

CANCER INCIDENCE AND MORTALITY
IN CHIANG MAI
2012



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

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2012



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CHIANG MAI, THAILAND

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Note: to the reader

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

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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 32nd in a series and reports the incidence of new cancer, and mortality in Chiang Mai in the year 2012.

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), 5 government hospitals, 1 municipal hospital, 12 private hospitals, and 23 community hospitals, with a total of 6,237 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 CanReg5 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 CanReg5 (Morten Johannes Ervik, IARC, 2015) (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.

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

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

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

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

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, 2012

	Estimated New Cases			Estimated Deaths		
	Both Sexes	Males	Females	Both Sexes	Males	Females
All sites	3794	1875	1919	2191	1263	928
Lip, oral cavity and pharynx	157	110	47	79	60	19
Lip	5	2	3	0	0	0
Tongue	30	22	8	15	11	4
Mouth	41	28	13	27	20	7
Salivary glands	9	6	3	1	1	0
Tonsil	18	14	4	9	7	2
Other oropharynx	5	4	1	1	1	0
Nasopharynx	38	23	15	20	14	6
Hypopharynx	11	11	0	6	6	0
Digestive system	1169	721	448	846	539	307
Oesophagus	34	28	6	25	17	8
Stomach	112	61	51	96	60	36
Small intestine	5	4	1	3	3	0
Colon	180	88	92	72	40	32
Rectum	152	95	57	62	35	27
Anus	4	3	1	4	3	1
Liver	565	394	171	488	342	146
Gallbladder etc.	52	14	38	50	13	37
Pancreas	65	34	31	46	26	20
Respiratory system	768	459	309	645	378	267
Nose, sinuses etc.	4	3	1	3	0	3
Larynx	33	29	4	16	15	1
lung	710	416	294	623	360	263
Other thoracic organs	8	7	1	3	3	0
Bone	13	4	9	6	2	4
Soft tissue	12	7	5	8	4	4
Connective and soft tissue	11	6	5	7	3	4
Mesothelioma	1	1	0	1	1	0
Kaposi sarcoma	0	0	0	0	0	0
Skin	148	82	66	25	18	7
Melanoma of skin	13	4	9	5	4	1
Non-melanoma of skin	135	78	57	20	14	6
Breast	395	12	383	50	0	50
Genital system	467	112	355	137	42	95
Vulva	8		8	2		2
Vagina	0		0	3		3
Cervix	200		200	50		50
Corpus	78		78	17		17
Uterus unspecified	2		2	0		0
Ovary	65		65	22		22
Other female genital organs	1		1	1		1
Placenta	1		1	0		0
Penis	11	11		4	4	
Prostate	95	95		37	37	
Testis	6	6		1	1	
Urinary system	110	78	32	69	46	23
Kidney	37	24	13	18	12	6
Renal pelvis	2	1	1	2	2	0
Ureter	6	4	2	3	2	1
Bladder	64	48	16	45	30	15
Other urinary organs	1	1	0	1	0	1
Eye	6	2	4	2	0	2
Brain, nervous system	39	19	20	28	13	15
Endocrine system	54	14	40	12	7	5
Thyroid	52	14	38	10	6	4
Adrenal gland	2	0	2	1	0	1
Other endocrine	0	0	0	1	1	0
Lymphoma	159	85	74	88	41	47
Hodgkin disease	11	9	2	4	4	0
Non-Hodgkin lymphoma	148	76	72	84	37	47
Immunoproliferative diseases	0	0	0	0	0	0
Multiple myeloma	31	17	14	11	7	4
Leukaemia	279	157	122	64	33	31
Lymphoid leukaemia	15	11	4	3	1	2
Myeloid leukaemia	67	41	26	36	21	15
Leukaemia unspecified	7	3	4	6	2	4
Myeloproliferative disorders	12	8	4	2	1	1
Myelodysplastic syndromes	44	20	24	17	8	9
Other and unspecified	134	74	60	121	73	48

OVERVIEW

In 2012, there were an estimated 3,794 new invasive cancer cases in Chiang Mai. There were 1,875 males, and 1,919 females with a male to female ratio of 1:1 and in the same period, 1,263 males and 928 females died from cancer (Table 1). The new cancer cases increased from 1,777 cases in males and from 1,764 cases in females compared to the year 2011. The number of cancer death in males decreased from 1,296 cases and in females decreased from 1038 cases in the year 2011.

The data were obtained from the followings: 60.3% from Maharaj Nakorn Chiang Mai Hospital, 23.7% from Nakorping Hospital (the provincial hospital), 0.1% from other government hospitals, 6.5% from community hospitals, 8.0% from private hospitals, and 1.5% from death certificates.

The age-standardized incidence rates were 168.1 for males and 153.8 for females. The cumulative rate percentages to age 75 were 19.3% for males and 17.1% for females, these represented cumulative risks for developing cancer of 100 in 518 for men and 100 in 585 for women. In the year 2012, the incidence in both males and females trended to continue increasing from the year 2000 (Fig. 1).

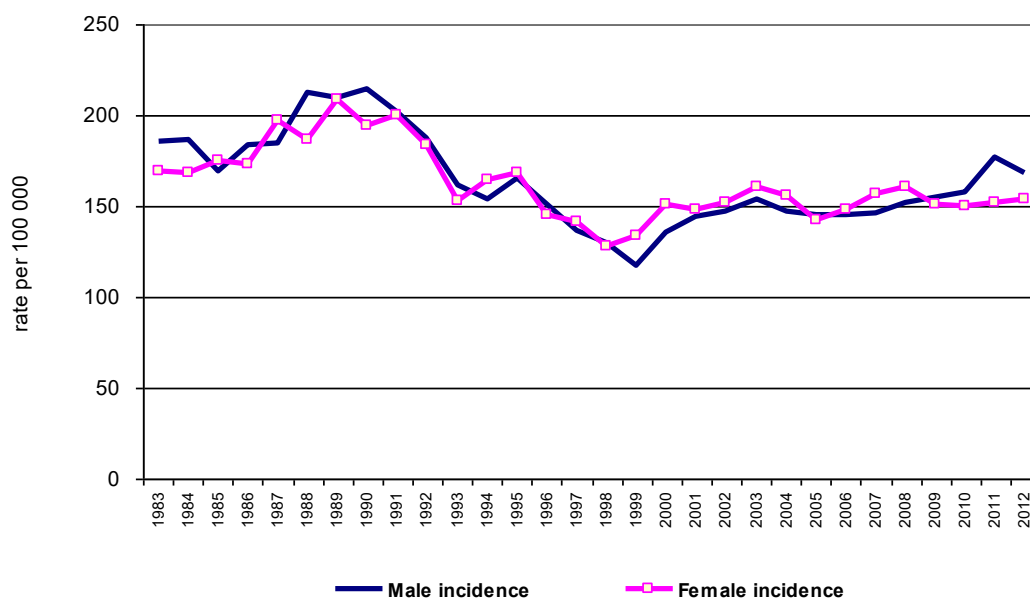


Figure 1: Age-standardized incidence rates (world) of cancer in Chiang Mai, 1983-2012

INCIDENCE

Age and Sex

The age at diagnosis in males ranged from less than one year to 98 years, with a mean age of 62.2 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 59.1 years and a median age of 58 years. Childhood cancers were relatively uncommon in Chiang Mai. Only 35 cases (0.9%) of all cancers occurred before age 15, whereas 52.5% occurred after age 60.

The male to female ratio was approximately 1:1, but 38.5% of the cancers in females occurred in sex-specific sites (i.e., breast and reproductive organs) while only 6.6% 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 1.5:1 because of the higher incidence of lung cancer and liver cancer in males than females.

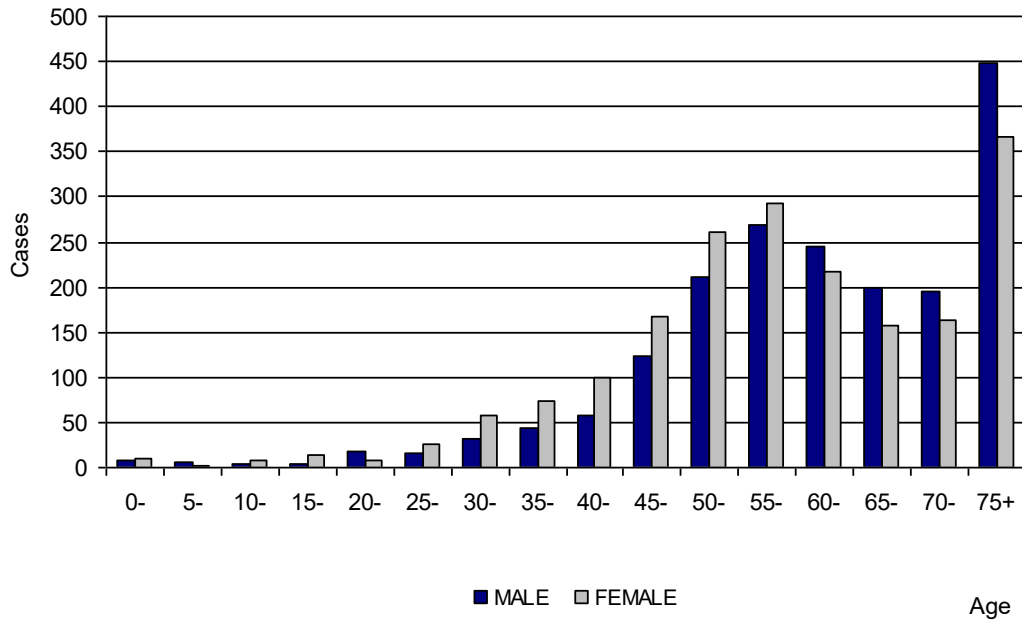


Figure 2: Age group distribution of new cancer cases in Chiang Mai, 2012

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).

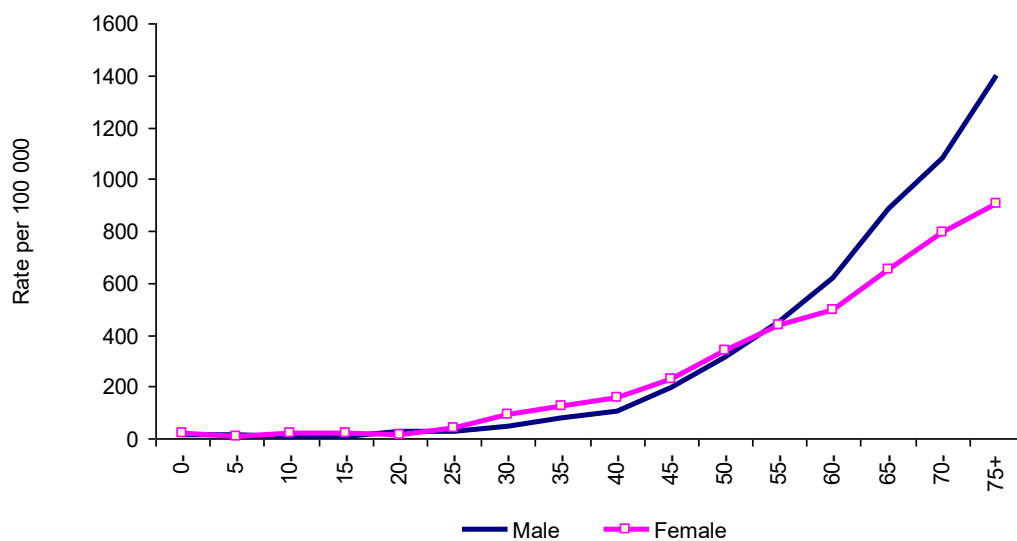


Figure 3: Age-specific incidence rates, Chiang Mai, 2012

DIAGNOSIS AND STAGE OF CANCER

Basis of Diagnosis

2,789 cases (73.5%) were histologically verified, with 59.9% from primary sites and 7.5% from metastasis sites (Table 2). Twenty four percent were clinically diagnosed and 1.4% were determined from death certificates only. By site, the percentages of histologically verified cases were low for cancer of the liver, pancreas and lung.

Stage of Cancer

Thirty-six percent were diagnosed in localized and locally advanced stages, and 26.1% had distant metastasis (Table 3). Since 2001, distant metastasis cases at first diagnosis have decreased, and locally advanced cases have increased every year, which indicates that cancer is being diagnosed earlier. All brain tumors, lymphoma, and leukemia were staged as “not applicable” The “death certificate only” cases were staged as “unknown” The most common site of distant metastasis was lung (26.1%) and liver (18.7%), followed by distant lymph nodes (11.0%), brain (10.2%) and bone (10.0%).

Table 2: Basis of diagnosis

Type of diagnosis	No.	%
Histological verification	2789	73.5
Histology of primary	2274	59.9
Histology of metastasis	284	7.5
Cytology/hematology	231	6.1
Autopsy	0	0.0
No histological verification	949	25.0
Clinical only	16	0.4
Clinical and investigations	900	23.7
Operation/surgery	26	0.7
Immuno/biochemistry	7	0.2
Death certificate only	54	1.4
<i>Unknown</i>	2	0.1
	3794	100.0

Table 3: Stage of disease

Stage	No.	%
Localized	481	12.7
Locally advanced	904	23.8
Regional node metastasis	568	15.0
Distant metastasis	989	26.1
Not applicable	374	9.9
Unknown/not staged	478	12.6
	3794	100.0

Incidence of New Cancer Cases by Districts

High incidences of new cancer for males were found in Doi Law, Hang Dong, San Pa Tong, Phrao and Chiang Dao districts because of high incidence of lung and liver cancer. The high incidence rate of lung cancer was found in Doi Law, Wiang Haeng and Phrao district and the high incidence rate of liver cancer was found in Mae On and Mae Tang districts. For females, high incidence rates of new cancer were found in Wiang Haeng, Phrao, Muang, Mae Rim and San Pa Tong 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 Phrao and Muang was due to high incidence of lung and breast cancer. The high incidence rate in Mae Rim and Muang was due to high incidence of breast and cervix cancer. Low incidences of cancer in males were found in Galyani Vadhana, Mae Chaem and Omkoi districts and in females were found in Galyani Vadhana, Mae Chaem and Samoeng districts (Table 4).

MORTALITY

Age and Sex

In 2012, there were an estimated 2,191 cancer death cases (1,263 males, 928 females, Table 1), accounting for 17.4% 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 111.5 per 100,000 males and 70.8 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.

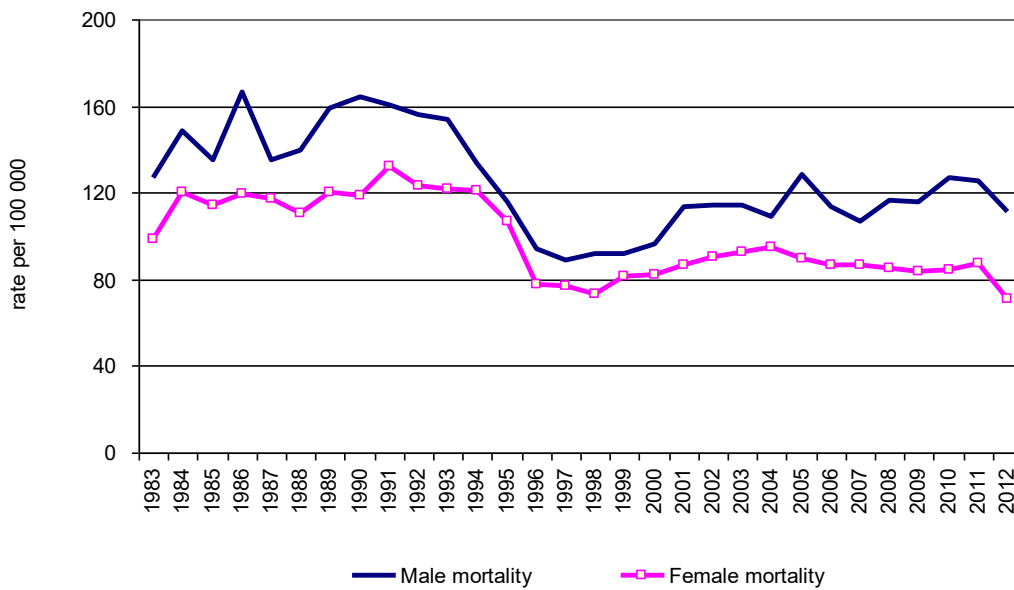


Figure 4: Age-standardized mortality rates (world) of cancer in Chiang Mai, 1983-2012

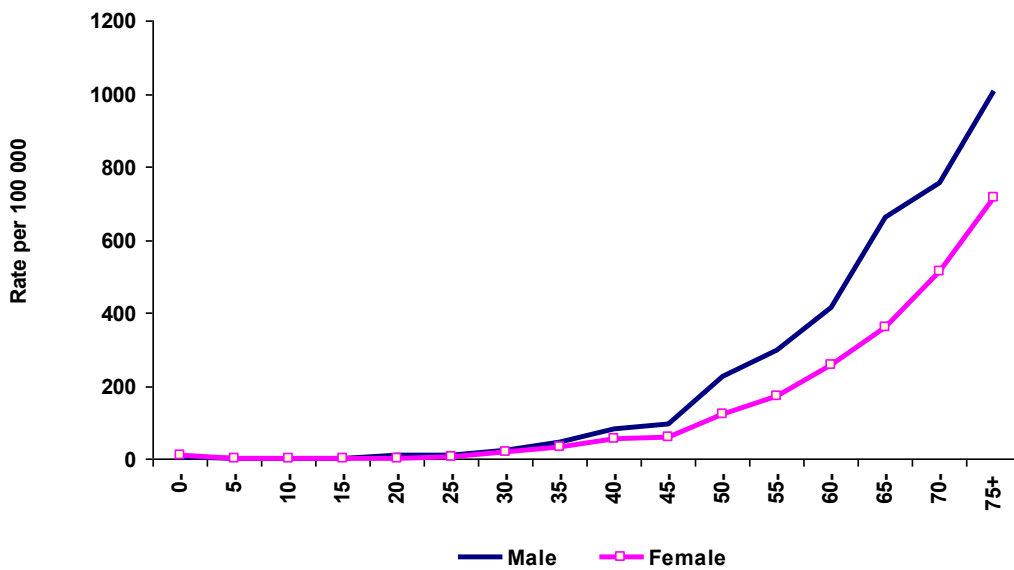


Figure 5: Age-specific mortality rate, Chiang Mai, 2012

Age

For all cancer death cases, 1297 cases (59.1%) survived less than one year, while 237 cases (10.8%) 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 Hang Dong, Mae Taeng, Mae Rim, and San Pa Tong 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, Mae Taeng, Galyani Vadhana, and Hot districts (Table 5). These were because of high mortality from lung and liver cancer in Hang Dong and Mae Taeng districts. In Wiang Haeng, Galyani Vadhana, and Hot districts, the mortality rates were high 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 (710 cases), followed by liver, breast, cervix and colon cancer. Together these five types of cancer accounted for 54.0% of all new cancers. For males, the most common cancer was lung cancer, accounting for 22.2% of all newly diagnosed cases, followed by liver, rectum, prostate and colon (Fig. 6). For females, the most common cancer was breast cancer, accounting for 20.0% of all newly diagnosed cases, followed by lung, cervix, liver, and colon cancer.

The most frequent cancers for the under 15-year age group in both sexes were leukemia, cancer of nervous system, ovary and bone. In the age group 15-29 years, common cancers in males were NHL, leukemia, colon and thyroid, and in females were thyroid, ovary, leukemia, breast 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 (28.4%) was the most common cause of cancer death, followed by liver (22.3%), stomach, NHL and colon cancer. Lung and liver cancer accounted for 50.7% of all cancer deaths. For males, lung was the most common site of cancer deaths, accounting for 28.5%, followed by the liver, stomach, colon and prostate. For females, the lung was the most common site of cancer deaths, accounting for 28.3%, followed by liver, breast, cervix and NHL (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, liver cancer was the most common cause in the age group 30-44 and lung cancer was the most common cause in the age group 45 and over (Table 7).

Table 4: Incidence and common sites of new cancer cases in districts of Chiang Mai, 2012

	Districts	Rates	All sites	Males									
				Lung	Liver	Rectum	Prostate	Colon	skin*	NHL	Stomach	Bladder	Leukaemia*
	Muang	175.9	274	47	49	23	27	20	13	12	1	7	6
	Chom Thong	154.3	71	12	22	2	5	3	0	3	4	4	3
	Mae Chaem	94.4	30	1	5	2	1	0	0	0	1	1	4
	Chiang Dao	186.5	86	22	21	5	5	4	4	1	3	1	1
	Doi Saket	186.1	90	22	18	2	3	4	7	4	6	2	1
	Mae Taeng	172.4	100	20	28	8	4	1	1	5	3	2	2
	Mae Rim	171.8	109	24	28	7	0	2	3	5	5	5	1
	Samoeng	157.6	26	5	8	1	3	0	2	0	0	1	0
	Fang	130.6	95	19	16	2	4	3	6	8	3	1	4
	Mae Ai	116.1	51	10	13	4	0	3	1	3	2	1	0
	Phrao	194.3	77	19	20	5	6	1	3	1	3	5	1
	San Pa Tong	217.2	133	28	22	6	5	7	6	5	4	1	4
	San Kamphaeng	183.0	106	22	24	4	1	6	4	10	3	1	2
	San Sai	183.5	138	32	28	2	7	11	5	8	4	2	3
	Hang Dong	221.5	119	27	26	6	11	6	3	3	1	2	3
	Hot	152.5	41	14	5	2	1	2	3	1	1	2	1
	Doi Tao	151.5	32	8	2	0	1	1	1	1	4	4	1
	Omko	109.0	25	6	6	1	0	2	1	2	3	0	0
	Saraphi	149.6	88	28	15	4	2	6	4	3	6	3	0
	Wiang Haeng	154.7	16	5	2	1	1	1	2	0	0	0	0
	Chai Prakan	175.7	51	13	10	2	3	2	2	1	2	0	0
	Mae Wang	161.5	36	7	9	2	3	1	1	0	1	0	1
	Mae On	137.5	21	7	10	0	0	0	1	0	1	0	0
	Doi Law	281.3	57	18	7	4	2	2	5	0	0	3	2
	Galyani Vadhana	58.1	3	0	0	0	0	0	0	0	0	0	1
	Districts	Rates	All sites	Females									
				Breast	Lung	Cervix	Liver	Colon	Skin*	NHL	Ovary	Stomach	Corpus
	Muang	179.2	341	86	30	37	26	23	22	19	18	12	9
	Chom Thong	125.3	62	11	13	4	4	2	0	6	1	2	0
	Mae Chaem	95.8	31	1	3	6	2	1	1	2	0	0	1
	Chiang Dao	139.6	70	8	12	11	8	4	3	0	1	3	3
	Doi Saket	162.3	86	22	8	9	5	2	4	3	5	4	0
	Mae Taeng	159.0	94	12	16	14	11	8	5	3	1	3	0
	Mae Rim	177.9	113	23	17	21	10	1	4	1	1	6	5
	Samoeng	99.6	17	1	3	1	1	1	0	1	1	0	2
	Fang	118.9	102	17	10	15	12	6	3	5	3	3	4
	Mae Ai	135.9	64	10	21	8	1	3	2	2	1	2	0
	Phrao	179.6	67	14	14	6	7	1	2	4	2	2	3
	San Pa Tong	172.8	134	24	40	6	8	8	5	5	4	2	4
	San Kamphaeng	158.8	107	31	11	7	7	5	7	6	4	2	7
	San Sai	163.9	153	31	15	16	20	4	7	5	8	5	9
	Hang Dong	167.9	107	12	29	12	11	6	3	3	0	0	4
	Hot	139.2	36	7	5	2	1	4	0	0	1	2	0
	Doi Tao	121.9	23	4	2	1	3	0	0	0	1	2	1
	Omko	125.0	32	5	2	1	5	0	1	0	0	1	1
	Saraphi	149.8	106	31	18	4	8	2	6	3	3	2	2
	Wiang Haeng	203.8	26	5	3	2	2	1	1	0	2	0	1
	Chai Prakan	161.3	49	15	9	2	5	3	0	0	2	2	0
	Mae Wang	136.3	32	4	6	4	4	4	0	1	1	2	0
	Mae On	158.8	25	5	3	7	2	0	0	2	2	0	0
	Doi Law	146.8	38	4	4	4	7	3	2	1	3	0	0
	Galyani Vadhana	63.7	4	0	0	0	1	0	0	0	0	0	0

Skin*-non-melanoma skin cancer

Leukaemia*-myeloid leukaemia

Table 5: Mortality rate and common cancer sites in districts of Chiang Mai, 2012

	Districts	Rates	All sites	Cancer Sites										
				Lung	Liver	Stomach	Colon	Prostate	NHL	Rectum	Bladder	Pancreas	Leukemia*	
Males	Muang	93.6	148	39	41	2	8	10	4	6	5	1	6	
	Chom Thong	128.0	61	16	22	4	1	3	2	0	1	3	0	
	Mae Chaem	98.3	27	7	5	4	1	0	0	0	1	0	2	
	Chiang Dao	117.7	57	15	19	2	1	1	0	3	4	2	1	
	Doi Saket	123.7	61	17	17	5	2	2	2	1	1	1	0	
	Mae Taeng	152.6	85	16	28	3	1	3	4	4	3	1	1	
	Mae Rim	134.6	81	21	22	8	0	1	3	2	3	4	1	
	Samoeng	116.2	19	5	7	0	0	0	0	0	0	0	0	
	Fang	70.3	51	16	12	0	5	0	3	2	0	1	1	
	Mae Ai	79.8	36	11	12	1	2	1	1	1	1	1	0	
	Phrao	120.7	48	19	17	2	2	1	0	0	0	0	2	
	San Pa Tong	128.4	84	25	18	3	2	4	2	2	0	2	2	
	San Kamphaeng	111.6	66	13	21	2	5	1	2	1	1	2	1	
	San Sai	127.1	95	32	21	5	3	3	6	2	3	2	2	
	Hang Dong	153.1	85	27	21	1	2	1	2	4	1	2	1	
	Hot	114.3	32	12	7	3	0	1	0	0	1	0	0	
	Doi Tao	98.0	19	6	4	2	1	0	0	0	1	0	0	
	Omkoj	51.5	13	4	6	1	0	0	0	0	0	1	0	
	Saraphi	119.6	77	29	17	5	2	3	3	3	2	0	0	
	Wiang Haeng	90.6	9	4	1	0	0	0	0	0	1	0	0	
	Chai Prakan	88.5	28	5	9	3	0	0	1	1	0	1	0	
	Mae Wang	122.5	28	5	9	2	0	1	1	1	0	0	0	
	Mae On	99.0	16	4	7	1	0	0	0	1	0	0	0	
	Doi Law	166.2	35	12	6	1	2	1	1	1	1	2	0	
	Galyani Vadhana	42.1	2	0	0	0	0	0	0	0	0	0	1	
	Females	Districts	Rates	All sites	Lung	Liver	Breast	Cervix	NHL	Stomach	Colon	Rectum	Gallbladder	Ovary
		Muang	54.0	115	23	25	9	5	7	0	4	5	3	2
Chom Thong		68.2	37	12	4	0	1	4	1	4	0	0	2	
Mae Chaem		40.8	13	4	0	0	0	0	2	0	1	1	0	
Chiang Dao		62.5	34	10	5	3	2	0	2	2	1	2	0	
Doi Saket		69.2	42	8	6	2	2	3	0	1	2	3	2	
Mae Taeng		91.8	58	19	11	3	4	3	1	2	1	3	2	
Mae Rim		80.0	54	16	14	0	3	1	0	0	2	2	1	
Samoeng		49.3	9	2	1	0	0	0	1	0	0	0	0	
Fang		49.7	44	8	6	4	3	4	2	5	1	0	2	
Mae Ai		80.9	37	16	0	1	5	2	1	2	2	1	1	
Phrao		81.1	30	10	8	0	2	1	0	0	0	1	1	
San Pa Tong		84.2	73	31	9	6	4	2	3	2	2	1	0	
San Kamphaeng		49.6	35	7	3	4	3	2	2	2	2	0	0	
San Sai		67.1	64	18	13	4	3	5	4	2	2	3	3	
Hang Dong		107.3	66	26	9	3	2	3	3	2	1	2	0	
Hot		84.5	25	2	2	3	1	0	3	2	2	1	0	
Doi Tao		81.2	16	3	4	1	0	0	3	0	0	1	1	
Omkoj		83.6	23	4	6	1	0	0	2	1	0	1	1	
Saraphi		80.7	63	18	14	4	4	4	2	0	1	0	3	
Wiang Haeng		113.6	12	5	1	1	2	0	0	0	0	1	0	
Chai Prakan		80.5	25	8	5	1	1	2	0	0	2	1	0	
Mae Wang		55.3	14	7	1	0	1	1	0	0	0	0	0	
Mae On		83.9	14	4	2	0	2	1	1	0	0	0	0	
Doi Law		72.8	21	2	6	0	0	2	2	1	0	0	0	
Galyani Vadhana		85.0	4	0	1	0	0	0	1	0	0	0	1	

Skin* - non-melanoma skin cancer

Leukaemia*-myeloid leukaemia

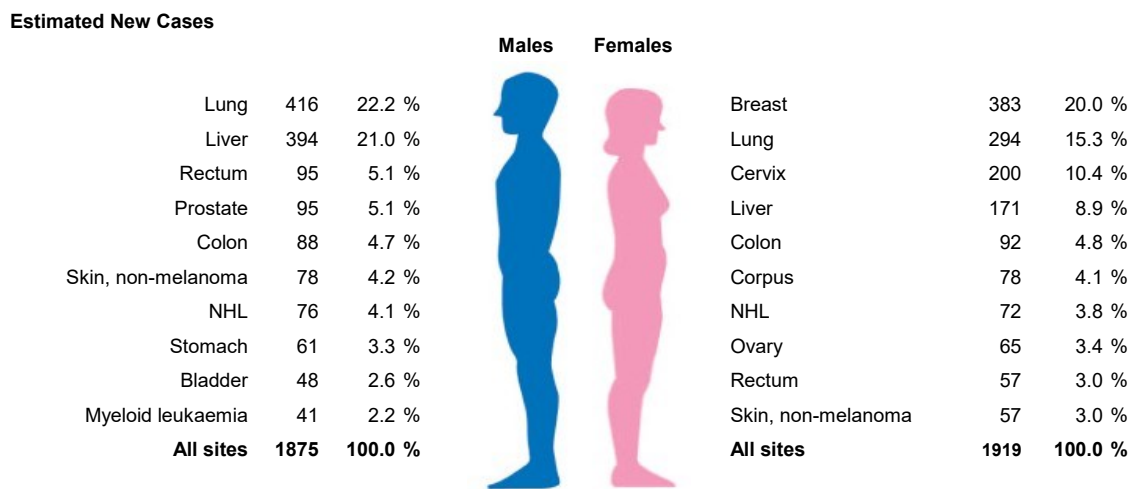


Figure 6: Ten leading cancer sites for the estimated new cases, by sex, 2012

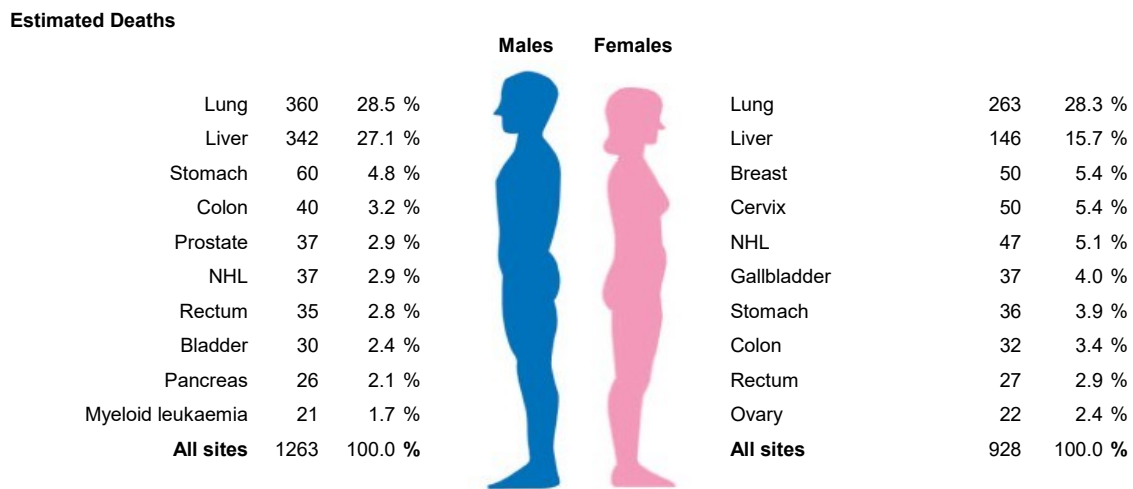


Figure 7: Ten leading cancer sites for the estimated death cases, by sex, 2012

Table 6 : Top 5 cancers in Chiang Mai by 15-year age groups, 2012

Number of case		0-14 cases		15-29 cases		30-44 cases		45-59 cases		60-74 cases		75+ cases	
CANCER / SITE	Age group	CANCER / SITE	Age group	CANCER / SITE	Age group	CANCER / SITE	Age group	CANCER / SITE	Age group	CANCER / SITE	Age group	CANCER / SITE	Age group
Males													
Lymphoid leukaemia	0-14	Myeloid leukaemia	0-14	Liver	30-44	Liver	45-59	Lung	60-74	Lung	75+		
Brain, nervous system	3	NHL	6	Lung	16	Lung	103	Liver	125	Liver	78		
Myeloid leukaemia	3	Colon	4	NHL	11	Colon	42	Prostate	40	Prostate	46		
NHL	2	Thyroid	4	Mouth	6	Rectum	40	Rectum	27	Skin, non-melanoma	34		
Connective and soft tissue	1	Rectum	3	Colon	5	NHL	24	Stomach	25	Rectum	22		
All sites	16	All sites	36	All sites	131	All sites	604	All sites	639	All sites	449		
Females													
Brain, nervous system	0-14	Thyroid	15-29	Breast	30-44	Breast	45-59	Lung	60-74	Lung	75+		
Ovary	3	Ovary	4	Cervix	47	Cervix	100	Breast	121	Liver	91		
Lymphoid leukaemia	3	Myeloid leukaemia	4	Liver	16	Lung	70	Liver	80	Breast	42		
Myeloid leukaemia	3	Breast	4	Stomach	13	Liver	61	Cervix	52	Breast	32		
Bone	2	NHL	4	Lung	11	Liver	43	Colon	37	Colon	25		
All sites	19	All sites	45	All sites	229	All sites	721	All sites	538	All sites	367		
Males													
Lymphoid leukaemia	0-14	Myeloid leukaemia	0-14	Liver	30-44	Liver	45-59	Lung	60-74	Lung	75+		
Myeloid leukaemia	0.8	NHL	0.8	Lung	1.7	Lung	7.6	Liver	20.6	Liver	7.3		
Brain, nervous system	0.7	Colon	0.5	NHL	1.1	Colon	3.1	Prostate	14.3	Liver	4.8		
NHL	0.4	Thyroid	0.5	Mouth	0.6	Rectum	3.0	Rectum	4.5	Prostate	2.9		
Connective and soft tissue	0.3	Rectum	0.4	Nasopharynx	0.5	NHL	1.8	Stomach	3.0	Skin, non-melanoma	2.1		
All sites	3.8	All sites	4.6	All sites	13.5	All sites	45.4	All sites	72.9	All sites	27.9		
Females													
Brain, nervous system	0-14	Thyroid	15-29	Breast	30-44	Breast	45-59	Lung	60-74	Lung	75+		
Lymphoid leukaemia	0.9	NHL	0.6	Cervix	4.6	Cervix	6.7	Liver	12.6	Liver	4.5		
Myeloid leukaemia	0.7	Breast	0.5	Liver	1.5	Liver	4.4	Breast	8.1	Breast	2.1		
Ovary	0.6	Ovary	0.6	Stomach	1.2	Liver	4.1	Cervix	5.3	Breast	1.6		
Eye	0.6	Myeloid leukaemia	0.5	Lung	1.1	Corpus	2.8	Colon	3.2	Colon	1.2		
All sites	4.7	All sites	6.1	All sites	22.2	All sites	47.7	All sites	55.1	All sites	18.1		

Table 7 : Top 5 cancer deaths in Chiang Mai by 15-year age groups, 2012

Males

Case Dead	Age group	15-29	30-44	45-59	60-74	75+
CANCER / SITE	Age group	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE
Bone	0-14	Myeloid leukaemia	Liver	Liver	Lung	Lung
Lymphoid leukaemia	0-14	NHL	Lung	Lung	Liver	Liver
-		Colon	Myeloid leukaemia	Colon	Stomach	Stomach
-		Rectum	Rectum	Stomach	Prostate	Prostate
-		Lung	Stomach	Rectum	Colon	Bladder
All sites	2	All sites	86	All sites	All sites	All sites

Females

Case Dead	Age group	15-29	30-44	45-59	60-74	75+
CANCER / SITE	Age group	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE
Brain, nervous system	0-14	Brain, nervous system	Liver	Lung	Lung	Lung
Eye	2	Myeloid leukaemia	Lung	Liver	Liver	Liver
Adrenal gland	1	Bone	Stomach	Breast	Gallbladder	NHL
Myeloid leukaemia	1	Ovary	Breast	Cervix	Cervix	Colon
-		-	Colon	NHL	Rectum	Gallbladder
All sites	5	All sites	67	All sites	All sites	All sites

Males

Mortality	Age group	15-29	30-44	45-59	60-74	75+
CANCER / SITE	Age group	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE
Lung	0-14	Myeloid leukaemia	Liver	Liver	Lung	Lung
Liver	6.2	NHL	Lung	Lung	Liver	Liver
Stomach	4.0	Colon	Other and unspecified	Colon	Stomach	Stomach
Prostate	1.4	Rectum	Stomach	Stomach	Prostate	Prostate
Bladder	1.3	Lung	Rectum	Rectum	Colon	Bladder
All sites	0.9	All sites	All sites	All sites	All sites	All sites
	20.1		9.0		51.4	

Females

Mortality	Age group	15-29	30-44	45-59	60-74	75+
CANCER / SITE	Age group	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE	CANCER / SITE
Brain, nervous system	0-14	Bone	Liver	Lung	Lung	Lung
Eye	0.5	Ovary	Lung	Liver	Liver	Liver
Adrenal gland	0.3	Brain, nervous system	Stomach	Breast	Gallbladder	NHL
Myeloid leukaemia	0.3	Myeloid leukaemia	Breast	Cervix	Rectum	Colon
-		-	Colon	NHL	Cervix	Gallbladder
All sites	1.4	All sites	All sites	All sites	All sites	All sites
	0.7		6.5		31.3	

COMMON CANCERS IN CHIANG MAI, 2012

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 710 new cases of lung cancer diagnosed in 2012 (416 males, 294 females) (Fig 8). This was 22.2% of all cancers in males and 15.3% of those in females. The age-standardized incidence rates were 37.3 for males and 22.7 for females; this was decreased in males from the year 2011 but slightly increased in females (Fig 9). The incidence rates increased with age in both sexes and increased sharply after the age of 50 and male rates exceeded female rates after the age of 60 (Fig 10). The cumulative rate percentages to age 75 were 4.7% for males and 3.0% for females. These represented risks of 10 in 213 for men and 10 in 333 for women of developing lung cancer by age 75.

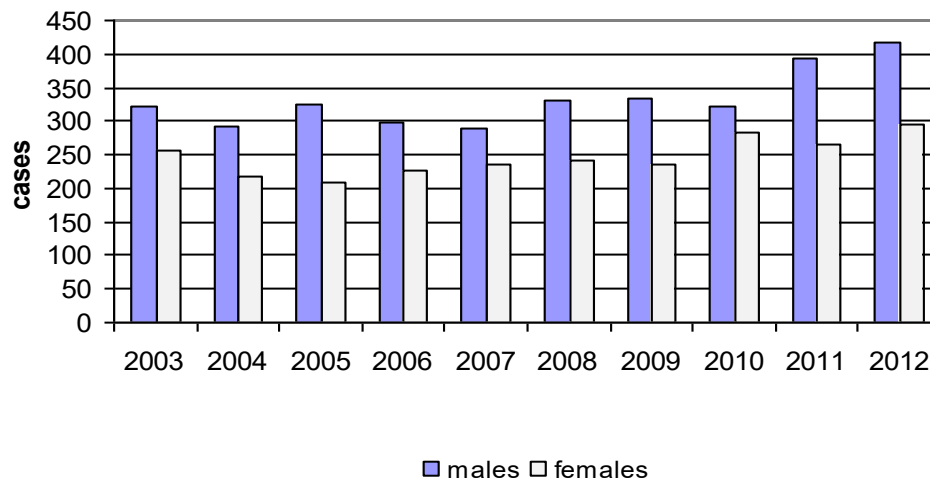


Figure 8: Number of new cases of lung cancer by sex, 2003-2012

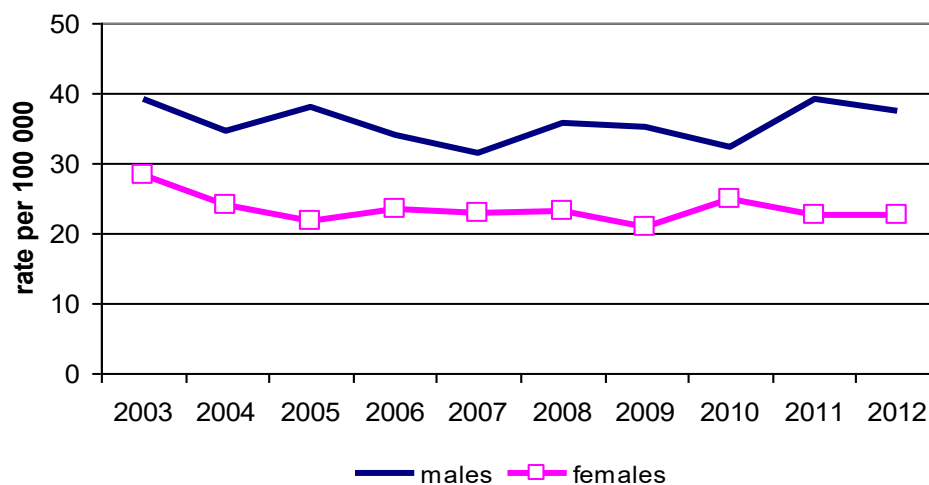


Figure 9: Incidence rates of new cases of lung cancer by sex, 2003-2012

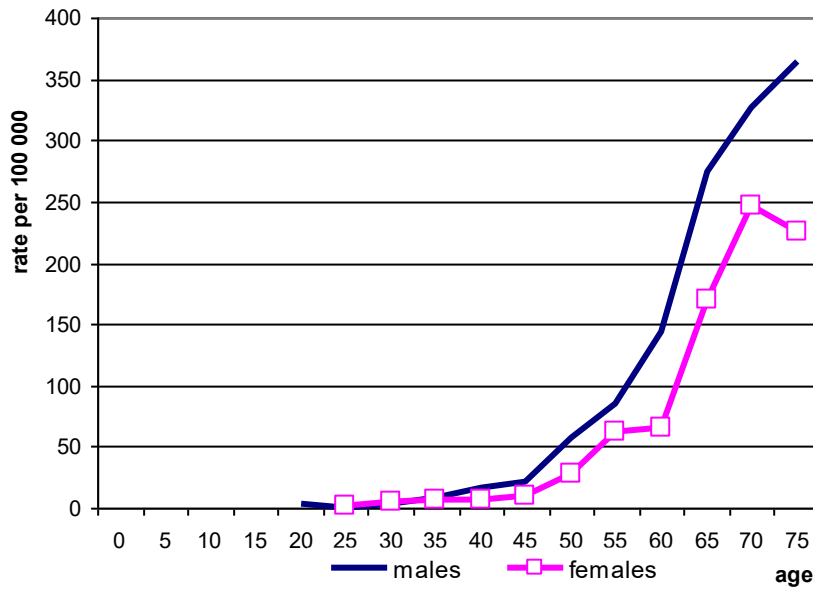


Figure 10: Age-specific incidence rate of lung cancer, Chiang Mai, 2012

Of the 623 deaths from lung cancer, 360 were males (28.5% of all male cancer deaths) and 263 were females (28.3% of all female cancer deaths). In 2012, the mortality rates were 32.1 for males and 20.3 for females. Compared with the year 2011, the mortality rates were decreased in both males and females (Fig. 11). The mortality rates increased with age and increased sharply after the age of 50 years in both sexes (Fig. 12).

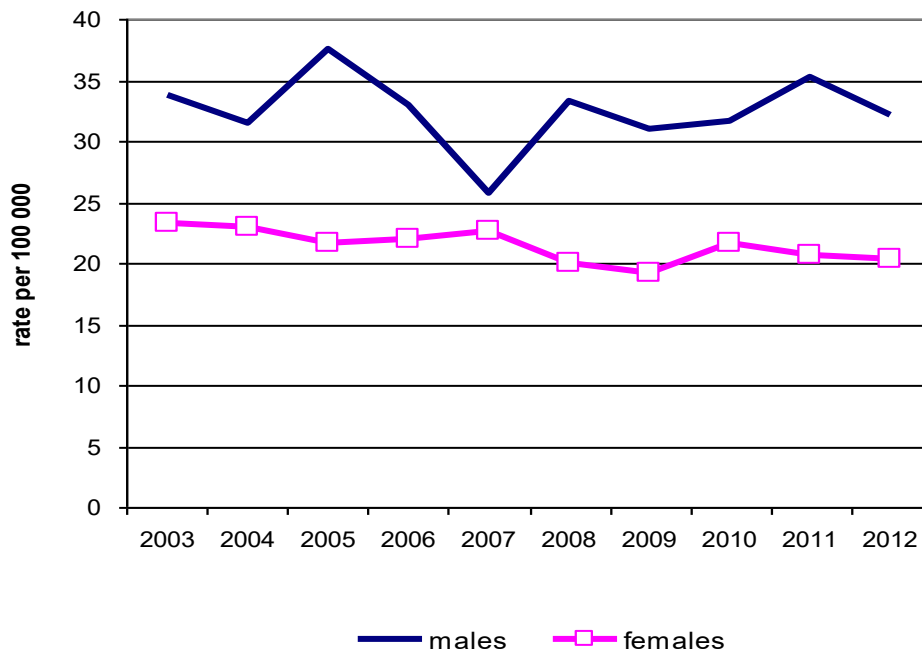


Figure 11: Mortality rate of lung cancer by sex, Chiang Mai, 2003-2012

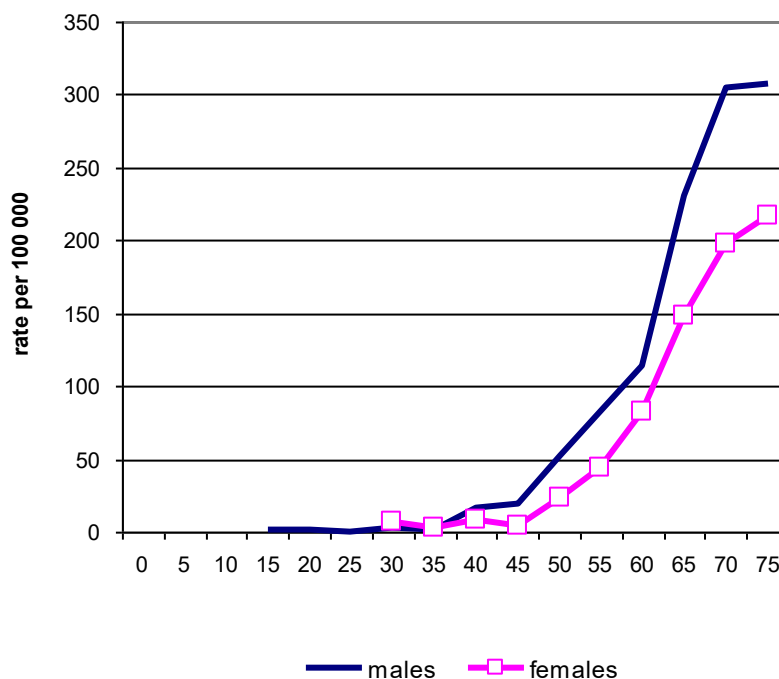


Figure 12: Age-specific mortality rate of lung cancer, Chiang Mai, 2012

For lung cancer deaths, 552 cases (88.6%) died within one year of diagnosis and 65 cases (10.4%) died in the second year. This indicated the severity of this cancer.

Diagnosis and stage of cancer

Sixty-nine percent of cases were diagnosed in an advanced stage (53.9% had distant metastasis, 15.5% had regional nodes metastasis). The most common metastasis site was lung-to-lung, followed by brain. Two hundred and ninety cases (40.8%) were diagnosed from clinical diagnosis, and eleven cases were diagnosed by death certificate only. The common cell types were adenocarcinoma (31.8%) and squamous cell carcinoma (12.3%).

Cell type	Males	Females	Total	%	Stage	Cases	%
Adenocarcinoma	128	98	226	31.8	Localized	13	1.8
Squamous cell CA	53	34	87	12.3	Locally advanced	80	11.3
Small cell	25	19	44	6.2	Regional node metastasis	110	15.5
Large cell	25	13	38	5.4	Distant metastasis	383	53.9
Others	13	12	25	3.5	Unknown/not staged	124	17.5
Clinical diagnosis	172	118	290	40.8			
TOTAL	416	294	710	100.0	All		100.0

Liver cancer (ICD-10 C22)

There were 565 new cases of liver cancer diagnosed in 2012 (394 males, 171 females) (Fig 13). This was 21.0% of all cancers in males and 8.9% of those in females. The age-standardized incidence rates were 34.7 for males and 13.0 for females and slightly increased in both males and females (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 3.9% for males and 1.4% for females. These represented risks of 10 in 256 for men and 10 in 714 for women of developing liver cancer by age 75.

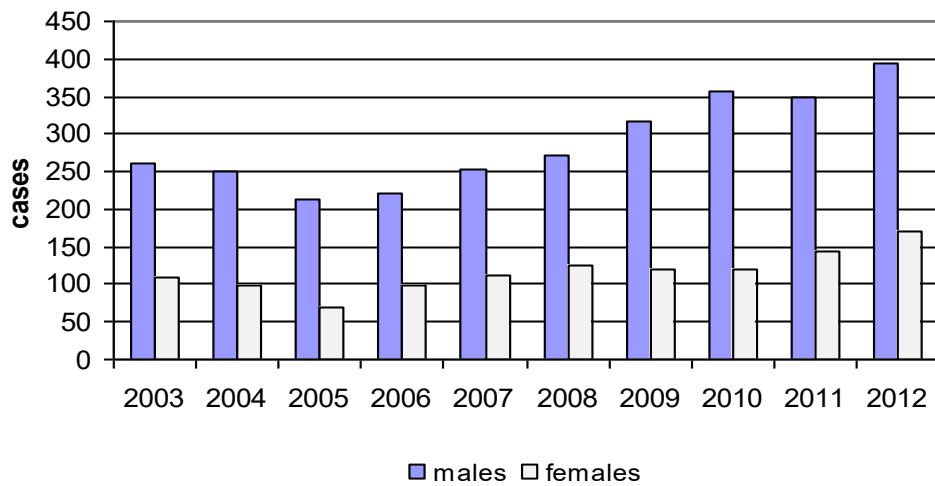


Figure 13: Number of new cases of liver cancer by sex, 2003-2012

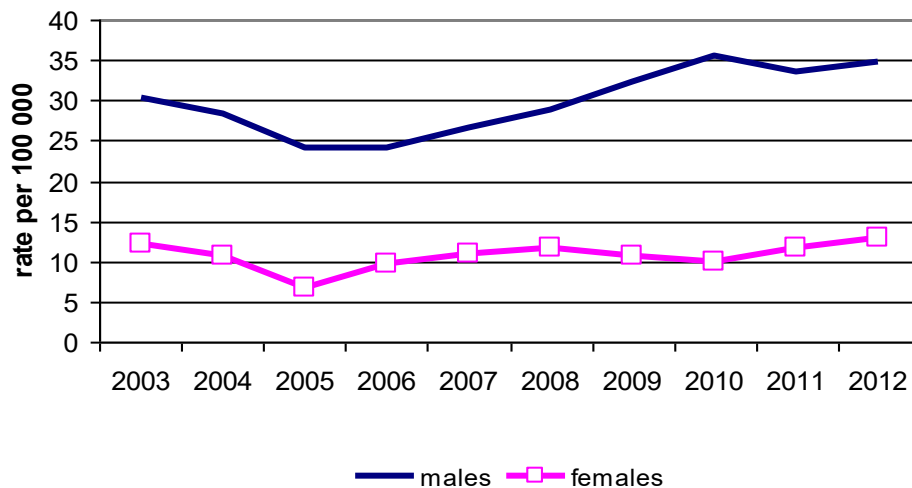


Figure 14: Incidence rates of new cases of liver cancer by sex, 2003-2012

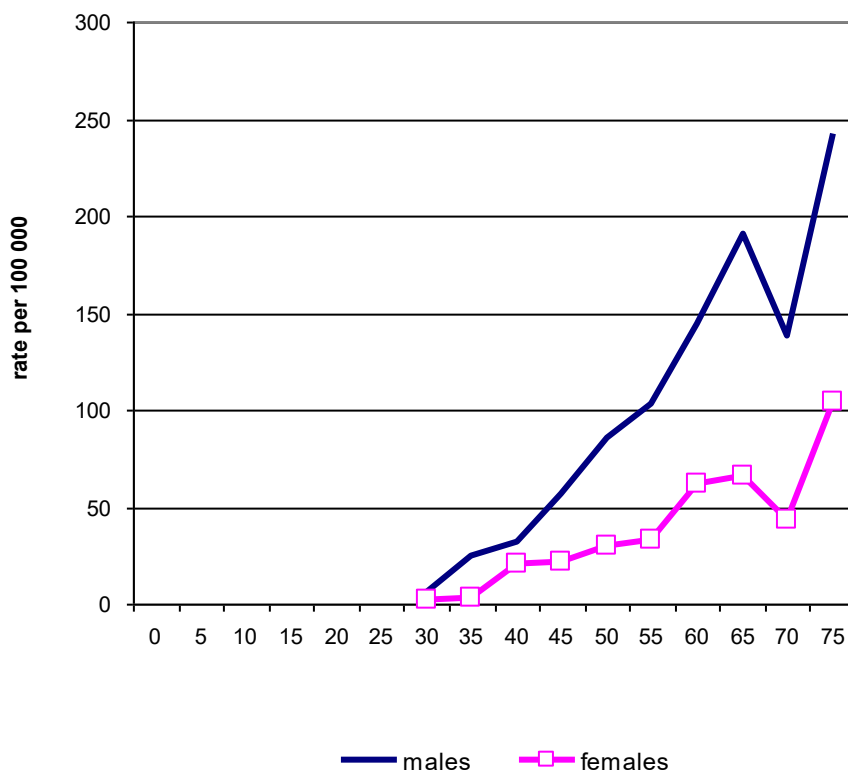


Figure 15: Age-specific incidence rate of liver cancer, Chiang Mai, 2012

Of the 488 deaths from liver cancer, 342 were males (27.1% of all male cancer deaths) and 146 were females (15.7% of all female cancer deaths). The mortality rates were 29.9 for males and 10.7 for females and were similarly 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).

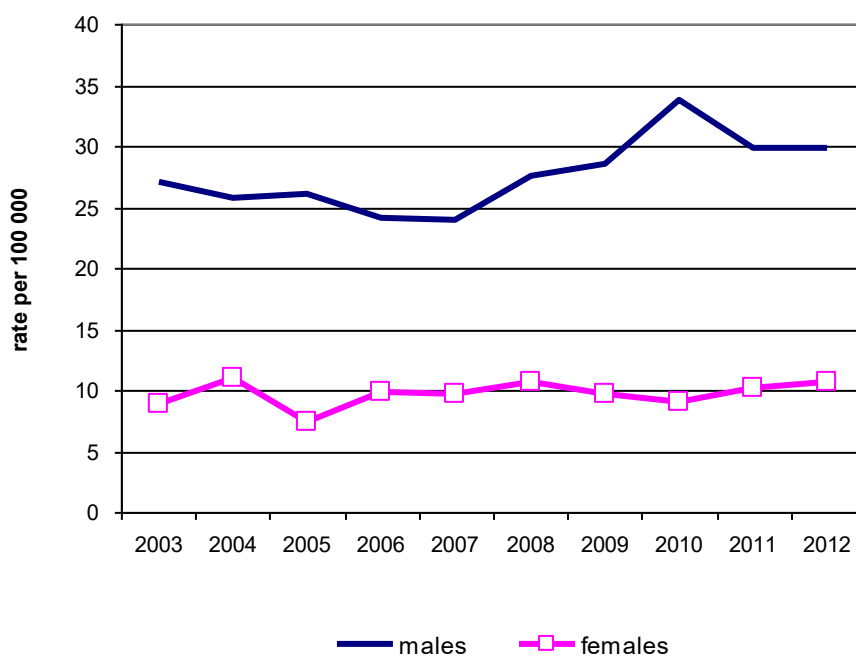


Figure 16: Mortality rate of liver cancer by sex, Chiang Mai, 2003-2012

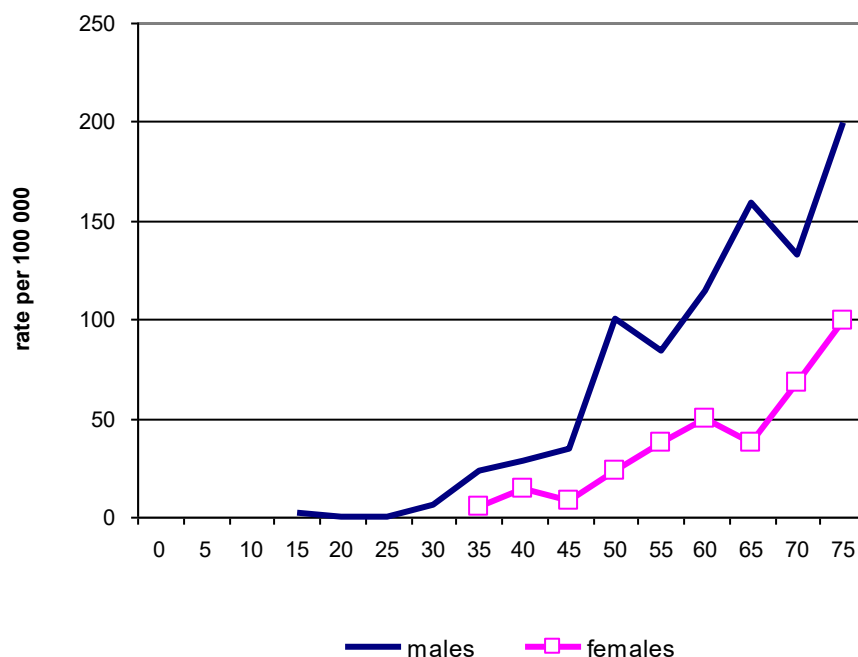


Figure 17: Age-specific mortality rate of liver cancer, Chiang Mai, 2012

For liver cancer deaths, 389 cases (79.7%) died within six months after diagnosis, and only 53 cases (10.9%) lived more than one year. These figures reflect the severity of this type of cancer.

Diagnosis and stage of cancer

Thirty eight percent of cases were diagnosed at an advanced stage (34.2% had distant metastasis, 4.6% had regional nodes metastasis). The most common metastasis site was lung, followed by distant lymph nodes. Only 19.6% were diagnosed by histology or cytology, while 80.4% were diagnosed by imaging studies. The common cell types for histological diagnosis groups were cholangiocarcinoma (65.8%) and hepatocellular carcinoma (28.8%). Eighty-two percent of hepatocellular carcinomas and 70.0% of cholangiocarcinomas were diagnosed by clinical diagnosis.

Cell type	Males	Females	Total	%	Stage	Cases	%
Hepatocellular	21	11	32	5.7	Localized	7	1.2
Cholangiocarcinoma	45	28	73	12.9	Locally advanced	195	34.5
Others	4	2	6	1.1	Regional node metastasis	26	4.6
Clinical diagnosis	324	130	454	80.4	Distant metastasis	193	34.2
					Unknown/not staged	144	25.2
TOTAL	394	171	565	100.0	All	565	100.0

Stomach cancer (ICD-10 C16)

There were 112 new cases of stomach cancer diagnosed in 2012 (61 males, 51 females) (Fig 18) accounting for 3.3% of all cancers in males and 2.7% of those in females. The age-standardized incidence rates were 5.5 for males and 4.1 for females and trending to decrease in both sexes (Fig. 19). In 2012, stomach cancer ranked eight 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 0.7% for males and 0.5% for females. These represented risks of 1 in 142 for men and 1 in 200 for women of developing stomach cancer by age 75.

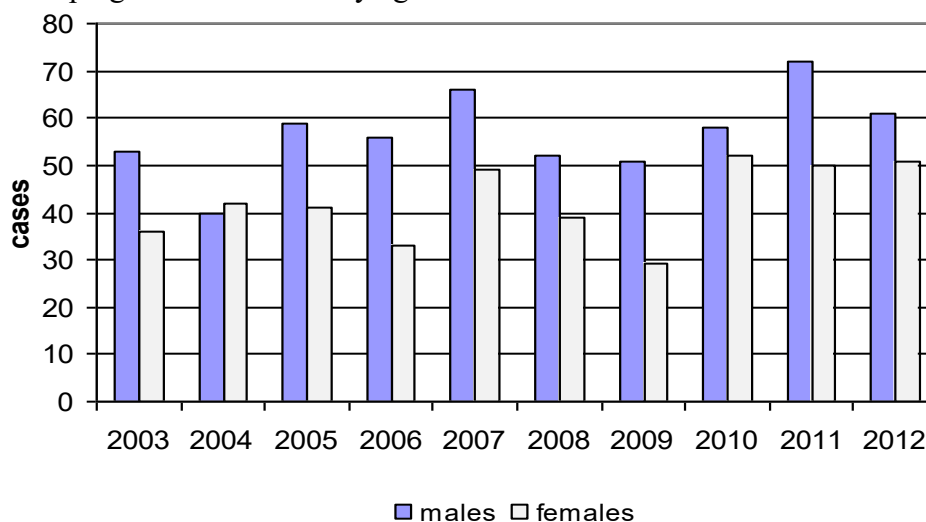


Figure 18: Number of new cases of stomach cancer by sex, 2003-2012

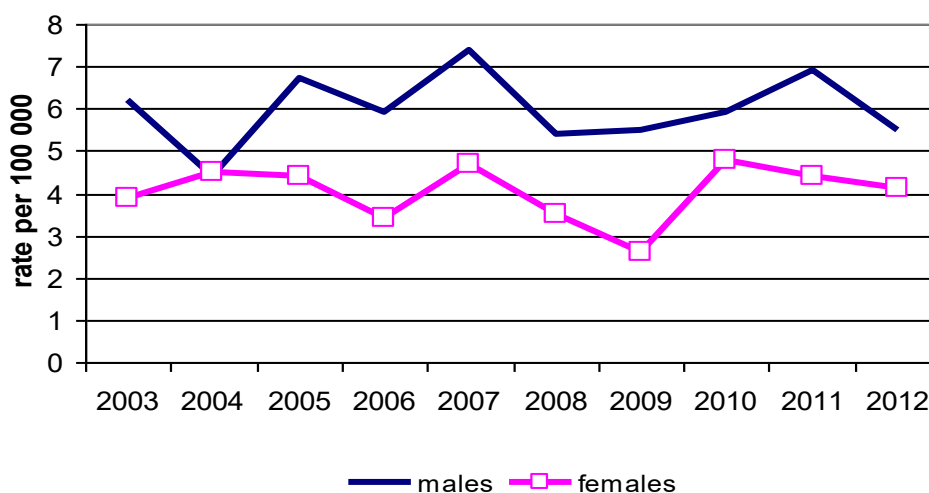


Figure 19: Incidence rates of new cases of stomach cancer by sex, 2003-2012

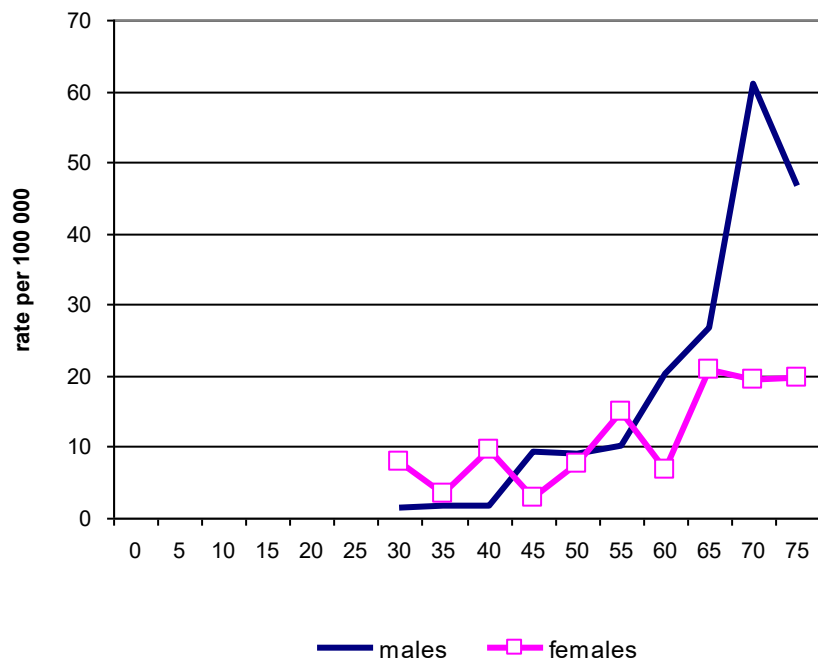


Figure 20: Age-specific incidence rate of stomach cancer, Chiang Mai, 2012

Of the 96 deaths from stomach cancer, 60 were males (4.8% of all male cancer deaths) and 36 were females (3.9% of all female cancer deaths). The mortality rates were 5.2 for males and 2.9 for females which decreased in females but not in males (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).

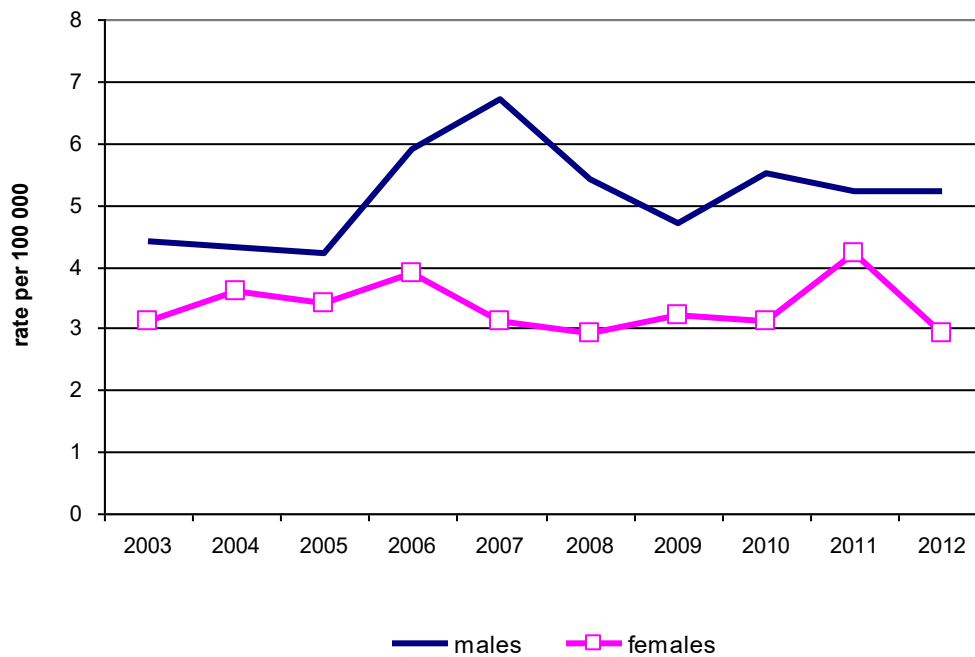


Figure 21: Mortality rate of stomach cancer by sex, Chiang Mai, 2003-2012

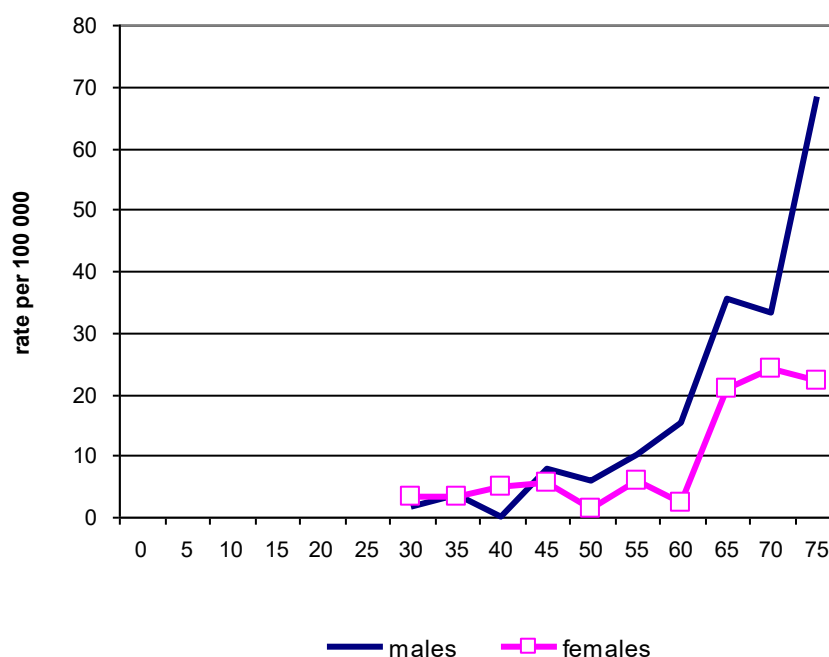


Figure 22: Age-specific mortality rate of stomach cancer, Chiang Mai, 2012

Diagnosis and stage of cancer

Forty percent of cases were diagnosed at a locally advanced stage (24.1% had locally advanced and 17.9% had regional nodes metastasis) and 38.4% had already metastasized at first diagnosis. The most common metastasis site was peritoneum, followed by distant lymph nodes. Ninety-one percent were diagnosed by histology and the common cell types were adenocarcinoma (51.8%) and signet ring cell carcinoma (34.8%).

Cell type	Males	Females	Total	%
Adenocarcinoma	39	19	58	51.8
Signet ring cell	12	27	39	34.8
Others	5	0	5	4.5
Clinical diagnosis	5	5	10	8.9
Total	61	51	112	100.0

Stage	Cases	%
Localized	4	3.6
Locally advanced	27	24.1
Regional node metastasis	20	17.9
Distant metastasis	43	38.4
Unknown/not staged	18	16.1
All	112	100.0

Colon cancer (ICD-10 C18)

There were 180 new cases of colon cancer diagnosed in 2012 (88 males, 92 females) (Fig 23). This was 4.7% of all cancers in males and 4.8% 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 7.6 in males and 7.1 in females and decreased in males but increased in females from the year 2011 (Fig. 24). In 2012, colon cancer ranked fifth for new cancers in males and fourth in females. The incidence rates increased with age in both sexes after the age of 40 years (Fig. 25). The cumulative rate percentage to age 75 was 0.9% for both males and females. These represented risks of 1 in 111 for both sexes of developing colon cancer by age 75.

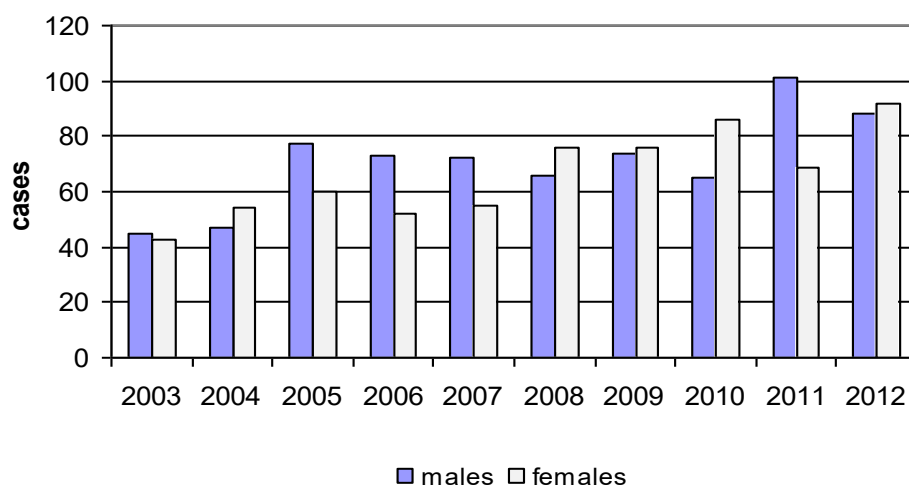


Figure 23: Number of new cases of colon cancer by sex, 2003-2012

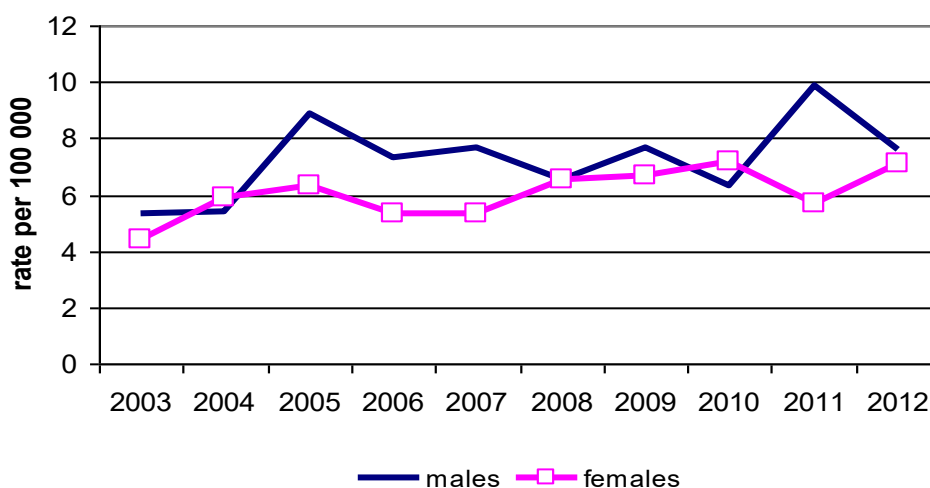


Figure 24: Incidence rates of new cases of colon cancer by sex, 2003-2012

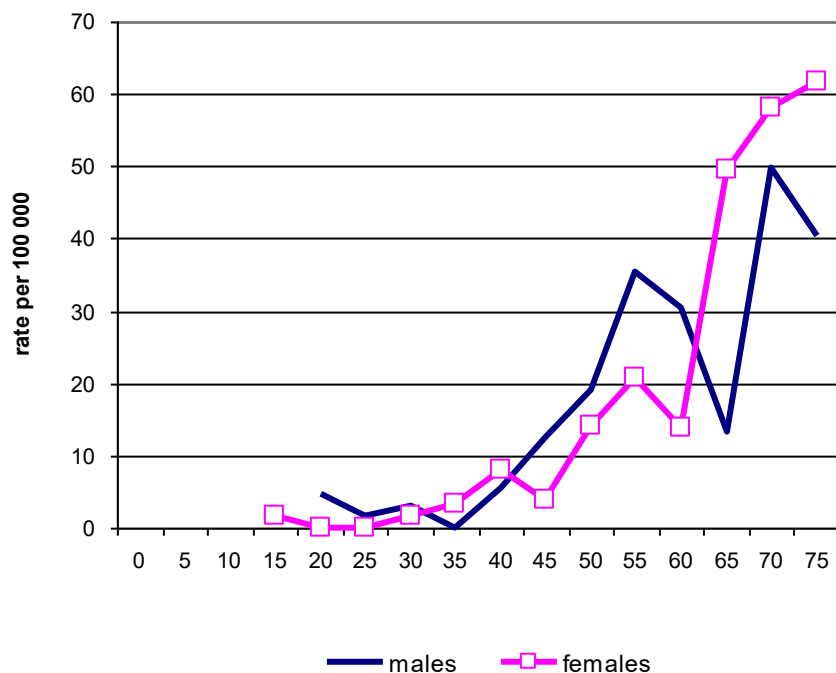


Figure 25: Age-specific incidence rate of colon cancer, Chiang Mai, 2012

Of the 72 deaths from colon cancer, 40 were males (3.2% of all male cancer deaths) and 32 were females (3.4% of all female cancer deaths). The age-standardized mortality rates were 3.5 for males and 2.3 for females and tended to decrease in both sexes (Fig. 26). The mortality rates increased with age in both sexes, and increased sharply after age 60 (Fig. 27).

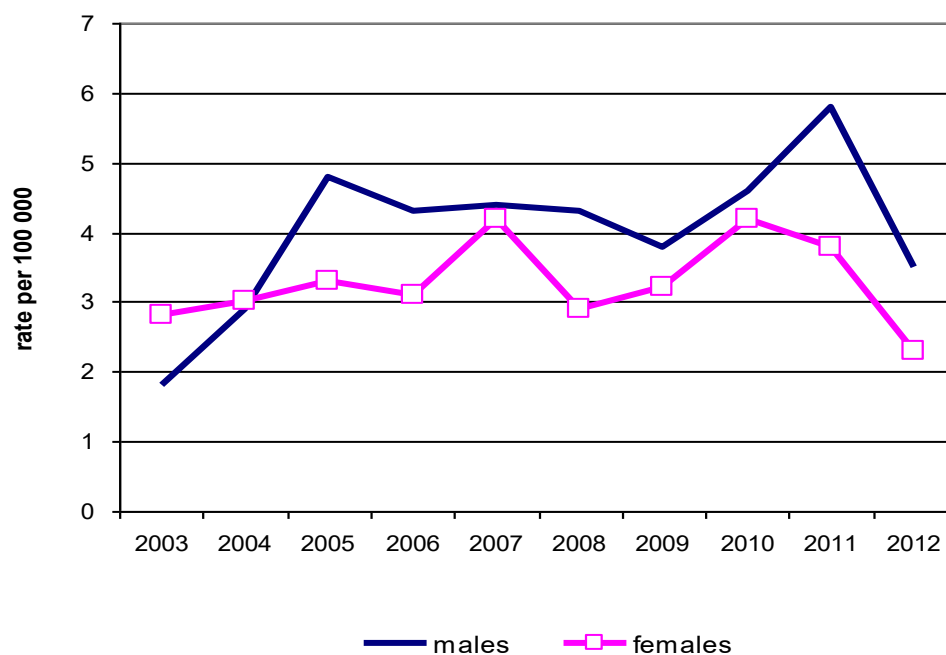


Figure 26: Mortality rate of colon cancer by sex, Chiang Mai, 2003-2012

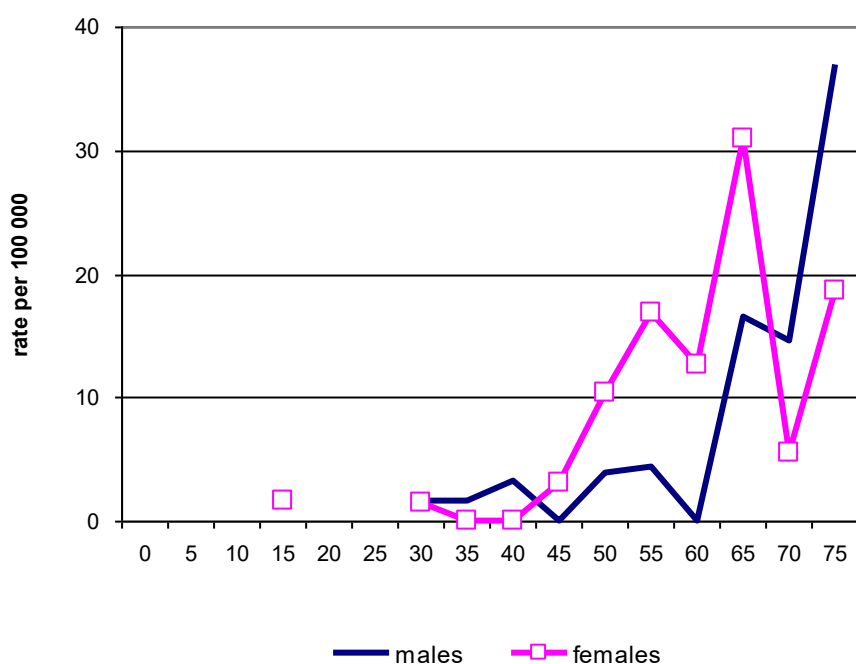


Figure 27: Age-specific mortality rate of colon cancer, Chiang Mai, 2012

Diagnosis and stage of cancer

Fifty-seven percent of cases were diagnosed at a locally advanced stage (37.8% had locally advanced, 19.4% had regional node metastasis). The most common metastasis site was liver, followed by peritoneum. Eighty-five percent were diagnosed by histology. The most common cell type in histological diagnosis groups was adenocarcinoma (74.4%).

Cell type	Males	Females	Total	%
Adenocarcinoma	63	71	134	74.4
Mucinous carcinoma	5	7	12	6.7
Signet ring cell	4	1	5	2.8
Others	1	2	3	1.7
Clinical diagnosis	15	11	26	14.4
TOTAL	88	92	180	100.0

Stage	Cases	%
Localized	11	6.1
Locally advanced	68	37.8
Regional node metastasis	35	19.4
Distant metastasis	44	24.4
Unknown/not staged	22	12.2
All	180	100.0

Bladder cancer (ICD-10 C67)

Bladder cancer was the most common cancer of the urinary system. There were 64 new cases of bladder cancer diagnosed in 2012 (48 males, 16 females) (Fig 28). This was 2.6% of all cancers in males and 0.9% of those in females. The age-standardized incidence rates were 3.8 for males and 1.1 for females. In 2012, bladder cancer ranked ninth for new male cancers and eighteenth for females. The incidence trended to decrease 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 0.4% for males and 0.1% for females. These represented risks of 1 in 250 for men and 1 in 1000 for women of developing bladder cancer by age 75.

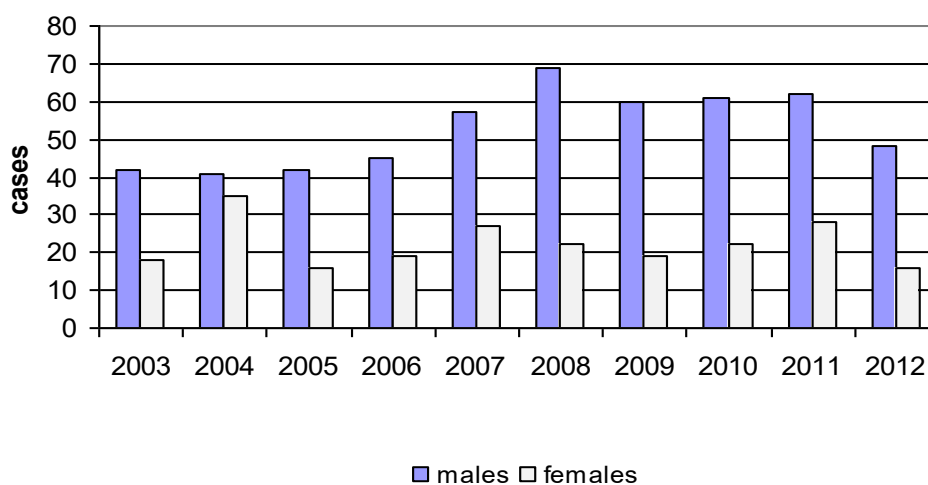


Figure 28: Number of new cases of bladder cancer by sex, 2003-2012

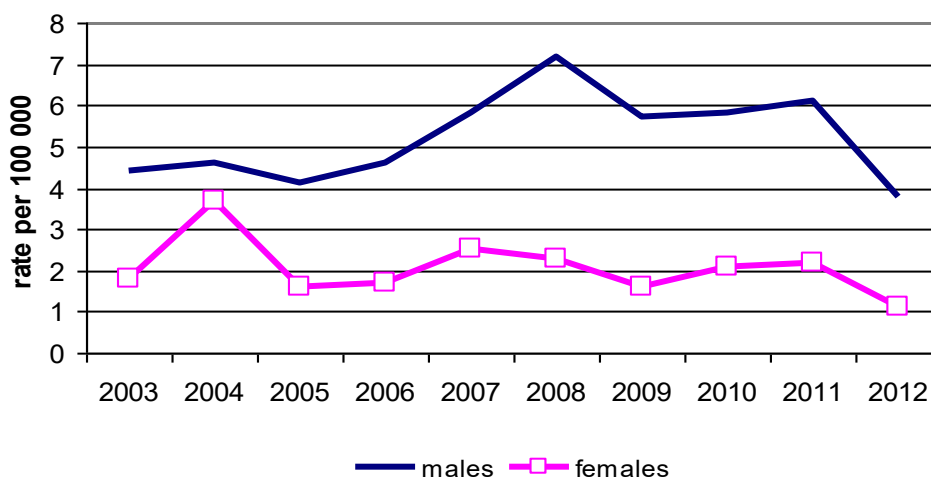


Figure 29: Incidence rates of new cases of bladder cancer by sex, 2003-2012

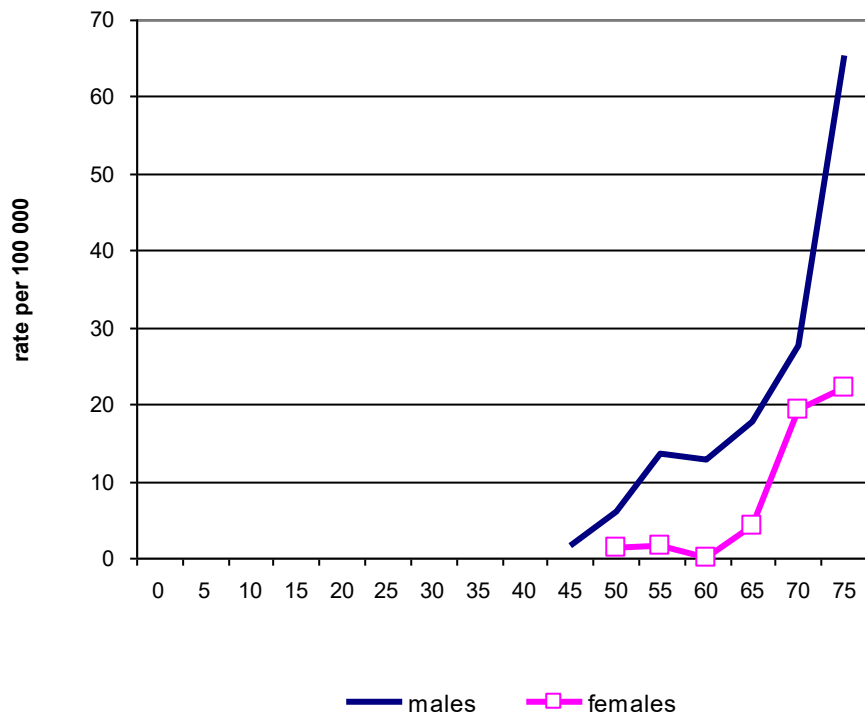


Figure 30: Age-specific incidence rate of bladder cancer, Chiang Mai, 2012

Of the 45 deaths from bladder cancer, 30 were males (2.4% of all male cancer deaths) and 15 were females (1.6% of all female cancer deaths). The age-standardized mortality rates were 2.4 for males and 1.1 for females (Fig. 31). The mortality rates increased with age in both sexes, increasing sharply after age 60 (Fig. 32).

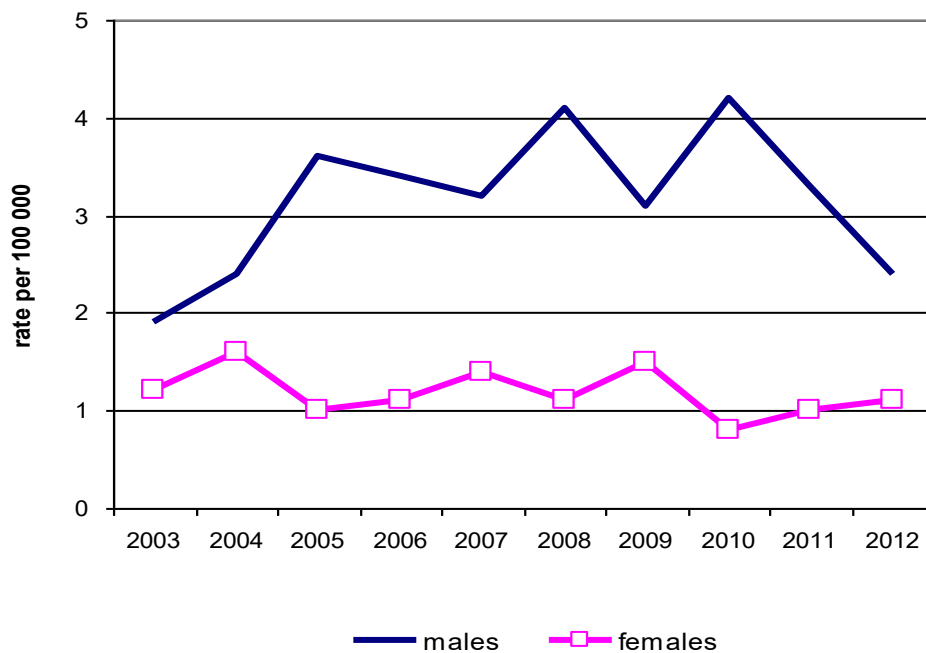


Figure 31: Mortality rate of bladder cancer by sex, Chiang Mai, 2003-2012

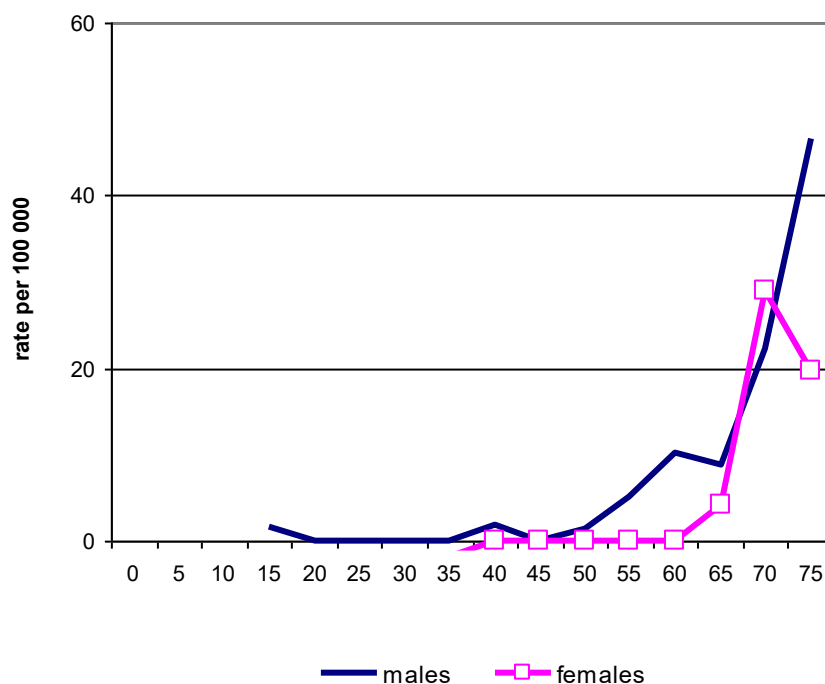


Figure 32: Age-specific mortality rate of bladder cancer, Chiang Mai, 2012

Diagnosis and stage of cancer

Thirty cases (46.9%) were diagnosed at a locally advanced stage and three cases had distant metastases. All cases were diagnosed by histology; the most common cell type was transitional cell carcinoma (84.4%).

Cell type	Males	Females	Total	%
Transitional-cell	40	14	54	84.4
Adenocarcinoma	2	0	2	3.1
others	6	2	8	12.5
Clinical diagnosis	0	0	0	0.0
All	48	16	64	100.0

Stage	Cases	%
Localized	11	17.2
Locally advanced	30	46.9
Regional node metastasis	6	9.4
Distant metastasis	3	4.7
Unknown/not staged	14	21.9
All	64	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 148 new cases of NHL diagnosed in 2012 (76 males, 72 females) (Fig 33). This was 4.1% of all cancers in males and 3.8% of those in females. The age-standardized incidence rates were 7.2 for males and 5.7 for females. In 2012, NHL ranked seventh for both male and 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 60 years (Fig. 35). The cumulative rate percentages to age 75 were 0.8% for males and 0.5% for females. These represented risks of 1 in 125 for men and 1 in 200 for women of developing NHL by age 75.

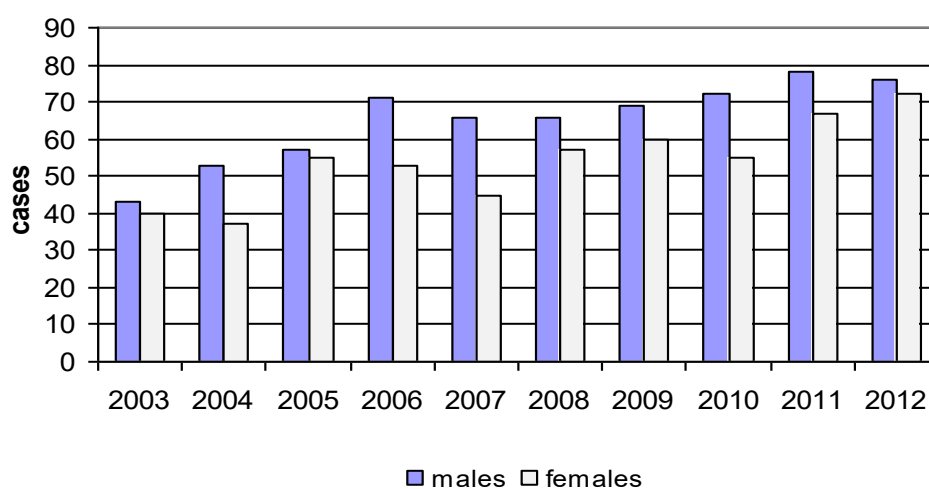


Figure 33: Number of new cases of NHL by sex, 2003-2012

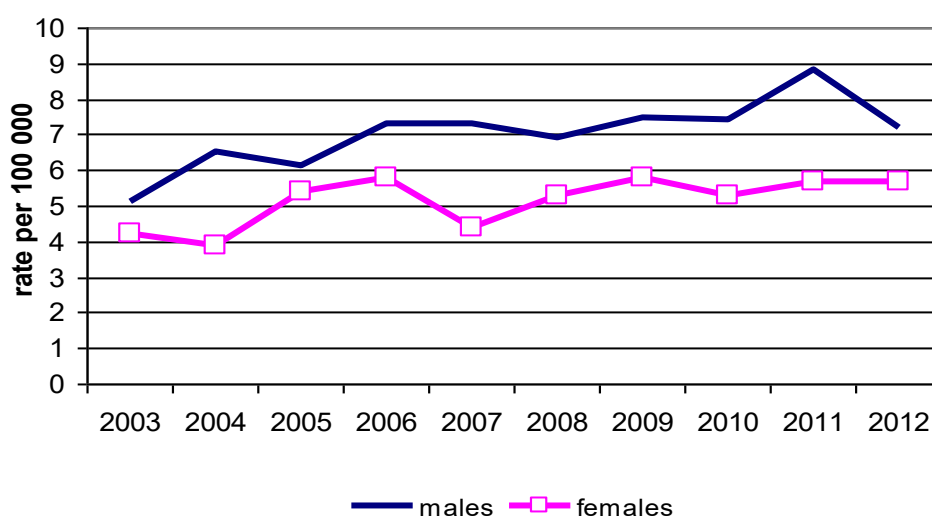


Figure 34: Incidence rates of new cases of NHL by sex, 2003-2012

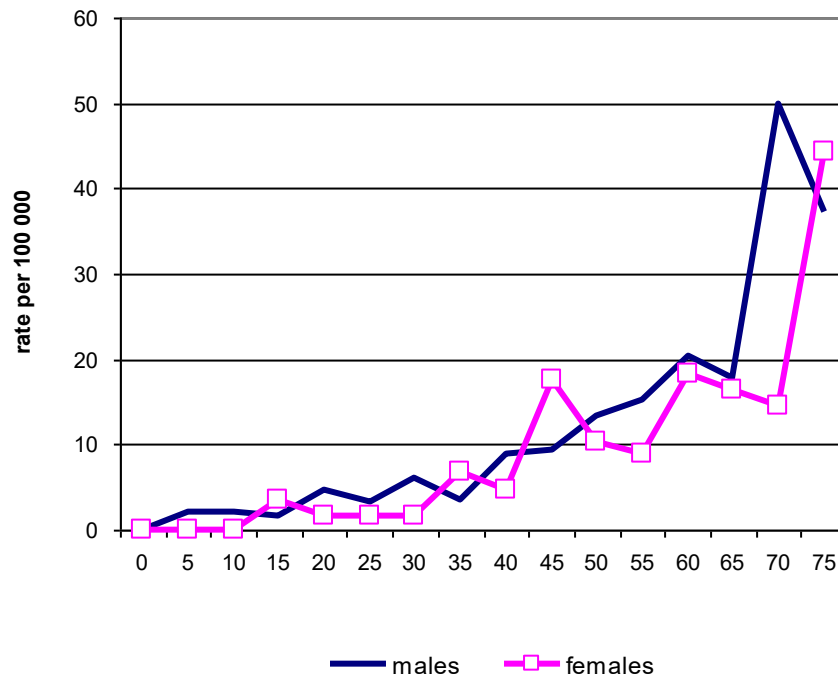


Figure 35: Age-specific incidence rate of NHL, Chiang Mai, 2012

Of the 84 deaths from NHL, 37 were males (2.9% of all male cancer deaths) and 47 were females (5.1% of all female cancer deaths). The age-standardized mortality rates were 3.3 for males and 3.2 for females and tended to increase only in females (Fig. 36). The mortality rates increased with age in both sexes, especially in males increasing sharply after age 60 (Fig. 37).

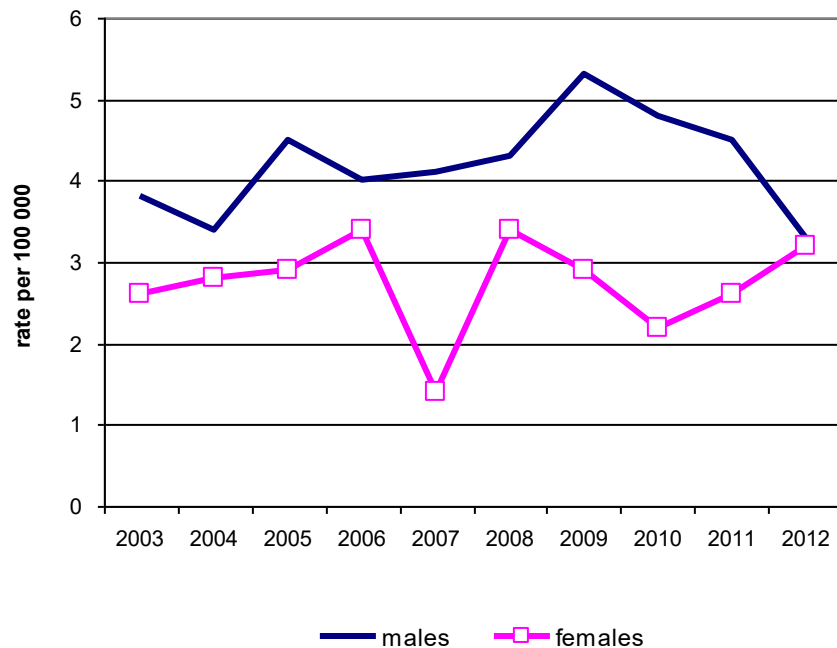


Figure 36: Mortality rate of NHL by sex, Chiang Mai, 2003-2012

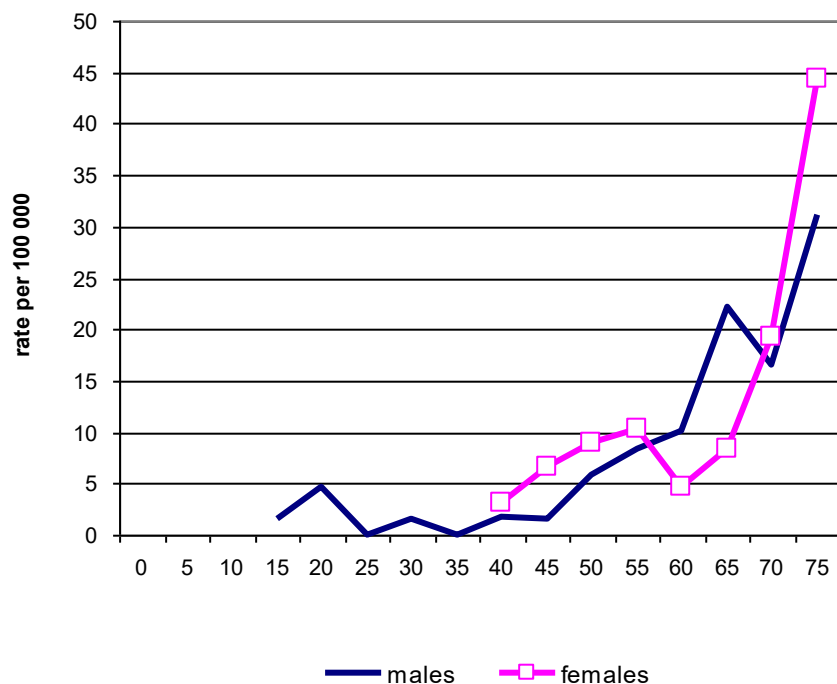


Figure 37: Age-specific mortality rate of NHL, Chiang Mai, 2012

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) (72.3%) and followed by mature T-cell lymphoma (M9702/3), marginal zone B-cell lymphoma, NOS (M9699/3) and malignant lymphoma, NOS (M9590/3).

Cell type	Males	Females	Total	%
large B-cell	54	53	107	72.3
Mature T-cell lymphoma, NOS	9	10	19	12.8
Marginal zone B-cell, NOS	6	5	11	7.4
Malignant lymphoma, NOS	4	2	6	4.1
Others	3	2	5	3.4
All	76	72	148	100.0

Cervical cancer (ICD-10 C53)

There were 205 new cases of invasive cervical cancer diagnosed in 2012. This was 10.4% of all cancers in females (Fig 38). The age-standardized incidence rate was 15.9 and continued decrease from the year 2008 (Fig. 39). Cervical cancer was one of the three most common cancers in females, ranking third in 2012 after breast and lung cancer. The incidence rates increased sharply after age 45 (Fig 40) and were less common than breast cancer in the age group 30-59 years. The age at diagnosis ranged from 27 to 88 years with a mean age of 53.2 years and a median age of 53 years. The cumulative rate percentage to age 75 was 1.8%, representing a risk of 1 in 55 for women of developing cervical cancer by age 75.

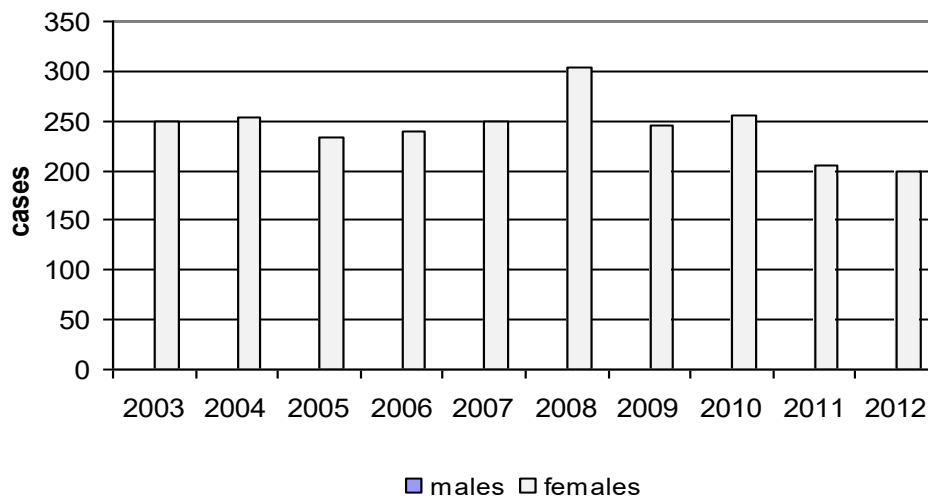


Figure 38: Number of new cases of cervical cancer, 2003-2012

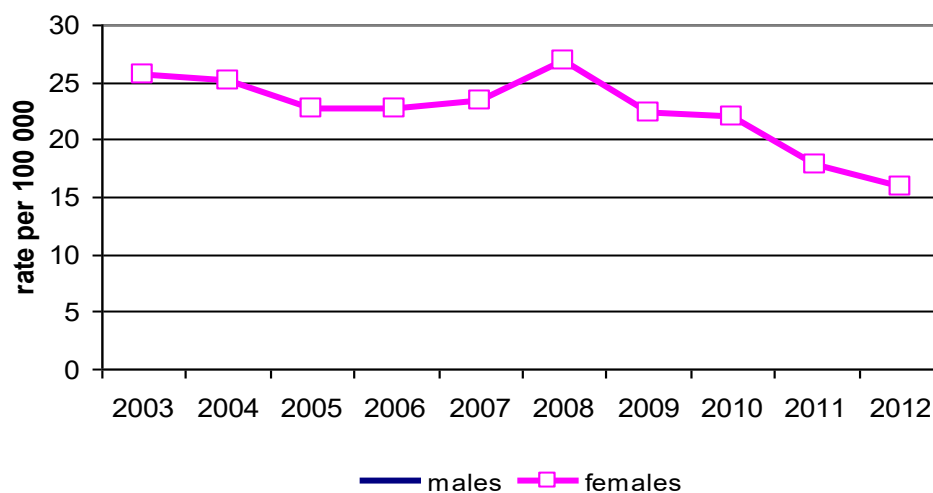


Figure 39: Incidence rates of new cases of cervical cancer, 2003-2012

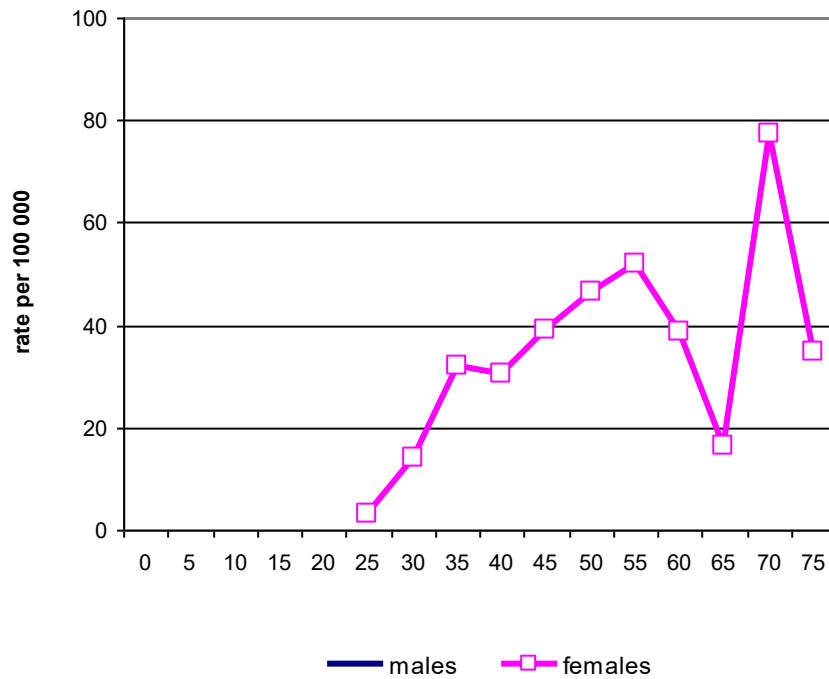


Figure 40: Age-specific incidence rate of cervical cancer, Chiang Mai, 2012

There were 50 deaths from cervical cancer, accounting for 5.4% of all female cancer deaths. The age-standardized mortality rate was 3.7 and decreased from the year 2011 (Fig. 41). The mortality rate increased with age, increasing sharply after age 50 (Fig. 42).

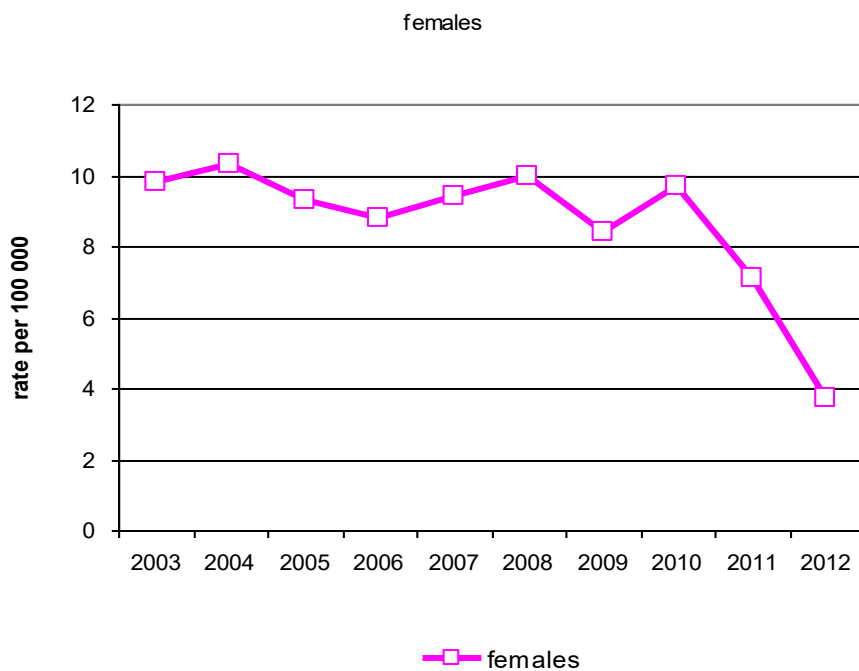


Figure 41: Mortality rate of cervical cancer, Chiang Mai, 2003-2012

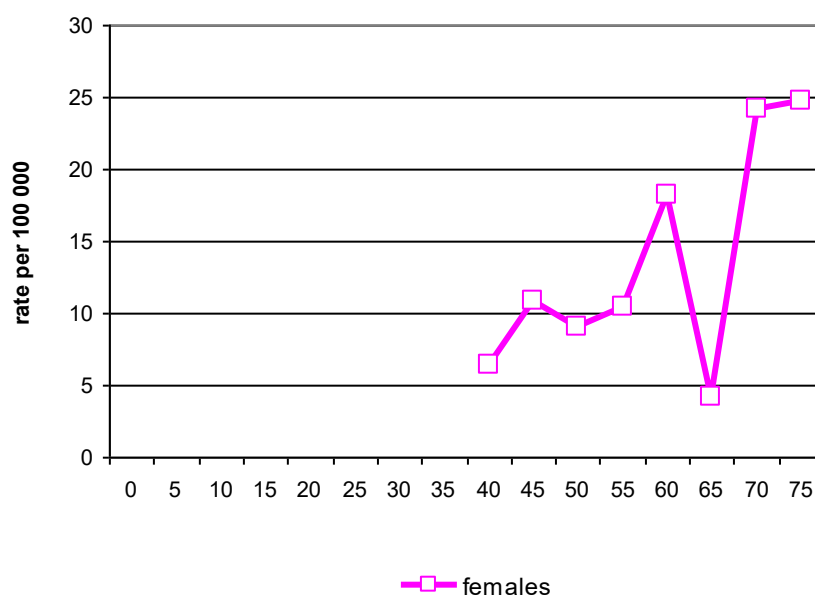


Figure 42: Age-specific mortality rate of cervical cancer, Chiang Mai, 2012

For cervical cancer deaths, 30 cases (60.0%) survived less than one year, and only 4 cases survived more than two years.

Diagnosis and stage of cancer

There were 232 cases of carcinoma in situ of the cervix that were not included in this analysis. For invasive cancer, 82 cases (41.0%) were diagnosed in localized stage and 12 cases had distant metastases. The most common metastasis site was distant lymph nodes. Ninety-eight percent had histological diagnosis; the common cell types were squamous cell carcinoma (72.0%) and adenocarcinoma (19.5%).

Cell type	Females	Total	%
Squamous cell	144	144	72.0
Adenocarcinoma	39	39	19.5
Other	13	13	6.5
Clinical diagnosis	4	4	2.0
All	200	200	100.0

Stage	Cases	%
Localized	82	41.0
Locally advanced	59	29.5
Regional node metastasis	39	19.5
Distant metastasis	12	6.0
Unknown/not staged	8	4.0
All	200	100.0

Female breast cancer (ICD-10 C50)

Breast cancer was the most common cancer in females and there were 383 new cases of female breast cancer diagnosed in 2012 (Fig 43). This was 20.0% of all cancers in females. The age-standardized incidence rate was 29.7 and slightly increased from the year 2012 (Fig. 44). The incidence rate increased sharply from the age of 40 years to a maximum in the age group 55-59 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 55.1 years; the median age at diagnosis was 55 years. The cumulative rate percentage to age 75 was 3.2%, representing a risk of 1 in 31 for women of developing breast cancer by age 75.

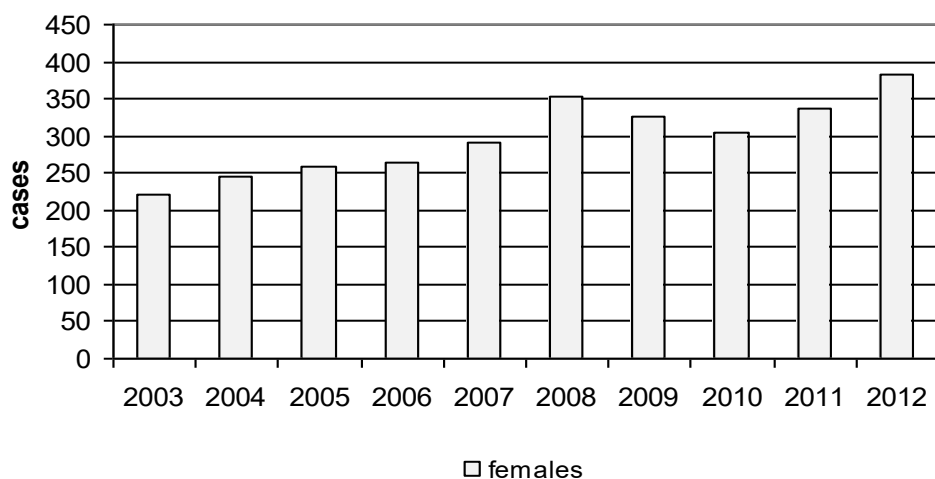


Figure 43: Number of new cases of female breast cancer, 2003-2012

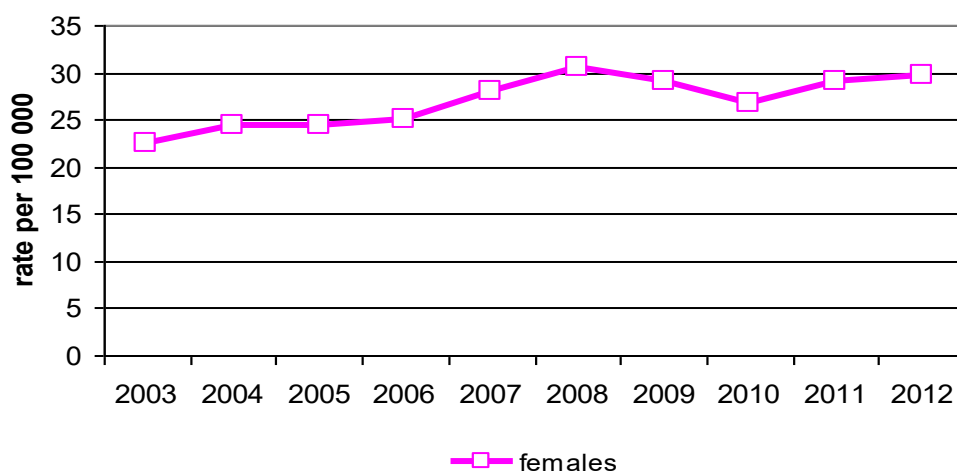


Figure 44: Incidence rates of new cases of female breast cancer, 2003-2012

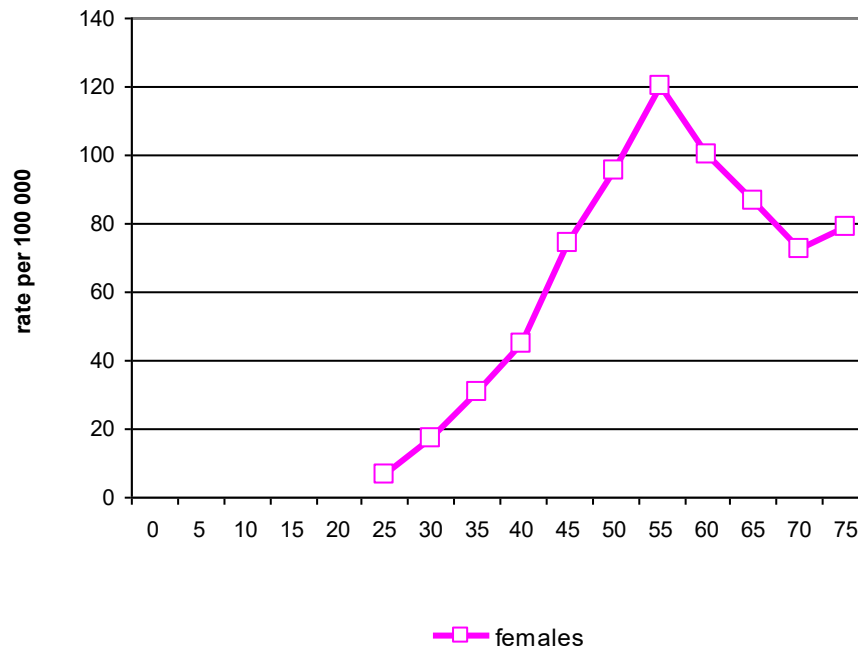


Figure 45: Age-specific incidence rate of female breast cancer, Chiang Mai, 2012

There were 50 deaths from breast cancer, accounting for 5.4% of all female cancer deaths and was the third common cause of cancer death after lung and liver cancers. The age-standardized mortality rate was 3.6 and decreased from the year 2011 (Fig. 46). The mortality rate increased with age, increasing sharply after age 40 (Fig. 47).



Figure 46: Mortality rate of female breast cancer, Chiang Mai, 2003-2012

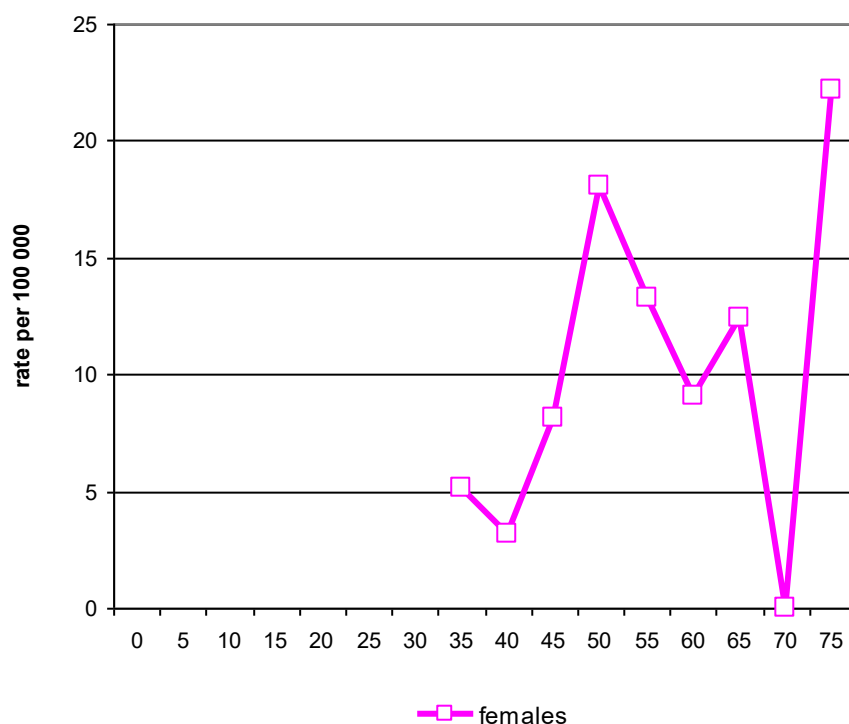


Figure 47: Age-specific mortality rate of female breast cancer, Chiang Mai, 2012

For breast cancer deaths, 21 cases (42.0%) survived less than one year, 23 cases (46.0%) survived more than one year and only one case survived more than five years.

Diagnosis and stage of cancer

Thirty-eight percent were diagnosed in locally advanced stage and 29.2 cases had regional lymph node metastases at first diagnosis. The common metastasis sites were bone (7 cases) and lung (7 cases). Ninety-eight percent had histological diagnosis; the most common cell type was invasive ductal carcinoma (86.4%).

Cell type	Females	Total	%	Stage	Cases	%
Invasive ductal ca.	331	331	86.4	Localized	82	21.4
Lobular carcinoma	12	12	3.1	Locally advanced	146	38.1
Mucinous ca.	10	10	2.6	Regional node metastasis	112	29.2
Papillary ca.	2	2	0.5	Distant metastasis	25	6.5
Others	23	23	6.0	Unknown/not staged	18	4.7
Clinical diagnosis	5	5	1.3			
All	383	383	100.0	All	383	100.0

Rectal cancer (ICD-10 C19,C20)

There were 152 new cases of rectal cancer diagnosed in 2012 (95 males, 57 females). Rectal cancer ranked 3rd for new male cancers and 9th for females. (Fig 48). This was 5.1% of all cancers in males and 3.0% of those in females. The age-standardized incidence rates were 8.1 for males and 4.8 for females. It was more common in males than in females in all age groups. The incidence rates were decreased in both males and females from the year 2011 (Fig. 49). The rates in males were higher than in females after age 45 (Fig. 50). The cumulative rate percentages to age 75 were 0.9% for males and 0.6% for females. These represented risks of 1 in 111 for men and 1 in 166 for women of developing rectal cancer by age 75.

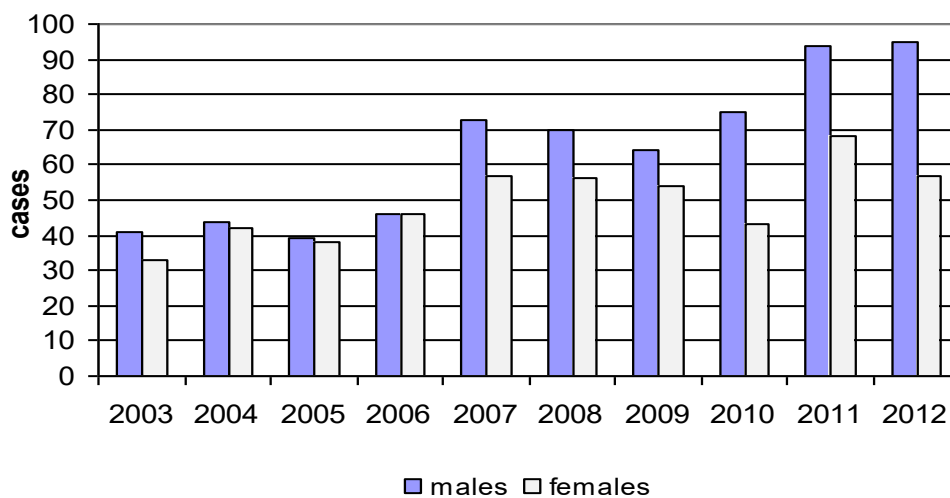


Figure 48: Number of new cases of rectal cancer by sex, 2003-2012

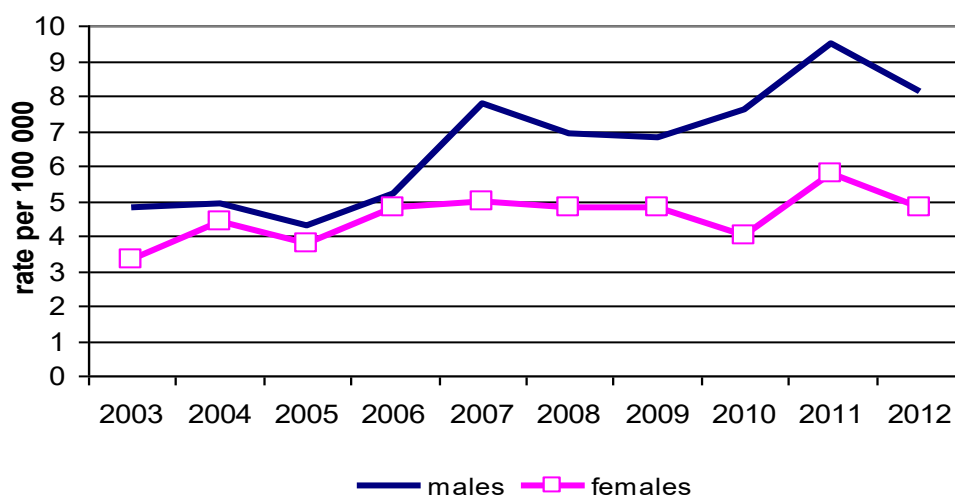


Figure 49: Incidence rates of new cases of rectal cancer by sex, 2003-2012

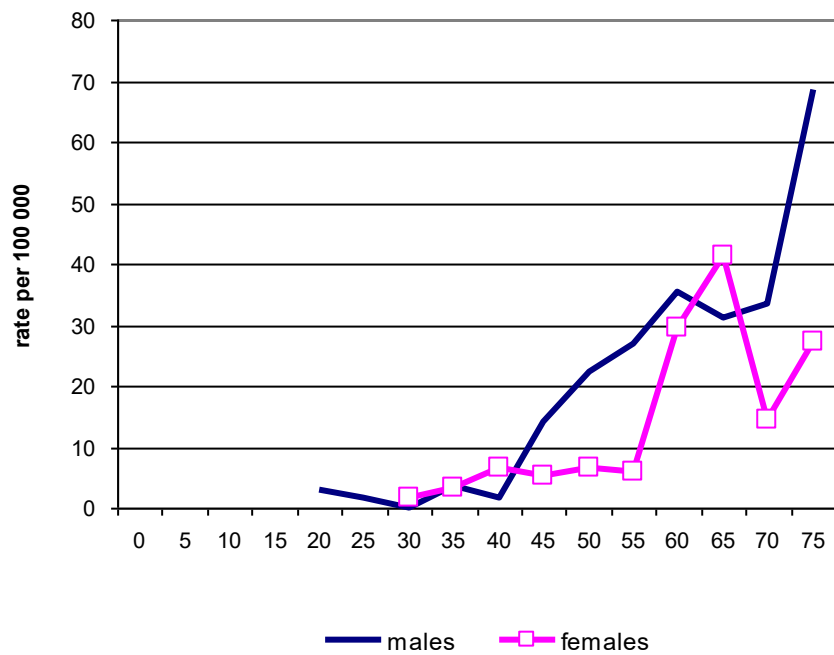


Figure 50: Age-specific incidence rate of rectal cancer, Chiang Mai, 2012

Of the 62 deaths from rectal cancer, 35 were males (2.8% of all male cancer deaths) and 27 were females (2.9% of all female cancer deaths). The age-standardized mortality rates were 3.5 for males and 2.2 for females (Fig. 51). The mortality rates increased with age in both sexes, and females had higher rates than males in age-group of 65-69 years (Fig. 52).



Figure 51: Mortality rate of rectal cancer by sex, Chiang Mai, 2003-2012

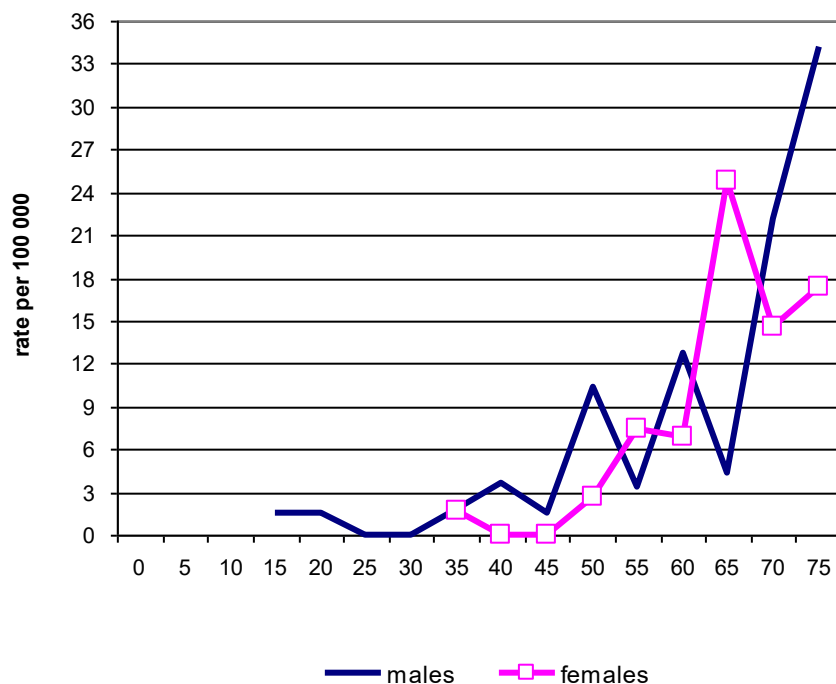


Figure 52: Age-specific mortality rate of rectal cancer, Chiang Mai, 2012

Diagnosis and stage of cancer

Thirty-four cases (34.2%) were diagnosed in locally advanced and 29.6% had regional node metastasis and 21.7% had distant metastases. Ninety-one percent had histological diagnosis; the common cell types were adenocarcinoma (88.2%).

Cell type	Males	Females	Total	%
Adenocarcinoma	85	49	134	88.2
Squamous cell ca.	1	0	1	0.7
Other	2	2	4	2.6
Clinical diagnosis	7	6	13	8.6
All	95	57	152	100.0

Stage	Cases	%
Localized	10	6.6
Locally advanced	52	34.2
Regional node metastasis	45	29.6
Distant metastasis	33	21.7
Unknown/not staged	12	7.9
All	152	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 64.9% for males (Table 8), and 80.0% for females (Table 9). Lower HV percentages were found in cases of cancer of the liver and pancreas.

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 2012, 54 cases (1.4%) were diagnosed by death certificate only. The age of DCO cases ranged from 27 to 91 years; the median age at death was 61.5 years. The common cancer sites were liver, malignant without specific site and lung.

Table 8: Indices of quality control of cancer data in Chiang Mai, 2012, males

ICD10 GROUP LABEL	N	ASR	DCO(%)	CLIN(%)	HV(%)	M/I(%)	ICD10 GROUP
Mouth & pharynx	110	9.7	0.0	2.7	97.3	52.7	C00-14
Oesophagus	28	2.5	0.0	28.6	71.4	59.9	C15
Stomach	61	5.5	0.0	8.2	91.8	94.5	C16
Colon, rectum, anus	186	16.0	0.0	11.8	88.2	42.4	C18-21
Liver	394	34.7	2.5	79.7	17.8	86.2	C22
Pancreas	34	2.9	0.0	52.9	47.1	79.5	C25
Larynx	29	2.6	0.0	13.8	86.2	49.6	C32
Lung, trachea, bronchus	416	37.3	1.0	40.4	58.7	86.1	C33-34
Pleura & other thoracic	7	0.6	0.0	0.0	100.0	42.4	C37-38
Melanoma of skin	4	0.3	0.0	0.0	100.0	140.0	C43
Prostate	95	8.0	0.0	9.5	90.5	37.5	C61
Testis	6	0.6	0.0	0.0	100.0	21.0	C62
Kidney & urinary NOS	30	2.8	3.3	26.7	70.0	51.8	C64-66,68
Bladder	48	3.8	0.0	10.4	89.6	63.4	C67
Brain & nervous system	19	2.1	5.3	10.5	84.2	51.7	C70-72
Thyroid	14	1.6	0.0	0.0	100.0	38.9	C73
Ill-defined	69	6.6	10.1	34.8	53.6	96.5	C76-80
Lymphoma	102	9.4	0.0	0.0	100.0	46.3	C81-85,90,88,96
Leukaemia	55	6.6	0.0	0.0	100.0	36.8	C91-95
All sites but C44	1797	161.5	1.5	33.6	64.9	68.3	ALLbC44

N Number of new cancer cases

ASR Age-standardized rates

DCO(%) Percentage of cases with diagnosis based on death certificate only

CLIN(%) Percentage of cases with non histological verification of diagnosis

HV(%) Percentage of cases with histological verification of diagnosis

M/I (%) Percentage of the ratio of deaths to cases registered

Table 9: Indices of quality control of cancer data in Chiang Mai, 2012, females

ICD10 GROUP LABEL	N	ASR	DCO(%)	CLIN(%)	HV(%)	M/I(%)	ICD10 GROUP
Mouth & pharynx	47	3.7	0.0	2.1	97.9	40.3	C00-14
Oesophagus	6	0.4	0.0	16.7	83.3	113.6	C15
Stomach	51	4.1	0.0	9.8	90.2	72.4	C16
Colon, rectum, anus	150	12.1	0.0	11.3	88.7	37.5	C18-21
Liver	171	13.0	2.9	73.1	24.0	82.6	C22
Pancreas	31	2.5	0.0	61.3	38.7	59.9	C25
Larynx	4	0.4	25.0	0.0	75.0	33.3	C32
Lung, trachea, bronchus	294	22.8	2.4	37.8	59.9	89.1	C33-34
Pleura & other thoracic	1	0.1	0.0	0.0	100.0	0.0	C37-38
Melanoma of skin	9	0.7	0.0	0.0	100.0	12.3	C43
Breast	383	29.7	0.3	1.0	98.4	12.1	C50
Cervix	200	15.9	1.0	1.0	98.0	23.5	C53
Corpus & Uterus NOS	80	6.3	0.0	0.0	100.0	21.2	C54-55
Ovary & adnexa	65	5.6	0.0	12.3	87.7	32.7	C56
Kidney & urinary NOS	16	1.4	0.0	18.8	81.3	36.0	C64-66,68
Bladder	16	1.1	0.0	6.3	93.8	101.9	C67
Brain & nervous system	20	2.5	5.0	25.0	70.0	65.7	C70-72
Thyroid	38	3.4	0.0	5.3	94.7	8.0	C73
Ill-defined	55	4.3	10.9	30.9	58.2	77.5	C76-80
Lymphoma	88	6.9	0.0	1.1	98.9	49.1	C81-85,90,88,96
Leukaemia	34	4.0	0.0	0.0	100.0	43.9	C91-95
All sites but C44	1862	149.6	1.5	18.5	80.0	47.1	ALLbC44

Table 10: Number of new cancer cases in Chiang Mai, 2012, 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	0	0	1	1	0.1	C00
Tongue	22	0	0	0	0	1	7	6	4	4	1.2	C01-02
Mouth	28	0	0	0	3	3	2	3	6	11	1.6	C03-06
Salivary glands	6	0	0	0	1	0	2	2	1	0	0.3	C07-08
Tonsil	14	0	0	0	1	1	4	4	2	2	0.8	C09
Other oropharynx	4	0	0	0	0	1	0	1	1	1	0.2	C10
Nasopharynx	23	0	0	0	0	5	8	3	4	3	1.3	C11
Hypopharynx	11	0	0	0	1	0	2	6	1	1	0.6	C12-13
Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	C14
Oesophagus	28	0	0	0	0	0	4	12	6	6	1.6	C15
Stomach	61	0	0	0	1	2	12	14	17	15	3.4	C16
Small intestine	4	0	0	0	0	0	0	1	2	1	0.2	C17
Colon	88	0	0	3	3	3	21	33	12	13	4.9	C18
Rectum	95	0	0	2	1	3	24	30	13	22	5.3	C19-20
Anus	3	0	0	0	0	1	1	0	1	0	0.2	C21
Liver	394	0	0	0	4	32	94	118	68	78	21.9	C22
Gallbladder etc.	14	0	0	0	0	1	0	5	6	2	0.8	C23-24
Pancreas	34	0	0	0	1	1	4	12	7	9	1.9	C25
Nose, sinuses etc.	3	0	0	0	0	0	3	0	0	0	0.2	C30-31
Larynx	29	0	0	0	0	2	4	13	4	6	1.6	C32
Trachea, bronchus and lung	416	0	0	2	2	14	53	107	121	117	23.1	C33-34
Other thoracic organs	7	0	0	0	0	1	3	1	1	1	0.4	C37-38
Bone	4	0	0	0	0	0	0	2	2	0	0.2	C40-41
Melanoma of skin	4	0	0	0	0	0	2	1	0	1	0.2	C43
Other skin	78	0	0	1	2	2	5	15	19	34	4.3	C44
Mesothelioma	1	0	0	0	0	0	0	1	0	0	0.1	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	C46
Connective and soft tissue	6	0	1	0	1	0	2	1	0	1	0.3	C47,C49
Breast	12	0	0	0	0	1	1	8	2	0	0.7	C50
Penis	11	0	0	0	0	1	0	5	2	3	0.6	C60
Prostate	95	0	0	0	0	0	3	18	28	46	5.3	C61
Testis	6	0	0	1	2	0	3	0	0	0	0.3	C62
Other male genital organs	0	0	0	0	0	0	0	0	0	0	0	C63
Kidney	24	0	0	0	1	1	6	7	7	2	1.3	C64
Renal pelvis	1	0	0	0	0	0	0	0	1	0	0.1	C65
Ureter	4	0	0	0	0	0	1	1	0	2	0.2	C66
Bladder	48	0	0	0	0	0	5	13	9	21	2.7	C67
Other urinary organs	1	0	0	0	0	0	0	0	0	1	0.1	C68
Eye	2	0	0	0	0	0	1	0	1	0	0.1	C69
Brain, nervous system	19	0	3	1	0	1	1	11	1	1	1.1	C70-72
Thyroid	14	0	0	3	2	2	3	1	3	0	0.8	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	C74
Other endocrine	0	0	0	0	0	0	0	0	0	0	0	C75
Hodgkin disease	9	0	0	0	1	3	3	1	0	1	0.5	C81
Non-Hodgkin lymphoma	76	0	2	4	6	7	15	17	13	12	4.2	C82-85,C96
Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	C88
Multiple myeloma	17	0	0	0	1	1	4	4	1	6	0.9	C90
Lymphoid leukaemia	11	0	6	1	1	0	2	0	0	1	0.6	C91
Myeloid leukaemia	41	0	3	2	5	3	9	11	4	4	2.3	C92-94
Leukaemia unspecified	3	0	0	0	1	0	1	1	0	0	0.2	C95
Myeloproliferative disorders	8	0	0	0	1	2	2	1	0	2	0.4	MPD
Myelodysplastic syndromes	20	0	0	0	1	0	4	5	5	5	1.1	MDS
Other and unspecified	74	0	1	0	4	5	15	18	18	13	4.1	O&U
All sites	1875	0	16	20	47	100	336	513	394	449	10.4	ALL
All sites but C44	1797	0	16	19	45	98	331	498	375	415	10.0	ALLbc44

Table 11: Number of new cancer cases in Chiang Mai, 2012, Females

SITE	Number of cases by Age Group (years)											
	ALL AGES	AGE UNK	0-	15-	25-	35-	45-	55-	65-	75+	(%)	ICD (10th)
Lip	3	0	0	0	0	0	0	1	0	2	0.2	C00
Tongue	8	0	0	0	0	1	2	3	0	2	0.4	C01-02
Mouth	13	0	0	0	0	0	4	1	3	5	0.7	C03-06
Salivary glands	3	0	0	0	0	0	2	1	0	0	0.2	C07-08
Tonsil	4	0	0	0	0	0	0	2	1	1	0.2	C09
Other oropharynx	1	0	0	0	0	0	0	0	0	1	0.1	C10
Nasopharynx	15	0	0	0	3	1	1	5	3	2	0.8	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0	C12-13
Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	C14
Oesophagus	6	0	0	0	0	0	0	2	2	2	0.3	C15
Stomach	51	0	0	0	5	8	8	13	9	8	2.7	C16
Small intestine	1	0	0	0	0	0	0	0	0	1	0.1	C17
Colon	92	0	0	1	1	7	14	20	24	25	4.9	C18
Rectum	57	0	0	0	1	6	9	17	13	11	3.1	C19-20
Anus	1	0	0	0	0	1	0	0	0	0	0.1	C21
Liver	171	0	0	0	1	15	39	49	25	42	9.2	C22
Gallbladder etc.	38	0	0	0	1	0	6	13	7	11	2	C23-24
Pancreas	31	0	0	0	0	2	6	9	8	6	1.7	C25
Nose, sinuses etc.	1	0	0	0	0	0	0	1	0	0	0.1	C30-31
Larynx	4	0	0	0	0	0	0	2	1	1	0.2	C32
Trachea, bronchus and lung	294	0	0	0	4	8	28	71	92	91	15.8	C33-34
Other thoracic organs	1	0	0	0	0	0	0	1	0	0	0.1	C37-38
Bone	9	0	2	3	0	1	2	1	0	0	0.5	C40-41
Melanoma of skin	9	0	0	0	0	0	2	2	2	3	0.5	C43
Other skin	57	0	0	0	3	1	13	9	12	19	3.1	C44
Mesothelioma	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	C46
Connective and soft tissue	5	0	0	0	0	0	0	3	2	0	0.3	C47,C49
Breast	383	0	0	0	15	46	129	125	36	32	20.6	C50
Vulva	8	0	0	0	0	1	2	1	2	2	0.4	C51
Vagina	0	0	0	0	0	0	0	0	0	0	0	C52
Cervix uteri	200	0	0	0	11	38	65	52	20	14	10.7	C53
Corpus uteri	78	0	0	0	5	5	24	28	11	5	4.2	C54
Uterus unspecified	2	0	0	0	0	0	1	1	0	0	0.1	C55
Ovary	65	0	3	1	4	9	18	19	6	5	3.5	C56
Other female genital organs	1	0	0	0	0	0	1	0	0	0	0.1	C57
Placenta	1	0	0	0	1	0	0	0	0	0	0.1	C58
Kidney	13	0	0	1	1	1	2	2	3	3	0.7	C64
Renal pelvis	1	0	0	0	0	0	0	1	0	0	0.1	C65
Ureter	2	0	0	0	0	0	0	0	1	1	0.1	C66
Bladder	16	0	0	0	0	0	1	1	5	9	0.9	C67
Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	C68
Eye	4	0	2	0	0	0	0	1	0	1	0.2	C69
Brain, nervous system	20	0	4	3	1	2	4	2	2	2	1.1	C70-72
Thyroid	38	0	0	4	11	3	8	6	1	5	2	C73
Adrenal gland	2	0	2	0	0	0	0	0	0	0	0.1	C74
Other endocrine	0	0	0	0	0	0	0	0	0	0	0	C75
Hodgkin disease	2	0	0	0	1	1	0	0	0	0	0.1	C81
Non-Hodgkin lymphoma	72	0	0	3	2	7	21	14	7	18	3.9	C82-85,C96
Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	C88
Multiple myeloma	14	0	0	0	0	0	4	4	3	3	0.8	C90
Lymphoid leukaemia	4	0	3	1	0	0	0	0	0	0	0.2	C91
Myeloid leukaemia	26	0	3	2	3	2	3	6	2	5	1.4	C92-94
Leukaemia unspecified	4	0	0	0	0	1	0	0	1	2	0.2	C95
Myeloproliferative disorders	4	0	0	0	1	0	0	3	0	0	0.2	MPD
Myelodysplastic syndromes	24	0	0	1	0	2	3	6	4	8	1.3	MDS
Other and unspecified	60	0	0	0	7	3	6	12	13	19	3.2	O&U
All sites	1919	0	19	20	82	172	428	510	321	367	103	ALL
All sites but C44	1862	0	19	20	79	171	415	501	309	348	100	ALLbC44

Table 12: Cancer Incidence in Chiang Mai, 2012, Males

SITE	Incidence per 100,000 by Age Group (years)											ASR (W)	ICD (10th)	
	ALL AGES	0-	15-	25-	35-	45-	55-	65-	75+	CR	CR64			CR74
Lip	2	0.0	0.0	0.0	0.0	0.0	0.0	2.5	3.1	0.3	0.0	0.0	0.2	C00
Tongue	22	0.0	0.0	0.0	0.9	5.3	6.1	9.8	12.4	2.7	0.1	0.2	1.9	C01-02
Mouth	28	0.0	0.0	2.3	2.7	1.5	3.0	14.7	34.2	3.5	0.1	0.3	2.4	C03-06
Salivary glands	6	0.0	0.0	0.8	0.0	1.5	2.0	2.5	0.0	0.7	0.0	0.1	0.6	C07-08
Tonsil	14	0.0	0.0	0.8	0.9	3.0	4.0	4.9	6.2	1.7	0.1	0.1	1.2	C09
Other oropharynx	4	0.0	0.0	0.0	0.9	0.0	1.0	2.5	3.1	0.5	0.0	0.0	0.4	C10
Nasopharynx	23	0.0	0.0	0.0	4.4	6.1	3.0	9.8	9.3	2.9	0.1	0.2	2.1	C11
Hypopharynx	11	0.0	0.0	0.8	0.0	1.5	6.1	2.5	3.1	1.4	0.1	0.1	1.0	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C14
Oesophagus	28	0.0	0.0	0.0	0.0	3.0	12.1	14.7	18.6	3.5	0.2	0.3	2.5	C15
Stomach	61	0.0	0.0	0.8	1.8	9.1	14.1	41.8	46.6	7.6	0.3	0.7	5.5	C16
Small intestine	4	0.0	0.0	0.0	0.0	0.0	1.0	4.9	3.1	0.5	0.0	0.1	0.4	C17
Colon	88	0.0	2.4	2.3	2.7	15.9	33.3	29.5	40.4	10.9	0.6	0.9	7.6	C18
Rectum	95	0.0	1.6	0.8	2.7	18.2	30.3	31.9	68.4	11.8	0.5	0.9	8.1	C19-20
Anus	3	0.0	0.0	0.0	0.9	0.8	0.0	2.5	0.0	0.4	0.0	0.0	0.3	C21
Liver	394	0.0	0.0	3.1	28.3	71.3	119.2	167.1	242.4	48.8	2.3	3.9	34.7	C22
Gallbladder etc.	14	0.0	0.0	0.0	0.9	0.0	5.1	14.7	6.2	1.7	0.1	0.2	1.4	C23-24
Pancreas	34	0.0	0.0	0.8	0.9	3.0	12.1	17.2	28.0	4.2	0.2	0.3	2.9	C25
Nose, sinuses etc.	3	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.4	0.0	0.0	0.3	C30-31
Larynx	29	0.0	0.0	0.0	1.8	3.0	13.1	9.8	18.6	3.6	0.2	0.3	2.6	C32
Trachea, bronchus and lung	416	0.0	1.6	1.6	12.4	40.2	108.1	297.3	363.6	51.6	1.7	4.7	37.3	C33-34
Other thoracic organs	7	0.0	0.0	0.0	0.9	2.3	1.0	2.5	3.1	0.9	0.0	0.1	0.6	C37-38
Bone	4	0.0	0.0	0.0	0.0	0.0	2.0	4.9	0.0	0.5	0.0	0.1	0.4	C40-41
Melanoma of skin	4	0.0	0.0	0.0	0.0	1.5	1.0	0.0	3.1	0.5	0.0	0.0	0.3	C43
Other skin	78	0.0	0.8	1.6	1.8	3.8	15.2	46.7	105.7	9.7	0.2	0.7	6.5	C44
Mesothelioma	1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0	0.1	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C46
Connective and soft tissue	6	0.7	0.0	0.8	0.0	1.5	1.0	0.0	3.1	0.7	0.1	0.1	0.7	C47,C49
Breast	12	0.0	0.0	0.0	0.9	0.8	8.1	4.9	0.0	1.5	0.1	0.2	1.1	C50
Penis	11	0.0	0.0	0.0	0.9	0.0	5.1	4.9	9.3	1.4	0.1	0.1	0.9	C60
Prostate	95	0.0	0.0	0.0	0.0	2.3	18.2	68.8	142.9	11.8	0.2	1.0	8.0	C61
Testis	6	0.0	0.8	1.6	0.0	2.3	0.0	0.0	0.0	0.7	0.1	0.1	0.6	C62
Other male genital organs	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C63
Kidney	24	0.0	0.0	0.8	0.9	4.6	7.1	17.2	6.2	3.0	0.1	0.3	2.3	C64
Renal pelvis	1	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.1	0.0	0.0	0.1	C65
Ureter	4	0.0	0.0	0.0	0.0	0.8	1.0	0.0	6.2	0.5	0.0	0.0	0.3	C66
Bladder	48	0.0	0.0	0.0	0.0	3.8	13.1	22.1	65.3	6.0	0.2	0.4	3.8	C67
Other urinary organs	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.1	0.0	0.0	0.1	C68
Eye	2	0.0	0.0	0.0	0.0	0.8	0.0	2.5	0.0	0.3	0.0	0.0	0.2	C69
Brain, nervous system	19	2.2	0.8	0.0	0.9	0.8	11.1	2.5	3.1	2.4	0.2	0.2	2.1	C70-72
Thyroid	14	0.0	2.4	1.6	1.8	2.3	1.0	7.4	0.0	1.7	0.1	0.2	1.6	C73
Adrenal gland	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C74
Other endocrine	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C75
Hodgkin disease	9	0.0	0.0	0.8	2.7	2.3	1.0	0.0	3.1	1.1	0.1	0.1	0.8	C81
Non-Hodgkin lymphoma	76	1.4	3.2	4.7	6.2	11.4	17.2	31.9	37.3	9.4	0.5	0.8	7.2	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C88
Multiple myeloma	17	0.0	0.0	0.8	0.9	3.0	4.0	2.5	18.6	2.1	0.1	0.1	1.4	C90
Lymphoid leukaemia	11	4.3	0.8	0.8	0.0	1.5	0.0	0.0	3.1	1.4	0.1	0.1	1.8	C91
Myeloid leukaemia	41	2.2	1.6	3.9	2.7	6.8	11.1	9.8	12.4	5.1	0.3	0.4	4.5	C92-94
Leukaemia unspecified	3	0.0	0.0	0.8	0.0	0.8	1.0	0.0	0.0	0.4	0.0	0.0	0.3	C95
Myeloproliferative disorders	8	0.0	0.0	0.8	1.8	1.5	1.3	0.0	6.2	1.0	0.1	0.1	0.7	MPD
Myelodysplastic syndromes	20	0.0	0.0	0.8	0.0	3.0	4.6	12.2	15.5	2.5	0.1	0.2	1.7	MDS
Other and unspecified	74	0.7	0.0	3.1	4.4	11.4	18.2	44.2	40.4	9.2	0.4	0.9	7.0	O&U
All sites	1875	11.7	15.9	36.6	88.8	253.8	536.3	981.1	1395	232.4	9.5	19.3	168	ALL
All sites but C44	1797	11.7	15.1	35.1	87.0	250.1	521.5	934.0	1290	222.8	9.3	18.6	162	ALLbC44

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

SITE	Incidence per 100,000 by Age Group (years)											ASR (W)	ICD (10th)	
	ALL AGES	0-	15-	25-	35-	45-	55-	65-	75+	CR	CR64			CR74
Lip	3	0.0	0.0	0.0	0.0	0.0	0.9	0.0	4.9	0.4	0.0	0.0	0.2	C00
Tongue	8	0.0	0.0	0.0	0.8	1.3	2.7	0.0	4.9	0.9	0.1	0.1	0.5	C01-02
Mouth	13	0.0	0.0	0.0	0.0	2.6	0.9	6.7	12.3	1.5	0.0	0.1	0.9	C03-06
Salivary glands	3	0.0	0.0	0.0	0.0	1.3	0.9	0.0	0.0	0.4	0.0	0.0	0.2	C07-08
Tonsil	4	0.0	0.0	0.0	0.0	0.0	1.8	2.2	2.5	0.5	0.0	0.0	0.3	C09
Other oropharynx	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	0.0	C10
Nasopharynx	15	0.0	0.0	2.4	0.8	0.7	4.5	6.7	4.9	1.8	0.1	0.2	1.5	C11
Hypopharynx	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C14
Oesophagus	6	0.0	0.0	0.0	0.0	0.0	1.8	4.4	4.9	0.7	0.0	0.1	0.4	C15
Stomach	51	0.0	0.0	3.9	6.5	5.3	11.6	20.0	19.7	6.0	0.3	0.5	4.1	C16
Small intestine	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	0.0	C17
Colon	92	0.0	0.8	0.8	5.7	9.2	17.9	53.3	61.7	10.8	0.3	0.9	7.1	C18
Rectum	57	0.0	0.0	0.8	4.9	5.9	15.2	28.9	27.2	6.7	0.3	0.6	4.8	C19-20
Anus	1	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	C21
Liver	171	0.0	0.0	0.8	12.3	25.6	43.9	55.6	103.7	20.1	0.9	1.4	13.0	C22
Gallbladder etc.	38	0.0	0.0	0.8	0.0	3.9	11.6	15.6	27.2	4.5	0.2	0.3	2.9	C23-24
Pancreas	31	0.0	0.0	0.0	1.6	3.9	8.1	17.8	14.8	3.7	0.1	0.3	2.5	C25
Nose, sinuses etc.	1	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.1	C30-31
Larynx	4	0.0	0.0	0.0	0.0	0.0	1.8	2.2	2.5	0.5	0.0	0.0	0.4	C32
Trachea, bronchus and lung	294	0.0	0.0	3.2	6.5	18.4	63.6	204.5	224.7	34.6	0.9	3.0	22.7	C33-34
Other thoracic organs	1	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.1	C37-38
Bone	9	1.5	2.4	0.0	0.8	1.3	0.9	0.0	0.0	1.1	0.1	0.1	1.2	C40-41
Melanoma of skin	9	0.0	0.0	0.0	0.0	1.3	1.8	4.4	7.4	1.1	0.0	0.1	0.6	C43
Other skin	57	0.0	0.0	2.4	0.8	8.5	8.1	26.7	46.9	6.7	0.2	0.5	4.2	C44
Mesothelioma	0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C46
Connective and soft tissue	5	0.0	0.0	0.0	0.0	0.0	2.7	4.4	0.0	0.6	0.0	0.1	0.4	C47,C49
Breast	383	0.0	0.0	11.8	37.6	84.8	112.0	80.0	79.0	45.1	2.4	3.2	29.7	C50
Vulva	8	0.0	0.0	0.0	0.8	1.3	0.9	4.4	4.9	0.9	0.0	0.1	0.6	C51
Vagina	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C52
Cervix uteri	200	0.0	0.0	8.7	31.1	42.7	46.6	44.5	34.6	23.6	1.3	1.8	15.9	C53
Corpus uteri	78	0.0	0.0	3.9	4.1	15.8	25.1	24.4	12.3	9.2	0.5	0.7	6.1	C54
Uterus unspecified	2	0.0	0.0	0.0	0.0	0.7	0.9	0.0	0.0	0.2	0.0	0.0	0.2	C55
Ovary	65	2.3	0.8	3.2	7.4	11.8	17.0	13.3	12.3	7.7	0.4	0.6	5.6	C56
Other female genital organs	1	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	0.1	C57
Placenta	1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	C58
Kidney	13	0.0	0.8	0.8	0.8	1.3	1.8	6.7	7.4	1.5	0.1	0.1	1.1	C64
Renal pelvis	1	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.1	C65
Ureter	2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.5	0.2	0.0	0.0	0.2	C66
Bladder	16	0.0	0.0	0.0	0.0	0.7	0.9	11.1	22.2	1.9	0.0	0.1	1.1	C67
Other urinary organs	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C68
Eye	4	1.5	0.0	0.0	0.0	0.0	0.9	0.0	2.5	0.5	0.0	0.0	0.7	C69
Brain, nervous system	20	3.1	2.4	0.8	1.6	2.6	1.8	4.4	4.9	2.4	0.1	0.2	2.4	C70-72
Thyroid	38	0.0	3.3	8.7	2.5	5.3	5.4	2.2	12.3	4.5	0.3	0.3	3.4	C73
Adrenal gland	2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.6	C74
Other endocrine	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C75
Hodgkin disease	2	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	C81
Non-Hodgkin lymphoma	72	0.0	2.4	1.6	5.7	13.8	12.5	15.6	44.4	8.5	0.4	0.5	5.7	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C88
Multiple myeloma	14	0.0	0.0	0.0	0.0	2.6	3.6	6.7	7.4	1.7	0.1	0.1	1.0	C90
Lymphoid leukaemia	4	2.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	1.0	C91
Myeloid leukaemia	26	2.3	1.6	2.4	1.6	2.0	5.4	4.4	12.3	3.1	0.2	0.2	2.7	C92-94
Leukaemia unspecified	4	0.0	0.0	0.0	0.8	0.0	0.0	2.2	4.9	0.5	0.0	0.0	0.3	C95
Myeloproliferative disorders	4	0.0	0.0	0.8	0.0	0.0	2.7	0.0	0.0	0.5	0.0	0.0	0.3	MPD
Myelodysplastic syndromes	24	0.0	0.8	0.0	1.7	2.0	5.6	9.3	19.7	2.8	0.1	0.2	1.8	MDS
Other and unspecified	60	0.0	0.0	5.5	2.5	3.9	10.7	28.9	46.9	7.1	0.2	0.5	4.6	O&U
All sites	1919	14.8	16.5	64.5	140.5	280.8	464.0	720.6	906	226.1	9.9	17.1	153.8	ALL
All sites but C44	1862	14.8	16.5	62.2	139.7	272.2	455.8	693.0	859.1	219.3	9.7	16.6	149.6	ALLbC44

Table 14: Number of Cancer Deaths in Chiang Mai, 2012, 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	11	0	0	0	0	2	2	1	2	4	0.9	C01-02
Mouth	20	0	0	0	0	1	2	4	5	8	1.6	C03-06
Salivary glands	1	0	0	0	0	0	0	0	0	1	0.1	C07-08
Tonsil	7	0	0	0	0	0	4	2	1	0	0.6	C09
Other oropharynx	1	0	0	0	0	0	0	1	0	0	0.1	C10
Nasopharynx	14	0	0	0	0	2	3	5	1	3	1.1	C11
Hypopharynx	6	0	0	0	0	0	1	3	1	1	0.5	C12-13
Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	C14
Oesophagus	17	0	0	0	0	2	2	7	2	4	1.4	C15
Stomach	60	0	0	0	1	2	9	12	14	22	4.8	C16
Small intestine	3	0	0	0	0	0	0	1	2	0	0.2	C17
Colon	40	0	0	1	1	0	9	15	8	6	3.2	C18
Rectum	35	0	0	1	0	3	8	7	5	11	2.8	C19-20
Anus	3	0	0	0	0	0	0	1	1	1	0.2	C21
Liver	342	0	0	0	4	29	90	95	60	64	27.4	C22
Gallbladder etc.	13	0	0	0	0	2	0	5	4	2	1	C23-24
Pancreas	26	0	0	0	1	1	1	8	7	8	2.1	C25
Nose, sinuses etc.	0	0	0	0	0	0	0	0	0	0	0	C30-31
Larynx	15	0	0	0	0	0	1	7	3	4	1.2	C32
Trachea, bronchus and lung	360	0	0	1	2	10	47	94	107	99	28.8	C33-34
Other thoracic organs	3	0	0	0	0	0	1	0	1	1	0.2	C37-38
Bone	2	0	1	0	0	0	0	0	1	0	0.2	C40-41
Melanoma of skin	4	0	0	0	0	1	1	0	2	0	0.3	C43
Other skin	14	0	0	0	0	2	0	1	3	8	1.1	C44
Mesothelioma	1	0	0	0	0	0	0	1	0	0	0.1	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0	C46
Connective and soft tissue	3	0	0	0	0	0	0	0	1	2	0.2	C47,C49
Breast	0	0	0	0	0	0	0	0	0	0	0	C50
Penis	4	0	0	0	0	1	1	1	0	1	0.3	C60
Prostate	37	0	0	0	0	0	0	8	8	21	3	C61
Testis	1	0	0	0	1	0	0	0	0	0	0.1	C62
Other male genital organs	0	0	0	0	0	0	0	0	0	0	0	C63
Kidney	12	0	0	0	0	0	3	4	3	2	1	C64
Renal pelvis	2	0	0	0	0	0	0	1	1	0	0.2	C65
Ureter	2	0	0	0	0	0	0	1	0	1	0.2	C66
Bladder	30	0	0	0	0	1	1	7	6	15	2.4	C67
Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	C68
Eye	0	0	0	0	0	0	0	0	0	0	0	C69
Brain, nervous system	13	0	0	0	1	0	0	8	2	2	1	C70-72
Thyroid	6	0	0	0	0	1	1	1	2	1	0.5	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	C74
Other endocrine	1	0	0	0	1	0	0	0	0	0	0.1	C75
Hodgkin disease	4	0	0	0	1	2	0	1	0	0	0.3	C81
Non-Hodgkin lymphoma	37	0	0	3	1	1	5	9	8	10	3	C82-85,C96
Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	C88
Multiple myeloma	7	0	0	0	0	0	0	4	1	2	0.6	C90
Lymphoid leukaemia	1	0	1	0	0	0	0	0	0	0	0.1	C91
Myeloid leukaemia	21	0	0	2	2	3	4	5	2	3	1.7	C92-94
Leukaemia unspecified	2	0	0	0	0	0	1	1	0	0	0.2	C95
Myeloproliferative disorders	1	0	0	0	0	1	0	0	0	0	0.1	MPD
Myelodysplastic syndromes	8	0	0	0	0	0	3	1	3	1	0.6	MDS
Other and unspecified	73	0	0	0	3	5	13	18	18	16	5.8	O&U
All sites	1263	0	2	8	19	72	213	340	285	324	101.1	ALL
All sites but C44	1249	0	2	8	19	70	213	339	282	316	100	ALLbC44

Table 15: Number of Cancer Deaths in Chiang Mai, 2012, Females

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	C00
Tongue	4	0	0	0	0	0	0	1	1	2	0.4	C01-02
Mouth	7	0	0	0	0	0	1	2	1	3	0.8	C03-06
Salivary glands	0	0	0	0	0	0	0	0	0	0	0	C07-08
Tonsil	2	0	0	0	0	0	0	0	1	1	0.2	C09
Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	C10
Nasopharynx	6	0	0	0	0	2	1	0	2	1	0.7	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0	C12-13
Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	C14
Oesophagus	8	0	0	0	0	0	1	3	1	3	0.9	C15
Stomach	36	0	0	0	2	5	5	5	10	9	3.9	C16
Small intestine	0	0	0	0	0	0	0	0	0	0	0	C17
Colon	32	0	0	0	1	3	3	3	7	15	3.5	C18
Rectum	27	0	0	0	0	1	2	8	9	7	2.9	C19-20
Anus	1	0	0	0	0	0	0	1	0	0	0.1	C21
Liver	146	0	0	0	0	12	24	47	23	40	15.8	C22
Gallbladder etc.	37	0	0	0	0	0	5	13	9	10	4	C23-24
Pancreas	20	0	0	0	0	0	6	2	5	7	2.2	C25
Nose, sinuses etc.	3	0	0	0	0	1	1	0	0	1	0.3	C30-31
Larynx	1	0	0	0	0	0	0	0	1	0	0.1	C32
Trachea, bronchus and lung	263	0	0	0	4	7	21	66	77	88	28.5	C33-34
Other thoracic organs	0	0	0	0	0	0	0	0	0	0	0	C37-38
Bone	4	0	0	1	0	1	1	1	0	0	0.4	C40-41
Melanoma of skin	1	0	0	0	0	0	1	0	0	0	0.1	C43
Other skin	6	0	0	0	0	0	1	0	0	5	0.7	C44
Mesothelioma	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	C46
Connective and soft tissue	4	0	0	0	0	1	1	2	0	0	0.4	C47,C49
Breast	50	0	0	0	0	5	20	13	3	9	5.4	C50
Vulva	2	0	0	0	0	0	1	1	0	0	0.2	C51
Vagina	3	0	0	0	0	0	1	0	1	1	0.3	C52
Cervix uteri	50	0	0	0	0	4	15	15	6	10	5.4	C53
Corpus uteri	17	0	0	0	0	1	1	10	2	3	1.8	C54
Uterus unspecified	0	0	0	0	0	0	0	0	0	0	0	C55
Ovary	22	0	0	0	1	3	6	4	5	3	2.4	C56
Other female genital organs	1	0	0	0	0	0	0	1	0	0	0.1	C57
Placenta	0	0	0	0	0	0	0	0	0	0	0	C58
Kidney	6	0	0	0	0	1	0	0	1	4	0.7	C64
Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	C65
Ureter	1	0	0	0	0	0	0	1	0	0	0.1	C66
Bladder	15	0	0	0	0	0	0	0	7	8	1.6	C67
Other urinary organs	1	0	0	0	0	0	0	0	0	1	0.1	C68
Eye	2	0	1	0	0	0	0	0	0	1	0.2	C69
Brain, nervous system	15	0	2	0	1	2	3	4	1	2	1.6	C70-72
Thyroid	4	0	0	0	0	0	0	0	1	3	0.4	C73
Adrenal gland	1	0	1	0	0	0	0	0	0	0	0.1	C74
Other endocrine	0	0	0	0	0	0	0	0	0	0	0	C75
Hodgkin disease	0	0	0	0	0	0	0	0	0	0	0	C81
Non-Hodgkin lymphoma	47	0	0	0	0	2	12	9	6	18	5.1	C82-85,C96
Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	C88
Multiple myeloma	4	0	0	0	0	0	1	0	0	3	0.4	C90
Lymphoid leukaemia	2	0	0	0	1	0	0	1	0	0	0.2	C91
Myeloid leukaemia	15	0	1	0	2	1	3	4	0	4	1.6	C92-94
Leukaemia unspecified	4	0	0	0	0	1	0	0	1	2	0.4	C95
Myeloproliferative disorders	1	0	0	0	0	0	0	0	1	0	0.1	MPD
Myelodysplastic syndromes	9	0	0	0	0	0	1	1	2	5	1	MDS
Other and unspecified	48	0	0	0	5	1	2	11	9	20	5.2	O&U
All sites	928	0	5	1	17	54	140	229	193	289	100.7	ALL
All sites but C44	922	0	5	1	17	54	139	229	193	284	100	ALLbC44

Table 16: Cancer Deaths in Chiang Mai, 2012, Males

SITE	Incidence per 100,000 by Age Group (years)											ASR (W)	ICD (10th)	
	ALL AGES	0-	15-	25-	35-	45-	55-	65-	75+	CR	CR64			CR74
Lip	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C00
Tongue	11	0.0	0.0	0.0	1.8	1.5	1.0	4.9	12.4	1.4	0.0	0.1	1.0	C01-02
Mouth	20	0.0	0.0	0.0	0.9	1.5	4.0	12.3	24.9	2.5	0.1	0.2	1.7	C03-06
Salivary glands	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.1	0.0	0.0	0.1	C07-08
Tonsil	7	0.0	0.0	0.0	0.0	3.0	2.0	2.5	0.0	0.9	0.1	0.1	0.6	C09
Other oropharynx	1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0	0.1	C10
Nasopharynx	14	0.0	0.0	0.0	1.8	2.3	5.1	2.5	9.3	1.7	0.1	0.1	1.2	C11
Hypopharynx	6	0.0	0.0	0.0	0.0	0.8	3.0	2.5	3.1	0.7	0.0	0.1	0.5	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C14
Oesophagus	17	0.0	0.0	0.0	1.8	1.5	7.1	4.9	12.4	2.1	0.1	0.2	1.5	C15
Stomach	60	0.0	0.0	0.8	1.8	6.8	12.1	34.4	68.4	7.4	0.2	0.6	5.2	C16
Small intestine	3	0.0	0.0	0.0	0.0	0.0	1.0	4.9	0.0	0.4	0.0	0.1	0.3	C17
Colon	40	0.0	0.8	0.8	0.0	6.8	15.2	19.7	18.6	5.0	0.2	0.4	3.5	C18
Rectum	35	0.0	0.8	0.0	2.7	6.1	7.1	12.3	34.2	4.3	0.2	0.3	3.0	C19-20
Anus	3	0.0	0.0	0.0	0.0	0.0	1.0	2.5	3.1	0.4	0.0	0.0	0.3	C21
Liver	342	0.0	0.0	3.1	25.7	68.3	96.0	147.4	198.9	42.4	2.0	3.4	29.9	C22
Gallbladder etc.	13	0.0	0.0	0.0	1.8	0.0	5.1	9.8	6.2	1.6	0.1	0.2	1.2	C23-24
Pancreas	26	0.0	0.0	0.8	0.9	0.8	8.1	17.2	24.9	3.2	0.1	0.3	2.3	C25
Nose, sinuses etc.	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C30-31
Larynx	15	0.0	0.0	0.0	0.0	0.8	7.1	7.4	12.4	1.9	0.1	0.2	1.3	C32
Trachea, bronchus and lung	360	0.0	0.8	1.6	8.8	35.7	95.0	262.9	307.6	44.6	1.5	4.1	32.1	C33-34
Other thoracic organs	3	0.0	0.0	0.0	0.0	0.8	0.0	2.5	3.1	0.4	0.0	0.0	0.2	C37-38
Bone	2	0.7	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.3	0.0	0.0	0.3	C40-41
Melanoma of skin	4	0.0	0.0	0.0	0.9	0.8	0.0	4.9	0.0	0.5	0.0	0.1	0.4	C43
Other skin	14	0.0	0.0	0.0	1.8	0.0	1.0	7.4	24.9	1.7	0.0	0.1	1.2	C44
Mesothelioma	1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0	0.1	C45
Kaposi sarcoma	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C46
Connective and soft tissue	3	0.0	0.0	0.0	0.0	0.0	0.0	2.5	6.2	0.4	0.0	0.0	0.3	C47,C49
Breast	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C50
Penis	4	0.0	0.0	0.0	0.9	0.8	1.0	0.0	3.1	0.5	0.0	0.0	0.3	C60
Prostate	37	0.0	0.0	0.0	0.0	0.0	8.1	19.7	65.3	4.6	0.1	0.3	3.0	C61
Testis	1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	C62
Other male genital organs	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C63
Kidney	12	0.0	0.0	0.0	0.0	2.3	4.0	7.4	6.2	1.5	0.1	0.1	1.1	C64
Renal pelvis	2	0.0	0.0	0.0	0.0	0.0	1.0	2.5	0.0	0.3	0.0	0.0	0.2	C65
Ureter	2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	3.1	0.3	0.0	0.0	0.2	C66
Bladder	30	0.0	0.0	0.0	0.9	0.8	7.1	14.7	46.6	3.7	0.1	0.3	2.4	C67
Other urinary organs	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C68
Eye	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C69
Brain, nervous system	13	0.0	0.0	0.8	0.0	0.0	8.1	4.9	6.2	1.6	0.1	0.1	1.1	C70-72
Thyroid	6	0.0	0.0	0.0	0.9	0.8	1.0	4.9	3.1	0.7	0.0	0.1	0.6	C73
Adrenal gland	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C74
Other endocrine	1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	C75
Hodgkin disease	4	0.0	0.0	0.8	1.8	0.0	1.0	0.0	0.0	0.5	0.0	0.0	0.4	C81
Non-Hodgkin lymphoma	37	0.0	2.4	0.8	0.9	3.8	9.1	19.7	31.1	4.6	0.2	0.4	3.3	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C88
Multiple myeloma	7	0.0	0.0	0.0	0.0	0.0	4.0	2.5	6.2	0.9	0.1	0.1	0.6	C90
Lymphoid leukaemia	1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	C91
Myeloid leukaemia	21	0.0	1.6	1.6	2.7	3.0	5.1	4.9	9.3	2.6	0.1	0.2	2.0	C92-94
Leukaemia unspecified	2	0.0	0.0	0.0	0.0	0.8	1.0	0.0	0.0	0.3	0.0	0.0	0.2	C95
Myeloproliferative disorders	1	0.0	0.8	0.0	0.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	MPD
Myelodysplastic syndromes	8	0.0	0.8	0.0	0.0	2.2	0.9	7.8	3.1	1.0	0.0	0.1	0.7	MDS
Other and unspecified	73	0.0	0.8	2.4	4.5	9.8	20.3	43.8	49.7	9.1	0.4	0.8	6.7	O&U
All sites	1263	1.5	5.5	14.8	64.0	160.1	355.7	706.8	1006.8	156.6	6.0	13.1	111.5	ALL
All sites but C44	1249	1.5	5.5	14.8	62.3	160.1	354.8	699.7	982.0	154.8	6.0	13.0	110.4	ALLbC44

Table 17: Cancer Deaths in Chiang Mai, 2012, Females

SITE	Incidence per 100,000 by Age Group (years)										CR	CR64	CR74	ASR (W)	ICD (10th)
	ALL AGES	0-	15-	25-	35-	45-	55-	65-	75+						
Lip	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C00
Tongue	4	0.0	0.0	0.0	0.0	0.0	0.8	2.4	4.9	0.5	0.0	0.0	0.3	0.0	C01-02
Mouth	7	0.0	0.0	0.0	0.0	0.7	2.3	2.4	7.4	0.8	0.0	0.1	0.5	0.0	C03-06
Salivary glands	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C07-08
Tonsil	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.5	0.2	0.0	0.0	0.2	C09
Other oropharynx	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C10
Nasopharynx	6	0.0	0.0	0.0	1.7	0.7	0.0	4.2	2.5	0.7	0.0	0.1	0.6	0.0	C11
Hypopharynx	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C12-13
Pharynx unspecified	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C14
Oesophagus	8	0.0	0.0	0.0	0.0	0.7	2.2	2.4	7.4	0.9	0.0	0.1	0.5	0.0	C15
Stomach	36	0.0	0.0	1.6	4.1	3.4	4.1	22.5	22.2	4.2	0.1	0.4	2.9	0.0	C16
Small intestine	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C17
Colon	32	0.0	0.0	0.8	2.5	2.0	2.2	15.5	37.0	3.8	0.1	0.2	2.3	0.0	C18
Rectum	27	0.0	0.0	0.0	0.9	1.3	7.1	19.7	17.3	3.2	0.1	0.3	2.2	0.0	C19-20
Anus	1	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	C21
Liver	146	0.0	0.0	0.0	9.7	15.7	43.6	52.5	98.7	17.2	0.7	1.2	10.7	0.0	C22
Gallbladder etc.	37	0.0	0.0	0.0	0.0	3.3	13.6	20.7	24.7	4.4	0.2	0.4	2.9	0.0	C23-24
Pancreas	20	0.0	0.0	0.0	0.0	3.9	2.3	10.7	17.3	2.4	0.1	0.2	1.5	0.0	C25
Nose, sinuses etc.	3	0.0	0.0	0.0	0.9	0.7	0.0	0.0	2.5	0.4	0.0	0.0	0.2	0.0	C30-31
Larynx	1	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.1	0.0	0.0	0.1	0.0	C32
Trachea, bronchus and lung	263	0.0	0.0	3.1	5.7	13.6	63.2	173.5	217.2	31.0	0.9	2.6	20.3	0.0	C33-34
Other thoracic organs	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C37-38
Bone	4	0.0	0.9	0.0	0.9	0.7	0.8	0.0	0.0	0.5	0.0	0.0	0.4	0.0	C40-41
Melanoma of skin	1	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	C43
Other skin	6	0.0	0.0	0.0	0.0	0.7	0.0	0.0	12.3	0.7	0.0	0.0	0.3	0.0	C44
Mesothelioma	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C46
Connective and soft tissue	4	0.0	0.0	0.0	0.8	0.7	2.3	0.0	0.0	0.5	0.0	0.0	0.3	0.0	C47,C49
Breast	50	0.0	0.0	0.0	4.2	13.1	11.2	6.2	22.2	5.9	0.3	0.4	3.6	0.0	C50
Vulva	2	0.0	0.0	0.0	0.0	0.7	1.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	C51
Vagina	3	0.0	0.0	0.0	0.0	0.7	0.0	2.4	2.5	0.4	0.0	0.0	0.2	0.0	C52
Cervix uteri	50	0.0	0.0	0.0	3.2	9.9	14.3	14.2	24.7	5.9	0.3	0.4	3.7	0.0	C53
Corpus uteri	17	0.0	0.0	0.0	0.9	0.7	9.8	4.2	7.4	2.0	0.1	0.2	1.3	0.0	C54
Uterus unspecified	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C55
Ovary	22	0.0	0.0	0.8	2.5	4.0	3.8	11.7	7.4	2.6	0.1	0.2	1.8	0.0	C56
Other female genital organs	1	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	C57
Placenta	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C58
Kidney	6	0.0	0.0	0.0	0.9	0.0	0.0	2.4	9.9	0.7	0.0	0.0	0.4	0.0	C64
Renal pelvis	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C65
Ureter	1	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	C66
Bladder	15	0.0	0.0	0.0	0.0	0.0	0.0	16.6	19.7	1.8	0.0	0.2	1.1	0.0	C67
Other urinary organs	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	0.0	0.0	C68
Eye	2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.2	0.0	0.0	0.3	0.0	C69
Brain, nervous system	15	1.6	0.0	0.8	1.7	2.0	4.2	2.1	4.9	1.8	0.1	0.1	1.6	0.0	C70-72
Thyroid	4	0.0	0.0	0.0	0.0	0.0	0.0	2.1	7.4	0.5	0.0	0.0	0.3	0.0	C73
Adrenal gland	1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	C74
Other endocrine	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C75
Hodgkin disease	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C81
Non-Hodgkin lymphoma	47	0.0	0.0	0.0	1.6	7.9	7.5	13.8	44.4	5.5	0.2	0.3	3.2	0.0	C82-85,C96
Immunoproliferative diseases	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C88
Multiple myeloma	4	0.0	0.0	0.0	0.0	0.7	0.0	0.0	7.4	0.5	0.0	0.0	0.2	0.0	C90
Lymphoid leukaemia	2	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0	C91
Myeloid leukaemia	15	0.8	0.0	1.6	0.8	2.0	3.8	0.0	9.9	1.8	0.1	0.1	1.3	0.0	C92-94
Leukaemia unspecified	4	0.0	0.0	0.0	0.8	0.0	0.0	2.4	4.9	0.5	0.0	0.0	0.3	0.0	C95
Myeloproliferative disorders	1	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.1	0.0	0.0	0.1	0.0	MPD
Myelodysplastic syndromes	9	0.0	0.0	0.0	0.0	0.7	1.2	4.9	12.3	1.1	0.0	0.1	0.6	0.0	MDS
Other and unspecified	48	0.0	0.0	3.9	0.8	1.3	10.2	20.7	49.4	5.7	0.2	0.4	3.5	0.0	O&U
All sites	928	4.0	0.9	13.3	44.0	91.6	214.5	435.9	713.5	109.3	3.7	8.1	70.8	0.0	ALL
All sites but C44	922	4.0	0.9	13.3	44.0	90.9	214.5	435.9	701.1	108.6	3.7	8.1	70.4	0.0	ALLbC44

CHIANG MAI POPULATION AND ADMINISTRATIVE DIVISIONS

In 2012, 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 2012 was 1,655,642 consisting of 806,720 males and 848,922 females. The population density averaged 82.3 people per km². The highest population density was in Muang District (1,542.4 people per km²), followed by Saraphi, San Sai, Sanpatong, and Sankamphaeng districts. The lowest population density was in Galyani Vadhana District (16.8 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.

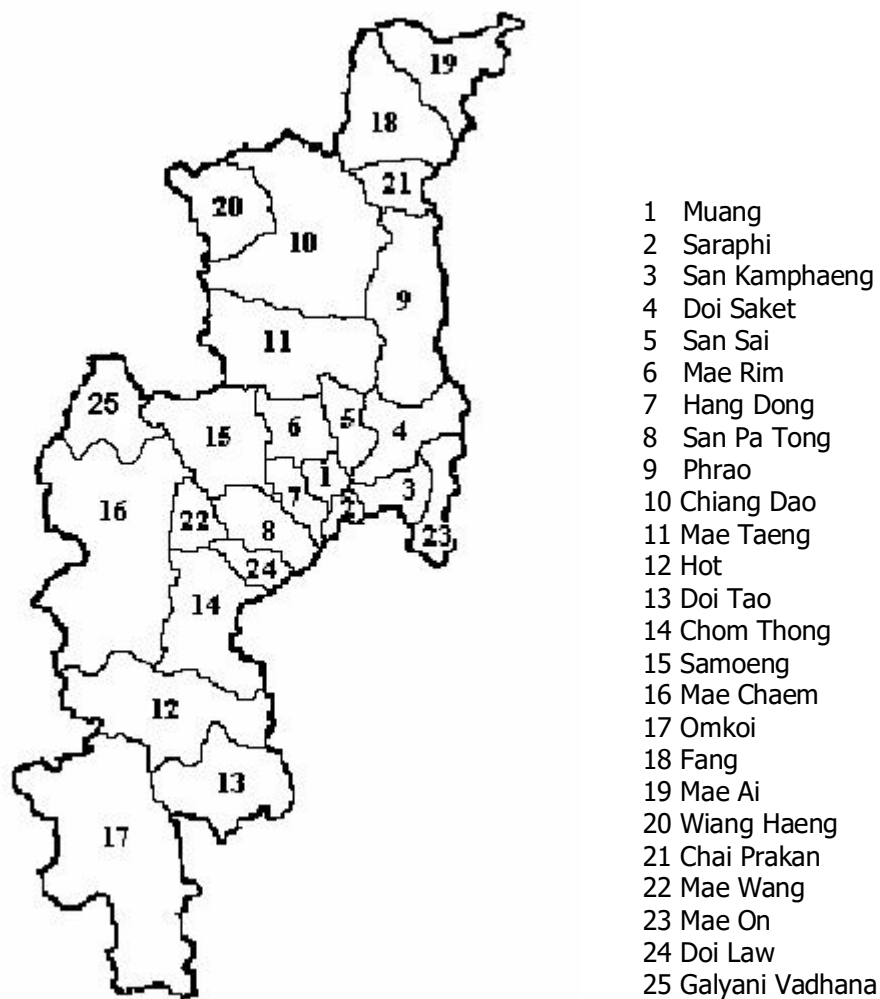


Figure 53: Districts of Chiang Mai

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