

**CANCER INCIDENCE AND MORTALITY
IN CHIANG MAI**

2011



**CHIANG MAI CANCER REGISTRY
MAHARAJ NAKORN CHIANG MAI HOSPITAL
FACULTY OF MEDICINE, CHIANG MAI UNIVERSITY
CHIANG MAI, THAILAND**

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**Editors: Imjai Chitapanarux, MD, Department of Radiology
Songphol Srisukho, MD, Department of Surgery**

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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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Chiang Mai Cancer Registry Staff

Chief	Imjai Chitapanarux, MD
Staff	Udomluk Chaisaengkhaum, RN
	Puttachart Maneesai, RN
	Narate Waisri, RN
	Chirapong Hanpragopsuk, RN
	Panrada Tansiri, RN
	Varunee Khamsan, PN
	Malisa Pongsombat, PN

Chiang Mai Cancer Registry
Faculty of Medicine
Chiang Mai University
Chiang Mai, THAILAND 50200
E-mail: cancer_unit@yahoo.com

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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 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 31st in a series and reports the incidence of new cancer, and mortality in Chiang Mai 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: 1 university hospital (Maharaj Nakorn Chiang Mai Hospital), 2 government hospitals, 1 municipal hospital, 11 private hospitals, and 23 community hospitals, with a total of 6,711 beds. Sources in hospitals included 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. 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.

$$ASR(WORLD) = \text{sum } (ARi \times Pi.std) / \text{total standard population}$$

ARi = age specific rate in the i^{th} age group

$Pi.std$ = the number in the i^{th} age group in the standard population.

$$\text{or } ASR(WORLD) = \text{sum } (Ni \times Pi.std \times 100,000 / Pi) / \text{total } Pi.std$$

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;

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

where Cumulative rate = $\sum_{i=1}^n (Fi \times Ti / Pi)$

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, 2011

	Estimated New Cases			Estimated Deaths		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	3541	1777	1764	2334	1296	1038
Lip, oral cavity and pharynx	134	89	45	77	51	26
Lip	2	0	2	3	2	1
Tongue	19	13	6	13	8	5
Mouth	32	17	15	20	12	8
Salivary glands	13	7	6	2	1	1
Tonsil	8	5	3	7	6	1
Other Oropharynx	0	0	0	3	2	1
Nasopharynx	52	40	12	22	15	7
Hypopharynx	7	7	0	6	5	1
Pharynx unspecified	1	0	1	1	0	1
Digestive system	1086	688	398	849	537	312
Esophagus	23	15	8	21	17	4
Stomach	122	72	50	104	54	50
Small intestine	5	2	3	5	3	2
Colon	170	101	69	105	58	47
Rectum	162	94	68	83	43	40
Anus	9	5	4	4	1	3
Liver	492	349	143	433	308	125
Gallbladder	60	22	38	44	19	25
Pancreas	43	28	15	50	34	16
Respiratory system	702	430	272	633	381	252
Nose, sinuses etc.	11	9	2	10	6	4
Larynx	26	23	3	18	15	3
Lung	658	393	265	600	357	243
Other Thoracic organs	7	5	2	5	3	2
Bone	10	6	4	6	3	3
Soft tissue	30	16	14	16	9	7
Connective tissue	23	10	13	13	6	7
Mesothelioma	1	1	0	1	1	0
Kaposi's sarcoma	6	5	1	2	2	0
Skin	129	76	53	54	36	18
Melanoma of skin	11	7	4	13	10	3
Non-melanoma of skin	118	69	49	41	26	15
Breast	351	13	338	115	4	111
Genital system	490	139	351	197	59	138
Vulva	6		6	10		10
Vagina	5		5	2		2
Cervix	205		205	86		86
Corpus	52		52	16		16
Uterus	1		1	0		0
Ovary	77		77	24		24
Other Female Genital	2		2	0		0
Placenta	3		3	0		0
Penis	20	20		8	8	
Prostate	112	112		49	49	
Testis	5	5		2	2	
Other male genital	2	2		0	0	
Urinary system	126	85	41	80	60	20
Kidney	28	20	8	25	17	8
Renal Pelvis	3	1	2	1	1	0
Ureter	3	1	2	2	2	0
Bladder	90	62	28	51	39	12
Other Urinary organs	2	1	1	1	1	0
Eye	8	4	4	2	1	1
Brain, nervous system	46	25	21	32	18	14
Endocrine system	72	16	56	18	5	13
Thyroid	64	11	53	14	3	11
Adrenal gland	4	1	3	3	1	2
Other Endocrine	4	4	0	1	1	0
Lymphoma	151	82	69	82	50	32
Hodgkin disease	5	3	2	4	2	2
Non-Hodgkin lymphoma	145	78	67	78	48	30
Immunoproliferative dis.	1	1	0	0	0	0
Multiple myeloma	25	12	13	24	11	13
Leukaemia	80	43	37	54	23	31
Lymphoid Leukaemia	21	11	10	10	7	3
Myeloid Leukaemia	52	30	22	37	14	23
Leukaemia unspec.	7	2	5	7	2	5
Other & unspecified	101	53	48	95	48	47

Population-based Registration

OVERVIEW

In 2011, there were an estimated 3,541 new invasive cancer cases in Chiang Mai. There were 1,777 males, and 1,764 females with a male to female ratio of 1:1 and in the same period, 1,296 males and 1038 females died from cancer (Table 1). The new cancer cases increased from 1,561 cases in males and from 1,676 cases in females compared to the year 2010. The number of cancer death in males also increased from 1,278 cases and in females increased from 970 cases in the year 2010.

The data were obtained from the followings: 62.9% from Maharaj Nakorn Chiang Mai Hospital, 20.4% from Nakhonping Hospital (the provincial hospital), 0.1% from other government hospitals, 6.3% from community hospitals, 9.5% from private hospitals, and 0.8% from death certificates.

The age-standardized incidence rates were 176.7 for males and 152.0 for females. The cumulative rate percentages to age 75 were 19.0% for males and 18.8% for females, these represented cumulative risks for developing cancer of 100 in 526 for men and 100 in 531 for women. In the year 2011, the incidence in both males and females trended to continue increasing from the year 2000 (Fig. 1).

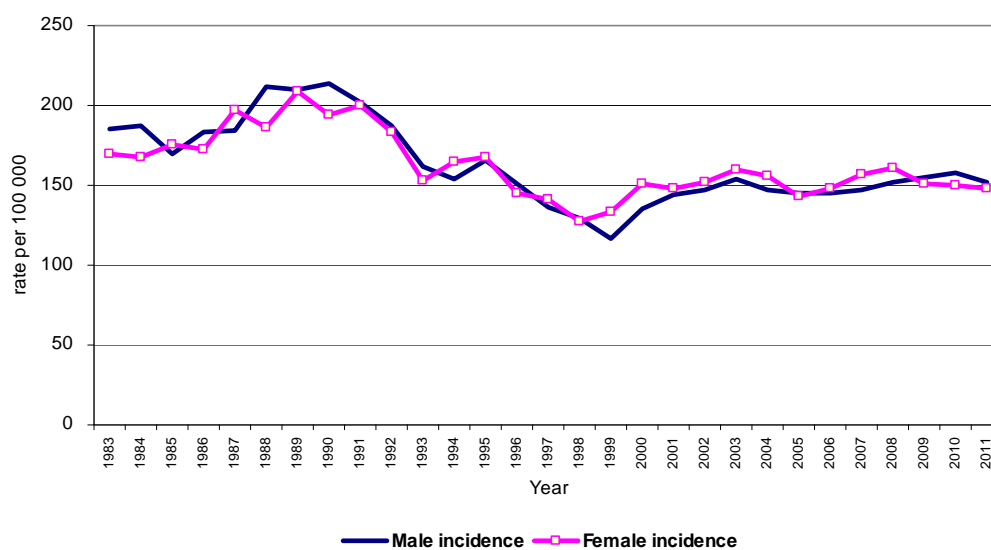


Figure 1: Age-standardized incidence rates (world) of cancer in Chiang Mai, 1983-2011

INCIDENCE

Age and Sex

The age at diagnosis in males ranged from one year to 96 years, with a mean age of 61.7 years and a median age of 62 years (Fig. 2) and in females ranged from less than one year to 97 years, with the mean age at diagnosis of 58.7 years and a median age of 58 years. Childhood cancers were relatively uncommon in Chiang Mai. Only 32 cases (0.9%) of all cancers occurred before age 15, whereas 52.1% occurred after age 60.

The male to female ratio was approximately 1:1, but 39.1% of the cancers in females occurred in sex-specific sites (i.e., breast and reproductive organs) while only 8.6% 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 1.6:1 because of the higher incidence of lung cancer and liver cancer in males than females.

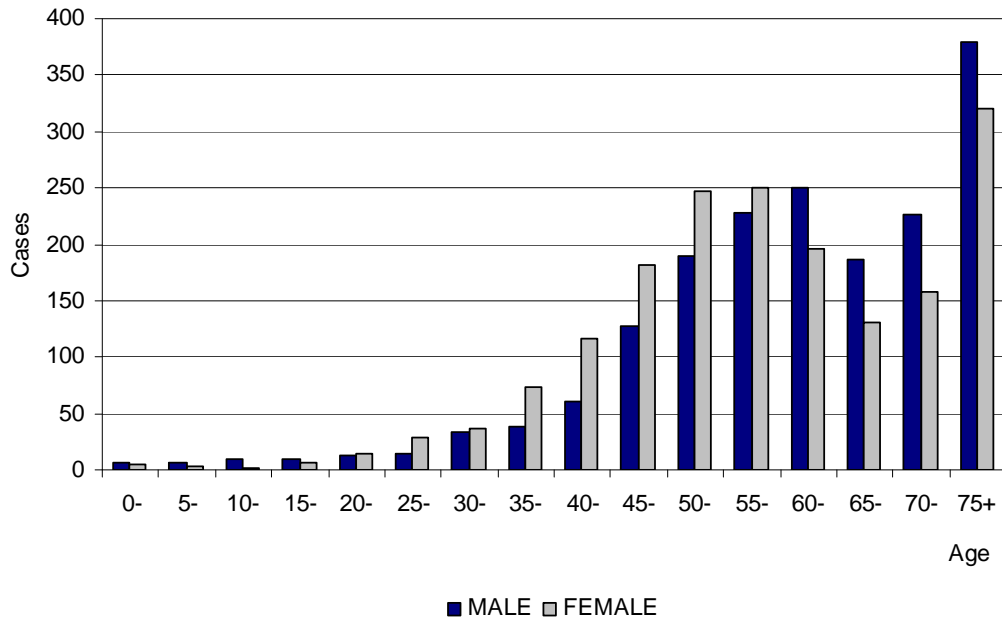


Figure 2: Age group distribution of new cancer cases in Chiang Mai, 2011

In the age group 25-59 years, more women had cancer than men, because of the large number of 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).

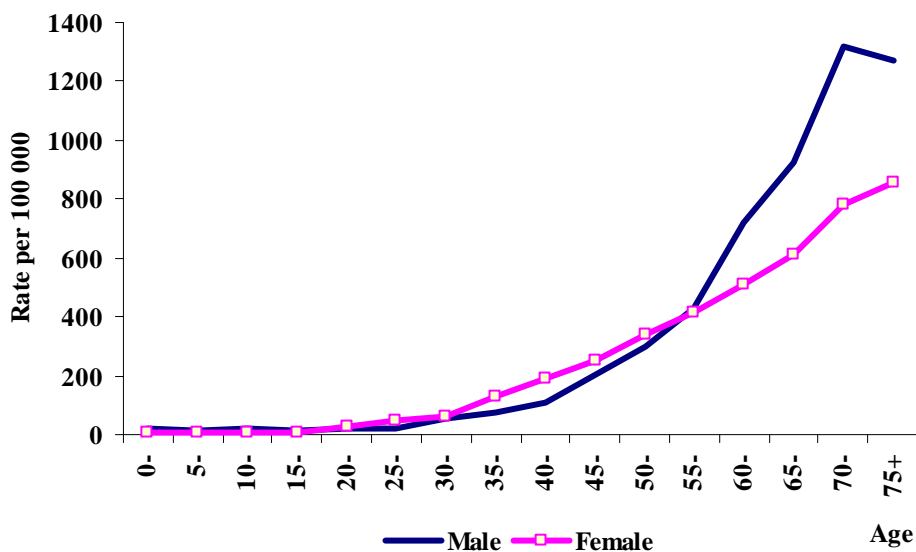


Figure 3: Age-specific incidence rates, Chiang Mai, 2011

DIAGNOSIS AND STAGE OF CANCER

Basis of Diagnosis

2,690 cases (76.0%) were histologically verified, with 63.5% from primary sites and 8.1% from metastasis sites (Table 2). Twenty two percent were clinically diagnosed and 0.8% 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

Forty-four percent were diagnosed in localized and locally advanced stages, and 28.7% 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 (23.0%) and liver (23.0%), followed by distant lymph nodes (12.8%), bone (14.2%) and brain (8.8%).

Table 2: Basis of diagnosis

Type of diagnosis	No.	%
Histological verification	2690	76.0
Histology of primary	2248	63.5
Histology of metastasis	286	8.1
Cytology/hematology	155	4.4
Autopsy	1	0.0
No histological verification	822	23.2
Clinical only	14	0.4
Clinical and investigations	791	22.3
Operation/surgery	13	0.4
Immuno/biochemistry	4	0.1
Death certificate only	29	0.8
<i>Unknown</i>	0	0.0
	3541	100.0

Table 3: Stage of disease

Stage	No.	%
Localized	463	13.1
Locally advanced	1104	31.2
Regional node metastasis	511	14.4
Distant metastasis	1017	28.7
Not applicable	304	8.6
Unknown/not staged	142	4.0
	3541	

Incidence of New Cancer Cases by Districts

High incidences of new cancer for males were found in Doi Saket, San Sai, Hang Dong, Chom Thong and Muang districts because of high incidence of lung and liver cancer. The high incidence rate of lung cancer was found in Doi Saket, San Sai and Chom Thong district and the high incidence rate of liver cancer was found in Hang Dong and Muang districts. For females, high incidence rates of new cancer were found in Wiang Haeng, Mae Taeng, Hang Dong, Chiang Dao and Muang districts. In Wiang Haeng, the incidence rate was high even though the number of new cases was small due to a small population. The high incidence rate in Mae Taeng and Hang Dong was due to high incidence of lung and breast cancer. The high incidence rate in Chiang Dao and Muang was due to high incidence of breast and cervix cancer. Low incidences of cancer in males were found in Galyani Vadhana, Omkoi and Mae On districts and in females were found in Omkoi, Hot and Mae Wang districts (Table 4).

MORTALITY

Age and Sex

In 2011, there were an estimated 2,334 cancer death cases (1,296 males, 1038 females, Table 1), accounting for 18.6% 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 125.1 per 100,000 males and 87.3 per 100,000 females. Cancer death rates for males have continued to increase since 1997 and have continued to decrease in females since 2005 (Fig. 4). The age-specific mortality rate increased after the age of 45 years for both males and females (Fig. 5). The cumulative rate percentages to age 75 were 13.8% for males and 9.5% for females. These represented risks of dying from cancer that were 10 in 73 for males and 10 in 105 for females.

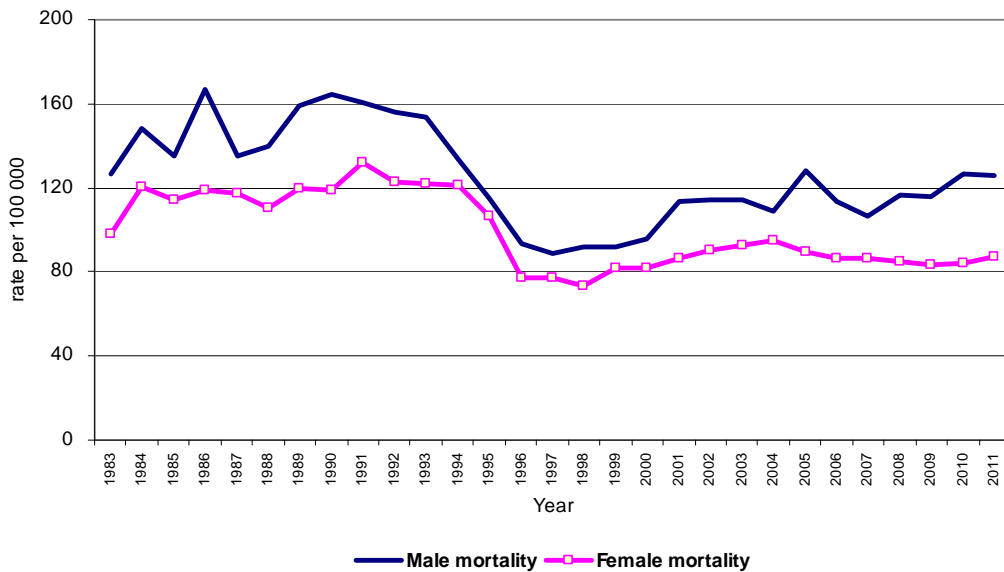


Figure 4: Age-standardized mortality rates (world) of cancer in Chiang Mai, 1983-2011

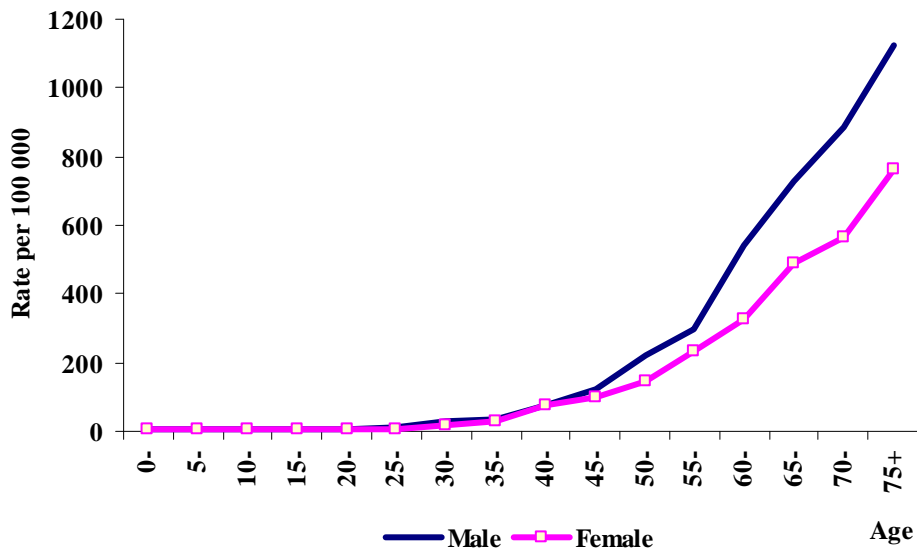


Figure 5: Age-specific mortality rate, Chiang Mai, 2011

For all cancer death cases, 1,599 cases (68.5%) survived less than one year, while only 275 cases (11.8%) survived more than three years. This indicates the severity of cancer in Chiang Mai.

Mortality of cancer cases by districts

The highest mortality rate for males was in Doi Law district, followed by Doi Saket, Mae Wang, Wiang Haeng, and Saraphi districts. These were because of high mortality from lung and liver cancer. For females, the highest mortality rate was in Wiang Haeng district, followed by Hang Dong, Phrao, Chiang Dao, and Chai Prakan districts (Table 5). These were because of high mortality from lung and liver cancer in Hang Dong and Phrao districts, from lung and breast cancer in Chiang Dao and Chai Prakan districts. In Wiang Haeng, the mortality rate was high in both sexes even though the number of dead cases was small due to a small population.

LEADING SITES OF CANCER INCIDENCE

Of invasive cancer in both sexes combined, lung cancer was the most common (658 cases), followed by liver, breast, cervix and colon cancer. Together these five types of cancer accounted for 53.0% of all new cancers. For males, the most common cancer was lung cancer, accounting for 22.1% of all newly diagnosed cases, followed by liver, prostate, colon and rectum (Fig. 6). For females, the most common cancer was breast cancer, accounting for 19.2% of all newly diagnosed cases, followed by lung, cervix, liver, and ovarian 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 NHL, leukemia, and nervous system, and in females were thyroid, ovary 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 cervix 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 (25.7%) was the most common cause of cancer death, followed by liver (18.6%), breast, colon and stomach cancer. Lung and liver cancer accounted for 44.3% of all cancer deaths. For males, lung was the most common site of cancer deaths, accounting for 27.5%, followed by the liver, colon, stomach and prostate. For females, the lung was the most common site of cancer deaths, accounting for 23.4%, followed by liver, breast, cervix and stomach (Fig. 7).

Lung and liver 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, breast cancer was the most common cause in the age group 30-59 and lung cancer was the most common cause in the age group 60 and over (Table 7).

Table 4: Incidence and common sites of new cancer cases in districts of Chiang Mai, 2011

	Districts	Rates	All sites	Males											
				Lung	Liver	Prostate	Colon	Rectum	NHL	Stomach	Skin*	Bladder	Nasoph.		
	Muang	201.5	293	44	48	30	18	20	11	5	14	14	6		
	Chom Thong	207.5	91	24	16	6	1	5	3	3	3	5	3		
	Mae Chaem	165.9	44	16	3	0	2	1	1	5	0	1	4		
	Chiang Dao	156.8	60	11	12	2	5	4	0	5	0	3	1		
	Doi Saket	245.9	112	26	19	8	13	6	6	3	3	5	0		
	Mae Taeng	158.2	83	15	20	6	5	2	8	2	5	4	0		
	Mae Rim	162.5	87	18	22	5	3	2	3	7	3	4	1		
	Samoeng	130.8	19	4	2	2	2	1	0	2	3	0	0		
	Fang	141.0	78	18	10	3	8	7	4	1	4	4	4		
	Mae Ai	133.7	51	14	10	1	5	3	3	1	0	1	4		
	Phrao	149.8	60	16	17	3	2	0	1	1	0	3	0		
	San Pa Tong	163.1	100	33	18	6	2	3	4	5	9	2	1		
	San Kamphaeng	155.6	83	16	21	9	5	6	3	0	4	1	1		
	San Sai	227.2	157	34	30	11	7	11	7	12	8	3	2		
	Hang Dong	220.7	109	23	26	4	4	9	4	6	0	3	2		
	Hot	167.4	45	14	11	0	4	1	0	2	1	1	2		
	Doi Tao	144.8	27	6	7	1	2	0	2	1	3	0	1		
	Omkoï	80.0	18	7	5	0	0	0	1	1	0	0	0		
	Saraphi	198.8	118	22	24	13	9	5	8	2	5	3	1		
	Wiang Haeng	200.9	14	3	2	1	0	0	2	1	0	0	1		
	Chai Prakan	165.1	39	6	5	1	0	5	2	3	3	2	3		
	Mae Wang	183.0	37	7	8	0	3	1	3	2	0	0	2		
	Mae On	115.0	18	2	7	0	0	1	1	1	1	1	0		
	Doi Law	150.8	31	12	6	0	1	1	0	1	0	2	1		
	Galyani Vadhana	53.8	3	2	0	0	0	0	1	0	0	0	0		
	Districts	Rates	All sites	Females											
				Breast	Lung	Cervix	Liver	Ovary	Colon	Rectum	NHL	Thyroid	Corpus		
	Muang	169.0	316	76	39	28	16	20	15	17	10	9	11		
	Chom Thong	126.5	65	8	11	7	4	2	2	1	3	0	1		
	Mae Chaem	116.2	33	4	3	2	2	1	1	2	2	3	0		
	Chiang Dao	174.3	71	17	8	11	4	3	2	3	2	0	1		
	Doi Saket	166.9	92	26	6	15	10	1	1	3	6	1	6		
	Mae Taeng	179.3	95	17	14	12	13	3	10	2	3	3	2		
	Mae Rim	153.9	88	15	13	9	11	2	2	5	5	4	3		
	Samoeng	134.4	19	2	4	3	0	1	0	1	0	0	1		
	Fang	155.6	95	19	17	13	4	4	2	2	2	5	4		
	Mae Ai	144.9	57	9	8	14	5	1	3	4	1	0	2		
	Phrao	156.0	61	9	14	4	6	1	1	3	2	0	0		
	San Pa Tong	153.4	108	23	17	19	11	3	2	2	1	6	2		
	San Kamphaeng	129.3	89	13	11	14	9	6	3	5	3	4	1		
	San Sai	146.7	129	20	19	10	9	10	12	5	7	4	3		
	Hang Dong	177.9	110	16	24	10	14	4	4	3	4	3	3		
	Hot	110.6	32	2	2	1	3	2	1	3	0	3	0		
	Doi Tao	144.9	30	8	4	1	3	1	0	0	2	0	2		
	Omkoï	72.7	21	3	2	0	3	3	2	0	1	2	1		
	Saraphi	157.5	107	23	20	16	7	7	4	1	6	1	4		
	Wiang Haeng	292.8	18	3	4	3	0	1	1	1	0	0	1		
	Chai Prakan	165.1	43	10	9	6	3	0	0	2	2	1	0		
	Mae Wang	112.7	27	3	5	2	2	0	0	1	2	2	2		
	Mae On	123.6	21	5	4	5	1	0	0	0	0	1	0		
	Doi Law	144.5	32	6	7	0	3	0	0	1	3	1	2		
	Galyani Vadhana	113.8	5	1	0	0	0	1	1	1	0	0	0		

Skin* - non-melanoma skin cancer

Table 5: Mortality rate and common cancer sites in districts of Chiang Mai, 2011

	Districts	Rates	All sites	Lung	Liver	Colon	Stomach	Prostate	NHL	Rectum	Bladder	Pancre.	Skin*	
Males	Muang	111.8	175	34	43	9	3	13	6	7	6	7	2	
	Chom Thong	152.0	71	17	11	1	1	2	4	4	2	1	4	
	Mae Chaem	102.4	28	11	3	0	3	0	1	1	0	2	1	
	Chiang Dao	114.8	43	11	7	3	1	0	2	2	0	1	0	
	Doi Saket	162.6	80	30	21	4	1	4	2	1	2	3	1	
	Mae Taeng	115.8	63	13	20	5	4	1	3	0	3	3	3	
	Mae Rim	98.7	54	15	15	1	4	1	2	4	1	1	2	
	Samoeng	91.4	15	7	0	1	1	0	0	1	0	0	0	
	Fang	96.3	55	15	11	5	1	2	4	2	1	1	0	
	Mae Ai	95.4	37	9	5	2	1	1	4	1	2	2	1	
	Phrao	135.3	52	16	13	1	2	1	0	1	2	1	0	
	San Pa Tong	150.3	94	31	18	4	4	3	3	6	3	3	2	
	San Kamphaeng	127.4	67	20	14	4	4	3	1	0	2	2	2	
	San Sai	142.5	104	28	33	4	8	3	4	3	2	2	2	
	Hang Dong	146.3	76	19	23	4	5	4	2	1	3	0	0	
	Hot	134.5	36	12	9	2	3	0	1	0	0	1	0	
	Doi Tao	120.1	21	8	7	1	1	2	0	0	0	0	0	
	Omroi	49.0	11	6	3	1	0	0	0	0	0	0	0	
	Saraphi	152.1	89	22	19	2	3	5	3	2	3	2	6	
	Wiang Haeng	153.6	11	0	2	0	0	1	1	1	0	1	0	
	Chai Prakan	112.7	28	7	5	1	2	2	0	3	2	1	0	
	Mae Wang	159.1	32	6	12	3	0	0	1	2	2	0	0	
	Mae On	99.5	15	2	7	0	1	1	1	0	0	0	0	
	Doi Law	193.9	36	16	7	0	1	0	2	1	3	0	0	
	Galyani Vadhana	53.8	3	2	0	0	0	0	0	1	0	0	0	
	Females	Muang	82.5	157	33	10	24	15	5	9	8	6	5	4
		Chom Thong	85.2	44	12	4	4	0	4	0	2	2	4	0
		Mae Chaem	60.4	18	2	2	1	2	5	0	0	1	0	1
Chiang Dao		112.5	44	9	4	6	2	2	1	4	3	1	2	
Doi Saket		86.8	48	9	10	6	3	3	4	0	1	1	1	
Mae Taeng		94.7	56	14	8	5	6	3	5	0	1	2	1	
Mae Rim		74.7	47	12	6	6	2	2	3	3	1	1	1	
Samoeng		73.7	10	4	1	2	1	0	0	0	0	0	0	
Fang		104.3	63	13	7	3	8	3	5	1	2	0	2	
Mae Ai		78.2	31	9	7	2	3	1	1	1	0	1	0	
Phrao		116.9	47	14	10	7	1	0	1	1	0	1	0	
San Pa Tong		81.4	64	19	11	4	5	1	2	2	3	2	3	
San Kamphaeng		66.2	49	6	7	7	5	2	3	5	1	1	0	
San Sai		91.8	80	21	9	5	9	4	5	3	3	0	1	
Hang Dong		119.7	73	23	11	7	3	4	1	3	2	3	1	
Hot		74.8	24	2	3	2	0	3	1	1	1	0	2	
Doi Tao		58.2	11	2	1	1	0	0	0	1	0	0	0	
Omroi		38.2	10	0	1	2	1	2	1	0	0	0	0	
Saraphi		95.1	67	17	7	7	13	1	1	3	1	1	1	
Wiang Haeng		173.3	11	3	1	0	1	1	0	0	0	0	1	
Chai Prakan		107.2	28	7	1	4	2	1	2	0	0	0	0	
Mae Wang		86.5	22	3	2	3	0	1	2	2	1	0	1	
Mae On		62.7	11	3	0	1	1	1	0	0	0	0	2	
Doi Law		97.6	23	6	2	2	3	1	0	0	1	2	0	
Galyani Vadhana		0.0	0	0	0	0	0	0	0	0	0	0	0	

Skin* - non-melanoma skin cancer

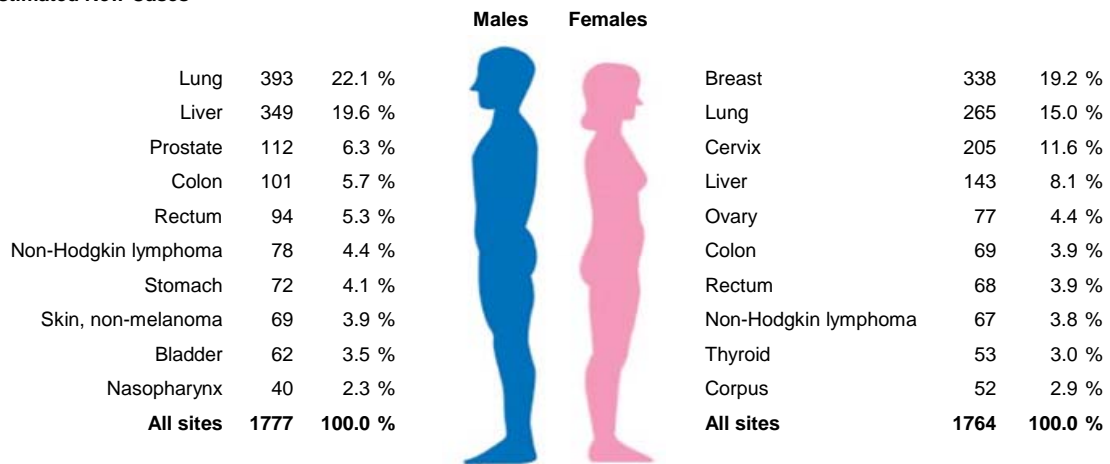
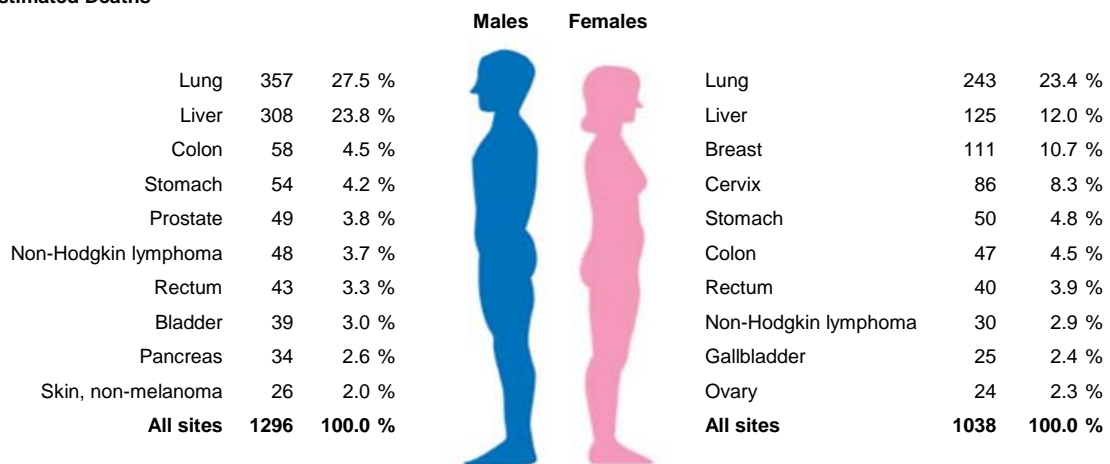
Estimated New Cases**Figure 6: Ten leading cancer sites for the estimated new cases, by sex, 2011****Estimated Deaths****Figure 7: Ten leading cancer sites for the estimated death cases, by sex, 2011**

Table 6 : Top 5 cancers in Chiang Mai by 15-year age groups, 2011

Males		0-14		15-29		30-44		45-59		60-74		75+	
Incidence	Age group	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
NHL	5	NHL	7	Liver	32	Liver	154	Lung	185	Lung	87	Lung	87
Lymphoid Leukaemia	5	Myeloid Leukaemia	4	Nasopharynx	11	Lung	112	Liver	109	Prostate	52	Prostate	52
Brain, Nervous system	4	Liver	3	Colon	9	Colon	30	Prostate	47	Liver	51	Liver	51
Bone	3	Brain, Nervous system	3	Lung	9	Rectum	26	Colon	44	Skin, non-melanoma	36	Skin, non-melanoma	36
Other Endocrine	2	Nasopharynx	2	Rectum	8	NHL	21	Rectum	40	Stomach	21	Stomach	21
All sites	23	All sites	34	All sites	132	All sites	546	All sites	662	All sites	379	All sites	379
Females													
Incidence	Age group	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Lymphoid Leukaemia	4	Thyroid	10	Breast	62	Breast	182	Lung	122	Lung	72	Lung	72
Brain, Nervous system	2	Ovary	9	Cervix	52	Cervix	101	Breast	73	Liver	41	Liver	41
Ovary	1	NHL	6	Ovary	14	Lung	61	Liver	53	Skin, non-melanoma	23	Skin, non-melanoma	23
Eye	1	Breast	3	Thyroid	11	Liver	42	Cervix Uteri	37	Breast	18	Breast	18
Thyroid	1	Brain, Nervous system	3	Lung	10	Ovary	36	Rectum	24	Colon	16	Colon	16
All sites	9	All sites	47	All sites	225	All sites	679	All sites	483	All sites	320	All sites	320
Males													
Incidence	Age group	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
NHL	1.2	NHL	1.0	Liver	3.5	Liver	12.4	Lung	23.5	Lung	5.8	Lung	5.8
Lymphoid Leukaemia	1.2	Myeloid Leukaemia	0.5	Nasopharynx	1.2	Lung	8.9	Liver	13.7	Prostate	3.5	Prostate	3.5
Brain, Nervous system	0.9	Liver	0.4	Colon	1.0	Colon	2.5	Prostate	5.8	Liver	3.4	Liver	3.4
Bone	0.7	Brain, Nervous system	0.4	Lung	1.0	Rectum	2.1	Colon	5.5	Skin, non-melanoma	2.4	Skin, non-melanoma	2.4
Other Endocrine	0.5	Nasopharynx	0.3	Rectum	0.9	NHL	1.7	Rectum	4.9	Stomach	1.4	Stomach	1.4
All sites	5.4	All sites	4.7	All sites	14.4	All sites	44.2	All sites	82.9	All sites	25.5	All sites	25.5
Females													
Incidence	Age group	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Lymphoid Leukaemia	1.0	Thyroid	1.3	Breast	6.3	Breast	13.2	Lung	13.7	Lung	3.9	Lung	3.9
Brain, Nervous system	0.5	Ovary	1.2	Cervix	5.3	Cervix	7.3	Breast	8.0	Liver	2.2	Liver	2.2
Ovary	0.2	NHL	0.8	Ovary	1.4	Lung	4.2	Liver	6.0	Skin, non-melanoma	1.2	Skin, non-melanoma	1.2
Eye	0.2	Breast	0.4	Thyroid	1.1	Liver	3.0	Cervix Uteri	4.1	Breast	1.0	Breast	1.0
Thyroid	0.2	Brain, Nervous system	0.4	Lung	1.0	Ovary	2.6	Rectum	2.7	Colon	0.9	Colon	0.9
All sites	2.2	All sites	6.4	All sites	22.8	All sites	48.4	All sites	54.3	All sites	17.1	All sites	17.1

Table 7 : Top 5 cancer deaths in Chiang Mai by 15-year age groups, 2011

Mortality		0-14		15-29		30-44		45-59		60-74		75+	
Mortality	Age group	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Males													
Lymphoid Leukaemia	2	Rectum	2	Liver	25	Liver	131	Lung	169	Lung	93	Lung	93
Lung	1	Other Thoracic organs	2	Lung	7	Lung	87	Liver	111	Liver	40	Liver	40
Adrenal gland	1	Brain, Nervous system	2	NHL	7	Stomach	16	Colon	28	Prostate	32	Prostate	32
Other Endocrine	1	Lymphoid Leukaemia	2	Pancreas	5	Pancreas	14	Stomach	23	Bladder	21	Bladder	21
NHL	1	Myeloid Leukaemia	2	Stomach	4	NHL	13	NHL	15	Skin, non-melanoma	20	Skin, non-melanoma	20
All sites	6	All sites	15	All sites	77	All sites	377	All sites	487	All sites	334	All sites	334
Females													
Bone	2	Colon	2	Breast	17	Breast	50	Lung	109	Lung	78	Lung	78
Nose, sinuses etc.	1	Lymphoid Leukaemia	2	Cervix	8	Lung	49	Liver	46	Liver	34	Liver	34
Adrenal gland	1	Brain, Nervous system	1	Stomach	6	Liver	39	Breast	27	Cervix	19	Cervix	19
Lymphoid Leukaemia	1	NHL	1	Liver	6	Cervix	38	Cervix	20	Breast	17	Breast	17
Other & unspecified	1	Lung	1	Lung	6	Stomach	18	Stomach	15	Colon	14	Colon	14
All sites	6	All sites	13	All sites	74	All sites	316	All sites	344	All sites	285	All sites	285
Males													
Lymphoid Leukaemia	0.5	Rectum	0.3	Liver	2.7	Liver	10.4	Liver	21.6	Lung	6.2	Lung	6.2
Lung	0.2	Other Thoracic organs	0.3	Lung	0.8	Lung	7.0	Liver	13.9	Liver	2.7	Liver	2.7
Adrenal gland	0.2	Brain, Nervous system	0.3	NHL	0.8	Stomach	1.3	Colon	3.4	Prostate	2.1	Prostate	2.1
Other Endocrine	0.2	Lymphoid Leukaemia	0.3	Pancreas	0.6	Pancreas	1.1	Stomach	2.8	Bladder	1.4	Bladder	1.4
NHL	0.2	Myeloid Leukaemia	0.3	Stomach	0.4	NHL	1.1	NHL	1.9	Skin, non-melanoma	1.3	Skin, non-melanoma	1.3
All sites	1.4	All sites	2.1	All sites	8.4	All sites	30.3	All sites	61.3	All sites	22.4	All sites	22.4
Females													
Bone	0.5	Colon	0.3	Breast	1.7	Breast	3.6	Breast	12.5	Lung	4.2	Lung	4.2
Nose, sinuses etc.	0.2	Lymphoid Leukaemia	0.3	Cervix	0.8	Lung	3.4	Liver	5.3	Liver	1.8	Liver	1.8
Adrenal gland	0.2	Brain, Nervous system	0.2	Stomach	0.6	Liver	2.7	Breast	3.0	Cervix	1.0	Cervix	1.0
Lymphoid Leukaemia	0.2	NHL	0.2	Liver	0.6	Cervix	2.7	Cervix	2.3	Breast	0.9	Breast	0.9
Other & unspecified	0.2	Lung	0.1	Lung	0.6	Stomach	1.3	Stomach	1.8	Colon	0.7	Colon	0.7
All sites	1.5	All sites	1.8	All sites	7.4	All sites	22.3	All sites	39.1	All sites	15.3	All sites	15.3

COMMON CANCERS IN CHIANG MAI, 2011

Lung cancer (ICD-10 C33-C34)

Lung cancer was the most common cancer in males and ranked first for new male cancers in Chiang Mai since the first population-based registration in 1983. For females, lung cancer ranked second after breast cancer. There were 658 new cases of lung cancer diagnosed in 2011 (393 males, 265 females) (Fig 8). This was 22.1% of all cancers in males and 15.0% of those in females. The age-standardized incidence rates were 39.2 for males and 22.5 for females; this was slightly increased in males from the year 2010 but decreased 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 5.2% for males and 3.8% for females. These represented risks of 10 in 192 for men and 10 in 260 for women of developing lung cancer by age 75.

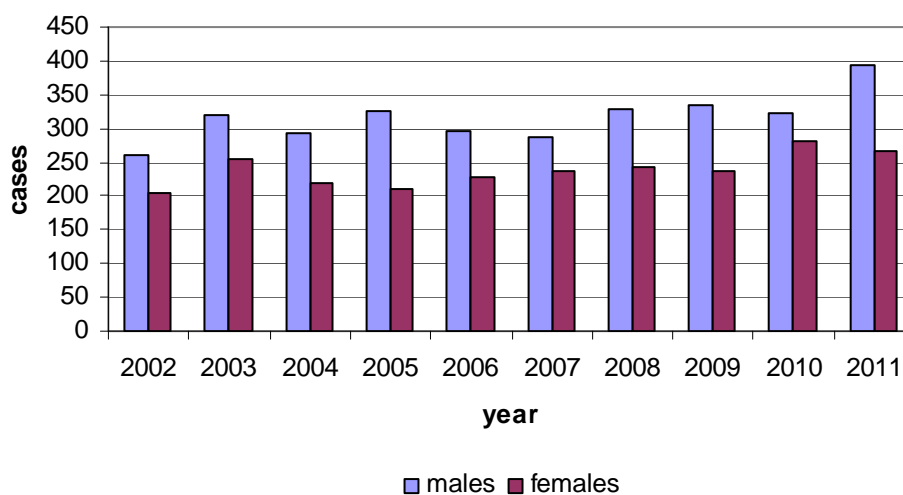


Figure 8: Number of new cases of lung cancer by sex, 2002-2011

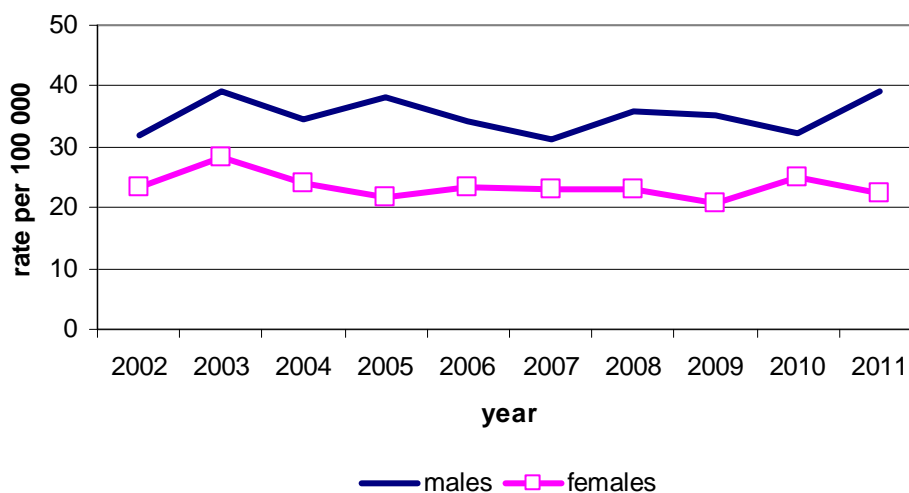


Figure 9: Incidence rates of new cases of lung cancer by sex, 2002-2011

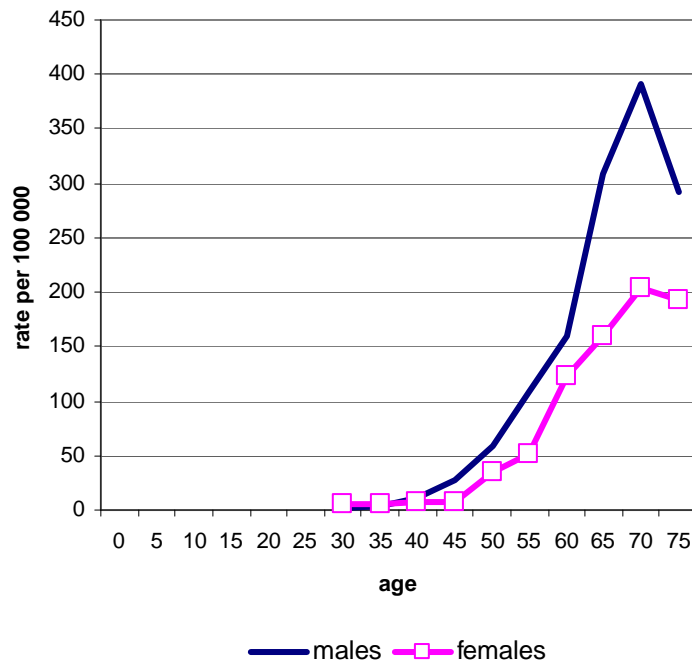


Figure 10: Age-specific incidence rate of lung cancer, Chiang Mai, 2011

Of the 600 deaths from lung cancer, 357 were males (27.5% of all male cancer deaths) and 243 were females (23.4% of all female cancer deaths). In 2011, the mortality rates were 35.2 for males and 20.6 for females. Compared with the year 2010, the mortality rates were increased in males but slightly decreased in females (Fig. 11). The mortality rates increased with age and increased sharply after the age of 45 years in both sexes (Fig. 12).

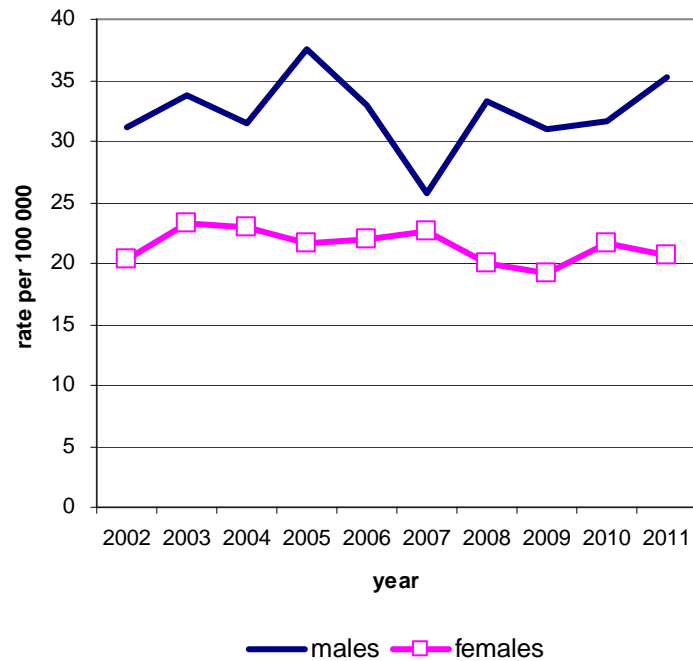


Figure 11: Mortality rate of lung cancer by sex, Chiang Mai, 2002-2011

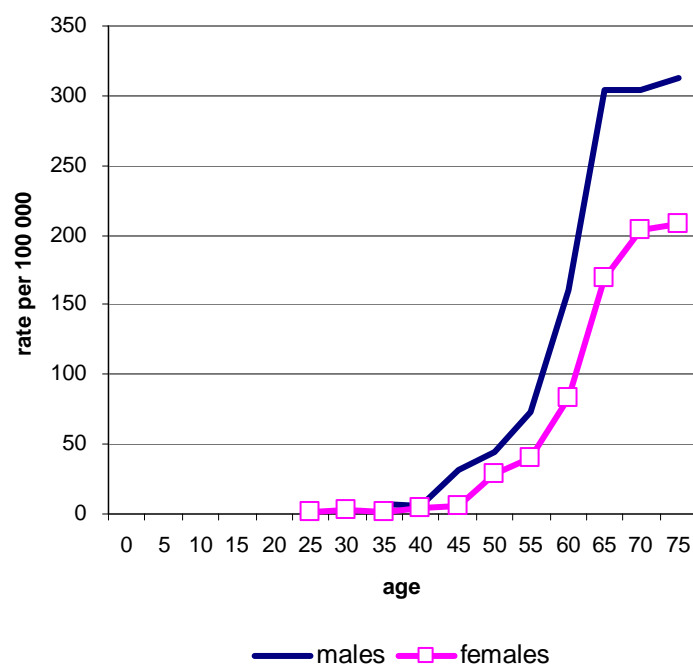


Figure 12: Age-specific mortality rate of lung cancer, Chiang Mai, 2011

For lung cancer deaths, 499 cases (83.2%) died within one year of diagnosis and 75 cases (12.5%) died in the second year. This indicated the severity of this cancer.

Diagnosis and stage of cancer

Seventy-four percent of cases were diagnosed in an advanced stage (57.8% had distant metastasis, 16.1% had regional nodes metastasis). The most common metastasis site was lung-to-lung, followed by brain. Two hundred and thirty-nine cases (38.6%) were diagnosed from clinical diagnosis, and sixteen cases were diagnosed by death certificate only. The common cell types were adenocarcinoma (34.2%) and squamous cell carcinoma (14.9%).

Cell type	Males	Females	Total	%	Stage	Cases	%
Adenocarcinoma	131	94	225	34.2	Localized	13	2.0
Squamous cell CA	63	35	98	14.9	Locally advanced	110	16.7
Small cell	25	18	43	6.5	Regional node metastasis	106	16.1
Large cell	22	14	36	5.5	Distant metastasis	380	57.8
Others	1	1	2	0.3	Unknown/not staged	49	7.4
Clinical diagnosis	151	103	254	38.6			
TOTAL	393	265	658	100.0	All	658	100.0

Liver cancer (ICD-10 C22)

There were 492 new cases of liver cancer diagnosed in 2011 (349 males, 143 females) (Fig 13). This was 19.6% of all cancers in males and 8.1% of those in females. The age-standardized incidence rates were 33.6 for males and 11.6 for females and slightly increased in females but decreased in males (Fig 14). Liver cancer has ranked second for new male cancers after lung cancer and 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 3.8% for males and 1.9% for females. These represented risks of 10 in 260 for men and 10 in 526 for women of developing liver cancer by age 75.

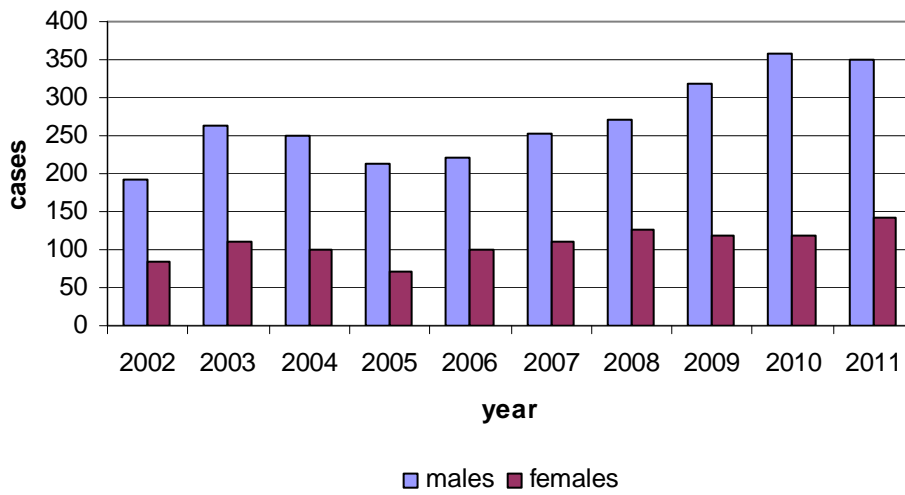


Figure 13: Number of new cases of liver cancer by sex, 2002-2011

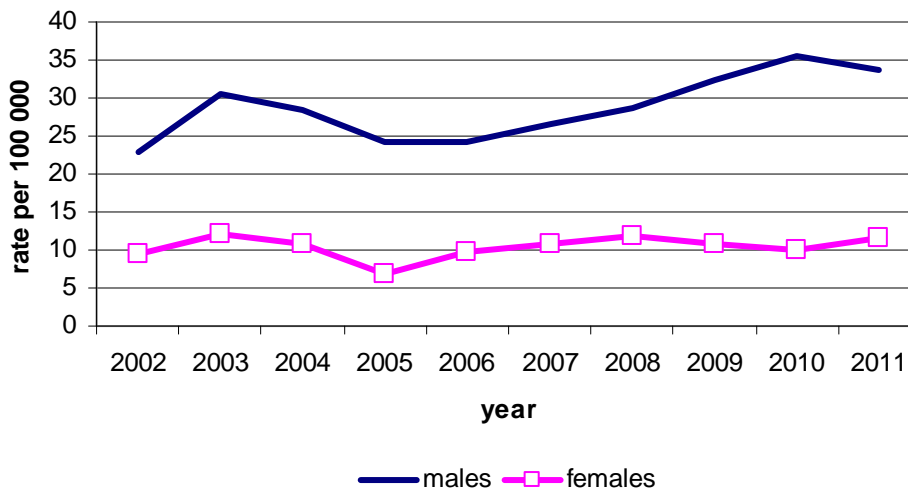


Figure 14: Incidence rates of new cases of liver cancer by sex, 2002-2011

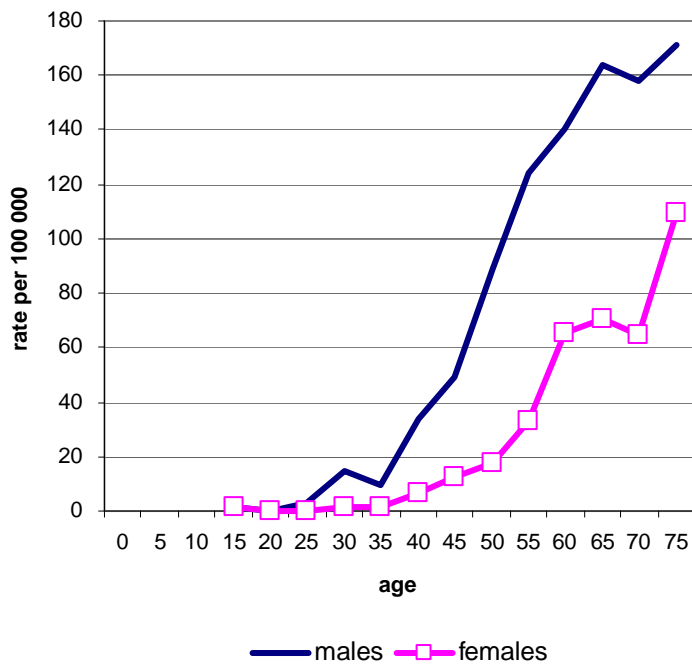


Figure 15: Age-specific incidence rate of liver cancer, Chiang Mai, 2011

Of the 433 deaths from liver cancer, 308 were males (23.8% of all male cancer deaths) and 125 were females (12.0% of all female cancer deaths). The mortality rates were 29.9 for males and 10.2 for females and decreased in males but slightly increased in females compared to the year 2010 (Fig. 16). The mortality rates increased with age in both sexes, with rates in males increasing sharply after the age of 45 years and exceeding those in females (Fig. 17).

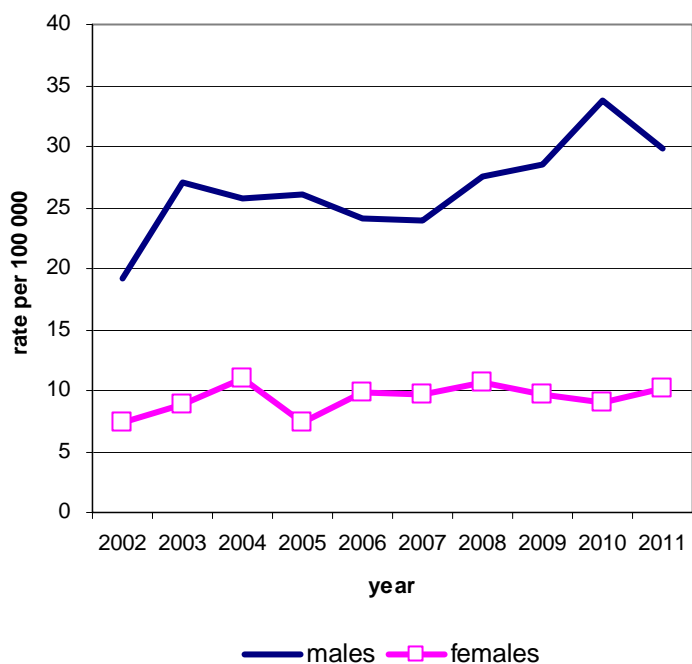


Figure 16: Mortality rate of liver cancer by sex, Chiang Mai, 2002-2011

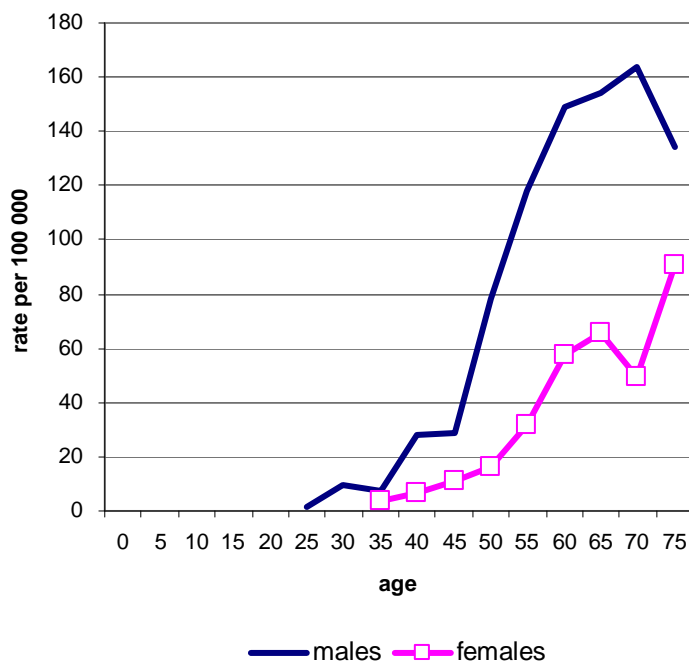


Figure 17: Age-specific mortality rate of liver cancer, Chiang Mai, 2011

For liver cancer deaths, 335 cases (77.4%) died within six months after diagnosis, and only 53 cases (12.2%) lived more than one year. These figures reflect the severity of this type of cancer.

Diagnosis and stage of cancer

Fifty percent of cases were diagnosed at an advanced stage (45.5% had distant metastasis, 4.9% had regional nodes metastasis). The most common metastasis site was lung, followed by distant lymph nodes. Only 20.5% were diagnosed by histology or cytology, while 79.1% were diagnosed by imaging studies. The common cell types for histological diagnosis groups were cholangiocarcinoma (71.3%) and hepatocellular carcinoma (24.8%). Ninety percent of hepatocellular carcinomas and 64.3% of cholangiocarcinomas were diagnosed by clinical diagnosis.

Cell type	Males	Females	Total	%
Hepatocellular	19	6	25	5.1
Cholangiocarcinoma	39	33	72	14.6
Others	4	0	4	0.8
Clinical diagnosis	287	104	391	79.5
TOTAL	349	143	492	100.0

Stage	Cases	%
Localized	12	2.4
Locally advanced	194	39.4
Regional node metastasis	24	4.9
Distant metastasis	224	45.5
Unknown/not staged	38	7.7
All	492	100.0

Stomach cancer (ICD-10 C16)

There were 122 new cases of stomach cancer diagnosed in 2011 (72 males, 50 females) (Fig 18) accounting for 4.1% of all cancers in males and 2.8% of those in females. The age-standardized incidence rates were 6.9 for males and 4.4 for females and trending to increase in both sexes (Fig. 19). In 2010, stomach cancer ranked seventh for new male cancers and eleventh 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 0.83% for males and 0.64% for females. These represented risks of 1 in 120 for men and 1 in 156 for women of developing stomach cancer by age 75.

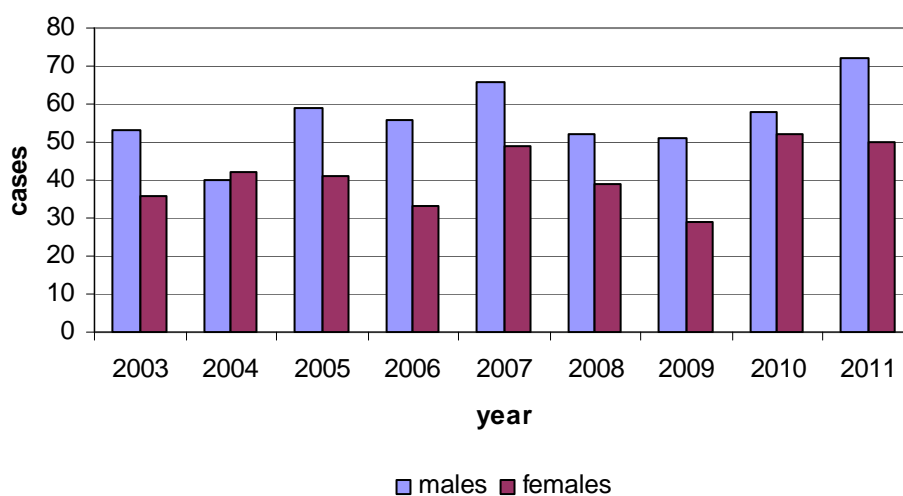


Figure 18: Number of new cases of stomach cancer by sex, 2002-2011

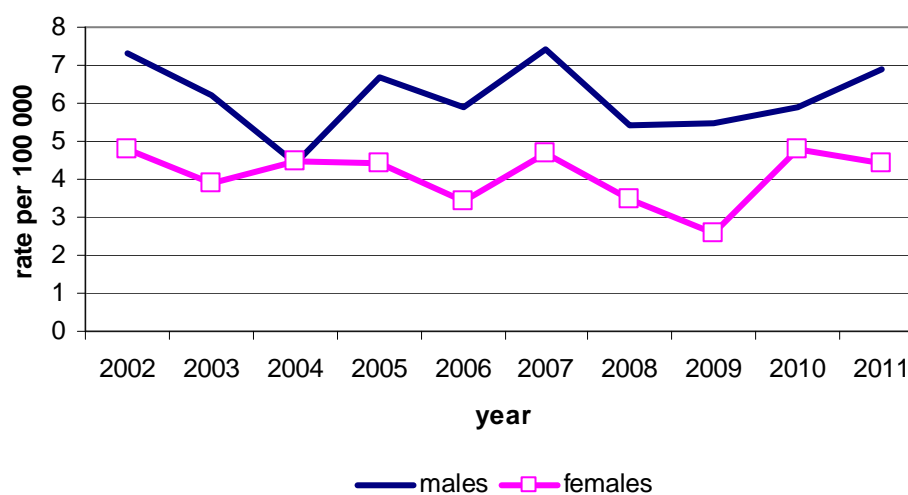


Figure 19: Incidence rates of new cases of stomach cancer by sex, 2002-2011

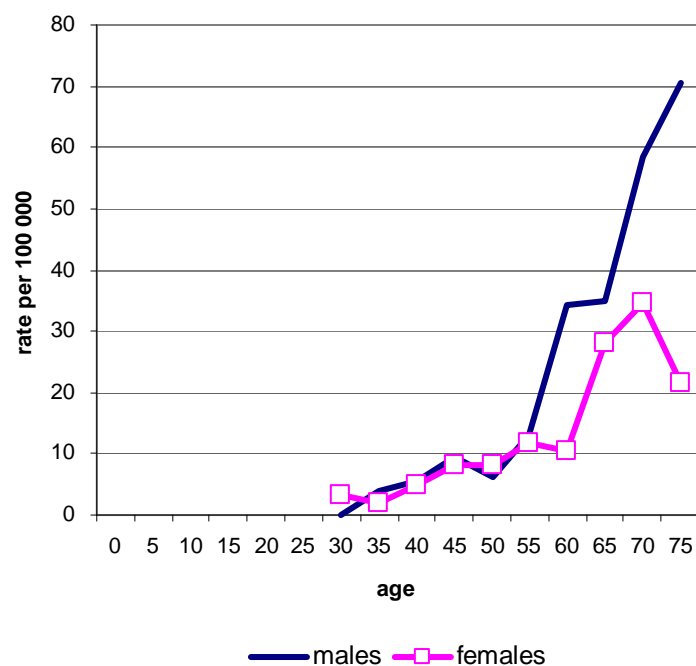


Figure 20: Age-specific incidence rate of stomach cancer, Chiang Mai, 2011

Of the 104 deaths from stomach cancer, 54 were males (4.2% of all male cancer deaths) and 50 were females (4.8% of all female cancer deaths). The mortality rates were 5.2 for males and 4.2 for females which slightly decreased in males but increased 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).

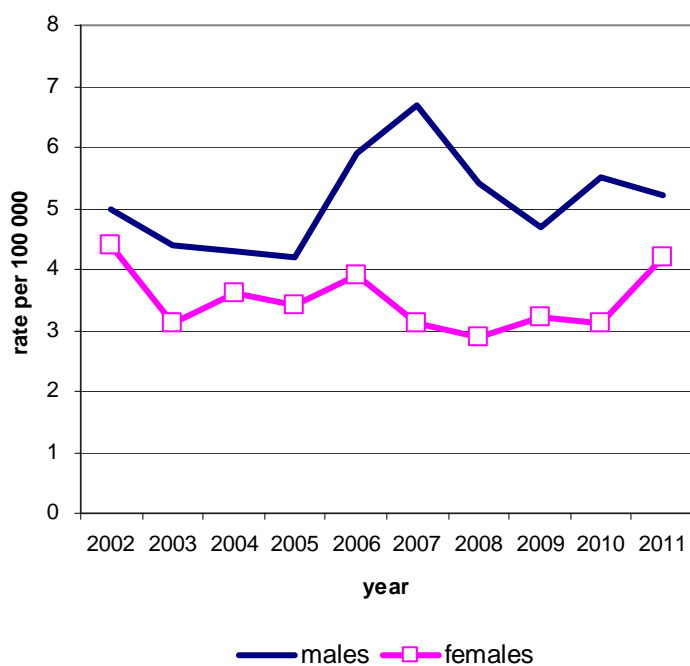


Figure 21: Mortality rate of stomach cancer by sex, Chiang Mai, 2002-2011

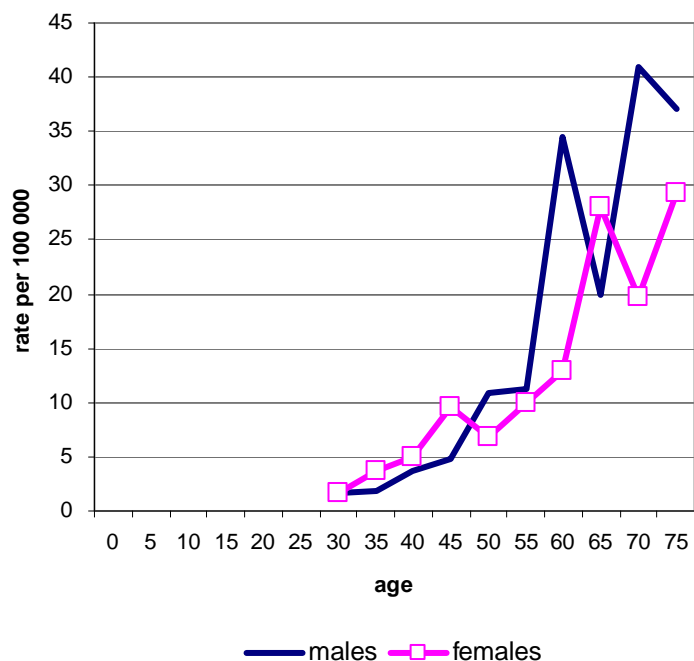


Figure 22: Age-specific mortality rate of stomach cancer, Chiang Mai, 2011

Diagnosis and stage of cancer

Fifty-four percent of cases were diagnosed at a locally advanced stage (38.5% had locally advanced and 15.6% had regional nodes metastasis) and 39.3% had already metastasized at first diagnosis. The most common metastasis site was peritoneum, followed by distant lymph nodes. Ninety-two percent were diagnosed by histology and the common cell types were adenocarcinoma (54.9%) and signet ring cell carcinoma (34.4%).

Cell type	Males	Females	Total	%
Adenocarcinoma	42	25	67	54.9
Signet ring cell	23	19	42	34.4
Others	1	3	4	3.3
Clinical diagnosis	6	3	9	7.4
Total	72	50	122	100.0

Stage	Cases	%
Localized	2	1.6
Locally advanced	47	38.5
Regional node metastasis	19	15.6
Distant metastasis	48	39.3
Unknown/not staged	6	4.9
All	122	100.0

Colon cancer (ICD-10 C18)

There were 170 new cases of colon cancer diagnosed in 2011 (101 males, 69 females) (Fig 23). This was 5.7% of all cancers in males and 3.9% 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 9.9 in males and 5.7 in females and tended to increase in males but decrease in females (Fig. 24). In 2011, colon cancer ranked fourth for new cancers in males and sixth 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 1.2% for males and 0.8% for females. These represented risks of 1 in 79 for males and 1 in 125 for females of developing colon cancer by age 75.

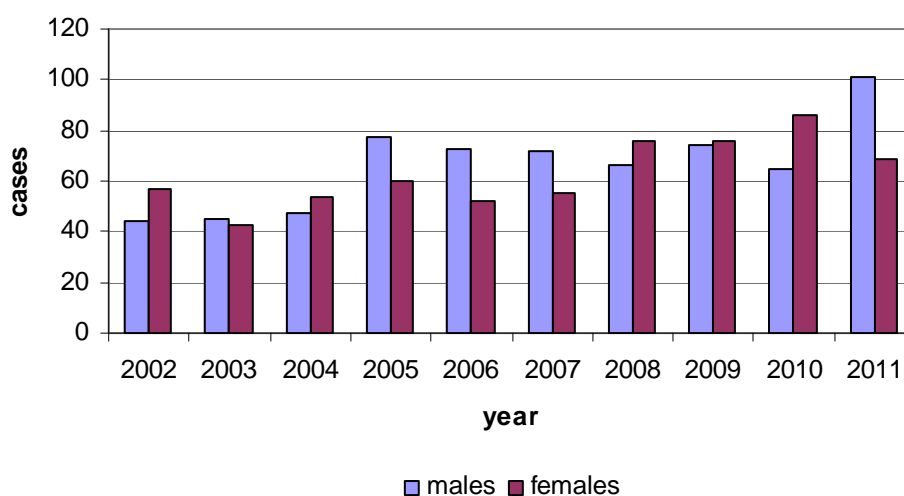


Figure 23: Number of new cases of colon cancer by sex, 2002-2011

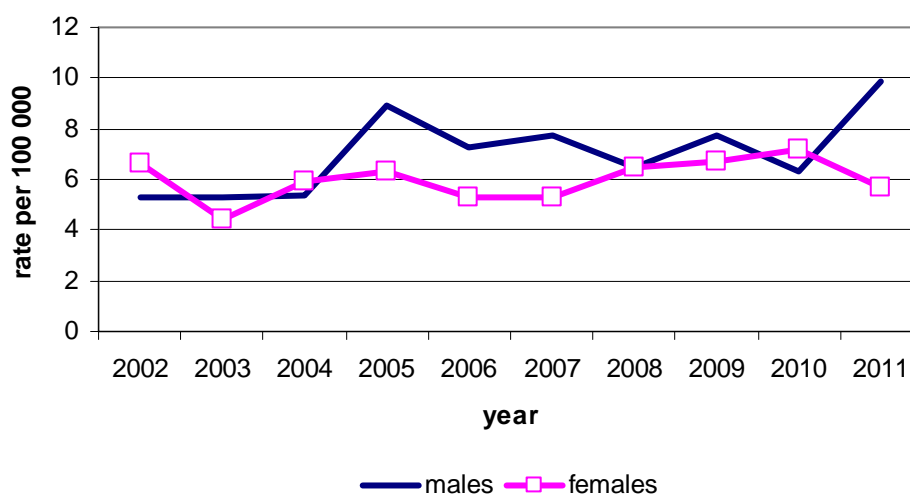


Figure 24: Incidence rates of new cases of colon cancer by sex, 2002-2011

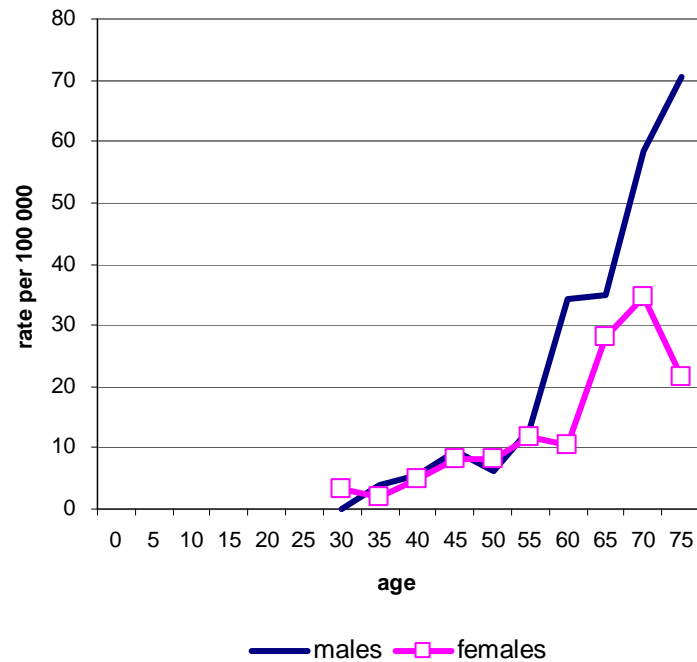


Figure 25: Age-specific incidence rate of colon cancer, Chiang Mai, 2011

Of the 105 deaths from colon cancer, 58 were males (4.5% of all male cancer deaths) and 47 were females (4.5% of all female cancer deaths). The age-standardized mortality rates were 5.8 for males and 3.8 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).

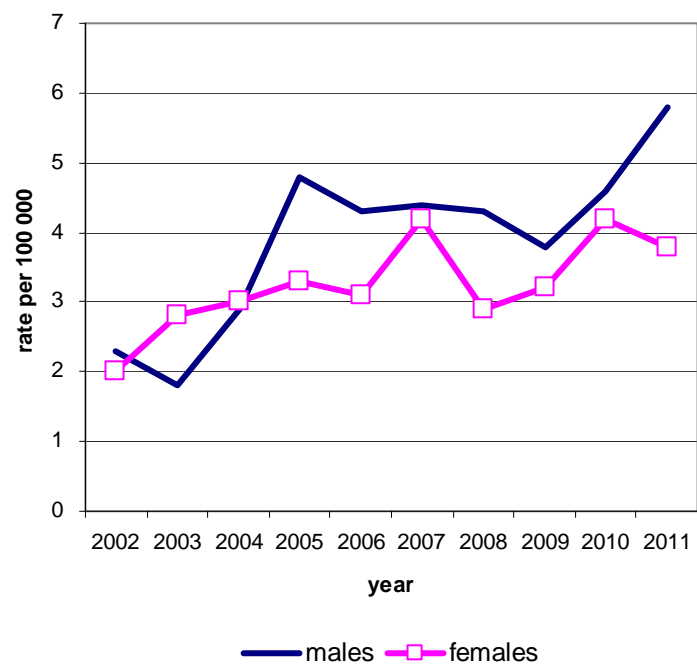


Figure 26: Mortality rate of colon cancer by sex, Chiang Mai, 2001-2011

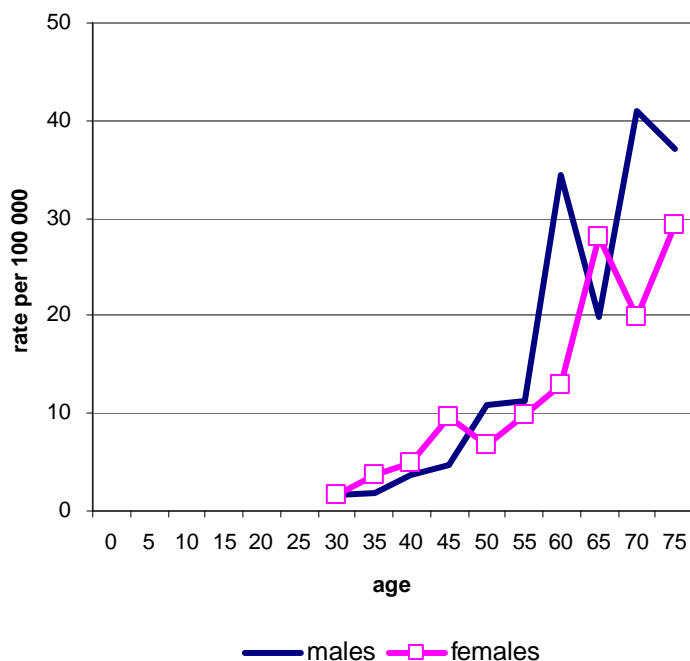


Figure 27: Age-specific mortality rate of colon cancer, Chiang Mai, 2011

Diagnosis and stage of cancer

Sixty-seven percent of cases were diagnosed at a locally advanced stage (42.9% had locally advanced, 24.7% had regional node metastasis). The most common metastasis site was liver, followed by peritoneum. Ninety-one percent were diagnosed by histology. The most common cell type in histological diagnosis groups was adenocarcinoma (75.3%).

Cell type	Males	Females	Total	%
Adenocarcinoma	73	55	128	75.3
Mucinous carcinoma	8	3	11	6.5
Signet ring cell	5	2	7	4.1
Others	3	5	8	4.7
Clinical diagnosis	12	4	16	9.4
TOTAL	101	69	170	100.0

Stage	Cases	%
Localized	5	2.9
Locally advanced	73	42.9
Regional node metastasis	42	24.7
Distant metastasis	44	25.9
Unknown/not staged	6	3.5
All	170	100.0

Bladder cancer (ICD-10 C67)

Bladder cancer was the most common cancer of the urinary system. There were 90 new cases of bladder cancer diagnosed in 2011 (62 males, 28 females) (Fig 28). This was 3.5% of all cancers in males and 1.6% of those in females. The age-standardized incidence rates were 6.1 for males and 2.2 for females. In 2011, bladder cancer ranked ninth for new male cancers and fourteenth for females. The incidence slightly increased in both sexes from the year 2010 (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 0.7% for males and 0.4% for females. These represented risks of 1 in 130 for men and 1 in 250 for women of developing bladder cancer by age 75.

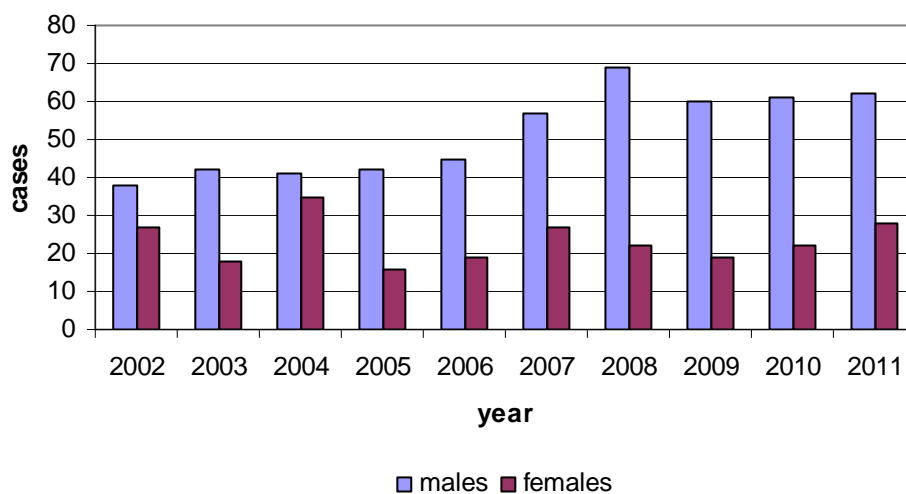


Figure 28: Number of new cases of bladder cancer by sex, 2002-2011

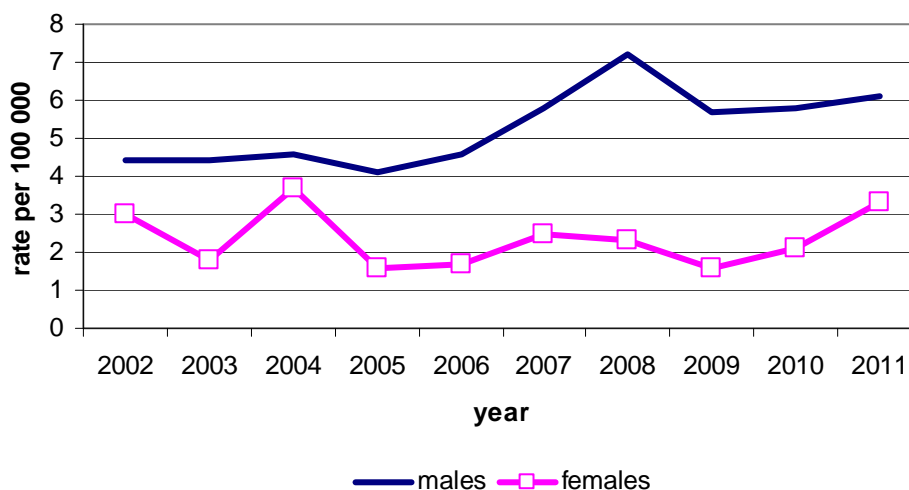


Figure 29: Incidence rates of new cases of bladder cancer by sex, 2002-2011

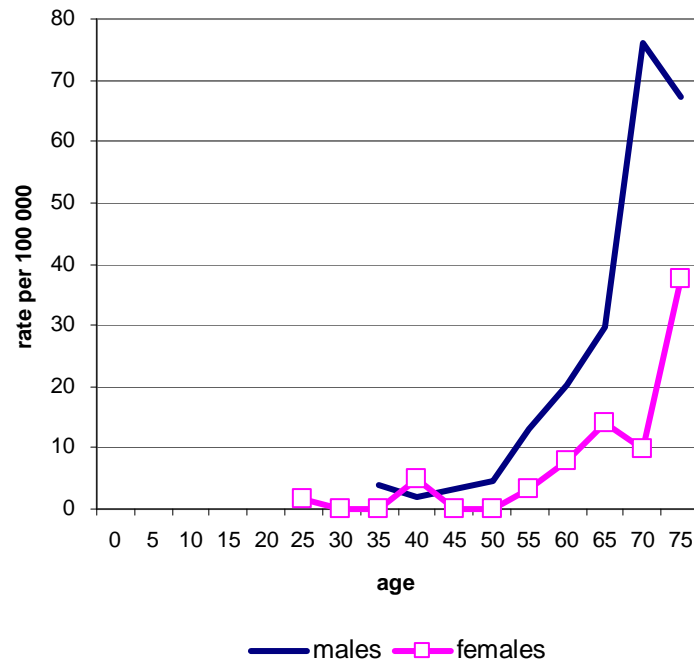


Figure 30: Age-specific incidence rate of bladder cancer, Chiang Mai, 2011

Of the 51 deaths from bladder cancer, 39 were males (3.0% of all male cancer deaths) and 12 were females (1.2% of all female cancer deaths). The age-standardized mortality rates were 3.4 for males and 1.0 for females (Fig. 31). The mortality rates increased with age in both sexes, increasing sharply after age 55 (Fig. 32).

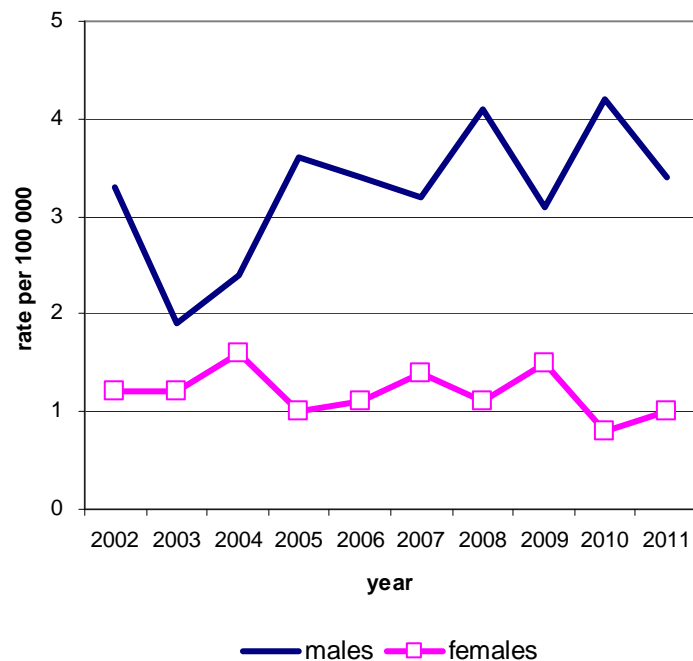


Figure 31: Mortality rate of bladder cancer by sex, Chiang Mai, 2002-2011

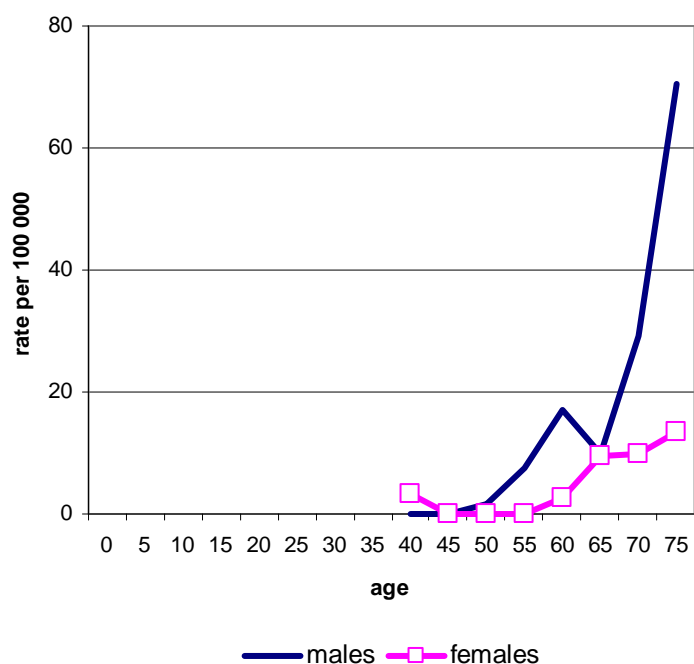


Figure 32: Age-specific mortality rate of bladder cancer, Chiang Mai, 2011

Diagnosis and stage of cancer

Sixty-three cases (70.0%) were diagnosed at a locally advanced stage and seven cases had distant metastases. Ninety-six percent were diagnosed by histology; the most common cell type was transitional cell carcinoma (88.9%).

Cell type	Males	Females	Total	%
Transitional-cell	53	27	80	88.9
Adenocarcinoma	3	1	4	4.4
others	2	0	2	2.2
Clinical diagnosis	4	0	4	4.4
All	62	28	90	100.0

Stage	Cases	%
Localized	14	15.6
Locally advanced	63	70.0
Regional node metastasis	5	5.6
Distant metastasis	7	7.8
Unknown/not staged	1	1.1
All	90	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 145 new cases of NHL diagnosed in 2011 (78 males, 67 females) (Fig 33). This was 4.4% of all cancers in males and 3.8% of those in females. The age-standardized incidence rates were 8.8 for males and 5.7 for females. In 2011, NHL ranked sixth for male and eighth 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 45 years (Fig. 35). The cumulative rate percentages to age 75 were 0.9% for males and 0.7% for females. These represented risks of 1 in 103 for men and 1 in 133 for women of developing NHL by age 75.

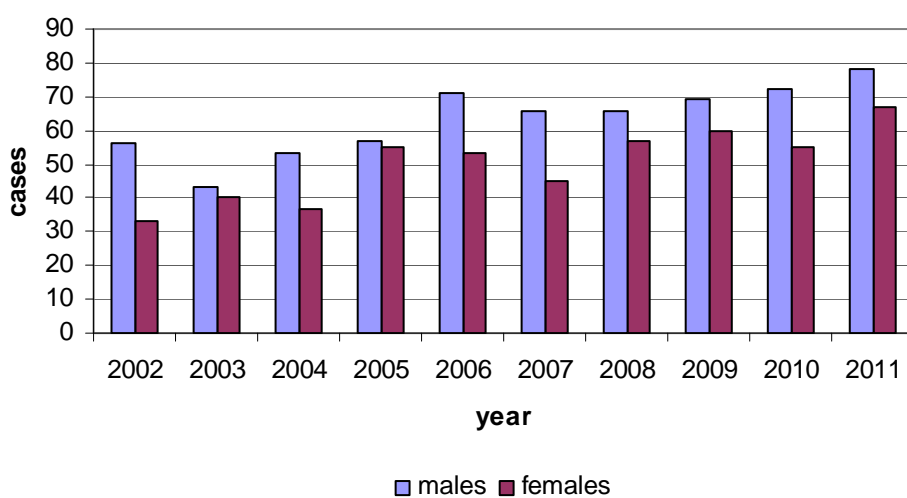


Figure 33: Number of new cases of NHL by sex, 2002-2011

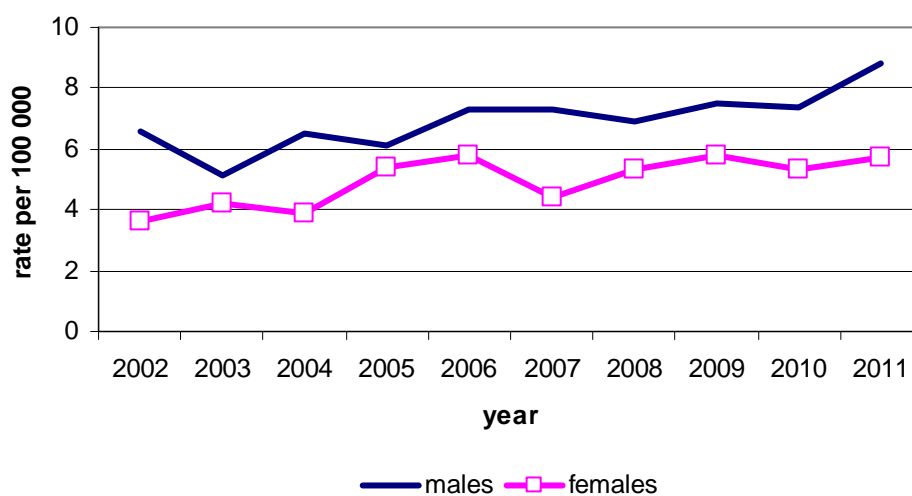


Figure 34: Incidence rates of new cases of NHL by sex, 2002-2011

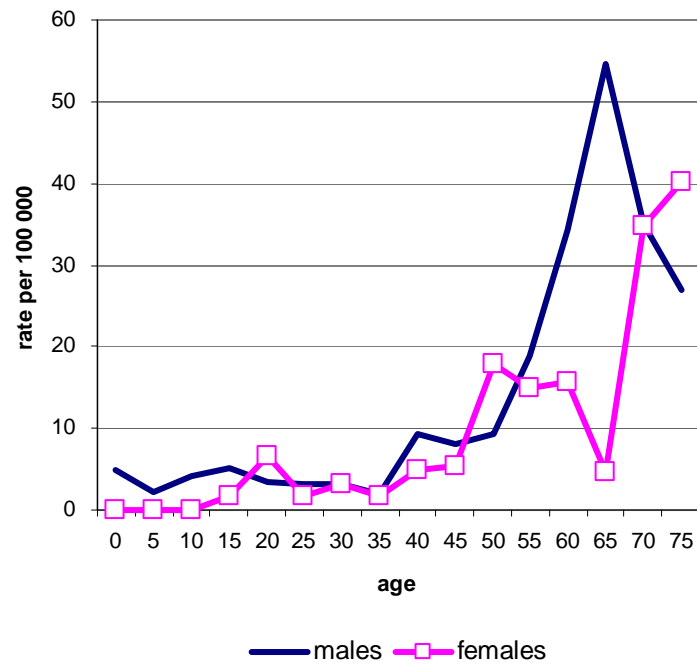


Figure 35: Age-specific incidence rate of NHL, Chiang Mai, 2011

Of the 78 deaths from NHL, 48 were males (3.7% of all male cancer deaths) and 30 were females (2.9% of all female cancer deaths). The age-standardized mortality rates were 4.8 for males and 2.6 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).

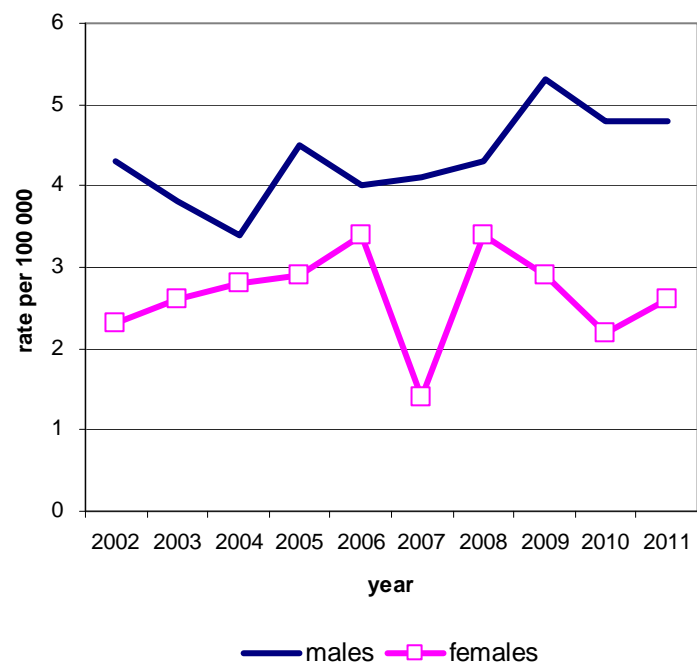


Figure 36: Mortality rate of NHL by sex, Chiang Mai, 2002-2011

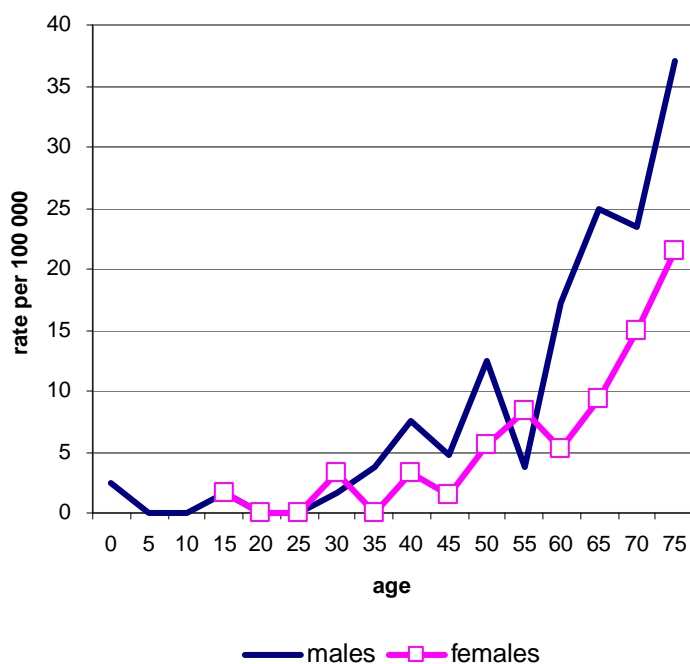


Figure 37: Age-specific mortality rate of NHL, Chiang Mai, 2011

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 were 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	37	36	73	50.3
Mature T-cell lymphoma, NOS	9	9	18	12.4
Malignant lymphoma, NOS	4	6	10	6.9
Marginal zone B-cell, NOS	6	3	9	6.2
Others	22	13	35	24.1
All	78	67	145	100.0

Cervical cancer (ICD-10 C53)

There were 205 new cases of invasive cervical cancer diagnosed in 2011. This was 11.6% of all cancers in females (Fig 38). The age-standardized incidence rate was 17.8 and decreased from the year 2010 (Fig. 39). Cervical cancer was one of the three most common cancers in females, ranking third in 2011 after breast and lung cancer. The incidence rates increased sharply after age 35 (Fig 40) and were less common than breast cancer in the age group 30-59 years. The age at diagnosis ranged from 29 to 84 years with a mean age of 53.1 years and a median age of 52 years. The cumulative rate percentage to age 75 was 1.9%, representing a risk of 1 in 50 for women of developing cervical cancer by age 75.

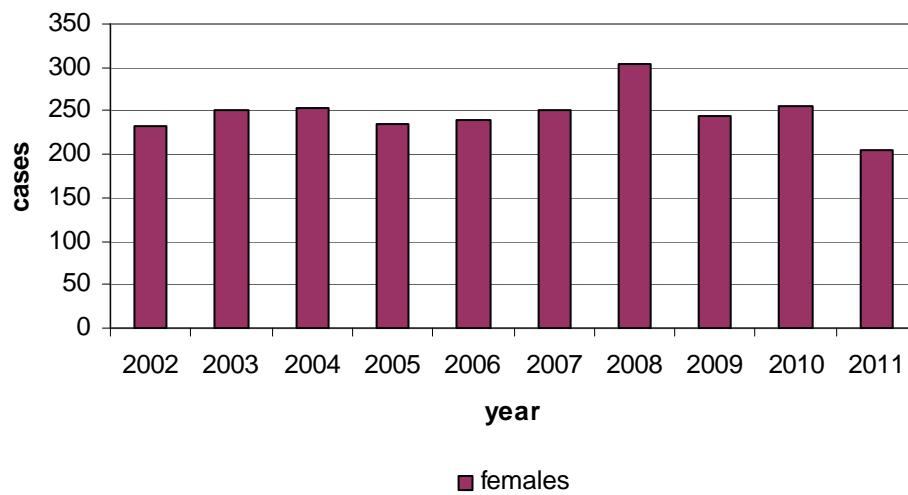


Figure 38: Number of new cases of cervical cancer, 2002-2011

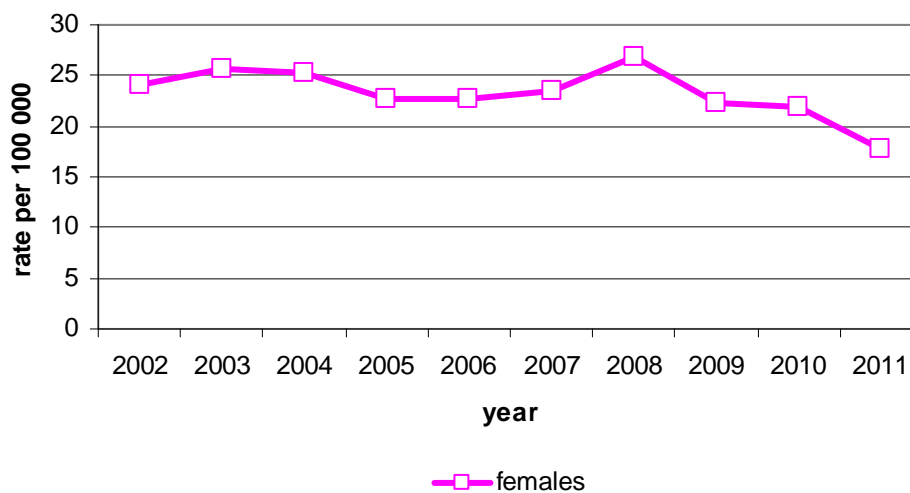


Figure 39: Incidence rates of new cases of cervical cancer, 2002-2011

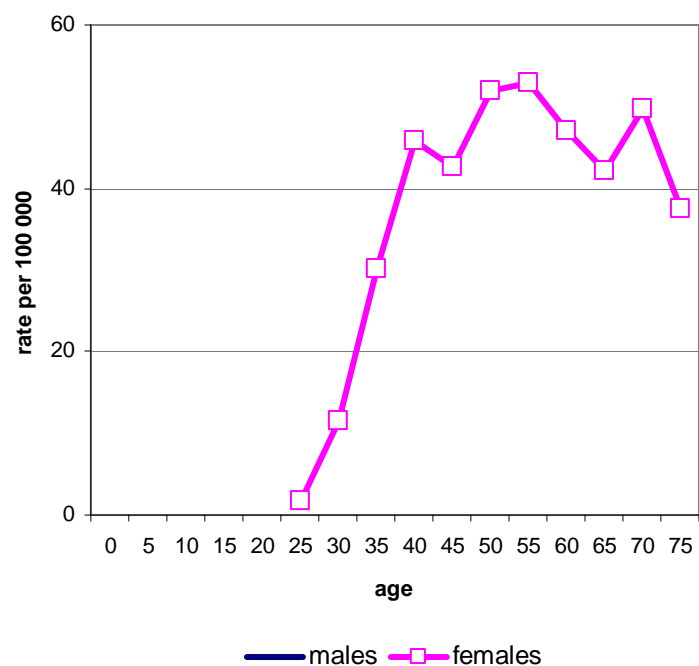


Figure 40: Age-specific incidence rate of cervical cancer, Chiang Mai, 2011

There were 86 deaths from cervical cancer, accounting for 8.3% of all female cancer deaths. The age-standardized mortality rate was 7.1 and decreased from the year 2010 (Fig. 41). The mortality rate increased with age, increasing sharply after age 50 (Fig. 42).



Figure 41: Mortality rate of cervical cancer, Chiang Mai, 2002-2011

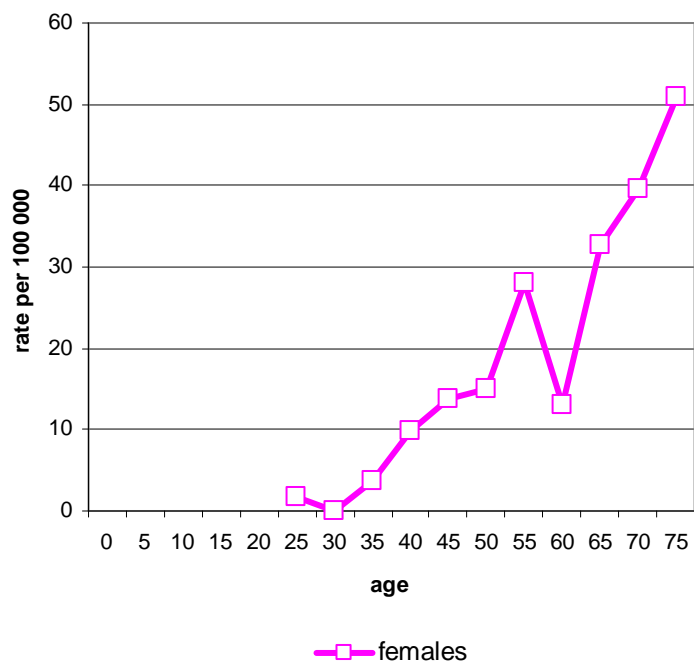


Figure 42: Age-specific mortality rate of cervical cancer, Chiang Mai, 2011

For cervical cancer deaths, 27 cases (31.4%) survived less than one year, and 40 cases (46.5%) survived more than two years.

Diagnosis and stage of cancer

There were 258 cases of carcinoma in situ of the cervix that were not included in this analysis. For invasive cancer, 96 cases (46.8%) were diagnosed in localized stage and 10 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 (74.1%) and adenocarcinoma (18.0%).

Cell type	Females	Total	%
Squamous cell	152	152	74.1
Adenocarcinoma	37	37	18.0
Other	13	13	6.3
Clinical diagnosis	3	3	1.5
All	205	205	100.0

Stage	Cases	%
Localized	96	46.8
Locally advanced	72	35.1
Regional node metastasis	25	12.2
Distant metastasis	10	4.9
Unknown/not staged	2	1.0
All	205	100.0

Female breast cancer (ICD-10 C50)

Breast cancer was the most common cancer in females and there were 338 new cases of female breast cancer diagnosed in 2011 (Fig 43). This was 19.0% of all cancers in females. The age-standardized incidence rate was 29.1 and slightly increased from the year 2010 (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 53.8 years; the median age at diagnosis was 53 years. The cumulative rate percentage to age 75 was 3.3%, representing a risk of 1 in 30 for women of developing breast cancer by age 75.

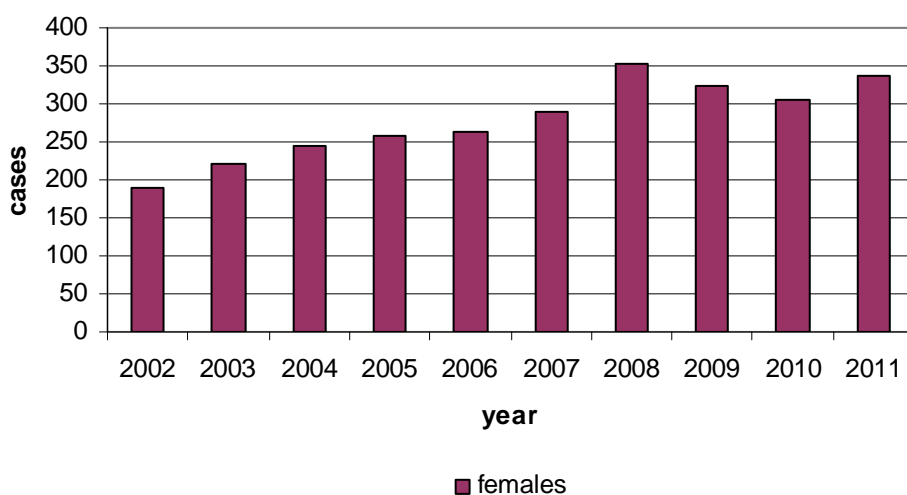


Figure 43: Number of new cases of female breast cancer, 2002-2011

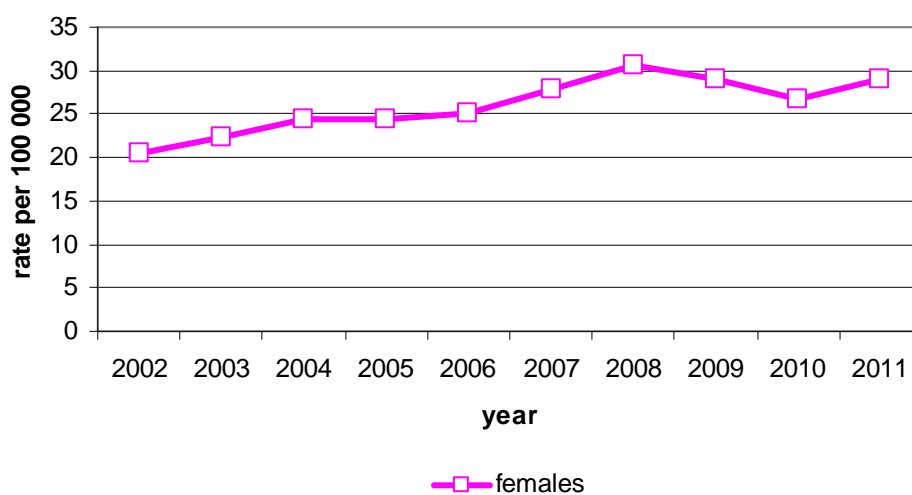


Figure 44: Incidence rates of new cases of female breast cancer, 2002-2011

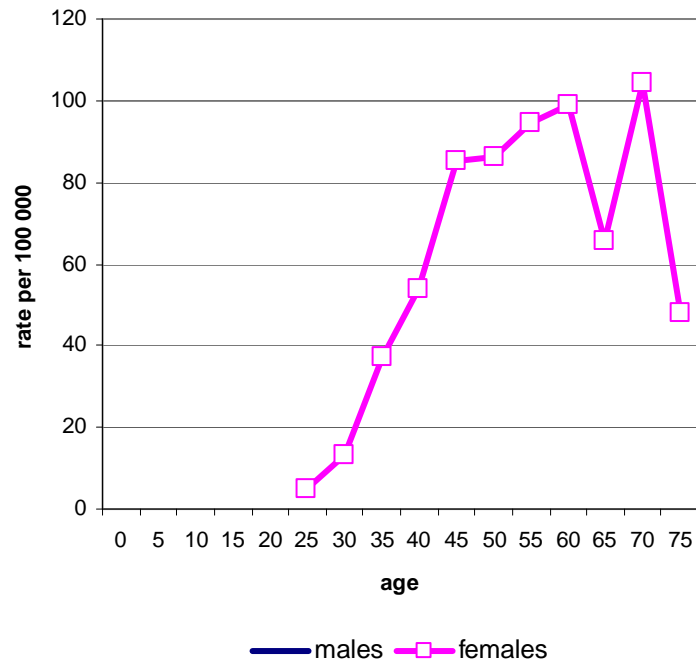


Figure 45: Age-specific incidence rate of female breast cancer, Chiang Mai, 2011

There were 111 deaths from breast cancer, accounting for 10.7% of all female cancer deaths and was the third common cause of cancer death after lung cancer, and liver cancer. The age-standardized mortality rate was 9.2 and increased from the year 2010 (Fig. 46). The mortality rate increased with age, increasing sharply after age 30 (Fig. 47).

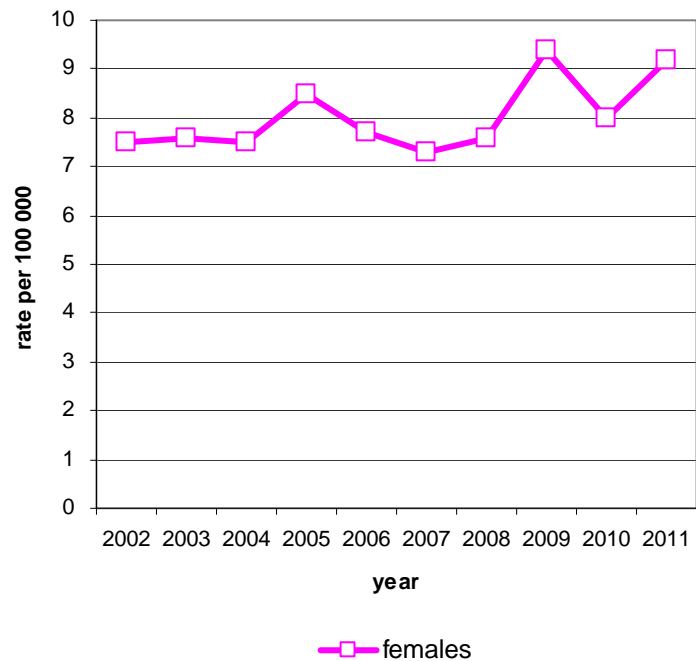


Figure 46: Mortality rate of female breast cancer, Chiang Mai, 2002-2011

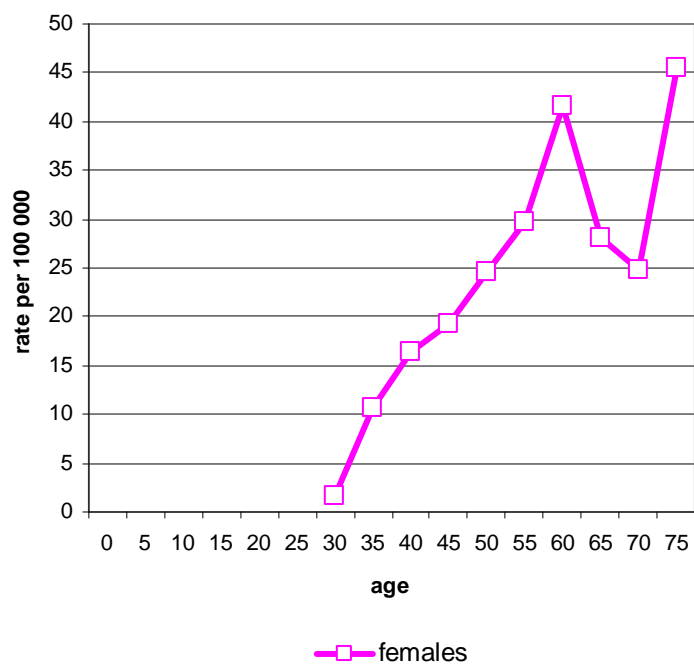


Figure 47: Age-specific mortality rate of female breast cancer, Chiang Mai, 2011

For breast cancer deaths, 24 cases (21.6%) survived more than five years, 47 cases (42.3%) survived more than three years and 13 cases (11.7%) survived less than one year.

Diagnosis and stage of cancer

Forty-three percent were diagnosed in locally advanced stage and 13 cases had distant metastases at first diagnosis. The common metastasis sites were bone (5 cases) and lung (4 cases). Ninety-eight percent had histological diagnosis; the most common cell type was invasive ductal carcinoma (89.3%).

Cell type	Females	Total	%	Stage	Cases	%
Invasive ductal ca.	302	302	89.3	Localized	83	24.6
Lobular carcinoma	7	7	2.1	Locally advanced	146	43.2
Mucinous ca.	8	8	2.4	Regional node metastasis	94	27.8
Papillary ca.	5	5	1.5	Distant metastasis	13	3.8
Others	12	12	3.6	Unknown/not staged	2	0.6
Clinical diagnosis	4	4	1.2			
All	338	338	100.0	All	338	100.0

Nasopharynx cancer (ICD-10 C11)

In 2011, nasopharyngeal cancer was the most common pharyngeal cancer and ranked 10th for new male cancers and 21th for females. There were 52 new cases of nasopharyngeal cancer diagnosed in 2011 (40 males, 12 females) (Fig 48). This was 2.3% of all cancers in males and 0.7% of those in females. The age-standardized incidence rates were 4.1 for males and 1.0 for females. It was more common in males than in females in all age groups. The incidence rates were increased in males but slightly decreased in females from the year 2010 (Fig. 49). The rates in males were higher than in females after age 35 (Fig. 50). The cumulative rate percentages to age 75 were 0.4% for males and 0.1% for females. These represented risks of 1 in 256 for men and 1 in 909 for women of developing nasopharyngeal cancer by age 75.

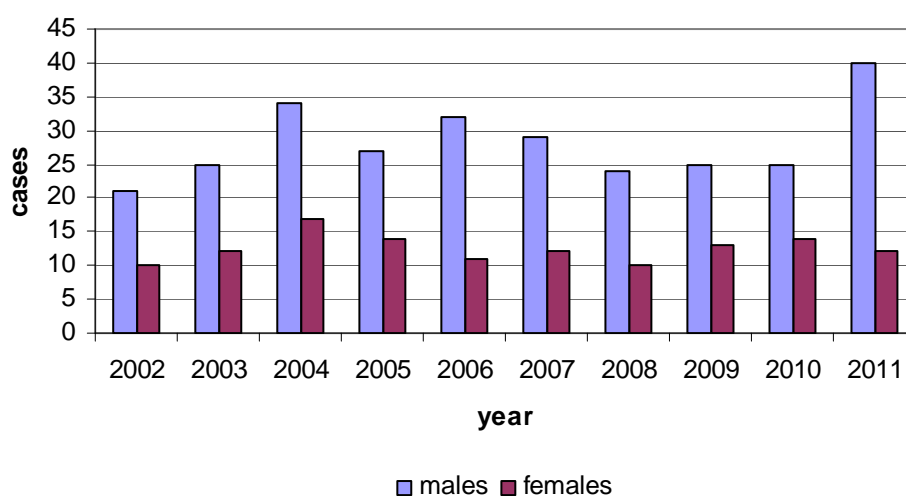


Figure 48: Number of new cases of nasopharyngeal cancer by sex, 2002-2011

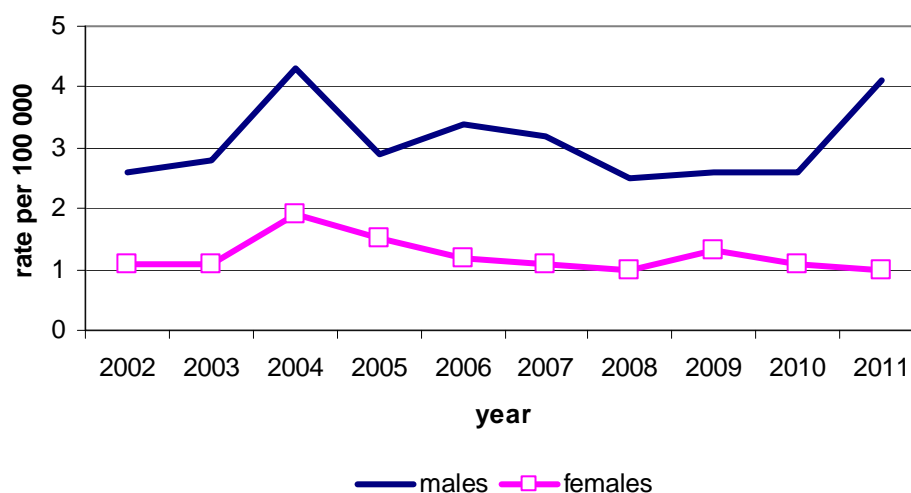


Figure 49: Incidence rates of new cases of nasopharyngeal cancer by sex, 2002-2011

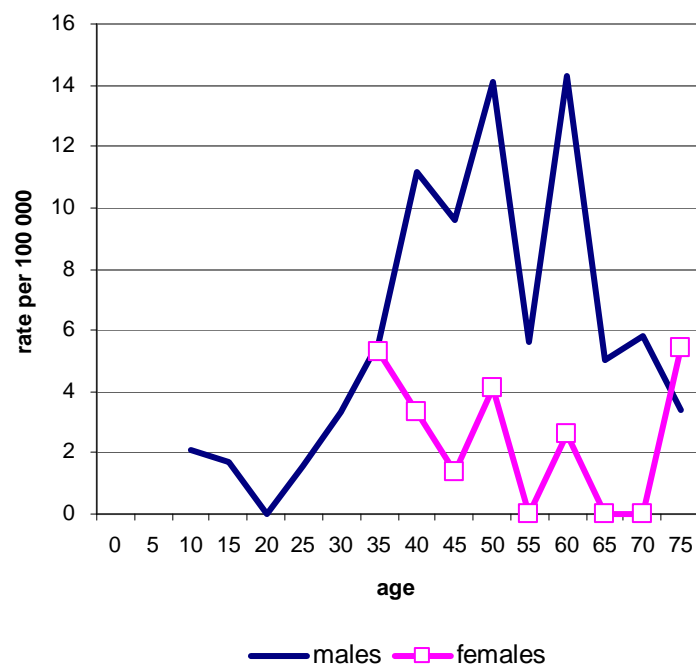


Figure 50: Age-specific incidence rate of nasopharyngeal cancer, Chiang Mai, 2011

Of the 22 deaths from nasopharyngeal cancer, 15 were males (1.2% of all male cancer deaths) and 7 were females (0.7% of all female cancer deaths). The age-standardized mortality rates were 1.5 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).

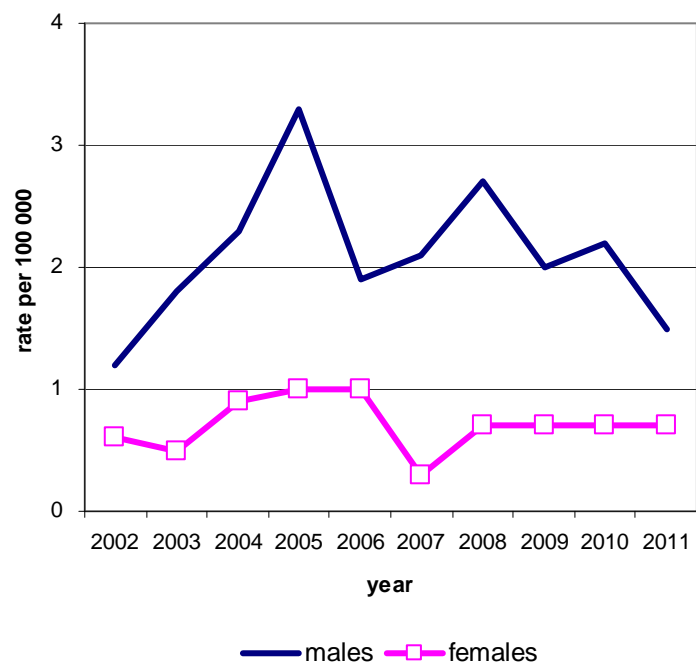


Figure 51: Mortality rate of nasopharyngeal cancer by sex, Chiang Mai, 2002-2011

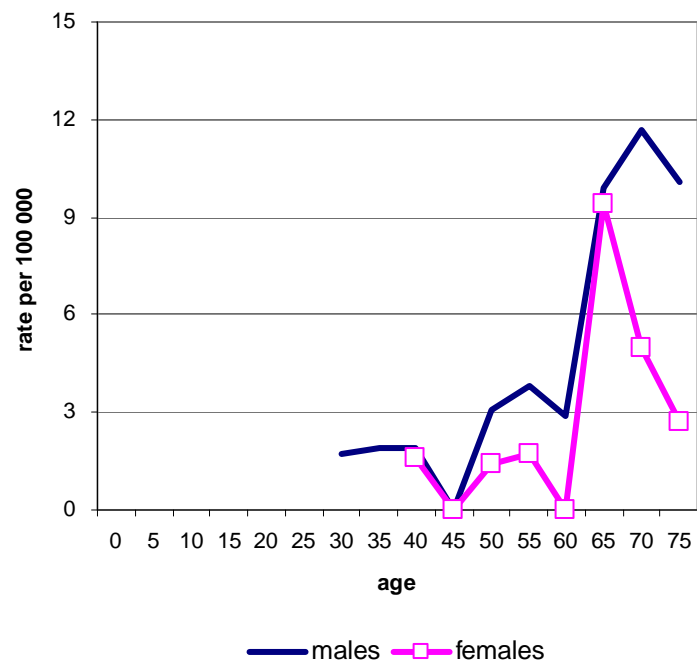


Figure 52: Age-specific mortality rate of nasopharyngeal cancer, Chiang Mai, 2011

Diagnosis and stage of cancer

Forty-two cases (80.8%) were diagnosed in regional node metastasis and eight cases had distant metastases. All but one case had histological diagnosis; the common cell types were squamous cell carcinoma (53.8%) and undifferentiated carcinoma (42.3%).

Cell type	Males	Females	Total	%	Stage	Cases	%
Undiff. Carcinoma	14	8	22	42.3	Localized	1	1.9
Squamous cell ca.	24	4	28	53.8	Locally advanced	1	1.9
Other	1	0	1	1.9	Regional node metastasis	42	80.8
Clinical diagnosis	1	0	1	1.9	Distant metastasis	8	15.4
All	40	12	52	100.0	All	52	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. 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 Tables 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 69.2% for males (Table 8), and 82.8% 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 2011, 29 cases (0.8%) were diagnosed by death certificate only. The age of DCO cases ranged from 34 to 86 years; the median age at death was 68 years. The common cancer site was lung.

Table 8: Indices of quality control of cancer data in Chiang Mai, 2011, males

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10th)
Lip	0				C00
Tongue	13	-	100.0	61.5	C01-C02
Mouth	17	-	94.1	70.6	C03-C06
Salivary glands	7	-	100.0	14.3	C07-C08
Tonsil	5	-	100.0	120.0	C09
Other Oropharynx	0				C10
Nasopharynx	40	-	97.5	37.5	C11
Hypopharynx	7	-	85.7	71.4	C12-C13
Pharynx unspec.	0				C14
Oesophagus	15	-	86.7	113.3	C15
Stomach	72	-	91.7	75.0	C16
Small intestine	2	-	100.0	150.0	C17
Colon	101	-	88.1	57.4	C18
Rectum	94	-	95.7	45.7	C19-C20
Anus	5	-	100.0	20.0	C21
Liver	349	0.3	17.8	88.3	C22
Gallbladder etc.	22	-	63.6	86.4	C23-C24
Pancreas	28	3.6	39.3	121.4	C25
Nose, sinuses etc.	9	-	100.0	66.7	C30-C31
Larynx	23	-	95.7	65.2	C32
Lung	393	3.1	61.6	90.8	C33-C34
Other Thoracic organs	5	-	60.0	60.0	C37-C38
Bone	6	16.7	66.7	50.0	C40-C41
Melanoma of Skin	7	-	100.0	142.9	C43
Other Skin	69	-	98.6	37.7	C44
Mesothelioma	1	-	100.0	100.0	C45
Kaposi sarcoma	5	-	100.0	40.0	C46
Connective,Soft tissue	10	-	90.0	60.0	C47;C49
Breast	13	-	100.0	30.8	C50
Penis	20	-	90.0	40.0	C60
Prostate	112	0.9	88.4	43.8	C61
Testis	5	-	100.0	40.0	C62
Other male genital	2	-	100.0	0.0	C63
Kidney	20	-	70.0	85.0	C64
Renal Pelvis	1	-	100.0	100.0	C65
Ureter	1	-	0.0	200.0	C66
Bladder	62	-	93.5	62.9	C67
Other Urinary organs	1	-	100.0	100.0	C68
Eye	4	-	100.0	25.0	C69
Brain, Nervous system	25	-	72.0	72.0	C70-C72
Thyroid	11	-	100.0	27.3	C73
Adrenal gland	1	-	100.0	100.0	C74
Other Endocrine	4	-	100.0	25.0	C75
Hodgkin disease	3	-	100.0	66.7	C81
Non-Hodgkin lymphoma	78	-	100.0	61.5	C82-C85;C96
Immunoproliferative dis.	1	-	100.0	0.0	C88
Multiple Myeloma	12	-	100.0	91.7	C90
Lymphoid Leukaemia	11	-	100.0	63.6	C91
Myeloid Leukaemia	30	-	100.0	46.7	C92-C94
Leukaemia unspec.	2	-	100.0	100.0	C95
Other & unspecified	53	3.8	66.0	90.6	Other
All sites Total	1777	1.0	69.2	72.9	All

%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, 2011, females

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10th)
Lip	2	-	100.0	50.0	C00
Tongue	6	-	100.0	83.3	C01-C02
Mouth	15	-	93.3	53.3	C03-C06
Salivary glands	6	-	100.0	16.7	C07-C08
Tonsil	3	-	100.0	33.3	C09
Other Oropharynx					C10
Nasopharynx	12	-	100.0	58.3	C11
Hypopharynx					C12-C13
Pharynx unspec.	1	-	100.0	100.0	C14
Oesophagus	8	-	75.0	50.0	C15
Stomach	50	-	94.0	100.0	C16
Small intestine	3	-	66.7	66.7	C17
Colon	69	-	94.2	68.1	C18
Rectum	68	-	94.1	58.8	C19-C20
Anus	4	-	100.0	75.0	C21
Liver	143	0.7	27.3	87.4	C22
Gallbladder etc.	38	-	63.2	65.8	C23-C24
Pancreas	15	-	33.3	106.7	C25
Nose, sinuses etc.	2	-	100.0	200.0	C30-C31
Larynx	3	-	100.0	100.0	C32
Trachea, Bronchus, Lung	265	1.5	61.1	91.7	C33-C34
Other Thoracic organs	2	-	100.0	100.0	C37-C38
Bone	4	-	75.0	75.0	C40-C41
Melanoma of Skin	4	-	100.0	75.0	C43
Other Skin	49	-	100.0	30.6	C44
Mesothelioma					C45
Kaposi sarcoma	1	-	100.0	0.0	C46
Connective, Soft tissue	13	-	92.3	53.8	C47;C49
Breast	338	-	98.8	32.8	C50
Vulva	6	-	100.0	166.7	C51
Vagina	5	-	80.0	40.0	C52
Cervix Uteri	205	0.5	98.5	42.0	C53
Corpus Uteri	52	-	100.0	30.8	C54
Uterus unspec.	1	-	0.0	0.0	C55
Ovary	77	-	94.8	31.2	C56
Other Female Genital	2	-	100.0	0.0	C57
Placenta	3	-	66.7	0.0	C58
Kidney	8	-	62.5	100.0	C64
Renal Pelvis	2	-	100.0	0.0	C65
Ureter	2	-	100.0	0.0	C66
Bladder	28	-	100.0	42.9	C67
Other Urinary organs	1	-	0.0	0.0	C68
Eye	4	-	100.0	25.0	C69
Brain, Nervous system	21	9.5	52.4	66.7	C70-C72
Thyroid	53	-	92.5	20.8	C73
Adrenal gland	3	-	100.0	66.7	C74
Other Endocrine					C75
Hodgkin disease	2	-	100.0	100.0	C81
Non-Hodgkin lymphoma	67	-	100.0	44.8	C82-C85;C96
Immunoproliferative dis.					C88
Multiple Myeloma	13	-	100.0	100.0	C90
Lymphoid Leukaemia	10	-	100.0	30.0	C91
Myeloid Leukaemia	22	-	100.0	104.5	C92-C94
Leukaemia unspec.	5	-	100.0	100.0	C95
Other & unspecified	48	6.3	52.1	97.9	Other
All sites Total	1764	0.6	82.8	58.8	

Table 10: Number of new cancer cases in Chiang Mai, 2011, Males

SITE	Number of cases by Age Group (years)										%	ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+		
Lip	0	0	0	0	0	0	0	0	0	0	0.0	C00
Tongue	13	0	0	0	1	2	2	2	1	5	0.7	C01-C02
Mouth	17	0	0	0	0	1	4	4	5	3	1.0	C03-C06
Salivary glands	7	0	0	0	3	0	1	1	0	2	0.4	C07-C08
Tonsil	5	0	0	0	1	0	2	1	1	0	0.3	C09
Other Oropharynx	0	0	0	0	0	0	0	0	0	0	0.0	C10
Nasopharynx	40	0	1	1	3	9	15	8	2	1	2.3	C11
Hypopharynx	7	0	0	0	0	0	2	2	2	1	0.4	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	15	0	0	0	0	2	2	4	4	3	0.8	C15
Stomach	72	0	0	0	0	5	10	19	17	21	4.1	C16
Small intestine	2	0	0	0	0	0	0	2	0	0	0.1	C17
Colon	101	0	0	1	2	7	21	30	23	17	5.7	C18
Rectum	94	0	0	0	5	5	15	23	28	18	5.3	C19-C20
Anus	5	0	0	0	0	0	0	2	2	1	0.3	C21
Liver	349	0	0	1	11	23	88	115	60	51	19.6	C22
Gallbladder	22	0	0	0	0	1	5	3	7	6	1.2	C23-C24
Pancreas	28	0	0	0	0	4	4	11	6	3	1.6	C25
Nose, sinuses	9	0	0	0	1	2	2	1	2	1	0.5	C30-C31
Larynx	23	0	0	0	0	1	5	9	3	5	1.3	C32
Lung	393	0	0	0	1	8	54	114	129	87	22.1	C33-C34
Other Thoracic organs	5	0	0	2	0	1	1	0	1	0	0.3	C37-C38
Bone	6	0	3	1	0	0	0	1	1	0	0.3	C40-C41
Melanoma of Skin	7	0	0	0	0	0	0	0	6	1	0.4	C43
Other Skin	69	0	0	0	0	0	9	14	10	36	3.9	C44
Mesothelioma	1	0	0	0	0	0	0	1	0	0	0.1	C45
Kaposi sarcoma	5	0	0	0	2	0	2	1	0	0	0.3	C46
Connective,Soft tissue	10	0	1	0	0	1	2	1	2	3	0.6	C47;C49
Breast	13	0	0	0	0	2	5	4	0	2	0.7	C50
Penis	20	0	0	0	1	2	5	5	5	2	1.1	C60
Prostate	112	0	0	0	0	0	2	27	31	52	6.3	C61
Testis	5	0	0	0	3	0	1	0	0	1	0.3	C62
Other male genital	2	0	0	0	0	0	0	1	1	0	0.1	C63
Kidney	20	0	0	0	0	2	5	2	5	6	1.1	C64
Renal Pelvis	1	0	0	0	0	0	0	1	0	0	0.1	C65
Ureter	1	0	0	0	0	0	0	1	0	0	0.1	C66
Bladder	62	0	0	1	0	3	5	14	19	20	3.5	C67
Other Urinary organs	1	0	0	0	0	0	0	1	0	0	0.1	C68
Eye	4	0	0	0	0	1	1	1	0	1	0.2	C69
Brain, Nervous system	25	0	4	3	1	1	6	4	5	1	1.4	C70-C72
Thyroid	11	0	0	1	0	2	3	1	2	2	0.6	C73
Adrenal gland	1	0	1	0	0	0	0	0	0	0	0.1	C74
Other Endocrine	4	0	2	1	1	0	0	0	0	0	0.2	C75
Hodgkin disease	3	0	0	0	1	0	1	0	0	1	0.2	C81
Non-Hodgkin lymphoma	78	0	5	5	4	6	11	22	17	8	4.4	C82-C85;C96
Immunoproliferative dis.	1	0	0	0	0	0	0	1	0	0	0.1	C88
Multiple Myeloma	12	0	0	0	0	0	3	5	1	3	0.7	C90
Lymphoid Leukaemia	11	0	5	0	1	2	2	1	0	0	0.6	C91
Myeloid Leukaemia	30	0	1	4	4	4	5	4	5	3	1.7	C92-C94
Leukaemia unspec.	2	0	0	0	0	0	0	0	2	0	0.1	C95
Other & unspecified	53	0	0	0	1	2	17	14	7	12	3.0	Other
All sites Total	1777	0	23	21	47	99	318	478	412	379	100.0	All
All sites but C44	1708	0	23	21	47	99	309	464	402	343	96.1	Not C44

Table 11: Number of new cancer cases in Chiang Mai, 2011, Females

SITE	Number of cases by Age Group (years)											ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+	%	
Lip	2	0	0	0	0	1	0	0	0	1	0.1	C00
Tongue	6	0	0	0	0	0	0	2	1	3	0.3	C01-C02
Mouth	15	0	0	0	0	0	2	4	1	8	0.9	C03-C06
Salivary glands	6	0	0	0	0	1	1	1	2	1	0.3	C07-C08
Tonsil	3	0	0	0	0	1	1	0	1	0	0.2	C09
Other Oropharynx	0	0	0	0	0	0	0	0	0	0	0.0	C10
Nasopharynx	12	0	0	0	0	5	4	1	0	2	0.7	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0.0	C12-C13
Pharynx unspec.	1	0	0	0	0	0	0	0	0	1	0.1	C14
Esophagus	8	0	0	0	0	0	2	0	3	3	0.5	C15
Stomach	50	0	0	0	2	4	12	11	13	8	2.8	C16
Small intestine	3	0	0	0	0	0	0	2	0	1	0.2	C17
Colon	69	0	0	1	2	8	15	18	9	16	3.9	C18
Rectum	68	0	0	0	0	5	17	19	15	12	3.9	C19-C20
Anus	4	0	0	0	0	2	0	1	0	1	0.2	C21
Liver	143	0	0	1	1	5	22	45	28	41	8.1	C22
Gallbladder	38	0	0	0	0	0	5	14	8	11	2.2	C23-C24
Pancreas	15	0	0	0	0	0	3	1	2	9	0.9	C25
Nose, sinuses	2	0	0	0	0	0	2	0	0	0	0.1	C30-C31
Larynx	3	0	0	0	0	0	1	0	1	1	0.2	C32
Lung	265	0	0	0	3	7	30	78	75	72	15.0	C33-C34
Other Thoracic organs	2	0	0	0	0	2	0	0	0	0	0.1	C37-C38
Bone	4	0	0	1	0	0	1	1	1	0	0.2	C40-C41
Melanoma of Skin	4	0	0	0	0	1	1	1	0	1	0.2	C43
Other Skin	49	0	0	1	2	2	7	5	9	23	2.8	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	1	0	0	0	0	0	0	0	0	1	0.1	C46
Connective,Soft tissue	13	0	0	0	2	2	4	4	0	1	0.7	C47;C49
Breast	338	0	0	0	11	54	125	95	35	18	19.2	C50
Vulva	6	0	0	0	0	1	0	3	1	1	0.3	C51
Vagina	5	0	0	0	0	0	2	1	1	1	0.3	C52
Cervix	205	0	0	0	8	45	69	50	19	14	11.6	C53
Corpus	52	0	0	0	0	6	21	15	9	1	2.9	C54
Uterus unspec.	1	0	0	0	0	1	0	0	0	0	0.1	C55
Ovary	77	0	1	3	9	11	22	21	8	2	4.4	C56
Other Female Genital	2	0	0	0	0	0	0	1	0	1	0.1	C57
Placenta	3	0	0	0	3	0	0	0	0	0	0.2	C58
Kidney	8	0	0	1	0	0	0	1	2	4	0.5	C64
Renal Pelvis	2	0	0	0	0	0	0	0	2	0	0.1	C65
Ureter	2	0	0	0	0	0	1	1	0	0	0.1	C66
Bladder	28	0	0	0	1	3	0	5	5	14	1.6	C67
Other Urinary organs	1	0	0	0	0	0	0	0	0	1	0.1	C68
Eye	4	0	1	0	0	1	1	0	1	0	0.2	C69
Brain, Nervous system	21	0	2	2	2	1	8	3	0	3	1.2	C70-C72
Thyroid	53	0	1	2	9	10	14	5	5	7	3.0	C73
Adrenal gland	3	0	0	0	1	0	1	1	0	0	0.2	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	2	0	0	1	0	0	1	0	0	0	0.1	C81
Non-Hodgkin lymphoma	67	0	0	5	3	4	17	15	8	15	3.8	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	13	0	0	0	0	0	1	1	6	5	0.7	C90
Lymphoid Leukaemia	10	0	4	0	0	1	2	1	1	1	0.6	C91
Myeloid Leukaemia	22	0	0	1	3	2	3	9	2	2	1.2	C92-C94
Leukaemia unspec.	5	0	0	0	0	0	0	0	2	3	0.3	C95
Other & unspecified	48	0	0	1	2	3	11	10	11	10	2.7	Other
All sites Total	1764	0	9	20	64	189	429	446	287	320	100.0	All
All sites but C44	1715	0	9	19	62	187	422	441	278	297	97.2	Not C44

Table 12: Cancer Incidence in Chiang Mai, 2011, Males

SITE	Incidence per 100,000 by Age Group (years)									Crude rate	ASR (W)	CR 64	CR 74	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+					
Lip	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C00
Tongue	13	-	-	0.8	1.9	1.6	2.3	2.7	16.8	1.7	1.2	0.07	0.09	C01-C02
Mouth	17	-	-	-	0.9	3.2	4.5	13.4	10.1	2.2	1.7	0.08	0.23	C03-C06
Salivary glands	7	-	-	2.5	-	0.8	1.1	-	6.7	0.9	0.7	0.05	0.05	C07-C08
Tonsil	5	-	-	0.8	-	1.6	1.1	2.7	-	0.7	0.5	0.04	0.06	C09
Other Oropharynx	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C10
Nasopharynx	40	0.8	0.8	2.5	8.4	11.8	9.1	5.4	3.4	5.3	4.1	0.34	0.39	C11
Hypopharynx	7	-	-	-	-	1.6	2.3	5.4	3.4	0.9	0.7	0.03	0.09	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0.0	0.0	0.00	0.00	C14
Esophagus	15	-	-	-	1.9	1.6	4.5	10.7	10.1	2.0	1.5	0.09	0.21	C15
Stomach	72	-	-	-	4.7	7.9	21.6	45.7	70.5	9.5	6.9	0.36	0.83	C16
Small intestine	2	-	-	-	-	-	2.3	-	-	0.3	0.2	0.02	0.02	C17
Colon	101	-	0.8	1.6	6.6	16.6	34	61.8	57.1	13.3	9.9	0.64	1.26	C18
Rectum	94	-	-	4.1	4.7	11.8	26.1	75.2	60.5	12.3	9.5	0.48	1.24	C19-C20
Anus	5	-	-	-	-	-	2.3	5.4	3.4	0.7	0.5	0.02	0.08	C21
Liver	349	-	0.8	9.1	21.5	69.5	130.5	161.2	171.3	45.8	33.6	2.30	3.85	C22
Gallbladder	22	-	-	-	0.9	3.9	3.4	18.8	20.2	2.9	2.2	0.08	0.26	C23-C24
Pancreas	28	-	-	-	3.7	3.2	12.5	16.1	10.1	3.7	2.8	0.20	0.37	C25
Nose, sinuses	9	-	-	0.8	1.9	1.6	1.1	5.4	3.4	1.2	0.9	0.06	0.10	C30-C31
Larynx	23	-	-	-	0.9	3.9	10.2	8.1	16.8	3.0	2.1	0.15	0.24	C32
Lung	393	-	-	0.8	7.5	42.7	129.3	346.6	292.3	51.6	39.2	1.84	5.22	C33-C34
Other Thoracic organs	5	-	1.7	-	0.9	0.8	-	2.7	-	0.7	0.6	0.03	0.06	C37-C38
Bone	6	2.3	0.8	-	-	-	1.1	2.7	-	0.8	1.1	0.04	0.08	C40-C41
Melanoma of Skin	7	-	-	-	-	-	-	16.1	3.4	0.9	0.9	0.00	0.17	C43
Other Skin	69	-	-	-	-	7.1	15.9	26.9	120.9	9.1	5.8	0.24	0.51	C44
Mesothelioma	1	-	-	-	-	-	1.1	-	-	0.1	0.1	0.01	0.01	C45
Kaposi sarcoma	5	-	-	1.6	-	1.6	1.1	-	-	0.7	0.5	0.04	0.03	C46
Connective,Soft tissue	10	0.8	-	-	0.9	1.6	1.1	5.4	10.1	1.3	1.1	0.05	0.10	C47;C49
Breast	13	-	-	-	1.9	3.9	4.5	-	6.7	1.7	1.2	0.11	0.11	C50
Penis	20	-	-	0.8	1.9	3.9	5.7	13.4	6.7	2.6	2.0	0.13	0.25	C60
Prostate	112	-	-	-	-	1.6	30.6	83.3	174.7	14.7	10.3	0.35	1.21	C61
Testis	5	-	-	2.5	-	0.8	-	-	3.4	0.7	0.5	0.03	0.02	C62
Other male genital	2	-	-	-	-	-	1.1	2.7	-	0.3	0.2	0.01	0.03	C63
Kidney	20	-	-	-	1.9	3.9	2.3	13.4	20.2	2.6	1.9	0.09	0.22	C64
Renal Pelvis	1	-	-	-	-	-	1.1	-	-	0.1	0.1	0.01	0.01	C65
Ureter	1	-	-	-	-	-	1.1	-	-	0.1	0.1	0.01	0.01	C66
Bladder	62	-	0.8	-	2.8	3.9	15.9	51.1	67.2	8.1	6.1	0.24	0.77	C67
Other Urinary organs	1	-	-	-	-	-	1.1	-	-	0.1	0.1	0.01	0.01	C68
Eye	4	-	-	-	0.9	0.8	1.1	-	3.4	0.5	0.4	0.03	0.03	C69
Brain, Nervous system	25	3	2.5	0.8	0.9	4.7	4.5	13.4	3.4	3.3	3.2	0.16	0.32	C70-C72
Thyroid	11	-	0.8	-	1.9	2.4	1.1	5.4	6.7	1.4	1.1	0.06	0.12	C73
Adrenal gland	1	0.8	-	-	-	-	-	-	-	0.1	0.2	0.01	0.01	C74
Other Endocrine	4	1.5	0.8	0.8	-	-	-	-	-	0.5	0.7	0.03	0.04	C75
Hodgkin disease	3	-	-	0.8	-	0.8	-	-	3.4	0.4	0.3	0.02	0.02	C81
Non-Hodgkin lymphoma	78	3.8	4.2	3.3	5.6	8.7	25	45.7	26.9	10.2	8.8	0.52	0.97	C82-C85;C96
Immunoproliferative dis.	1	-	-	-	-	-	1.1	-	-	0.1	0.1	0.01	0.01	C88
Multiple Myeloma	12	-	-	-	-	2.4	5.7	2.7	10.1	1.6	1.1	0.09	0.12	C90
Lymphoid Leukaemia	11	3.8	-	0.8	1.9	1.6	1.1	-	-	1.4	1.8	0.11	0.10	C91
Myeloid Leukaemia	30	0.8	3.4	3.3	3.7	3.9	4.5	13.4	10.1	3.9	3.4	0.18	0.33	C92-C94
Leukaemia unspec.	2	-	-	-	-	-	-	5.4	-	0.3	0.3	0.00	0.05	C95
Other & unspecified	53	-	-	0.8	1.9	13.4	15.9	18.8	40.3	7.0	4.8	0.34	0.53	Other
All sites Total	1777	17	18	39	93	251	542	1107	1273	233.4	176.7	9.40	19.01	All
All sites but C44	1708	17	18	39	93	244	526	1080	1152	224.3	170.9	9.19	18.60	Not C44

Table 13: Cancer Incidence in Chiang Mai, 2011, Females

SITE	Incidence per 100,000 by Age Group (years)									Crude rate	ASR (W)	CR 64	CR 74	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+					
Lip	2	-	-	-	0.9	-	-	-	2.7	0.2	0.2	0.01	0.02	C00
Tongue	6	-	-	-	-	-	2	2.4	8	0.7	0.4	0.02	0.08	C01-C02
Mouth	15	-	-	-	-	1.4	4	2.4	21.4	1.9	1.0	0.06	0.19	C03-C06
Salivary glands	6	-	-	-	0.9	0.7	1	4.8	2.7	0.7	0.6	0.05	0.09	C07-C08
Tonsil	3	-	-	-	0.9	0.7	-	2.4	-	0.4	0.3	0.04	0.04	C09
Other Oropharynx	0	-	-	-	-	-	-	-	-	0	0.0	0.00	0.00	C10
Nasopharynx	12	-	-	-	4.3	2.7	1	-	5.4	1.5	1.0	0.08	0.11	C11
Hypopharynx	0	-	-	-	-	-	-	-	-	0	0.0	0.00	0.00	C12-C13
Pharynx unspec.	1	-	-	-	-	-	-	-	2.7	0.1	0.1	0.00	0.01	C14
Esophagus	8	-	-	-	-	1.4	-	7.2	8	1	0.7	0.06	0.13	C15
Stomach	50	-	-	1.7	3.4	8.2	11.1	31.3	21.4	6.2	4.4	0.38	0.64	C16
Small intestine	3	-	-	-	-	-	2	-	2.7	0.4	0.2	0.02	0.03	C17
Colon	69	-	0.9	1.7	6.8	10.3	18.2	21.7	42.8	8.6	5.7	0.49	0.80	C18
Rectum	68	-	-	-	4.3	11.6	19.2	36.2	32.1	8.5	5.8	0.52	0.88	C19-C20
Anus	4	-	-	-	1.7	-	1	-	2.7	0.5	0.3	0.02	0.04	C21
Liver	143	-	0.9	0.8	4.3	15.1	45.6	67.5	110	17.8	11.6	1.05	1.90	C22
Gallbladder	38	-	-	-	-	3.4	14.2	19.3	29.4	4.7	3.1	0.25	0.52	C23-C24
Pancreas	15	-	-	-	-	2.1	1	4.8	24.1	1.9	1.0	0.08	0.20	C25
Nose, sinuses	2	-	-	-	-	1.4	-	-	-	0.2	0.2	0.01	0.01	C30-C31
Larynx	3	-	-	-	-	0.7	-	2.4	2.7	0.4	0.2	0.01	0.05	C32
Lung	265	-	-	2.5	6	20.5	79	181	193	33	22.5	1.94	3.84	C33-C34
Other Thoracic organs	2	-	-	-	1.7	-	-	-	-	0.2	0.2	0.02	0.02	C37-C38
Bone	4	-	0.9	-	-	0.7	1	2.4	-	0.5	0.4	0.05	0.05	C40-C41
Melanoma of Skin	4	-	-	-	0.9	0.7	1	-	2.7	0.5	0.3	0.02	0.04	C43
Other Skin	49	-	0.9	1.7	1.7	4.8	5.1	21.7	61.6	6.1	3.8	0.18	0.65	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	0	0.0	0.00	0.00	C45
Kaposi sarcoma	1	-	-	-	-	-	-	-	2.7	0.1	0.1	0.00	0.01	C46
Connective,Soft tissue	13	-	-	1.7	1.7	2.7	4	-	2.7	1.6	1.1	0.09	0.10	C47;C49
Breast	338	-	-	9.1	46	85.6	96.2	84.4	48.2	42	29.1	2.64	3.34	C50
Vulva	6	-	-	-	0.9	-	3	2.4	2.7	0.7	0.5	0.07	0.08	C51
Vagina	5	-	-	-	-	1.4	1	2.4	2.7	0.6	0.4	0.02	0.06	C52
Cervix	205	-	-	6.6	38.4	47.2	50.6	45.8	37.5	25.5	17.8	1.61	1.99	C53
Corpus	52	-	-	-	5.1	14.4	15.2	21.7	2.7	6.5	4.5	0.47	0.56	C54
Uterus unspec.	1	-	-	-	0.9	-	-	-	-	0.1	0.1	0.01	0.01	C55
Ovary	77	0.8	2.6	7.5	9.4	15.1	21.3	19.3	5.4	9.6	7.3	0.61	0.76	C56
Other Female Genital	2	-	-	-	-	-	1	-	2.7	0.2	0.1	0.01	0.03	C57
Placenta	3	-	-	2.5	-	-	-	-	-	0.4	0.3	0.02	0.01	C58
Kidney	8	-	0.9	-	-	-	1	4.8	10.7	1	0.7	0.02	0.12	C64
Renal Pelvis	2	-	-	-	-	-	-	4.8	-	0.2	0.2	0.05	0.05	C65
Ureter	2	-	-	-	-	0.7	1	-	-	0.2	0.2	0.02	0.02	C66
Bladder	28	-	-	0.8	2.6	-	5.1	12.1	37.5	3.5	2.2	0.15	0.40	C67
Other Urinary organs	1	-	-	-	-	-	-	-	2.7	0.1	0.1	0.00	0.01	C68
Eye	4	0.8	-	-	0.9	0.7	-	2.4	-	0.5	0.5	0.04	0.04	C69
Brain, Nervous system	21	1.6	1.7	1.7	0.9	5.5	3	-	8	2.6	2.1	0.14	0.18	C70-C72
Thyroid	53	0.8	1.7	7.5	8.5	9.6	5.1	12.1	18.7	6.6	5.0	0.37	0.54	C73
Adrenal gland	3	-	-	0.8	-	0.7	1	-	-	0.4	0.3	0.02	0.03	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	0	0.0	0.00	0.00	C75
Hodgkin disease	2	-	0.9	-	-	0.7	-	-	-	0.2	0.2	0.02	0.02	C81
Non-Hodgkin lymphoma	67	-	4.3	2.5	3.4	11.6	15.2	19.3	40.1	8.3	5.7	0.38	0.75	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0.0	0.00	0.00	C88
Multiple Myeloma	13	-	-	-	-	0.7	1	14.5	13.4	1.6	1.1	0.09	0.23	C90
Lymphoid Leukaemia	10	3.2	-	-	0.9	1.4	1	2.4	2.7	1.2	1.5	0.04	0.08	C91
Myeloid Leukaemia	22	-	0.9	2.5	1.7	2.1	9.1	4.8	5.4	2.7	2.0	0.16	0.22	C92-C94
Leukaemia unspec.	5	-	-	-	-	-	-	4.8	8	0.6	0.4	0.00	0.09	C95
Other & unspecified	48	-	0.9	1.7	2.6	7.5	10.1	26.5	26.8	6	4.2	0.26	0.62	Other
All sites Total	1764	7	17	53	161	294	452	692	856	219.5	152.0	11.95	18.82	All
All sites but C44	1715	7	16	51	159	289	446	670	795	213.4	148.2	11.79	18.29	Not C44

Table 14: Number of Cancer Deaths in Chiang Mai, 2011, Males

SITE	Number of cases by Age Group (years)											ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+	%	
Lip	2	0	0	0	0	0	2	0	0	0	0.2	C00
Tongue	8	0	0	0	3	1	1	1	0	2	0.6	C01-C02
Mouth	12	0	0	0	0	0	4	4	3	1	0.9	C03-C06
Salivary glands	1	0	0	0	0	0	0	0	0	1	0.1	C07-C08
Tonsil	6	0	0	0	1	0	2	1	1	1	0.5	C09
Other Oropharynx	2	0	0	0	0	0	1	1	0	0	0.2	C10
Nasopharynx	15	0	0	0	1	2	2	3	4	3	1.2	C11
Hypopharynx	5	0	0	0	0	0	1	0	2	2	0.4	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Esophagus	17	0	0	0	0	0	6	4	5	2	1.3	C15
Stomach	54	0	0	0	1	3	10	18	11	11	4.2	C16
Small intestine	3	0	0	0	0	0	0	2	1	0	0.2	C17
Colon	58	0	0	0	1	3	9	11	19	15	4.5	C18
Rectum	43	0	0	1	3	1	8	11	7	12	3.3	C19-C20
Anus	1	0	0	0	0	0	0	0	1	0	0.1	C21
Liver	308	0	0	0	7	19	68	115	59	40	23.8	C22
Gallbladder	19	0	0	0	0	0	4	3	3	9	1.5	C23-C24
Pancreas	34	0	0	0	0	5	6	13	5	5	2.6	C25
Nose, sinuses	6	0	0	0	0	2	1	0	2	1	0.5	C30-C31
Larynx	15	0	0	0	0	0	2	4	3	6	1.2	C32
Lung	357	0	1	0	0	7	48	95	113	93	27.5	C33-C34
Other Thoracic organs	3	0	0	1	1	0	0	0	1	0	0.2	C37-C38
Bone	3	0	0	0	0	2	0	0	1	0	0.2	C40-C41
Melanoma of Skin	10	0	0	0	0	1	0	2	3	4	0.8	C43
Other Skin	26	0	0	0	0	0	2	3	1	20	2.0	C44
Mesothelioma	1	0	0	0	0	0	0	1	0	0	0.1	C45
Kaposi sarcoma	2	0	0	0	1	0	1	0	0	0	0.2	C46
Connective,Soft tissue	6	0	0	0	0	0	1	1	1	3	0.5	C47;C49
Breast	4	0	0	0	0	0	1	1	0	2	0.3	C50
Penis	8	0	0	0	0	0	1	2	2	3	0.6	C60
Prostate	49	0	0	0	0	0	0	6	11	32	3.8	C61
Testis	2	0	0	0	1	0	1	0	0	0	0.2	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	17	0	0	0	0	1	3	3	5	5	1.3	C64
Renal Pelvis	1	0	0	0	0	0	0	0	0	1	0.1	C65
Ureter	2	0	0	0	0	0	0	1	0	1	0.2	C66
Bladder	39	0	0	0	0	0	1	10	7	21	3.0	C67
Other Urinary organs	1	0	0	0	0	1	0	0	0	0	0.1	C68
Eye	1	0	0	0	0	0	0	0	0	1	0.1	C69
Brain, Nervous system	18	0	0	2	1	3	4	4	2	2	1.4	C70-C72
Thyroid	3	0	0	0	0	0	0	1	1	1	0.2	C73
Adrenal gland	1	0	1	0	0	0	0	0	0	0	0.1	C74
Other Endocrine	1	0	1	0	0	0	0	0	0	0	0.1	C75
Hodgkin disease	2	0	0	0	0	0	0	0	0	2	0.2	C81
Non-Hodgkin lymphoma	48	0	1	1	1	6	11	8	9	11	3.7	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	1	3	1	6	0.8	C90
Lymphoid Leukaemia	7	0	2	1	1	1	1	1	0	0	0.5	C91
Myeloid Leukaemia	14	0	0	2	1	0	2	4	2	3	1.1	C92-C94
Leukaemia unspec.	2	0	0	0	0	0	0	0	2	0	0.2	C95
Other & unspecified	48	0	0	0	1	1	13	11	10	12	3.7	Other
All sites Total	1296	0	6	8	25	59	218	348	298	334	100.0	All
All sites but C44	1270	0	6	8	25	59	216	345	297	314	98.0	Not C44

Table 15: Number of Cancer Deaths in Chiang Mai, 2011, Females

SITE	Number of cases by Age Group (years)										%	ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+		
Lip	1	0	0	0	0	0	0	0	1	0	0.1	C00
Tongue	5	0	0	0	0	0	1	1	1	2	0.5	C01-C02
Mouth	8	0	0	0	0	0	0	2	2	4	0.8	C03-C06
Salivary glands	1	0	0	0	0	0	0	1	0	0	0.1	C07-C08
Tonsil	1	0	0	0	0	0	0	0	1	0	0.1	C09
Other Oropharynx	1	0	0	0	0	0	0	0	0	1	0.1	C10
Nasopharynx	7	0	0	0	0	1	1	1	3	1	0.7	C11
Hypopharynx	1	0	0	0	0	0	0	0	0	1	0.1	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	0	2	2	0.4	C15
Stomach	50	0	0	0	1	5	12	11	10	11	4.8	C16
Small intestine	2	0	0	0	0	0	0	2	0	0	0.2	C17
Colon	47	0	0	1	1	3	8	13	7	14	4.5	C18
Rectum	40	0	0	0	0	5	8	12	6	9	3.9	C19-C20
Anus	3	0	0	0	0	0	1	1	1	0	0.3	C21
Liver	125	0	0	0	0	6	20	41	24	34	12.0	C22
Gallbladder	25	0	0	0	0	0	2	5	8	10	2.4	C23-C24
Pancreas	16	0	0	0	0	0	0	5	2	9	1.5	C25
Nose, sinuses	4	0	1	0	0	0	0	1	0	2	0.4	C30-C31
Larynx	3	0	0	0	0	0	0	0	1	2	0.3	C32
Lung	243	0	0	0	3	4	25	56	77	78	23.4	C33-C34
Other Thoracic organs	2	0	0	0	0	1	1	0	0	0	0.2	C37-C38
Bone	3	0	2	0	0	0	0	0	1	0	0.3	C40-C41
Melanoma of Skin	3	0	0	0	1	1	0	0	0	1	0.3	C43
Other Skin	15	0	0	0	0	2	0	2	0	11	1.4	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	7	0	0	0	1	0	0	4	1	1	0.7	C47;C49
Breast	111	0	0	0	1	16	32	34	11	17	10.7	C50
Vulva	10	0	0	0	0	0	2	4	1	3	1.0	C51
Vagina	2	0	0	0	0	0	0	0	0	2	0.2	C52
Cervix	86	0	0	0	1	8	21	22	15	19	8.3	C53
Corpus	16	0	0	0	0	0	4	5	4	3	1.5	C54
Uterus unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C55
Ovary	24	0	0	1	0	1	7	9	4	2	2.3	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	8	0	0	0	1	0	2	2	1	2	0.8	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0.0	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0.0	C66
Bladder	12	0	0	0	0	2	0	1	4	5	1.2	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	14	0	0	1	0	1	7	2	0	3	1.3	C70-C72
Thyroid	11	0	0	0	0	1	2	2	2	4	1.1	C73
Adrenal gland	2	0	1	0	0	0	0	1	0	0	0.2	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	2	0	0	0	0	0	2	0	0	0	0.2	C81
Non-Hodgkin lymphoma	30	0	0	1	2	2	5	7	5	8	2.9	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	13	0	0	0	0	0	1	2	5	5	1.3	C90
Lymphoid Leukaemia	3	0	1	2	0	0	0	0	0	0	0.3	C91
Myeloid Leukaemia	23	0	0	1	1	1	2	8	5	5	2.2	C92-C94
Leukaemia unspec.	5	0	0	0	0	0	0	0	2	3	0.5	C95
Other & unspecified	47	0	1	1	3	3	10	9	11	9	4.5	Other
All sites Total	1038	0	6	8	16	63	176	266	218	285	100.0	All
All sites but C44	1023	0	6	8	16	61	176	264	218	274	98.6	Not C44

Table 16: Cancer Deaths in Chiang Mai, 2011, Males

SITE	Incidence per 100,000 by Age Group (years)										Crude rate	ASR (W)	CR 64	CR 74	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+						
Lip	2	0	0	0	0	1.6	0	0	0	0.3	0.2	0.02	0.02	C00	
Tongue	8	0	0	2.5	0.9	0.8	1.1	0	6.7	1.1	0.8	0.05	0.04	C01-C02	
Mouth	12	0	0	0	0	3.2	4.5	8.1	3.4	1.6	1.2	0.08	0.17	C03-C06	
Salivary glands	1	0	0	0	0	0	0	0	3.4	0.1	0.1	0.00	0.00	C07-C08	
Tonsil	6	0	0	0.8	0	1.6	1.1	2.7	3.4	0.8	0.6	0.03	0.06	C09	
Other Oropharynx	2	0	0	0	0	0.8	1.1	0	0	0.3	0.2	0.02	0.02	C10	
Nasopharynx	15	0	0	0.8	1.9	1.6	3.4	10.7	10.1	2	1.5	0.08	0.18	C11	
Hypopharynx	5	0	0	0	0	0.8	0	5.4	6.7	0.7	0.5	0.01	0.06	C12-C13	
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C14	
Esophagus	17	0	0	0	0	4.7	4.5	13.4	6.7	2.2	1.7	0.09	0.24	C15	
Stomach	54	0	0	0.8	2.8	7.9	20.4	29.6	37	7.1	5.2	0.34	0.65	C16	
Small intestine	3	0	0	0	0	0	2.3	2.7	0	0.4	0.3	0.02	0.05	C17	
Colon	58	0	0	0.8	2.8	7.1	12.5	51.1	50.4	7.6	5.8	0.26	0.77	C18	
Rectum	43	0	0.8	2.5	0.9	6.3	12.5	18.8	40.3	5.6	4	0.24	0.42	C19-C20	
Anus	1	0	0	0	0	0	0	2.7	0	0.1	0.1	0.00	0.03	C21	
Liver	308	0	0	5.8	17.8	53.7	131	159	134.4	40.5	29.9	2.08	3.62	C22	
Gallbladder	19	0	0	0	0	3.2	3.4	8.1	30.2	2.5	1.6	0.06	0.14	C23-C24	
Pancreas	34	0	0	0	4.7	4.7	14.7	13.4	16.8	4.5	3.3	0.24	0.37	C25	
Nose, sinuses	6	0	0	0	1.9	0.8	0	5.4	3.4	0.8	0.6	0.03	0.08	C30-C31	
Larynx	15	0	0	0	0	1.6	4.5	8.1	20.2	2	1.3	0.07	0.16	C32	
Lung	357	0.8	0	0	6.6	37.9	108	304	312.4	46.9	35.2	1.61	4.55	C33-C34	
Other Thoracic organs	3	0	0.8	0.8	0	0	0	2.7	0	0.4	0.4	0.02	0.03	C37-C38	
Bone	3	0	0	0	1.9	0	0	2.7	0	0.4	0.4	0.02	0.05	C40-C41	
Melanoma of Skin	10	0	0	0	0.9	0	2.3	8.1	13.4	1.3	1	0.03	0.12	C43	
Other Skin	26	0	0	0	0	1.6	3.4	2.7	67.2	3.4	1.9	0.05	0.08	C44	
Mesothelioma	1	0	0	0	0	0	1.1	0	0	0.1	0.1	0.01	0.01	C45	
Kaposi sarcoma	2	0	0	0.8	0	0.8	0	0	0	0.3	0.2	0.02	0.01	C46	
Connective,Soft tissue	6	0	0	0	0	0.8	1.1	2.7	10.1	0.8	0.5	0.02	0.05	C47;C49	
Breast	4	0	0	0	0	0.8	1.1	0	6.7	0.5	0.3	0.02	0.02	C50	
Penis	8	0	0	0	0	0.8	2.3	5.4	10.1	1.1	0.7	0.03	0.08	C60	
Prostate	49	0	0	0	0	0	6.8	29.6	107.5	6.4	4.2	0.07	0.38	C61	
Testis	2	0	0	0.8	0	0.8	0	0	0	0.3	0.2	0.02	0.02	C62	
Other male genital	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C63	
Kidney	17	0	0	0	0.9	2.4	3.4	13.4	16.8	2.2	1.7	0.07	0.20	C64	
Renal Pelvis	1	0	0	0	0	0	0	0	3.4	0.1	0.1	0.00	0.00	C65	
Ureter	2	0	0	0	0	0	1.1	0	3.4	0.3	0.2	0.01	0.01	C66	
Bladder	39	0	0	0	0	0.8	11.3	18.8	70.5	5.1	3.3	0.13	0.33	C67	
Other Urinary organs	1	0	0	0	0.9	0	0	0	0	0.1	0.1	0.01	0.01	C68	
Eye	1	0	0	0	0	0	0	0	3.4	0.1	0.1	0.00	0.00	C69	
Brain, Nervous system	18	0	1.7	0.8	2.8	3.2	4.5	5.4	6.7	2.4	1.9	0.12	0.19	C70-C72	
Thyroid	3	0	0	0	0	0	1.1	2.7	3.4	0.4	0.3	0.01	0.03	C73	
Adrenal gland	1	0.8	0	0	0	0	0	0	0	0.1	0.2	0.01	0.01	C74	
Other Endocrine	1	0.8	0	0	0	0	0	0	0	0.1	0.2	0.01	0.01	C75	
Hodgkin disease	2	0	0	0	0	0	0	0	6.7	0.3	0.1	0.00	0.00	C81	
Non-Hodgkin lymphoma	48	0.8	0.8	0.8	5.6	8.7	9.1	24.2	37	6.3	4.8	0.28	0.52	C82-C85;C96	
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C88	
Multiple Myeloma	11	0	0	0	0	0.8	3.4	2.7	20.2	1.4	0.9	0.05	0.07	C90	
Lymphoid Leukaemia	7	1.5	0.8	0.8	0.9	0.8	1.1	0	0	0.9	1	0.07	0.06	C91	
Myeloid Leukaemia	14	0	1.7	0.8	0	1.6	4.5	5.4	10.1	1.8	1.4	0.07	0.15	C92-C94	
Leukaemia unspec.	2	0	0	0	0	0	0	5.4	0	0.3	0.3	0.00	0.05	C95	
Other & unspecified	48	0	0	0.8	0.9	10.3	12.5	26.9	40.3	6.3	4.5	0.27	0.55	Other	
All sites Total	1296	5	7	21	55	172	395	801	1122	170.2	125.1	6.56	13.78	All	
All sites but C44	1270	5	7	21	55	171	391	798	1055	166.8	123.1	6.51	13.72	Not C44	

Table 17: Cancer Deaths in Chiang Mai, 2011, Females

SITE	Incidence per 100,000 by Age Group (years)									Crude rate	ASR (W)	CR 64	CR 74	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+					
Lip	1	0	0	0	0	0	0	2.4	0	0.1	0.1	0.00	0.02	C00
Tongue	5	0	0	0	0	0.7	1	2.4	5.4	0.6	0.4	0.02	0.04	C01-C02
Mouth	8	0	0	0	0	0	2	4.8	10.7	1	0.6	0.03	0.08	C03-C06
Salivary glands	1	0	0	0	0	0	1	0	0	0.1	0.1	0.01	0.01	C07-C08
Tonsil	1	0	0	0	0	0	0	2.4	0	0.1	0.1	0.00	0.02	C09
Other Oropharynx	1	0	0	0	0	0	0	0	2.7	0.1	0.1	0.00	0.00	C10
Nasopharynx	7	0	0	0	0.9	0.7	1	7.2	2.7	0.9	0.7	0.02	0.10	C11
Hypopharynx	1	0	0	0	0	0	0	0	2.7	0.1	0.1	0.00	0.00	C12-C13
Pharynx unspec.	1	0	0	0	0	0	0	0	2.7	0.1	0.1	0.00	0.00	C14
Esophagus	4	0	0	0	0	0	0	4.8	5.4	0.5	0.3	0.00	0.05	C15
Stomach	50	0	0	0.8	4.3	8.2	11.1	24.1	29.4	6.2	4.2	0.25	0.49	C16
Small intestine	2	0	0	0	0	0	2	0	0	0.2	0.2	0.02	0.02	C17
Colon	47	0	0.9	0.8	2.6	5.5	13.2	16.9	37.5	5.8	3.8	0.22	0.39	C18
Rectum	40	0	0	0	4.3	5.5	12.1	14.5	24.1	5	3.3	0.23	0.38	C19-C20
Anus	3	0	0	0	0	0.7	1	2.4	0	0.4	0.3	0.02	0.04	C21
Liver	125	0	0	0	5.1	13.7	41.5	57.9	91	15.6	10.2	0.63	1.20	C22
Gallbladder	25	0	0	0	0	1.4	5.1	19.3	26.8	3.1	2.1	0.06	0.26	C23-C24
Pancreas	16	0	0	0	0	0	5.1	4.8	24.1	2	1.1	0.05	0.09	C25
Nose, sinuses	4	0.8	0	0	0	0	1	0	5.4	0.5	0.4	0.02	0.02	C30-C31
Larynx	3	0	0	0	0	0	0	2.4	5.4	0.4	0.2	0.00	0.02	C32
Lung	243	0	0	2.5	3.4	17.1	56.7	186	209	30.2	20.6	0.84	2.66	C33-C34
Other Thoracic organs	2	0	0	0	0.9	0.7	0	0	0	0.2	0.2	0.02	0.02	C37-C38
Bone	3	1.6	0	0	0	0	0	2.4	0	0.4	0.6	0.02	0.05	C40-C41
Melanoma of Skin	3	0	0	0.8	0.9	0	0	0	2.7	0.4	0.3	0.02	0.01	C43
Other Skin	15	0	0	0	1.7	0	2	0	29.4	1.9	1	0.04	0.04	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C46
Connective,Soft tissue	7	0	0	0.8	0	0	4	2.4	2.7	0.9	0.6	0.05	0.08	C47;C49
Breast	111	0	0	0.8	13.6	21.9	34.4	26.5	45.5	13.8	9.2	0.72	0.98	C50
Vulva	10	0	0	0	0	1.4	4	2.4	8	1.2	0.8	0.07	0.09	C51
Vagina	2	0	0	0	0	0	0	0	5.4	0.2	0.1	0.00	0.00	C52
Cervix	86	0	0	0.8	6.8	14.4	22.3	36.2	50.8	10.7	7.1	0.42	0.78	C53
Corpus	16	0	0	0	0	2.7	5.1	9.6	8	2	1.3	0.08	0.18	C54
Uterus unspec.	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C55
Ovary	24	0	0.9	0	0.9	4.8	9.1	9.6	5.4	3	2.1	0.14	0.25	C56
Other Female Genital	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C57
Placenta	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C58
Kidney	8	0	0	0.8	0	1.4	2	2.4	5.4	1	0.7	0.04	0.06	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C66
Bladder	12	0	0	0	1.7	0	1	9.6	13.4	1.5	1	0.03	0.13	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C68
Eye	1	0	0	0	0	0	0	0	2.7	0.1	0.1	0.00	0.00	C69
Brain, Nervous system	14	0	0.9	0	0.9	4.8	2	0	8	1.7	1.1	0.08	0.08	C70-C72
Thyroid	11	0	0	0	0.9	1.4	2	4.8	10.7	1.4	0.9	0.05	0.10	C73
Adrenal gland	2	0.8	0	0	0	0	1	0	0	0.2	0.3	0.03	0.03	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C75
Hodgkin disease	2	0	0	0	0	1.4	0	0	0	0.2	0.2	0.01	0.01	C81
Non-Hodgkin lymphoma	30	0	0.9	1.7	1.7	3.4	7.1	12.1	21.4	3.7	2.6	0.14	0.26	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	C88
Multiple Myeloma	13	0	0	0	0	0.7	2	12.1	13.4	1.6	1.1	0.03	0.16	C90
Lymphoid Leukaemia	3	0.8	1.7	0	0	0	0	0	0	0.4	0.5	0.02	0.03	C91
Myeloid Leukaemia	23	0	0.9	0.8	0.9	1.4	8.1	12.1	13.4	2.9	2	0.10	0.23	C92-C94
Leukaemia unspec.	5	0	0	0	0	0	0	4.8	8	0.6	0.4	0.00	0.05	C95
Other & unspecified	47	0.8	0.9	2.5	2.6	6.8	9.1	26.5	24.1	5.8	4.3	0.22	0.49	Other
All sites Total	1038	5	7	13	54	120	269	525	763	129.1	87.3	4.65	9.54	All
All sites but C44	1023	5	7	13	52	120	267	525	733	127.3	86.3	4.62	9.51	Not C44

CHIANG MAI POPULATION AND ADMINISTRATIVE DIVISIONS

In 2011, Chiang Mai was composed of 25 districts (amphurs) (Fig. 53). Local administration consisted of one city municipality, four town municipalities and 45 subdistrict municipalities. Total population in Chiang Mai in 2011 was 1,566,211 consisting of 761,855 males and 804,356 females. The population density averaged 77.9 people per km². The highest population density was in Muang District (1,535.0 people per km²), followed by Saraphi, Sanpatong, San Sai, and Sankamphaeng districts. The lowest population density was in Galyani Vadhana District (16.4 people per km²). Eighty percent of the population was born in the province; the remainder was composed 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.

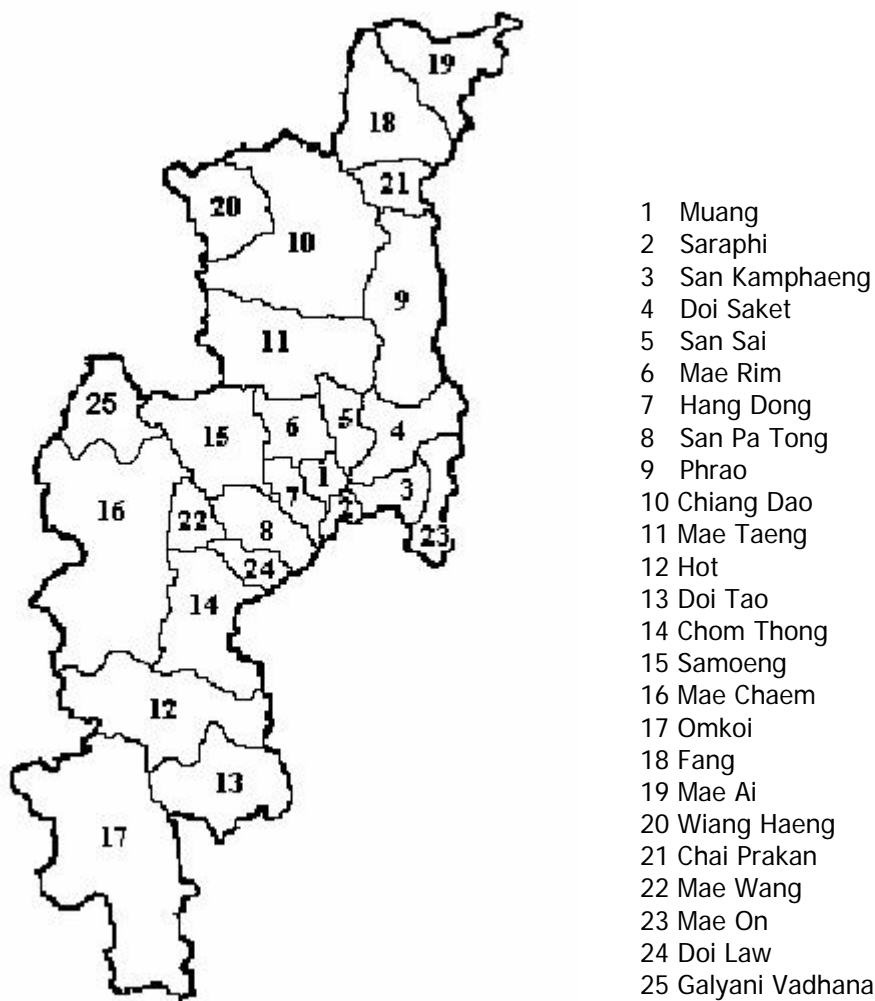


Figure 53: Districts of Chiang Mai

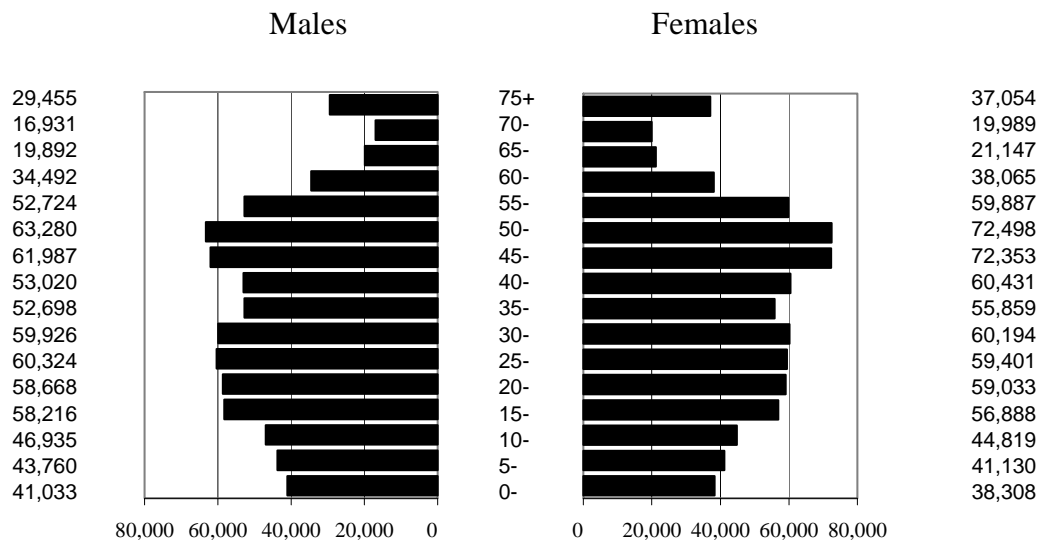


Figure 54: Population pyramid, Chiang Mai, 2011

Age and Sex

The age-sex distribution in 2011 is illustrated by population pyramids (Fig. 54). In 2011, 16.3% of the total population was under age 15 and 13.9% was over age 60.

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