CANCER INCIDENCE AND MORTALITY IN CHIANG MAI

2010

CHIANG MAI CANCER REGISTRY

MAHARAJ NAKORN CHIANG MAI HOSPITAL

FACULTY OF MEDICINE, CHIANG MAI UNIVERSITY

CHIANG MAI, THAILAND

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Note: to the reader

Data in this report may be used in publications, provided that the source is mentioned. For more information and notes on the statistical material in this report contact the Chiang Mai Cancer Registry, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand.

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We wish to express our gratitude to all the medical staff members of the Faculty of Medicine, and all the physicians in Chiang Mai Province, for their collaboration and care of cancer patients. The contents of this report are based on records received from all the hospitals and pathological laboratories, both government and private, in Chiang Mai province. Without the support of these institutions and their staffs, this report would not exist. We also wish to thank The Bureau of Registration Administration, Ministry of Interior for providing death certificate data.

Introduction

Chiang Mai Cancer Registry is a population-based cancer registry established in 1963, operating within Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai University. The registry covers the population of Chiang Mai province and has reported annually on cancer occurrence since the first volume in 1978, when it was a hospital-based registry. Population-based registration was started in 1986 to report the incidence and mortality of cancer in Chiang Mai since 1983.

This report is the 30th in a series and contains two parts. The first part is population-based registration, which has data on cancer frequency, incidence of new cancer, and mortality in Chiang Mai province in the year 2010. The second part is hospital-based registration, which has data at Maharaj Nakorn Chiang Mai Hospital in the year 2011.

MATERIALS AND METHODS

Data Sources

Information on newly diagnosed cancer cases is based on data collected by the Chiang Mai Cancer Registry. The data were collected by the Registry's staff from all hospitals in Chiang Mai province: one university hospital (Maharaj Nakorn Chiang Mai Hospital), 8 government hospitals, 1 municipal hospital, 13 private hospitals, and 22 community hospitals, with a total of 6,711 beds. Sources in hospitals include the medical records sections, pathology laboratory records, and sections of hematology, radiation oncology, and hospital tumor registrations. Data were also collected from medical clinics and pathology clinics in Chiang Mai province. The identities of all patients were checked and matched to exclude multiple registrations. Mortality data were obtained from hospital records and death certificates from the Department of Local Administration, Ministry of Interior. Population data were obtained from the Statistical Data Bank and Information Dissemination Division, National Statistical Office.

Coding, Data Entry, and Processing of Data

The completed data forms were checked manually and entered into the database file in personal computers at the Chiang Mai Cancer Registry, using CanReg4 software for data entry and editing. Details of each patient were crosschecked with the information collected from different hospitals to ensure completeness of records. Full information on every cancer patient registered at each and every hospital was thus obtained, whether or not the patient was subsequently treated at a particular hospital. Additional information was obtained every time a cancer patient was re-admitted or re-examined. Since the patient can be reported from more than one hospital, care was taken to see that multiple entries were not made for such cases. Instead, the medical information from different hospitals for each patient was combined.

Mortality data from death certificates which mention cancer as the cause of death were matched against the registered cases in our files. Every cancer death not traceable to an existing entry in our files was labeled as a "death certificate only (DCO)" and the date of death was taken as the date of diagnosis and was also registered in the data files. In addition, copies of all death certificates mentioning the term "cancer" as a cause of death were individually scrutinized in detail to

confirm the statement on the certificate. Patients for whom cancer had been ruled out or who had not yet been diagnosed were not entered in the register.

ICD-O-3 (2000)(1) was used to code registered cancer cases in this volume. The morphology code numbers consist of six digits. The first four identify the histological type of neoplasm, the fifth indicates its behavior, and the sixth indicates grading and differentiation of the neoplasm.

Multiple primary registration followed IARC/IACR criteria (2). A second or third primary site in a patient was registered only when all primary sites were confirmed by histology. A new registration number was given for each new site as indicated by the three-digit ICD code; thus there was no new registration for a second primary cancer occurring at the same site (first three digits) but a different sub-site.

Follow-up used a combination of both active and passive methods. Follow-up information collected routinely was the date last seen, status of the patient (living or dead) and cause of death. This follow-up information was collected by registry staff from both out-patient and in-patient records of Maharaj Nakorn Chiang Mai Hospital and all special clinics in hospitals in Chiang Mai. Those who were lost to follow-up were traced by mail, home visits by public health service officers, and by casual sources.

Type of Diagnosis and Stage of Disease

Type of diagnosis has been divided into two broad categories, non-microscopic and microscopic, each consisting of four sub-categories. These are given below in order of increasing validity.

Non-microscopic

- Clinical only
- Clinical investigation (including X-ray, ultrasound, CT scan)
- Surgery/autopsy without histology
- Specific immunological and/or biochemical tests

Microscopic Confirmation

- Cytology or hematology
- Histology of metastasis
- Histology of primary
- Autopsy with concurrent or previous histology

Unknown Method of Diagnosis

- Unknown
- Death certificate only

The staging guide in Cancer Registration; Principles and Methods (3) was used for the following items: in situ, localized, direct extension/regional nodes, distant metastasis, not applicable, and unknown (or not staged). The stage “in situ” was decided only by histological diagnosis. Lymphoma, leukemia, and brain tumor cases were staged as “not applicable”.

Calculation of Rates and Risks

Before analysis, both the incidence data and the mortality data were checked by the IARCcrgTools program (Ferlay J, 2005) (4). Rates were calculated by the computer program CanReg4 (Cooke A, Parkin DM, Ferlay J, 2006) (5). All rates were expressed per 100,000 population and age adjusted by the direct method to

the world standard population (6). These calculations were used only for population-based registration.

Crude Rates

The crude rate was defined as the number of new cases divided by the population at risk in the specific time period and expressed as an annual rate per 100,000 population.

Age-specific Rates

An age-specific incidence rate (AR) was calculated as the frequency in a given age and sex subgroup divided by the population for that same subgroup and expressed per 100,000 population.

$$AR = Ni/Pi \times 100{,}000$$

where Ni = number of new cancers occurring in the i^{th} age group
Pi = population of the i^{th} age group in the province of Chiang Mai

Age-standardized Rates

Age-standardized rates (ASR) were standardized to the world population (ASR WORLD) by a direct method (Doll et. al., 1966) (6). The incidence (or mortality) rate observed in a given age group (ARi) was multiplied by the number of persons in that age group in the standard population (Pi.std); this value was then divided by the total standard population and the values obtained were the sum of all age groups.

ASR(WORLD) = sum (ARi × Pi.std)/ total standard population
ARi = age specific rate in the i^{th} age group
Pi.std = the number in the i^{th} age group in the standard population.

or ASR(WORLD) = sum (Ni × Pi.std × 100,000 / Pi) / total Pi.std
Ni = number of new cancers occurring in the i^{th} age group
Pi = population of the i^{th} age group in Chiang Mai.

The details of calculation are in Boyle and Parkin, Statistical Methods for Registries, in Jensen and Parkin, Cancer Registration, Principles and Methods. IARC Scientific Publications No. 95, Lyon 1991 (3). These calculations were used only in population-based registration.

Cumulative Rate and Cumulative Risk

The cumulative rate is the summation of the age-specific rates over each year of age from birth to a defined upper age limit (65 or 75 years). As age-specific incidence rates are usually computed for five-year age intervals, the cumulative rate is five times the sum of the age-specific rates calculated over the five-year age groups, assuming the age-specific rates are the same for all ages within the five-year age stratum. This rate was then expressed as a percentage.

The cumulative risk is an estimate of an individual's risk of developing cancer of a particular type, up to the age of 64 or 74 years;

$$\text{Cumulative risk} = 1\text{-}e^{-(\text{cumulative rate})/100}$$

where $\text{Cumulative rate} = \Sigma^{n}_{i=1}(Fi \times Ti/Pi)$
n = number of age group which cumulative risk includes
Fi = number of new cancers occurring in the i^{th} age group
Ti = number of years in i^{th} age group
Pi = population of i^{th} age group in the total population

Table 1: Estimated new cancer cases and deaths by sex, Chiang Mai, Thailand, 2010

	Estimated New Cases			Estimated Deaths		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	**3237**	**1561**	**1676**	**2248**	**1278**	**970**
Lip, oral cavity and pharynx	**115**	**75**	**40**	**86**	**64**	**22**
Lip	3	2	1	1	0	1
Tongue	15	9	6	13	10	3
Mouth	27	18	9	18	12	6
Salivary glands	9	5	4	1	1	0
Tonsil	9	8	1	7	7	0
Other Oropharynx	7	5	2	8	7	1
Nasopharynx	39	25	14	30	22	8
Hypopharynx	6	3	3	7	5	2
Digestive system	**974**	**627**	**347**	**828**	**553**	**275**
Oesophagus	19	17	2	24	20	4
Stomach	110	58	52	86	52	34
Small intestine	7	3	4	10	5	5
Colon	151	65	86	100	47	53
Rectum	118	75	43	78	45	33
Anus	5	4	1	6	4	2
Liver	477	358	119	450	343	107
Gallbladder	46	18	28	38	15	23
Pancreas	41	29	12	36	22	14
Respiratory system	**636**	**343**	**293**	**604**	**345**	**259**
Nose, sinuses etc.	8	1	7	7	3	4
Larynx	19	17	2	27	22	5
Lung	604	322	282	565	316	249
Other Thoracic organs	5	3	2	5	4	1
Bone	**8**	**6**	**2**	**5**	**4**	**1**
Soft tissue	**18**	**12**	**6**	**5**	**4**	**1**
Connective tissue	16	10	6	3	3	0
Mesothelioma	0	0	0	1	0	1
Kaposi's sarcoma	2	2	0	1	1	0
Skin	**123**	**59**	**64**	**40**	**24**	**16**
Melanoma of skin	8	6	2	9	3	6
Non-melanoma of skin	115	53	62	31	21	10
Breast	**312**	**7**	**305**	**101**	**2**	**99**
Genital system	**473**	**103**	**370**	**198**	**41**	**157**
Vulva	5		5	5		5
Vagina	1		1	1		1
Cervix	255		255	110		110
Corpus	52		52	13		13
Uterus	0		0	0		0
Ovary	53		53	28		28
Other Female Genital	1		1	0		0
Placenta	3		3	0		0
Penis	19	19		3	3	
Prostate	77	77		37	37	
Testis	7	7		1	1	
Other male genital	0	0		0	0	
Urinary system	**132**	**91**	**41**	**81**	**63**	**18**
Kidney	43	26	17	22	17	5
Renal Pelvis	1	1	0	0	0	0
Ureter	5	3	2	4	3	1
Bladder	83	61	22	54	43	11
Other Urinary organs	0	0	0	1	0	1
Eye	**4**	**3**	**1**	**2**	**1**	**1**
Brain, nervous system	**45**	**26**	**19**	**31**	**20**	**11**
Endocrine system	**47**	**13**	**34**	**7**	**2**	**5**
Thyroid	45	12	33	6	1	5
Adrenal gland	2	1	1	1	1	0
Other Endocrine	0	0	0	0	0	0
Lymphoma	**136**	**77**	**59**	**76**	**51**	**25**
Hodgkin disease	9	5	4	2	1	1
Non-Hodgkin lymphoma	127	72	55	74	50	24
Multiple myeloma	**25**	**14**	**11**	**10**	**7**	**3**
Leukaemia	**72**	**42**	**30**	**49**	**24**	**25**
Lymphoid Leukaemia	14	13	1	11	6	5
Myeloid Leukaemia	56	28	28	37	18	19
Leukaemia unspec.	2	1	1	1	0	1
Other & unspecified	**117**	**63**	**54**	**125**	**73**	**52**

Population-based Registration

OVERVIEW

In 2010, there were an estimated 3,237 new invasive cancer cases in Chiang Mai province. There were 1,561 males, and 1,676 females with a male to female ratio of 1:1.1 and in the same period, 1,278 males and 970 females died from cancer (Table 1). The new cancer cases increased from 1,486 cases in males and from 1,652 cases in females compared to the year 2009. The number of cancer death in males increased from 1,147 cases and in females increased from 937 cases in the year 2009.

The data were obtained from the followings: 60.2% from Maharaj Nakorn Chiang Mai Hospital, 21.7% from Nakornping Hospital (the provincial hospital), 0.6% from other government hospitals, 6.3.0% from community hospitals, 10.0% from private hospitals, and 1.2% from death certificates.

The age-standardized incidence rates were 158.1 for males and 149.8 for females. The cumulative rate percentages to age 75 were 16.7% for males and 18.3% for females, these represented cumulative risks for developing cancer of 10 in 60 for men and 10 in 55 for women. In the year 2010, the incidence in both males and females trended to continue increasing from the year 2000 (Fig. 1).

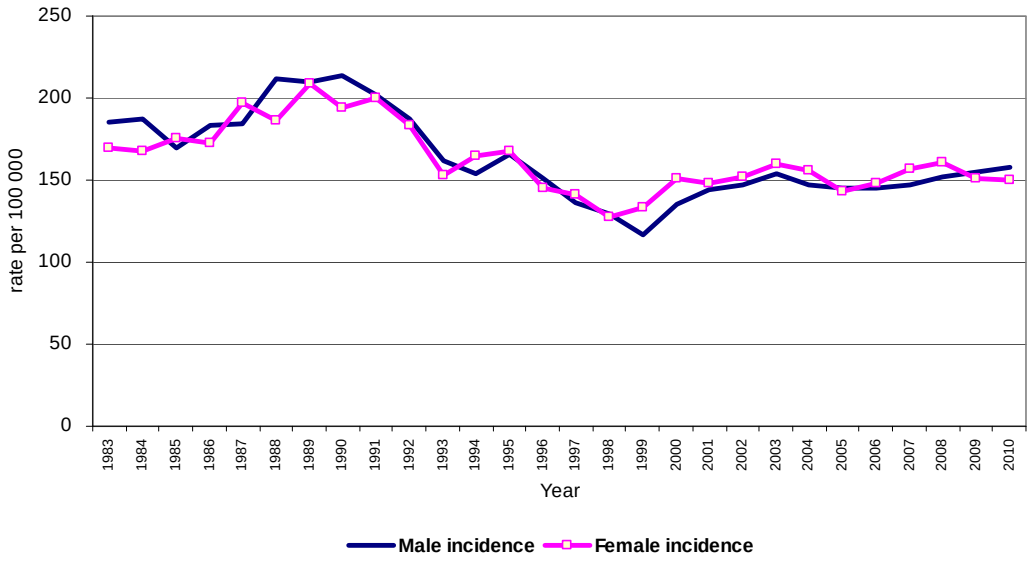

Figure 1: Age-standardized incidence rates (world) of cancer in Chiang Mai, 1983-2010

INCIDENCE

Age and Sex

The age at diagnosis in males ranged from less than one year to 98 years, with a mean age of 61.3 years and a median age of 62 years (Fig. 2) and in females ranged from less than one year to 98 years, with the mean age at diagnosis of 58.0 years and a median age of 57 years. Childhood cancers were relatively uncommon in Chiang Mai. Only 45 cases (1.4%) of all cancers occurred before age 15, whereas 50.1% occurred after age 60.

The male to female ratio was approximately 1:1.1, but 40.3% of the cancers in females occurred in sex-specific sites (i.e., breast and reproductive organs) while only 7.0% of the cancers in males occurred in sex-specific sites (i.e., prostate, testis, and penis). When sex-specific sites were excluded, the male to female ratio changed to 1.4:1 because of the higher incidence of lung cancer and liver cancer in males than females.

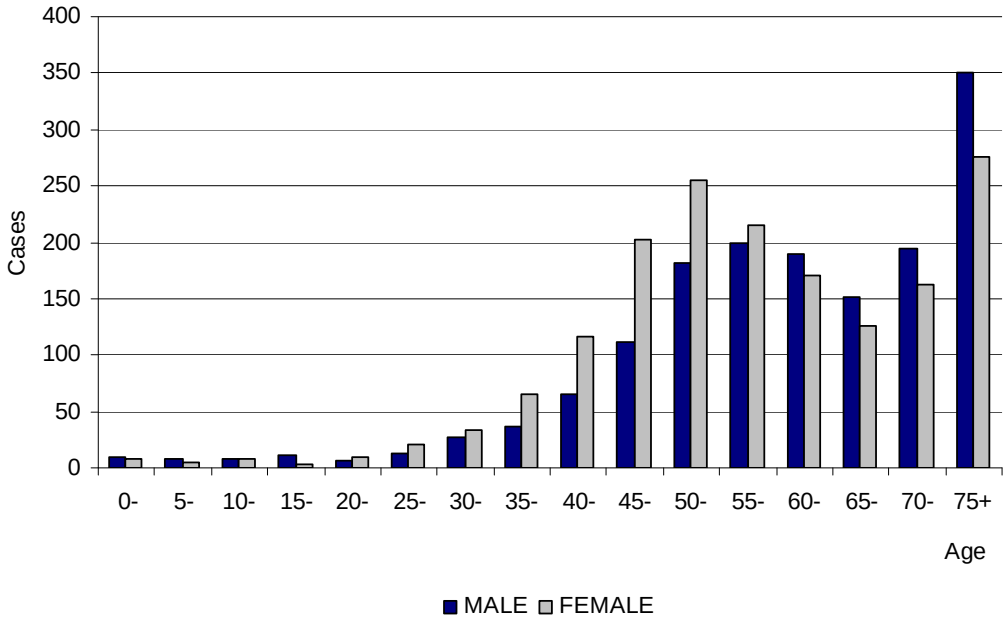

Figure 2: Age group distribution of new cancer cases in Chiang Mai, 2010

In the age group 25-59 years, more women had cancer than men, because of the large number of the breast and cervix cancers. For age 60 and over, more men had cancer than women because of the high incidence of lung and liver cancers (Fig. 2). The age-specific incidence rates increased gradually after the age of 25 years in both sexes, and males outnumbered females after the age of 55 (Fig. 3).

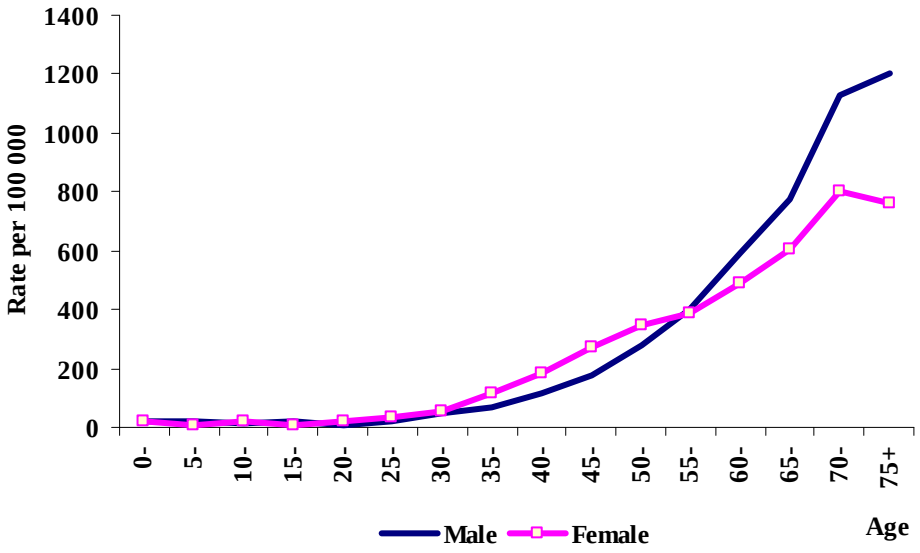

Figure 3: Age-specific incidence rates, Chiang Mai, 2010

DIAGNOSIS AND STAGE OF CANCER

Basis of Diagnosis

2,338 cases (74.5%) were histologically verified, with 60.1% from primary sites and 7.8% from metastasis sites (Table 2). Twenty two percent were clinically diagnosed and 1.2% were determined from death certificates only. By site, the percentages of histologically verified cases were low for cancer of the liver, pancreas, brain and gallbladder.

Stage of Cancer

Fifty percent were diagnosed in localized and locally advanced stages, and 25.1% had distant metastasis (Table 3). Since 2001, distant metastasis cases at first diagnosis have decreased, and locally advanced cases have increased every year, which indicates that cancer is being diagnosed earlier. All brain tumors, lymphoma, and leukemia were staged as "not applicable" The "death certificate only" cases were staged as "unknown" The most common site of distant metastasis was lung (24.2%), followed by liver (18.9%), distant lymph nodes (15.8%), bone (11.8%) and brain (10.7%).

Table 2: Basis of diagnosis

Type of diagnosis	No.	%
Histological verification	**2388**	**73.8**
Histology of primary	1956	60.4
Histology of metastasis	252	7.8
Cytology/hematology	180	5.6
Autopsy	0	0.0
No histological verification	**803**	**24.8**
Clinical only	18	0.6
Clinical and investigations	771	23.6
Operation/surgery	12	0.4
Immuno/biochemistry	4	0.1
Death certificate only	**44**	**1.4**
Unknown	*0*	*0.0*
	3237	**100.0**

Table 3: Stage of disease

Stage	No.	%
Localized	346	10.7
Locally advanced	1167	36.1
Regional node metastasis	394	12.2
Distant metastasis	873	27.0
Not applicable	276	8.5
Unknown/not staged	181	5.6
	3237	

Incidence of New Cancer Cases by Districts

High standardized incidence rates for males were found in San Pa Tong, Chom Thong, Mae Wang, Hang Dong and Doi Saket districts. The high incidence rate was high in San Pa Tong district because of high incidences of lung and followed by liver cancer. In Chom Thong, Mae Wang, Hang Dong and Doi Saket districts, the incidence rate were high because of high incidences of liver cancer followed by lung cancer. For females, high standardized incidence rates were found in Wiang Haeng, Hang Dong, San Pa Tong, Fang and Doi Saket districts. In Wiang Haeng, the incidence rate was high even though the number of new cases was small due to a small population. Incidence rate in Hang Dong was high due to the high incidence of lung and breast cancer. Incidence rate in San Pa Tong and Fang was high due to the high incidence of cervix and lung cancer. Incidence rate in Doi Saket was high due to the high incidence of lung and cervix cancer. Low incidences of cancer in males were found in Mae On, Samoeng and Omkoi districts and in females were found in Doi Tao, Samoeng and Omkoi districts (Table 4).

MORTALITY

Age and Sex

In 2010, there were an estimated 2,248 cancer death cases (1,278 males, 970 females, Table 1), accounting for 16.1% of all deaths in Chiang Mai. Cancer has been the most common cause of death since 2002. The age-standardized mortality rates for all cancers were 126.8 per 100,000 males and 84.2 per 100,000 females. Cancer death rates for males have continued to increase since 1997 and women have continued to decrease since 2005 (Fig. 4). The age-specific mortality rate increased after the age of 40 years for both males and females (Fig. 5). The cumulative rate percentages to age 75 were 13.9% for males and 9.3% for females. These represented risks of dying from cancer that were 10 in 72 for males and 10 in 108 for females.

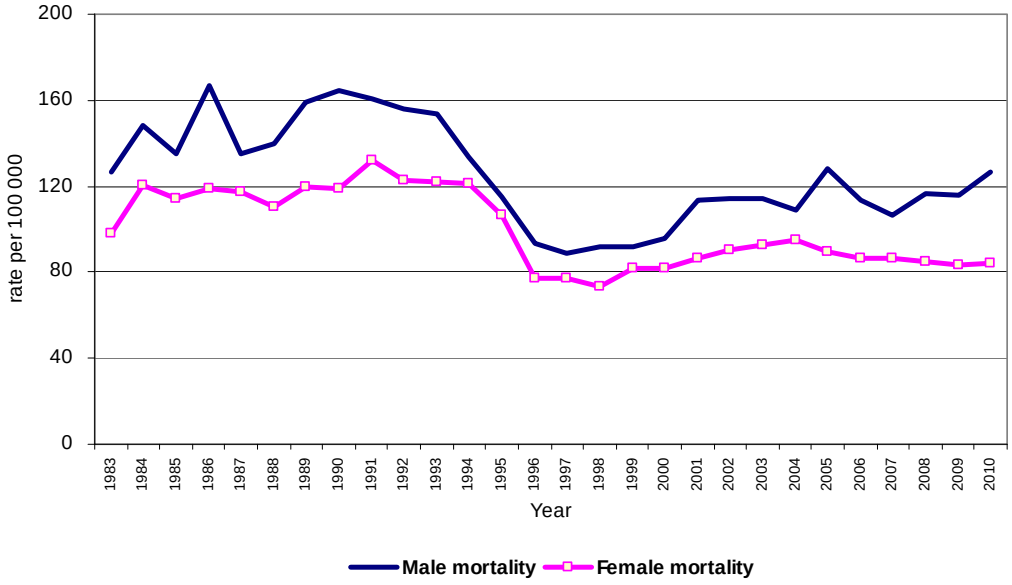

Figure 4: Age-standardized mortality rates (world) of cancer in Chiang Mai, 1983-2010

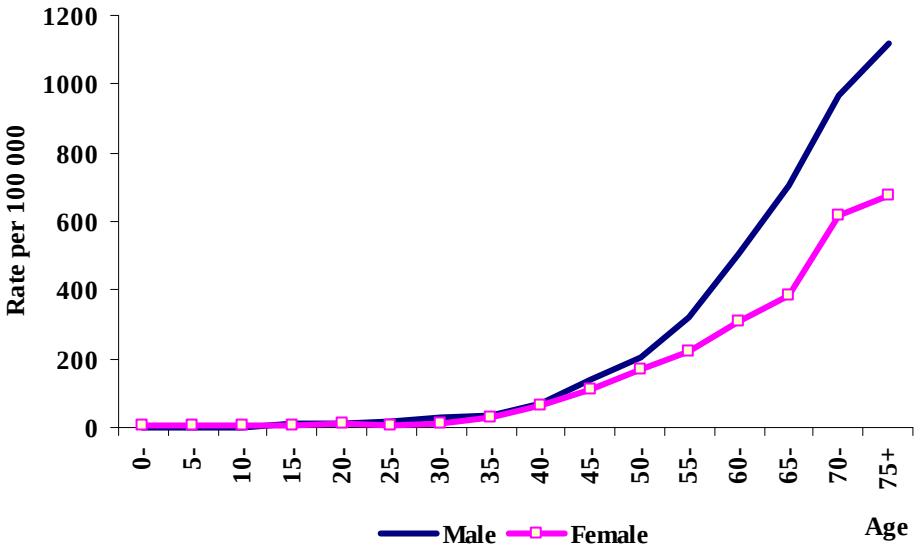

Figure 5: Age-specific mortality rate, Chiang Mai, 2010

For all cancer death cases, 1,574 cases (69.1%) survived less than one year, while only 122 cases (5.4%) survived more than 5 years. This indicates the severity of cancer in Chiang Mai.

Mortality of cancer cases by districts

The highest mortality rate for males was in Hang Dong district, followed by Chai Prakarn, San Pa Tong, Chom Thong, and San Sai districts. These were because of high mortality from lung cancer in Hang Dong, Chai Prakarn, San Pa Tong, Chom Thong, and San Sai districts and high mortality from liver cancer in Hang Dong, Chom Thong and San Sai districts. For females, the highest mortality rate was in Wiang Haeng district, followed by Mae Wang, Mae Ai, Doi Law, and Fang districts (Table 5). These were because of high mortality from cervix and lung cancer in Wiang Haeng and Fang districts, from cervix cancer in Mae Ai, and high mortality from lung cancer in Mae Wang and Doi Law districts.

LEADING SITES OF CANCER INCIDENCE

Of invasive cancer in both sexes combined, lung cancer was the most common (604 cases), followed by liver, breast, cervix and colon cancer. Together these five types of cancer accounted for 55.6% of all new cancers. For males, the most common cancer was liver cancer, accounting for 22.9% of all newly diagnosed cases, followed by lung, prostate, rectum and non-Hodgkin lymphoma(NHL) (Fig. 6). For females, the most common cancer was breast cancer, accounting for 18.2% of all newly diagnosed cases, followed by lung, cervix, liver, and colon cancer.

The most frequent cancers for the under 15-year age group in both sexes were leukemia, bone and cancer of nervous system. In the age group 15-29 years, common cancers in males were liver, nervous system, and leukemia, and in females were ovary, cervix and NHL. In the age group 30-59 years, liver cancer was more common than lung cancer in males and breast cancer was more common than cervical cancer in females. After the age of 60 years, lung cancer was the most common cancer in both sexes (Table 6).

LEADING SITES OF CANCER DEATHS

Lung cancer (25.1%) was the most common cause of cancer death, followed by liver (20.0%), cervix, breast and colon cancer. Lung and liver cancer accounted for 45.1% of all cancer deaths. For males, liver was the most common site of cancer deaths, accounting for 26.8%, followed by the lung, stomach, NHL and colon. For females, the lung was the most common site of cancer deaths, accounting for 25.7%, followed by cervix, liver, breast and colon (Fig. 7).

Liver and lung cancer were the major cause of cancer death in both sexes in the age group 60 and over. For males, liver was more common than lung cancer in the age group 30-59, but was the second common cause after lung cancer in the age group 60 and over. For females, lung cancer was the most common cause in the age group 45 and over, liver cancer was more common than lung in the age group 30-44 (Table 7).

Table 4: Incidence and common sites of new cancer cases in districts of Chiang Mai, 2010

	Districts	Rates	All sites	Liver	Lung	Prostate	Rectum	NHL	Colon	Bladder	Stomach	Skin*	Pancreas
Males	Muang	165.0	235	46	26	26	11	13	15	11	7	10	5
	Chom Thong	184.2	81	23	17	4	2	4	1	4	4	2	1
	Mae Chaem	167.2	46	5	9	0	3	4	1	1	5	2	1
	Chiang Dao	129.5	48	9	15	1	1	0	2	2	1	0	1
	Doi Saket	182.0	83	28	20	4	4	2	4	2	2	1	2
	Mae Taeng	177.4	86	25	18	5	5	3	2	2	4	1	3
	Mae Rim	145.5	75	25	12	1	7	4	2	0	4	1	2
	Samoeng	94.3	14	1	3	1	1	0	1	0	1	2	0
	Fang	144.1	81	22	12	6	2	5	2	3	4	1	1
	Mae Ai	150.0	54	8	8	1	2	2	3	1	2	3	2
	Phrao	155.8	56	11	15	0	0	3	3	4	2	5	0
	San Pa Tong	210.0	120	23	29	7	9	2	6	2	3	7	4
	San Kamphaeng	137.7	74	13	21	2	5	5	6	3	3	2	1
	San Sai	165.1	116	28	33	7	3	4	3	3	2	4	3
	Hang Dong	182.8	84	19	16	1	6	8	3	4	2	2	0
	Hot	160.6	41	8	12	0	1	1	0	1	6	1	1
	Doi Tao	148.3	27	6	7	2	1	1	0	0	1	3	0
	Omkoi	67.7	17	7	1	0	1	2	0	0	1	0	0
	Saraphi	139.7	79	13	18	6	5	1	7	6	1	2	1
	Wiang Haeng	165.5	12	4	0	0	1	1	0	1	0	1	1
	Chai Prakan	172.9	39	7	10	0	1	3	3	5	1	0	0
	Mae Wang	183.8	38	12	6	2	2	1	0	2	0	0	0
	Mae On	122.4	21	9	2	1	2	0	0	4	1	0	0
	Doi Law	139.5	32	6	11	0	0	2	1	0	1	3	0

	Districts	Rates	All sites	Breast	Lung	Cervix	Liver	Colon	Skin*	NHL	Ovary	Stomach	Corpus
Females	Muang	162.6	296	73	41	34	6	16	8	12	12	10	12
	Chom Thong	149.3	73	8	15	15	9	2	6	2	2	2	1
	Mae Chaem	108.3	31	4	2	5	0	1	3	1	0	2	1
	Chiang Dao	140.2	53	4	10	12	5	1	1	1	2	0	1
	Doi Saket	166.9	90	13	16	13	12	5	6	1	1	1	5
	Mae Taeng	154.2	84	13	16	12	4	6	1	2	4	1	1
	Mae Rim	123.2	73	11	12	11	9	4	7	2	4	3	2
	Samoeng	86.9	12	2	3	2	2	0	2	0	0	0	0
	Fang	178.8	105	9	16	23	5	9	3	1	4	5	4
	Mae Ai	165.0	62	9	8	18	8	2	2	1	1	2	1
	Phrao	100.7	40	7	7	3	9	2	2	2	1	3	1
	San Pa Tong	189.3	122	19	25	22	7	8	4	6	4	3	3
	San Kamphaeng	147.2	88	24	9	11	6	6	2	7	1	2	8
	San Sai	153.2	127	25	24	17	14	4	3	4	5	2	3
	Hang Dong	199.2	117	27	26	17	6	5	1	4	2	4	1
	Hot	124.2	39	9	5	4	0	2	2	0	0	6	1
	Doi Tao	100.6	20	5	3	2	0	0	0	1	0	1	0
	Omkoi	69.4	19	3	3	1	2	2	0	0	0	2	0
	Saraphi	132.4	88	17	18	11	6	4	4	1	5	1	4
	Wiang Haeng	314.4	22	3	3	5	2	0	0	0	2	0	1
	Chai Prakan	121.7	34	8	6	5	5	3	0	0	0	1	0
	Mae Wang	165.8	34	4	6	2	2	2	3	4	2	0	0
	Mae On	113.1	17	3	2	1	0	0	1	1	1	0	1
	Doi Law	145.2	29	4	6	9	0	2	1	2	0	1	1

	Districts	All sites	Lung	Liver	Breast	Cervix	Colon	NHL	Rectum	Skin*	Stomach	Bladder
Both sexes	Muang	531	67	52	76	34	31	25	22	18	17	15
	Chom Thong	154	32	32	8	15	3	6	3	8	6	4
	Mae Chaem	77	11	5	4	5	2	5	5	5	7	1
	Chiang Dao	101	25	14	4	12	3	1	5	1	1	3
	Doi Saket	173	36	40	13	13	9	3	5	7	3	4
	Mae Taeng	170	34	29	13	12	8	5	5	2	5	3
	Mae Rim	148	24	34	11	11	6	6	7	8	7	0
	Samoeng	26	6	3	2	2	1	0	1	4	1	0
	Fang	186	28	27	9	23	11	6	8	4	9	3
	Mae Ai	116	16	16	10	18	5	3	2	5	4	2
	Phrao	96	22	20	7	3	5	5	1	7	5	5
	San Pa Tong	242	54	30	19	22	14	8	11	11	6	3
	San Kamphaeng	162	30	19	25	11	12	12	7	4	5	4
	San Sai	243	57	42	25	17	7	8	7	7	4	7
	Hang Dong	201	42	25	27	17	8	12	9	3	6	6
	Hot	80	17	8	9	4	2	1	1	3	12	2
	Doi Tao	47	10	6	5	2	0	2	5	3	2	1
	Omkoi	36	4	9	3	1	2	2	1	0	3	0
	Saraphi	167	36	19	18	11	11	2	7	6	2	6
	Wiang Haeng	34	3	6	3	5	0	1	1	1	0	1
	Chai Prakan	73	16	12	9	5	6	3	1	0	2	5
	Mae Wang	72	12	14	4	2	2	5	2	3	0	2
	Mae On	38	4	9	3	1	0	1	2	1	1	6
	Doi Law	61	17	6	4	9	3	4	0	4	2	0

Skin* - non-melanoma skin cancer

Table 5: Mortality rate and common cancer sites in districts of Chiang Mai, 2010

	Districts	Rates	All sites	Liver	Lung	Stomach	NHL	Colon	Rectum	Bladder	Prostate	Nasoph.
Males	Muang	113.1	170	40	27	7	5	12	9	9	6	3
	Chom Thong	152.7	68	20	19	4	2	1	0	2	2	1
	Mae Chaem	82.5	23	3	3	3	1	1	1	0	0	0
	Chiang Dao	102.5	39	9	16	2	1	1	0	1	0	0
	Doi Saket	127.7	64	20	19	2	1	1	3	5	0	1
	Mae Taeng	148.3	74	25	16	2	4	0	1	2	5	2
	Mae Rim	123.8	66	23	16	1	2	3	3	5	1	0
	Samoeng	58.0	8	3	1	1	1	0	0	0	0	0
	Fang	115.2	65	26	10	5	4	1	1	2	1	1
	Mae Ai	124.6	45	9	9	2	2	1	0	0	0	2
	Phrao	127.9	46	14	14	2	2	3	0	0	0	0
	San Pa Tong	161.4	96	19	29	3	4	3	7	2	1	3
	San Kamphaeng	125.6	67	17	21	1	2	3	2	1	4	0
	San Sai	151.6	110	31	31	4	5	2	3	3	6	2
	Hang Dong	171.0	79	22	26	2	5	3	2	0	4	3
	Hot	117.4	31	8	10	3	0	1	0	1	0	0
	Doi Tao	87.9	16	3	5	2	0	0	0	0	1	2
	Omkoi	68.6	16	7	3	0	3	0	0	0	0	0
	Saraphi	133.0	76	15	14	4	2	6	3	4	3	1
	Wiang Haeng	96.7	7	2	0	0	1	0	1	0	0	0
	Chai Prakan	168.8	40	7	11	1	1	3	1	2	2	0
	Mae Wang	134.9	27	10	5	1	2	0	2	1	0	1
	Mae On	130.9	22	6	6	0	0	1	3	3	0	0
	Doi Law	86.7	21	4	3	0	0	1	3	0	1	0

	Districts	Rates	All sites	Lung	Cervix	Liver	Breast	Colon	Stomach	Rectum	Ovary	NHL
Females	Muang	71.7	141	36	13	7	17	13	5	5	8	5
	Chom Thong	96.4	49	13	9	7	5	2	1	3	1	0
	Mae Chaem	38	10	0	0	2	0	0	0	0	1	0
	Chiang Dao	81.2	31	7	4	4	3	0	0	0	0	2
	Doi Saket	83.3	48	17	6	8	2	3	0	1	0	1
	Mae Taeng	84.7	50	12	5	7	4	3	2	4	2	0
	Mae Rim	74.8	45	12	4	7	3	0	2	2	3	2
	Samoeng	81.2	12	5	0	1	3	1	0	1	0	0
	Fang	106.6	61	16	15	3	5	3	5	3	0	0
	Mae Ai	108.7	39	5	9	4	5	2	2	0	1	1
	Phrao	73.1	30	9	1	5	6	2	1	0	2	0
	San Pa Tong	91	65	21	6	8	5	4	3	3	2	1
	San Kamphaeng	100.6	63	10	6	5	12	3	4	1	3	3
	San Sai	90.4	76	18	9	17	4	4	0	1	2	2
	Hang Dong	91.7	53	19	2	6	6	4	2	1	1	1
	Hot	67.7	19	4	3	0	1	1	1	2	1	0
	Doi Tao	87.4	17	7	0	0	3	1	0	0	0	1
	Omkoi	41.3	11	1	0	2	0	0	1	1	0	1
	Saraphi	70.5	46	11	6	2	3	4	3	1	1	1
	Wiang Haeng	185.2	13	2	3	1	2	0	0	0	0	0
	Chai Prakan	89.4	24	6	3	6	5	0	0	2	0	0
	Mae Wang	134.6	30	8	2	3	1	2	2	0	0	1
	Mae On	68.9	12	2	2	0	2	1	0	0	0	1
	Doi Law	106.9	23	8	2	2	1	0	0	2	0	1

	Districts	All sites	Lung	Liver	Cervix	Breast	Colon	Stomach	Rectum	NHL	Bladder
Both sexes	Muang	311	63	47	13	17	25	12	14	10	13
	Chom Thong	117	32	27	9	5	3	5	3	2	2
	Mae Chaem	33	3	5	0	0	1	3	1	1	0
	Chiang Dao	70	23	13	4	3	1	2	0	3	1
	Doi Saket	112	36	28	6	2	4	2	4	2	6
	Mae Taeng	124	28	32	5	4	3	4	5	4	2
	Mae Rim	111	28	30	4	3	3	3	5	4	5
	Samoeng	20	6	4	0	3	1	1	1	1	0
	Fang	126	26	29	15	6	4	10	4	4	2
	Mae Ai	84	14	13	9	5	3	4	0	3	1
	Phrao	76	23	19	1	6	5	3	0	2	1
	San Pa Tong	161	50	27	6	5	7	6	10	5	2
	San Kamphaeng	130	31	22	6	12	6	5	3	5	3
	San Sai	186	49	48	9	4	6	4	4	7	4
	Hang Dong	132	45	28	2	6	7	4	3	6	0
	Hot	50	14	8	3	1	2	4	2	0	1
	Doi Tao	33	12	3	0	3	1	2	0	1	0
	Omkoi	27	4	9	0	0	0	1	1	4	0
	Saraphi	122	25	17	6	3	10	7	4	3	5
	Wiang Haeng	20	2	3	3	2	0	0	1	1	0
	Chai Prakan	64	17	13	3	6	3	1	3	1	2
	Mae Wang	57	13	13	2	1	2	3	2	3	1
	Mae On	34	8	6	2	2	2	0	3	1	3
	Doi Law	44	11	6	2	1	1	0	5	1	0

Estimated New Cases

Males				Females		
Liver	358	22.9 %		Breast	305	18.2 %
Lung	322	20.6 %		Lung	282	16.8 %
Prostate	77	4.9 %		Cervix	255	15.2 %
Rectum	75	4.8 %		Liver	119	7.1 %
Non-Hodgkin lymphoma	72	4.6 %		Colon	86	5.1 %
Colon	65	4.2 %		Skin, non-melanoma	62	3.7 %
Bladder	61	3.9 %		Non-Hodgkin lymphoma	55	3.3 %
Stomach	58	3.7 %		Ovary	53	3.2 %
Skin, non-melanoma	53	3.4 %		Stomach	52	3.1 %
Pancreas	29	1.9 %		Corpus	52	3.1 %
All sites	**1561**	**100.0 %**		**All sites**	**1676**	**100.0 %**

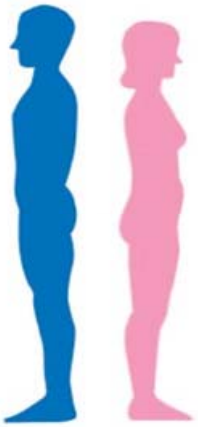

Figure 6: Ten leading cancer sites for the estimated new cases, by sex, 2010

Estimated Deaths

Males				Females		
Liver	343	26.8 %		Lung	249	25.7 %
Lung	316	24.7 %		Cervix	110	11.3 %
Stomach	52	4.1 %		Liver	107	11.0 %
Non-Hodgkin lymphoma	50	3.9 %		Breast	99	10.2 %
Colon	47	3.7 %		Colon	53	5.5 %
Rectum	45	3.5 %		Stomach	34	3.5 %
Bladder	43	3.4 %		Rectum	33	3.4 %
Prostate	37	2.9 %		Ovary	28	2.9 %
Nasopharynx	22	1.7 %		Non-Hodgkin lymphoma	24	2.5 %
Pancreas	22	1.7 %		Gallbladder	23	2.4 %
All sites	**1278**	**100.0 %**		**All sites**	**970**	**100.0 %**

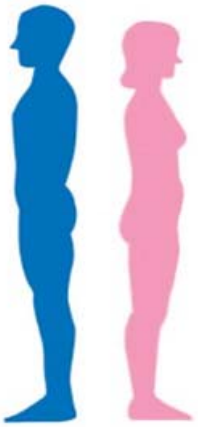

Figure 7: Ten leading cancer sites for the estimated dead cases, by sex, 2010

Table 6 : Top 5 cancers in Chiang Mai by 15-year age groups, 2010

Males

Incidence Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Lymphoid Leukaemia	6	Liver	4	Liver	40	Liver	151	Lung	140	Lung	77
Bone	3	Brain, Nervous system	3	Rectum	10	Lung	95	Liver	114	Liver	48
Brain, Nervous system	3	Myeloid Leukaemia	3	Lung	10	Stomach	20	Prostate	34	Prostate	33
NHL	3	Bladder	2	Colon	9	NHL	19	Rectum	27	Bladder	25
Kidney	2	NHL	2	NHL	9	Rectum	18	Stomach	25	Skin, non-melanoma	21
All sites	25	All sites	27	All sites	128	All sites	493	All sites	536	All sites	350

Females

Incidence Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Myeloid Leukaemia	5	Ovary	5	Breast	69	Breast	145	Lung	126	Lung	70
Kidney	3	Cervix Uteri	4	Cervix	56	Cervix	143	Breast	70	Liver	30
Bone	2	Skin-Non melanoma	3	Liver	13	Lung	78	Cervix	33	Skin, non-melanoma	27
NHL	2	NHL	3	Stomach	9	Liver	45	Liver	31	Colon	24
Pancreas	1	Placenta	2	Ovary	9	Corpus	36	Colon	26	Breast	20
All sites	20	All sites	33	All sites	215	All sites	673	All sites	459	All sites	276

Males

Incidence Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Lymphoid Leukaemia	1.4	Liver	0.5	Liver	4.4	Liver	12.4	Lung	18.5	Lung	5.3
Bone	0.7	Brain, Nervous system	0.4	Rectum	1.1	Lung	7.8	Liver	14.5	Liver	3.3
Brain, Nervous system	0.7	Myeloid Leukaemia	0.4	Lung	1.1	Stomach	1.7	Prostate	4.3	Prostate	2.3
NHL	0.7	Bladder	0.3	Colon	1.0	NHL	1.6	Rectum	3.4	Bladder	1.7
Kidney	0.5	NHL	0.3	NHL	1.0	Rectum	1.5	Stomach	3.3	Skin, non-melanoma	1.4
All sites	5.7	All sites	3.7	All sites	13.9	All sites	40.6	All sites	69.3	All sites	24.1

Females

Incidence Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Myeloid Leukaemia	1.2	Ovary	0.7	Breast	6.9	Breast	10.7	Lung	14.9	Lung	3.9
Kidney	0.7	Cervix Uteri	0.5	Cervix	5.5	Cervix	10.7	Breast	8.2	Liver	1.7
Bone	0.5	Skin-Non melanoma	0.4	Liver	1.3	Lung	5.7	Cervix	3.7	Skin, non-melanoma	1.5
NHL	0.5	NHL	0.4	Stomach	0.9	Liver	3.3	Liver	3.6	Colon	1.3
Pancreas	0.2	Placenta	0.3	Ovary	0.9	Corpus	2.6	Colon	3.0	Breast	1.1
All sites	4.8	All sites	4.5	All sites	21.3	All sites	49.5	All sites	53.6	All sites	15.3

Table 7 : Top 5 cancer deaths in Chiang Mai by 15-year age groups, 2010

Males

Mortality Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Liver	1	Brain, Nervous system	5	Liver	34	Liver	142	Lung	138	Lung	97
Lung	1	Liver	3	Lung	8	Lung	71	Liver	110	Liver	53
Brain, Nervous system	1	Other Thoracic organs	3	Colon	4	Colon	17	Stomach	24	Prostate	19
		NHL	3	Brain, Nervous system	4	Stomach	16	Rectum	21	Bladder	19
		Lymphoid Leukaemia	3	Nasopharynx	3	NHL	13	Bladder	18	NHL	17
All sites	3	All sites	25	All sites	77	All sites	381	All sites	467	All sites	325

Females

Mortality Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Myeloid Leukaemia	4	Tongue	1	Liver	13	Lung	68	Lung	102	Lung	72
Lymphoid Leukaemia	2	Rectum	1	Cervix	11	Cervix	52	Liver	34	Liver	26
Kidney	1	Melanoma of Skin	1	Breast	10	Breast	50	Cervix	31	Colon	18
		Brain, Nervous system	1	Lung	6	Liver	34	Breast	21	Breast	18
		NHL	1	Colon	4	Colon	17	Stomach	15	Cervix	15
All sites	7	All sites	13	All sites	64	All sites	328	All sites	314	All sites	244

Males

Mortality Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Liver	0.3	Brain, Nervous system	0.7	Liver	3.7	Liver	11.7	Lung	17.9	Lung	6.7
Lung	0.2	Liver	0.4	Lung	0.9	Lung	5.9	Liver	14.0	Liver	3.6
Brain, Nervous system	0.2	Other Thoracic organs	0.4	Colon	0.4	Colon	1.4	Stomach	3.2	Prostate	1.3
		NHL	0.4	Brain, Nervous system	0.4	Stomach	1.3	Rectum	2.7	Bladder	1.3
		Lymphoid Leukaemia	0.4	Nasopharynx	0.3	NHL	1.1	Bladder	2.4	NHL	1.2
All sites	0.7	All sites	3.5	All sites	8.3	All sites	31.4	All sites	60.6	All sites	22.4

Females

Mortality Age group	0-14		15-29		30-44		45-59		60-74		75+
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Myeloid Leukaemia	0.9	Tongue	0.1	Liver	1.3	Lung	4.9	Lung	12.1	Lung	4.0
Lymphoid Leukaemia	0.5	Rectum	0.1	Cervix	1.1	Cervix	3.9	Liver	3.8	Liver	1.4
Kidney	0.3	Melanoma of Skin	0.1	Breast	1.0	Breast	3.7	Cervix	3.8	Colon	1.0
		Brain, Nervous system	0.1	Lung	0.6	Liver	2.4	Breast	2.4	Breast	1.0
		NHL	0.1	Colon	0.4	Colon	1.2	Stomach	1.7	Cervix	0.8
All sites	1.7	All sites	1.8	All sites	6.3	All sites	24.0	All sites	36.3	All sites	13.5

COMMON CANCERS IN CHIANG MAI, 2010

Lung cancer (ICD-10 C33-C34)

Lung cancer had ranked first for new male cancers in Chiang Mai since the first population-based registration in 1983. In 2010, lung cancer ranked second for new male cancers after liver cancer and also for females, lung cancer ranked second after breast cancer. There were 604 new cases of lung cancer diagnosed in 2010 (322 males, 282 females) (Fig 8). This was 20.6% of all cancers in males and 16.8% of those in females. The age-standardized incidence rates were 32.3 for males and 25.0 for females; this was slightly decreased in males from the year 2009 but increased in females (Fig 9). The incidence rates increased with age in both sexes and increased sharply after the age of 45 and male rates exceeded female rates after the age of 60 (Fig 10). The cumulative rate percentages to age 75 were 4.1% for males and 4.2% for females. These represented risks of 10 in 242 for men and 10 in 237 for women of developing lung cancer by age 75.

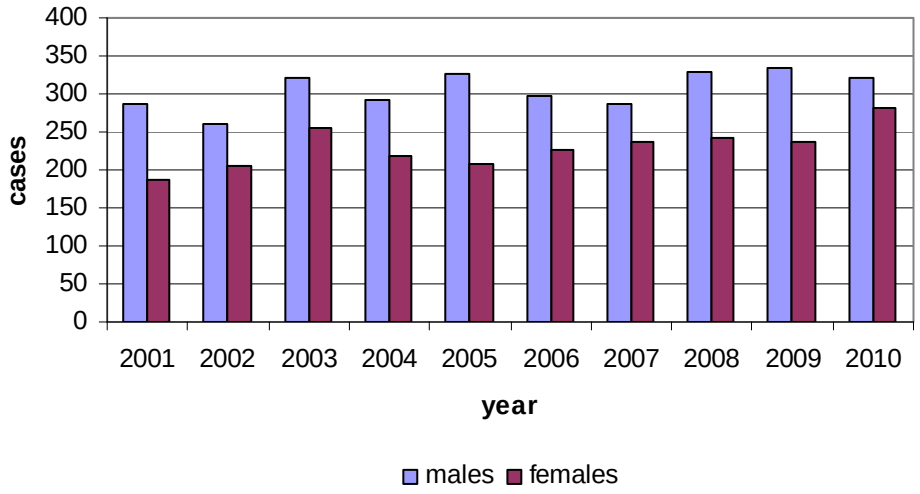

Figure 8: Number of new cases of lung cancer by sex, 2001-2010

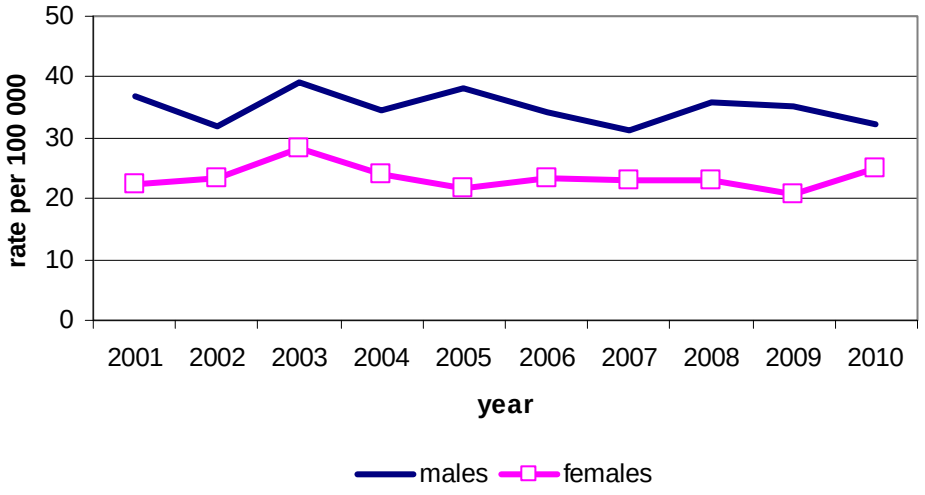

Figure 9: Incidence rates of new cases of lung cancer by sex, 2001-2010

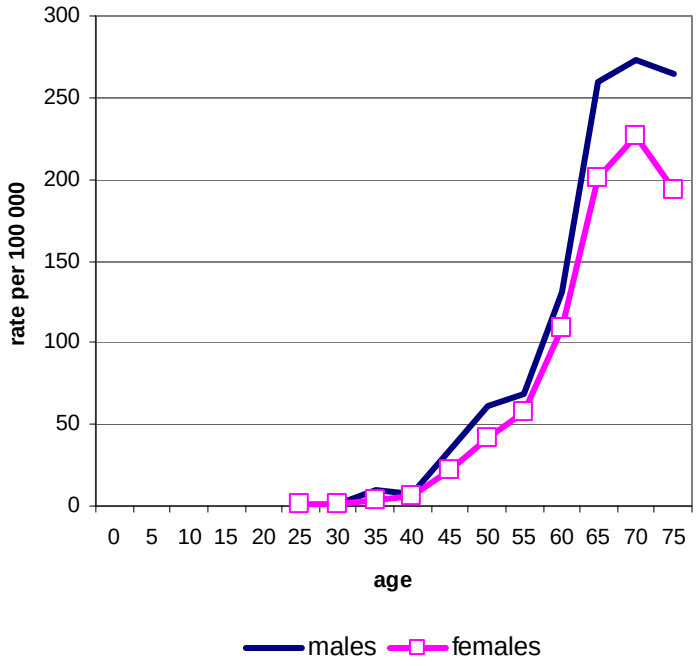

Figure 10: Age-specific incidence rate of lung cancer, Chiang Mai, 2010

Of the 565 deaths from lung cancer, 316 were males (24.7% of all male cancer deaths) and 249 were females (25.7% of all female cancer deaths). In 2010, the mortality rates were 31.7 for males and 21.7 for females. Compared with the year 2009, the mortality rates were slightly increased in both sexes (Fig. 11). The mortality rates increased with age and increased sharply after the age of 45 years in both sexes (Fig. 12).

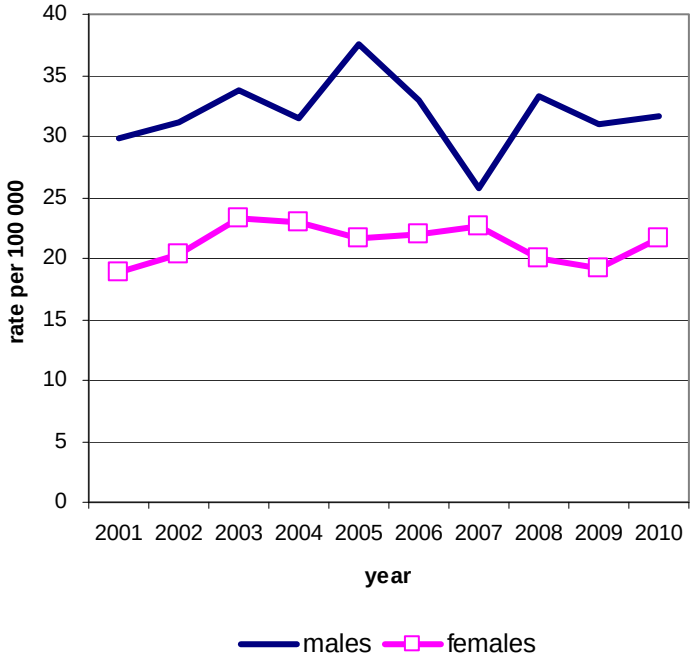

Figure 11: Mortality rate of lung cancer by sex, Chiang Mai, 2001-2010

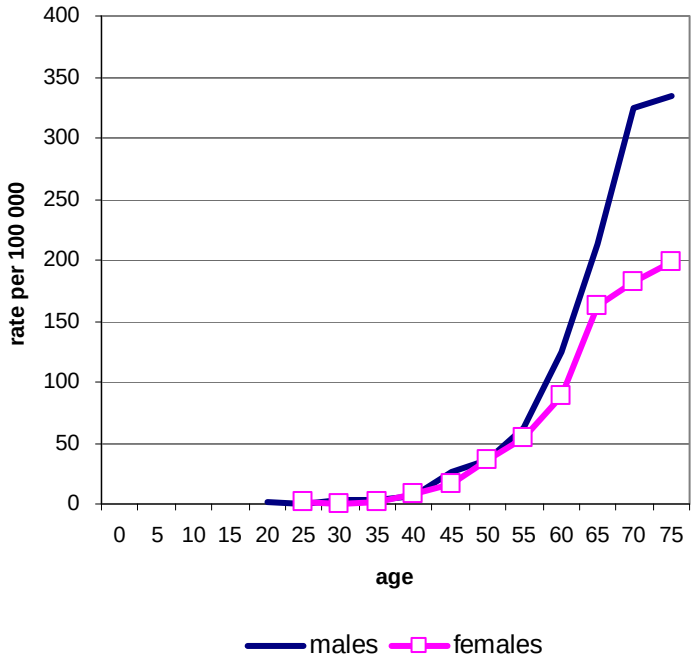

Figure 12: Age-specific mortality rate of lung cancer, Chiang Mai, 2009

For lung cancer deaths, 466 cases (82.5%) died within one year of diagnosis and 69 cases (12.2%) died in the second year.

Diagnosis and stage of cancer

Seventy percent of cases were diagnosed in advanced stage (56.8% had distant metastasis, 13.2% had regional nodes metastasis). The most common metastasis site was lung-to-lung, followed by brain. Two hundred and thirty-nine cases (39.6%) were diagnosed by clinical diagnosis, and 7 cases were diagnosed by death certificate only. The common cell types were adenocarcinoma (34.3%) and squamous cell carcinoma (13.7%).

Cell type	Males	Females	Total	%
Adenocarcinoma	110	97	207	34.3
Squamous cell CA	48	35	83	13.7
Small cell	17	14	31	5.1
Large cell	16	9	25	4.1
Others	6	6	12	2.0
Clinical diagnosis	125	121	246	40.7
TOTAL	322	282	604	100.0

Stage	Cases	%
Localized	7	1.2
Locally advanced	126	20.9
Regional node metastasis	79	13.1
Distant metastasis	343	56.8
Unknown/not staged	49	8.1
All	604	100.0

Liver cancer (ICD-10 C22)

There were 477 new cases of liver cancer diagnosed in 2010 (358 males, 119 females) (Fig 13). This was 22.9% of all cancers in males and 7.1% of those in females. The age-standardized incidence rates were 35.6 for males and 10.0 for females and continued to increase in the last five years (Fig 14). Liver cancer has ranked first for new male cancers more than lung cancer for the first time in the year 2010. For females, liver cancer ranked fourth after breast, lung and cervix cancers. The incidence rates increased with age for both sexes; rates for males were higher than females in all age groups (Fig. 15). The cumulative rate percentages to age 75 were 4.1% for males and 1.5% for females. These represented risks of 10 in 243 for men and 10 in 671 for women of developing liver cancer by age 75.

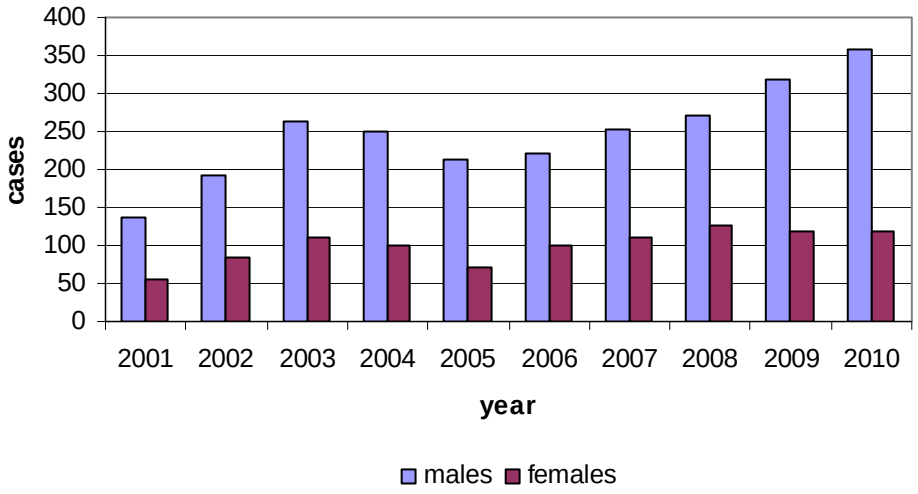

Figure 13: Number of new cases of liver cancer by sex, 2001-2010

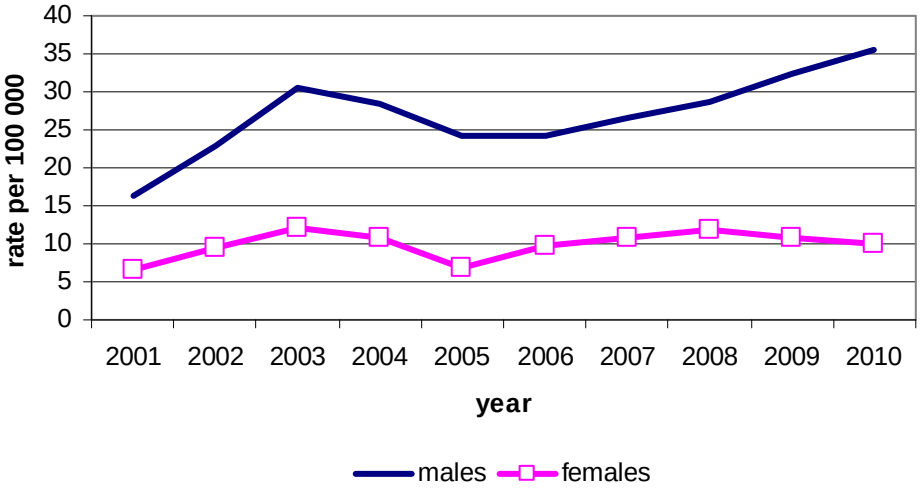

Figure 14: Incidence rates of new cases of liver cancer by sex, 2001-2010

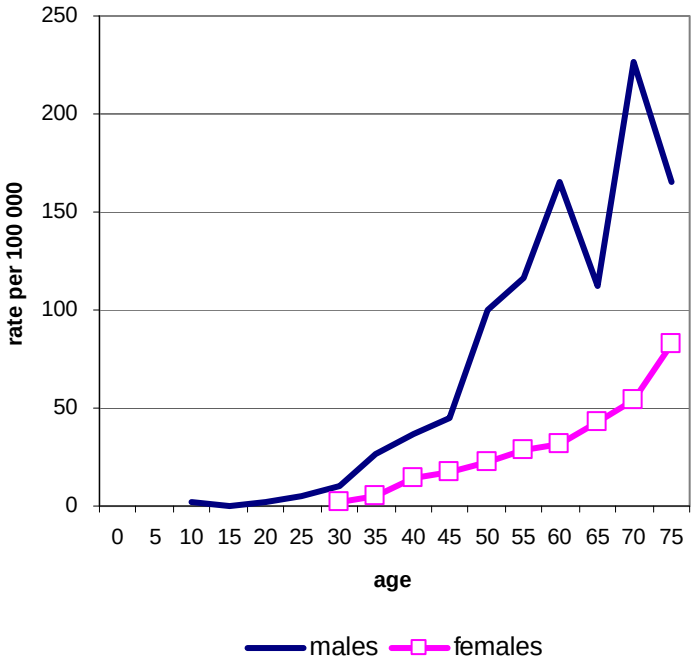

Figure 15: Age-specific incidence rate of liver cancer, Chiang Mai, 2010

Of the 450 deaths from liver cancer, 343 were males (26.8% of all male cancer deaths) and 107 were females (11.0% of all female cancer deaths). The mortality rates were 33.7 for males and 9.0 for females and continued to increase during the last five years in males and decreased from the year 2008 in females (Fig. 16). The mortality rates increased with age in both sexes, with rates in males increasing sharply after the age of 55 years and exceeding those in females (Fig. 17).

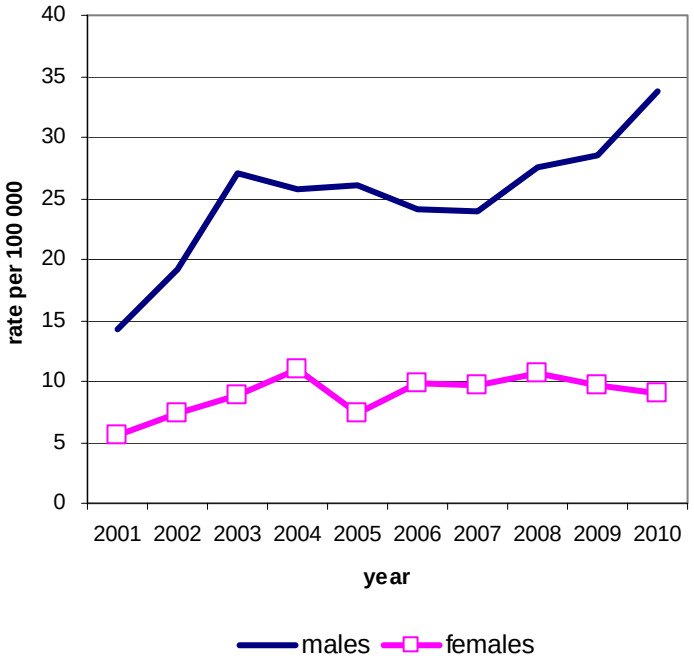

Figure 16: Mortality rate of liver cancer by sex, Chiang Mai, 2001-2010

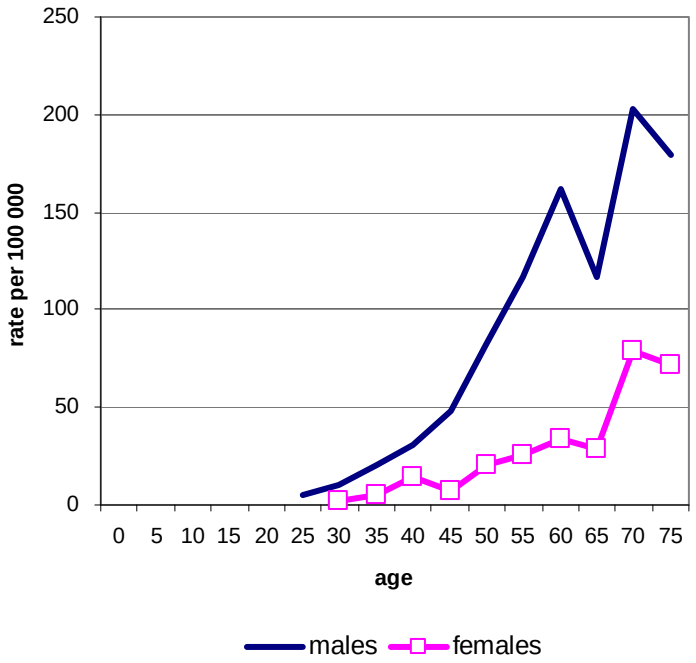

Figure 17: Age-specific mortality rate of liver cancer, Chiang Mai, 2010

For liver cancer deaths, 354 cases (78.7%) died within 6 months after diagnosis, and only 44 cases (9.8%) lived more than one year. These figures reflect the severity of this type of cancer.

Diagnosis and stage of cancer

Thirty-nine percent of cases were diagnosed at an advanced stage (33.3% had distant metastasis, 6.1% had regional nodes metastasis). The most common metastasis site was lung, followed by distant lymph nodes. Only 16.1% were diagnosed by histology or cytology, while 79.5% were diagnosed by imaging studies. The common cell types for histological diagnosis groups were cholangiocarcinoma (62.7%) and hepatocellular carcinoma (26.7%). Eighty-eight percent of hepatocellular carcinomas and 68.1% of cholangiocarcinomas were diagnosed by clinical diagnosis.

Cell type	Males	Females	Total	%
Hepatocellular	18	2	20	4.2
Cholangiocarcinoma	30	17	47	9.9
Other	5	3	8	1.7
Clinical diagnosis	305	97	202	84.3
All	358	119	477	100.0

Stage	Cases	%
Localized	8	1.7
Locally advanced	217	45.5
Regional node metastasis	29	6.1
Distant metastasis	158	33.3
Unknown/not staged	65	13.6
All	477	100.0

Stomach cancer (ICD-10 C16)

There were 110 new cases of stomach cancer diagnosed in 2010 (58 males, 52 females) (Fig 18) accounting for 3.7% of all cancers in males and 1.8% of those in females. The age-standardized incidence rates were 5.5 for males and 3.1 for females and tend to increase in both sexes, especially in females (Fig. 19). In 2010, stomach cancer ranked eighth for new male cancers and ninth for females. The incidence rates increased with age in both sexes after the age of 55 years, with rates in males increasing sharply after the age of 55 years and exceeding those in females (Fig. 20). The cumulative rate percentages to age 75 were 0.76% for males and 0.68% for females. These represented risks of 1 in 131 for men and 1 in 147 for women of developing stomach cancer by age 75.

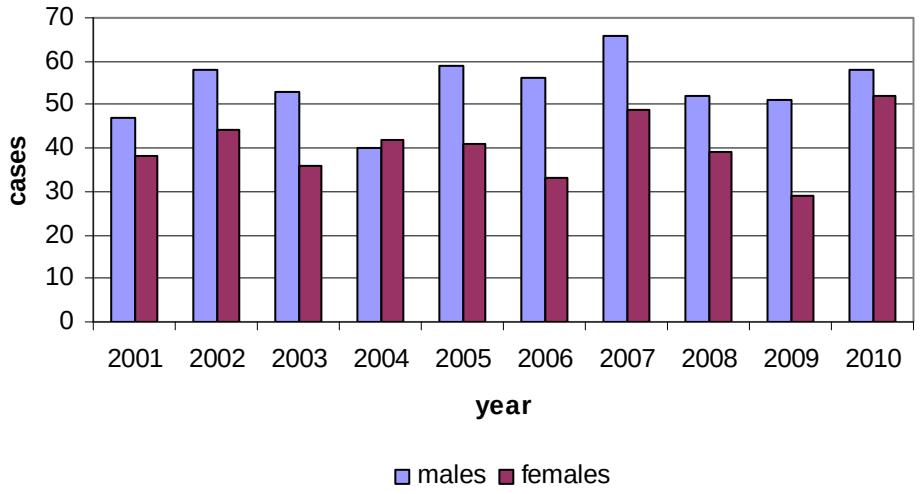

Figure 18: Number of new cases of stomach cancer by sex, 2001-2010

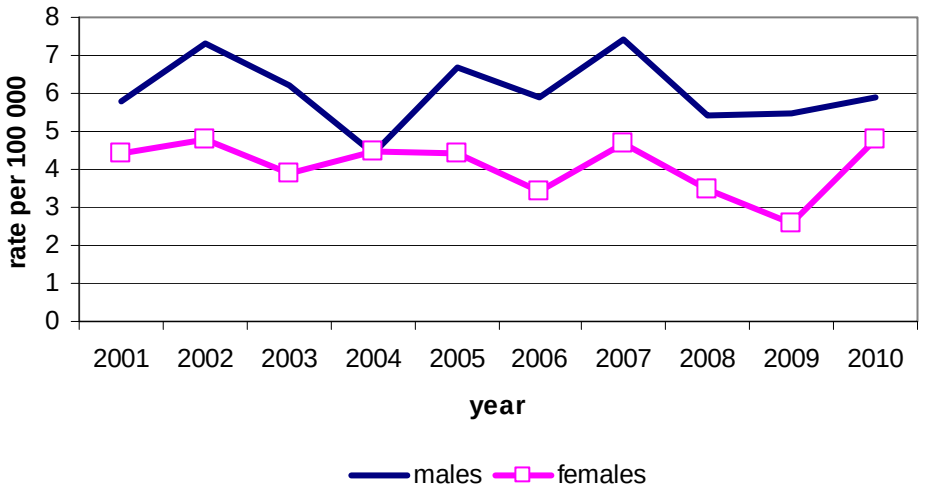

Figure 19: Incidence rates of new cases of stomach cancer by sex, 2001-2010

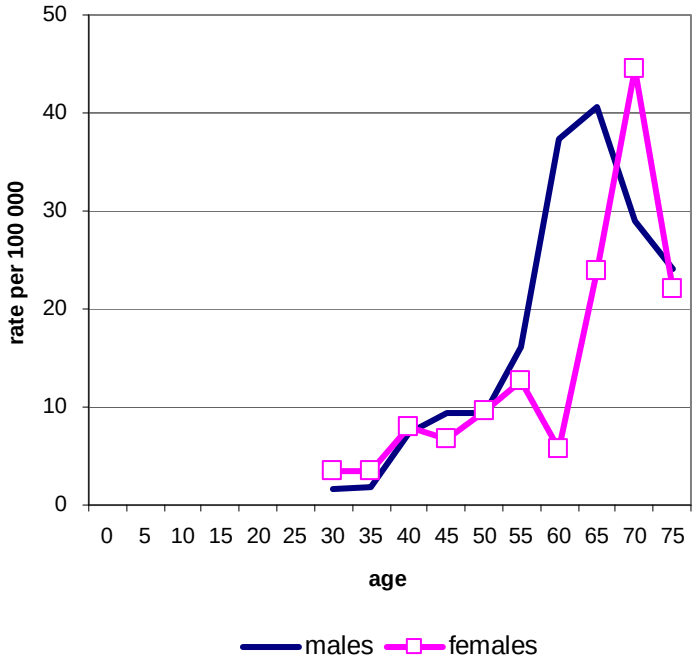

Figure 20: Age-specific incidence rate of stomach cancer, Chiang Mai, 2010

Of the 86 deaths from stomach cancer, 52 were males (4.1% of all male cancer deaths) and 34 were females (3.5% of all female cancer deaths). The mortality rates were 5.5 for males and 3.1 for females which increased in males but slightly decreased in females (Fig. 21). The mortality rates increased with age in both sexes, with rates in males exceeding those in females after the age of 60 years (Fig. 22).

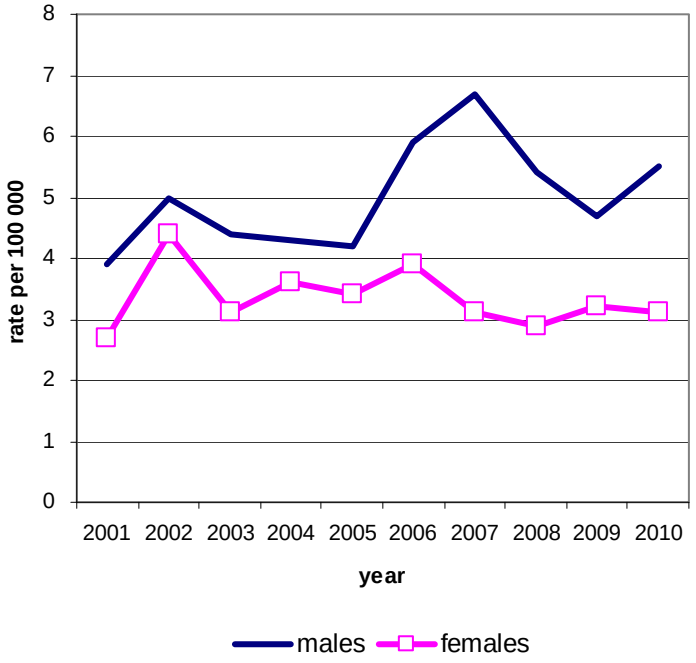

Figure 21: Mortality rate of stomach cancer by sex, Chiang Mai, 2001-2010

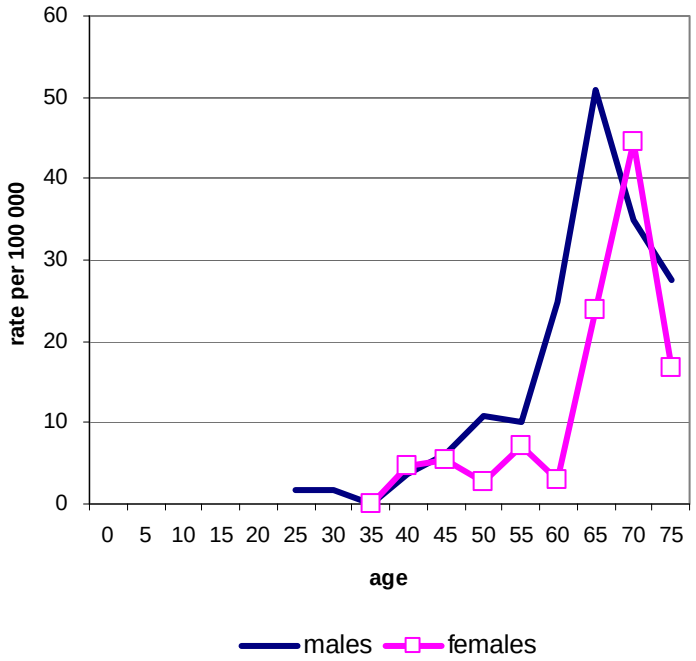

Figure 22: Age-specific mortality rate of stomach cancer, Chiang Mai, 2010

Diagnosis and stage of cancer

Sixty-four percent of cases were diagnosed at a locally advanced stage (35.5% had locally advanced and 29.1% had regional nodes metastasis) and 33.6% had already metastasis at first diagnosis. The most common metastasis site was peritoneum, followed by distant lymph nodes. Ninty-five percent were diagnosed by histology and the common cell types were adenocarcinoma (54.5%) and signet ring cell carcinoma (39.1%).

Cell type	Males	Females	Total	%
Adenocarcinoma	36	24	60	54.5
Signet ring cell	17	26	43	39.1
Others	2	0	2	1.8
Clinical diagnosis	3	2	5	4.5
Total	58	52	110	100.0

Stage	Cases	%
Localized	1	0.9
Locally advanced	39	35.5
Regional node metastasis	32	29.1
Distant metastasis	37	33.6
Unknown/not staged	1	0.9
All	110	100.0

Colon cancer (ICD-10 C18)

There were 151 new cases of colon cancer diagnosed in 2010 (65 males, 86 females) (Fig 23). This was 4.2% of all cancers in males and 5.1% of those in females. Among the gastrointestinal tract cancer, colon cancer was the most common cancer in both sexes. The age-standardized incidence rates were 6.3 in males and 7.2 in females and tended to decrease in males but increase in females (Fig. 24). In 2010, colon cancer ranked sixth for new cancers in males and fifth in females. The incidence rates increased with age in both sexes after the age of 40 years (Fig. 25). The cumulative rate percentage to age 75 was 0.7% for males and 1.1% for females. These represented risks of 1 in 145 for males and 1 in 89 for females of developing colon cancer by age 75.

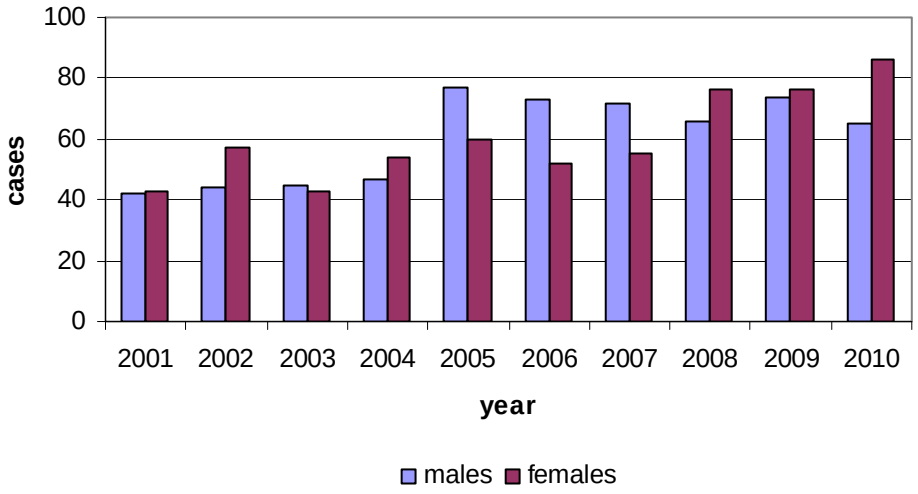

Figure 23: Number of new cases of colon cancer by sex, 2001-2010

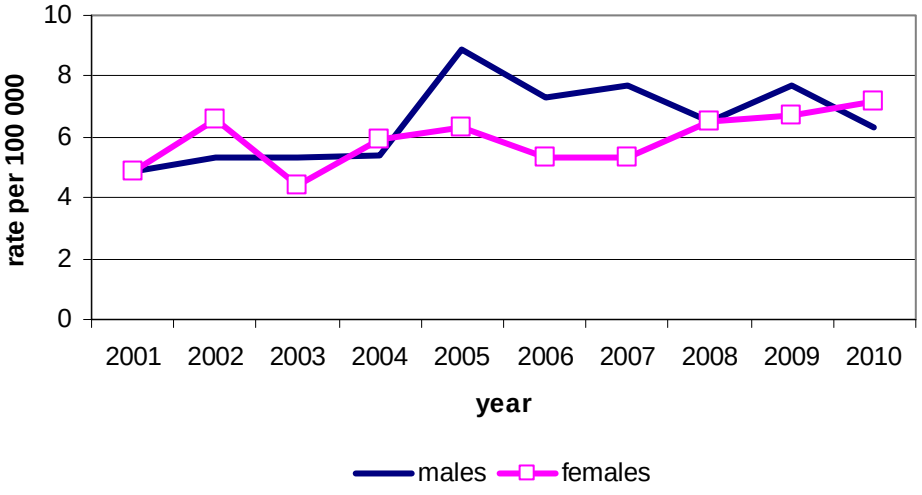

Figure 24: Incidence rates of new cases of colon cancer by sex, 2001-2010

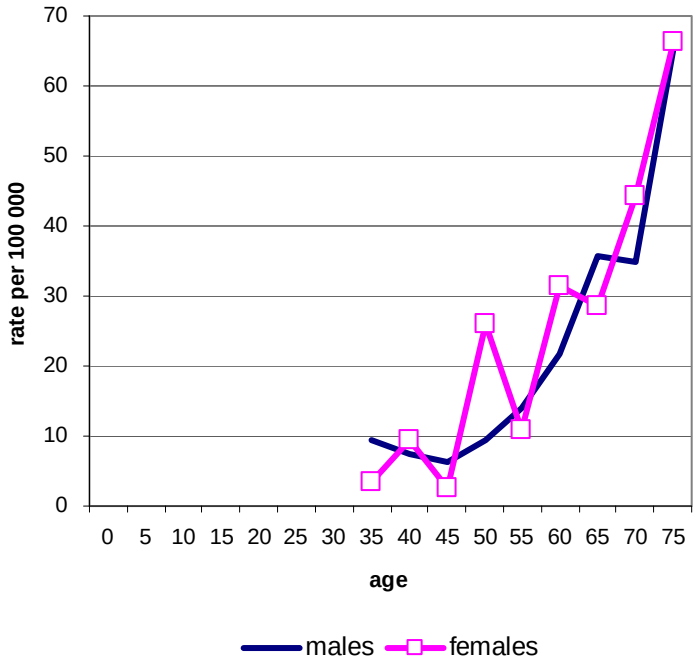

Figure 25: Age-specific incidence rate of colon cancer, Chiang Mai, 2010

Of the 100 deaths from colon cancer, 47 were males (3.7% of all male cancer deaths) and 53 were females (5.5% of all female cancer deaths). The age-standardized mortality rates were 4.6 for males and 4.2 for females and tended to increase in both sexes (Fig. 26). The mortality rates increased with age in both sexes, and increased sharply after age 55 (Fig. 27).

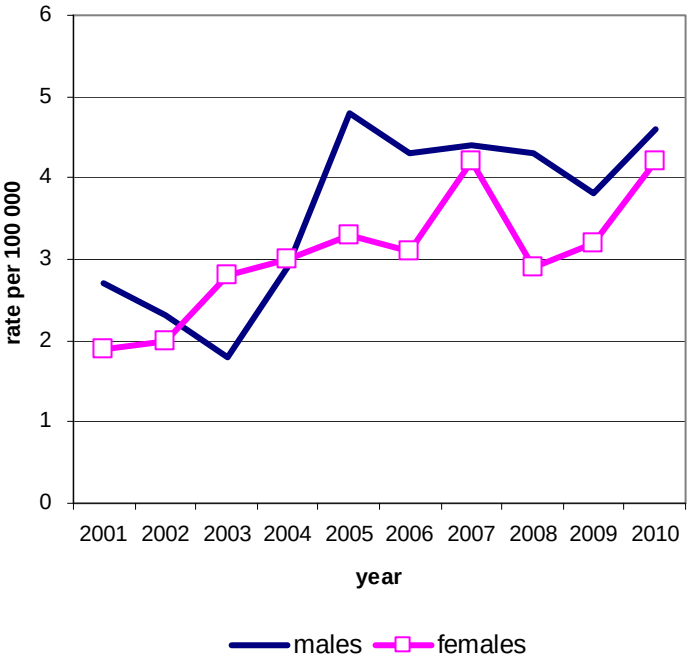

Figure 26: Mortality rate of colon cancer by sex, Chiang Mai, 2001-2010

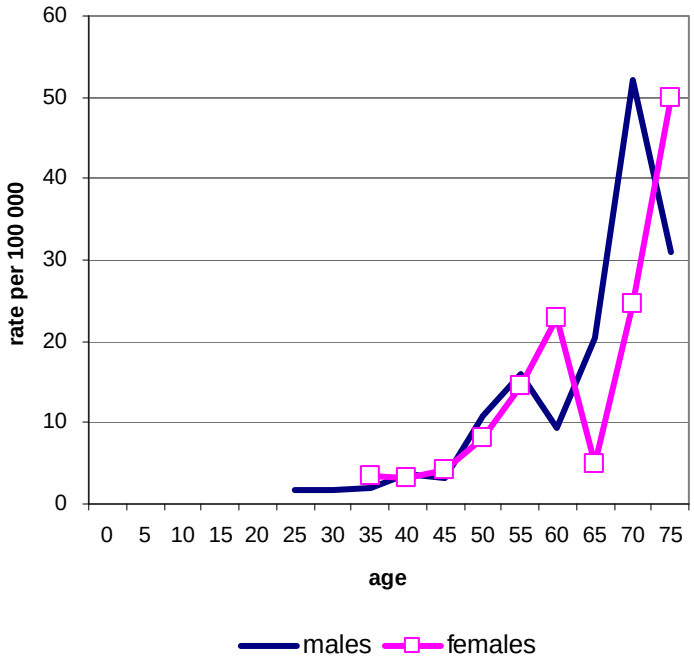

Figure 27: Age-specific mortality rate of colon cancer, Chiang Mai, 2010

Diagnosis and stage of cancer

Sixty-five percent of cases were diagnosed at a locally advanced stage (42.4% had locally advanced, 23.2% had regional node metastasis). The most common metastasis site was liver, followed by peritoneum. Ninety-two percent were diagnosed by histology. The most common cell type in histological diagnosis groups was adenocarcinoma (79.5%).

Cell type	Males	Females	Total	%
Adenocarcinoma	48	72	120	79.5
Mucinous carcinoma	6	4	10	6.6
Signet ring cell	0	1	1	0.7
Others	5	3	8	5.3
Clinical diagnosis	6	6	12	7.9
	65	86	151	100.0

Stage	Cases	%
Localized	5	3.3
Locally advanced	64	42.4
Regional node metastasis	35	23.2
Distant metastasis	41	27.2
Unknown/not staged	6	4.0
All	151	100.0

Bladder cancer (ICD-10 C67)

Bladder cancer was the most common cancer of the urinary system. There were 83 new cases of bladder cancer diagnosed in 2010 (61 males, 22 females) (Fig 28). This was 3.9% of all cancers in males and 1.3% of those in females. The age-standardized incidence rates were 5.8 for males and 2.1 for females. In 2010, bladder cancer ranked tenth for both sexes, ranked seventh for new male cancers and fifteenth for females. The incidence slightly increased in both sexes from the year 2009 (Fig. 29). The incidence rates increased with age in both sexes; rates in males exceeded those in females in all age groups (Fig. 30). The cumulative rate percentages to age 75 were 0.6% for males and 0.4% for females. These represented risks of 1 in 166 for men and 1 in 250 for women of developing bladder cancer by age 75.

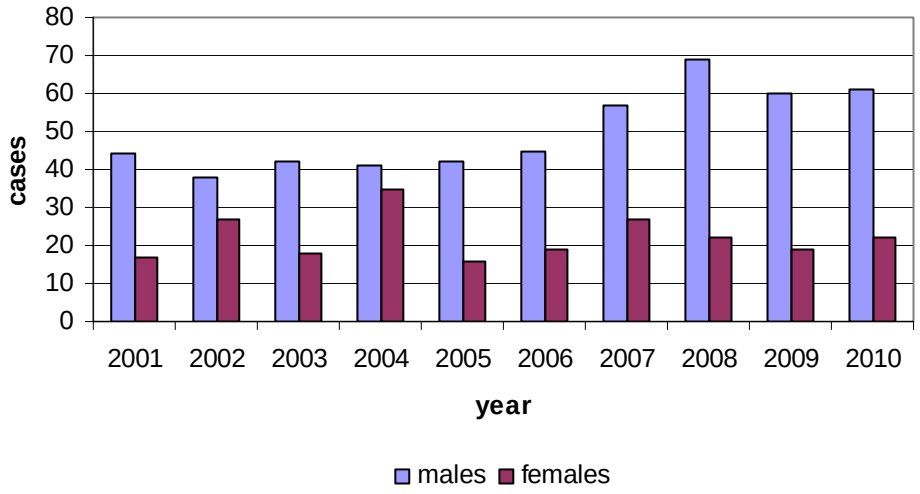

Figure 28: Number of new cases of bladder cancer by sex, 2001-2010

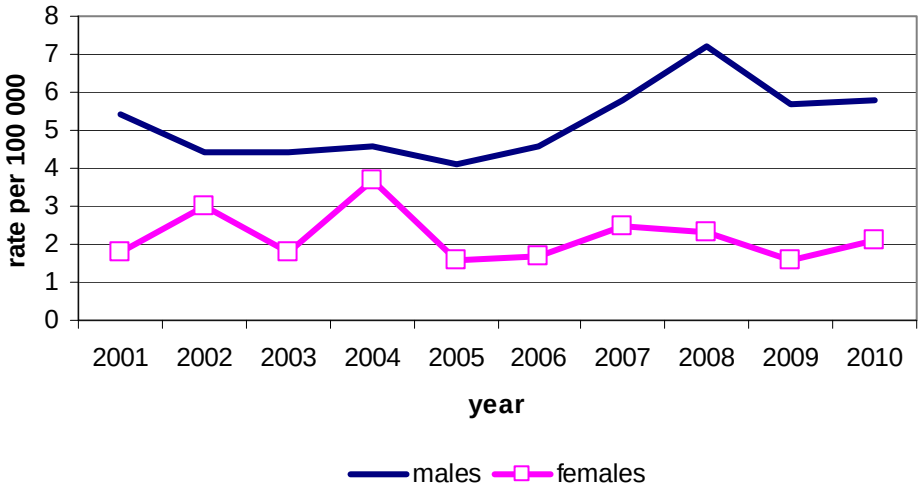

Figure 29: Incidence rates of new cases of bladder cancer by sex, 2001-2010

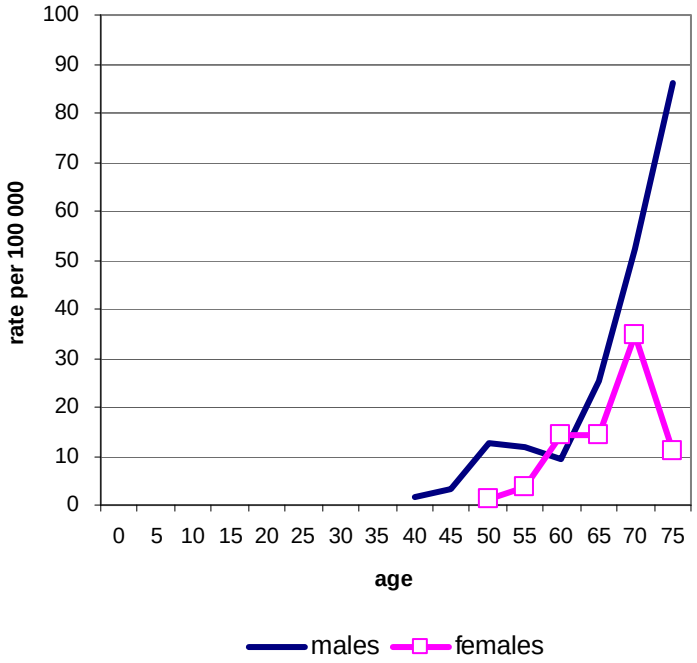

Figure 30: Age-specific incidence rate of bladder cancer, Chiang Mai, 2010

Of the 54 deaths from bladder cancer, 43 were males (3.4% of all male cancer deaths) and 11 were females (1.1% of all female cancer deaths). The age-standardized mortality rates were 4.2 for males and 0.8 for females (Fig. 31). The mortality rates increased with age in both sexes, increasing sharply after age 55 (Fig. 32).

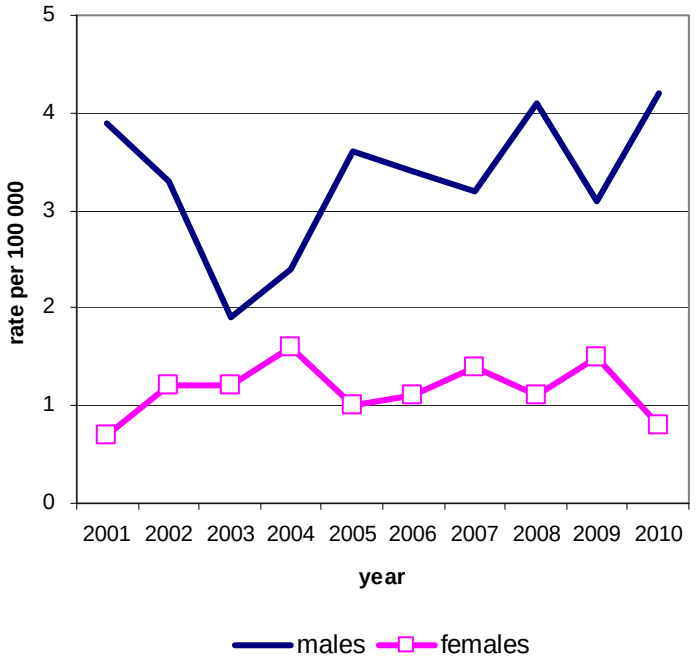

Figure 31: Mortality rate of bladder cancer by sex, Chiang Mai, 2001-2010

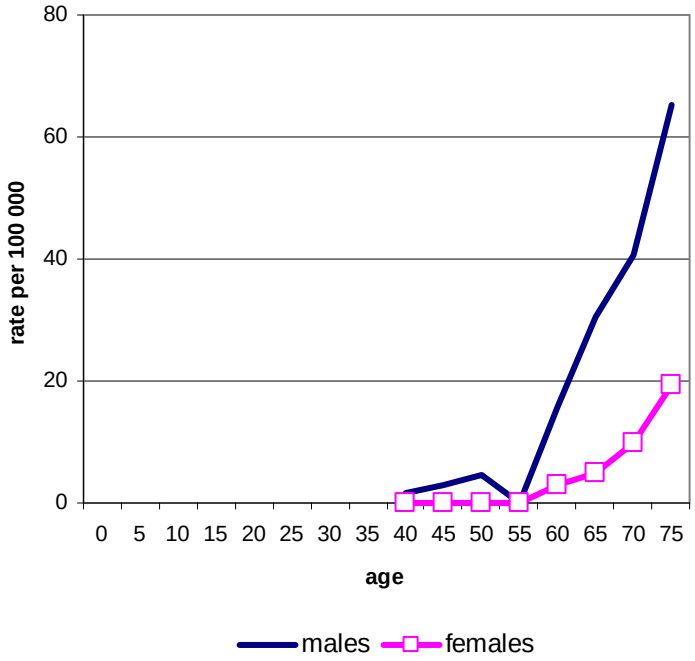

Figure 32: Age-specific mortality rate of bladder cancer, Chiang Mai, 2010

Diagnosis and stage of cancer

Fifty-five cases (63.3%) were diagnosed at a locally advanced stage and six cases had distant metastases. Ninety-four percent were diagnosed by histology; the most common cell type was transitional cell carcinoma (89.2%).

Cell type	Males	Females	Total	%
Transitional cell ca.	54	20	74	89.2
Adenocarcinoma	1	0	1	1.2
Other	2	1	3	3.6
Clinical diagnosis	4	1	5	6.0
All	61	22	83	100.0

Stage	Cases	%
Localized	10	12.0
Locally advanced	55	66.3
Regional node metastasis	8	9.6
Distant metastasis	6	7.2
Unknown/not staged	4	4.8
All	83	100.0

Non-Hodgkin's Lymphoma (ICD-10 C82-C85; C96)

Non-Hodgkin's lymphoma (NHL) was the most common cancer of lymphoid and hematopoietic system. There were 127 new cases of NHL diagnosed in 2010 (72 males, 55 females) (Fig 33). This was 4.6% of all cancers in males and 3.3% of those in females. The age-standardized incidence rates were 7.4 for males and 5.3 for females. In 2010, NHL ranked fifth for male and seventh for female cancers. The incidence rates in both sexes tended to increase since the year 2003 (Fig. 34). NHL was found in all age-groups and the incidence increased with age in both sexes, especially in males. The incidence was high after the age of 55 years (Fig. 35). The cumulative rate percentages to age 75 were 0.74% for males and 0.69% for females. These represented risks of 1 in 135 for men and 1 in 145 for women of developing NHL by age 75.

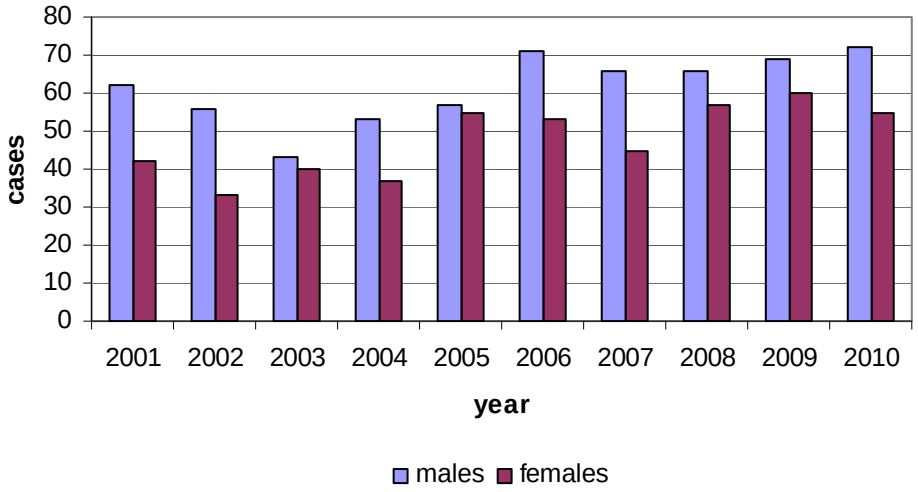

Figure 33: Number of new cases of NHL by sex, 2001-2010

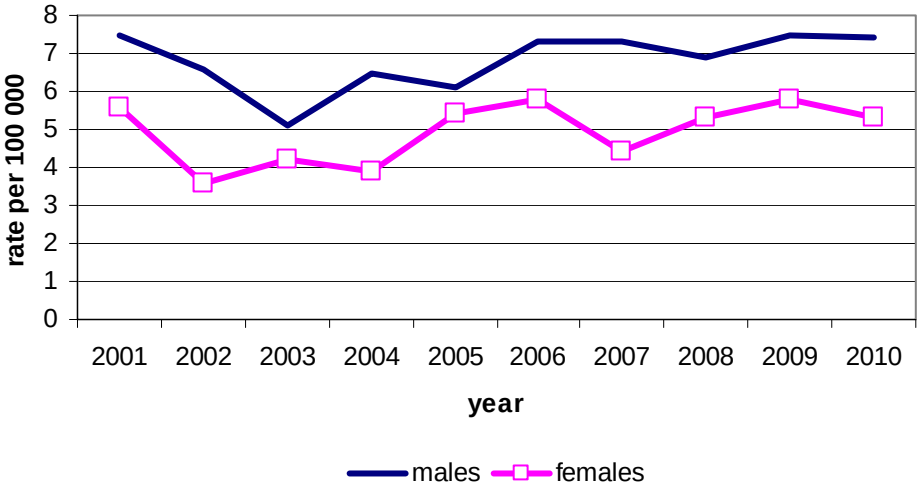

Figure 34: Incidence rates of new cases of NHL by sex, 2001-2010

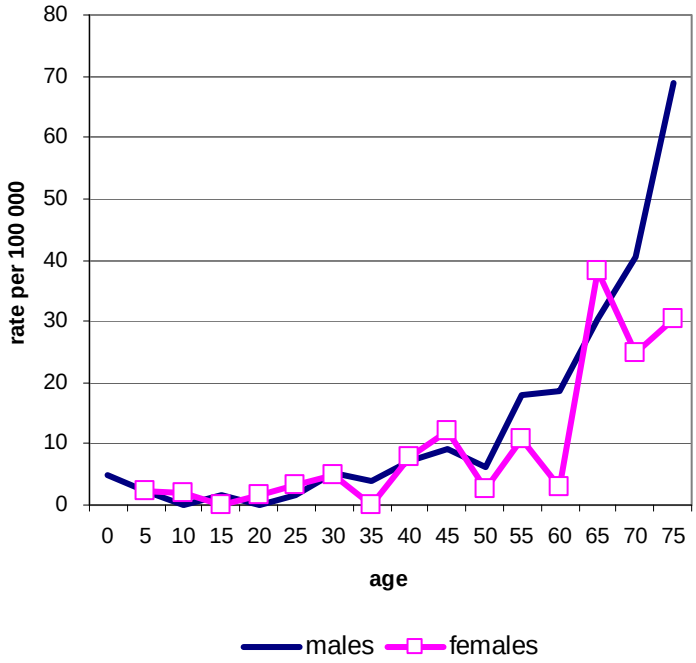

Figure 35: Age-specific incidence rate of NHL, Chiang Mai, 2010

Of the 74 deaths from NHL, 50 were males (3.9% of all male cancer deaths) and 24 were females (2.5% of all female cancer deaths). The age-standardized mortality rates were 4.8 for males and 2.2 for females and tended to increase only in males (Fig. 36). The mortality rates increased with age in both sexes, especially in males increasing sharply after age 55 (Fig. 37).

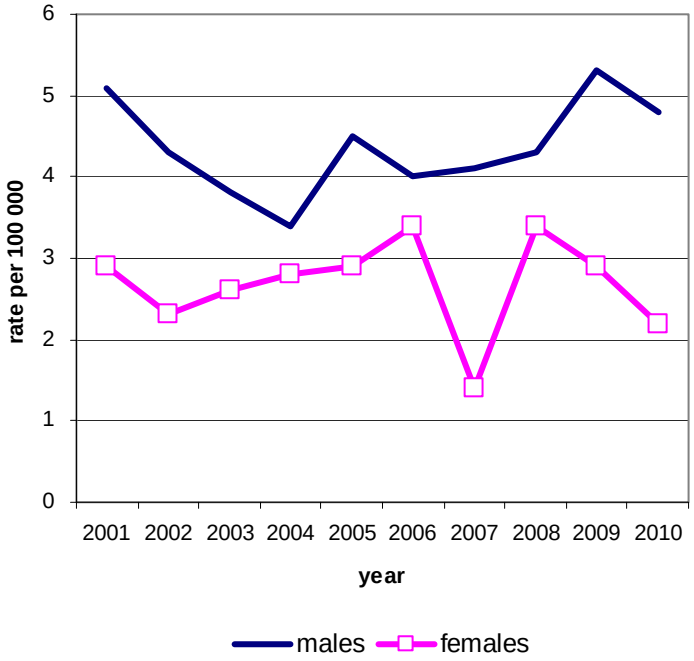

Figure 36: Mortality rate of NHL by sex, Chiang Mai, 2001-2010

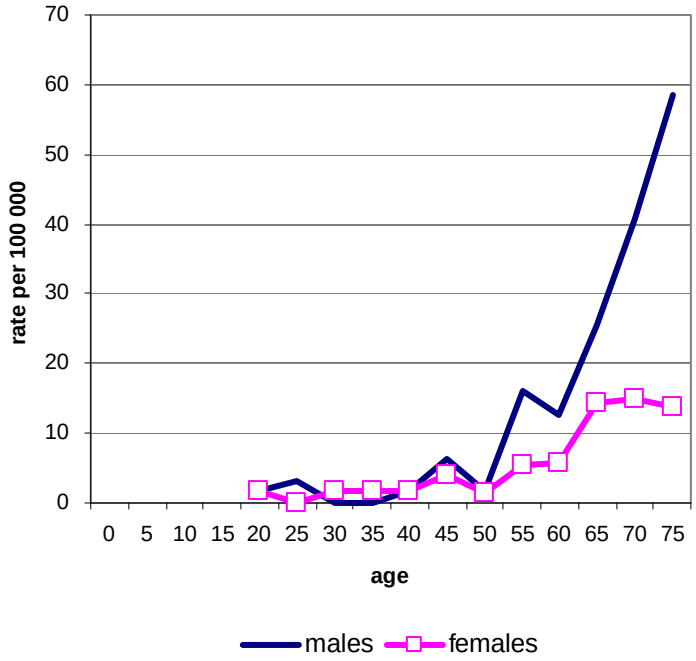

Figure 37: Age-specific mortality rate of NHL, Chiang Mai, 2010

Diagnosis and stage of cancer

The stage of NHL in the Chiang Mai Cancer Registry was noted as "not applicable" because of insufficient information about staging. All cases were histologically verified. The most common cell types was malignant lymphoma, large B-cell, diffuse, NOS (M9680/3) (60.6%) and followed by mature T-cell lymphoma (M9702/3), malignant lymphoma, NOS (M9590/3); and Marginal zone B-cell lymphoma, NOS (M9699/3).

Cell type	Males	Females	Total	%
Large B-cell, diffuse	40	37	77	60.6
Mature T-cell	11	3	14	11.0
Malig.lymphoma,nos	6	3	9	7.1
Marginal zone B-cell	3	3	6	4.7
Other	12	9	21	16.5
All	72	55	127	100.0

Cervical cancer (ICD-10 C53)

There were 255 new cases of invasive cervical cancer diagnosed in 2010. This was 15.2% of all cancers in females (Fig 38). The age-standardized incidence rate was 22.0 and decreased from the year 2009 (Fig. 39). Cervical cancer was one of the three most common cancers in females, ranking second in 2009 after breast cancer. The incidence rates increased sharply after age 40 (Fig 40) and were less common than breast cancer in the age group 30-59 years. The age at diagnosis ranged from 27 to 88 years with a mean age of 52.5 years and a median age of 50.0 years. The cumulative rate percentage to age 75 was 2.4%, representing a risk of 1 in 42 for women of developing cervical cancer by age 75.

Figure 38: Number of new cases of cervical cancer, 2001-2010

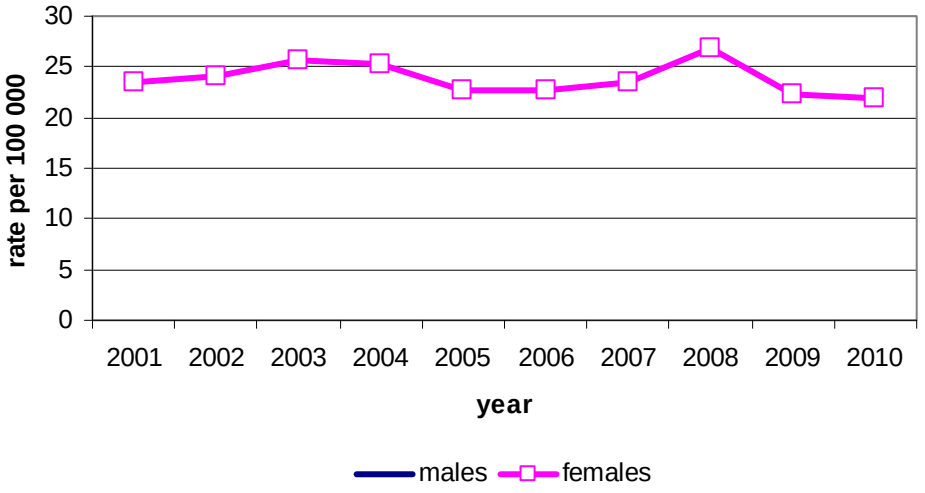

Figure 39: Incidence rates of new cases of cervical cancer, 2001-2010

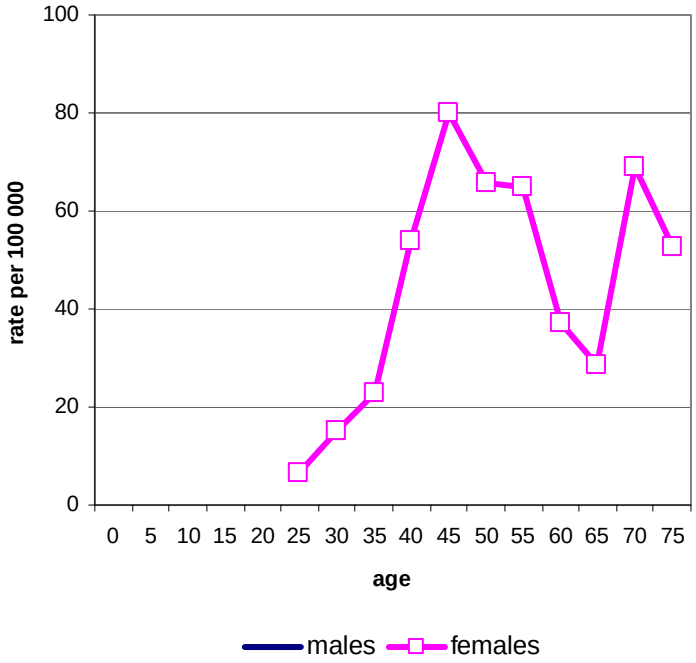

Figure 40: Age-specific incidence rate of cervical cancer, Chiang Mai, 2010

There were 110 deaths from cervical cancer, accounting for 11.3% of all female cancer deaths. The age-standardized mortality rate was 9.7 and increased from the year 2009 (Fig. 41). The mortality rate increased with age, increasing sharply after age 50 (Fig. 42).

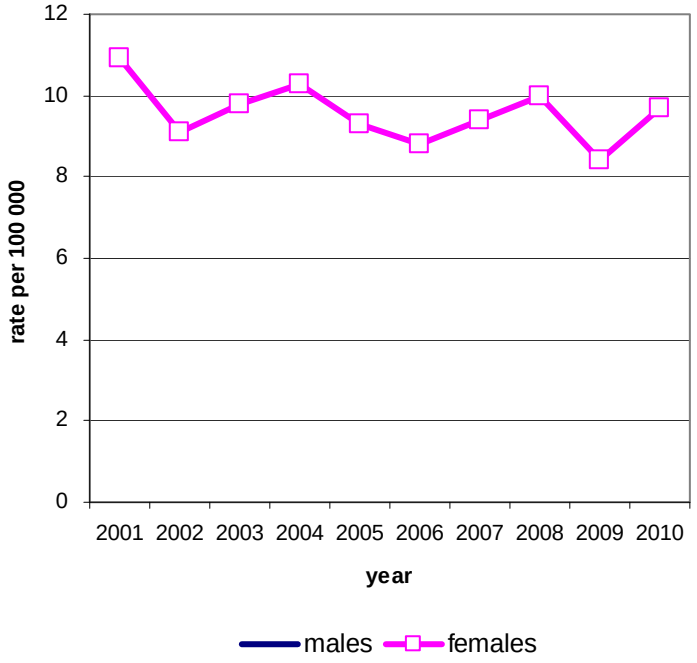

Figure 41: Mortality rate of cervical cancer, Chiang Mai, 2001-2010

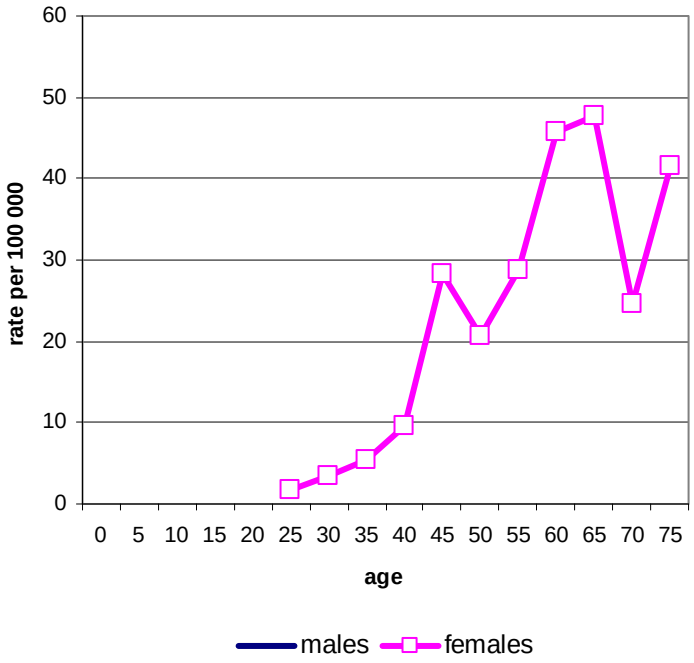

Figure 42: Age-specific mortality rate of cervical cancer, Chiang Mai, 2010

For cervical cancer deaths, 27 cases (24.5%) survived less than one year, and 57 cases (51.8%) survived more than two years.

Diagnosis and stage of cancer

There were 284 cases of carcinoma in situ of the cervix that were not included in this analysis. For invasive cancer, 116 cases (45.5%) were diagnosed in localized stage and 16 cases had distant metastases. The most common metastasis site was distant lymph nodes. Ninety-seven percent had histological diagnosis; the common cell types were squamous cell carcinoma (83.1%) and adenocarcinoma (11.4%).

Cell type	Females	Total	%
Squmous cell	212	212	83.1
Adenocarcinoma	29	29	11.4
Other	9	9	3.5
Clinical diagnosis	5	5	2.0
All	255	255	100.0

Stage	Cases	%
Localized	116	45.5
Locally advanced	109	42.7
Regional node metastasis	12	4.7
Distant metastasis	16	6.3
Unknown/not staged	2	0.8
All	255	100.0

Female breast cancer (ICD-10 C50)

Breast cancer was the most common cancer in females and there were 305 new cases of female breast cancer diagnosed in 2010 (Fig 43). This was 18.2% of all cancers in females. The age-standardized incidence rate was 26.8 and slightly decreased from the year 2009 (Fig. 44). The incidence rate increased sharply from the age of 35 years to a maximum in the age group 60-64 years (Fig 45). Breast cancer was more common than cervical and lung cancer in the age group 30-59 years. The mean age at diagnosis was 53.5 years; the median age at diagnosis was 53 years. The cumulative rate percentage to age 75 was 3.1%, representing a risk of 1 in 32 for women of developing breast cancer by age 75.

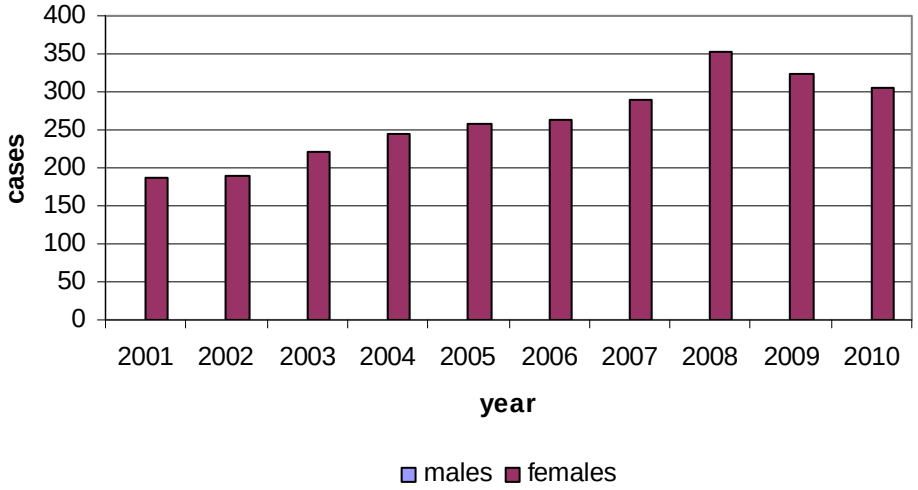

Figure 43: Number of new cases of female breast cancer, 2001-2010

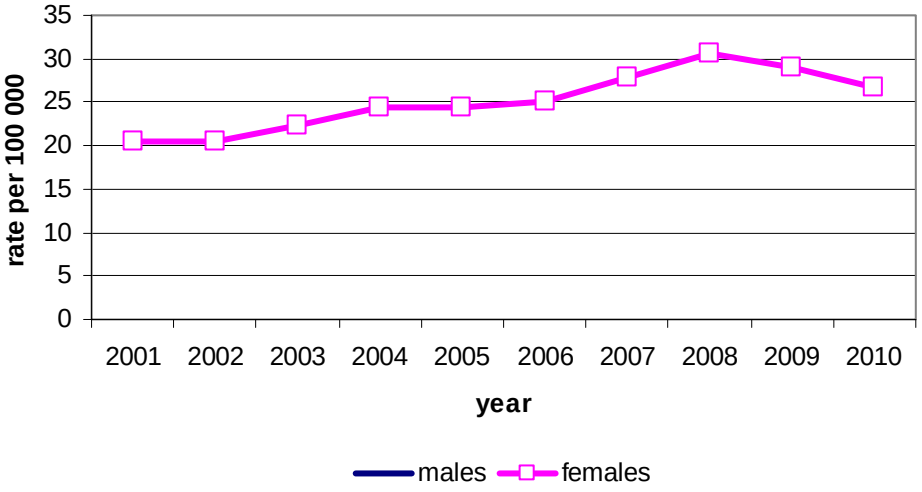

Figure 44: Incidence rates of new cases of female breast cancer, 2001-2010

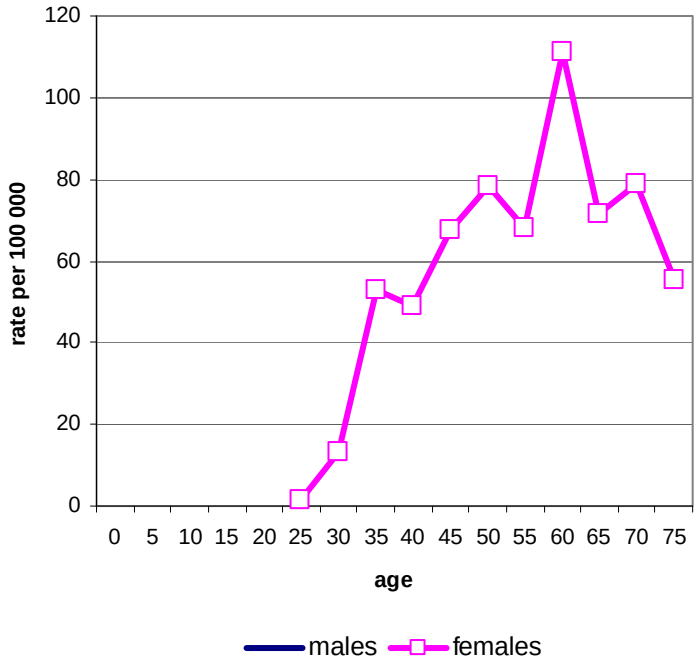

Figure 45: Age-specific incidence rate of female breast cancer, Chiang Mai, 2010

There were 99 deaths from breast cancer, accounting for 10.2% of all female cancer deaths and was the fourth common cause of cancer death after lung cancer, cervix and liver cancer. The age-standardized mortality rate was 8.0 and decreased from the year 2009 (Fig. 46). The mortality rate increased with age, increasing sharply after age 65 (Fig. 47).

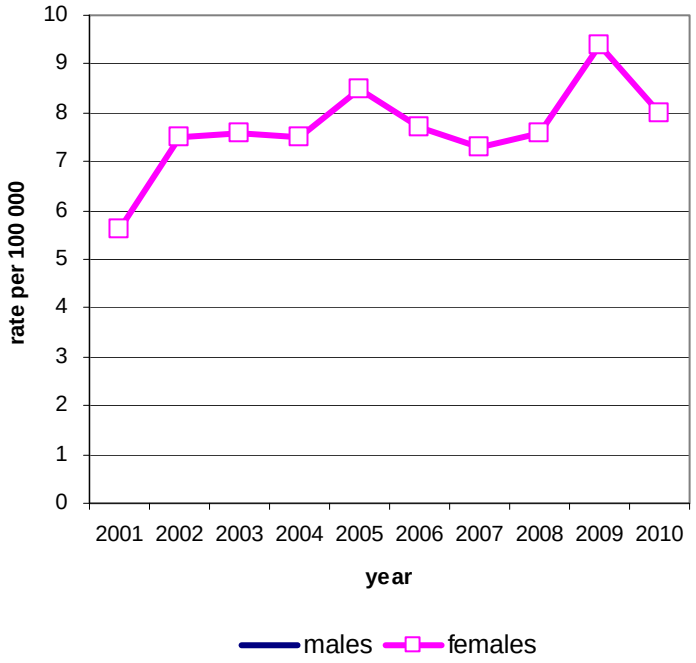

Figure 46: Mortality rate of female breast cancer, Chiang Mai, 2001-2010

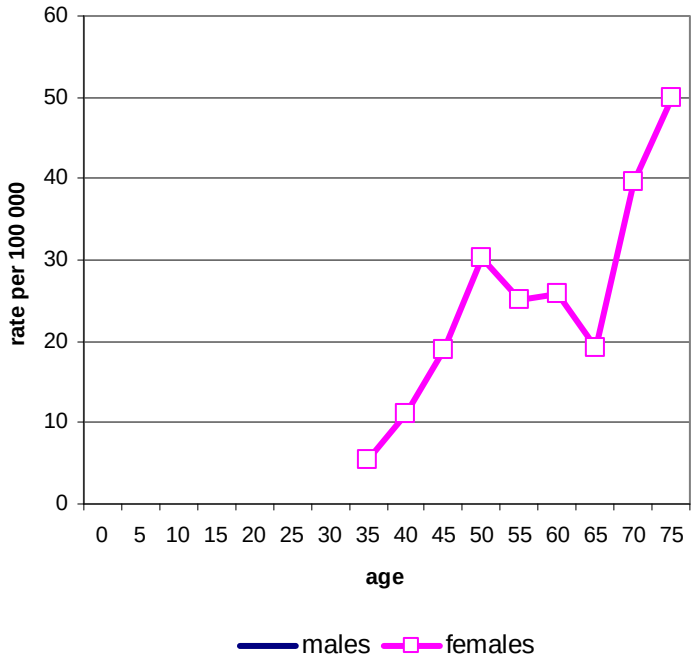

Figure 47: Age-specific mortality rate of female breast cancer, Chiang Mai, 2010

For breast cancer deaths, 26 cases (26.2%) survived more than five years, 44 cases (44.4%) survived more than three years and 13 cases (13.1%) survived less than one year.

Diagnosis and stage of cancer

Fifty-four percent were diagnosed in locally advanced stage and 13 cases had distant metastases at first diagnosis. The common metastasis sites were bone (6 cases) and distant lymph node (4 cases). Ninety-eight percent had histological diagnosis; the most common cell type was invasive ductal carcinoma (87.9%).

Cell type	Females	Total	%
Invasive ductal ca.	268	268	87.9
Lobular carcinoma	7	7	2.3
Mucinous ca.	5	5	1.6
Papillary ca.	5	5	1.6
Others	16	16	5.2
Clinical diagnosis	4	4	1.3
All	305	305	100.0

Stage	Cases	%
Localized	47	15.4
Locally advanced	164	53.8
Regional node metastasis	78	25.6
Distant metastasis	13	4.3
Unknown/not staged	3	1.0
All	305	100.0

Nasopharynx cancer (ICD-10 C11)

In 2010, nasopharyngeal cancer was the most common pharyngeal cancer and ranked 14th for new male cancers and 18th for females. There were 39 new cases of nasopharyngeal cancer diagnosed in 2010 (25 males, 14 females) (Fig 48). This was 1.6% of all cancers in males and 0.8% of those in females. The age-standardized incidence rates were 2.6 for males and 1.1 for females. It was more common in males than in females in all age groups. The incidence rates were slightly decreased from the year 2009 in both sexes (Fig. 49). The rates in males were higher than in females after age 45 (Fig. 50). The cumulative rate percentages to age 75 were 0.31% for males and 0.13% for females. These represented risks of 1 in 322 for men and 1 in 769 for women of developing nasopharyngeal cancer by age 75.

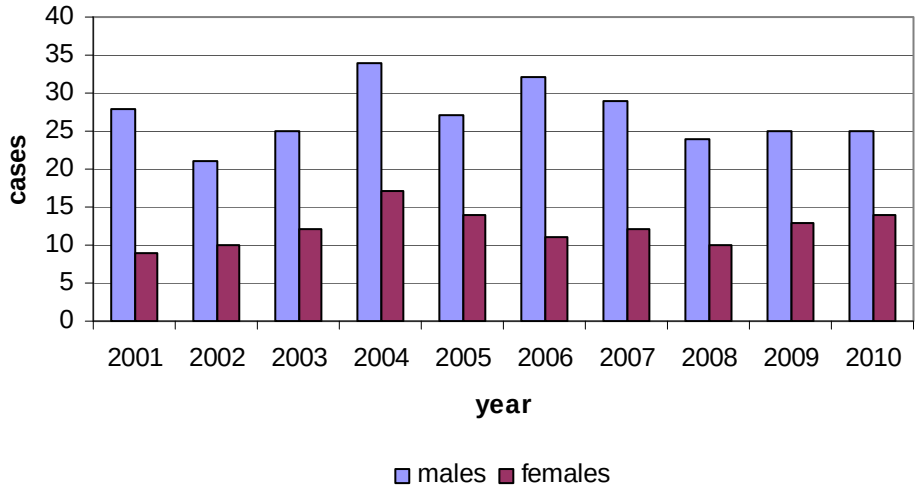

Figure 48: Number of new cases of nasopharyngeal cancer by sex, 2001-2010

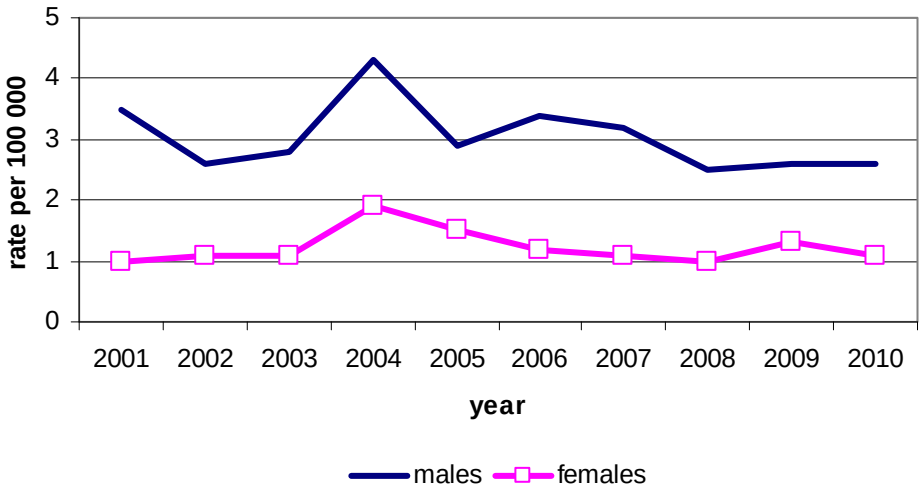

Figure 49: Incidence rates of new cases of nasopharyngeal cancer by sex, 2001-2010

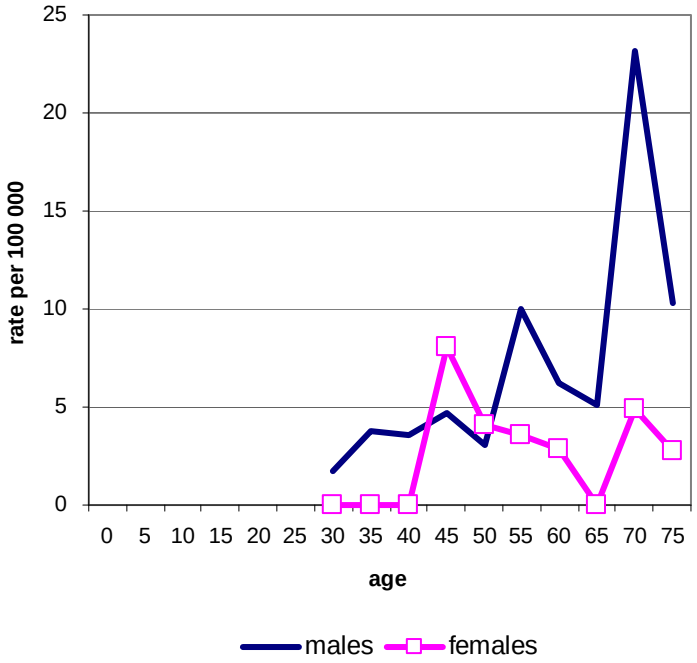

Figure 50: Age-specific incidence rate of nasopharyngeal cancer, Chiang Mai, 2010

Of the 30 deaths from nasopharyngeal cancer, 22 were males (1.7% of all male cancer deaths) and 8 were females (0.8% of all female cancer deaths). The age-standardized mortality rates were 2.2 for males and 0.7 for females (Fig. 51). The mortality rates increased with age in both sexes, and males had higher rates than females in all age groups (Fig. 52).

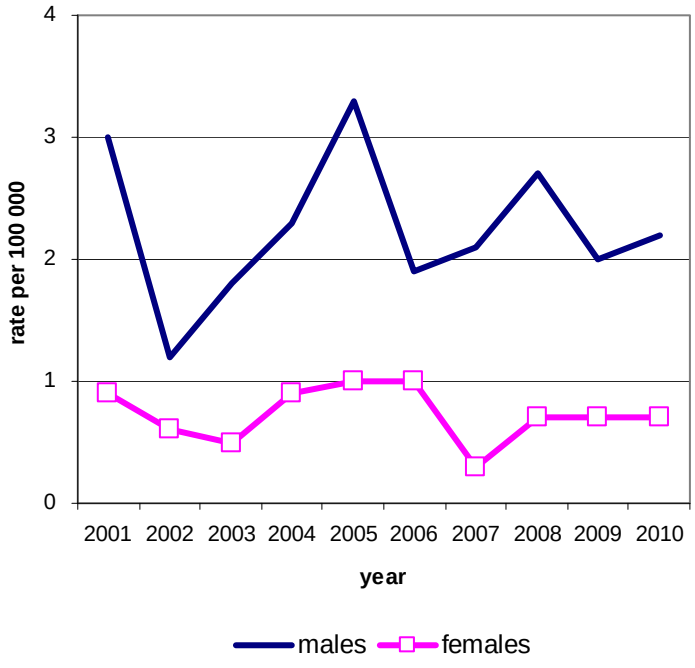

Figure 51: Mortality rate of nasopharyngeal cancer by sex, Chiang Mai, 2001-2010

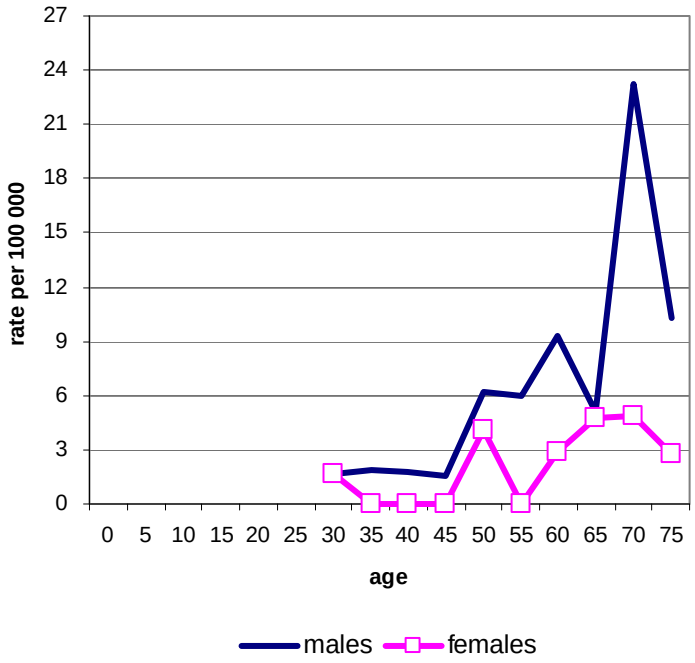

Figure 52: Age-specific mortality rate of nasopharyngeal cancer, Chiang Mai, 2010

Diagnosis and stage of cancer

Twenty-one cases (53.8%) were diagnosed in regional node metastasis and 7 cases had distant metastases. All but one case had histological diagnosis; the common cell types were squamous cell carcinoma (56.4%) and undifferentiated carcinoma (38.5%).

Cell type	Males	Females	Total	%
Undiff. Carcinoma	9	6	15	38.5
Squamous cell ca.	15	7	22	56.4
Other	0	1	1	2.6
Clinical diagnosis	1	0	1	2.6
All	25	14	39	100.0

Stage	Cases	%
Localized	3	7.7
Locally advanced	8	20.5
Regional node metastasis	21	53.8
Distant metastasis	7	17.9
Unknown/not staged	0	0.0
All	39	100.0

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COMPLETENESS AND QUALITY OF DATA

Completeness is the proportion of all cancer cases in the registry population that have been included in the registry database. Completeness should be as close to 100% as possible. It is the aim of the Chiang Mai Cancer Registry to register all cancer cases in Chiang Mai province. Completeness of registration can only be measured indirectly. It is monitored routinely as part of quality control procedures of the registry. The following indices of completeness used at the Chiang Mai Cancer Registry are shown in Table 8 and 9.

(1) Histologically verified cases
(2) Mortality/Incidence (M/I) ratio
(3) Death certificate only cases

Histologically verified cases

Histologically verified (HV) cases are those with pathological verification of diagnosis. This is generally taken to indicate the validity of the data. Histology verified cases were 64.6% for males (Table 8), and 82.3% for females (Table 9). Lower HV percentages were found in cases of cancer of the hepatobiliary and nervous system.

Mortality/Incidence (M/I) ratio

The M/I ratio is an index of survival of patients with cancer. When the quality of the mortality data is good, the M/I ratio is related to case fatality (1-survival). However, when mortality statistics are of poorer quality (incomplete certification, inaccurate cause of death statements) the relationship will be less clear. The distribution of the M/I ratios for the various sites are shown in Table 8 and 9.

Death certificate only cases

A death certificate only (DCO) case is one without cancer information available other than that stated in the death certificate. It indicates indirectly how many cancer cases are missed in registration because of no information during the lifetime of the patient. In 2010, 44 cases (1.4%) were diagnosed by death certificate only. The age of DCO cases ranged from 17 to 83 years; the median age at death was 58 years. The common cancer sites were liver and lung.

Table 8: Indices of quality control of cancer data in Chiang Mai, 2010, males

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10th)
Lip	2	-	100.0	0.0	C00
Tongue	9	-	100.0	111.1	C01-C02
Mouth	18	-	100.0	66.7	C03-C06
Salivary glands	5	-	80.0	20.0	C07-C08
Tonsil	8	-	100.0	87.5	C09
Other Oropharynx	5	-	100.0	140.0	C10
Nasopharynx	25	-	96.0	88.0	C11
Hypopharynx	3	-	100.0	166.7	C12-C13
Pharynx unspec.	0				C14
Esophagus	17	-	82.4	117.6	C15
Stomach	58	-	94.8	89.7	C16
Small intestine	3	33.3	66.7	166.7	C17
Colon	65	1.5	90.8	72.3	C18
Rectum	75	-	93.3	60.0	C19-C20
Anus	4	-	100.0	100.0	C21
Liver	358	1.7	15.1	95.8	C22
Gallbladder	18	5.6	44.4	83.3	C23-C24
Pancreas	29	-	41.4	75.9	C25
Nose, sinuses	1	-	100.0	300.0	C30-C31
Larynx	17	11.8	64.7	129.4	C32
Lung	322	0.9	61.2	98.1	C33-C34
Other Thoracic organs	3	-	33.3	133.3	C37-C38
Bone	6	16.7	83.3	66.7	C40-C41
Melanoma of Skin	6	-	100.0	50.0	C43
Other Skin	53	-	100.0	39.6	C44
Mesothelioma	0				C45
Kaposi sarcoma	2	-	100.0	50.0	C46
Connective,Soft tissue	10	-	100.0	30.0	C47;C49
Breast	7	-	85.7	28.6	C50
Penis	19	-	94.7	15.8	C60
Prostate	77	-	87.0	48.1	C61
Testis	7	-	100.0	14.3	C62
Other male genital	0				C63
Kidney	26	-	65.4	65.4	C64
Renal Pelvis	1	-	100.0	0.0	C65
Ureter	3	-	66.7	100.0	C66
Bladder	61	-	93.4	70.5	C67
Other Urinary organs	0				
Eye	3	-	100.0	33.3	C69
Brain, Nervous system	26	3.8	61.5	76.9	C70-C72
Thyroid	12	-	100.0	8.3	C73
Adrenal gland	1	-	100.0	100.0	C74
Other Endocrine	0				
Hodgkin disease	5	-	100.0	20.0	C81
Non-Hodgkin lymphoma	72	-	100.0	69.4	C82-C85;C96
Immunoproliferative dis.	0				
Multiple Myeloma	14	-	100.0	50.0	C90
Lymphoid Leukaemia	13	-	100.0	46.2	C91
Myeloid Leukaemia	28	-	100.0	64.3	C92-C94
Leukaemia unspec.	1	-	100.0	0.0	C95
Other & unspecified	63	12.7	50.8	115.9	Other
All sites Total	**1561**	**1.5**	**64.6**	**81.9**	

%DCO Percentage of cases with diagnosis based on death certificate only
%HV Percentage of cases with histological verification of diagnosis
M/I ratio The ratio of deaths to cases registered (percent)

Table 9: Indices of quality control of cancer data in Chiang Mai, 2010, females

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10th)
Lip	1	-	100.0	100.0	C00
Tongue	6	-	100.0	50.0	C01-C02
Mouth	9	-	100.0	66.7	C03-C06
Salivary glands	4	-	100.0	0.0	C07-C08
Tonsil	1	-	100.0	0.0	C09
Other Oropharynx	2	-	100.0	50.0	C10
Nasopharynx	14	-	100.0	57.1	C11
Hypopharynx	3	-	66.7	66.7	C12-C13
Pharynx unspec.	0				C14
Esophagus	2	-	100.0	200.0	C15
Stomach	52	-	96.2	65.4	C16
Small intestine	4	-	75.0	125.0	C17
Colon	86	-	93.0	61.6	C18
Rectum	43	-	100.0	76.7	C19-C20
Anus	1	-	100.0	200.0	C21
Liver	119	4.2	19.3	89.9	C22
Gallbladder	28	-	57.1	82.1	C23-C24
Pancreas	12	-	25.0	116.7	C25
Nose, sinuses	7	-	100.0	57.1	C30-C31
Larynx	2	-	100.0	250.0	C32
Lung	282	1.4	57.1	88.3	C33-C34
Other Thoracic organs	2	-	100.0	50.0	C37-C38
Bone	2	-	100.0	50.0	C40-C41
Melanoma of Skin	2	-	100.0	300.0	C43
Other Skin	62	-	100.0	16.1	C44
Mesothelioma	0				C45
Kaposi sarcoma	0				C46
Connective,Soft tissue	6	-	100.0	0.0	C47;C49
Breast	305	0.3	98.7	32.5	C50
Vulva	5	-	100.0	100.0	C51
Vagina	1	-	100.0	100.0	C52
Cervix	255	-	98.4	43.1	C53
Corpus	52	-	100.0	25.0	C54
Uterus unspec.	0				C55
Ovary	53	1.9	96.2	52.8	C56
Other Female Genital	1	-	100.0	0.0	C57
Placenta	3	-	100.0	0.0	C58
Kidney	17	-	94.1	29.4	C64
Renal Pelvis	0				C65
Ureter	2	-	100.0	50.0	C66
Bladder	22	-	95.5	50.0	C67
Other Urinary organs	0				C68
Eye	1	-	100.0	100.0	C69
Brain, Nervous system	19	5.3	42.1	57.9	C70-C72
Thyroid	33	-	97.0	15.2	C73
Adrenal gland	1	-	100.0	0.0	C74
Other Endocrine	0				C75
Hodgkin disease	4	-	100.0	25.0	C81
Non-Hodgkin lymphoma	55	-	100.0	43.6	C82-C85;C96
Immunoproliferative dis.	0				C88
Multiple Myeloma	11	-	100.0	27.3	C90
Lymphoid Leukaemia	1	-	100.0	500.0	C91
Myeloid Leukaemia	28	-	100.0	67.9	C92-C94
Leukaemia unspec.	1	-	100.0	100.0	C95
Other & unspecified	54	14.8	53.7	96.3	Other
All sites Total	**1676**	**1.2**	**82.3**	**57.9**	**All**

Table 10: Number of new cancer cases in Chiang Mai, 2010, Males

			Number of cases by Age Group (years)									
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	2	0	0	0	0	1	1	0	0	0	0.1	C00
Tongue	9	0	0	0	2	1	2	1	2	1	0.6	C01-C02
Mouth	18	0	0	0	0	1	4	6	4	3	1.2	C03-C06
Salivary glands	5	0	0	1	0	0	1	1	0	2	0.3	C07-C08
Tonsil	8	0	0	0	0	0	3	3	1	1	0.5	C09
Other Oropharynx	5	0	0	0	0	0	3	1	0	1	0.3	C10
Nasopharynx	25	0	0	0	1	4	5	7	5	3	1.6	C11
Hypopharynx	3	0	0	0	0	0	0	0	1	2	0.2	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	17	0	0	0	0	0	4	5	4	4	1.1	C15
Stomach	58	0	0	0	1	5	12	20	13	7	3.7	C16
Small intestine	3	0	0	0	0	0	1	1	1	0	0.2	C17
Colon	65	0	0	0	0	9	10	14	13	19	4.2	C18
Rectum	75	0	0	1	3	8	10	17	18	18	4.8	C19-C20
Anus	4	0	0	0	0	0	0	0	3	1	0.3	C21
Liver	358	0	1	1	9	34	93	111	61	48	22.9	C22
Gallbladder	18	0	0	0	0	0	3	5	4	6	1.2	C23-C24
Pancreas	29	0	0	0	0	3	2	12	4	8	1.9	C25
Nose, sinuses	1	0	0	0	0	0	1	0	0	0	0.1	C30-C31
Larynx	17	0	0	0	0	0	2	3	8	4	1.1	C32
Lung	322	0	0	0	1	9	61	76	98	77	20.6	C33-C34
Other Thoracic organs	3	0	1	2	0	0	0	0	0	0	0.2	C37-C38
Bone	6	0	3	0	0	2	0	0	0	1	0.4	C40-C41
Melanoma of Skin	6	0	1	0	0	1	1	1	1	1	0.4	C43
Other Skin	53	0	0	0	0	1	9	10	12	21	3.4	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	2	0	0	1	1	0	0	0	0	0	0.1	C46
Connective,Soft tissue	10	0	0	0	0	0	3	3	2	2	0.6	C47;C49
Breast	7	0	0	0	0	0	3	1	2	1	0.4	C50
Penis	19	0	0	0	0	2	4	4	4	5	1.2	C60
Prostate	77	0	0	0	0	0	1	18	25	33	4.9	C61
Testis	7	0	0	1	3	0	2	0	0	1	0.4	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	26	0	2	0	0	0	6	9	6	3	1.7	C64
Renal Pelvis	1	0	0	0	0	0	0	0	1	0	0.1	C65
Ureter	3	0	0	0	0	0	0	2	0	1	0.2	C66
Bladder	61	0	0	2	0	1	10	9	14	25	3.9	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	3	0	0	0	0	0	1	0	0	2	0.2	C69
Brain, Nervous system	26	0	3	2	3	3	3	7	3	2	1.7	C70-C72
Thyroid	12	0	0	0	1	2	2	3	1	3	0.8	C73
Adrenal gland	1	0	1	0	0	0	0	0	0	0	0.1	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	5	0	2	0	2	0	0	0	0	1	0.3	C81
Non-Hodgkin lymphoma	72	0	3	1	4	6	10	15	13	20	4.6	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	14	0	0	0	1	1	1	4	4	3	0.9	C90
Lymphoid Leukaemia	13	0	6	3	0	0	3	1	0	0	0.8	C91
Myeloid Leukaemia	28	0	1	1	6	1	8	5	2	4	1.8	C92-C94
Leukaemia unspec.	1	0	0	0	1	0	0	0	0	0	0.1	C95
Other & unspecified	63	0	1	1	0	6	8	14	17	16	4.0	Other
All sites Total	**1561**	**0**	**25**	**17**	**39**	**101**	**293**	**389**	**347**	**350**	**100.0**	**All**
All sites but C44	**1508**	**0**	**25**	**17**	**39**	**100**	**284**	**379**	**335**	**329**	**96.6**	**Not C44**

Table 11: Number of new cancer cases in Chiang Mai, 2010, Females

			Number of cases by Age Group (years)									
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	1	0	0	0	0	0	0	0	1	0	0.1	C00
Tongue	6	0	0	0	1	0	0	0	3	2	0.4	C01-C02
Mouth	9	0	0	0	0	2	1	3	2	1	0.5	C03-C06
Salivary glands	4	0	0	0	0	0	0	4	0	0	0.2	C07-C08
Tonsil	1	0	0	0	0	0	0	0	1	0	0.1	C09
Other Oropharynx	2	0	0	0	0	0	1	0	0	1	0.1	C10
Nasopharynx	14	0	0	0	0	0	9	3	1	1	0.8	C11
Hypopharynx	3	0	0	0	0	0	0	0	0	3	0.2	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	2	0	0	0	0	0	0	0	1	1	0.1	C15
Stomach	52	0	0	0	2	7	12	9	14	8	3.1	C16
Small intestine	4	0	0	0	0	0	1	2	0	1	0.2	C17
Colon	86	0	0	1	0	8	21	17	15	24	5.1	C18
Rectum	43	0	0	0	2	5	9	8	13	6	2.6	C19-C20
Anus	1	0	0	0	0	0	1	0	0	0	0.1	C21
Liver	119	0	0	0	1	12	29	27	20	30	7.1	C22
Gallbladder	28	0	0	0	0	0	5	9	6	8	1.7	C23-C24
Pancreas	12	0	1	0	0	0	1	6	1	3	0.7	C25
Nose, sinuses	7	0	1	0	0	1	1	2	0	2	0.4	C30-C31
Larynx	2	0	0	0	0	0	0	1	0	1	0.1	C32
Lung	282	0	0	0	2	6	46	70	88	70	16.8	C33-C34
Other Thoracic organs	2	0	1	0	0	0	0	0	1	0	0.1	C37-C38
Bone	2	0	2	0	0	0	0	0	0	0	0.1	C40-C41
Melanoma of Skin	2	0	0	1	0	0	0	0	0	1	0.1	C43
Other Skin	62	0	0	0	4	2	11	9	9	27	3.7	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	6	0	0	0	0	1	2	1	1	1	0.4	C47;C49
Breast	305	0	0	0	9	61	107	77	31	20	18.2	C50
Vulva	5	0	0	0	0	1	2	1	0	1	0.3	C51
Vagina	1	0	0	0	0	0	0	0	0	1	0.1	C52
Cervix	255	0	0	0	13	47	107	49	20	19	15.2	C53
Corpus	52	0	0	0	1	0	24	22	3	2	3.1	C54
Uterus unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C55
Ovary	53	0	0	3	4	7	15	16	6	2	3.2	C56
Other Female Genital	1	0	0	0	0	0	1	0	0	0	0.1	C57
Placenta	3	0	0	2	1	0	0	0	0	0	0.2	C58
Kidney	17	0	3	0	1	0	3	5	2	3	1.0	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0.0	C65
Ureter	2	0	0	0	0	0	0	0	0	2	0.1	C66
Bladder	22	0	0	0	0	0	1	7	10	4	1.3	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	1	0	0	0	0	0	0	0	0	1	0.1	C69
Brain, Nervous system	19	0	1	0	2	5	6	3	0	2	1.1	C70-C72
Thyroid	33	0	1	0	2	8	13	4	4	1	2.0	C73
Adrenal gland	1	0	1	0	0	0	0	0	0	0	0.1	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	4	0	0	1	1	1	0	0	0	1	0.2	C81
Non-Hodgkin lymphoma	55	0	2	1	5	5	11	7	13	11	3.3	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	11	0	0	0	0	0	2	5	2	2	0.7	C90
Lymphoid Leukaemia	1	0	0	0	1	0	0	0	0	0	0.1	C91
Myeloid Leukaemia	28	0	5	1	0	2	8	5	4	3	1.7	C92-C94
Leukaemia unspec.	1	0	0	0	0	0	1	0	0	0	0.1	C95
Other & unspecified	54	0	2	3	1	1	7	14	16	10	3.2	Other
All sites Total	**1676**	**0**	**20**	**13**	**53**	**182**	**458**	**386**	**288**	**276**	**100.0**	**All**
All sites but C44	**1614**	**0**	**20**	**13**	**49**	**180**	**447**	**377**	**279**	**249**	**96.3**	**Not C44**

Table 12: Cancer Incidence in Chiang Mai, 2010, Males

	Incidence per 100,000 by Age Group (years)													
SITE	**All Ages**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**Crude rate**	**ASR (W)**	**CR 64**	**CR 74**	**ICD (10th)**
Lip	2	-	-	-	0.9	0.8	-	-	-	0.3	0.2	0.02	0.02	C00
Tongue	9	-	-	1.7	0.9	1.6	1.2	5.4	3.4	1.2	1	0.05	0.10	C01-C02
Mouth	18	-	-	-	0.9	3.1	7.3	10.8	10.3	2.4	1.8	0.12	0.22	C03-C06
Salivary glands	5	-	0.8	-	-	0.8	1.2	-	6.9	0.7	0.5	0.03	0.03	C07-C08
Tonsil	8	-	-	-	-	2.3	3.7	2.7	3.4	1.1	0.8	0.06	0.08	C09
Other Oropharynx	5	-	-	-	-	2.3	1.2	-	3.4	0.7	0.4	0.03	0.03	C10
Nasopharynx	25	-	-	0.8	3.7	3.9	8.5	13.5	10.3	3.3	2.6	0.17	0.31	C11
Hypopharynx	3	-	-	-	-	-	-	2.7	6.9	0.4	0.3	0.00	0.03	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C14
Esophagus	17	-	-	-	-	3.1	6.1	10.8	13.8	2.2	1.6	0.09	0.20	C15
Stomach	58	-	-	0.8	4.6	9.3	24.4	35.2	24.1	7.6	5.9	0.41	0.76	C16
Small intestine	3	-	-	-	-	0.8	1.2	2.7	-	0.4	0.3	0.02	0.05	C17
Colon	65	-	-	-	8.3	7.8	17.1	35.2	65.4	8.6	6.3	0.34	0.69	C18
Rectum	75	-	0.8	2.5	7.4	7.8	20.7	48.8	62	9.9	7.6	0.40	0.89	C19-C20
Anus	4	-	-	-	-	-	-	8.1	3.4	0.5	0.5	0.00	0.08	C21
Liver	358	0.7	0.8	7.4	31.5	72.4	135.5	165.3	165.3	47.1	35.6	2.50	4.12	C22
Gallbladder	18	-	-	-	-	2.3	6.1	10.8	20.7	2.4	1.7	0.08	0.19	C23-C24
Pancreas	29	-	-	-	2.8	1.6	14.6	10.8	27.5	3.8	2.8	0.19	0.30	C25
Nose, sinuses	1	-	-	-	-	0.8	-	-	-	0.1	0.1	0.01	0.01	C30-C31
Larynx	17	-	-	-	-	1.6	3.7	21.7	13.8	2.2	1.8	0.05	0.27	C32
Lung	322	-	-	0.8	8.3	47.5	92.8	265.5	265.1	42.4	32.3	1.55	4.13	C33-C34
Other Thoracic organs	3	0.7	1.7	-	-	-	-	-	-	0.4	0.5	0.02	0.03	C37-C38
Bone	6	2.2	-	-	1.9	-	-	-	3.4	0.8	1	0.05	0.05	C40-C41
Melanoma of Skin	6	0.7	-	-	0.9	0.8	1.2	2.7	3.4	0.8	0.7	0.04	0.06	C43
Other Skin	53	-	-	-	0.9	7	12.2	32.5	72.3	7	4.9	0.22	0.56	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C45
Kaposi sarcoma	2	-	0.8	0.8	-	-	-	-	-	0.3	0.3	0.01	0.01	C46
Connective,Soft tissue	10	-	-	-	-	2.3	3.7	5.4	6.9	1.3	1	0.06	0.11	C47;C49
Breast	7	-	-	-	-	2.3	1.2	5.4	3.4	0.9	0.7	0.03	0.09	C50
Penis	19	-	-	-	1.9	3.1	4.9	10.8	17.2	2.5	1.8	0.09	0.21	C60
Prostate	77	-	-	-	-	0.8	22	67.7	113.6	10.1	7.5	0.24	0.93	C61
Testis	7	-	0.8	2.5	-	1.6	-	-	3.4	0.9	0.7	0.04	0.05	C62
Other male genital	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C63
Kidney	26	1.5	-	-	-	4.7	11	16.3	10.3	3.4	2.9	0.18	0.35	C64
Renal Pelvis	1	-	-	-	-	-	-	2.7	-	0.1	0.1	0.00	0.03	C65
Ureter	3	-	-	-	-	-	2.4	-	3.4	0.4	0.3	0.02	0.02	C66
Bladder	61	-	1.7	-	0.9	7.8	11	37.9	86.1	8	5.8	0.21	0.60	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C68
Eye	3	-	-	-	-	0.8	-	-	6.9	0.4	0.2	0.01	0.01	C69
Brain, Nervous system	26	2.2	1.7	2.5	2.8	2.3	8.5	8.1	6.9	3.4	3.1	0.22	0.29	C70-C72
Thyroid	12	-	-	0.8	1.9	1.6	3.7	2.7	10.3	1.6	1.1	0.07	0.09	C73
Adrenal gland	1	0.7	-	-	-	-	-	-	-	0.1	0.2	0.01	0.01	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C75
Hodgkin disease	5	1.5	-	1.7	-	-	-	-	3.4	0.7	0.8	0.04	0.03	C81
Non-Hodgkin lymphoma	72	2.2	0.8	3.3	5.6	7.8	18.3	35.2	68.9	9.5	7.4	0.39	0.74	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C88
Multiple Myeloma	14	-	-	0.8	0.9	0.8	4.9	10.8	10.3	1.8	1.5	0.08	0.19	C90
Lymphoid Leukaemia	13	4.4	2.5	-	-	2.3	1.2	-	-	1.7	2.2	0.13	0.13	C91
Myeloid Leukaemia	28	0.7	0.8	5	0.9	6.2	6.1	5.4	13.8	3.7	2.9	0.19	0.24	C92-C94
Leukaemia unspec.	1	-	-	0.8	-	-	-	-	-	0.1	0.1	0.01	0.00	C95
Other & unspecified	63	0.7	0.8	-	5.6	6.2	17.1	46.1	55.1	8.3	6.5	0.32	0.79	Other
All sites Total	**1561**	**18**	**14**	**32**	**94**	**228**	**475**	**940**	**1205**	**205.6**	**158.1**	**8.48**	**16.75**	**All**
All sites but C44	**1508**	**18**	**14**	**32**	**93**	**221**	**463**	**908**	**1133**	**198.6**	**153.1**	**8.28**	**16.28**	**Not C44**

Table 13: Cancer Incidence in Chiang Mai, 2010, Females

		Incidence per 100,000 by Age Group (years)												
SITE	**All Ages**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**Crude rate**	**ASR (W)**	**CR 64**	**CR 74**	**ICD (10th)**
Lip	1	-	-	-	-	-	-	2.4	-	0.1	0.1	0.00	0.02	C00
Tongue	6	-	-	0.8	-	-	-	7.3	5.5	0.8	0.6	0.02	0.11	C01-C02
Mouth	9	-	-	-	1.7	0.7	3.3	4.9	2.8	1.1	0.8	0.08	0.12	C03-C06
Salivary glands	4	-	-	-	-	-	4.4	-	-	0.5	0.4	0.05	0.05	C07-C08
Tonsil	1	-	-	-	-	-	-	2.4	-	0.1	0.1	0.02	0.02	C09
Other Oropharynx	2	-	-	-	-	0.7	-	-	2.8	0.3	0.1	0.01	0.02	C10
Nasopharynx	14	-	-	-	-	6.1	3.3	2.4	2.8	1.8	1.1	0.09	0.13	C11
Hypopharynx	3	-	-	-	-	-	-	-	8.3	0.4	0.2	0.00	0.04	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C14
Esophagus	2	-	-	-	-	-	-	2.4	2.8	0.3	0.2	0.02	0.04	C15
Stomach	52	-	-	1.7	5.8	8.2	9.9	34	22.1	6.5	4.8	0.37	0.68	C16
Small intestine	4	-	-	-	-	0.7	2.2	-	2.8	0.5	0.3	0.03	0.04	C17
Colon	86	-	0.9	-	6.7	14.3	18.8	36.4	66.4	10.8	7.2	0.57	1.12	C18
Rectum	43	-	-	1.7	4.2	6.1	8.8	31.6	16.6	5.4	4	0.36	0.59	C19-C20
Anus	1	-	-	-	-	0.7	-	-	-	0.1	0.1	0.01	0.01	C21
Liver	119	-	-	0.8	10	19.8	29.8	48.6	83	14.9	10	0.82	1.49	C22
Gallbladder	28	-	-	-	-	3.4	9.9	14.6	22.1	3.5	2.3	0.21	0.39	C23-C24
Pancreas	12	0.8	-	-	-	0.7	6.6	2.4	8.3	1.5	1.1	0.08	0.15	C25
Nose, sinuses	7	0.8	-	-	0.8	0.7	2.2	-	5.5	0.9	0.7	0.04	0.07	C30-C31
Larynx	2	-	-	-	-	-	1.1	-	2.8	0.3	0.1	0.01	0.03	C32
Lung	282	-	-	1.7	5	31.4	77.2	214	194	35.3	25	2.18	4.22	C33-C34
Other Thoracic organs	2	0.8	-	-	-	-	-	2.4	-	0.3	0.4	0.03	0.03	C37-C38
Bone	2	1.6	-	-	-	-	-	-	-	0.3	0.5	0.02	0.02	C40-C41
Melanoma of Skin	2	-	0.9	-	-	-	-	-	2.8	0.3	0.2	0.01	0.02	C43
Other Skin	62	-	-	3.3	1.7	7.5	9.9	21.9	74.7	7.8	4.9	0.25	0.81	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C45
Kaposi sarcoma	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C46
Connective,Soft tissue	6	-	-	-	0.8	1.4	1.1	2.4	2.8	0.8	0.5	0.03	0.07	C47;C49
Breast	305	-	-	7.5	50.9	73	84.9	75.3	55.3	38.1	26.8	2.53	3.13	C50
Vulva	5	-	-	-	0.8	1.4	1.1	-	2.8	0.6	0.4	0.04	0.05	C51
Vagina	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.01	C52
Cervix	255	-	-	10.8	39.2	73	54.1	48.6	52.5	31.9	22	1.82	2.38	C53
Corpus	52	-	-	0.8	-	16.4	24.3	7.3	5.5	6.5	4.3	0.46	0.52	C54
Uterus unspec.	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C55
Ovary	53	-	2.6	3.3	5.8	10.2	17.6	14.6	5.5	6.6	5	0.44	0.57	C56
Other Female Genital	1	-	-	-	-	0.7	-	-	-	0.1	0.1	0.01	0.01	C57
Placenta	3	-	1.7	0.8	-	-	-	-	-	0.4	0.4	0.03	0.02	C58
Kidney	17	2.3	-	0.8	-	2	5.5	4.9	8.3	2.1	1.9	0.10	0.16	C64
Renal Pelvis	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C65
Ureter	2	-	-	-	-	-	-	-	5.5	0.3	0.1	0.00	0.03	C66
Bladder	22	-	-	-	-	0.7	7.7	24.3	11.1	2.8	2.1	0.17	0.40	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C68
Eye	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.01	C69
Brain, Nervous system	19	0.8	-	1.7	4.2	4.1	3.3	-	5.5	2.4	1.8	0.13	0.16	C70-C72
Thyroid	33	0.8	-	1.7	6.7	8.9	4.4	9.7	2.8	4.1	3.1	0.26	0.32	C73
Adrenal gland	1	0.8	-	-	-	-	-	-	-	0.1	0.2	0.00	0.00	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C75
Hodgkin disease	4	-	0.9	0.8	0.8	-	-	-	2.8	0.5	0.4	0.02	0.04	C81
Non-Hodgkin lymphoma	55	1.6	0.9	4.2	4.2	7.5	7.7	31.6	30.4	6.9	5.3	0.43	0.69	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0	0.00	0.00	C88
Multiple Myeloma	11	-	-	-	-	1.4	5.5	4.9	5.5	1.4	0.9	0.06	0.14	C90
Lymphoid Leukaemia	1	-	-	0.8	-	-	-	-	-	0.1	0.1	0.00	0.01	C91
Myeloid Leukaemia	28	3.9	0.9	-	1.7	5.5	5.5	9.7	8.3	3.5	3.2	0.22	0.29	C92-C94
Leukaemia unspec.	1	-	-	-	-	0.7	-	-	-	0.1	0.1	0.01	0.01	C95
Other & unspecified	54	1.6	2.6	0.8	0.8	4.8	15.4	38.9	27.7	6.8	5.4	0.39	0.78	Other
All sites Total	**1676**	**16**	**11**	**44**	**152**	**312**	**426**	**699**	**763**	**209.5**	**149.8**	**11.78**	**18.32**	**All**
All sites but C44	**1614**	**16**	**11**	**41**	**150**	**305**	**416**	**678**	**689**	**201.8**	**144.9**	**11.56**	**17.65**	**Not C44**

Table 14: Number of Cancer Deaths in Chiang Mai, 2010, Males

		Number of cases by Age Group (years)											
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	0	0	0	0	0	0	0	0	0	0	0.0	C00
Tongue	10	0	0	0	0	1	2	1	3	3	0.8	C01-C02
Mouth	12	0	0	0	1	1	0	3	4	3	0.9	C03-C06
Salivary glands	1	0	0	0	0	0	0	0	0	1	0.1	C07-C08
Tonsil	7	0	0	0	0	0	2	2	1	2	0.5	C09
Other Oropharynx	7	0	0	0	0	0	2	0	1	4	0.5	C10
Nasopharynx	22	0	0	0	1	2	5	6	5	3	1.7	C11
Hypopharynx	5	0	0	0	0	0	1	1	0	3	0.4	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	20	0	0	0	0	0	6	5	2	7	1.6	C15
Stomach	52	0	0	0	2	2	11	13	16	8	4.1	C16
Small intestine	5	0	0	0	0	0	0	5	0	0	0.4	C17
Colon	47	0	0	0	2	3	9	11	13	9	3.7	C18
Rectum	45	0	0	0	2	0	6	10	14	13	3.5	C19-C20
Anus	4	0	0	0	0	0	1	2	1	0	0.3	C21
Liver	343	1	1	0	9	28	84	110	58	52	26.8	C22
Gallbladder	15	0	0	0	0	1	1	3	4	6	1.2	C23-C24
Pancreas	22	0	0	0	0	2	2	4	7	7	1.7	C25
Nose, sinuses	3	0	0	0	0	0	0	0	2	1	0.2	C30-C31
Larynx	22	0	0	0	0	0	3	6	5	8	1.7	C32
Lung	316	0	1	1	2	6	40	71	98	97	24.7	C33-C34
Other Thoracic organs	4	0	0	3	0	0	1	0	0	0	0.3	C37-C38
Bone	4	0	0	2	1	0	0	0	0	1	0.3	C40-C41
Melanoma of Skin	3	0	0	0	0	0	2	1	0	0	0.2	C43
Other Skin	21	0	0	0	0	0	1	5	3	12	1.6	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	1	0	0	0	1	0	0	0	0	0	0.1	C46
Connective,Soft tissue	3	0	0	0	0	0	1	0	2	0	0.2	C47;C49
Breast	2	0	0	0	0	0	0	1	0	1	0.2	C50
Penis	3	0	0	0	0	0	0	2	1	0	0.2	C60
Prostate	37	0	0	0	0	0	0	10	8	19	2.9	C61
Testis	1	0	0	0	0	0	0	0	0	1	0.1	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	17	0	0	0	0	1	4	3	5	4	1.3	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0.0	C65
Ureter	3	0	0	0	0	0	0	2	1	0	0.2	C66
Bladder	43	0	0	0	0	1	5	5	13	19	3.4	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	1	0	0	0	0	0	0	0	0	1	0.1	C69
Brain, Nervous system	20	0	1	4	2	3	2	2	4	2	1.6	C70-C72
Thyroid	1	0	0	0	0	0	0	0	0	1	0.1	C73
Adrenal gland	1	0	0	0	0	0	1	0	0	0	0.1	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	1	0	0	0	1	0	0	0	0	0	0.1	C81
Non-Hodgkin lymphoma	50	0	0	1	2	1	5	12	12	17	3.9	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	7	0	0	0	0	0	3	2	2	0	0.5	C90
Lymphoid Leukaemia	6	0	0	3	1	0	2	0	0	0	0.5	C91
Myeloid Leukaemia	18	0	0	1	1	2	4	6	1	3	1.4	C92-C94
Leukaemia unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C95
Other & unspecified	73	0	0	1	0	4	14	19	19	16	5.7	Other
All sites Total	**1278**	**1**	**3**	**16**	**28**	**58**	**220**	**323**	**305**	**324**	**100.0**	**All**
All sites but C44	**1257**	**1**	**3**	**16**	**28**	**58**	**219**	**318**	**302**	**312**	**98.4**	**Not C44**

Table 15: Number of Cancer Deaths in Chiang Mai, 2010, Females

	Number of cases by Age Group (years)											
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	1	0	0	0	0	0	0	0	0	1	0.1	C00
Tongue	3	0	0	1	0	0	2	0	0	0	0.3	C01-C02
Mouth	6	0	0	0	0	0	1	2	2	1	0.6	C03-C06
Salivary glands	0	0	0	0	0	0	0	0	0	0	0.0	C07-C08
Tonsil	0	0	0	0	0	0	0	0	0	0	0.0	C09
Other Oropharynx	1	0	0	0	0	0	0	0	0	1	0.1	C10
Nasopharynx	8	0	0	0	1	0	3	1	2	1	0.8	C11
Hypopharynx	2	0	0	0	0	0	0	0	0	2	0.2	C12-C13
Pharynx unspec.	1	0	0	0	0	0	0	0	0	1	0.1	C14
Esophagus	4	0	0	0	0	0	0	1	2	1	0.4	C15
Stomach	34	0	0	0	0	3	6	5	14	6	3.5	C16
Small intestine	5	0	0	0	0	0	1	2	1	1	0.5	C17
Colon	53	0	0	0	0	4	9	16	6	18	5.5	C18
Rectum	33	0	0	1	0	0	6	4	11	11	3.4	C19-C20
Anus	2	0	0	0	0	0	1	1	0	0	0.2	C21
Liver	107	0	0	0	1	12	20	26	22	26	11.0	C22
Gallbladder	23	0	0	0	0	2	4	10	2	5	2.4	C23-C24
Pancreas	14	0	0	0	0	1	1	5	4	3	1.4	C25
Nose, sinuses	4	0	0	0	1	0	0	1	2	0	0.4	C30-C31
Larynx	5	0	0	0	0	0	0	2	0	3	0.5	C32
Lung	249	0	0	0	1	6	38	61	71	72	25.7	C33-C34
Other Thoracic organs	1	0	0	0	0	0	0	0	0	1	0.1	C37-C38
Bone	1	0	0	0	0	0	0	0	1	0	0.1	C40-C41
Melanoma of Skin	6	0	0	1	0	0	1	1	0	3	0.6	C43
Other Skin	10	0	0	0	0	0	2	0	1	7	1.0	C44
Mesothelioma	1	0	0	0	0	0	0	0	0	1	0.1	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	0	0	0	0	0	0	0	0	0	0	0.0	C47;C49
Breast	99	0	0	0	0	10	36	23	12	18	10.2	C50
Vulva	5	0	0	0	0	0	1	1	0	3	0.5	C51
Vagina	1	0	0	0	0	0	0	0	0	1	0.1	C52
Cervix	110	0	0	0	3	9	36	32	15	15	11.3	C53
Corpus	13	0	0	0	0	0	4	5	1	3	1.3	C54
Uterus unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C55
Ovary	28	0	0	0	1	3	11	3	4	6	2.9	C56
Other Female Genital	0	0	0	0	0	0	0	0	0	0	0.0	C57
Placenta	0	0	0	0	0	0	0	0	0	0	0.0	C58
Kidney	5	0	1	0	0	0	0	2	1	1	0.5	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0.0	C65
Ureter	1	0	0	0	0	0	0	0	0	1	0.1	C66
Bladder	11	0	0	0	0	0	0	1	3	7	1.1	C67
Other Urinary organs	1	0	0	0	0	0	0	0	0	1	0.1	C68
Eye	1	0	0	0	0	0	0	0	0	1	0.1	C69
Brain, Nervous system	11	0	0	1	0	1	3	4	1	1	1.1	C70-C72
Thyroid	5	0	0	0	0	0	1	2	2	0	0.5	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0.0	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	1	0	0	0	0	0	0	0	1	0	0.1	C81
Non-Hodgkin lymphoma	24	0	0	1	1	2	4	5	6	5	2.5	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	3	0	0	0	0	0	1	0	0	2	0.3	C90
Lymphoid Leukaemia	5	0	2	0	0	1	1	0	1	0	0.5	C91
Myeloid Leukaemia	19	0	4	1	0	1	5	3	1	4	2.0	C92-C94
Leukaemia unspec.	1	0	0	0	0	0	1	0	0	0	0.1	C95
Other & unspecified	52	0	0	4	0	3	6	13	16	10	5.4	Other
All sites Total	**970**	**0**	**7**	**10**	**9**	**58**	**205**	**232**	**205**	**244**	**100.0**	**All**
All sites but C44	**960**	**0**	**7**	**10**	**9**	**58**	**203**	**232**	**204**	**237**	**99.0**	**Not C44**

Table 16: Cancer Deaths in Chiang Mai, 2010, Males

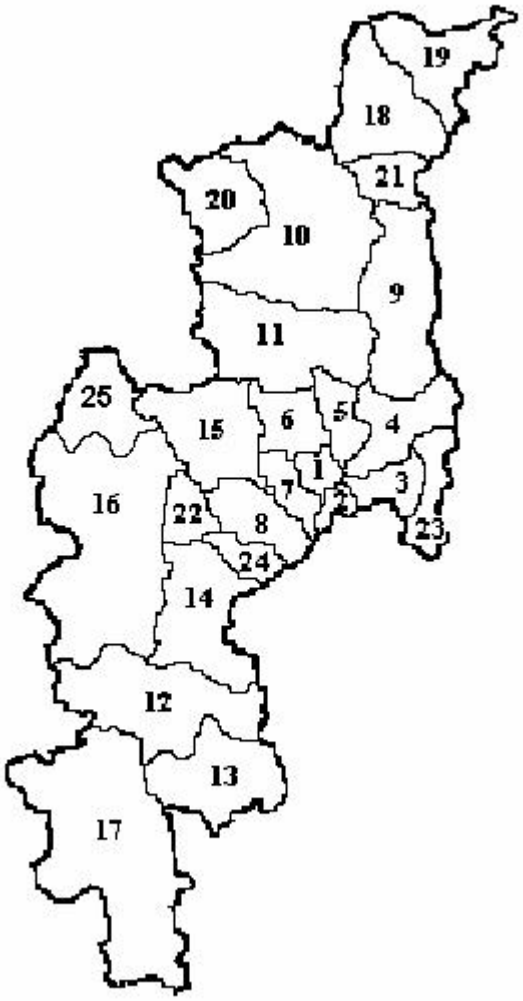
		Incidence per 100,000 by Age Group (years)													
SITE	**All Ages**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**Crude rate**	**ASR (W)**	**CR 64**	**CR 74**	**ICD (10th)**
Lip	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C00
Tongue	10	-	-	-	0.9	1.6	1.2	8.1	10.3	1.3	1.0	0.04	0.12	C01-C02
Mouth	12	-	-	0.8	0.9	-	3.7	10.8	10.3	1.6	1.3	0.05	0.16	C03-C06
Salivary glands	1	-	-	-	-	-	-	-	3.4	0.1	0.1	0.00	0.00	C07-C08
Tonsil	7	-	-	-	-	1.6	2.4	2.7	6.9	0.9	0.6	0.05	0.08	C09
Other Oropharynx	7	-	-	-	-	1.6	-	2.7	13.8	0.9	0.6	0.02	0.04	C10
Nasopharynx	22	-	-	0.8	1.9	3.9	7.3	13.5	10.3	2.9	2.2	0.14	0.28	C11
Hypopharynx	5	-	-	-	-	0.8	1.2	-	10.3	0.7	0.4	0.02	0.02	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C14
Esophagus	20	-	-	-	-	4.7	6.1	5.4	24.1	2.6	1.8	0.11	0.16	C15
Stomach	52	-	-	1.7	1.9	8.6	15.9	43.4	27.5	6.8	5.4	0.29	0.71	C16
Small intestine	5	-	-	-	-	-	6.1	-	-	0.7	0.5	0.06	0.06	C17
Colon	47	-	-	1.7	2.8	7	13.4	35.2	31	6.2	4.8	0.24	0.59	C18
Rectum	45	-	-	1.7	-	4.7	12.2	37.9	44.8	5.9	4.5	0.20	0.59	C19-C20
Anus	4	-	-	-	-	0.8	2.4	2.7	-	0.5	0.4	0.04	0.07	C21
Liver	343	0.7	-	7.4	25.9	65.4	134	157	179.1	45.2	33.9	2.36	3.89	C22
Gallbladder	15	-	-	-	0.9	0.8	3.7	10.8	20.7	2.0	1.4	0.05	0.15	C23-C24
Pancreas	22	-	-	-	1.9	1.6	4.9	19	24.1	2.9	2.2	0.08	0.27	C25
Nose, sinuses	3	-	-	-	-	-	-	5.4	3.4	0.4	0.3	0.00	0.05	C30-C31
Larynx	22	-	-	-	-	2.3	7.3	13.5	27.5	2.9	2.1	0.09	0.22	C32
Lung	316	0.7	0.8	1.7	5.6	31.1	86.7	266	334	41.6	31.6	1.32	3.95	C33-C34
Other Thoracic organs	4	-	2.5	-	-	0.8	-	-	-	0.5	0.5	0.02	0.03	C37-C38
Bone	4	-	1.7	0.8	-	-	-	-	3.4	0.5	0.5	0.03	0.03	C40-C41
Melanoma of Skin	3	-	-	-	-	1.6	1.2	-	-	0.4	0.3	0.03	0.03	C43
Other Skin	21	-	-	-	-	0.8	6.1	8.1	41.3	2.8	1.8	0.07	0.16	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	-	-	0.8	-	-	-	-	-	0.1	0.1	0.01	0.00	C46
Connective,Soft tissue	3	-	-	-	-	0.8	-	5.4	-	0.4	0.4	0.01	0.06	C47;C49
Breast	2	-	-	-	-	-	1.2	-	3.4	0.3	0.2	0.01	0.01	C50
Penis	3	-	-	-	-	-	2.4	2.7	-	0.4	0.3	0.02	0.05	C60
Prostate	37	-	-	-	-	-	12.2	21.7	65.4	4.9	3.4	0.14	0.36	C61
Testis	1	-	-	-	-	-	-	-	3.4	0.1	0.1	0.00	0.00	C62
Other male genital	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C63
Kidney	17	-	-	-	0.9	3.1	3.7	13.5	13.8	2.2	1.7	0.08	0.21	C64
Renal Pelvis	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C65
Ureter	3	-	-	-	-	-	2.4	2.7	-	0.4	0.3	0.02	0.05	C66
Bladder	43	-	-	-	0.9	3.9	6.1	35.2	65.4	5.7	4.1	0.13	0.48	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C68
Eye	1	-	-	-	-	-	-	-	3.4	0.1	0.1	0.00	0.00	C69
Brain, Nervous system	20	0.7	3.4	1.7	2.8	1.6	2.4	10.8	6.9	2.6	2.4	0.12	0.24	C70-C72
Thyroid	1	-	-	-	-	-	-	-	3.4	0.1	0.1	0.00	0.00	C73
Adrenal gland	1	-	-	-	-	0.8	-	-	-	0.1	0.1	0.01	0.01	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C75
Hodgkin disease	1	-	-	0.8	-	-	-	-	-	0.1	0.1	0.01	0.01	C81
Non-Hodgkin lymphoma	50	-	0.8	1.7	0.9	3.9	14.6	32.5	58.5	6.6	4.9	0.21	0.53	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C88
Multiple Myeloma	7	-	-	-	-	2.3	2.4	5.4	-	0.9	0.7	0.05	0.11	C90
Lymphoid Leukaemia	6	-	2.5	0.8	-	1.6	-	-	-	0.8	0.7	0.04	0.05	C91
Myeloid Leukaemia	18	-	0.8	0.8	1.9	3.1	7.3	2.7	10.3	2.4	1.8	0.13	0.16	C92-C94
Leukaemia unspec.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C95
Other & unspecified	73	-	0.8	-	3.7	10.9	23.2	51.5	55.1	9.6	7.3	0.39	0.91	Other
All sites Total	**1278**	**2**	**14**	**23**	**54**	**171**	**394**	**826**	**1116**	**168.3**	**126.8**	**6.49**	**13.98**	**All**
All sites but C44	**1257**	**2**	**14**	**23**	**54**	**171**	**388**	**818**	**1074**	**165.5**	**125**	**6.42**	**13.85**	**Not C44**

Table 17: Cancer Deaths in Chiang Mai, 2010, Females

		Incidence per 100,000 by Age Group (years)												
SITE	**All Ages**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**Crude rate**	**ASR (W)**	**CR 64**	**CR 74**	**ICD (10th)**
Lip	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C00
Tongue	3	-	0.9	-	-	1.4	-	-	-	0.4	0.3	0.01	0.02	C01-C02
Mouth	6	-	-	-	-	0.7	2.2	4.9	2.8	0.8	0.5	0.02	0.07	C03-C06
Salivary glands	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C07-C08
Tonsil	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C09
Other Oropharynx	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C10
Nasopharynx	8	-	-	0.8	-	2	1.1	4.9	2.8	1.0	0.7	0.04	0.09	C11
Hypopharynx	2	-	-	-	-	-	-	-	5.5	0.3	0.1	0.00	0.00	C12-C13
Pharynx unspec.	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C14
Esophagus	4	-	-	-	-	-	1.1	4.9	2.8	0.5	0.4	0.01	0.06	C15
Stomach	34	-	-	-	2.5	4.1	5.5	34	16.6	4.3	3.2	0.11	0.45	C16
Small intestine	5	-	-	-	-	0.7	2.2	2.4	2.8	0.6	0.4	0.04	0.06	C17
Colon	53	-	-	-	3.3	6.1	17.6	14.6	49.8	6.6	4.2	0.28	0.43	C18
Rectum	33	-	0.9	-	-	4.1	4.4	26.7	30.4	4.1	2.9	0.09	0.36	C19-C20
Anus	2	-	-	-	-	0.7	1.1	-	-	0.3	0.2	0.02	0.02	C21
Liver	107	-	-	0.8	10	13.6	28.7	53.4	71.9	13.4	9.2	0.54	1.07	C22
Gallbladder	23	-	-	-	1.7	2.7	11	4.9	13.8	2.9	1.9	0.15	0.20	C23-C24
Pancreas	14	-	-	-	0.8	0.7	5.5	9.7	8.3	1.8	1.3	0.07	0.17	C25
Nose, sinuses	4	-	-	0.8	-	-	1.1	4.9	-	0.5	0.4	0.02	0.06	C30-C31
Larynx	5	-	-	-	-	-	2.2	-	8.3	0.6	0.3	0.03	0.03	C32
Lung	249	-	-	0.8	5	25.9	67.3	172	199	31.1	21.6	1.02	2.71	C33-C34
Other Thoracic organs	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C37-C38
Bone	1	-	-	-	-	-	-	2.4	-	0.1	0.1	0.00	0.02	C40-C41
Melanoma of Skin	6	-	0.9	-	-	0.7	1.1	-	8.3	0.8	0.5	0.02	0.03	C43
Other Skin	10	-	-	-	-	1.4	-	2.4	19.4	1.3	0.7	0.01	0.04	C44
Mesothelioma	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C45
Kaposi sarcoma	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C46
Connective,Soft tissue	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C47;C49
Breast	99	-	-	-	8.3	24.5	25.4	29.1	49.8	12.4	8.2	0.58	0.87	C50
Vulva	5	-	-	-	-	0.7	1.1	-	8.3	0.6	0.3	0.02	0.02	C51
Vagina	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C52
Cervix	110	-	-	2.5	7.5	24.5	35.3	36.4	41.5	13.8	9.4	0.71	1.07	C53
Corpus	13	-	-	-	-	2.7	5.5	2.4	8.3	1.6	1.0	0.08	0.11	C54
Uterus unspec.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C55
Ovary	28	-	-	0.8	2.5	7.5	3.3	9.7	16.6	3.5	2.3	0.14	0.24	C56
Other Female Genital	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C57
Placenta	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C58
Kidney	5	0.8	-	-	-	-	2.2	2.4	2.8	0.6	0.6	0.03	0.06	C64
Renal Pelvis	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C65
Ureter	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C66
Bladder	11	-	-	-	-	-	1.1	7.3	19.4	1.4	0.8	0.01	0.09	C67
Other Urinary organs	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C68
Eye	1	-	-	-	-	-	-	-	2.8	0.1	0.1	0.00	0.00	C69
Brain, Nervous system	11	-	0.9	-	0.8	2	4.4	2.4	2.8	1.4	1.0	0.07	0.11	C70-C72
Thyroid	5	-	-	-	-	0.7	2.2	4.9	-	0.6	0.5	0.03	0.08	C73
Adrenal gland	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C75
Hodgkin disease	1	-	-	-	-	-	-	2.4	-	0.1	0.1	0.00	0.02	C81
Non-Hodgkin lymphoma	24	-	0.9	0.8	1.7	2.7	5.5	14.6	13.8	3.0	2.2	0.11	0.26	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C88
Multiple Myeloma	3	-	-	-	-	0.7	-	-	5.5	0.4	0.2	0.01	0.01	C90
Lymphoid Leukaemia	5	1.6	-	-	0.8	0.7	-	2.4	-	0.6	0.8	0.04	0.06	C91
Myeloid Leukaemia	19	3.1	0.9	-	0.8	3.4	3.3	2.4	11.1	2.4	2.2	0.12	0.15	C92-C94
Leukaemia unspec.	1	-	-	-	-	0.7	-	-	-	0.1	0.1	0.01	0.01	C95
Other & unspecified	52	-	3.4	-	2.5	4.1	14.3	38.9	27.7	6.5	5.0	0.23	0.64	Other
All sites Total	**970**	**5**	**9**	**7**	**48**	**140**	**256**	**498**	**675**	**121.3**	**84.2**	**4.59**	**9.29**	**All**
All sites but C44	**960**	**5**	**9**	**7**	**48**	**138**	**256**	**495**	**655**	**120.0**	**83.6**	**4.58**	**9.25**	**Not C44**

CHIANG MAI POPULATION AND ADMINISTRATIVE DIVISIONS

In 2010, Chiang Mai province was composed of 25 districts (amphurs) (Fig. 53). Local administration consisted of one city municipality, two town municipalities and 47 subdistrict municipalities. Total population in Chiang Mai in 2010 was 1,560,433 consisting of 759,939 males and 800,494 females. The population density averaged 81.6 people per km^2. The highest population density was in Muang District (1,432.4 people per km^2), followed by Saraphi, Sanpatong, Hangdong, and Sankamphaeng districts. The lowest population density was in Kanlayaniwattana District (16.0 people per km^2). Eighty percent of the population was born in the province; the remainder was made up of Thai, Chinese, Laos, and hill tribe people. Buddhism was the professed religion of 91.7% of the people in the province. Of the remainder, most were either Christians or Muslims.



1 Muang
2 Saraphi
3 San Kamphaeng
4 Doi Saket
5 San Sai
6 Mae Rim
7 Hang Dong
8 San Pa Tong
9 Phrao
10 Chiang Dao
11 Mae Taeng
12 Hot
13 Doi Tao
14 Chom Thong
15 Samoeng
16 Mae Chaem
17 Omkoi
18 Fang
19 Mae Ai
20 Wiang Haeng
21 Chai Prakan
22 Mae Wang
23 Mae On
24 Doi Law
25 Kanlayaniwatthana

Figure 53: Districts of Chiang Mai

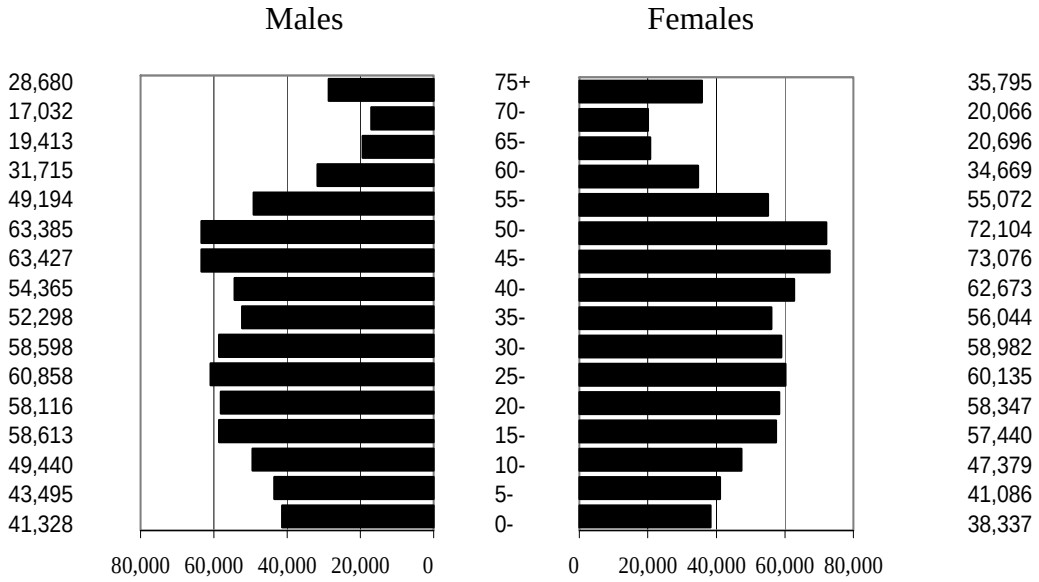


Figure 54: Population pyramid, Chiang Mai, 2010

Age and Sex

The age-sex distribution in 2010 is illustrated by population pyramids (Fig. 54). In 2010, 16.7% of the total population was under age 15 and 13.3% was over age 60.

HOSPITAL-BASED REGISTRATION

Maharaj Nakorn Chiang Mai Hospital

Maharaj Nakorn Chiang Mai Hospital is the teaching hospital of the Faculty of Medicine, Chiang Mai University. The hospital was built in 1939 in order to expand the services of the Chiang Mai Municipality Hospital to the public. Known locally as Suan Dok Hospital, it was officially named Nakorn Chiang Mai Hospital in 1941 and became the teaching hospital for the Faculty of Medicine in 1959. There have been phases of expansion and development since then. The name was changed to Maharaj Nakorn Chiang Mai Hospital in 1983 by royal permission. The hospital has 1,800 beds and serves about 800,000 outpatients and 48,000 inpatients each year. Many joint programs have been set up with other hospitals and health centers both inside and outside the Chiang Mai area to provide medical and educational support for physicians and medical students. In cooperation with the Ministry of Public Health, physicians from the Faculty of Medicine provide medical services at rural health centers and give special lectures for doctors and other health personnel at provincial hospitals.

Overview

In 2011, there were 5,113 cases of new cancer at Maharaj Nakorn Chiang Mai Hospital. Forty-five percent were Chiang Mai residents, 33.5% came from nearby provinces (Lampoon, Lampang, Phayao and Chiang Rai), 19.1% came from the other provinces in the northern region, and only 2.4% resided outside the northern region.

Non-invasive cancers

There were 231 cases of non-invasive cancer registered in the year 2011, accounting for 4.5% of all cases. The most common non-invasive cancer was carcinoma in situ of cervix, followed by benign neoplasm of brain, myelodysplastic syndrome and meninges or other parts of the central nervous system. The age distribution is shown in table 18.

Table 18: Age distribution of non-invasive cancers, 2011

SITE	All Ages	0-	15-	25-	35-	45-	55-	65-	75+	ICD (10th)
Cervix	**85**	0	2	6	20	36	13	6	2	D06
Myelodysplastic syndrome	**70**	0	4	1	5	11	14	19	16	D46,D47
Brain, Nervous system	**48**	4	3	2	11	19	7	2	0	D32,D33,D42,D43
Breast	**8**	0	0	0	0	6	1	0	1	D05
Other	**20**	1	0	1	3	3	7	2	3	
All sites	**231**	**5**	**9**	**10**	**39**	**75**	**42**	**29**	**22**	

Invasive cancers

Age and sex

There were 2,337 males and 2,545 females invasive cancer cases in the year 2011, with a male to female ratio of 1:1.1, but 1,069 (42.0%) of the cancers in females occurred in sex-specific sites (i.e. breast and reproductive organs), while only 152 cases (6.5%) of cancers of males occurred in sex-specific sites (i.e. prostate, testis, and penis). When sex-specific sites were excluded, the male to female ratio increased to 1.5:1.

For males, the mean age at diagnosis was 58.5 and the median age was 59 years. For females, the mean age was 56.2 and the median age was 54 years. In the age group 25 to 59, female cancer cases were much more common than male cancer cases, but male cancer cases were more common than female cancer cases after age 60 (Fig. 55). There were 75 cases of cancer in children (age less than 15), accounting for only 1.5% of all cases, but there were 2,163 cases in the old-age group (age 60 and over), accounting for 44.3% of all cases.

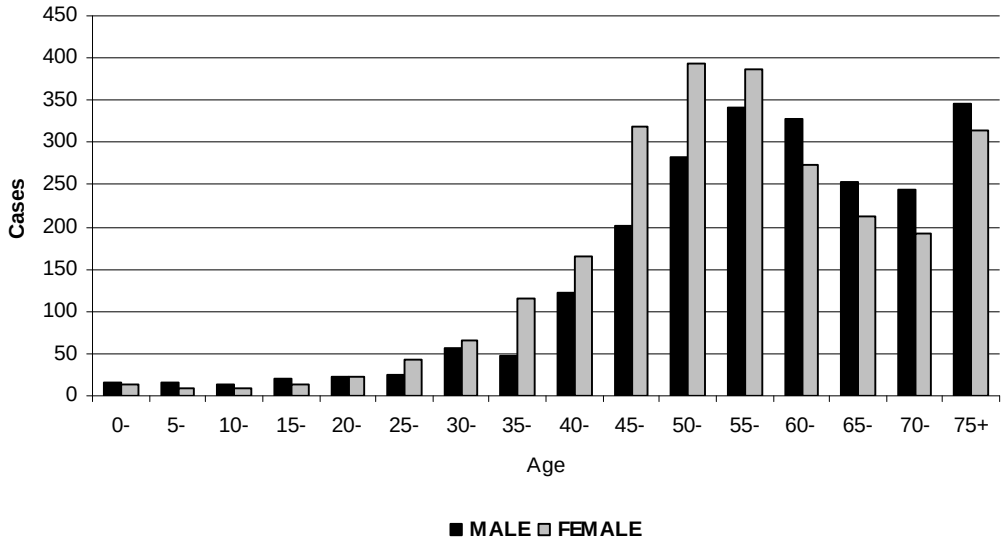


Figure 55: Age distribution of new cancer cases at Maharaj Nakorn Chiang Mai Hospital, 2011

Basis of diagnosis

There were 3,985 histologically verified cases (81.6%). Sixty-eight percent had primary sites and 8.7% had metastasis sites (Table 19). By site, for both males and females the incidence of cases clinically diagnosed cases was high for the liver, pancreas and lung.

Table 19: Type of diagnosis

Type of diagnosis	No.	%
Histological verification	**3985**	**81.6**
Histology of primary	3319	68.0
Histology of metastasis	426	8.7
Cytology/hematology	240	4.9
No histological verification	**897**	**18.4**
Clinical only	14	0.3
Clinical and Investigations	845	17.3
Operation/surgery	32	0.7
Immuno/Biochemistry	6	0.1
	4882	100.0

Table 20: Stage of disease

Stage	No.	%
Localized	610	12.5
Locally advanced	1720	35.2
Regional node metastasis	660	13.5
Distant metastasis	1297	26.6
Not applicable	534	10.9
Unknown/Not staged	61	1.2
	4882	100.0

Stages of cancer

Forty percent of cases were diagnosed at an advanced stage (26.6% distant metastasis and 13.5% regional node metastasis), and 47.7% were diagnosed at a localized stage and locally advanced (Table 20). Eleven percent was staged as not applicable; most of these groups were lymphoma, leukemia, and brain tumor cases.

In 1,297 cases of distant metastasis at first visit, 12.9% had multiple sites of metastasis. The most common site of distant metastasis was the lung (23.0%), followed by liver (20.1%), bone (14.5%), distant lymph nodes (14.3%), and brain (7.9%).

Leading sites of invasive cancer cases

For invasive cancer in both sexes combined, liver cancer was the most common (16.1%), followed by lung, cervix, breast, and non-Hodgkin's lymphoma (Table 21). Together these five types of cancer accounted for 51.7% of all new cancers. For males, the most common cancer was liver cancer (23.7%), followed by lung cancer (18.1%), non-Hodgkin's lymphoma, prostate cancer, and rectal cancer. For females, the most common cancers were cervical cancer, accounting for 16.1% of all new cases, followed by breast, lung, liver, and corpus cancers.

Table 21: Ten leading cancers at Maharaj Nakorn Chiang Mai Hospital, 2011

Males	cases	%	Females	cases	%	Both sexes	cases	%
Liver	553	23.7	Cervix	410	16.1	Liver	785	16.1
Lung	423	18.1	Breast	359	14.1	Lung	706	14.5
NHL	150	6.4	Lung	283	11.1	Cervix	410	8.4
Prostate	114	4.9	Liver	232	9.1	Breast	366	7.5
Rectum	101	4.3	Corpus uteri	129	5.1	NHL	259	5.3
Nasopharynx	81	3.5	Ovary	120	4.7	Rectum	176	3.6
Colon	81	3.5	Thyroid	110	4.3	Colon	151	3.1
Bladder	69	3.0	NHL	109	4.3	Thyroid	138	2.8
Skin non-melanoma	68	2.9	Rectum	75	2.9	Corpus uteri	129	2.6
Stomach	54	2.3	Colon	70	2.8	Skin non-melanoma	123	2.5

Childhood cancer

There were 75 cases of childhood cancer (age less than 1 to 14), accounting for 1.5% of all cancer cases. The most common childhood cancer was leukemia, accounting for 26.7% of all childhood cancer, followed by brain and nervous system (18.7%), NHL (17.3%) and bone (10.7%).

Table 22: Percentage of data verification by sites, 2011

	Males				Females			
	cases	Clinical	Cyto	Histo	cases	Clinical	Cyto	Histo
Lip	2	0.0	0.0	100.0	6	0.0	0.0	100.0
Tongue	30	3.3	0.0	96.7	21	0.0	0.0	100.0
Mouth	41	0.0	0.0	100.0	40	2.5	0.0	97.5
Salivary gland	14	0.0	7.1	92.9	7	0.0	14.3	85.7
Tonsil	14	7.1	0.0	92.9	4	0.0	0.0	100.0
Oropharynx	2	0.0	0.0	100.0	3	33.3	0.0	66.7
Nasopharynx	81	3.7	1.2	95.1	25	0.0	0.0	100.0
Hypopharynx	16	18.8	0.0	81.3	1	0.0	0.0	100.0
Pharynx unspec.					1	0.0	0.0	100.0
Esophagus	31	9.7	0.0	90.3	5	20.0	0.0	80.0
Stomach	54	3.7	3.7	92.6	46	4.3	0.0	95.7
Small intestine	2	0.0	0.0	100.0	6	33.3	0.0	66.7
Colon	81	3.7	0.0	96.3	70	5.7	2.9	91.4
Rectum	94	5.3	0.0	94.7	68	0.0	0.0	100.0
Anus	7	0.0	0.0	100.0	7	0.0	0.0	100.0
Liver	553	70.2	3.6	26.2	232	66.8	4.3	28.9
Gallbladder	36	33.3	0.0	66.7	47	40.4	0.0	59.6
Pancreas	39	56.4	5.1	38.5	16	56.3	6.3	37.5
Nose, sinuses	17	0.0	0.0	100.0	6	16.7	0.0	83.3
Larynx	37	0.0	0.0	100.0	8	0.0	0.0	100.0
Lung	423	19.4	15.1	65.5	283	18.7	13.8	67.5
Other Thoracic organs	9	22.2	22.2	55.6	8	0.0	0.0	100.0
Bone	15	6.7	0.0	93.3	21	4.8	0.0	95.2
Melanoma of skin	9	0.0	0.0	100.0	5	0.0	0.0	100.0
Other skin	68	0.0	0.0	100.0	55	0.0	0.0	100.0
Mesothelioma	2	0.0	0.0	100.0	1	0.0	0.0	100.0
Kaposi's sarcoma	3	0.0	0.0	100.0	1	0.0	0.0	100.0
Connective tissue	19	0.0	0.0	100.0	21	4.8	0.0	95.2
Breast	7	0.0	0.0	100.0	359	2.2	2.2	95.5
Vulva					17	0.0	0.0	100.0
Vagina					16	18.8	0.0	81.3
Cervix					410	0.5	0.0	99.5
Corpus					129	0.0	0.0	100.0
Uterus unspec.					2	0.0	0.0	100.0
Ovary					120	11.7	1.7	86.7
Other female genital					7	0.0	0.0	100.0
Placenta					9	22.2	0.0	77.8
Prostate	114	6.1	0.0	93.9				
Testis	14	0.0	0.0	100.0				
Penis	15	0.0	0.0	100.0				
Other male genital	2	0.0	0.0	100.0				
Bladder	69	2.9	0.0	97.1	33	0.0	0.0	100.0
Kidney	18	38.9	0.0	61.1	11	9.1	0.0	90.9
Renal pelvis	4	25.0	0.0	75.0	2	0.0	0.0	100.0
Ureter	1	100.0	0.0	0.0	1	0.0	0.0	100.0
Eye	9	0.0	11.1	88.9	4	0.0	0.0	100.0
Brain, nervous system	37	32.4	0.0	67.6	52	40.4	0.0	59.6
Thyroid	28	3.6	3.6	92.9	110	1.8	3.6	94.5
Adrenal gland	3	0.0	0.0	100.0	1	0.0	0.0	100.0
Other endocrine	5	0.0	0.0	100.0	2	50.0	0.0	50.0
Hodgkin's disease	10	0.0	0.0	100.0	5	0.0	0.0	100.0
Non-Hodgkin lymphoma	150	0.0	3.3	96.7	109	0.0	1.8	98.2
Immunoproliferative ds.	1	0.0	100.0	0.0				
Multiple myeloma	23	8.7	26.1	65.2	18	0.0	38.9	61.1
Lymphoid leukaemia	15	0.0	66.7	33.3	15	0.0	40.0	60.0
Myeloid leukaemia	49	0.0	32.7	67.3	45	0.0	33.3	66.7
Leukaemia unspec.	4	0.0	50.0	50.0	2	0.0	100.0	0.0
Other & unspecified	60	25.0	8.3	66.7	52	30.8	3.8	65.4
All sites	**2337**	**24.6**	**5.9**	**69.4**	**2545**	**12.6**	**4.0**	**83.5**

Clinical Percentage of cases with clinical diagnosis
Cyto Percentage of cases with cytological diagnosis
Histo Percentage of cases with histological diagnosis

Table 23: Number of new cancer cases in Maharaj Nakorn Chiang Mai Hospital, 2011, Males

			Number of cases by Age Group (years)									
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	2	0	0	0	0	0	0	0	1	1	0.1	C00
Tongue	30	0	0	0	1	6	7	6	5	5	1.3	C01-C02
Salivary gland	14	0	0	0	3	0	4	1	2	4	0.6	C07-C08
Mouth	41	0	0	0	0	4	10	9	11	7	1.8	C03-C06
Oropharynx	16	0	0	0	2	2	4	4	4	0	0.7	C09-C10
Nasopharynx	81	0	1	4	8	16	32	14	4	2	3.5	C11
Hypopharynx	16	0	0	0	0	1	3	5	3	4	0.7	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	31	0	0	0	0	2	11	8	5	5	1.3	C15
Stomach	54	0	0	0	3	1	10	19	10	11	2.3	C16
Small intestine	2	0	0	0	0	0	0	1	1	0	0.1	C17
Colon	81	0	0	1	1	9	16	23	20	11	3.5	C18
Rectum	101	0	0	1	5	5	18	29	25	18	4.3	C19-C21
Liver	553	0	0	1	18	51	157	197	86	43	23.7	C22
Gallbladder	36	0	0	0	0	3	9	11	7	6	1.5	C23-C24
Pancreas	39	0	0	0	0	3	9	16	6	5	1.7	C25
Nose, sinuses	17	0	0	0	0	2	4	6	3	2	0.7	C30-C31
Larynx	37	0	0	0	0	2	9	14	7	5	1.6	C32
Lung	423	0	0	0	3	9	64	137	141	69	18.1	C33-C34
Other Thoracic organs	9	0	0	3	1	0	2	2	0	1	0.4	C37-C38
Bone	15	0	3	4	2	3	2	1	0	0	0.6	C40-C41
Connective tissue	19	0	2	1	2	2	6	3	3	0	0.8	C47;C49
Mesothelioma	2	0	0	0	0	0	1	1	0	0	0.1	C45
Kaposi's sarcoma	3	0	0	1	1	1	0	0	0	0	0.1	C46
Melanoma of skin	9	0	0	0	0	0	2	1	4	2	0.4	C43
Other skin	68	0	0	0	2	3	10	15	15	23	2.9	C44
Breast	7	0	0	0	0	0	2	3	1	1	0.3	C50
Prostate	114	0	0	0	0	0	2	29	39	44	4.9	C61
Testis	14	0	0	2	6	2	3	0	0	1	0.6	C62
Penis	15	0	0	0	2	0	5	1	4	3	0.6	C60
Other male genital	2	0	0	0	0	0	0	1	1	0	0.1	C63
Bladder	69	0	0	0	0	2	5	16	24	22	3.0	C67
Kidney	23	0	2	0	0	0	3	5	8	5	1.0	C64-C66;C68
Eye	9	0	1	0	0	2	5	1	0	0	0.4	C69
Brain, nervous system	37	0	6	3	4	3	8	4	6	3	1.6	C70-C72
Thyroid	28	0	0	3	2	3	7	8	3	2	1.2	C73
Other endocrine	8	0	4	1	1	0	0	2	0	0	0.3	C74-C75
Hodgkin's disease	10	0	2	1	0	2	0	3	1	1	0.4	C81
Non-Hodgkin lymphoma	150	0	12	9	10	12	22	37	29	19	6.4	C82-C85;C96
Multiple myeloma	24	0	0	0	0	1	5	12	2	4	1.0	C88;C90
Lymphoid leukaemia	15	0	8	1	1	2	1	1	0	1	0.6	C91
Myeloid leukaemia	47	0	5	4	4	7	7	8	6	6	2.0	C92
Monocytic leukaemia	0	0	0	0	0	0	0	0	0	0	0.0	C93
Other leukaemia	2	0	0	0	0	0	1	0	1	0	0.1	C94
Leukaemia unspec.	4	0	0	1	0	1	0	0	2	0	0.2	C95
Other & unspecified	60	0	0	3	1	6	18	16	7	9	2.6	
All sites	**2337**	**0**	**46**	**44**	**83**	**168**	**484**	**670**	**497**	**345**	**100.0**	

Table 24: Number of new cancer cases in Maharaj Nakorn Chiang Mai Hospital, 2011, Females

			Number of cases by Age Group (years)									
SITE	**All Ages**	**Age Unk.**	**0-**	**15-**	**25-**	**35-**	**45-**	**55-**	**65-**	**75+**	**%**	**ICD (10th)**
Lip	6	0	0	0	0	1	0	0	2	3	0.2	C00
Tongue	21	0	0	0	2	1	2	7	4	5	0.8	C01-C02
Salivary gland	7	0	0	0	0	1	3	2	1	0	0.3	C07-C08
Mouth	40	0	0	0	2	1	6	11	7	13	1.6	C03-C06
Oropharynx	7	0	0	0	0	1	2	2	2	0	0.3	C09-C10
Nasopharynx	25	0	0	0	0	7	14	2	1	1	1.0	C11
Hypopharynx	1	0	0	0	0	0	1	0	0	0	0.0	C12-C13
Pharynx unspec.	1	0	0	0	0	0	0	0	0	1	0.0	C14
Esophagus	5	0	0	0	0	0	2	0	2	1	0.2	C15
Stomach	46	0	0	0	3	6	11	6	11	9	1.8	C16
Small intestine	6	0	0	0	0	0	2	3	0	1	0.2	C17
Colon	70	0	0	1	2	6	16	20	12	13	2.8	C18
Rectum	75	0	0	1	0	8	23	23	12	8	2.9	C19-C21
Liver	232	0	0	2	1	17	52	77	42	41	9.1	C22
Gallbladder	47	0	0	0	0	2	9	14	11	11	1.8	C23-C24
Pancreas	16	0	0	0	0	0	5	1	5	5	0.6	C25
Nose, sinuses	6	0	0	0	0	0	4	1	0	1	0.2	C30-C31
Larynx	8	0	0	0	0	1	1	2	2	2	0.3	C32
Lung	283	0	0	0	3	14	42	96	83	45	11.1	C33-C34
Other Thoracic organs	8	0	0	0	1	1	2	3	1	0	0.3	C37-C38
Bone	21	0	5	3	3	3	3	3	1	0	0.8	C40-C41
Connective tissue	21	0	1	1	2	2	5	5	2	3	0.8	C47;C49
Mesothelioma	1	0	0	0	0	0	0	0	1	0	0.0	C45
Kaposi's sarcoma	1	0	0	0	1	0	0	0	0	0	0.0	C46
Melanoma of skin	5	0	0	0	0	0	1	2	1	1	0.2	C43
Other skin	55	0	1	1	1	1	11	9	13	18	2.2	C44
Breast	359	0	0	0	12	58	123	103	41	22	14.1	C50
Uterus unspec.	2	0	0	0	1	1	0	0	0	0	0.1	C55
Cervix	410	0	0	0	17	75	144	102	44	28	16.1	C53
Placenta	9	0	1	1	2	1	4	0	0	0	0.4	C58
Corpus	129	0	0	0	4	11	48	46	18	2	5.1	C54
Ovary	120	0	0	5	9	16	43	30	13	4	4.7	C56
Other female genital	40	0	0	0	0	5	9	11	7	8	1.6	C51-C52;C57
Bladder	33	0	0	0	1	4	3	5	7	13	1.3	C67
Kidney	14	0	0	0	0	0	3	3	5	3	0.6	C64-C66;C68
Eye	4	0	2	0	0	1	0	0	1	0	0.2	C69
Brain, nervous system	52	0	8	3	5	5	16	6	3	6	2.0	C70-C72
Thyroid	110	0	1	5	18	14	33	20	12	7	4.3	C73
Other endocrine	3	0	1	0	1	0	1	0	0	0	0.1	C74-C75
Hodgkin's disease	5	0	0	1	0	1	3	0	0	0	0.2	C81
Non-Hodgkin lymphoma	109	0	1	5	12	9	32	20	12	18	4.3	C82-C85;C96
Multiple myeloma	18	0	0	0	0	0	3	2	7	6	0.7	C88;C90
Lymphoid leukaemia	15	0	6	2	1	1	2	1	1	1	0.6	C91
Myeloid leukaemia	45	0	1	4	4	2	12	11	7	4	1.8	C92
Monocytic leukaemia	0	0	0	0	0	0	0	0	0	0	0.0	C93
Other leukaemia	0	0	0	0	0	0	0	0	0	0	0.0	C94
Leukaemia unspec.	2	0	0	0	0	0	0	0	1	1	0.1	C95
Other & unspecified	52	0	1	1	1	4	15	12	9	9	2.0	
All sites	**2545**	**0**	**29**	**36**	**109**	**281**	**711**	**661**	**404**	**314**	**100.0**	

References

1. Fritz A, Percy C, Jack A, Shanmugaratnam K, Sobin L, Parkin DM, and Whelan S. International Classification of Diseases for Oncology. 3rd Ed. World Health Organization, 2000.
2. International rules for multiple primary cancers (ICDO 3rd Edition). Internal Report No. 2004/2. IARC, Lyon, 2004. http://www.iacr.com.fr/MPrules_July2004.pdf
3. Jensen OM, Parkin DM, MacLennan R, Muir CS and Skeet RG. Cancer Registration; Principles and Methods. IARC Scientific Publication No. 95. IARC, Lyon, France, 1991.
4. Ferlay J, Burkhard C, Whelan S, and Parkin DM. Check and conversion programs for cancer registries (IARC/IACR Tools for Cancer Registries) IARC Technical Report No. 42. Lyon, France, 2005.
5. Cooke A, Parkin DM, Ferley J. CanReg4 Software. Version 4.33. Descriptive Epidemiology Group. IARC, Lyon, France.
6. Doll R, Payne P and Waterhouse J. Cancer Incidence in Five Continents: A Technical Report, Berlin, Springer-Verlag (for UICC), 1966.