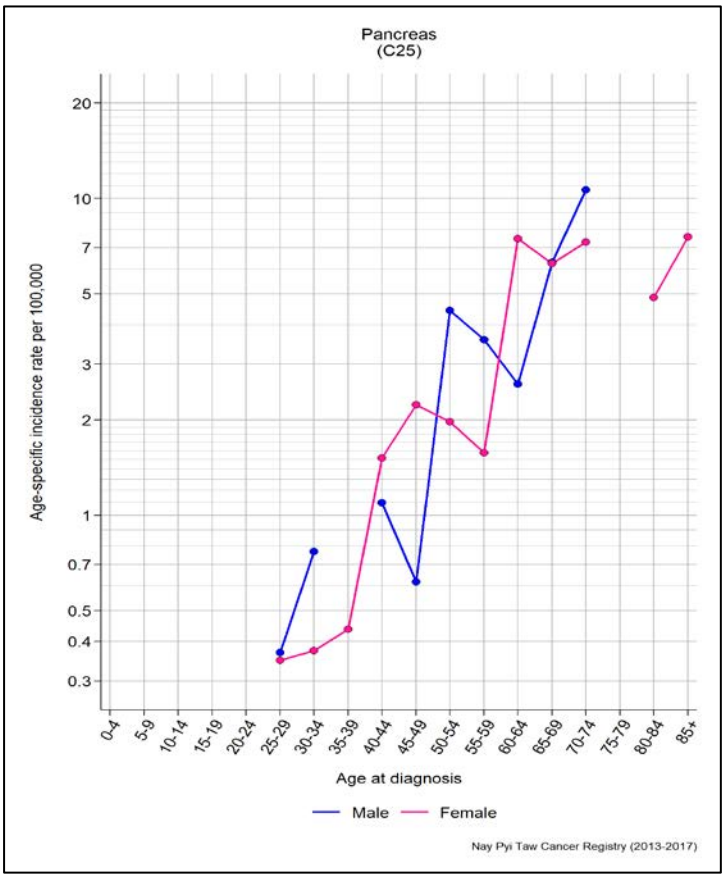

Figure 29. Pancreas: Age-specific incidence rate per 100,000

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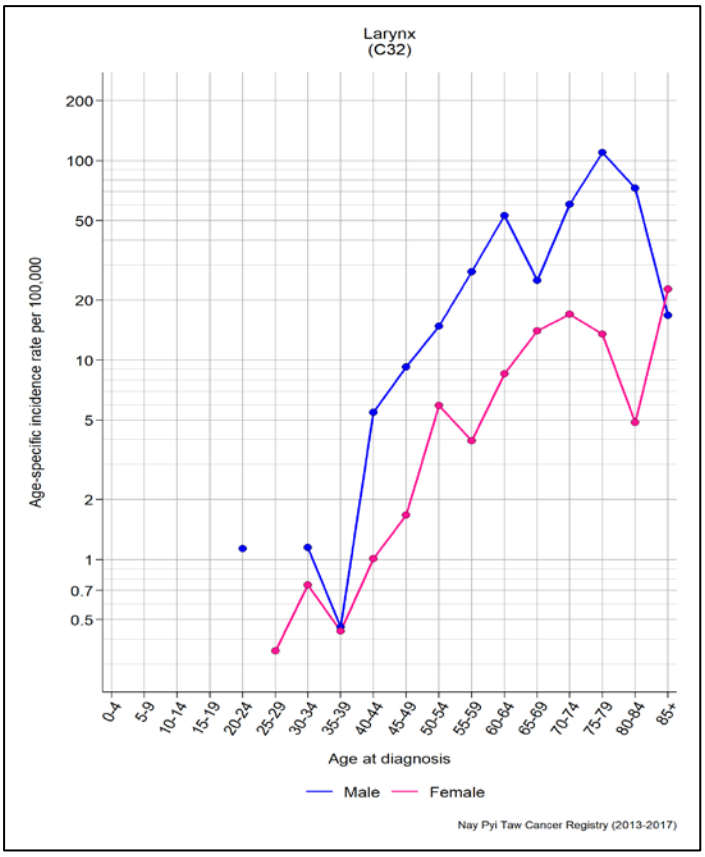

Figure 30. Larynx: Age-specific incidence rate per 100,000

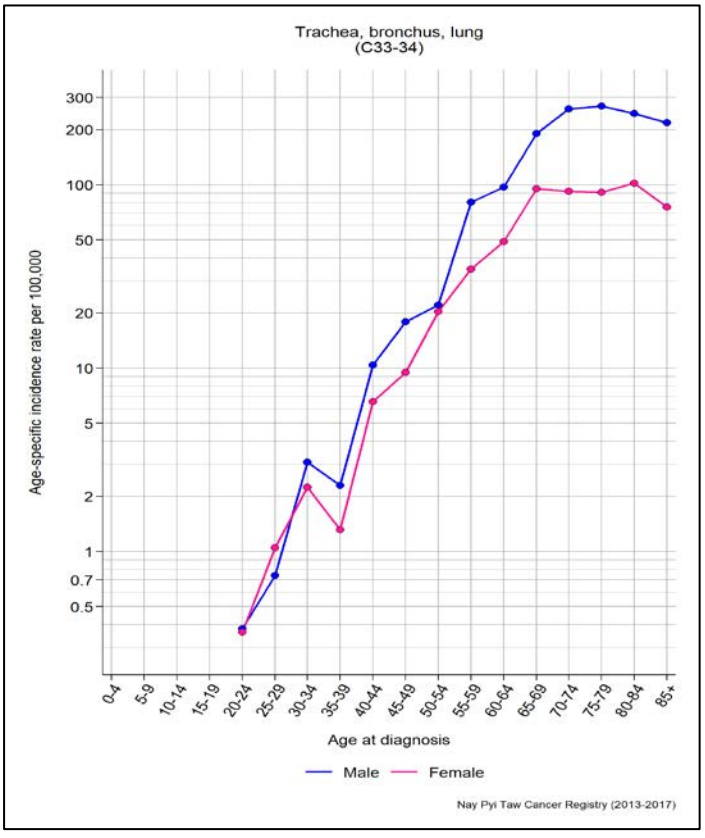

Figure 31. Lung, trachea, bronchus: Age-specific incidence rate per 100,000

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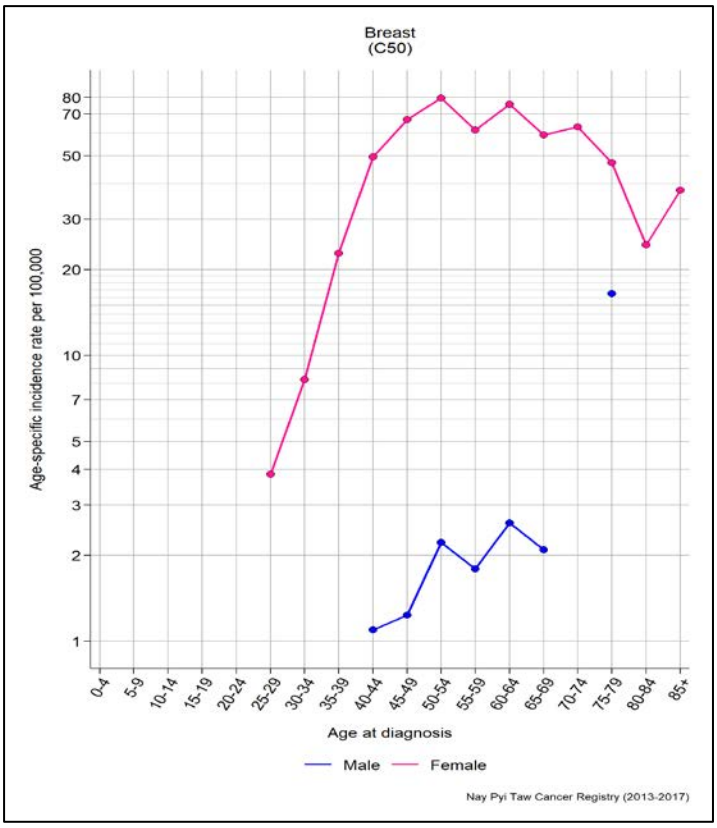

Figure 32. Breast: Age-specific incidence rate per 100,000

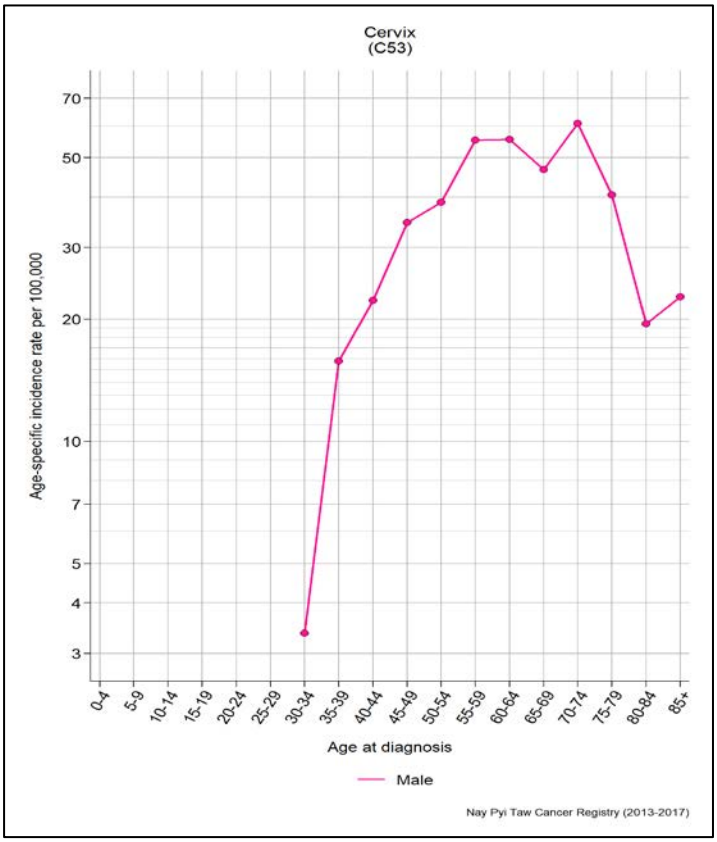

Figure 33. Cervix: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

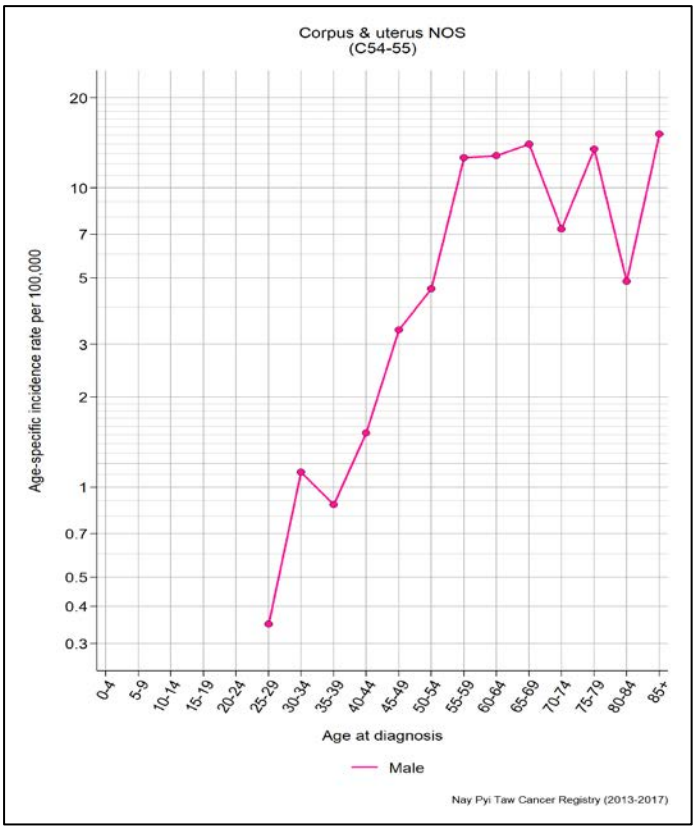

Figure 34. Corpus & Uterus NOS: Age-specific incidence rate per 100,000

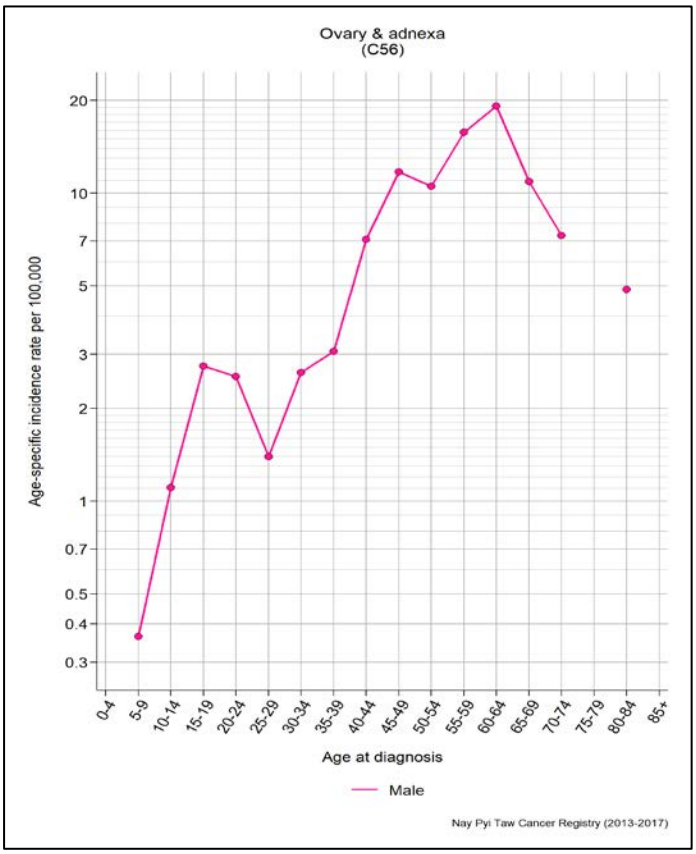

Figure 35. Ovary & adnexa: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

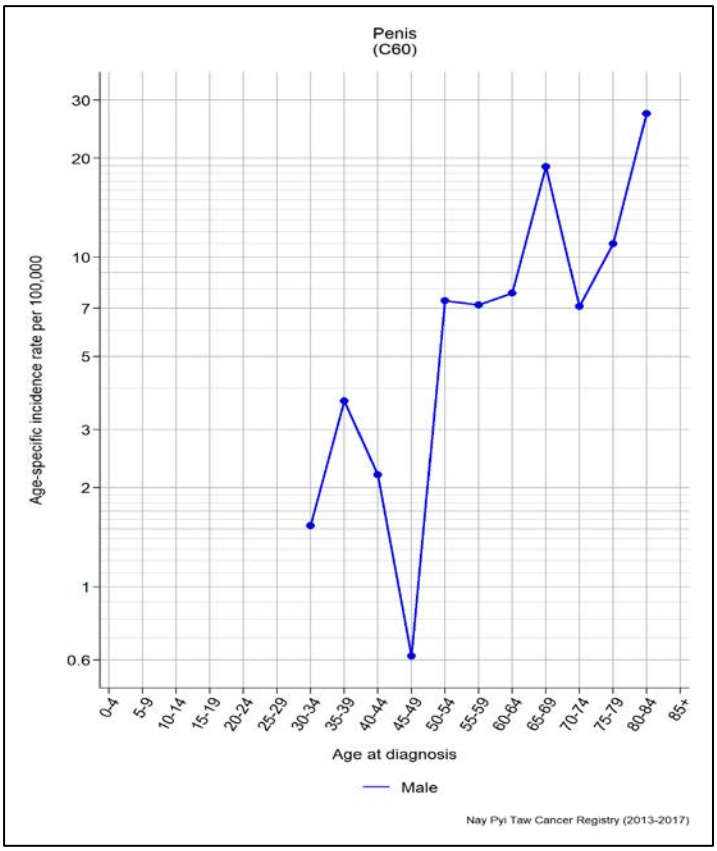

Figure 36. Penis: Age-specific incidence rate per 100,000

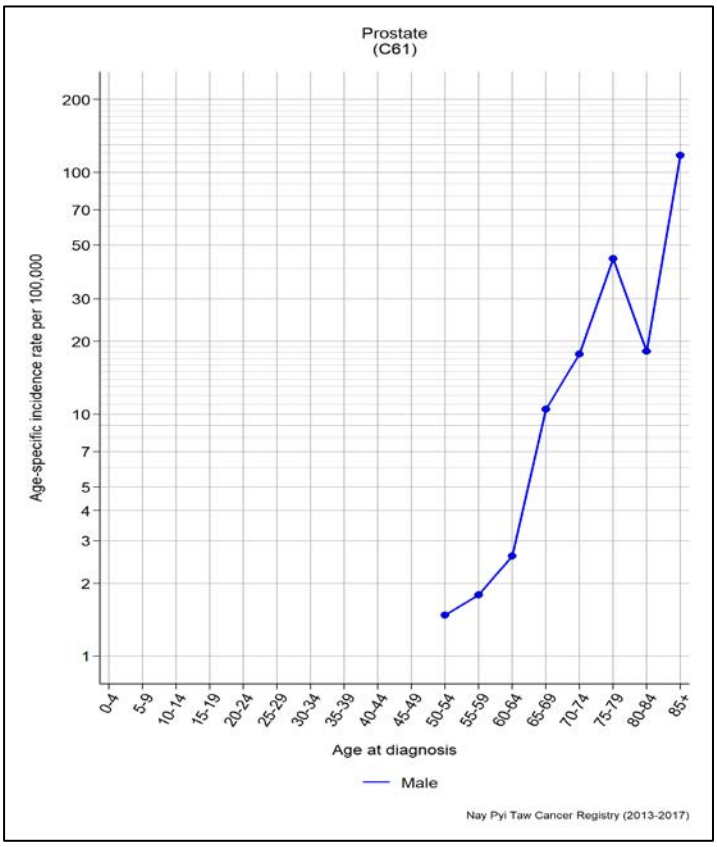

Figure 37. Prostate: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

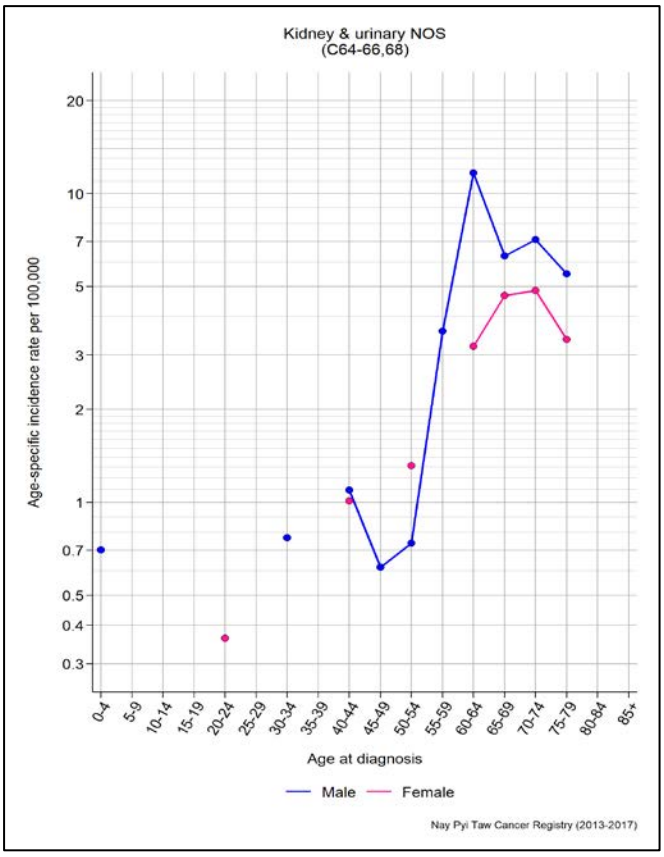

Figure 38. Kidney & urinary NOS: Age-specific incidence rate per 100,000

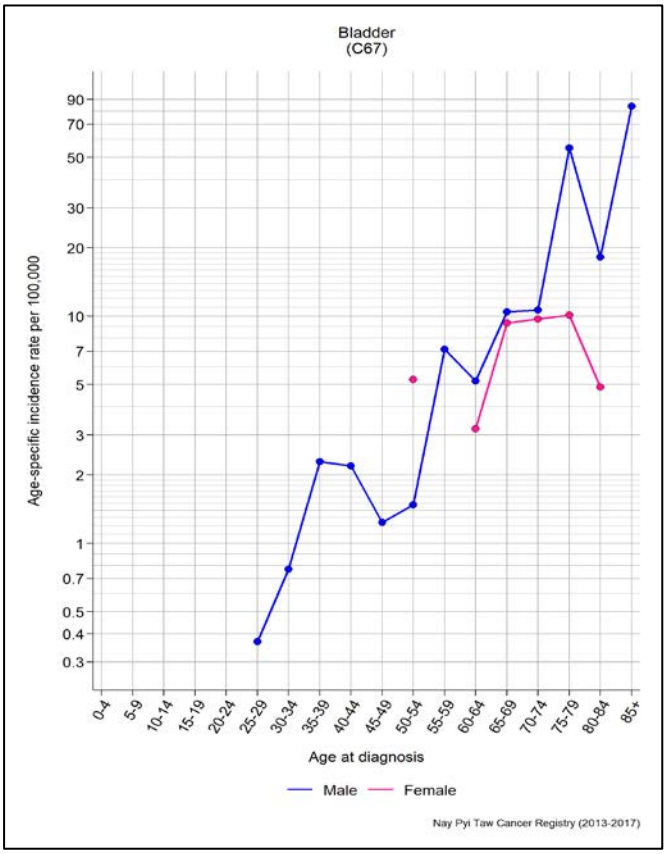

Figure 39. Bladder: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

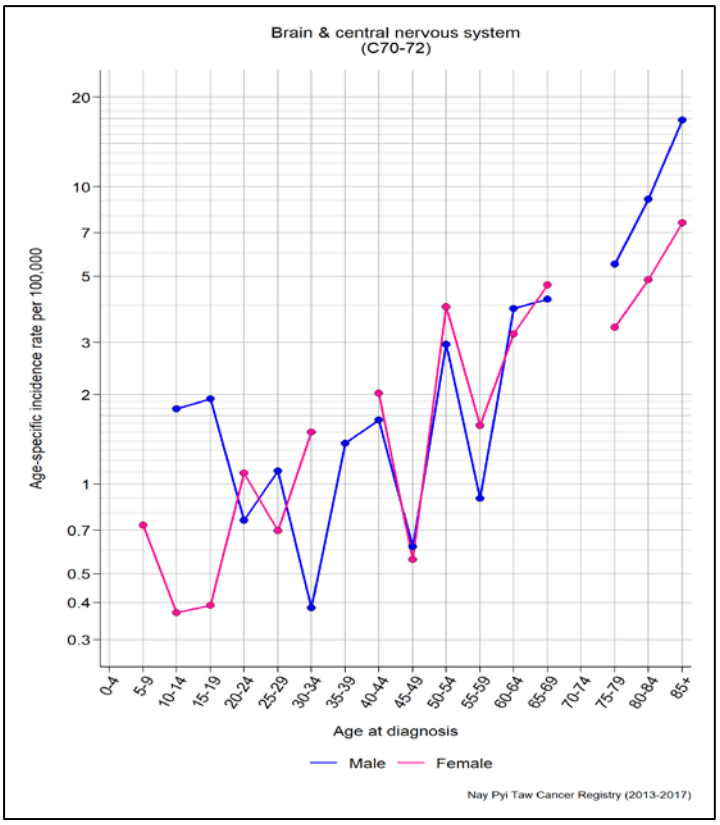

Figure 40. Brain & nervous system: Age-specific incidence rate per 100,000

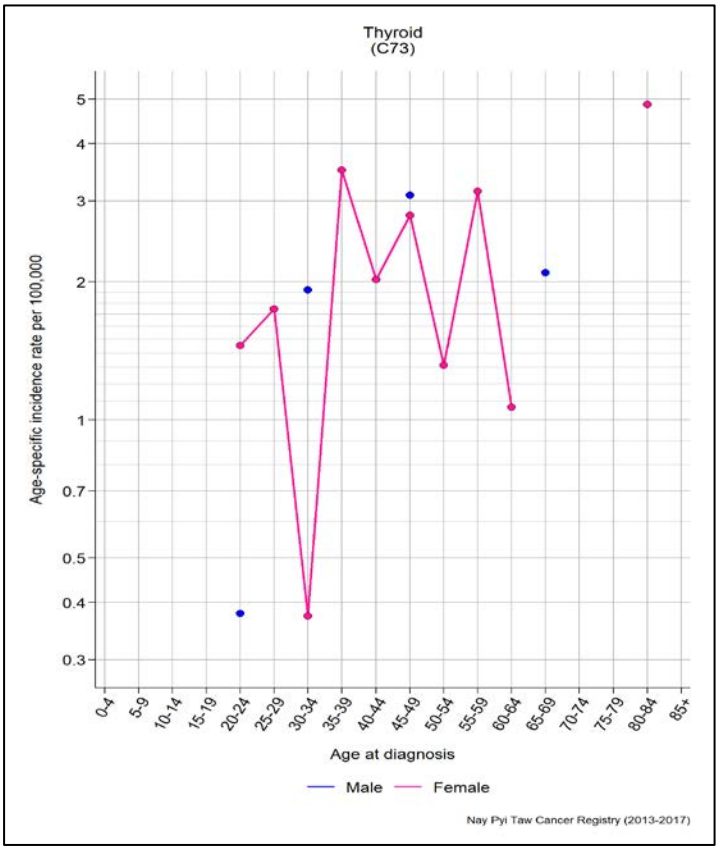

Figure 41. Thyroid: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

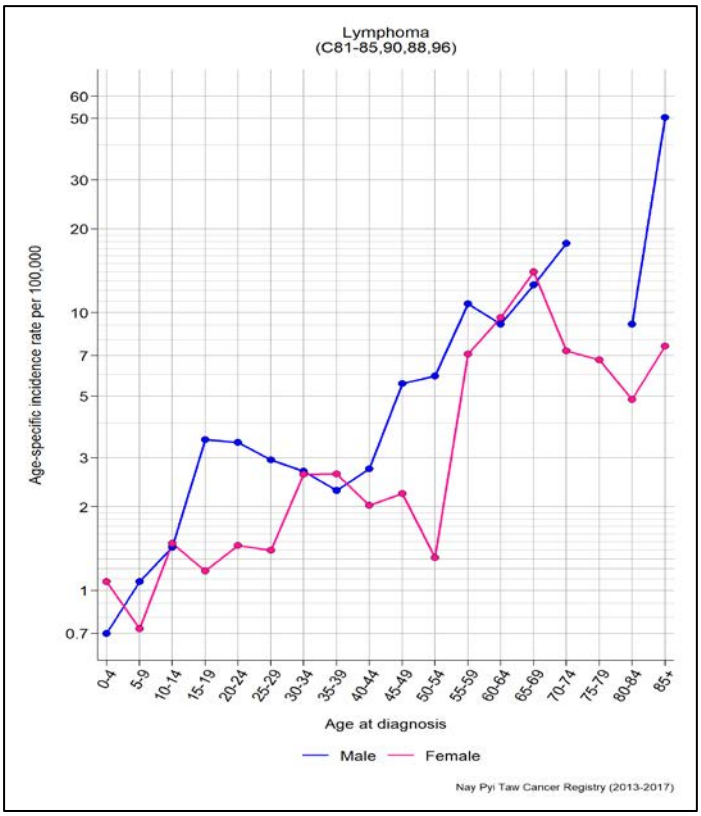

Figure 42. Lymphoma: Age-specific incidence rate per 100,000

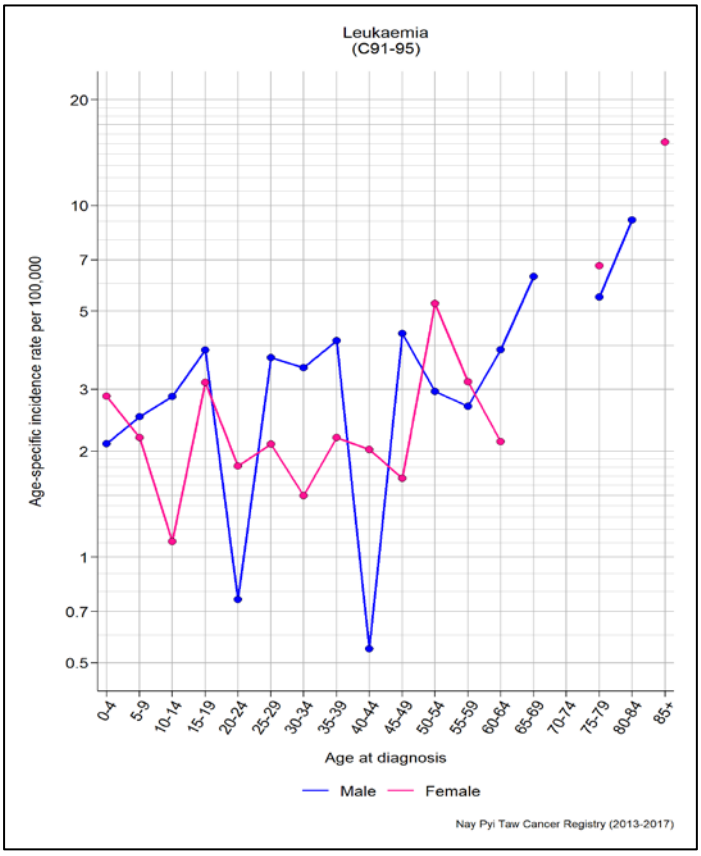

Figure 43. Leukaemia: Age-specific incidence rate per 100,000

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

3.10 CANCER MORTALITY

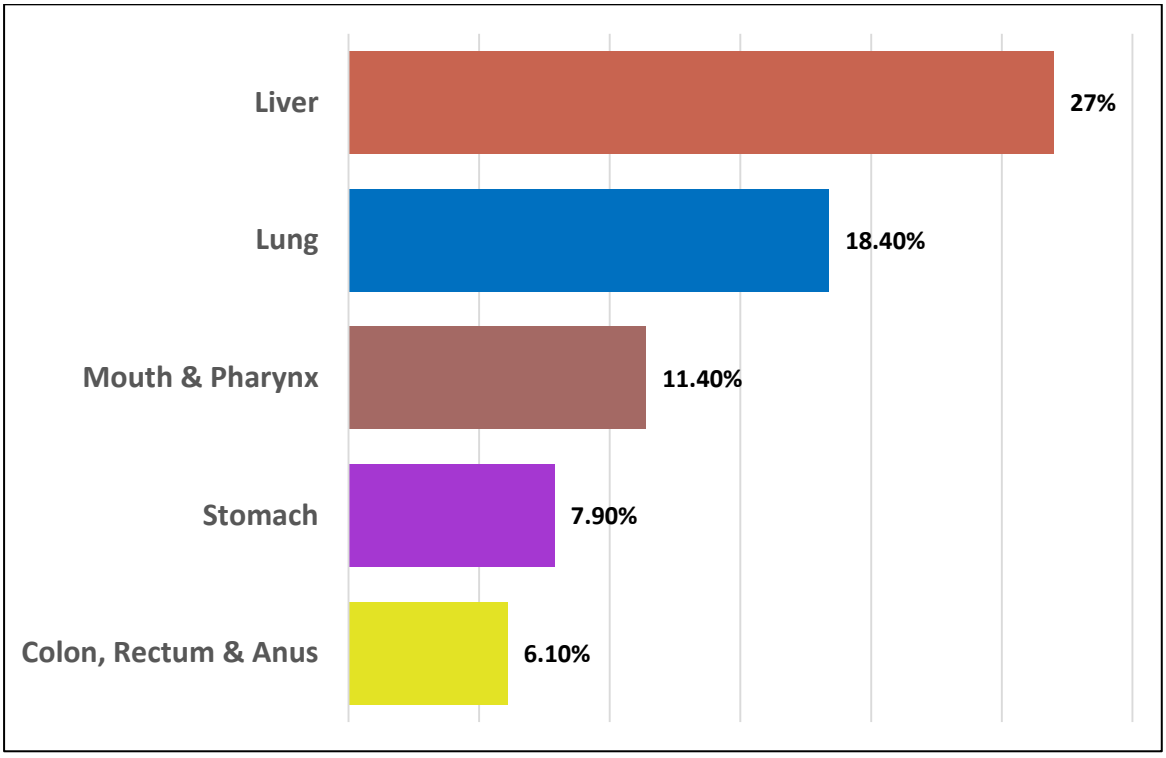

Figure 44. Top five cancer deaths in Male (2013-2017)
* Data Source – Vital Statistics, Central Statistical Organization *

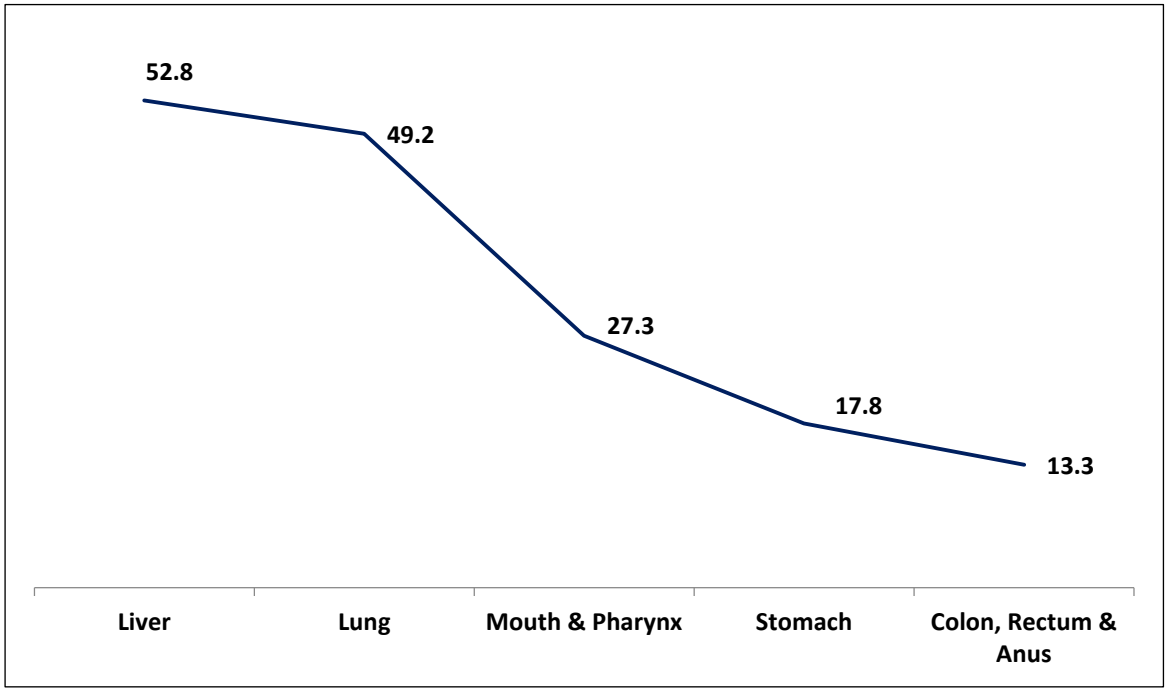

Figure 45- ASMR (Age Standardized Mortality Rate) per 100,000 of Top five Cancers death in Male (2013-2017)
* Data Source – Vital Statistics, Central Statistical Organization *

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

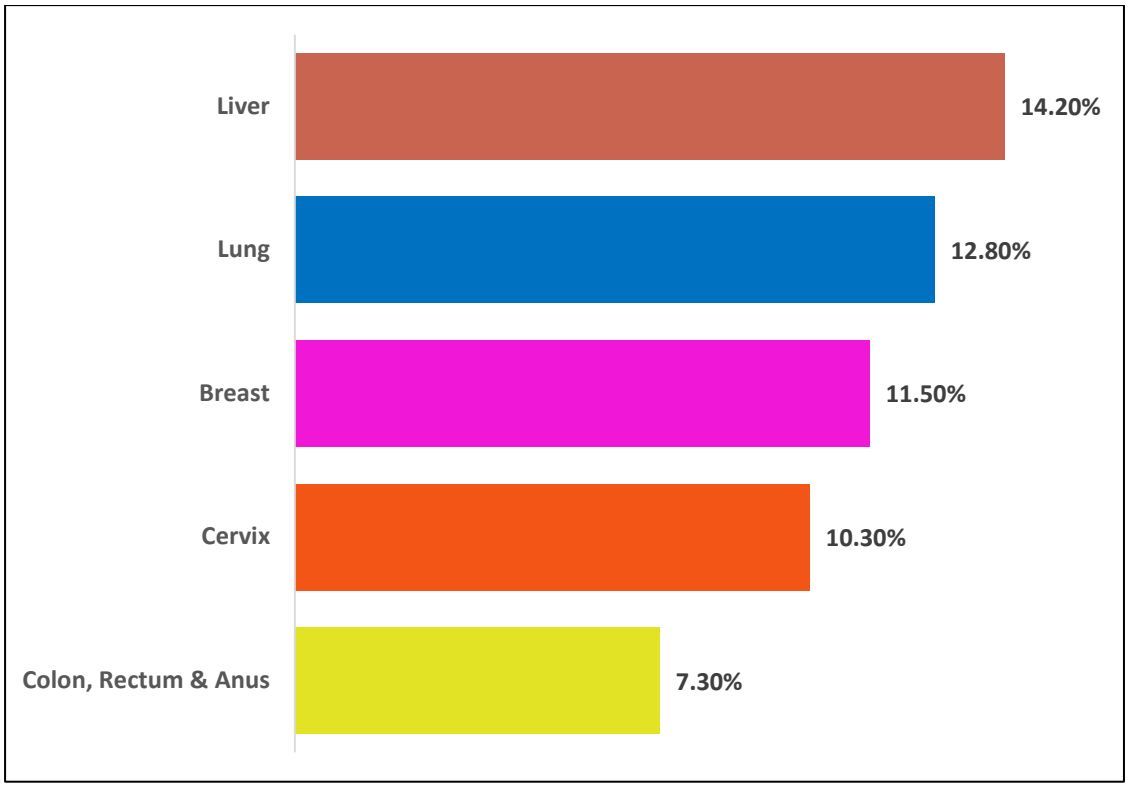

Figure 46. Top five cancer deaths in Female (2013-2017)
* Data Source – Vital Statistics, Central Statistical Organization *

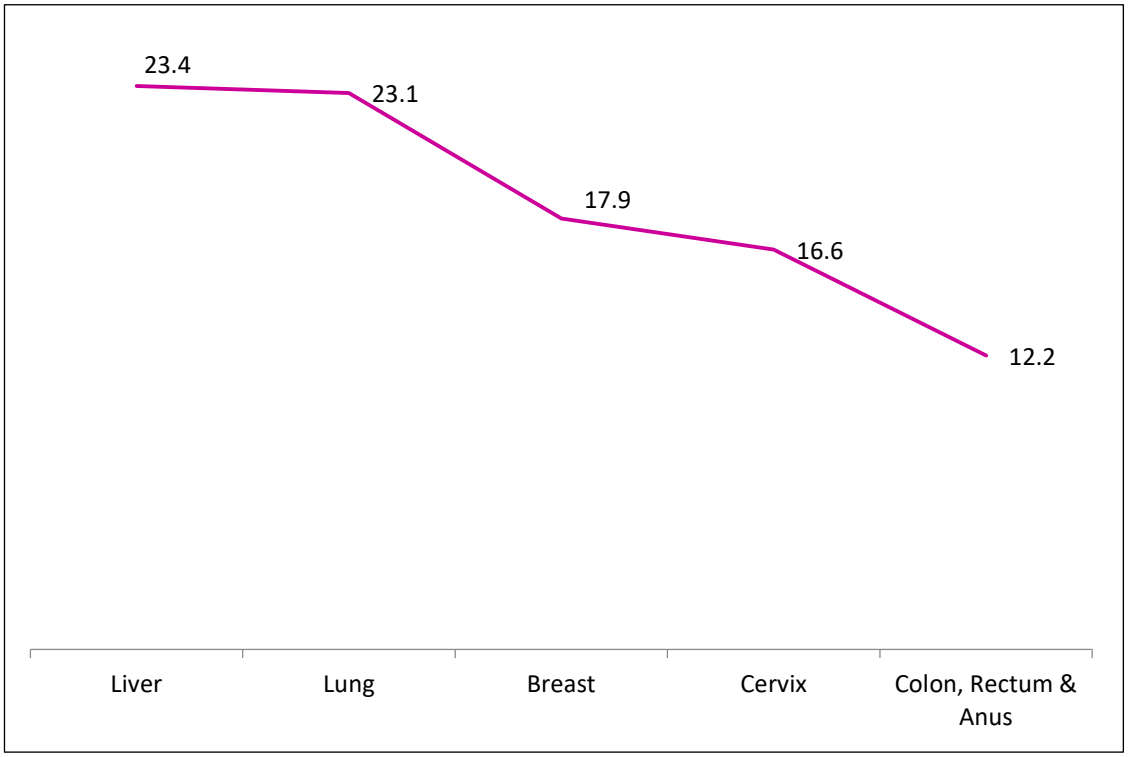

Figure 47- ASMR (Age Standardized Mortality Rate) per 100,000 of Top five Cancers death in Female (2013-2017)
* Data Source – Vital Statistics, Central Statistical Organization *

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

3.11 TIME TREND OF SOME CANCER SITES

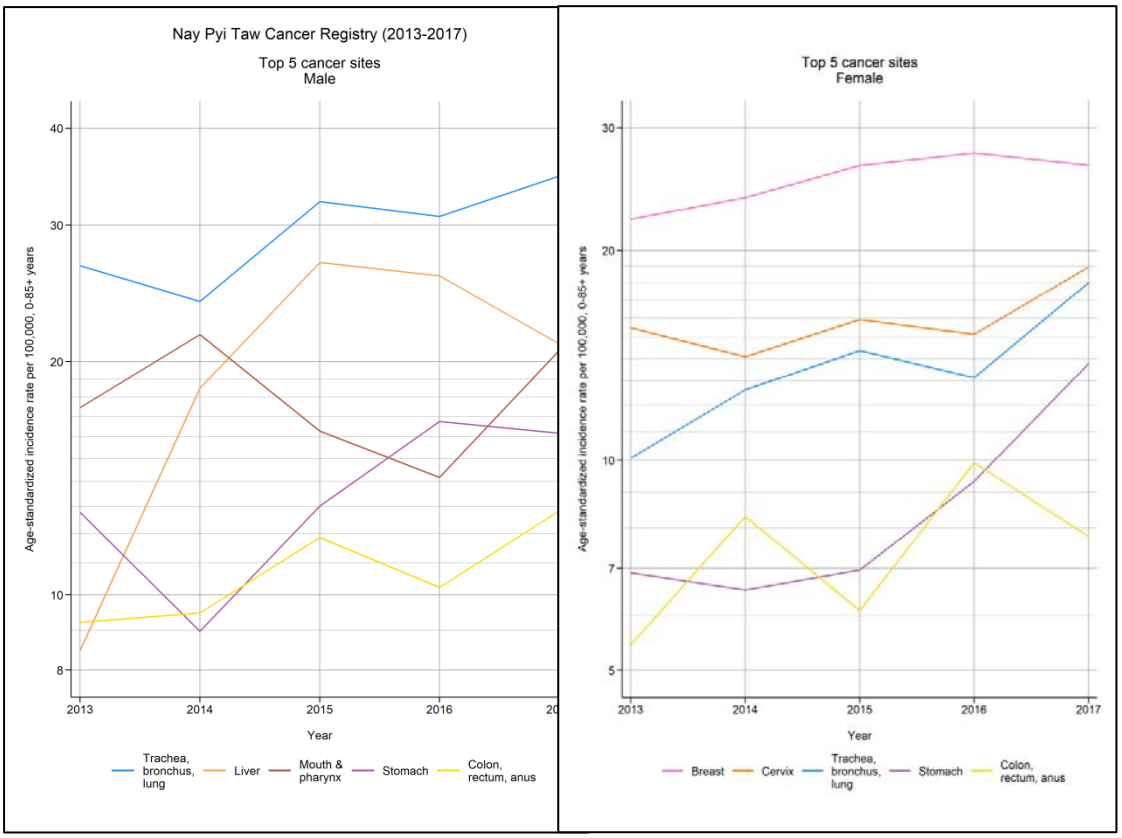

Figure 48 – Time Trend of some caner sites in Male and Female

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

4. BASIS OF DIAGNOSIS (DCO / CLINICAL / MV) BY SITE

Table 4 shows the percentage of cases at the major sites that were registered on the basis of information from clinical only, death certificate only (DCO) and with morphological verification (MV) - that is, based on cytology or histology (of the primary tumor, or a metastasis) in Males

ICD10 GROUP	Sites	No.of Patients	%of Cases	ASR(se)	MV%	CLIN%	DCO%
C00-14	Mouth & pharynx	368	12.98	15.85 (0.87)	98.37	0	1.63
C15	Oesophagus	141	5.1	6.89 (0.60)	97.16	0	2.84
C16	Stomach	251	9.1	12.05 (0.79)	83.27	0	16.73
C18-21	Colon, rectum, anus	209	7.37	9.49 (0.70)	86.6	0	13.4
C22	Liver	419	15.2	17.95 (0.92)	6.68	51.79	41.53
C25	Pancreas	24	0.85	1.05 (0.23)	37.5	62.5	0
C32	Larynx	182	6.6	8.55 (0.66)	76.37	0.55	23.08
C33-34	Trachea, bronchus, lung	512	18.5	26.23 (1.20)	23.83	59.38	16.8
C43	Melanoma of skin	3	0.11	0.17 (0.10)	100	0	0
C50	Breast	15	0.53	0.65 (0.17)	100	0	0
C61	Prostate	33	1.16	2.04 (0.36)	87.88	0	12.12
C62	Testis	14	0.49	0.45 (0.12)	100	0	0
C64-66,68	Kidney & urinary NOS	27	0.95	1.27 (0.25)	96.3	0	3.7
C67	Bladder	53	1.87	2.57 (0.38)	96.23	0	3.77
C70-72	Brain & central nervous system	36	1.27	1.37 (0.24)	63.89	19.44	16.67
C73	Thyroid	12	0.42	0.39 (0.12)	100	0	0
C76-80	Ill-defined	79	2.79	3.52 (0.42)	27.85	37.97	34.18
C81-85, 90, 88, 96	Lymphoma	105	3.7	4.13 (0.43)	92.38	7.62	0
C91-95	Leukaemia	84	2.96	2.91 (0.33)	80.95	5.95	13.1
ALLbC44	All sites but C44	2762	97.43	125.92 (2.52)	61.44	22.48	16.08

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Table 5 shows the percentage of cases at the major sites that were registered on the basis of information from clinical only, death certificate only (DCO) and with morphological verification (MV) - that is, based on cytology or histology (of the primary tumor, or a metastasis) in Females

ICD10 GROUP	Sites	No.of Patients	%of Cases	ASR(se)	MV(%)	CLIN(%)	DCO(%)
C00-14	Mouth & pharynx	134	4.3	5.00 (0.44)	91.04	0	8.96
C15	Oesophagus	58	1.86	2.03 (0.27)	96.55	0	3.45
C16	Stomach	216	7.1	7.79 (0.54)	80.09	0	19.91
C18-21	Colon, rectum, anus	195	6.26	6.66 (0.49)	83.59	0	16.41
C22	Liver	190	6.2	6.90 (0.51)	6.84	46.84	46.32
C25	Pancreas	31	1.0	1.16 (0.21)	51.61	48.39	0
C32	Larynx	55	1.76	2.09 (0.29)	58.18	0	41.82
C33-34	Trachea, bronchus, lung	321	10.5	12.15 (0.69)	15.89	58.88	25.23
C37-38	Pleura & other thoracic	4	0.13	0.19 (0.10)	100	0	0
C43	Melanoma of skin	1	0.03	0.02 (0.02)	100	0	0
C50	Breast	661	21.21	22.43 (0.89)	92.59	0	7.41
C53	Cervix	406	13.3	14.15 (0.72)	90.15	0	9.85
C54-55	Corpus & uterus NOS	69	2.21	2.49 (0.31)	59.42	0	40.58
C56	Ovary & adnexa	136	4.5	4.59 (0.40)	81.62	15.44	2.94
C64-66,68	Kidney & urinary NOS	14	0.45	0.55 (0.15)	92.86	0	7.14
C67	Bladder	25	0.8	0.99 (0.20)	96	0	4
C70-72	Brain & central nervous system	35	1.12	1.15 (0.20)	48.57	31.43	20
C73	Thyroid	35	1.12	1.04 (0.18)	97.14	0	2.86
C76-80	Ill-defined	90	2.89	3.20 (0.35)	26.67	40	33.33
C81-85,90,88,96	Lymphoma	78	2.5	2.71 (0.31)	78.21	21.79	0
C91-95	Leukaemia	70	2.25	2.32 (0.28)	77.14	7.14	15.71
ALLbC44	All sites but C44	3056	98.04	107.26 (1.98)	71.04	13.81	15.15

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5.0 SUMMARY TABLES

5.1 Incidence per 100,000 age group (Male)

Nay Pyi Taw Cancer Registry (2013-2017)

NPT_2013

Incidence per 100,000 by age group (Period) - Male

SITE	ALL AGES	AGE UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	CRUDE RATE	(%)	CUM 0-64	CUM 0-74	ASR	ICD (10th)
Lip	4	0	-	-	-	-	-	-	-	-	0.5	1.2	0.7	-	-	-	-	-	-	-	0.1	0.1	0.01	0.01	**0.1**	*C00*
Tongue	82	0	-	-	-	-	-	-	0.8	0.5	2.7	4.3	14.0	16.1	10.4	20.9	28.4	11.0	-	33.5	2.8	3.0	0.24	0.49	**3.7**	*C01-02*
Mouth	159	0	-	0.4	-	-	1.1	1.1	3.5	6.9	11.5	16.7	14.0	14.3	22.0	25.1	17.7	22.0	54.5	16.8	5.5	5.8	0.46	0.67	**6.4**	*C03-06*
Salivary glands	8	0	-	-	-	-	-	0.4	-	-	0.5	-	0.7	0.9	1.3	2.1	-	11.0	-	-	0.3	0.3	0.02	0.03	**0.4**	*C07-08*
Tonsil	11	0	-	-	-	0.4	-	-	-	-	0.5	1.2	0.7	0.9	2.6	-	3.5	11.0	-	-	0.4	0.4	0.03	0.05	**0.5**	*C09*
Other oropharynx	27	0	-	-	-	-	-	-	-	0.5	0.5	1.2	1.5	5.4	6.5	8.4	14.2	-	9.1	16.8	0.9	1.0	0.08	0.19	**1.3**	*C10*
Nasopharynx	18	0	-	0.4	-	0.4	0.4	-	0.8	0.5	-	1.2	2.2	2.7	2.6	4.2	-	-	-	-	0.6	0.7	0.06	0.08	**0.7**	*C11*
Hypopharynx	53	0	0.4	-	-	-	-	-	0.8	1.8	0.5	3.1	5.2	5.4	11.7	10.5	14.2	22.0	27.3	33.5	1.8	1.9	0.14	0.27	**2.5**	*C12-13*
Pharynx unspecified	6	0	-	-	-	-	-	-	-	-	0.5	-	0.7	2.7	1.3	-	-	-	-	-	0.2	0.2	0.03	0.03	**0.2**	*C14*
Oesophagus	**141**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**0.4**	**3.7**	**2.2**	**3.1**	**12.6**	**19.7**	**24.6**	**35.6**	**53.2**	**170.3**	**18.2**	**-**	**4.9**	**5.1**	**0.33**	**0.78**	**6.9**	*C15*
Stomach	**251**	**0**	**-**	**-**	**-**	**-**	**-**	**0.7**	**2.3**	**3.2**	**11.5**	**14.2**	**22.2**	**23.3**	**60.9**	**81.6**	**81.6**	**60.4**	**90.9**	**100.6**	**8.7**	**9.1**	**0.69**	**1.51**	**12.1**	*C16*
Small intestine	**7**	**0**	**-**	**-**	**0.4**	**-**	**0.4**	**-**	**-**	**-**	**-**	**0.6**	**-**	**0.9**	**1.3**	**2.1**	**3.5**	**-**	**-**	**-**	**0.2**	**0.3**	**0.02**	**0.05**	**0.3**	*C17*
Colon	**101**	**0**	**-**	**-**	**-**	**0.4**	**0.4**	**-**	**2.3**	**1.8**	**6.0**	**4.9**	**7.4**	**6.3**	**14.3**	**33.5**	**35.5**	**49.4**	**36.4**	**50.3**	**3.5**	**3.7**	**0.22**	**0.56**	**4.8**	*C18*
Rectum	**103**	**0**	**-**	**-**	**-**	**-**	**0.4**	**1.1**	**3.5**	**5.5**	**1.1**	**9.9**	**8.1**	**7.2**	**11.7**	**20.9**	**42.6**	**16.5**	**45.4**	**33.5**	**3.6**	**3.7**	**0.24**	**0.56**	**4.5**	*C19-20*
Anus	**5**	**0**	**-**	**-**	**-**	**-**	**0.4**	**-**	**-**	**-**	**-**	**-**	**-**	**3.6**	**-**	**-**	**-**	**-**	**-**	**-**	**0.2**	**0.2**	**0.02**	**0.02**	**0.2**	*C21*
Liver	**419**	**0**	**-**	**-**	**-**	**-**	**2.3**	**2.2**	**10.4**	**11.5**	**24.1**	**32.7**	**29.6**	**54.6**	**72.6**	**79.5**	**102.9**	**120.8**	**81.8**	**50.3**	**14.5**	**15.2**	**1.20**	**2.11**	**18.0**	*C22*
Gallbladder etc.	**21**	**0**	**-**	**-**	**-**	**-**	**-**	**0.4**	**0.8**	**-**	**1.1**	**1.2**	**1.5**	**1.8**	**1.3**	**6.3**	**7.1**	**5.5**	**27.3**	**-**	**0.7**	**0.8**	**0.04**	**0.11**	**0.9**	*C23-24*
Pancreas	**24**	**0**	**-**	**-**	**-**	**-**	**-**	**0.4**	**0.8**	**-**	**1.1**	**0.6**	**4.4**	**3.6**	**2.6**	**6.3**	**10.6**	**-**	**-**	**-**	**0.8**	**0.9**	**0.07**	**0.15**	**1.0**	*C25*
Nose, sinuses etc.	22	0	-	-	-	1.2	-	-	0.8	1.4	-	0.6	0.7	3.6	5.2	-	10.6	-	9.1	-	0.8	0.8	0.07	0.12	0.9	*C30-31*
Larynx	182	0	-	-	-	-	1.1	-	1.2	0.5	5.5	9.3	14.8	27.7	53.2	25.1	60.3	109.9	72.7	16.8	6.3	6.6	0.57	0.99	**8.6**	*C32*
Trachea, bronchus and lung	512	0	-	-	-	-	0.4	0.7	3.1	2.3	10.4	17.9	22.2	80.5	97.2	190.4	259.0	269.2	245.4	218.0	17.7	18.5	1.17	3.42	**26.2**	*C33-34*
Other thoracic organs	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C37-38*
Bone	**30**	**0**	**-**	**0.4**	**-**	**1.5**	**0.4**	**0.4**	**0.8**	**0.9**	**1.6**	**0.6**	**2.2**	**3.6**	**5.2**	**2.1**	**-**	**11.0**	**9.1**	**-**	**1.0**	**1.1**	**0.09**	**0.10**	**1.2**	*C40-41*
Melanoma of skin	3	0	-	-	-	-	-	-	-	-	-	-	0.7	-	-	2.1	3.5	-	-	-	0.1	0.1	0.00	0.03	**0.2**	*C43*
Other skin	*73*	*0*	-	-	*0.7*	-	-	*0.4*	-	*1.8*	*2.2*	*5.6*	*5.2*	*17.0*	*7.8*	*12.6*	*7.1*	*27.5*	*9.1*	*117.4*	*2.5*	*2.6*	*0.20*	*0.30*	*3.3*	*C44*
Mesothelioma	**1**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.5**	**-**	**-**	**-**	**0.0**	**0.0**	**0.00**	**0.02**	**0.1**	*C45*
Kaposi sarcoma	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**0.0**	**0.00**	**0.00**	**0.0**	*C46*
Connective and soft tissue	**28**	**0**	**0.4**	**-**	**0.7**	**-**	**3.4**	**0.4**	**0.8**	**-**	**0.5**	**0.6**	**-**	**1.8**	**3.9**	**4.2**	**7.1**	**11.0**	**-**	**-**	**1.0**	**1.0**	**0.06**	**0.12**	**1.1**	*C47,C49*
Breast	15	0	-	-	-	-	-	-	-	-	1.1	1.2	2.2	1.8	2.6	2.1	-	16.5	-	-	0.5	0.5	0.04	0.06	**0.7**	*C50*
Penis	**57**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**1.5**	**3.7**	**2.2**	**0.6**	**7.4**	**7.2**	**7.8**	**18.8**	**7.1**	**11.0**	**27.3**	**-**	**2.0**	**2.1**	**0.15**	**0.28**	**2.4**	*C60*
Prostate	**33**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.5**	**1.8**	**2.6**	**10.5**	**17.7**	**43.9**	**18.2**	**117.4**	**1.1**	**1.2**	**0.03**	**0.17**	**2.0**	*C61*
Testis	**14**	**0**	**-**	**-**	**-**	**0.4**	**-**	**0.7**	**0.4**	**0.5**	**3.3**	**-**	**1.5**	**0.9**	**-**	**-**	**-**	**-**	**-**	**-**	**0.5**	**0.5**	**0.04**	**0.04**	**0.5**	*C62*
Other male genital organs	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**0.0**	**0.00**	**0.00**	**0.0**	*C63*
Kidney	25	0	0.7	-	-	-	-	-	0.4	-	1.1	0.6	0.7	3.6	11.7	4.2	7.1	5.5	-	-	0.9	0.9	0.09	0.15	**1.2**	*C64*
Renal pelvis	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C65*
Ureter	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C66*
Bladder	*53*	*0*	-	-	-	-	-	*0.4*	*0.8*	*2.3*	*2.2*	*1.2*	*1.5*	*7.2*	*5.2*	*10.5*	*10.6*	*54.9*	*18.2*	*83.9*	*1.8*	*1.9*	*0.10*	*0.21*	*2.6*	*C67*
Other urinary organs	2	0	-	-	-	-	-	-	0.4	-	-	-	-	-	-	2.1	-	-	-	-	0.1	0.1	0.00	0.01	**0.1**	*C68*
Eye	**5**	**0**	**1.1**	**-**	**-**	**-**	**-**	**-**	**0.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.5**	**-**	**-**	**-**	**0.2**	**0.2**	**0.01**	**0.02**	**0.2**	*C69*
Brain, nervous system	***36***	***0***	-	-	***1.8***	***1.9***	***0.8***	***1.1***	***0.4***	***1.4***	***1.6***	***0.6***	***3.0***	***0.9***	***3.9***	***4.2***	-	***5.5***	***9.1***	***16.8***	***1.2***	***1.3***	***0.09***	***0.11***	***1.4***	*C70-72*
Thyroid	**12**	**0**	**-**	**-**	**-**	**-**	**0.4**	**-**	**1.9**	**-**	**-**	**3.1**	**-**	**-**	**-**	**2.1**	**-**	**-**	**-**	**-**	**0.4**	**0.4**	**0.03**	**0.04**	**0.4**	*C73*
Adrenal gland	**2**	**0**	**0.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.5**	**-**	**-**	**-**	**0.1**	**0.1**	**0.00**	**0.02**	**0.1**	*C74*
Other endocrine	**4**	**0**	**0.4**	**-**	**-**	**-**	**-**	**0.4**	**-**	**-**	**1.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1**	**0.1**	**0.01**	**0.01**	**0.1**	*C75*
Hodgkin disease	5	0	-	-	-	0.4	0.4	-	-	-	-	1.2	-	-	1.3	-	-	-	-	-	0.2	0.2	0.02	0.02	**0.2**	*C81*
Non-Hodgkin lymphoma	96	0	1.1	1.1	1.4	3.1	3.0	3.0	2.7	2.3	2.7	4.3	5.9	10.7	5.2	12.6	17.7	-	9.1	33.5	3.3	3.5	0.23	0.38	**3.7**	*C82-85,C96*
Immunoproliferative diseases	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C88*
Multiple myeloma	4	0	-	-	-	-	-	-	-	-	-	-	0.7	-	2.6	-	-	-	-	16.8	0.1	0.1	0.02	0.02	**0.2**	*C90*
Lymphoid leukaemia	**1**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.9**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**0.0**	**0.00**	**0.00**	**0.0**	*C91*
Myeloid leukaemia	**36**	**0**	**0.4**	**0.4**	**0.4**	**1.2**	**0.4**	**1.5**	**2.3**	**3.2**	**0.5**	**1.9**	**1.5**	**0.9**	**2.6**	**2.1**	**-**	**5.5**	**9.1**	**-**	**1.2**	**1.3**	**0.08**	**0.10**	**1.2**	*C92-94*
Leukaemia unspecified	**47**	**0**	**1.8**	**2.1**	**2.5**	**2.7**	**0.4**	**2.2**	**1.2**	**0.9**	**-**	**2.5**	**1.5**	**0.9**	**1.3**	**4.2**	**-**	**-**	**-**	**-**	**1.6**	**1.7**	**0.10**	**0.12**	**1.7**	*C95*
Myeloproliferative disorders	***1***	***0***	-	-	-	-	-	-	-	***0.5***	-	-	-	-	-	-	-	-	-	-	***0.0***	***0.0***	***0.00***	***0.00***	***0.0***	*MPD*
Myelodysplastic syndromes	***3***	***0***	-	-	-	-	-	-	-	-	-	-	-	-	***1.3***	***2.1***	-	***5.5***	-	-	***0.1***	***0.1***	***0.01***	***0.02***	***0.2***	*MDS*
Other and unspecified	93	0	0.4	-	1.8	2.3	0.4	1.8	1.5	0.9	2.2	3.7	3.7	12.5	13.0	18.8	28.4	33.0	9.1	100.6	3.2	3.4	0.22	0.46	**4.3**	*O&U*
All sites	**2835**	**0**	**6.7**	**4.7**	**9.7**	**15.9**	**16.3**	**19.2**	**46.5**	**58.2**	**103.0**	**151.8**	**202.4**	**352.6**	**481.0**	**667.6**	**862.3**	**1109.6**	**836.2**	**1056.5**	**97.9**		**7.34**	**14.99**	**129.3**	*ALL*
All sites but C44	2762	0	6.7	4.7	8.9	15.9	16.3	18.8	46.5	56.4	100.8	146.3	197.3	335.6	473.2	655.0	855.2	1082.1	827.1	939.1	95.4	100.0	7.14	14.69	**125.9**	*ALLbC44*

, Reference population: World Standard Population

Table builtWed Apr 27 20:41:42 MMT 2022 by CanReg5.

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

5.2 Incidence per 100,000 age group (Female)

Nay Pyi Taw Cancer Registry (2013-2017)

NPT_2013

Incidence per 100,000 by age group (Period) - Female

SITE	ALL AGES	AGE UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	CRUDE RATE	(%)	CUM 0-64	CUM 0-74	ASR	ICD (10th)
Lip	2	0	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	2.4	-	-	-	0.1	0.1	0.00	0.02	**0.1**	*C00*
Tongue	20	0	-	-	-	-	0.4	0.3	0.4	-	-	1.7	0.7	3.2	5.3	1.6	7.3	-	-	-	0.7	0.7	0.06	0.10	**0.7**	*C01-02*
Mouth	59	0	0.4	-	0.4	-	0.4	1.0	1.5	1.8	1.0	5.6	2.6	2.4	8.5	10.9	7.3	10.1	4.9	30.3	1.9	1.9	0.13	0.22	**2.1**	*C03-06*
Salivary glands	4	0	-	-	-	-	-	-	-	-	0.5	0.6	0.7	0.8	-	-	-	-	-	-	0.1	0.1	0.01	0.01	**0.1**	*C07-08*
Tonsil	9	0	-	-	-	-	-	-	-	-	-	1.1	-	1.6	1.1	-	9.7	-	-	-	0.3	0.3	0.02	0.07	**0.4**	*C09*
Other oropharynx	7	0	-	-	-	-	-	-	-	-	-	0.6	-	-	1.1	6.2	2.4	-	-	-	0.2	0.2	0.01	0.05	**0.3**	*C10*
Nasopharynx	15	0	-	-	0.4	-	0.7	-	-	-	1.0	1.1	0.7	-	4.3	1.6	4.9	-	-	-	0.5	0.5	0.04	0.07	**0.6**	*C11*
Hypopharynx	14	0	-	-	-	-	-	-	-	-	0.5	1.1	0.7	-	3.2	7.8	2.4	-	4.9	-	0.5	0.5	0.03	0.08	**0.6**	*C12-13*
Pharynx unspecified	4	0	-	-	-	-	-	-	-	-	-	0.6	0.7	-	-	-	2.4	3.4	-	-	0.1	0.1	0.01	0.02	**0.1**	*C14*
Oesophagus	58	0	-	-	-	-	-	0.3	0.4	0.4	0.5	1.7	3.3	12.6	3.2	6.2	17.0	40.5	19.5	-	1.9	1.9	0.11	0.23	**2.0**	*C15*
Stomach	216	0	-	-	-	0.4	-	1.4	3.4	5.3	9.1	9.5	15.8	18.1	29.8	54.5	38.8	54.0	48.7	22.7	7.1	7.1	0.46	0.93	**7.8**	*C16*
Small intestine	14	0	-	-	-	-	-	-	0.4	0.9	0.5	0.6	2.0	0.8	3.2	-	2.4	3.4	-	-	0.5	0.5	0.04	0.05	**0.5**	*C17*
Colon	105	0	-	-	-	-	0.7	1.7	0.7	3.1	3.5	2.8	3.9	14.2	10.7	24.9	14.6	27.0	34.1	45.4	3.4	3.4	0.21	0.40	**3.7**	*C18*
Rectum	82	0	-	-	0.4	0.4	0.4	0.3	3.4	3.5	2.0	3.3	5.9	13.4	8.5	9.3	7.3	13.5	9.7	15.1	2.7	2.7	0.21	0.29	**2.7**	*C19-20*
Anus	8	0	-	-	-	-	-	-	0.7	-	-	-	0.7	1.6	1.1	-	-	3.4	4.9	-	0.3	0.3	0.02	0.02	**0.2**	*C21*
Liver	190	0	0.4	-	0.4	-	-	1.0	1.9	3.5	3.0	12.3	11.8	22.1	28.8	43.6	31.5	60.7	43.8	22.7	6.2	6.2	0.43	0.80	**6.9**	*C22*
Gallbladder etc.	27	0	-	-	-	-	0.4	0.3	-	0.9	0.5	0.6	-	3.2	6.4	6.2	4.9	6.7	4.9	15.1	0.9	0.9	0.06	0.12	**1.0**	*C23-24*
Pancreas	31	0	-	-	-	-	-	0.3	0.4	0.4	1.5	2.2	2.0	1.6	7.5	6.2	7.3	-	4.9	7.6	1.0	1.0	0.08	0.15	**1.2**	*C25*
Nose, sinuses etc.	21	0	0.4	-	-	-	0.4	0.3	-	0.9	0.5	1.1	2.0	2.4	3.2	1.6	-	3.4	4.9	7.6	0.7	0.7	0.06	0.06	**0.7**	*C30-31*
Larynx	55	0	-	-	-	-	-	0.3	0.7	0.4	1.0	1.7	5.9	3.9	8.5	14.0	17.0	13.5	4.9	22.7	1.8	1.8	0.11	0.27	**2.1**	*C32*
Trachea, bronchus and lung	321	0	-	-	-	-	0.4	1.0	2.2	1.3	6.6	9.5	20.4	34.7	49.0	95.0	92.2	91.1	102.3	75.7	10.5	10.5	0.63	1.56	**12.1**	*C33-34*
Other thoracic organs	4	0	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	7.3	-	-	-	0.1	0.1	0.00	0.04	**0.2**	*C37-38*
Bone	37	0	-	-	1.5	1.2	1.1	1.0	0.4	2.2	0.5	0.6	3.9	2.4	2.1	4.7	-	-	4.9	7.6	1.2	1.2	0.08	0.11	**1.2**	*C40-41*
Melanoma of skin	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	-	0.0	0.0	0.00	0.00	**0.0**	*C43*
Other skin	*61*	*0*	-	-	-	*0.8*	-	-	*0.4*	*1.3*	*0.5*	*2.8*	*5.9*	*5.5*	*9.6*	*7.8*	*19.4*	*10.1*	*14.6*	*37.8*	*2.0*	*2.0*	*0.13*	*0.27*	***2.3***	*C44*
Mesothelioma	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C45*
Kaposi sarcoma	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C46*
Connective and soft tissue	23	0	0.4	-	-	0.4	-	1.0	1.1	0.4	1.5	1.1	1.3	3.2	2.1	1.6	-	-	-	-	0.8	0.8	0.06	0.07	**0.7**	*C47,C49*
Breast	661	0	-	-	-	-	-	3.8	8.2	22.8	49.6	66.9	79.5	61.4	75.7	59.2	63.1	47.2	24.4	37.8	21.6	21.6	1.84	2.45	**22.4**	*C50*
Vulva	13	0	-	-	-	-	-	-	0.4	1.3	-	-	2.0	0.8	-	6.2	-	3.4	-	-	0.4	0.4	0.02	0.05	**0.5**	*C51*
Vagina	11	0	-	-	-	-	-	-	0.4	-	-	1.1	-	-	1.1	4.7	7.3	3.4	-	-	0.4	0.4	0.01	0.07	**0.5**	*C52*
Cervix uteri	406	0	-	-	-	-	-	-	3.4	15.8	22.2	34.6	38.8	55.1	55.4	46.7	60.6	40.5	19.5	22.7	13.3	13.3	1.13	1.66	**14.1**	*C53*
Corpus uteri	57	0	-	-	-	-	-	0.3	0.7	0.4	1.5	2.8	2.6	11.0	10.7	12.5	7.3	13.5	4.9	7.6	1.9	1.9	0.15	0.25	**2.1**	*C54*
Uterus unspecified	12	0	-	-	-	-	-	-	0.4	0.4	-	0.6	2.0	1.6	2.1	1.6	-	-	-	7.6	0.4	0.4	0.04	0.04	**0.4**	*C55*
Ovary	*136*	*0*	-	*0.4*	*1.1*	*2.7*	*2.5*	*1.4*	*2.6*	*3.1*	*7.1*	*11.7*	*10.5*	*15.8*	*19.2*	*10.9*	*7.3*	-	*4.9*	-	*4.4*	*4.5*	*0.39*	*0.48*	***4.6***	*C56*
Other female genital organs	1	0	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C57*
Placenta	60	0	-	-	-	1.2	4.4	2.1	3.7	3.9	4.0	5.6	1.3	-	-	-	-	-	-	-	2.0	2.0	0.13	0.13	**1.7**	*C58*
Kidney	14	0	-	-	-	-	0.4	-	-	-	1.0	-	1.3	-	3.2	4.7	4.9	3.4	-	-	0.5	0.5	0.03	0.08	**0.6**	*C64*
Renal pelvis	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C65*
Ureter	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C66*
Bladder	*25*	*0*	-	-	-	-	-	-	-	-	-	-	*5.3*	-	*3.2*	*9.3*	*9.7*	*10.1*	*4.9*	-	*0.8*	*0.8*	*0.04*	*0.14*	***1.0***	*C67*
Other urinary organs	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C68*
Eye	5	0	0.7	0.4	-	-	0.4	-	-	-	-	0.6	-	-	-	-	-	-	-	-	0.2	0.2	0.01	0.01	**0.2**	*C69*
Brain, nervous system	*35*	*0*	-	*0.7*	*0.4*	*0.4*	*1.1*	*0.7*	*1.5*	-	*2.0*	*0.6*	*3.9*	*1.6*	*3.2*	*4.7*	-	*3.4*	*4.9*	*7.6*	*1.1*	*1.1*	*0.08*	*0.10*	***1.2***	*C70-72*
Thyroid	35	0	-	-	-	-	1.5	1.7	0.4	3.5	2.0	2.8	1.3	3.2	1.1	-	-	-	4.9	-	1.1	1.1	0.09	0.09	**1.0**	*C73*
Adrenal gland	3	0	0.7	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.01	0.01	**0.1**	*C74*
Other endocrine	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C75*
Hodgkin disease	8	0	-	-	-	0.4	-	-	0.4	1.3	-	-	-	-	2.1	1.6	-	-	-	-	0.3	0.3	0.02	0.03	**0.3**	*C81*
Non-Hodgkin lymphoma	62	0	1.4	0.7	1.5	0.8	1.5	1.4	2.2	0.9	2.0	1.7	1.3	7.1	6.4	7.8	4.9	6.7	4.9	-	2.0	2.0	0.14	0.21	**2.1**	*C82-85,C96*
Immunoproliferative diseases	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	**0.0**	*C88*
Multiple myeloma	8	0	-	-	-	-	-	-	-	0.4	-	0.6	-	-	1.1	4.7	2.4	-	-	7.6	0.3	0.3	0.01	0.05	**0.3**	*C90*
Lymphoid leukaemia	3	0	-	0.4	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	7.6	0.1	0.1	0.01	0.01	**0.1**	*C91*
Myeloid leukaemia	27	0	1.4	0.7	-	1.2	0.4	0.3	0.7	1.3	-	1.7	3.3	0.8	1.1	-	-	3.4	-	-	0.9	0.9	0.06	0.06	**0.9**	*C92-94*
Leukaemia unspecified	40	0	1.4	1.1	1.1	2.0	1.5	1.7	0.7	0.9	2.0	-	2.0	1.6	1.1	-	-	3.4	-	7.6	1.3	1.3	0.09	0.09	**1.3**	*C95*
Myeloproliferative disorders	*0*	*0*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.0*	*0.0*	*0.00*	*0.00*	***0.0***	*MPD*
Myelodysplastic syndromes	*2*	*0*	-	-	-	-	-	-	-	-	-	-	-	-	-	*1.6*	-	*3.4*	-	-	*0.1*	*0.1*	*0.00*	*0.01*	***0.1***	*MDS*
Other and unspecified	105	0	0.7	0.4	0.4	1.2	1.1	1.0	2.2	1.8	3.5	5.6	4.6	14.2	9.6	15.6	19.4	23.6	14.6	22.7	3.4	3.4	0.23	0.41	**3.7**	*O&U*
All sites	3117	0	7.9	4.7	7.4	12.9	19.2	25.8	46.4	84.0	131.5	198.6	250.3	322.9	393.3	496.6	485.0	505.9	404.3	438.9	102.0		7.52	12.43	**109.5**	*ALL*
All sites but C44	3056	0	7.9	4.7	7.4	12.1	19.2	25.8	46.0	82.7	131.0	195.8	244.4	317.4	383.7	488.8	465.6	495.8	389.7	401.0	100.0	100.0	7.39	12.16	**107.3**	*ALLbC44*

, Reference population: World Standard Population

Table builtWed Apr 27 20:41:42 MMT 2022 by CanReg5.

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

5.3 Cases by age group (Male)

Nay Pyi Taw Cancer Registry (2013-2017)

NPT_2013

Cases by age group (Period) - Male

SITE	ALL AGES	AGE UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	(%)	ICD (10th)
Lip	4	0	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	0.1	C00
Tongue	82	0	-	-	-	-	-	-	2	1	5	7	19	18	8	10	8	2	-	2	3.0	C01-02
Mouth	159	0	-	1	-	-	3	3	9	15	21	27	19	16	17	12	5	4	6	1	5.8	C03-06
Salivary glands	8	0	-	-	-	-	-	1	-	-	1	-	1	1	1	1	-	2	-	-	0.3	C07-08
Tonsil	11	0	-	-	-	1	-	-	-	-	1	2	1	1	2	-	1	2	-	-	0.4	C09
Other oropharynx	27	0	-	-	-	-	-	-	-	1	1	2	2	6	5	4	4	-	1	1	1.0	C10
Nasopharynx	18	0	-	1	-	1	1	-	2	1	-	2	3	3	2	2	-	-	-	-	0.7	C11
Hypopharynx	53	0	1	-	-	-	-	-	2	4	1	5	7	6	9	5	4	4	3	2	1.9	C12-13
Pharynx unspecified	6	0	-	-	-	-	-	-	-	-	1	-	1	3	1	-	-	-	-	-	0.2	C14
Oesophagus	**141**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**8**	**4**	**5**	**17**	**22**	**19**	**17**	**15**	**31**	**2**	**-**	**5.1**	**C15**
Stomach	**251**	**0**	**-**	**-**	**-**	**-**	**-**	**2**	**6**	**7**	**21**	**23**	**30**	**26**	**47**	**39**	**23**	**11**	**10**	**6**	**9.1**	**C16**
Small intestine	**7**	**0**	**-**	**-**	**1**	**-**	**1**	**-**	**-**	**-**	**-**	**1**	**-**	**1**	**1**	**1**	**1**	**-**	**-**	**-**	**0.3**	**C17**
Colon	**101**	**0**	**-**	**-**	**-**	**1**	**1**	**-**	**6**	**4**	**11**	**8**	**10**	**7**	**11**	**16**	**10**	**9**	**4**	**3**	**3.7**	**C18**
Rectum	**103**	**0**	**-**	**-**	**-**	**-**	**1**	**3**	**9**	**12**	**2**	**16**	**11**	**8**	**9**	**10**	**12**	**3**	**5**	**2**	**3.7**	**C19-20**
Anus	**5**	**0**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**0.2**	**C21**
Liver	**419**	**0**	**-**	**-**	**-**	**-**	**6**	**6**	**27**	**25**	**44**	**53**	**40**	**61**	**56**	**38**	**29**	**22**	**9**	**3**	**15.2**	**C22**
Gallbladder etc.	**21**	**0**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**2**	**2**	**2**	**2**	**1**	**3**	**2**	**1**	**3**	**-**	**0.8**	**C23-24**
Pancreas	**24**	**0**	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**2**	**1**	**6**	**4**	**2**	**3**	**3**	**-**	**-**	**-**	**0.9**	**C25**
Nose, sinuses etc.	22	0	-	-	-	3	-	-	2	3	-	1	1	4	4	-	3	-	1	-	0.8	C30-31
Larynx	182	0	-	-	-	-	3	-	3	1	10	15	20	31	41	12	17	20	8	1	6.6	C32
Trachea, bronchus and lung	512	0	-	-	-	-	1	2	8	5	19	29	30	90	75	91	73	49	27	13	18.5	C33-34
Other thoracic organs	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	C37-38
Bone	**30**	**0**	**-**	**1**	**-**	**4**	**1**	**1**	**2**	**2**	**3**	**1**	**3**	**4**	**4**	**1**	**-**	**2**	**1**	**-**	**1.1**	**C40-41**
Melanoma of skin	3	0	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	0.1	C43
Other skin	*73*	*0*	-	-	*2*	-	-	*1*	-	*4*	*4*	*9*	*7*	*19*	*6*	*6*	*2*	*5*	*1*	*7*	*2.6*	C44
Mesothelioma	**1**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**0.0**	**C45**
Kaposi sarcoma	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**C46**
Connective and soft tissue	**28**	**0**	**1**	**-**	**2**	**-**	**9**	**1**	**2**	**-**	**1**	**1**	**-**	**2**	**3**	**2**	**2**	**2**	**-**	**-**	**1.0**	**C47,C49**
Breast	15	0	-	-	-	-	-	-	-	-	2	2	3	2	2	1	-	3	-	-	0.5	C50
Penis	**57**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**8**	**4**	**1**	**10**	**8**	**6**	**9**	**2**	**2**	**3**	**-**	**2.1**	**C60**
Prostate	**33**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**	**5**	**5**	**8**	**2**	**7**	**1.2**	**C61**
Testis	**14**	**0**	**-**	**-**	**-**	**1**	**-**	**2**	**1**	**1**	**6**	**-**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**0.5**	**C62**
Other male genital organs	**0**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**C63**
Kidney	25	0	2	-	-	-	-	-	1	-	2	1	1	4	9	2	2	1	-	-	0.9	C64
Renal pelvis	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	C65
Ureter	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	C66
Bladder	*53*	*0*	-	-	-	-	-	*1*	*2*	*5*	*4*	*2*	*2*	*8*	*4*	*5*	*3*	*10*	*2*	*5*	*1.9*	C67
Other urinary organs	2	0	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	0.1	C68
Eye	**5**	**0**	**3**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**0.2**	**C69**
Brain, nervous system	*36*	*0*	-	-	*5*	*5*	*2*	*3*	*1*	*3*	*3*	*1*	*4*	*1*	*3*	*2*	-	*1*	*1*	*1*	*1.3*	C70-72
Thyroid	**12**	**0**	**-**	**-**	**-**	**-**	**1**	**-**	**5**	**-**	**-**	**5**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**0.4**	**C73**
Adrenal gland	**2**	**0**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**0.1**	**C74**
Other endocrine	**4**	**0**	**1**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1**	**C75**
Hodgkin disease	5	0	-	-	-	1	1	-	-	-	-	2	-	-	1	-	-	-	-	-	0.2	C81
Non-Hodgkin lymphoma	96	0	3	3	4	8	8	8	7	5	5	7	8	12	4	6	5	-	1	2	3.5	C82-85,C96
Immunoproliferative diseases	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	C88
Multiple myeloma	4	0	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	1	0.1	C90
Lymphoid leukaemia	**1**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0**	**C91**
Myeloid leukaemia	**36**	**0**	**1**	**1**	**1**	**3**	**1**	**4**	**6**	**7**	**1**	**3**	**2**	**1**	**2**	**1**	**-**	**1**	**1**	**-**	**1.3**	**C92-94**
Leukaemia unspecified	**47**	**0**	**5**	**6**	**7**	**7**	**1**	**6**	**3**	**2**	**-**	**4**	**2**	**1**	**1**	**2**	**-**	**-**	**-**	**-**	**1.7**	**C95**
Myeloproliferative disorders	*1*	*0*	-	-	-	-	-	-	-	*1*	-	-	-	-	-	-	-	-	-	-	*0.0*	*MPD*
Myelodysplastic syndromes	*3*	*0*	-	-	-	-	-	-	-	-	-	-	-	-	*1*	*1*	-	*1*	-	-	*0.1*	*MDS*
Other and unspecified	93	0	1	-	5	6	1	5	4	2	4	6	5	14	10	9	8	6	1	6	3.4	O&U
All sites	**2835**	**0**	**19**	**13**	**27**	**41**	**43**	**52**	**121**	**127**	**188**	**246**	**274**	**394**	**371**	**319**	**243**	**202**	**92**	**63**		**ALL**
All sites but C44	2762	0	19	13	25	41	43	51	121	123	184	237	267	375	365	313	241	197	91	56	100.0	ALLbC44

Table builtWed May 04 14:10:54 MMT 2022 by CanReg5.

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

5.4 Cases by age group (Female)

Nay Pyi Taw Cancer Registry (2013-2017)

NPT_2013

Cases by age group (Period) - Female

SITE	ALL AGES	AGE UNK	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	(%)	ICD (10th)
Lip	2	0	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	0.1	*C00*
Tongue	20	0	-	-	-	-	1	1	1	-	-	3	1	4	5	1	3	-	-	-	0.7	*C01-02*
Mouth	59	0	1	-	1	-	1	3	4	4	2	10	4	3	8	7	3	3	1	4	1.9	*C03-06*
Salivary glands	4	0	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	0.1	*C07-08*
Tonsil	9	0	-	-	-	-	-	-	-	-	-	2	-	2	1	-	4	-	-	-	0.3	*C09*
Other oropharynx	7	0	-	-	-	-	-	-	-	-	-	1	-	-	1	4	1	-	-	-	0.2	*C10*
Nasopharynx	15	0	-	-	1	-	2	-	-	-	2	2	1	-	4	1	2	-	-	-	0.5	*C11*
Hypopharynx	14	0	-	-	-	-	-	-	-	-	1	2	1	-	3	5	1	-	1	-	0.5	*C12-13*
Pharynx unspecified	4	0	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	-	-	0.1	*C14*
Oesophagus	**58**	**0**	-	-	-	-	-	1	1	1	1	3	5	16	3	4	7	12	4	-	1.9	*C15*
Stomach	**216**	**0**	-	-	-	1	-	4	9	12	18	17	24	23	28	35	16	16	10	3	7.1	*C16*
Small intestine	**14**	**0**	-	-	-	-	-	-	1	2	1	1	3	1	3	-	1	1	-	-	0.5	*C17*
Colon	**105**	**0**	-	-	-	-	2	5	2	7	7	5	6	18	10	16	6	8	7	6	3.4	*C18*
Rectum	**82**	**0**	-	-	1	1	1	1	9	8	4	6	9	17	8	6	3	4	2	2	2.7	*C19-20*
Anus	**8**	**0**	-	-	-	-	-	-	2	-	-	-	1	2	1	-	-	1	1	-	0.3	*C21*
Liver	**190**	**0**	1	-	1	-	-	3	5	8	6	22	18	28	27	28	13	18	9	3	6.2	*C22*
Gallbladder etc.	**27**	**0**	-	-	-	-	1	1	-	2	1	1	-	4	6	4	2	2	1	2	0.9	*C23-24*
Pancreas	**31**	**0**	-	-	-	-	-	1	1	1	3	4	3	2	7	4	3	-	1	1	1.0	*C25*
Nose, sinuses etc.	21	0	1	-	-	-	1	1	-	2	1	2	3	3	3	1	-	1	1	1	0.7	*C30-31*
Larynx	55	0	-	-	-	-	-	1	2	1	2	3	9	5	8	9	7	4	1	3	1.8	*C32*
Trachea, bronchus and lung	321	0	-	-	-	-	1	3	6	3	13	17	31	44	46	61	38	27	21	10	10.5	*C33-34*
Other thoracic organs	4	0	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	0.1	*C37-38*
Bone	**37**	**0**	-	-	4	3	3	3	1	5	1	1	6	3	2	3	-	-	1	1	1.2	*C40-41*
Melanoma of skin	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	0.0	*C43*
Other skin	*61*	*0*	-	-	-	*2*	-	-	*1*	*3*	*1*	*5*	*9*	*7*	*9*	*5*	*8*	*3*	*3*	*5*	*2.0*	*C44*
Mesothelioma	**0**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C45*
Kaposi sarcoma	**0**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C46*
Connective and soft tissue	**23**	**0**	1	-	-	1	-	3	3	1	3	2	2	4	2	1	-	-	-	-	0.8	*C47,C49*
Breast	661	0	-	-	-	-	-	11	22	52	98	120	121	78	71	38	26	14	5	5	21.6	*C50*
Vulva	**13**	**0**	-	-	-	-	-	-	1	3	-	-	3	1	-	4	-	1	-	-	0.4	*C51*
Vagina	**11**	**0**	-	-	-	-	-	-	1	-	-	2	-	-	1	3	3	1	-	-	0.4	*C52*
Cervix uteri	**406**	**0**	-	-	-	-	-	-	9	36	44	62	59	70	52	30	25	12	4	3	13.3	*C53*
Corpus uteri	**57**	**0**	-	-	-	-	-	1	2	1	3	5	4	14	10	8	3	4	1	1	1.9	*C54*
Uterus unspecified	**12**	**0**	-	-	-	-	-	-	1	1	-	1	3	2	2	1	-	-	-	1	0.4	*C55*
Ovary	*136*	*0*	-	*1*	*3*	*7*	*7*	*4*	*7*	*7*	*14*	*21*	*16*	*20*	*18*	*7*	*3*	-	*1*	-	*4.5*	*C56*
Other female genital organs	**1**	**0**	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C57*
Placenta	**60**	**0**	-	-	-	3	12	6	10	9	8	10	2	-	-	-	-	-	-	-	2.0	*C58*
Kidney	14	0	-	-	-	-	1	-	-	-	2	-	2	-	3	3	2	1	-	-	0.5	*C64*
Renal pelvis	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C65*
Ureter	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C66*
Bladder	*25*	*0*	-	-	-	-	-	-	-	-	-	-	*8*	-	*3*	*6*	*4*	*3*	*1*	-	*0.8*	*C67*
Other urinary organs	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C68*
Eye	**5**	**0**	2	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	0.2	*C69*
Brain, nervous system	*35*	*0*	-	*2*	*1*	*1*	*3*	*2*	*4*	-	*4*	*1*	*6*	*2*	*3*	*3*	-	*1*	*1*	*1*	*1.1*	*C70-72*
Thyroid	**35**	**0**	-	-	-	-	4	5	1	8	4	5	2	4	1	-	-	-	1	-	1.1	*C73*
Adrenal gland	**3**	**0**	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	0.1	*C74*
Other endocrine	**0**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C75*
Hodgkin disease	8	0	-	-	-	1	-	-	1	3	-	-	-	-	2	1	-	-	-	-	0.3	*C81*
Non-Hodgkin lymphoma	62	0	4	2	4	2	4	4	6	2	4	3	2	9	6	5	2	2	1	-	2.0	*C82-85,C96*
Immunoproliferative diseases	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	*C88*
Multiple myeloma	8	0	-	-	-	-	-	-	-	1	-	1	-	-	1	3	1	-	-	1	0.3	*C90*
Lymphoid leukaemia	**3**	**0**	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	0.1	*C91*
Myeloid leukaemia	**27**	**0**	4	2	-	3	1	1	2	3	-	3	5	1	1	-	-	1	-	-	0.9	*C92-94*
Leukaemia unspecified	**40**	**0**	4	3	3	5	4	5	2	2	4	-	3	2	1	-	-	1	-	1	1.3	*C95*
Myeloproliferative disorders	*0*	*0*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.0*	*MPD*
Myelodysplastic syndromes	*2*	*0*	-	-	-	-	-	-	-	-	-	-	-	-	-	*1*	-	*1*	-	-	*0.1*	*MDS*
Other and unspecified	105	0	2	1	1	3	3	3	6	4	7	10	7	18	9	10	8	7	3	3	3.4	*O&U*
All sites	**3117**	**0**	**22**	**13**	**20**	**33**	**53**	**74**	**124**	**192**	**260**	**356**	**381**	**410**	**369**	**319**	**200**	**150**	**83**	**58**		*ALL*
All sites but C44	3056	0	22	13	20	31	53	74	123	189	259	351	372	403	360	314	192	147	80	53	100.0	*ALLbC44*

Table builtWed May 04 14:10:54 MMT 2022 by CanReg5.

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

6. ACTIVITIES OF NAY PYI TAW CANCER REGISTRY

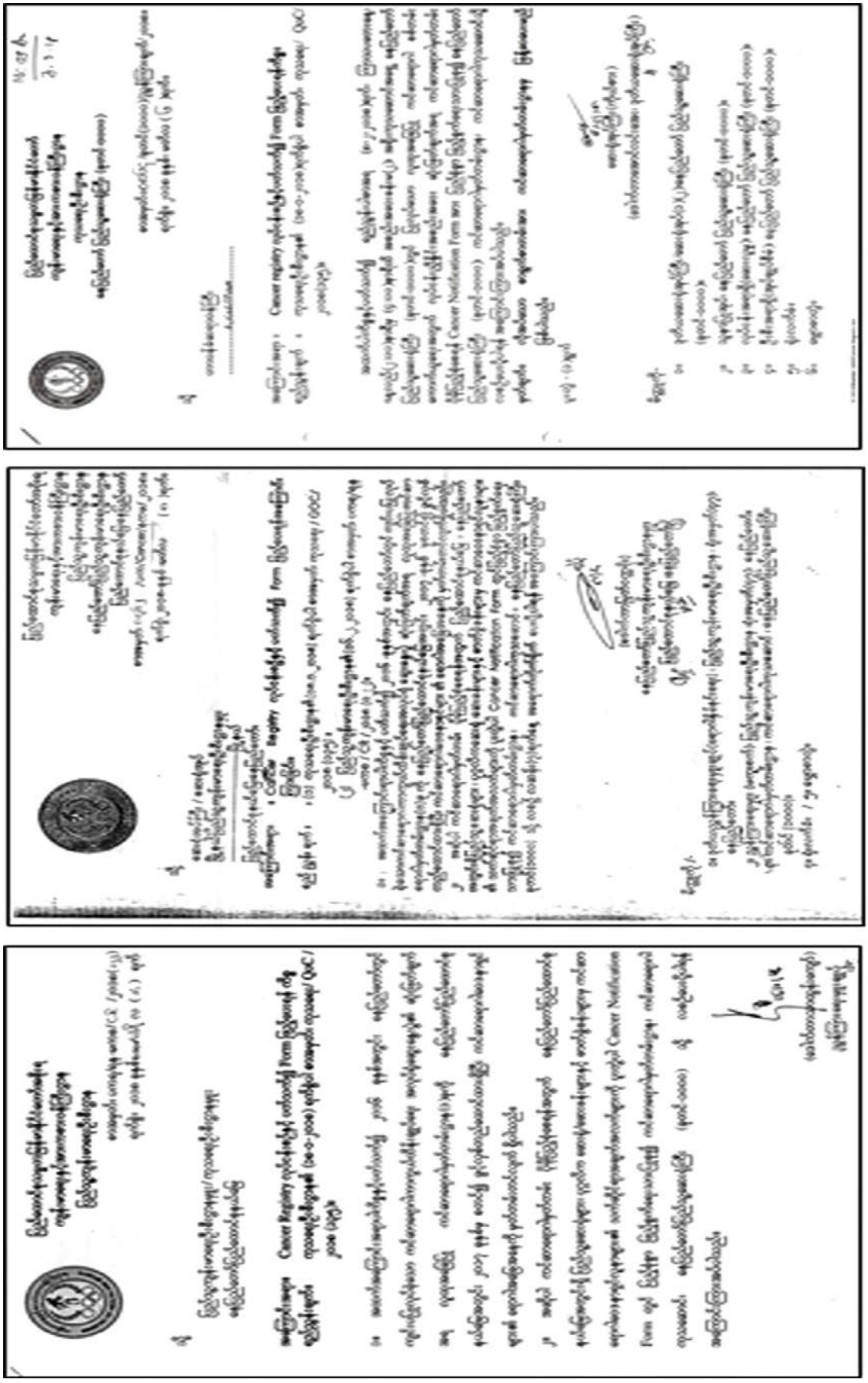

Figure 49- Administrative orders from MOHS, Local Government and Hospital for Compulsory Notification of Cancer Cases in NPT Union Territory

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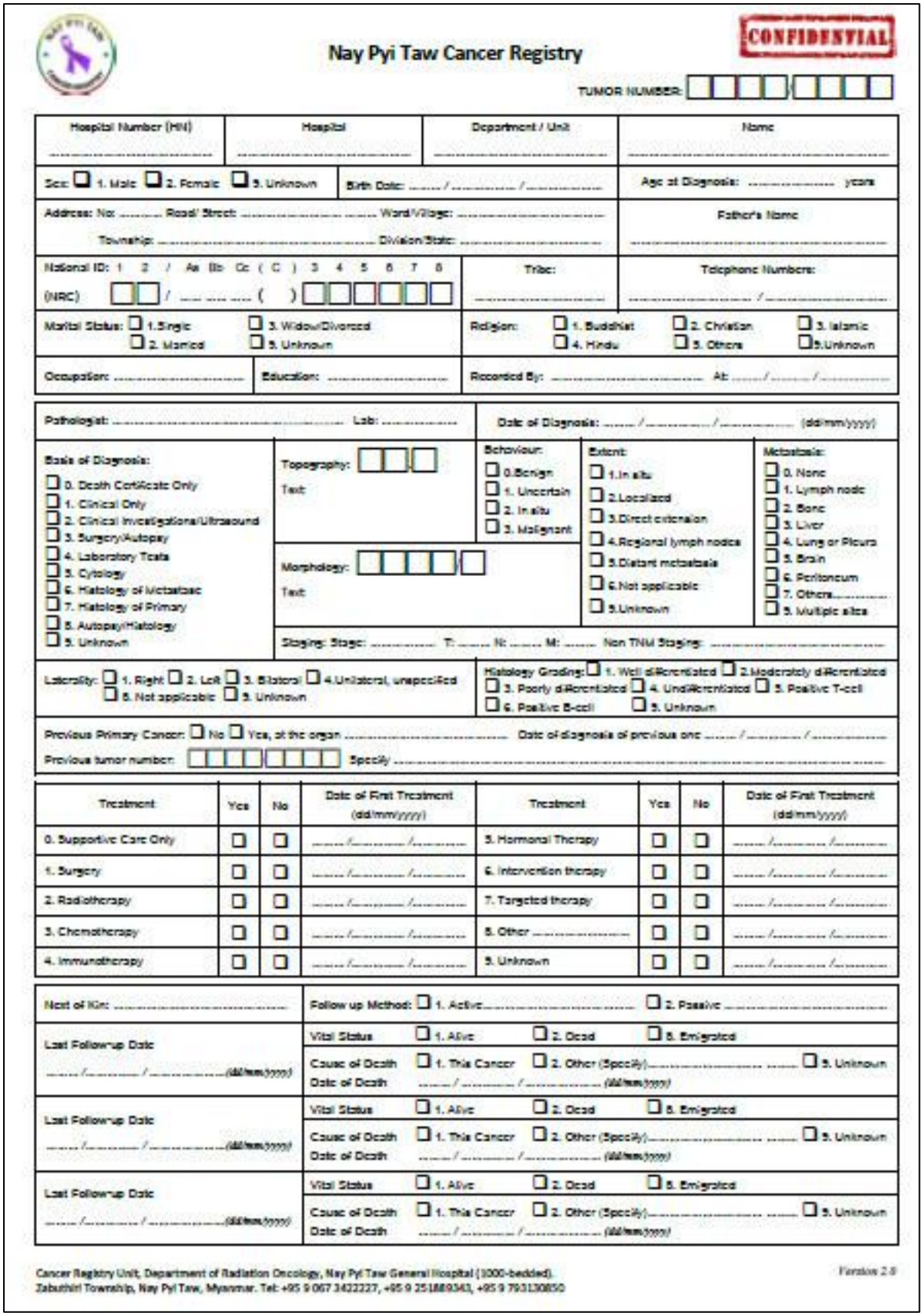

Nay Pyi Taw Cancer Registry

CONFIDENTIAL

TUMOR NUMBER: ☐☐☐☐☐☐☐

Hospital Number (HN)	Hospital	Department / Unit	Name
.....	.....	.....	.....

Sex: ☐ 1. Male ☐ 2. Female ☐ 9. Unknown | Birth Date: ...../...../..... | Age at Diagnosis: ..... years

Address: No: ..... Road/ Street: ..... Ward/Village: .....
Township: ..... Division/State: ..... | Father's Name: .....

National ID: 1 2 / Aa Bb Cc (C) 3 4 5 6 7 8
(NRC) ☐☐ / ..... ( ) ☐☐☐☐☐☐ | Tribe: ..... | Telephone Numbers: ..... / .....

Marital Status: ☐ 1.Single ☐ 2. Married ☐ 3. Widow/Divorced ☐ 9. Unknown | Religion: ☐ 1. Buddhist ☐ 2. Christian ☐ 3. Islamic ☐ 4. Hindu ☐ 5. Others ☐ 9.Unknown

Occupation: ..... | Education: ..... | Recorded By: ..... At: ...../...../.....

Pathologist: ..... Lab: ..... | Date of Diagnosis: ...../...../..... (dd/mm/yyyy)

Basis of Diagnosis:
☐ 0. Death Certificate Only
☐ 1. Clinical Only
☐ 2. Clinical Investigations/Ultrasound
☐ 3. Surgery/Autopsy
☐ 4. Laboratory Tests
☐ 5. Cytology
☐ 6. Histology of Metastasis
☐ 7. Histology of Primary
☐ 8. Autopsy/Histology
☐ 9. Unknown

Topography: ☐☐☐ Text:

Morphology: ☐☐☐☐/☐ Text:

Behaviour:
☐ 0.Benign
☐ 1. Uncertain
☐ 2. In situ
☐ 3. Malignant

Extent:
☐ 1.In situ
☐ 2.Localized
☐ 3.Direct extension
☐ 4.Regional lymph nodes
☐ 5.Distant metastasis
☐ 6.Not applicable
☐ 9.Unknown

Metastasis:
☐ 0. None
☐ 1. Lymph node
☐ 2. Bone
☐ 3. Liver
☐ 4. Lung or Pleura
☐ 5. Brain
☐ 6. Peritoneum
☐ 7. Others.....
☐ 9. Multiple sites

Staging: Stage: ..... T: ..... N: ..... M: ..... Non TNM Staging: .....

Laterality: ☐ 1. Right ☐ 2. Left ☐ 3. Bilateral ☐ 4.Unilateral, unspecified ☐ 6. Not applicable ☐ 9. Unknown

Histology Grading: ☐ 1. Well differentiated ☐ 2.Moderately differentiated ☐ 3. Poorly differentiated ☐ 4. Undifferentiated ☐ 5. Positive T-cell ☐ 6. Positive B-cell ☐ 9. Unknown

Previous Primary Cancer: ☐ No ☐ Yes, at the organ ..... Date of diagnosis of previous one ...../...../.....
Previous tumor number: ☐☐☐☐☐☐☐ Specify .....

Treatment	Yes	No	Date of First Treatment (dd/mm/yyyy)	Treatment	Yes	No	Date of First Treatment (dd/mm/yyyy)
0. Supportive Care Only	☐	☐	...../...../.....	5. Hormonal Therapy	☐	☐	...../...../.....
1. Surgery	☐	☐	...../...../.....	6. Intervention therapy	☐	☐	...../...../.....
2. Radiotherapy	☐	☐	...../...../.....	7. Targeted therapy	☐	☐	...../...../.....
3. Chemotherapy	☐	☐	...../...../.....	8. Other	☐	☐	...../...../.....
4. Immunotherapy	☐	☐	...../...../.....	9. Unknown	☐	☐	...../...../.....

Next of Kin: ..... | Follow up Method: ☐ 1. Active..... ☐ 2. Passive .....

Last Followup Date ...../...../..... (dd/mm/yyyy)
Vital Status ☐ 1. Alive ☐ 2. Dead ☐ 8. Emigrated
Cause of Death ☐ 1. This Cancer ☐ 2. Other (Specify)..... ☐ 9. Unknown
Date of Death ...../...../..... (dd/mm/yyyy)

Last Followup Date ...../...../..... (dd/mm/yyyy)
Vital Status ☐ 1. Alive ☐ 2. Dead ☐ 8. Emigrated
Cause of Death ☐ 1. This Cancer ☐ 2. Other (Specify)..... ☐ 9. Unknown
Date of Death ...../...../..... (dd/mm/yyyy)

Last Followup Date ...../...../..... (dd/mm/yyyy)
Vital Status ☐ 1. Alive ☐ 2. Dead ☐ 8. Emigrated
Cause of Death ☐ 1. This Cancer ☐ 2. Other (Specify)..... ☐ 9. Unknown
Date of Death ...../...../..... (dd/mm/yyyy)

Cancer Registry Unit, Department of Radiation Oncology, Nay Pyi Taw General Hospital (1000-bedded).
Zabuthiri Township, Nay Pyi Taw, Myanmar. Tel: +95 9 067 3422227, +95 9 251889343, +95 9 793130850

Version 2.0

Figure 50- Tumor registration card of Nay Pyi Taw Cancer Registry

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CODING SHEET - CANCER NOTIFICATION FORM

Nay Pyi Taw Cancer Registry

Cancer registry number: ☐☐☐☐ ☐☐☐☐

4 numbers for the year (YYYY) and 4 figures for the patient number

Age:

00 = children < 1 year old

From 01 to 98 = children or adult from 1 year to 98 years old

99 = not known (NK)

Date of Incidence: (Date of Diagnosis)

The date of the first event (of the six listed below) to occur chronologically should be chosen as incidence date. If an event of higher priority occurs within three months of the date initially chosen, the date of the higher priority event should take precedence.

Order of declining priority:

1. Date of first histological or cytological confirmation of this malignancy (with the exception of histology or cytology at autopsy). This date should be, in the following order:
   a) date when the specimen was taken (biopsy)
   b) date of receipt by the pathologist
   c) date of the pathology report.
2. Date of admission to the hospital because of this malignancy.
3. When evaluated at an outpatient clinic only: date of first consultation at the outpatient clinic because of this malignancy.
4. Date of diagnosis, other than 1, 2 or 3.
5. Date of death, if no information is available other than the fact that the patient has died because of a malignancy.
6. Date of death, if the malignancy is discovered at autopsy.

Whichever date is selected, the date of incidence should not be later than the date of the start of the treatment, or decision not to treat, or date of death

Basis of diagnosis:

Code	Description	Criteria
0	Death Certificate Only	Information provided is from a death certificate
1	Clinical	Diagnosis made before death, but without any of the following (codes 2-7)
2	Clinical investigations	All diagnostic techniques, including X-ray, ultrasound, imaging, endoscopy etc.
3	Surgery/Autopsy	Surgery/ Autopsy without histology
4	Laboratory test	Including biochemical and/or immunological investigations
5	Cytology	Examination of cells from a primary or secondary site, including fluids aspirated by endoscopy or needle; also includes the microscopic examination of peripheral blood and bone marrow aspirates.
6	Histology of metastasis	Histologic examination of tissue from a metastasis, including autopsy specimens.
7	Histology of primary	Histologic examination of tissue from primary tumor, however obtained, including all cutting techniques and bone marrow biopsies; also includes autopsy specimens of primary tumor.
8	Autopsy/Histology	Autopsy with histology
9	Unknown	Unknown

Non-microscopic = code 1,2,3,4. **Microscopic** = code 5,6,7,8.

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Behaviour:

Behaviour coding = ICD–O-3 coding reference book[1]

Laterality

Record for all paired organs, but as a minimum for breast, eye, ovary, testis, and kidney (but observe the multiple primary rules).

Primary site of the tumour: C☐☐.☐

Enter site of PRIMARY, not metastatic sites. If unknown, state so.
Topography coding = ICD–O– 3 coding reference book[1]

Morphology: M☐☐☐☐/☐

Morphology coding = ICD–O– 3 coding reference book[1]

Stage:

AJCAJCC codes as recorded (1,2A, 2B, 3A, 3B, 4)

TNM

When the stage/extent of the cancer is recorded in the clinical and/or pathological records according to the TNM system, these codes should be registered.

Record stage from pathology - pT (rather than cT) and pN (rather than cN), if they are available.

If there is any evidence (clinical or pathological) of metastatic disease, M is coded as **1.** If there is none, code as **M0**; if MX has been recorded, replace with **M0.**

Extent of disease as TNM is based upon all examinations carried out to plan treatment, plus surgery and pathological examination of respected specimen(s).

Examinations carried out post-surgery, but during the same hospital stay, are included.

In the absence of surgery, staging is based upon examinations carried out prior to medical treatment, or radiotherapy, or during the hospital stay when these treatments were started, or a decision made to withhold them.

The detection of metastatic disease **after** the first course of treatment (including during adjuvant treatment or hormonal therapy) does **NOT** change coding of extent of disease at diagnosis.

[1] IDC-O = International Classification of Disease for Oncology (Fritz A, Percy C, Jack A, Shanmugaratnam K, Sobin L, Parkin DM and S. Whelan S. International Classification of Diseases for Oncology. Third Edition. World Health Organization, Geneva, Switzerland, 2000).

Figure 51 - Coding Sheet

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7. Photos of Major events and main activities of Nay Pyi Taw Cancer Registry

Photo 1- Cancer Registry Training at Department of Medical Research in 2014

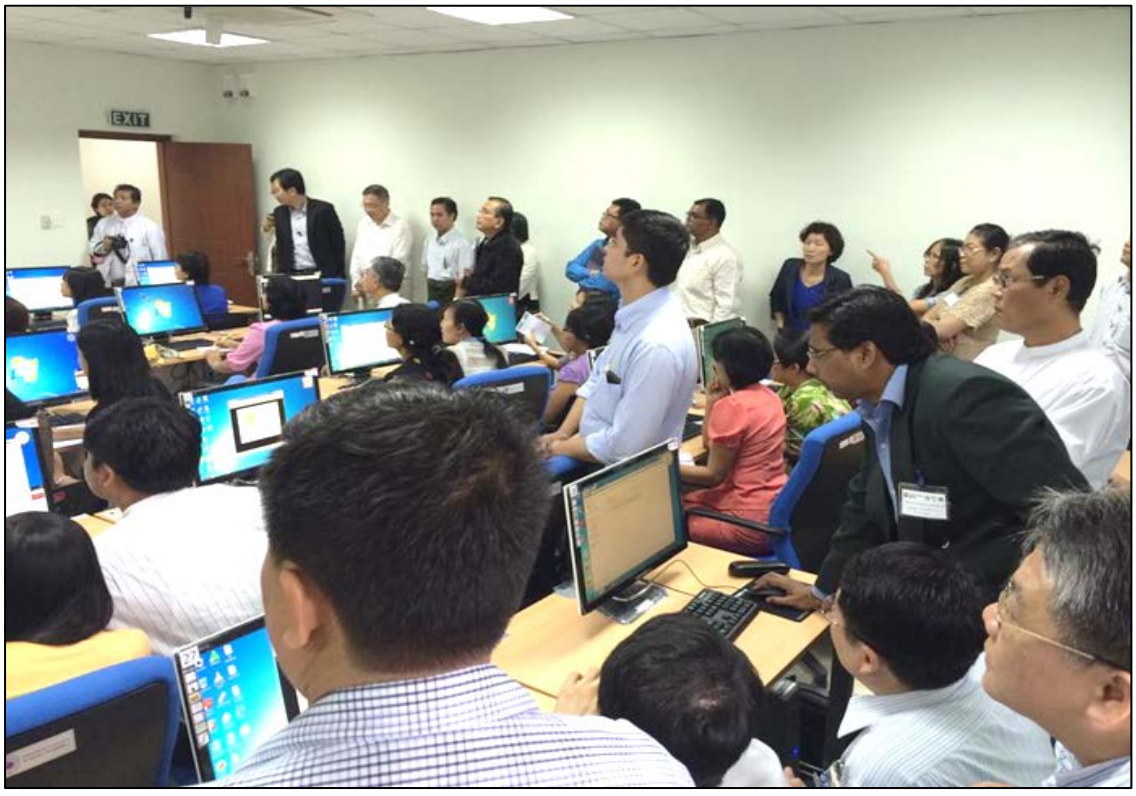

Photo 2- CanReg5 Training at Department of Medical Research in 2014

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

Photo 3- Cancer Registry Training at National Cancer Institute, Thailand

Photo 4- IAEA ImPACT mission assessment of Cancer Registration Activities in Nay Pyi Taw Union Territory in 2015

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

Photo 5- First Coordination Meeting of Potential Cancer Data Sources for PBCR in 2016

Photo 6- Distribution of cancer registry materials and registration training at Yangon General Hospital in 2018

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Photo 7- Onsite Training and Installation of CanReg5 at Mandalay Children Hospital in 2018

Photo 8- Visit of IACR's president to Nay Pyi Taw Cancer Registry in 2019

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Yangon

ဆေးတက္ကသိုလ်(၁)၊ရန်ကုန်

Dated : 22.8.2022

The Following Research Proposal has approved by the Research and Ethics Committee (REC) of the University of Medicine 1,Yangon.

Research Title

"Cancer Incidence and Mortality in Nay Pyi Taw Union Territory (2015–2017)"

Principal Investigator:

Dr. Kaung Myat Shwe

Approved Number.045/ UM1,REC.2019.

(Dr. Kyaw Shwe)
Rector
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Photo 9- Ethical Clearance Certificate

Contact: Dr .Kaung Myat Shwe, Principal Investigator: drkmshwe1977@gmail.com

8. References

1. Ministry of Immigration and Population (2015). 2014 Myanmar Population and Housing Census A Changing Population-. Nay Pyi Taw Union Territory Figures at a Glance. Department of Population. The Republic of the Union of Myanmar.

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4. Ministry of Labour, Immigration and Population (2017). THEMATIC REPORT ON POPULATION PROJECTIONS FOR THE UNION OF MYANMAR, STATES/REGIONS, RURAL AND URBAN AREAS, 2014 - 2050.pdf. Department of Population. The Republic of the Union of Myanmar.

5. International Association of Cancer Registries. Guidelines on confidentiality in the cancer registry. Internal report no. 92/003. Lyon, IARC, 1992.

6. Cogliano VJ, Baan R, Straif K, et al (2011). Preventable exposures associated with human cancers. *J Natl Cancer Inst*, **103**, 1827-39.

7. de Martel C, Georges D, Ferlay J, Bray F, Clifford GM (2020). Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. *Lancet Global Health*, **8**, 180-90

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9. Publications

9.1 Shwe KM, Win SM. **Clinical profile of cancer patients at Nay Pyi Taw General Hospital, Myanmar**, September 2016, Myanmar Medical Journal 58(3):17-24

Abstract

Hospital Based Cancer Registry (HBCR) is considered to be the only source of information regarding cancer and its occurrence in areas where population level data is unavailable. This descriptive study was conducted among all new cancer cases over the period of 1st January 2013 to 31st December 2013 at Nay Pyi Taw General Hospital.

The objective of this study is to find out the characteristics of cancer patients coming for diagnosis or treatment to Nay Pyi Taw General Hospital and to provide valuable information that will help in the development of a National Cancer Control Program of Myanmar.

A total of 736 cancer cases were included with a male to female ratio of 1:1.1. The most common sites for cancers in males were lungs (19.6%), liver (13.9%), oral cavity (10.8%), stomach (7.1%) and larynx (6.25%). In females these were breasts (24.7%), cervix (14.1%), ovaries (7.6%), stomach (6.5%) and lungs (6.5%). The majority of patients (58%) were from the Nay Pyi Taw area. The ages of patients ranged from 6 years to 88 years with an average of 53 years. Over half (57%) of the patients were between 35 and 60 years of age (419 cases) and one third (33.2%) were 60 years and over (244 cases). The information about cancer profiles from this study will help in planning the facilities required for cancer treatment at respective hospitals and will highlight the basic requirements for systematic and standardized data collection for cancer registry. It will also be a valuable source in developing the National Cancer Control Program of Myanmar.

9.2 Opie C, Shwe KM. **Improvements in radiation therapy services in Myanmar: 2012-2020.** J Med Imaging Radiat Oncol. 2021 Jul;65(4):445-453. doi: 10.1111/1754-9485.13188. Epub 2021 May 7. PMID: 33960654.

ABSTRACT

Introduction: Myanmar is a Low-Middle Income Country (LMIC) in South-East Asia. Over the last decade, reforms to the health system have included significant improvements in the delivery of radiation therapy services in both government and private-for-profit sectors.

Methods**:** This review uses limited cancer registry data, observations from in-person visits, and data from key informants in Myanmar radiation therapy centers, to report on developments in radiation therapy services in recent years.

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Results: Rising national cancer incidence estimates presented in this article are supplemented with annual cancer case and radiation therapy course completion statistics from three hospital / regional contexts. Strategies which enabled the increased delivery of radiation therapy services are described. Data regarding the geographic locations of radiation therapy centers, their equipment and software inventories, is tabulated. The impact on clinical practice standards through upgraded equipment and software used for treatment planning and delivery is discussed. Clinical staffing at each center is cataloged, role descriptions are given, and increases in staff numbers in recent years are documented. The present clinical and academic education challenges for radiation therapy staff and the importance of these issues for technical practice advancements are discussed.

Conclusion**:** Myanmar's successes and continued challenges in radiation therapy service delivery are emulated in other LMIC's. Strategic planning for new and existing radiation therapy centers, further staff increases and improved academic and clinical learning for radiation therapy staff should assist in meeting these challenges. Further international engagement could also enhance these processes.

9.3 Shwe KM, Win SM, Thant AN, Htay AMS, Han HM, Paw NHK. **Cancer Incidence and Mortality in Central Myanmar**: **Report of Nay Pyi Taw Population-Based Cancer Registry**. Asian Pac J Cancer Prev. 2022 Jan 1;23(1):311-318. doi: 10.31557/APJCP.2022.23.1.311. PMID: 35092400.

ABSTRACT

Background**:** Cancer is a major public health problem in Myanmar, and cancer registration activities are currently underway through both hospital-based and population-based approaches. So far, there are no population-based cancer incidence and mortality estimates in the country.

Methods**:** According to the 2014 census, the total population of Nay Pyi Taw Union Territory was 1,160,242 within the area of 70,571 km2. Nay Pyi Taw Cancer Registry team collected data of new cancer cases both actively and passively from all data sources in the region. The data were registered, updated, cross-checked, quality-assured, and analyzed in CanReg5. The results were presented as the number of cases by site, sex, and age, cumulative risk (CR), crude rate, age-specific, and age-standardized incidence rates (ASRs) per 100,000.

Results: Total 5,952 new cancer cases and 1874 cancer deaths were recorded among the population of the Nay Pyi Taw Union Territory between 2013 and 2017. The age-standardized incidence rate for all cancer sites excluding non-melanoma skin cancers in males was 125.9 and 107.3 for females. For both sexes combined, the most common cancers were lung (14%), breast (11.4%), liver (10.2%), mouth and pharynx (8.5%), and stomach cancers (7.8%). In males, the most common were lung (18.1%),

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liver (14.8%), mouth and pharynx (13%), stomach (8.9%) and colon, rectum, and anus (7.4%) cancers. In females, these were breast (21.2%), cervix (13.0%), lung (10.3%), stomach (6.9%) and colon, rectum, and anus (6.3%) cancers. The most common cancer deaths were caused by liver (20.8%), lung (15.7%), mouth and pharynx (9.3%), stomach (7.5%), and Colon, rectum, and anus (6.8%) cancers.

Conclusion**:** The findings in this study are salient and have potential to serve as important information for the National Cancer Control Program to formulate prevention and control strategies.

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