

**CANCER INCIDENCE AND MORTALITY
IN CHIANG MAI
2008**



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

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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 located at the Maharaj Nakorn Chiang Mai Hospital and fully supported by the Faculty of Medicine, Chiang Mai University. The registry covers the population of Chiang Mai province and has reported annually on cancer occurrence since the first volume in 1978, when it was a hospital-based registry. Population-based registration was started in 1986 to report the incidence and mortality of cancer in Chiang Mai since 1983.

This report is the 28th in a series and contains two parts. The first part is population-based registration, which has data on cancer frequency, incidence of new cancer, and mortality in Chiang Mai province in the year 2008. The second part is hospital-based registration, which has data at Maharaj Nakorn Chiang Mai Hospital for the same period.

MATERIALS AND METHODS

Data Sources

Information on newly diagnosed cancer cases is based on data collected by the Chiang Mai Cancer Registry. The data were collected by the Registry's staff from all hospitals in Chiang Mai province: one university hospital (Maharaj Nakorn Chiang Mai Hospital), 8 government hospitals, 1 municipal hospital, 14 private hospitals, and 22 community hospitals, with a total of 6,320 beds. Sources in hospitals include the medical records sections, pathology laboratory records, and sections of hematology, radiation oncology, and hospital tumor registrations. Data were also collected from medical clinics and pathology clinics in Chiang Mai province. The identities of all patients were checked and matched to exclude multiple registrations. Mortality data were obtained from hospital records and death certificates from the Department of Local Administration, Ministry of Interior. Population data were obtained from the Statistical Data Bank and Information Dissemination Division, National Statistical Office.

Coding, Data Entry, and Processing of Data

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

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

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

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

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

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

Type of Diagnosis and Stage of Disease

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

Non-microscopic

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

Microscopic Confirmation

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

Unknown Method of Diagnosis

- Unknown
- Death certificate only

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

Calculation of Rates and Risks

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

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

Crude Rates

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

Age-specific Rates

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

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

where N_i = number of new cancers occurring in the i^{th} age group

P_i = 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 (AR_i) was multiplied by the number of persons in that age group in the standard population ($P_{i.std}$); this value was then divided by the total standard population and the values obtained were the sum of all age groups.

$$ASR(WORLD) = \text{sum}(AR_i \times P_{i.std}) / \text{total standard population}$$

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

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

$$\text{or } ASR(WORLD) = \text{sum}(N_i \times P_{i.std} \times 100,000 / P_i) / \text{total } P_{i.std}$$

N_i = number of new cancers occurring in the i^{th} age group

P_i = 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 = $\sum_{i=1}^n (F_i \times T_i / P_i)$

n = number of age group which cumulative risk includes

F_i = number of new cancers occurring in the i^{th} age group

T_i = number of years in i^{th} age group

P_i = population of i^{th} age group in the total population

Table 1: Estimated new cancer cases and deaths by sex, Chiang Mai, Thailand, 2008

	Estimated New Cases			Estimated Deaths		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	3167	1433	1734	2054	1138	916
Oral cavity and pharynx	104	69	35	76	53	23
Lip	4	2	2	2	1	1
Tongue	9	7	2	8	5	3
Mouth	27	13	14	16	8	8
Salivary glands	11	8	3	2	2	0
Tonsil	9	6	3	6	4	2
Other Oropharynx	3	2	1	4	3	1
Nasopharynx	34	24	10	32	25	7
Hypopharynx	6	6	0	5	4	1
Pharynx unspecified	1	1	0	1	1	0
Digestive system	878	533	345	737	475	262
Esophagus	19	16	3	23	21	2
Stomach	91	52	39	87	53	34
Small intestine	6	4	2	6	4	2
Colon	142	66	76	73	41	32
Rectum	126	70	56	80	45	35
Anus	8	3	5	5	3	2
Liver	397	271	126	375	264	111
Gallbladder	41	23	18	38	20	18
Pancreas	48	28	20	50	24	26
Respiratory system	609	359	250	555	334	221
Nose, sinuses etc.	4	2	2	5	2	3
Larynx	31	25	6	18	15	3
Lung	572	330	242	527	314	213
Other Thoracic organs	2	2	0	5	3	2
Bone	9	7	2	7	3	4
Soft tissue	13	8	5	11	6	5
Connective tissue	11	6	5	10	5	5
Mesothelioma	1	1	0	1	1	0
Kaposi's sarcoma	1	1	0	0	0	0
Skin	120	56	64	38	20	18
Melanoma of skin	11	6	5	9	5	4
Non-melanoma of skin	109	50	59	29	15	14
Breast	355	2	353	88	2	86
Genital system	514	76	438	179	36	143
Vulva	6		6	2		2
Vagina	2		2	2		2
Cervix	303		303	109		109
Corpus	56		56	10		10
Uterus	2		2	1		1
Ovary	65		65	16		16
Other Female Genital	2		2	1		1
Placenta	2		2	2		2
Penis	6	6		6	6	
Prostate	66	66		30	30	
Testis	4	4		0	0	
Other male genital	0	0		0	0	
Urinary system	136	98	38	74	53	21
Kidney	34	23	11	14	5	9
Renal Pelvis	6	4	2	4	3	1
Ureter	5	2	3	0	0	0
Bladder	91	69	22	56	45	11
Other Urinary organs	0	0	0	0	0	0
Eye	6	3	3	3	1	2
Brain, nervous system	32	22	10	16	9	7
Endocrine system	60	17	43	20	6	14
Thyroid	55	14	41	19	6	13
Adrenal gland	3	2	1	1	0	1
Other Endocrine	2	1	1	0	0	0
Lymphoma	131	72	59	86	49	37
Hodgkin disease	8	6	2	7	6	1
Non-Hodgkin lymphoma	123	66	57	79	43	36
Immunoproliferative dis.	0	0	0	0	0	0
Multiple myeloma	15	10	5	11	7	4
Leukaemia	66	39	27	45	28	17
Lymphoid Leukemia	19	12	7	10	7	3
Myeloid Leukemia	43	25	18	31	19	12
Leukemia unspec.	4	2	2	4	2	2
Other & unspecified	119	62	57	108	56	52

Population-based Registration

Overview

In the year 2008, there were an estimated 3,167 new invasive cancer cases and 368 in situ cases in Chiang Mai province. There were 1,433 males, and 1,734 females with a male to female ratio of 1:1.2 and in the same period, 1,138 males and 916 females died from cancer (Table 1). The new cancer cases increased from 1,340 cases in males and increased from 1,616 cases in females compared to the year 2007. The number of cancer deaths in males increased from 995 cases and in females increased from 912 cases in the year 2007.

The data were obtained from the followings: 62.3% from Maharaj Nakorn Chiang Mai Hospital, 21.1% from Nakhonping Hospital (the provincial hospital), 0.9% from other government hospitals, 5.7% from community hospitals, 10.0% from private hospitals, and 0.9% from death certificates.

The standardized incidence rates were 151.5 for males and 160.4 for females. The cumulative rate percentages to age 75 were 16.4% for males (Table 12) and 19.1% for females (Table 13). These represented cumulative risks for developing of cancer of 10 in 61 for men and 10 in 52 for women. In the year 2008, the incidence in both males and females trended to continue increasing from the year 1999 (Fig. 1).

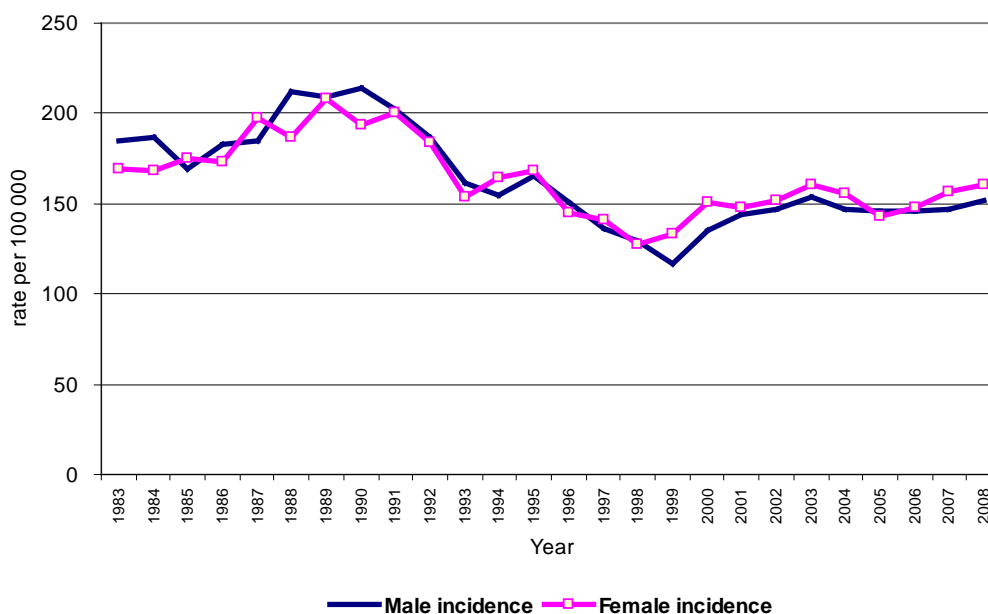


Figure 1: Age-standardized incidence rates (world) of cancer in Chiang Mai, 1983-2008

INCIDENCE

Age and Sex

The age at diagnosis in males ranged from less than one year to 97 years, with a mean age of 61.1 years and a median age of 62 years (Fig. 2) and in females ranged from less than one year to 98 years, with the mean age at diagnosis of 57.2 years and a median age of 55 years. Childhood cancers were relatively uncommon in Chiang Mai. Only 32 cases (1.0%) of all cancers occurred before age 15, whereas 47.5% occurred after age 60.

The male to female ratio was approximately 1:1.2, but 45.6% of the cancers in females occurred in sex-specific sites (i.e., breast and reproductive organs) while only 5.4% of the cancers in males occurred in sex-specific sites (i.e., prostate, testis, and penis). When sex-specific sites were excluded, the male to female ratio changed to 1.4:1 because of the higher incidence of lung cancer and liver cancer in males.

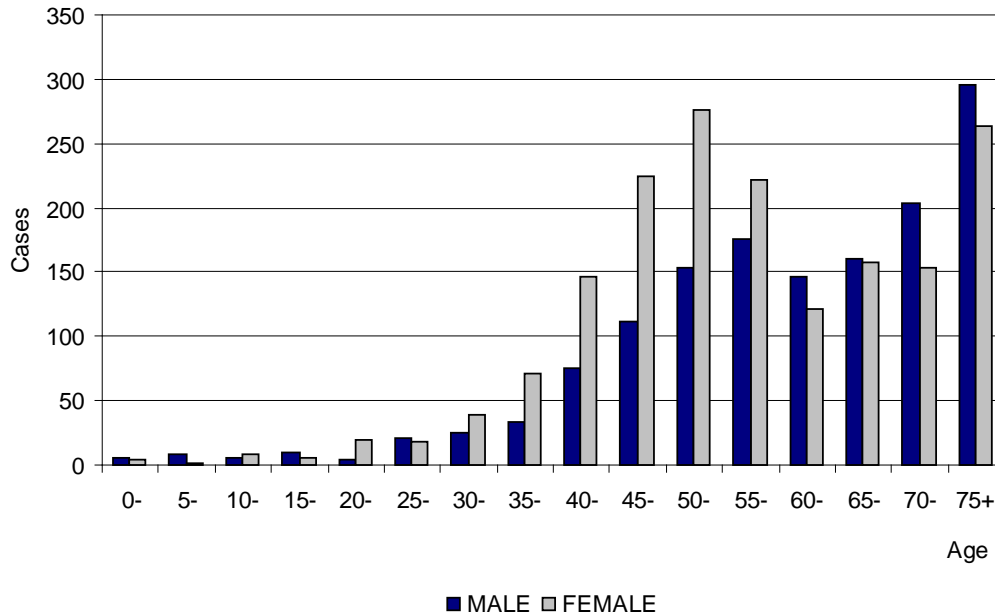


Figure 2: Age group distribution of new cancer cases in Chiang Mai, 2008

In the age group 30-59 years, more women had cancer than men, because of the large number of the breast and cervix cancers. For age 60 and over, more men had cancer than women because of the high incidence of lung and liver cancers (Fig. 2). The age-specific incidence rates increased gradually after the age of 25 years in both sexes, and males outnumbered females after the age of 60 (Fig. 3).

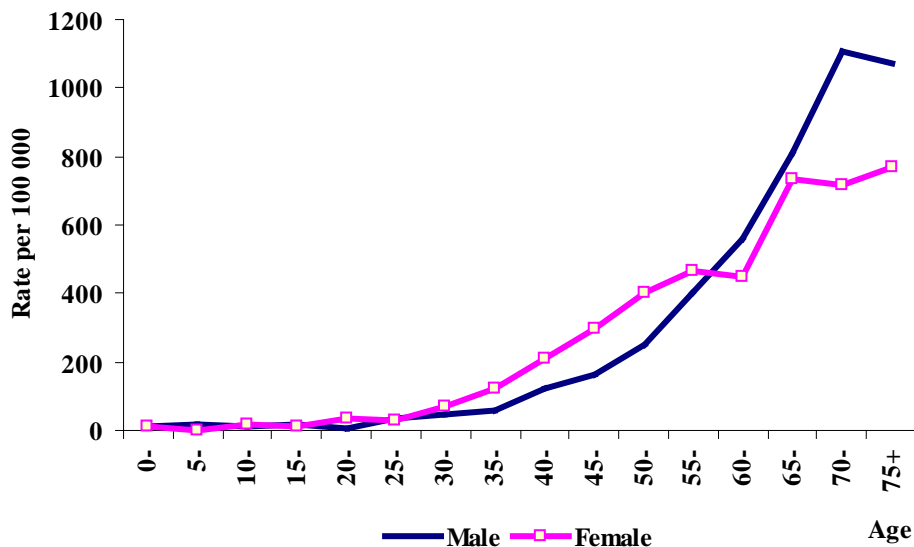


Figure 3: Age-specific incidence rates, Chiang Mai, 2008

Incidence of New Cancer Cases by Districts

High standardized incidence rates for males were found in San Kamphaeng, Hang Dong, Hot, San Sai and Chom Thong districts. The high incidence rate was high in Hot district even though the number of new cases was small due to a small population. In San Kamphaeng, Hang Dong, Hot, and Chom Thong, incidence rates was high because of high incidences of lung and liver cancer in males. For females, high standardized incidence rates were found in Mae On, Chiang Dao, Doi Lo, San Pa Tong, and Doi Saket districts. In Mae On, the incidence rate was high even though the number of new cases was small due to a small population. Incidence rates in Mae On, Doi Lo and Doi Saket were high due to the high incidence of cervix and lung cancer. Low incidences of cancer in males were found in Wieng Haeng, Mae On, and Omkoi districts and in females were found in Hot, Doi Tao and Om koi districts (Table 4).

MORTALITY

Age and Sex

In 2008, there were an estimated 2,054 cancer death cases (1,138 males, 916 females, Table 1), accounting for 15.4% 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 116.7 per 100,000 males (Table 16) and 85.1 per 100,000 females (Table 17). Cancer death rates for men and women have continued to decrease since 2005 (Fig. 4). The age-specific mortality rate increased after the age of 40 years for males and after the age of 45 for females (Fig. 5). The cumulative rate percentages to age 75 were 12.9% for males (Table 16) and 9.7% for females (Table 17). These represented risks of dying from cancer that were 10 in 78 for males and 10 in 103 for females.

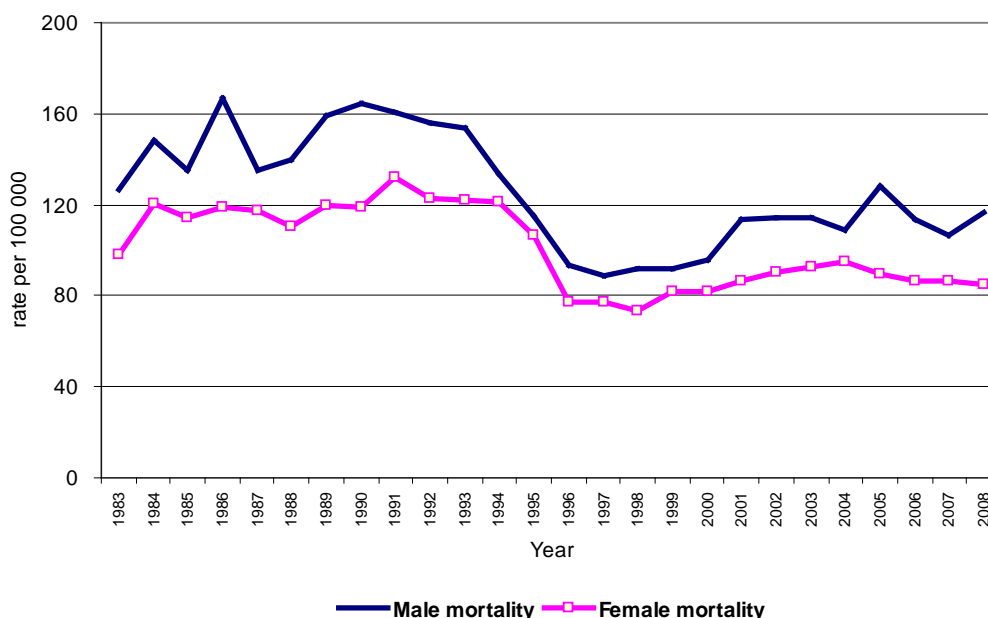


Figure 4: Age-standardized mortality rates (world) of cancer in Chiang Mai, 1983-2008

For all cancer death cases, 1,465 cases (71.3%) survived less than one year, while only 84 cases (4.1%) survived more than 5 years. This indicates the severity of cancer in Chiang Mai.

Mortality of cancer cases by districts

The highest mortality rate for males was in San Pa Tong district, followed by Doi Saket, Wiang Haeng, Mae Taeng, and Saraphi districts. These high mortality rates were because of mortality from lung and liver cancer. For females, the highest mortality rate was in Doi Law district, followed by Mae Taeng, Chiang Dao, Hang Dong and Doi Saket districts (Table 5). The high mortality rates were because of mortality from lung, cervix, liver, and breast cancer.

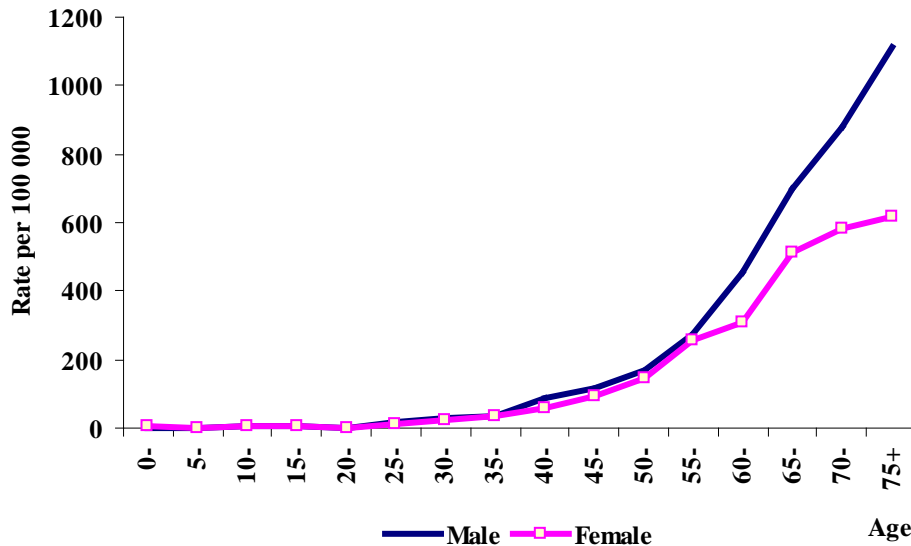


Figure 5: Age-specific mortality rate, Chiang Mai, 2008

DIAGNOSIS AND STAGE OF CANCER

Basis of Diagnosis

2,389 cases (75.4%) were histologically verified, with 62.0% from primary sites and 7.1% from metastasis sites (Table 2). Twenty four percent were clinically diagnosed and 0.9% were determined from death certificates only. By site, the percentages of histologically verified cases were low for cancer of the pancreas, liver, brain and gallbladder (Table 8 and Table 9).

Stage of Cancer

Fifty-two percent were diagnosed in localized and locally advanced stages, and 23.7% had distant metastasis (Table 3). Since 2001, distant metastasis cases at first diagnosis have decreased, and locally advanced cases have increased every year, which indicates that cancer is being diagnosed earlier. All brain tumors, lymphoma, and leukemia were staged as “not applicable” The “death certificate only” cases were staged as “unknown” The most common site of distant metastasis was lung (23.1%), followed by distant lymph nodes (17.8%), liver (16.2%), bone (11.8%) and brain (11.8%).

Table 2: Basis of diagnosis

Type of diagnosis	No.	%
Histological verification	2389	75.4
Histology of primary	1962	62.0
Histology of metastasis	225	7.1
Cytology/hematology	202	6.4
Autopsy	0	0.0
No histological verification	756	23.7
Clinical only	27	0.9
Clinical and investigations	680	21.5
Operation/surgery	41	1.3
Immuno/biochemistry	2	0.1
Death certificate only	28	0.9
<i>Unknown</i>	<i>0</i>	<i>0.0</i>
	3167	100.0

Table 3: Stage of disease

Stage	No.	%
Localized	540	17.1
Locally advanced	1116	35.2
Regional node metastasis	419	13.2
Distant metastasis	752	23.7
Not applicable	238	7.5
Unknown/not staged	102	3.2
	3167	

Leading Sites of Cancer Incidence

Of invasive cancer in both sexes combined, lung cancer was the most common (572 cases), followed by liver, breast, cervix and colon cancer. Together these five types of cancer accounted for 55.9% of all new cancers. For males, the most common cancer was lung cancer, accounting for 23.0% of all newly diagnosed cases, followed by liver, rectum, bladder and colon cancer (Fig. 6). For females, the most common cancer was breast cancer, accounting for 20.4% of all newly diagnosed cases, followed by cervix, lung, liver, and colon cancer.

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

Leading Sites of Cancer Deaths

Lung cancer (25.7%) was the most common cause of cancer death, followed by liver, cervix, breast, and stomach cancer (Fig. 7). Lung and liver cancer accounted for 43.9% of all cancer deaths. For males, the lung was the most common site of cancer deaths, accounting for 27.6%, followed by the liver, stomach, rectum, and bladder. For females, the lung was also the most common site of cancer deaths, accounting for 23.3%, followed by liver, cervix, breast, and NHL.

For males, liver cancer was the most common cause of death in the age group 30-59, and second after lung cancer in the age group of 60 and more (Table 7). For females, breast cancer was the most common cause in the age group 30-44, cervix cancer was the most common cause in the age group 45-59 and lung cancer was the most common cause in the age group 60 and over.

Table 4: Incidence and common sites of new cancer cases in districts of Chiang Mai, 2008

	Districts	Rates	All sites	Common sites										
				Lung	Liver	Rectum	Bladder	Colon	Prostate	NHL	Stomach	Skin*	Pancreas	
Males	Muang	163.4	230	39	36	16	17	19	13	10	9	12	5	
	Chom Thong	168.0	71	25	6	3	1	3	1	3	3	6	2	
	Mae Chaem	115.1	36	9	8	2	0	0	0	1	5	0	0	
	Chiang Dao	128.9	49	13	9	1	2	1	1	2	1	2	1	
	Doi Saket	154.5	69	17	14	3	5	2	1	1	3	2	3	
	Mae Taeng	157.9	81	17	20	2	2	6	5	4	2	2	0	
	Mae Rim	146.0	67	18	13	1	5	5	2	4	2	3	1	
	Samoeng	114.6	16	2	4	2	0	0	1	1	0	0	0	
	Fang	128.3	70	15	12	1	6	4	3	5	5	2	0	
	Mae Ai	133.8	47	14	9	2	1	3	0	1	3	1	1	
	Phrao	134.4	45	6	8	2	5	2	3	1	2	0	0	
	San Pa Tong	165.4	96	26	15	4	3	4	4	4	5	3	4	
	San Kamphaeng	187.4	98	21	18	6	3	1	7	7	1	3	1	
	San Sai	171.3	110	24	28	8	6	3	10	4	2	1	2	
	Hang Dong	176.9	79	19	17	6	2	2	3	4	2	3	1	
	Hot	173.9	42	13	7	3	2	0	2	4	0	1	1	
	Doi Tao	147.9	28	4	7	0	0	1	1	3	0	2	1	
	Omko	67.0	15	3	4	0	0	1	0	2	1	0	0	
	Saraphi	157.6	80	19	12	3	4	7	4	2	5	2	2	
	Wiang Haeng	100.9	6	1	1	0	0	0	0	1	0	1	0	
Chai Prakan	133.2	28	7	6	3	1	1	1	1	0	1	0		
Mae Wang	133.0	24	6	8	0	2	0	1	0	0	1	1		
Mae On	99.4	17	4	5	1	0	1	0	0	1	1	0		
Doi Law	151.9	28	7	4	1	2	0	3	1	0	1	2		
Females	Districts	Rates	All sites	Breast	Cervix	Lung	Liver	Colon	Ovary	Skin*	NHL	Rectum	Corpus	
	Muang	169.9	300	88	33	21	10	19	20	10	9	12	20	
	Chom Thong	147.4	64	13	13	11	5	1	1	1	2	1	2	
	Mae Chaem	115.1	35	6	2	5	4	0	0	0	2	0	2	
	Chiang Dao	206.6	75	14	17	10	7	2	2	3	4	0	1	
	Doi Saket	178.7	92	13	17	13	12	4	7	0	5	3	2	
	Mae Taeng	162.4	83	7	17	17	10	1	4	1	0	6	2	
	Mae Rim	157.8	89	18	20	15	4	3	2	6	3	1	3	
	Samoeng	137.2	18	2	1	4	0	0	1	0	0	2	1	
	Fang	169.5	102	14	28	9	6	6	1	6	5	2	4	
	Mae Ai	149.4	55	5	13	11	2	4	1	0	2	4	3	
	Phrao	178.2	65	20	7	13	6	3	3	3	1	2	1	
	San Pa Tong	179.5	113	19	20	16	7	6	6	5	8	5	2	
	San Kamphaeng	149.5	93	17	14	15	3	3	4	6	0	2	4	
	San Sai	156.3	125	31	21	16	15	8	2	8	1	2	4	
	Hang Dong	173.7	97	19	22	17	12	0	3	3	3	2	2	
	Hot	104.6	28	3	4	3	3	2	1	0	2	1	0	
	Doi Tao	103.6	18	6	2	3	0	0	0	0	3	2	0	
	Omko	43.5	11	0	0	0	1	0	0	0	1	0	0	
	Saraphi	173.8	109	30	18	14	7	6	2	3	4	3	0	
Wiang Haeng	175.8	11	2	0	1	0	2	1	0	0	0	0		
Chai Prakan	171.9	45	9	13	5	3	1	0	1	0	4	1		
Mae Wang	156.8	34	9	5	6	1	2	1	1	0	1	2		
Mae On	215.8	32	4	9	7	3	2	1	1	0	1	0		
Doi Law	186.1	40	4	7	10	5	1	2	1	2	0	0		
Both sexes	Districts	Rates	All sites	Lung	Liver	Breast	Cervix	Colon	Rectum	NHL	Skin*	Stomach	Bladder	
	Muang		530	60	46	88	33	38	28	19	22	16	20	
	Chom Thong		135	36	11	13	13	4	4	5	7	3	1	
	Mae Chaem		71	14	12	6	2	0	2	3	0	8	0	
	Chiang Dao		124	23	16	14	17	3	1	6	5	2	2	
	Doi Saket		161	30	26	13	17	6	6	6	2	6	5	
	Mae Taeng		164	34	30	7	17	7	8	4	3	3	4	
	Mae Rim		156	33	17	18	20	8	2	7	9	3	8	
	Samoeng		34	6	4	2	1	0	4	1	0	2	0	
	Fang		172	24	18	15	28	10	3	10	8	7	7	
	Mae Ai		102	25	11	5	13	7	6	3	1	4	1	
	Phrao		110	19	14	20	7	5	4	2	3	2	5	
	San Pa Tong		209	42	22	19	20	10	9	12	8	6	5	
	San Kamphaeng		191	36	21	18	14	4	8	7	9	2	7	
	San Sai		235	40	43	31	21	11	10	5	9	3	7	
	Hang Dong		176	36	29	19	22	2	8	7	6	4	2	
	Hot		70	16	10	3	4	2	4	6	1	1	3	
	Doi Tao		46	7	7	6	2	1	2	6	2	0	0	
	Omko		26	3	5	0	0	1	0	3	0	3	1	
	Saraphi		189	33	19	30	18	13	6	6	5	9	8	
Wiang Haeng		17	2	1	2	0	2	0	1	1	2	0		
Chai Prakan		73	12	9	9	13	2	7	1	2	1	1		
Mae Wang		58	12	9	9	5	2	1	0	2	1	2		
Mae On		49	11	8	4	9	3	2	0	2	1	0		
Doi Law		68	17	9	4	7	1	1	3	2	2	2		

Skin* - non-melanoma skin cancer

Table 5: Mortality rate and common cancer sites in districts of Chiang Mai, 2008

	Districts	Rates	All sites	Lung	Liver	Stomach	Colon	Rectum	NHL	Bladder	Prostate	Nasopha.
	Males	Muang	116.6	172	41	33	7	6	8	9	15	6
	Chom Thong	128.8	55	20	9	5	3	1	2	0	2	0
	Mae Chaem	99.4	32	6	9	3	0	0	0	2	1	3
	Chiang Dao	108.1	42	11	9	1	1	3	2	0	0	3
	Doi Saket	141.9	64	18	11	5	1	2	4	3	2	1
	Mae Taeng	140.6	72	20	19	3	3	1	3	2	3	0
	Mae Rim	103.7	52	17	14	1	0	3	1	1	2	2
	Samoeng	115.5	16	2	3	1	1	0	1	0	0	0
	Fang	100.3	55	15	16	2	4	4	2	0	3	0
	Mae Ai	129.2	44	14	10	2	1	1	3	2	0	1
	Phrao	122.7	40	6	8	1	3	4	0	1	0	2
	San Pa Tong	145.6	87	31	14	3	4	3	5	1	2	3
	San Kamphaeng	127.0	63	22	17	1	4	1	1	2	1	1
	San Sai	113.2	74	15	27	2	3	1	2	3	3	1
	Hang Dong	115.1	52	16	16	3	4	2	1	0	1	0
	Hot	102.2	26	6	7	1	2	3	1	0	1	0
	Doi Tao	96.9	18	5	3	0	0	1	1	2	0	0
	Omkoï	56.3	12	2	4	1	0	0	0	0	0	2
	Saraphi	135.7	77	21	13	6	4	3	3	7	2	0
	Wiang Haeng	141.2	8	3	1	2	0	0	0	0	0	0
	Chai Prakan	100.1	22	5	8	1	0	3	0	0	0	1
	Mae Wang	87.7	18	4	4	1	1	0	1	0	1	1
	Mae On	100.7	16	7	5	1	0	0	0	0	0	0
	Doi Law	110.8	21	7	4	0	0	1	1	0	0	1
	Districts	Rates	All sites	Lung	Liver	Cervix	Breast	Colon	Stomach	Rectum	Ovary	Gallblad.
Females	Muang	73.7	128	23	12	14	20	4	7	3	6	5
	Chom Thong	75.3	32	6	4	2	3	0	1	2	0	1
	Mae Chaem	71.3	21	4	2	2	0	2	1	1	1	2
	Chiang Dao	111.4	41	7	5	5	5	4	1	2	1	1
	Doi Saket	105.1	55	16	11	5	6	3	3	3	1	0
	Mae Taeng	111.8	56	14	7	12	1	0	2	0	3	2
	Mae Rim	78.6	45	11	4	9	1	2	1	0	5	3
	Samoeng	68.7	8	1	0	0	1	0	2	1	0	1
	Fang	77.0	46	9	2	9	4	1	0	4	2	0
	Mae Ai	74.3	27	8	2	1	1	1	2	0	0	1
	Phrao	89.5	33	14	3	8	1	1	0	0	0	0
	San Pa Tong	92.7	65	11	6	5	3	8	1	1	3	3
	San Kamphaeng	75.1	48	12	4	6	3	1	1	1	0	1
	San Sai	95.6	71	15	15	7	9	3	2	3	4	0
	Hang Dong	108.5	58	18	11	8	3	2	3	0	0	2
	Hot	41.5	12	2	1	0	1	0	1	1	1	1
	Doi Tao	47.8	9	3	0	1	1	1	0	1	0	0
	Omkoï	55.0	13	0	1	0	2	1	0	4	2	0
	Saraphi	100.5	63	18	4	5	10	2	3	3	2	1
	Wiang Haeng	70.8	5	0	0	2	0	0	0	2	0	0
	Chai Prakan	59.5	16	2	2	3	5	0	1	0	1	0
	Mae Wang	103.3	19	4	4	2	2	0	1	2	0	1
	Mae On	104.7	17	6	4	1	1	0	0	0	0	1
	Doi Law	129.0	27	9	7	2	1	2	1	0	0	0
	Districts	All sites	Lung	Liver	Cervix	Stomach	Colon	Breast	Rectum	NHL	Bladder	
Both sexes	Muang	300	64	45	14	20	10	13	13	21	12	
	Chom Thong	87	26	13	2	3	7	4	2	0	1	
	Mae Chaem	53	10	11	2	2	4	2	0	3	0	
	Chiang Dao	83	18	14	5	5	3	2	6	1	3	
	Doi Saket	119	34	22	5	6	8	4	7	4	4	
	Mae Taeng	128	34	26	12	1	3	5	3	5	1	
	Mae Rim	97	28	18	9	1	1	1	3	6	4	
	Samoeng	24	3	3	0	1	2	3	1	0	0	
	Fang	101	24	18	9	4	6	4	3	2	5	
	Mae Ai	71	22	12	1	1	2	3	4	2	1	
	Phrao	73	20	11	8	1	1	3	1	1	4	
	San Pa Tong	152	42	20	5	3	4	5	13	4	4	
	San Kamphaeng	111	34	21	6	4	2	5	2	2	2	
	San Sai	145	30	42	7	9	5	5	5	7	2	
	Hang Dong	110	34	27	8	3	3	7	3	0	2	
	Hot	38	8	8	0	1	2	3	1	1	3	
	Doi Tao	27	8	3	1	1	1	0	2	2	1	
	Omkoï	25	2	5	0	2	5	0	1	2	0	
	Saraphi	140	39	17	5	10	9	7	5	9	3	
	Wiang Haeng	13	3	1	2	0	4	0	0	0	0	
	Chai Prakan	38	7	10	3	6	1	1	0	1	3	
	Mae Wang	37	8	8	2	2	3	2	1	0	0	
	Mae On	33	13	9	1	1	1	0	0	0	0	
	Doi Law	48	16	11	2	1	0	1	3	0	1	

Estimated New Cases

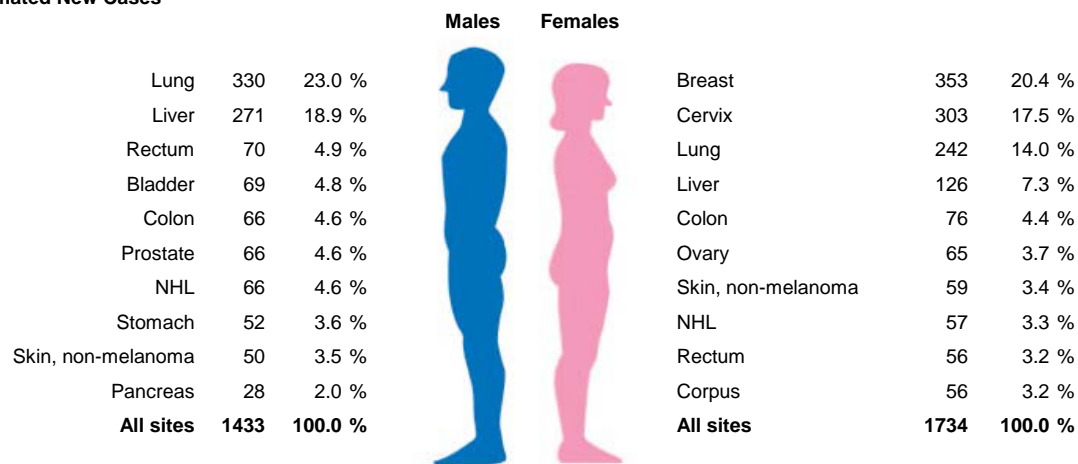


Figure 6: Ten leading cancer sites for the estimated new cases, by sex, 2008

Estimated Deaths

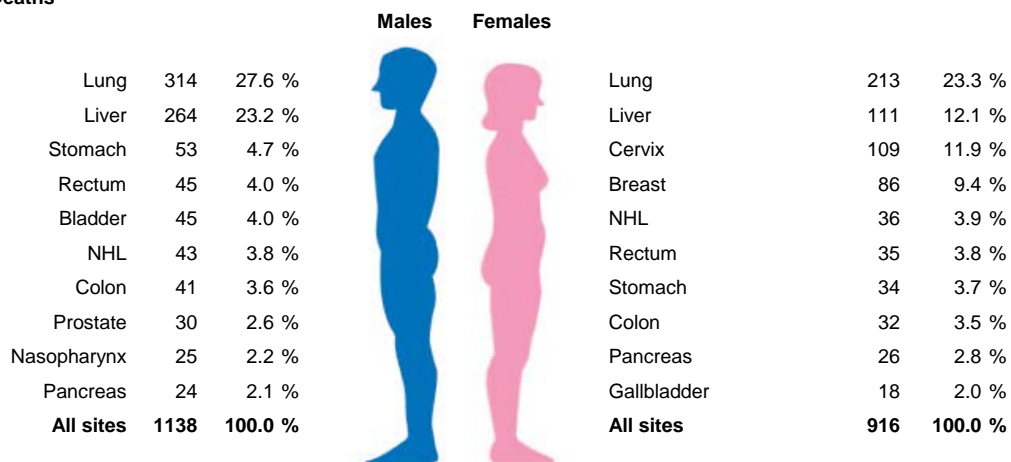


Figure 7: Ten leading cancer sites for the estimated dead cases, by sex, 2008

Table 6 : Top 5 cancers in Chiang Mai by 15-year age groups, 2008

Males		0-14		15-29		30-44		45-59		60-74		75+	
Incidence	Age group	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Lymphoid Leukaemia	6	NHL	6	Liver	35	Liver	103	Lung	164	Lung	68	Lung	68
Brain, Nervous system	5	Stomach	3	NHL	18	Lung	85	Liver	91	Liver	38	Liver	38
Liver	1	Liver	3	Lung	12	Rectum	27	Prostate	32	Prostate	25	Prostate	25
Bone	1	Skin, non-melanoma	3	Colon	7	Colon	26	Bladder	31	Bladder	22	Bladder	22
Mesothelioma	1	Myeloid Leukaemia	3	Rectum	6	Stomach	16	Rectum	21	Colon	15	Colon	15
All sites	19	All sites	35	All sites	133	All sites	440	All sites	511	All sites	295	All sites	295
Females													
Incidence	Age group	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Skin, non-melanoma	2	Thyroid	7	Cervix	79	Breast	217	Lung	109	Lung	63	Lung	63
Ovary	2	Ovary	6	Breast	69	Cervix	163	Liver	47	Liver	25	Liver	25
Brain, Nervous system	2	NHL	5	Lung	14	Lung	56	Breast	46	Breast	22	Colon	22
Lymphoid Leukaemia	2	Cervix	4	Thyroid	14	Liver	48	Cervix	40	Breast	18	Breast	18
Eye	1	Breast	3	Stomach	9	Corpus	33	Colon	17	Rectum	17	Rectum	17
All sites	13	All sites	44	All sites	257	All sites	723	All sites	434	All sites	263	All sites	263
Males													
Incidence	Age group	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Lymphoid Leukaemia	1.4	NHL	0.8	Liver	3.6	Liver	9.0	Lung	21.9	Lung	4.9	Lung	4.9
Brain, Nervous system	1.2	Stomach	0.4	NHL	1.9	Lung	7.4	Liver	12.7	Liver	2.8	Liver	2.8
Liver	0.3	Liver	0.4	Lung	1.3	Rectum	2.4	Prostate	4.3	Prostate	1.8	Prostate	1.8
Bone	0.2	Skin, non-melanoma	0.4	Colon	0.7	Colon	2.3	Bladder	4.2	Bladder	1.6	Bladder	1.6
Mesothelioma	0.2	Myeloid Leukaemia	0.4	Rectum	0.6	Stomach	1.4	Rectum	2.7	Colon	1.1	Colon	1.1
All sites	4.2	All sites	4.7	All sites	13.9	All sites	38.5	All sites	68.9	All sites	21.4	All sites	21.4
Females													
Incidence	Age group	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Skin, non-melanoma	0.5	Thyroid	0.9	Cervix	7.4	Breast	16.8	Lung	13.7	Lung	3.7	Lung	3.7
Ovary	0.5	Ovary	0.8	Breast	6.4	Cervix	12.7	Liver	5.9	Liver	1.5	Liver	1.5
Brain, Nervous system	0.3	NHL	0.7	Thyroid	1.3	Lung	4.5	Breast	5.9	Colon	1.3	Colon	1.3
Lymphoid Leukaemia	0.3	Cervix	0.5	Lung	1.2	Liver	3.8	Cervix	5.2	Breast	1.1	Breast	1.1
Eye	0.3	Breast	0.4	Stomach	0.9	Corpus	2.5	Colon	2.1	Rectum	1.0	Rectum	1.0
All sites	2.8	All sites	5.9	All sites	24.1	All sites	56.5	All sites	54.3	All sites	15.4	All sites	15.4

Table 7 : Top 5 cancer deaths in Chiang Mai by 15-year age groups, 2008

Mortality		Age group 0-14		15-29		30-44		45-59		60-74		75+	
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Males													
Liver	1	Myeloid Leukaemia	4	Liver	35	Liver	93	Liver	144	Liver	81	Liver	38
Nasopharynx	1	Rectum	2	Lung	13	Lung	76	Lung	95	Rectum	26	Bladder	26
Other Thoracic organs	1	Liver	2	NHL	6	Stomach	15	Rectum	21	Stomach	20	Prostate	23
Mesothelioma	1	Non-Hodgkin lymphoma	2	Stomach	5	Nasopharynx	10	Colon	16	Rectum	16	Rectum	16
Lymphoid Leukaemia	1	Brain, Nervous system	1	Nasopharynx	3	NHL	10	All sites	304	All sites	419	All sites	307
All sites	5	All sites	14	All sites	89	All sites	304	All sites	419	All sites	307	All sites	307
Females													
Mortality		Age group 0-14		15-29		30-44		45-59		60-74		75+	
CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases	CANCER / SITE	cases
Myeloid Leukaemia	1	Brain, Nervous system	2	Breast	15	Cervix	53	Lung	98	Lung	56	Lung	19
Bone	1	Nasopharynx	1	Cervix	12	Lung	50	Liver	47	Liver	19	Liver	14
Ovary	1	Other Thoracic organs	1	Lung	9	Breast	40	Rectum	30	Rectum	14	Rectum	14
Brain, Nervous system	1	Kidney	1	NHL	7	Liver	39	Breast	17	Cervix	14	Cervix	14
Other & unspecified	3	Stomach	1	Stomach	5	NHL	14	Pancreas	13	Breast	13	Breast	13
All sites	7	All sites	11	All sites	75	All sites	292	All sites	319	All sites	212	All sites	212
Males													
Mortality		Age group 0-14		15-29		30-44		45-59		60-74		75+	
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Liver	0.3	Myeloid Leukaemia	0.5	Liver	3.6	Liver	8.1	Lung	19.4	Lung	5.9	Lung	2.8
Nasopharynx	0.2	Rectum	0.3	Lung	1.4	Lung	6.7	Rectum	13.2	Liver	2.8	Bladder	1.9
Other Thoracic organs	0.2	Liver	0.3	NHL	0.6	Stomach	1.3	Stomach	2.6	Rectum	1.7	Prostate	1.7
Mesothelioma	0.2	NHL	0.3	Stomach	0.5	Nasopharynx	0.9	Stomach	2.6	Colon	1.2	Rectum	1.2
Lymphoid Leukaemia	0.2	Brain, Nervous system	0.2	Nasopharynx	0.3	NHL	0.9	Colon	2.3	All sites	56.7	All sites	22.3
All sites	1.0	All sites	1.9	All sites	9.2	All sites	26.6	All sites	56.7	All sites	22.3	All sites	22.3
Females													
Mortality		Age group 0-14		15-29		30-44		45-59		60-74		75+	
CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR	CANCER / SITE	ASR
Myeloid Leukaemia	0.3	Brain, Nervous system	0.3	Breast	1.4	Cervix	4.1	Lung	11.9	Lung	3.3	Liver	1.1
Bone	0.2	Nasopharynx	0.2	Cervix	1.1	Liver	4	Liver	5.8	Liver	1.1	Rectum	0.8
Ovary	0.2	Other Thoracic organs	0.2	Lung	0.8	Breast	3.2	Cervix	3.9	Rectum	0.8	Rectum	0.8
Brain, Nervous system	0.2	Kidney	0.2	NHL	0.7	Liver	3.1	Breast	2.1	Cervix	0.8	Cervix	0.8
Other & unspecified	0.8	Stomach	0.1	Stomach	0.5	NHL	1.1	Pancreas	1.5	Pancreas	0.8	Breast	0.8
All sites	1.6	All sites	1.5	All sites	7.1	All sites	23.0	All sites	39.3	All sites	12.4	All sites	12.4

COMMON CANCERS IN CHIANG MAI, 2008

Lung cancer (ICD-10 C33-C34)

There were 572 new cases of lung cancer diagnosed in 2008 (330 males, 242 females). This was 23.0% of all cancers in males and 14.0% of those in females. The age-standardized incidence rates were 35.7 for males and 23.1 for females. Lung cancer has ranked first for new male cancers in Chiang Mai since the first population-based registration in 1983. For females, lung cancer ranked third in 2005 after breast and cervical cancers. The incidence rates increased with age in both sexes. Rates in both sexes increased sharply after the age of 45 and male rates exceeded female rates after the age of 65 (Fig 10). The cumulative rate percentages to age 75 were 4.8% for males and 3.8% for females. These represented risks of 1 in 21 for men and 1 in 26 for women of developing lung cancer by age 75.

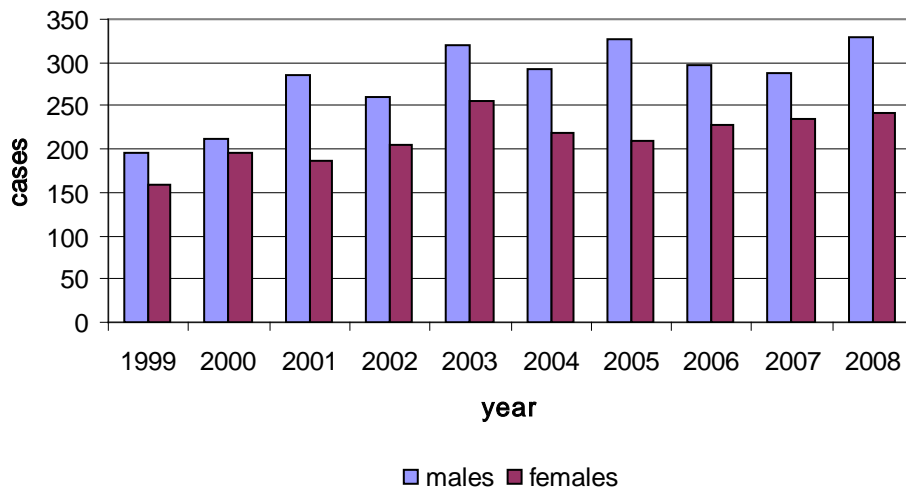


Figure 8: Number of new cases of lung cancer by sex, 1999-2008

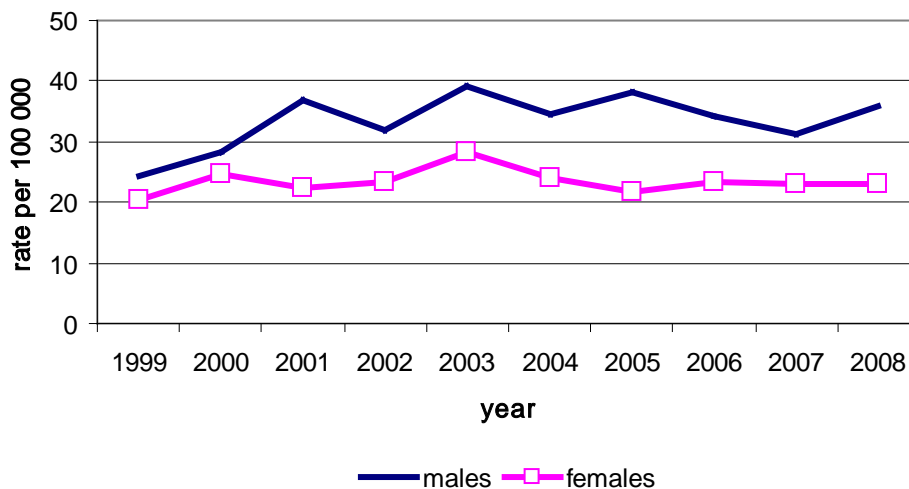


Figure 9: Incidence rates of new cases of lung cancer by sex, 1999-2008

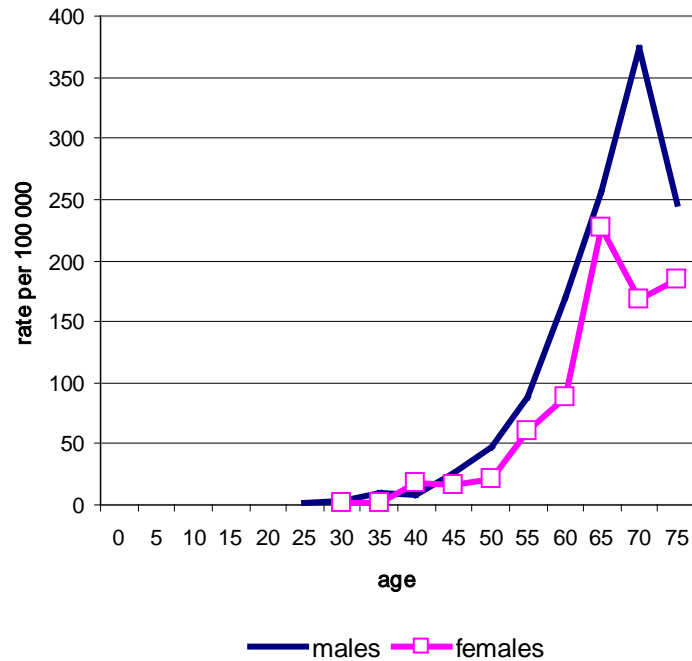


Figure 10: Age-specific incidence rate of lung cancer, Chiang Mai, 2008

Of the 527 deaths from lung cancer, 314 were males (27.6% of all male cancer deaths) and 213 were females (23.3% of all female cancer deaths). In 2008, the mortality rates were 33.3 for males and 20.0 for females. Compared with the year 2007, the mortality rate in males was increased but the mortality rate in females was decreased (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, 1999-2008

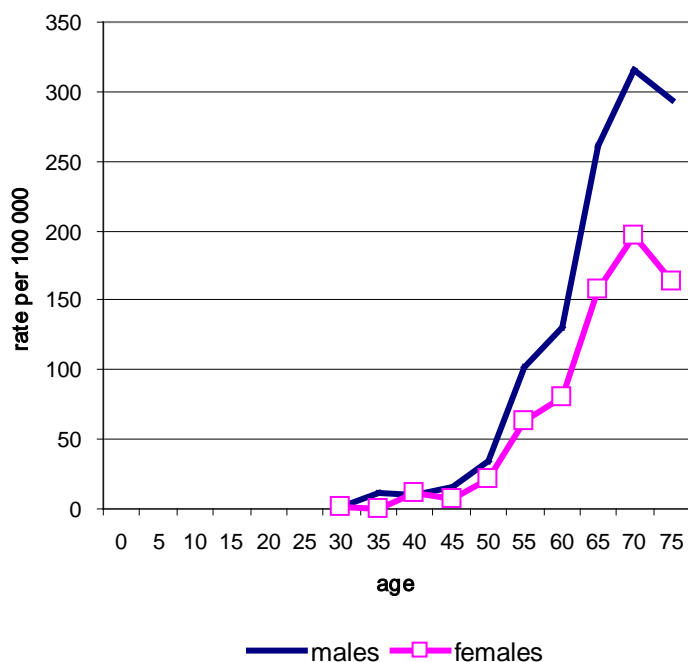


Figure 12: Age-specific mortality rate of lung cancer, Chiang Mai, 2008

For lung cancer deaths, 445 cases (84.4%) died within one year of diagnosis and 59 cases (11.2%) died in the second year.

Diagnosis and stages of cancer

Sixty-five percent of cases were diagnosed in advanced stage (50.5% had distant metastasis, 14.9% had regional nodes metastasis). The most common metastasis site was lung-to-lung, followed by brain. Two hundred and forty-one cases (42.1%) were diagnosed by clinical diagnosis, and 9 cases were diagnosed by death certificate only. The common cell types were adenocarcinoma (29.2%) and squamous cell carcinoma (16.1%).

Cell type	Males	Females	Total	%
Adenocarcinoma	90	77	167	29.2
Squamous cell CA	61	31	92	16.1
Small cell	20	21	41	7.2
Large cell	17	4	21	3.7
Others	7	3	10	1.7
Clinical diagnosis	135	106	241	42.1
TOTAL	330	242	572	100.0

Stage	Cases	%
Localized	17	3.0
Locally advanced	154	26.9
Regional node metastasis	85	14.9
Distant metastasis	289	50.5
Unknown/not staged	27	4.7
All	572	100.0

Liver cancer (ICD-10 C22)

There were 397 new cases of liver cancer diagnosed in 2008 (271 males, 126 females). This was 18.9% of all cancers in males and 7.3% of those in females. The age-standardized incidence rates were 28.7 for males and 11.8 for females. Liver cancer has ranked second for new male cancers in Chiang Mai since the first population-based registration in 1983. For females, liver cancer ranked fourth in 2005 after breast, cervical and lung 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 3.4% for males and 1.8% for females. These represented risks of 10 in 297 for men and 10 in 541 for women of developing liver cancer by age 75.

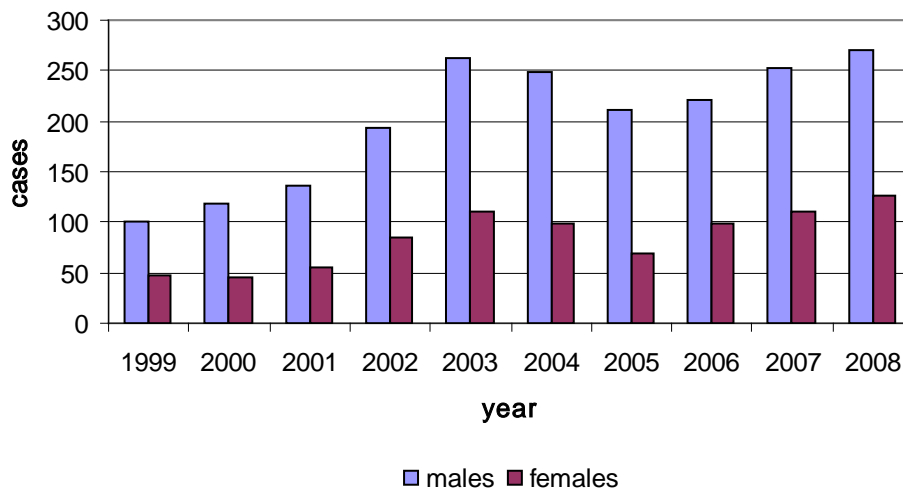


Figure 13: Number of new cases of liver cancer by sex, 1999-2008

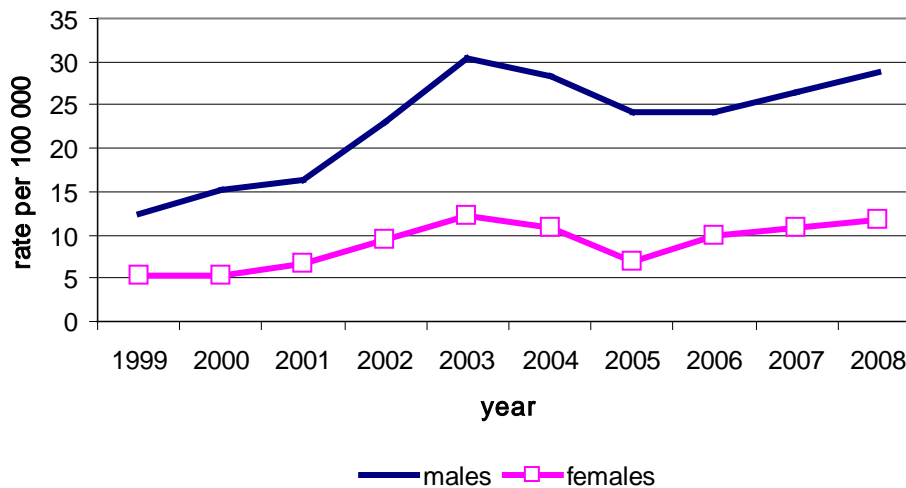


Figure 14: Incidence rates of new cases of liver cancer by sex, 1999-2008

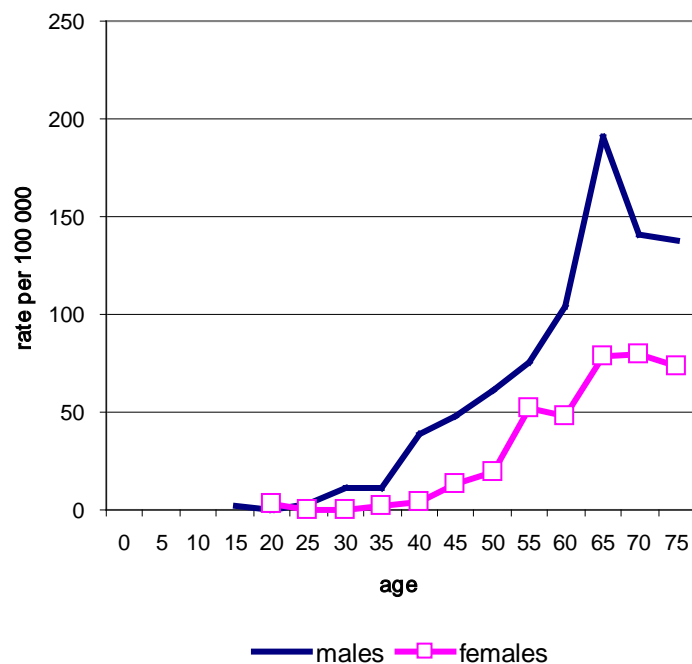


Figure 15: Age-specific incidence rate of liver cancer, Chiang Mai, 2008

Of the 375 deaths from liver cancer, 264 were males (23.2% of all male cancer deaths) and 111 were females (12.1% of all female cancer deaths). The mortality rates were 27.6 for males and 10.6 for females and have tended to increase from the year 1999 in both sexes (Fig. 16). The mortality rates increased with age in both sexes, with rates in males increasing sharply after the age of 55 years and exceeding those in females (Fig. 17).

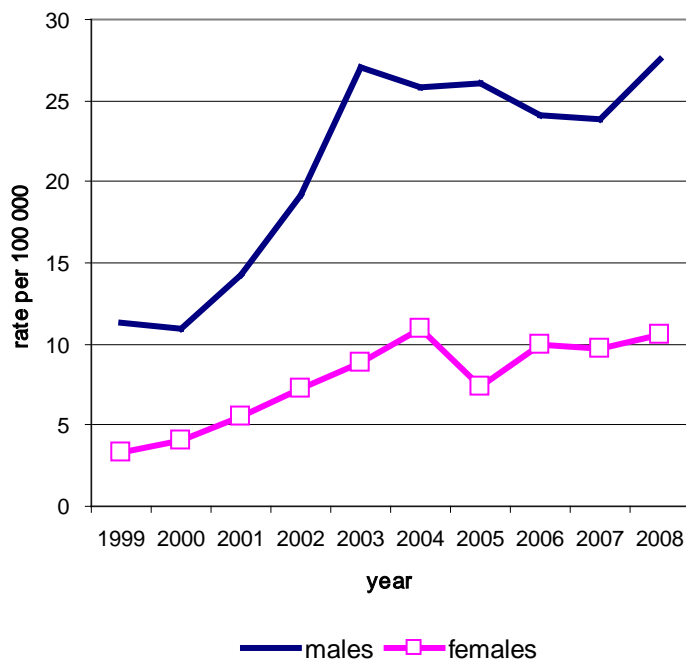


Figure 16: Mortality rate of liver cancer by sex, Chiang Mai, 1999-2008

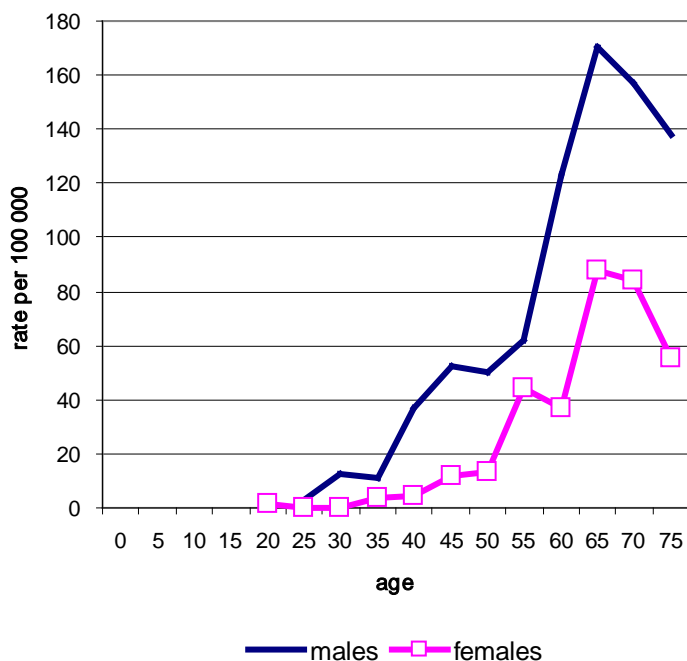


Figure 17: Age-specific mortality rate of liver cancer, Chiang Mai, 2008

For liver cancer deaths, 313 cases (83.5%) died within 6 months after diagnosis, and 30 cases (8.0%) lived more than one year. These figures reflect the severity of this type of cancer.

Diagnosis and stages of cancer

Forty-one percent of cases were diagnosed at an advanced stage (27.5% had distant metastasis, 12.1% had regional nodes metastasis). The most common metastasis site was lung, followed by distant lymph nodes. Only 22.2% were diagnosed by histology or cytology, while 72.0% were diagnosed by imaging studies. The common cell types for histological diagnosis groups were cholangiocarcinoma (68.2%) and hepatocellular carcinoma (29.5%). Eighty-seven percent of hepatocellular carcinomas and 65.3% of cholangiocarcinomas were diagnosed by clinical diagnosis.

Cell type	Males	Females	Total	%
Hepatocellular	18	8	26	6.5
Cholangiocarcinoma	38	22	60	15.1
Other	1	1	2	0.5
Clinical diagnosis	214	95	309	77.8
All	271	126	397	100.0

Stage	Cases	%
Localized	21	5.3
Locally advanced	189	47.6
Regional node metastasis	48	12.1
Distant metastasis	109	27.5
Unknown/not staged	30	7.5
All	397	100.0

Stomach cancer (ICD-10 C16)

There were 91 new cases of stomach cancer diagnosed in 2008 (52 males, 39 females) accounting for 3.6% of all cancers in males and 2.2% of those in females. The age-standardized incidence rates were 5.4 for males and 3.5 for females (Fig. 19). In 2008, stomach cancer ranked eight for new male cancers and twelve for females. The incidence rates increased with age in both sexes after the age of 50 years, with rates in males increasing sharply after the age of 60 years and exceeding those in females (Fig. 20). The cumulative rate percentages to age 75 were 0.6% for males and 0.5% for females. These represented risks of 1 in 161 for men and 1 in 208 for women of developing stomach cancer by age 75.

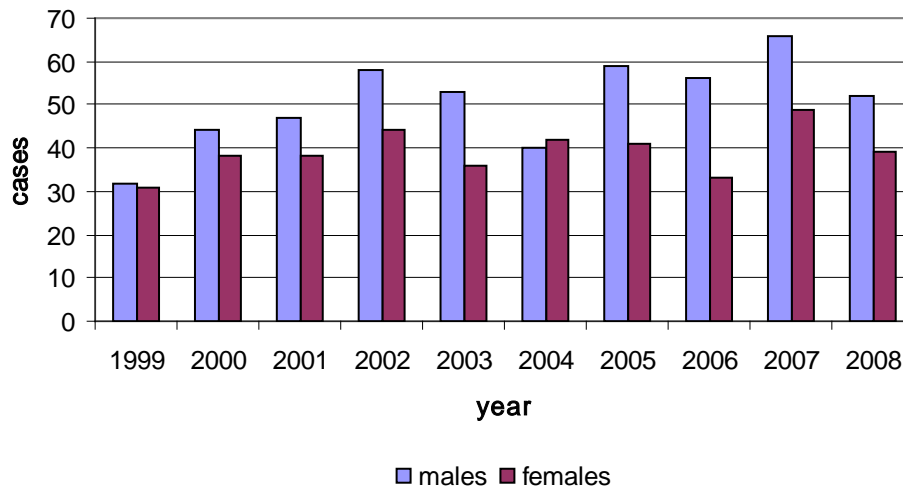


Figure 18: Number of new cases of stomach cancer by sex, 1999-2008

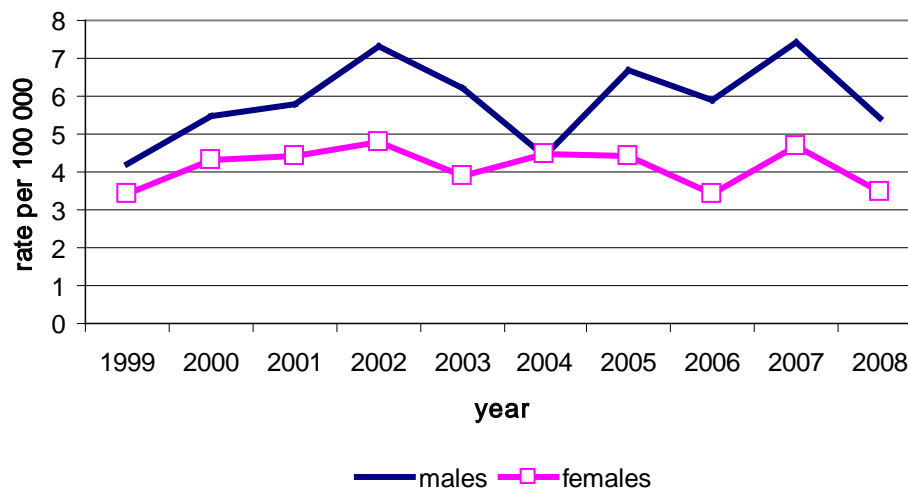


Figure 19: Incidence rates of new cases of stomach cancer by sex, 1999-2008

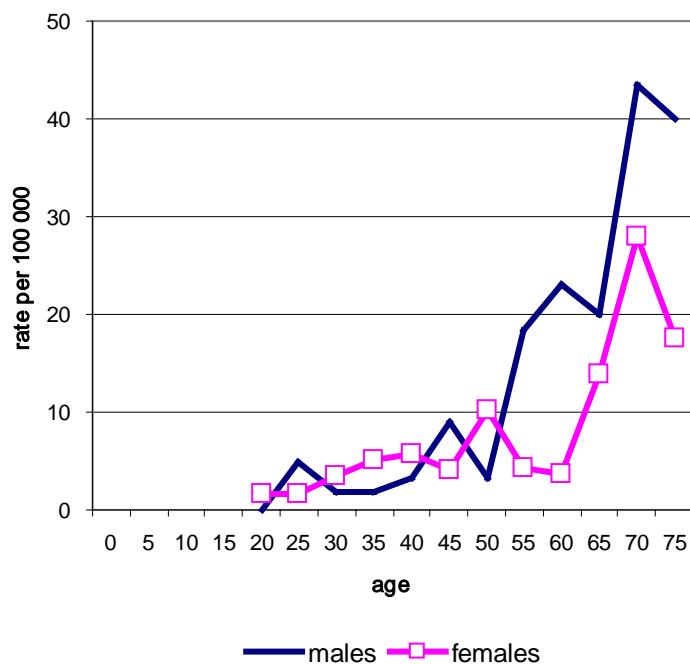


Figure 20: Age-specific incidence rate of stomach cancer, Chiang Mai, 2008

Of the 87 deaths from stomach cancer, 53 were males (4.7% of all male cancer deaths) and 34 were females (3.7% of all female cancer deaths). The mortality rates were 5.4 for males and 2.9 for females which increased in males but decreased in females (Fig. 21). The mortality rates increased with age in both sexes, with rates in males exceeding those in females after the age of 55 years (Fig. 22).

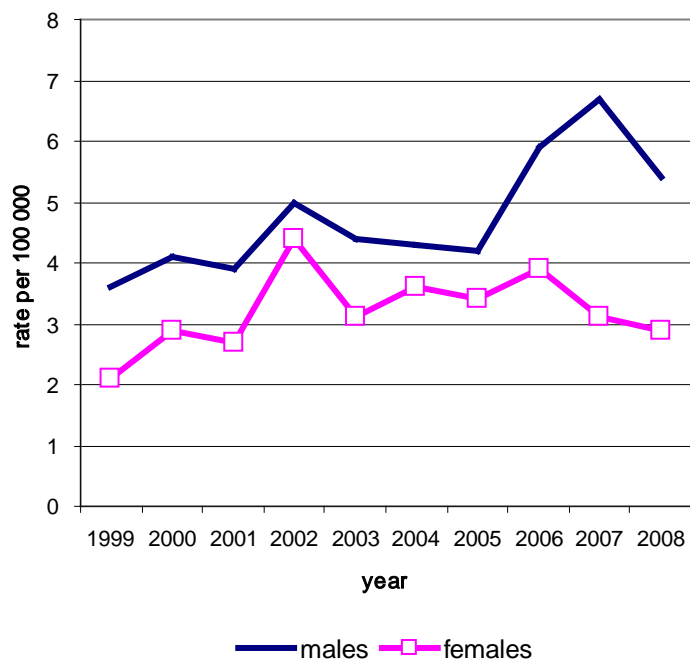


Figure 21: Mortality rate of stomach cancer by sex, Chiang Mai, 1999-2008

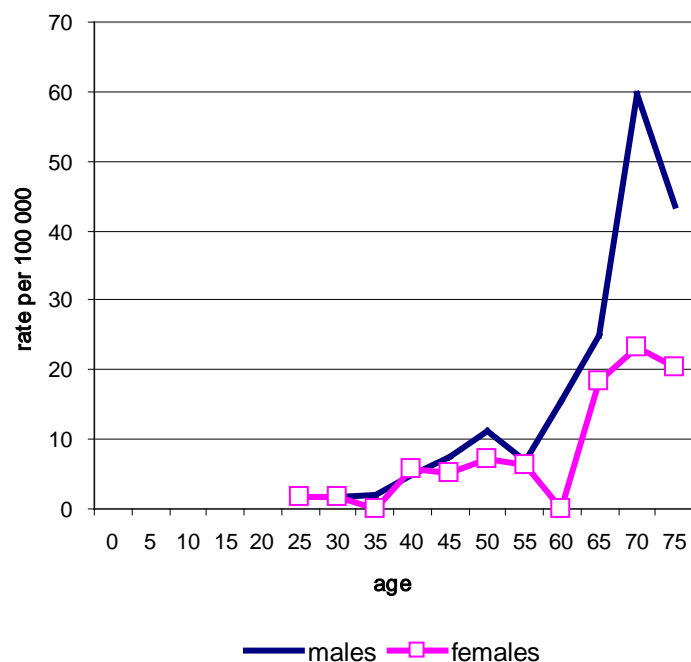


Figure 22: Age-specific mortality rate of stomach cancer, Chiang Mai, 2008

Diagnosis and stage of cancer

Sixty-four percent of cases were diagnosed at a locally advanced stage (37.4% had locally advanced, 26.4% had regional nodes metastasis). The most common metastasis site was peritoneum, followed by distant lymph nodes. Eighty-four percent were diagnosed by histology and the common cell types were adenocarcinoma (50.5%) and signet ring cell carcinoma (30.8%).

Cell type	Males	Females	Total	%
Adenocarcinoma	25	21	46	50.5
Signet ring cell	18	10	28	30.8
Others	1	3	4	4.4
Clinical diagnosis	8	5	13	14.3
Total	52	39	91	100.0

Stage	Cases	%
Localized	6	6.6
Locally advanced	34	37.4
Regional node metastasis	24	26.4
Distant metastasis	24	26.4
Unknown/not staged	3	3.3
All	91	100.0

Colon cancer (ICD-10 C18)

There were 142 new cases of colon cancer diagnosed in 2008 (66 males, 76 females). This was 4.6% of all cancers in males and 4.4% of those in females. Among the gastrointestinal tract cancers, colon cancer was the second most common cancer in males and the most common in females. The age-standardized incidence rates were 6.5 in both sexes. In 2008, colon cancer ranked the fifth for new cancers for both sexes. The incidence rates increased with age in both sexes after the age of 40 years (Fig. 25). The cumulative rate percentages to age 75 were 0.7% for males and 1.0% for females. These represented risks of 1 in 143 for males and 1 in 100 for females of developing colon cancer by age 75.

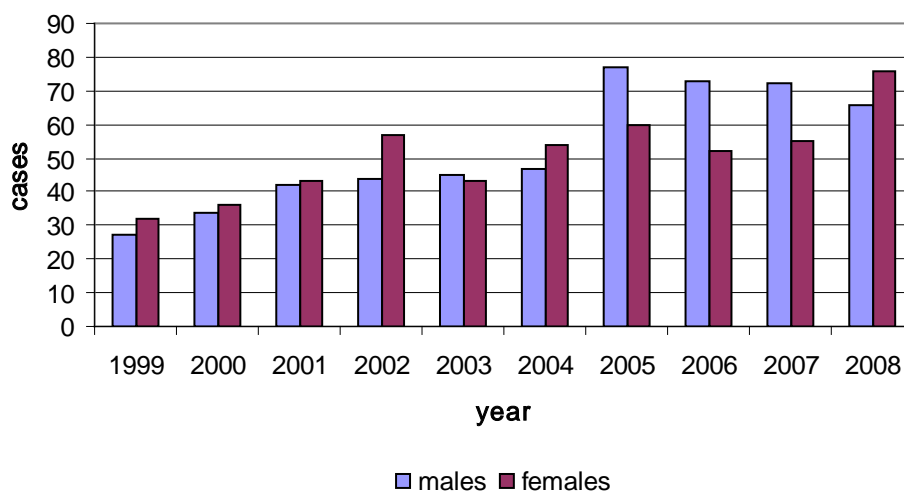


Figure 23: Number of new cases of colon cancer by sex, 1999-2008

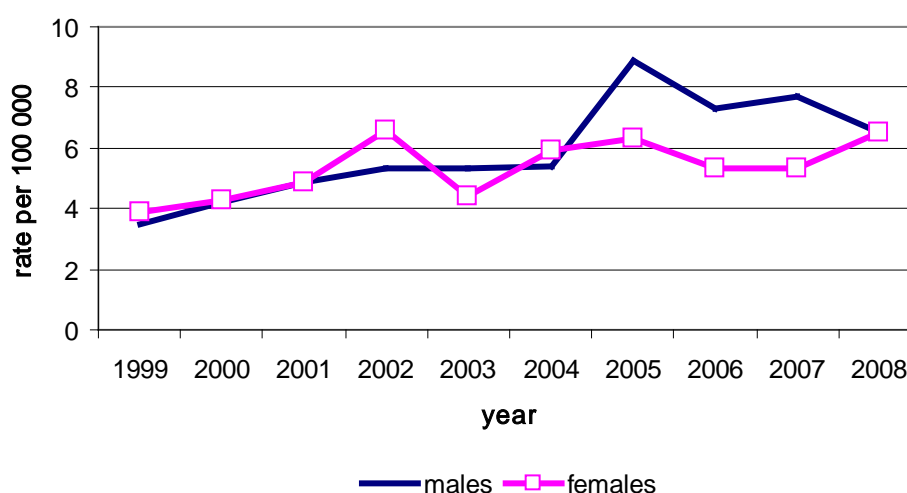


Figure 24: Incidence rates of new cases of colon cancer by sex, 1999-2008

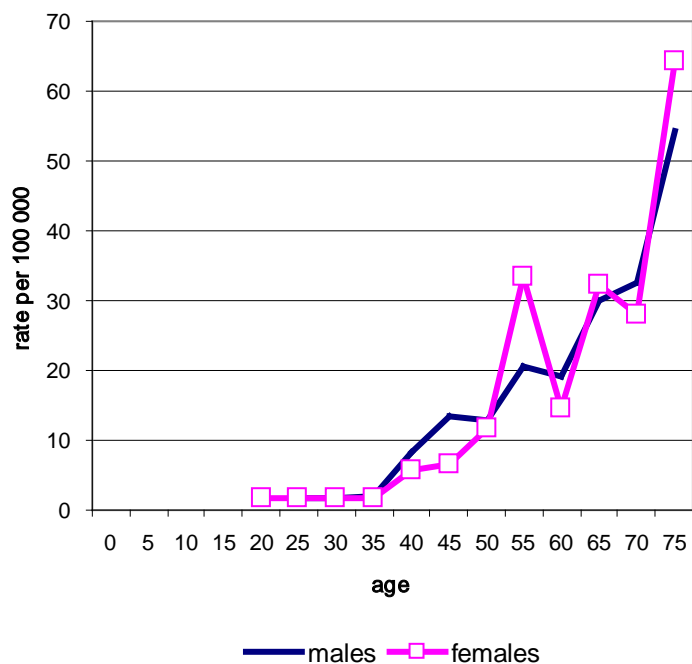


Figure 25: Age-specific incidence rate of colon cancer, Chiang Mai, 2008

Of the 73 deaths from colon cancer, 41 were males (3.6% of all male cancer deaths) and 32 were females (3.5% of all female cancer deaths). The age-standardized mortality rates were 4.4 for males and 4.2 for females and tended to increase in both sexes (Fig. 26). The mortality rates increased with age in both sexes, and increased sharply after age 55 (Fig. 27).

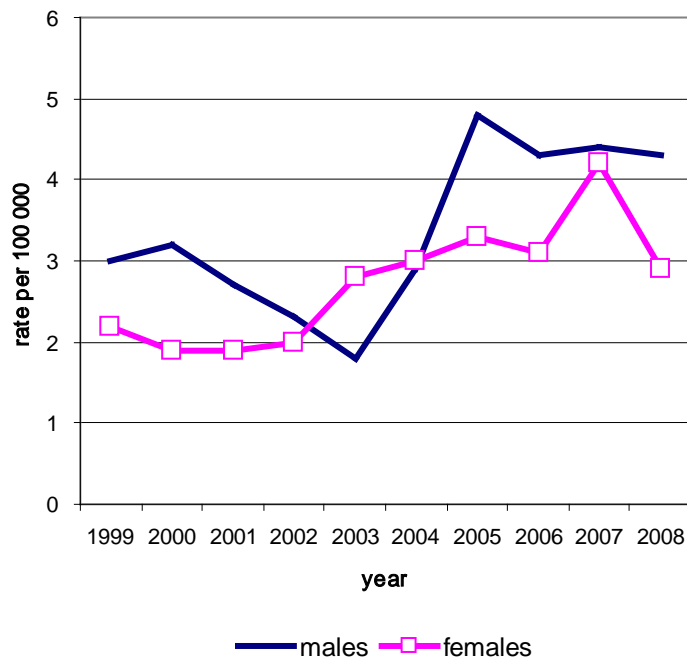


Figure 26: Mortality rate of colon cancer by sex, Chiang Mai, 1999-2008

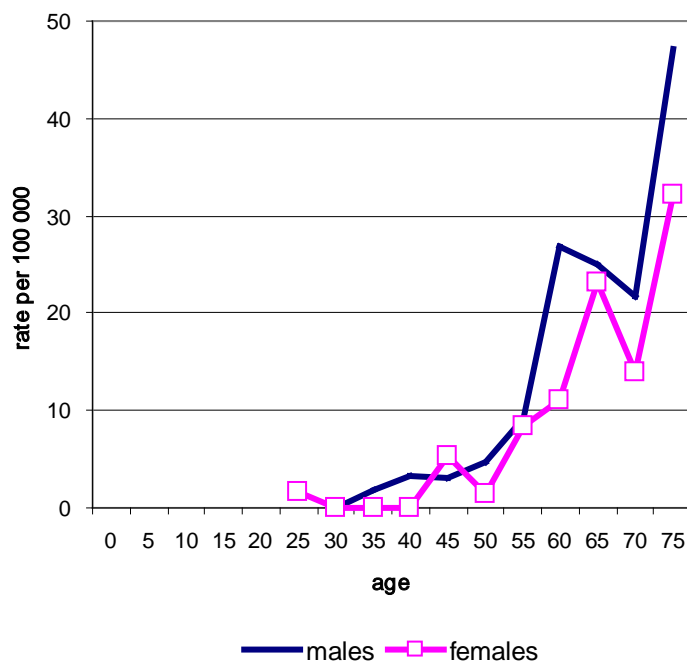


Figure 27: Age-specific mortality rate of colon cancer, Chiang Mai, 2008

Diagnosis and stage of cancer

Seventy percent of cases were diagnosed at a locally advanced stage (47.9% had locally advanced, 22.5% had regional node metastasis). The most common metastasis site was liver, followed by peritoneum. Ninety-three percent were diagnosed by histology. The common cell types in histological diagnosis groups were adenocarcinoma (85.2%) and mucinous carcinoma (2.8%).

Cell type	Males	Females	Total	%
Adenocarcinoma	60	61	121	85.2
Mucinous carcinoma	3	1	4	2.8
Signet ring cell	2	2	4	2.8
Others	0	3	3	2.1
Clinical diagnosis	1	9	10	7.0
	66	76	142	100.0

Stage	Cases	%
Localized	9	6.3
Locally advanced	68	47.9
Regional node metastasis	32	22.5
Distant metastasis	29	20.4
Unknown/not staged	4	2.8
All	142	100.0

Bladder cancer (ICD-10 C67)

There were 91 new cases of bladder cancer diagnosed in 2008 (69 males, 22 females). This was 4.8% of all cancers in males and 1.3% of those in females. The age-standardized incidence rates were 7.2 for males and 2.3 for females. In 2008, bladder cancer ranked fourth for new male cancers and thirteenth for females. The incidence tended to increase especially in males from the year 2005 (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 0.8% for males and 0.4% for females. These represented risks of 1 in 113 for men and 1 in 238 for women of developing bladder cancer by age 75.

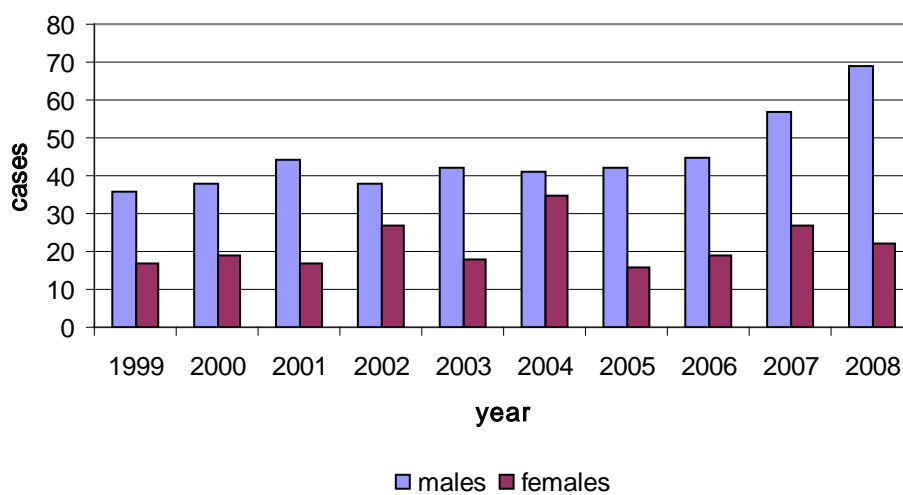


Figure 28: Number of new cases of bladder cancer by sex, 1999-2008

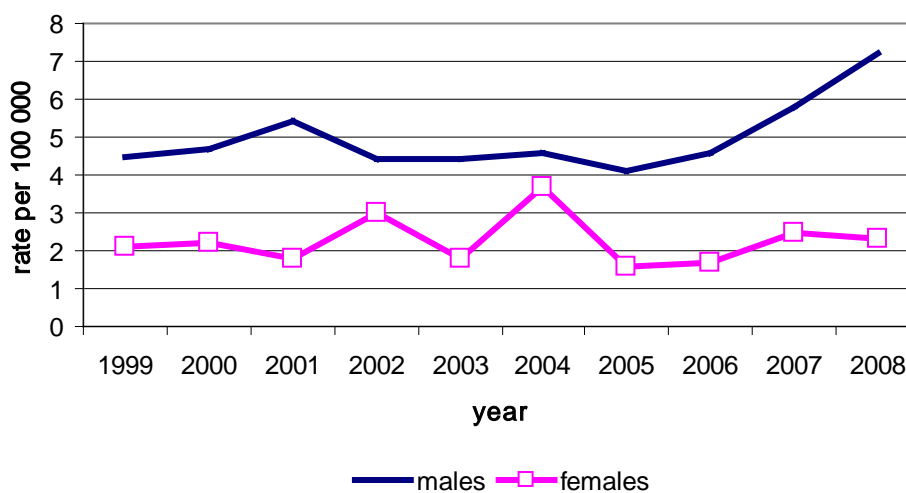


Figure 29: Incidence rates of new cases of bladder cancer by sex, 1999-2008

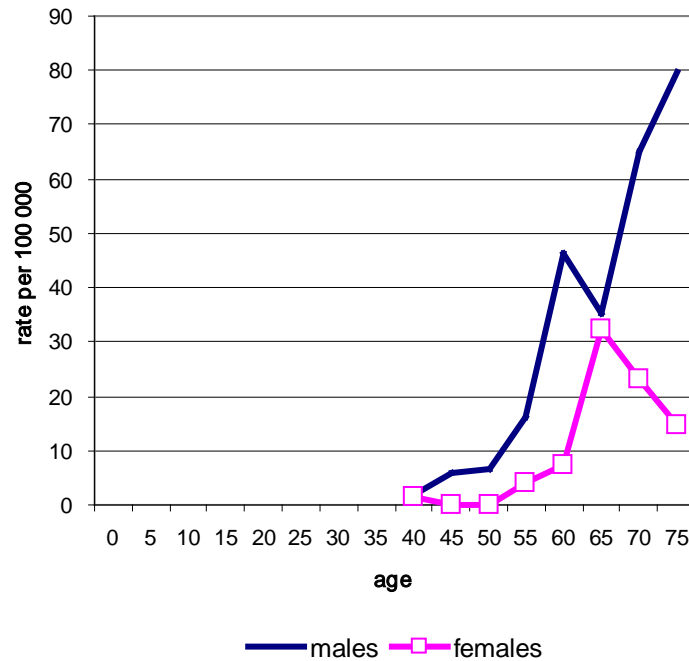


Figure 30: Age-specific incidence rate of bladder cancer, Chiang Mai, 2007

Of the 56 deaths from bladder cancer, 45 were males (4.0% of all male cancer deaths) and 11 were females (1.2% of all female cancer deaths). The age-standardized mortality rates were 4.1 for males and 1.1 for females (Fig. 31). The mortality rates increased with age in both sexes, increasing sharply after age 65 (Fig. 32).

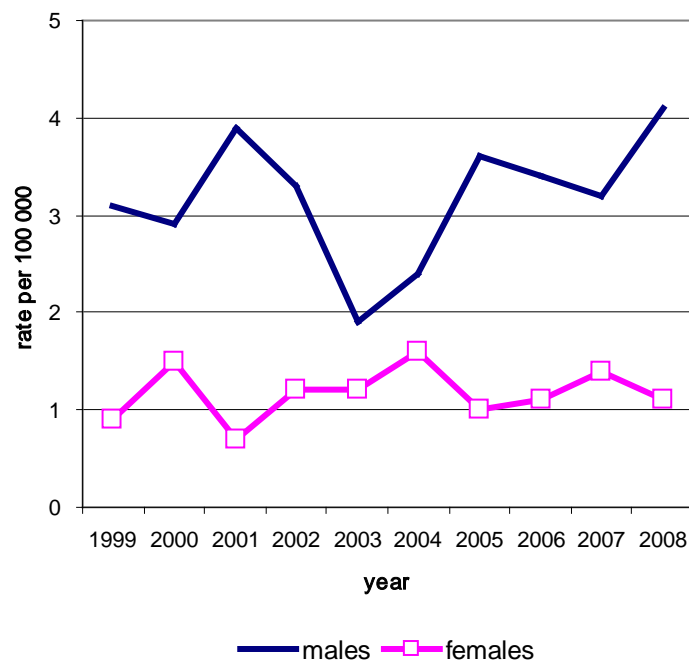


Figure 31: Mortality rate of bladder cancer by sex, Chiang Mai, 1999-2008

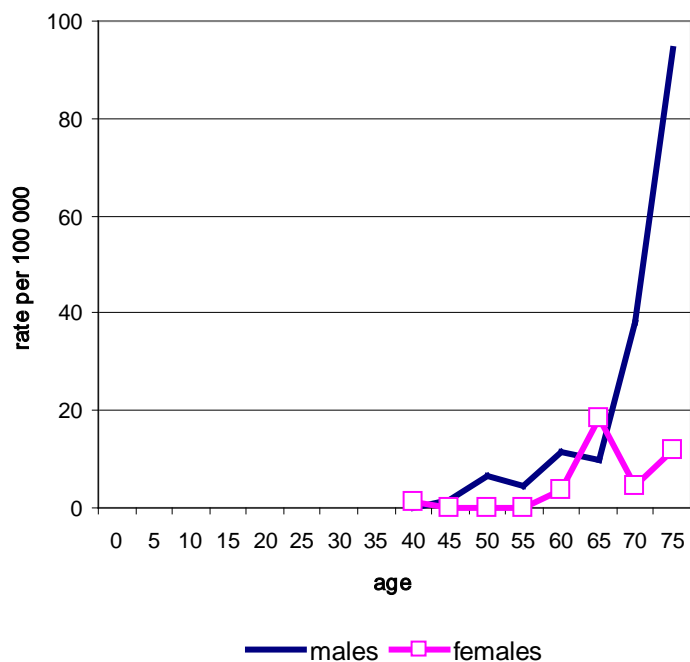


Figure 32: Age-specific mortality rate of bladder cancer, Chiang Mai, 2008

Diagnosis and stages of cancer

Forty-seven cases (51.6%) were diagnosed at a locally advanced stage and 11 cases had distant metastases. The most common metastatic site was lung. Eighty-nine percent were diagnosed by histology; the most common cell type was transitional cell carcinoma (79.1%).

Cell type	Males	Females	Total	%
Transitional cell ca.	57	15	72	79.1
Adenocarcinoma	4	1	5	5.5
Other	1	3	4	4.4
Clinical diagnosis	7	3	10	11.0
All	69	22	91	100.0

Stage	Cases	%
Localized	20	22.0
Locally advanced	47	51.6
Regional node metastasis	10	11.0
Distant metastasis	11	12.1
Unknown/not staged	3	3.3
All	91	100.0

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

There were 123 new cases of non-Hodgkin's lymphoma (NHL) diagnosed in 2008 (66 males, 57 females). This was 4.6% of all cancers in males and 3.3% of those in females. The age-standardized incidence rates were 6.9 for males and 5.3 for females. In 2008, NHL ranked seventh for male and eighth for female cancers. The incidence rates in both sexes tended to increase from the year 2003 (Fig. 34). NHL was found after the age of 15 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 0.6% for males and 0.6% for females. These represented risks of 1 in 154 for men and 1 in 159 for women of developing NHL by age 75.

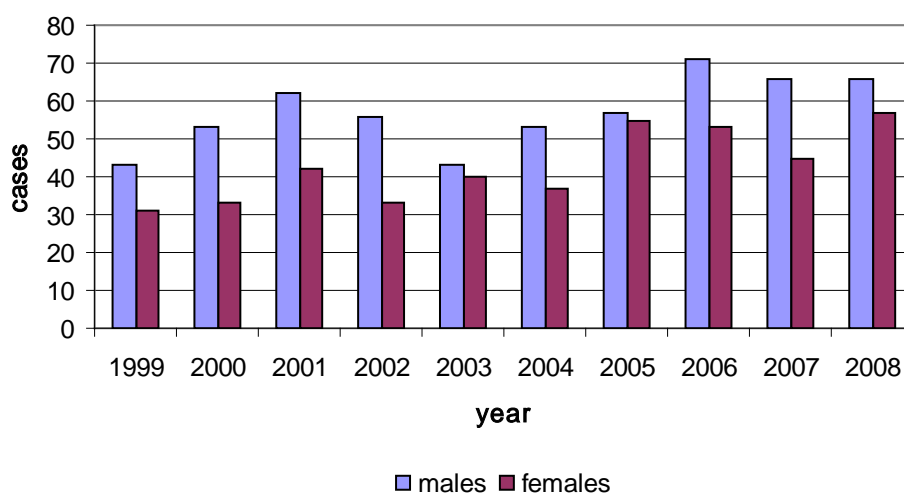


Figure 33: Number of new cases of NHL by sex, 1999-2008

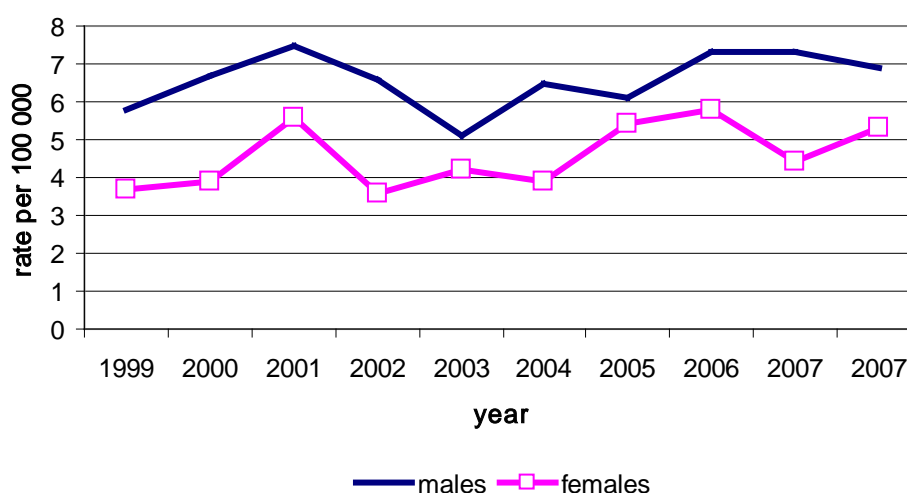


Figure 34: Incidence rates of new cases of NHL by sex, 1999-2008

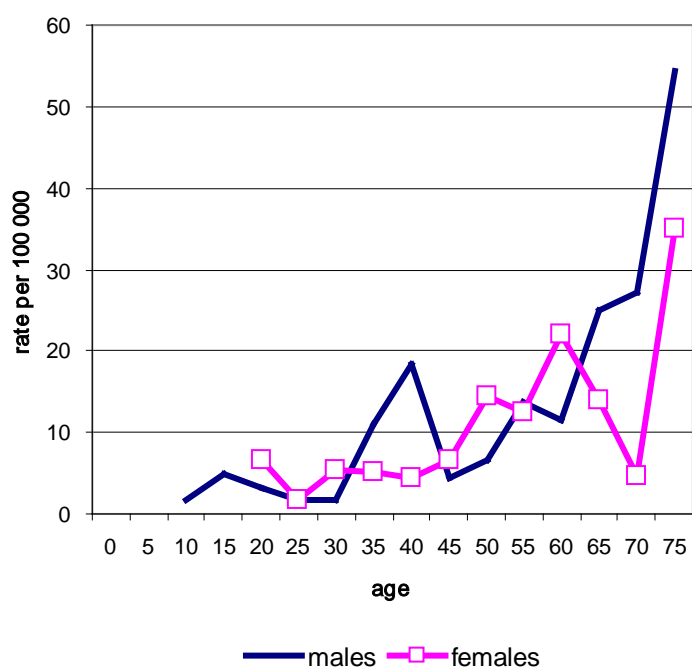


Figure 35: Age-specific incidence rate of NHL, Chiang Mai, 2008

Of the 79 deaths from NHL, 43 were males (3.8% of all male cancer deaths) and 36 were females (3.9% of all female cancer deaths). The age-standardized mortality rates were 4.3 for males and 3.4 for females and tended to increase in both sexes (Fig. 36). The mortality rates increased with age in both sexes, especially in males increasing sharply after age 60 (Fig. 37).

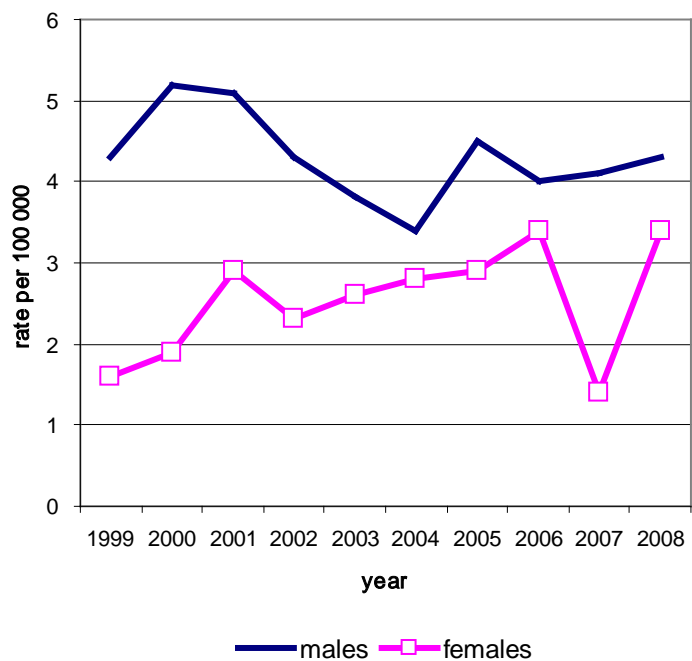


Figure 36: Mortality rate of NHL by sex, Chiang Mai, 1999-2008

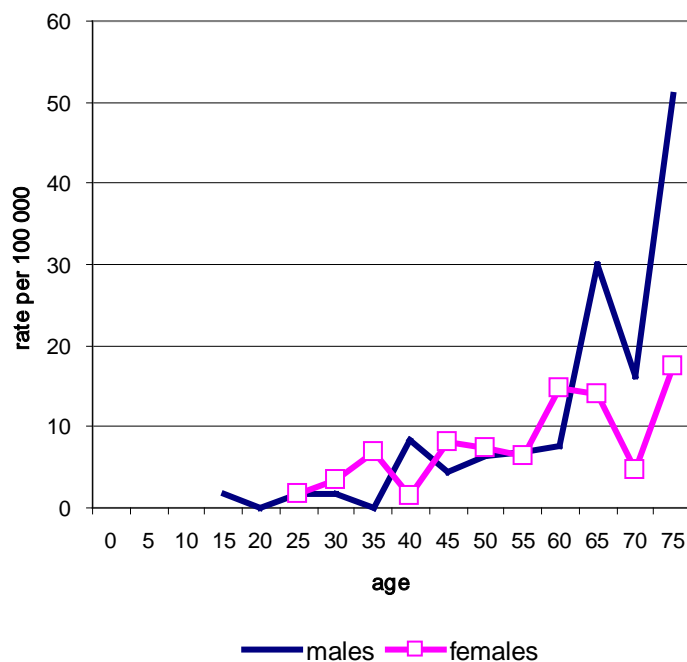


Figure 37: Age-specific mortality rate of NHL, Chiang Mai, 2008

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); malignant lymphoma, non-Hodgkin’s, NOS (M9591/3); malignant lymphoma, NOS (M9590/3); and mature T-cell lymphoma (M9702); accounting for 82.1% of all cases.

Cell type	Males	Females	Total	%
Large B-cell, diffuse	39	37	76	61.8
Non-Hodgkin,nos	4	7	11	8.9
Malig.lymphoma,nos	5	3	8	6.5
Mature T-cell	5	1	6	4.9
Other	13	9	22	17.9
All	67	59	123	100.0

Cervical cancer (ICD-10 C53)

There were 303 new cases of invasive cervical cancer diagnosed in 2008. This was 17.5% of all cancers in females. The age-standardized incidence rates were 26.8 and tended to slightly increased in the last four years (Fig. 39). Cervical cancer was one of the three most common cancers in females, ranking second in 2008 after breast cancer. The incidence rates increased sharply after age 30 and were more common than breast cancer in the age group 30-44 years. The age at diagnosis ranged from 22 to 90 years with a mean age of 51.3 years and a median age of 50.0 years. The cumulative rate percentage to age 75 was 2.9%, representing a risk of 10 in 345 for women of developing cervical cancer by age 75.

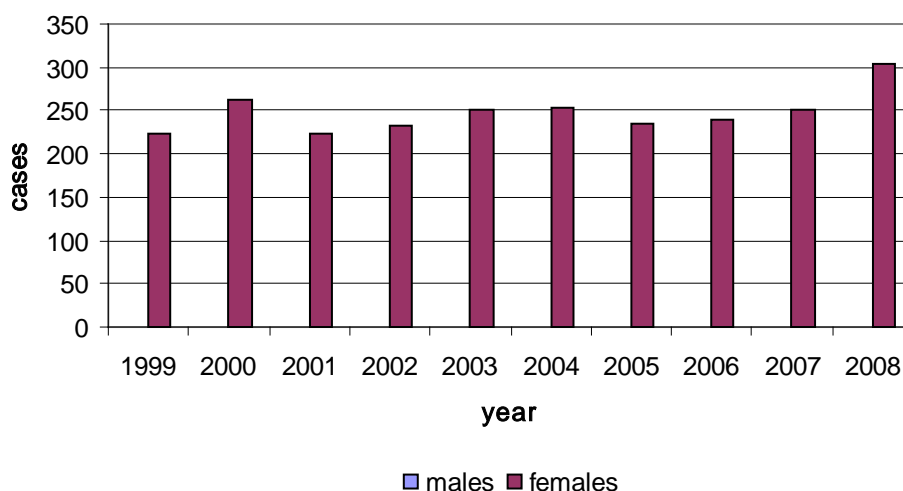


Figure 38: Number of new cases of cervical cancer by sex, 1999-2008

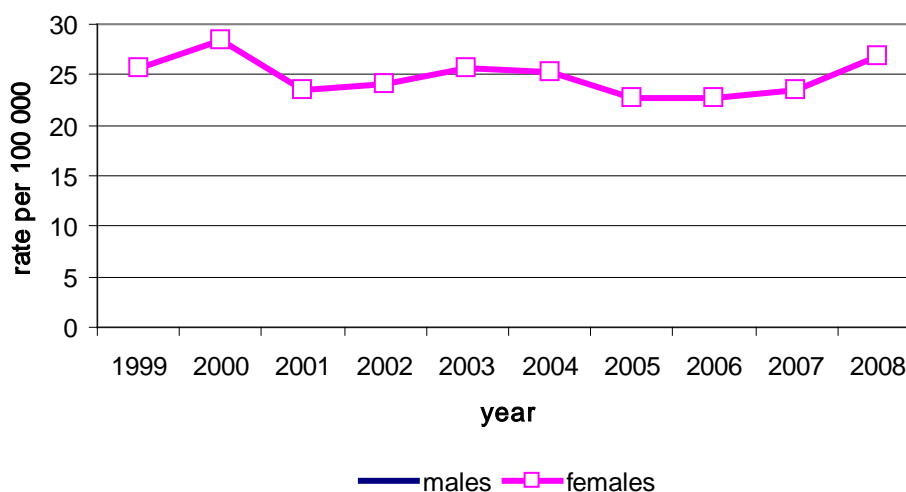


Figure 39: Incidence rates of new cases of cervical cancer by sex, 1999-2008

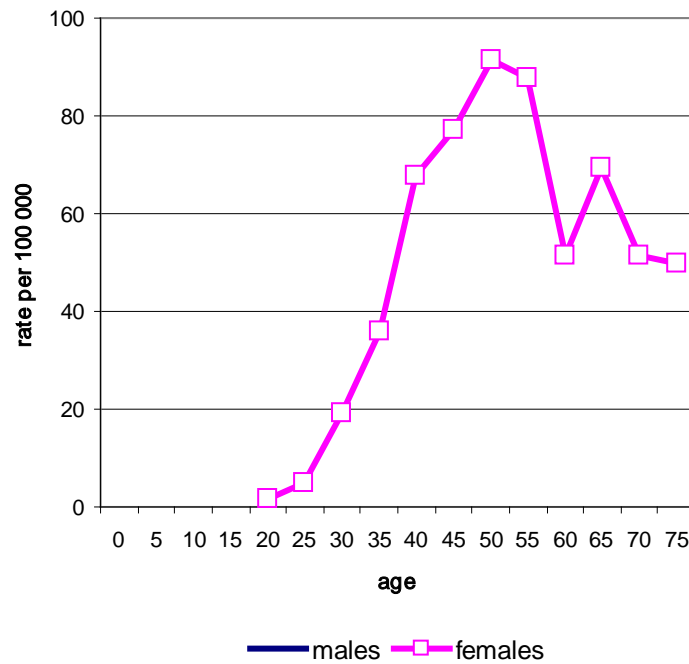


Figure 40: Age-specific incidence rate of cervical cancer, Chiang Mai, 2008

There were 109 deaths from cervical cancer, accounting for 11.9% of all female cancer deaths. The age-standardized mortality rate was 10.0 and tended to continue decreasing after 1998 (Fig. 41). The mortality rate increased with age, increasing sharply after age 45 (Fig. 42).

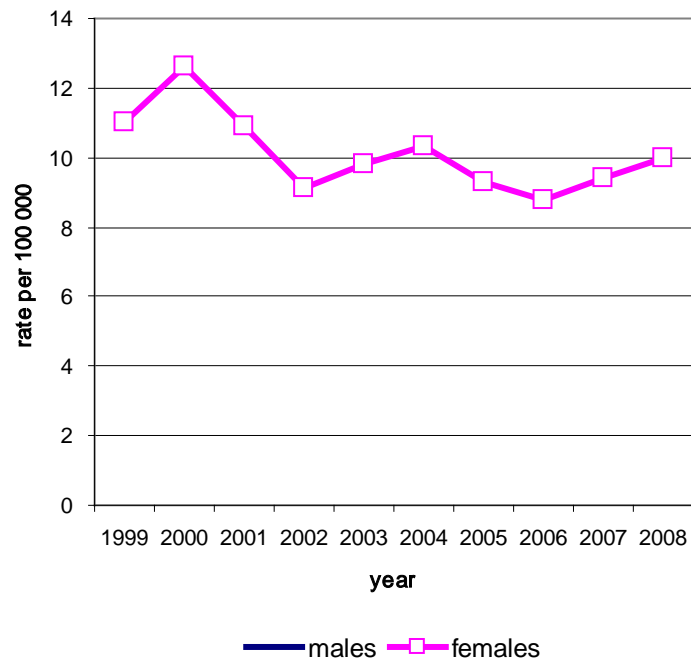


Figure 41: Mortality rate of cervical cancer by sex, Chiang Mai, 1999-2008

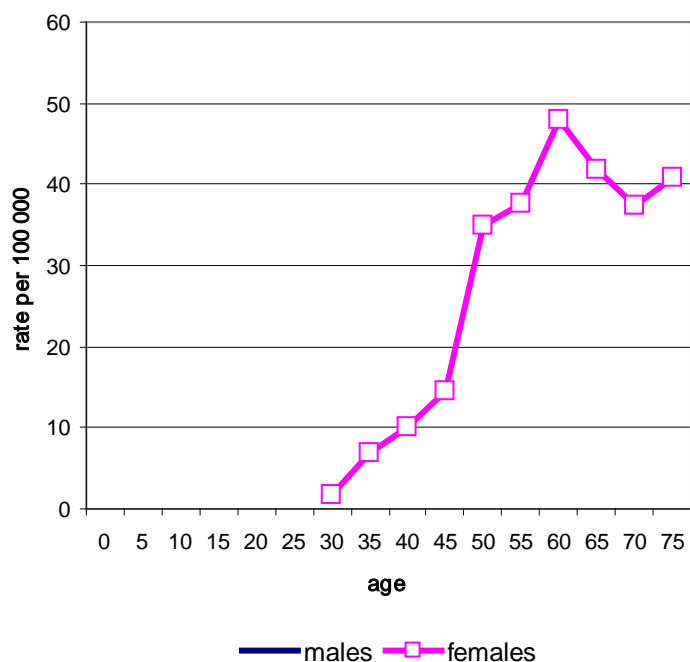


Figure 42: Age-specific mortality rate of cervical cancer, Chiang Mai, 2008

For cervical cancer deaths, 59 cases (54.1%) survived more than two years, and 22 cases (20.2%) survived less than one year.

Diagnosis and stages of cancer

There were 294 cases of carcinoma in situ of the cervix that were not included in this analysis. For invasive cancer, 146 cases (48.2%) were diagnosed in localized stage and 13 cases had distant metastases. The most common metastasis site was distant lymph nodes. Ninety-nine percent had histological diagnosis; the common cell types were squamous cell carcinoma (82.5%) and adenocarcinoma (14.2%).

Cell type	Females	Total	%
Squamous cell	250	250	82.5
Adenocarcinoma	43	43	14.2
Other	7	7	2.3
Clinical diagnosis	3	3	1.0
All	303	303	100.0

Stage	Cases	%
Localized	146	48.2
Locally advanced	133	43.9
Regional node metastasis	10	3.3
Distant metastasis	13	4.3
Unknown/not staged	1	0.3
All	303	100

Female breast cancer (ICD-10 C50)

There were 353 new cases of female breast cancer diagnosed in 2008. This was 20.4% of all cancers in females and the most common cancer in 2008. The age-standardized incidence rate was 30.6 and tended to increase every year (Fig. 44). The incidence rate increased sharply from the age of 30 years to a maximum in the age group 50-54 years. Breast cancer was more common than cervical and lung cancer in the age group 45-59 years. The mean age at diagnosis was 52.2 years; the median age at diagnosis was 51 years. The cumulative rate percentage to age 75 was 3.4%, representing a risk of 1 in 30 for women of developing breast cancer by age 75.

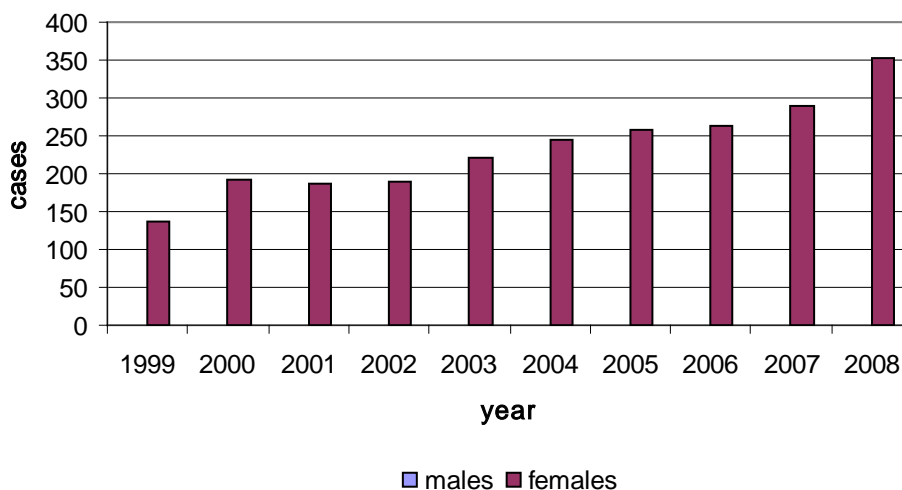


Figure 43: Number of new cases of female breast cancer by sex, 1999-2008

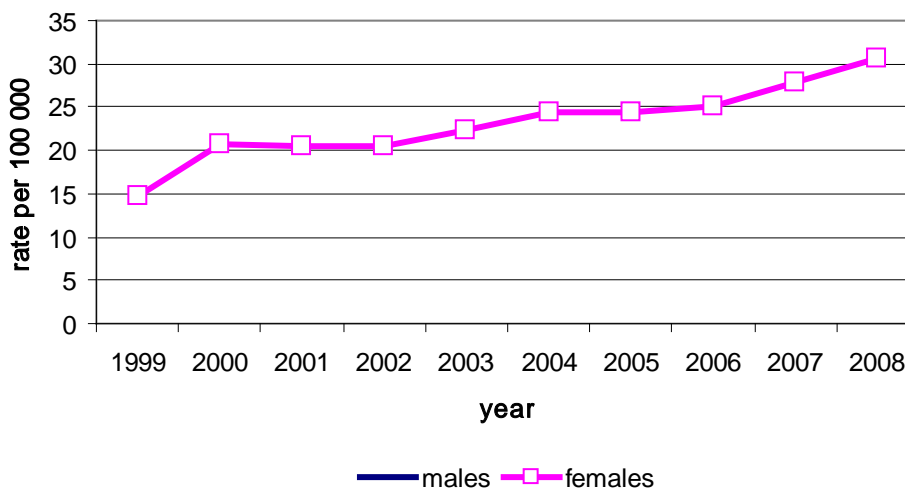


Figure 44: Incidence rates of new cases of female breast cancer by sex, 1999-2008

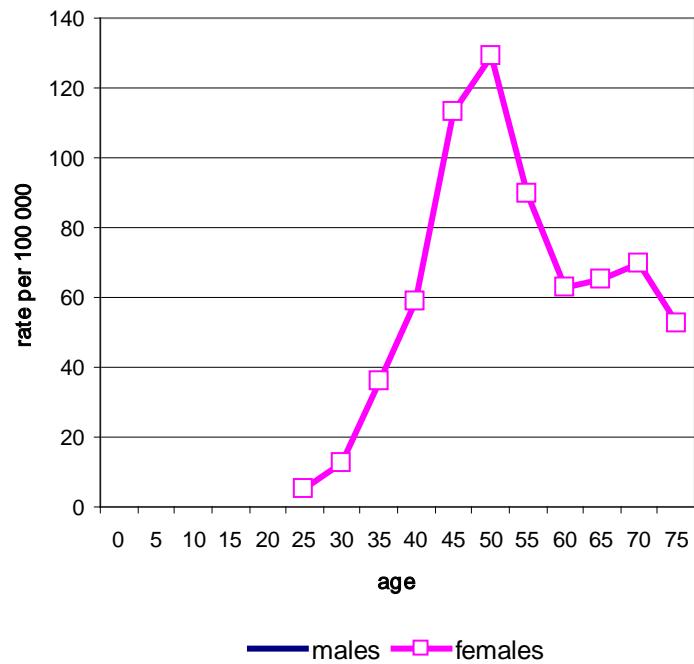


Figure 45: Age-specific incidence rate of female breast cancer, Chiang Mai, 2007

There were 86 deaths from breast cancer, accounting for 9.4% of all female cancer deaths. The age-standardized mortality rate was 7.6 and tended to increase in the last ten years (Fig. 46). The mortality rate increased with age, increasing sharply after age 50 (Fig. 47).

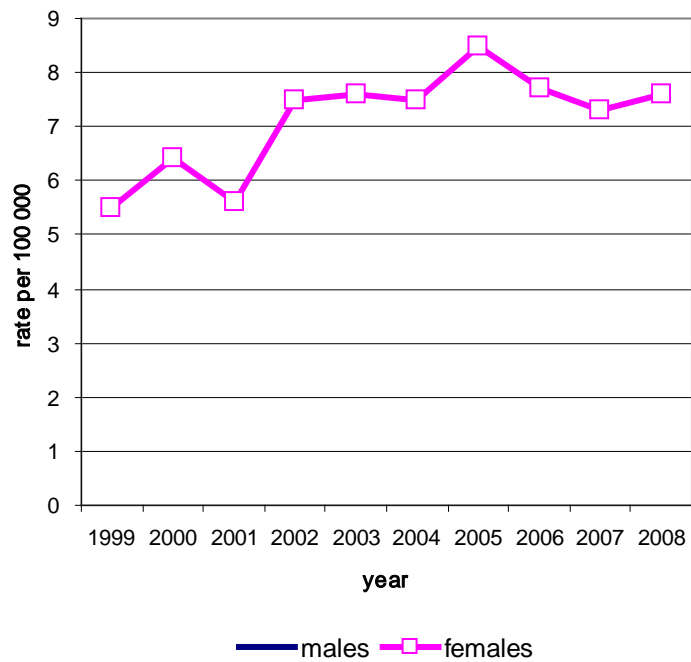


Figure 46: Mortality rate of female breast cancer by sex, Chiang Mai, 1999-2008

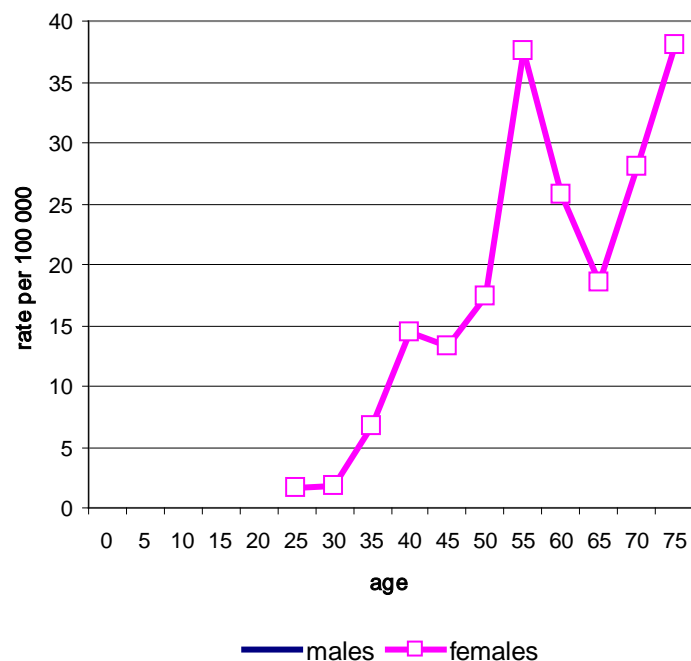


Figure 47: Age-specific mortality rate of female breast cancer, Chiang Mai, 2008

For breast cancer deaths, 17 cases (19.8%) survived more than five years, 43 cases (50.0%) survived more than three years and 19 cases (22.1%) survived less than one year.

Diagnosis and stages of cancer

Forty-eight percent were diagnosed in locally advanced stage and 25 cases had distant metastases at first diagnosis. The common metastasis sites were lung (7 cases) and bone (5 cases). Ninety-eight percent had histological diagnosis; the major cell type was invasive ductal carcinoma (84.1%).

Cell type	Females	Total	%
Invasive ductal ca.	297	297	84.1
Lobular carcinoma	9	9	2.5
Mucinous ca.	15	15	4.2
Papillary ca.	3	3	0.8
Others	24	24	6.8
Clinical diagnosis	5	5	1.4
All	353	353	100.0

Stage	Cases	%
Localized	85	24.1
Locally advanced	170	48.2
Regional node metastasis	70	19.8
Distant metastasis	25	7.1
Unknown/not staged	3	0.8
All	353	100.0

Nasopharynx cancer (ICD-10 C11)

There were 34 new cases of nasopharyngeal cancer diagnosed in 2008 (24 males, 10 females). This was 1.7% of all cancers in males and 0.6% of those in females. The age-standardized incidence rates were 2.5 for males and 1.0 for females. In 2008, nasopharyngeal cancer was the most common pharyngeal cancer and ranked thirteenth for new male cancers and nineteenth for females. It was more common in males than in females in all age groups. The incidence rates tended to decrease from the year 2004 in both sexes (Fig. 49). The rates in males were higher than in females after age 40 (Fig. 50). The cumulative rate percentages to age 75 were 0.2% for males and 0.1% for females. These represented risks of 1 in 416 for men and 1 in 714 for women of developing nasopharyngeal cancer by age 75.

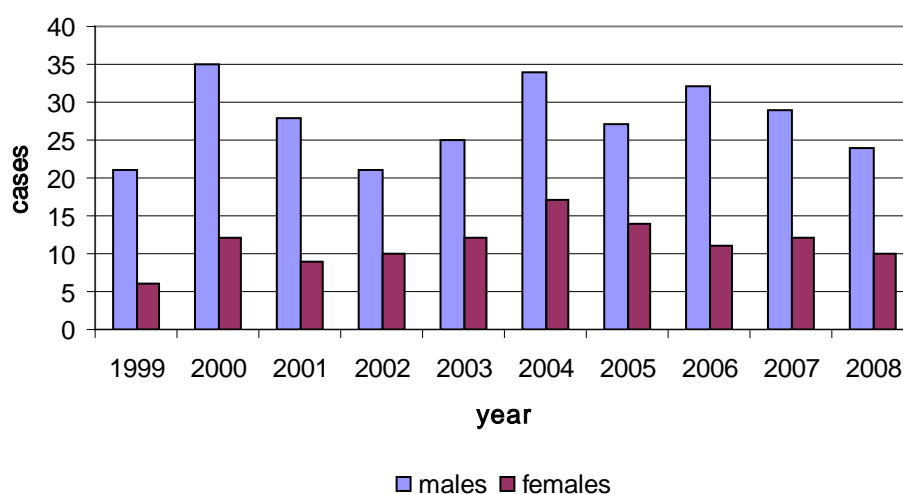


Figure 48: Number of new cases of nasopharyngeal cancer by sex, 1999-2008

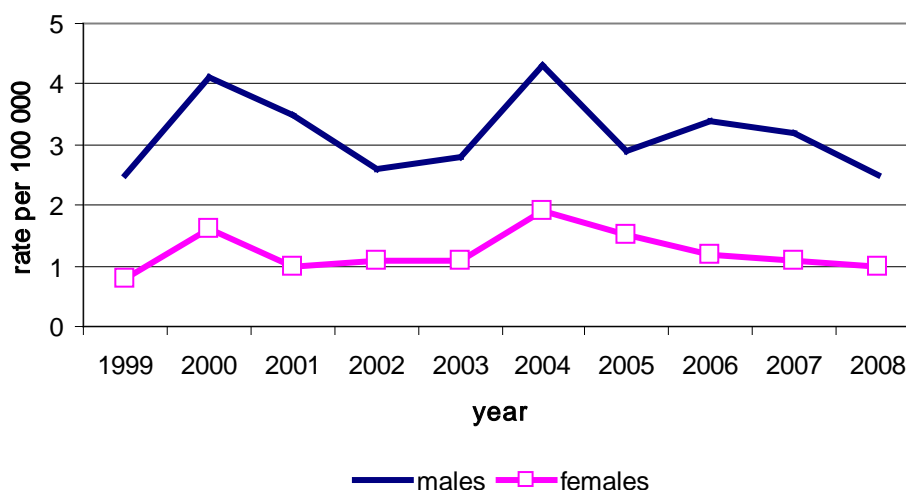


Figure 49: Incidence rates of new cases of nasopharyngeal cancer by sex, 1999-2008

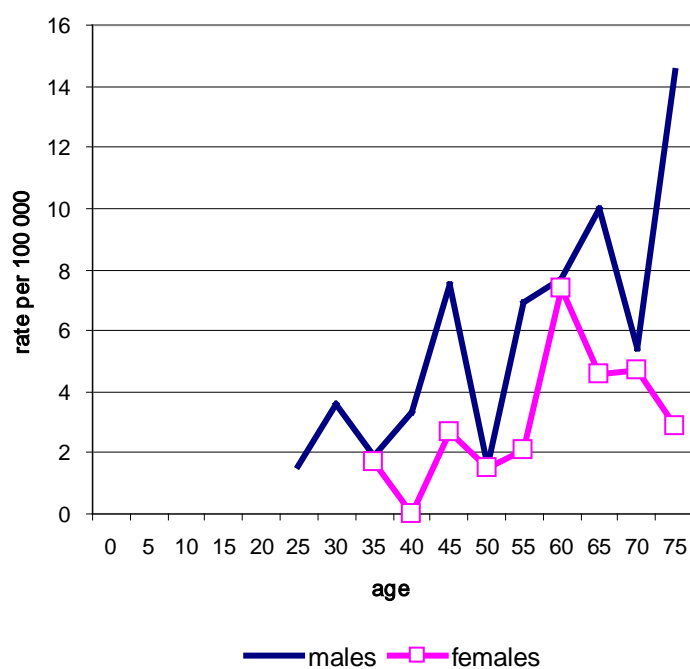


Figure 50: Age-specific incidence rate of nasopharyngeal cancer, Chiang Mai, 2008

Of the 32 deaths from nasopharyngeal cancer, 25 were males (2.2% of all male cancer deaths) and 7 were females (0.8% of all female cancer deaths). The age-standardized mortality rates were 2.7 for males and 0.7 for females (Fig. 51). The mortality rates increased with age in both sexes, and males had higher rates than females in all age groups (Fig. 52).

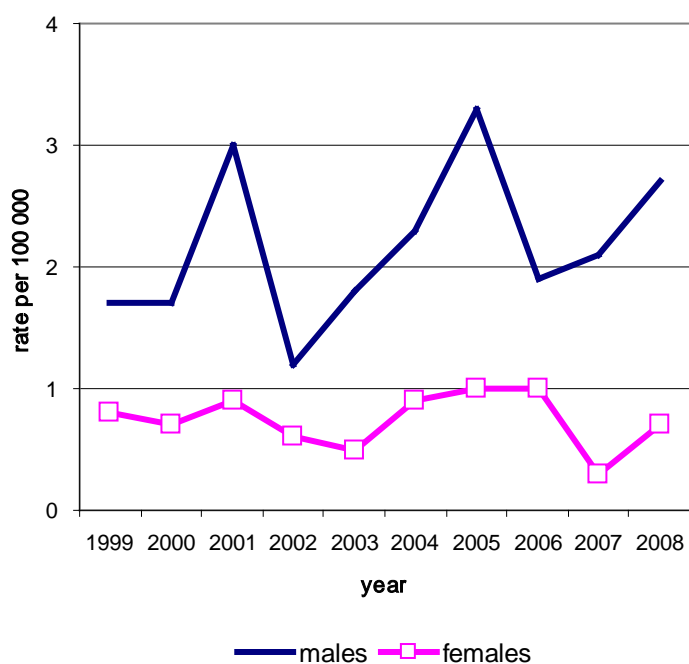


Figure 51: Mortality rate of nasopharyngeal cancer by sex, Chiang Mai, 1999-2008

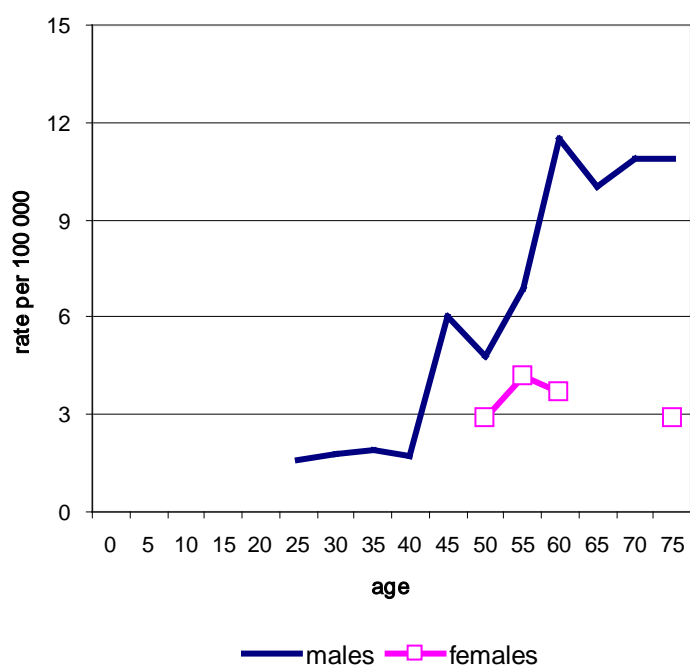


Figure 52: Age-specific mortality rate of nasopharyngeal cancer, Chiang Mai, 2008

Diagnosis and stages of cancer

Twenty-three cases (67.6%) were diagnosed in regional node metastasis and 5 cases had distant metastases. Ninety-four percent had histological diagnosis; the common cell types were undifferentiated carcinoma (67.6%) and squamous cell carcinoma (23.5%).

Cell type	Males	Females	Total	%
Undiff. Carcinoma	16	7	23	67.6
Squamous cell ca.	5	3	8	23.5
Other	1	0	1	2.9
Clinical diagnosis	2	0	2	5.9
All	24	10	34	100.0

Stage	Cases	%
Localized	1	2.9
Locally advanced	4	11.8
Regional node metastasis	23	67.6
Distant metastasis	5	14.7
Unknown/not staged	1	2.9
All	34	100.0

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COMPLETENESS AND QUALITY OF DATA

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

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

Histologically verified cases

Histologically verified (HV) cases are those with pathological verification of diagnosis. This is generally taken to indicate the validity of the data. Histology verified cases were 66.9% for males, and 82.5% for females. Lower HV percentages were found in cases of cancer of the hepatobiliary and nervous system.

Mortality/Incidence (M/I) ratio

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

Death certificate only cases

A death certificate only (DCO) case is one without cancer information available other than that stated in the death certificate. It indicates indirectly how many cancer cases are missed in registration because of no information during the lifetime of the patient. In 2008, 28 cases (0.9%) were diagnosed by death certificate only. The age of DCO cases ranged from 28 to 90 years; the median age at death was 71 years. The common cancer sites were unknown primary, lung and liver.

Table 8: Indices of quality control of cancer data in Chiang Mai, 2008, males

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10th)
Lip	2	-	100.0	50.0	C00
Tongue	7	-	100.0	71.4	C01-C02
Mouth	13	-	92.3	61.5	C03-C06
Salivary glands	8	-	100.0	25.0	C07-C08
Tonsil	6	-	83.3	66.7	C09
Other Oropharynx	2	-	100.0	150.0	C10
Nasopharynx	24	4.2	91.7	104.2	C11
Hypopharynx	6	-	100.0	66.7	C12-C13
Pharynx unspec.	1	-	-	100.0	C14
Oesophagus	16	6.3	81.3	131.3	C15
Stomach	52	-	84.6	101.9	C16
Small intestine	4	-	75.0	100.0	C17
Colon	66	-	98.5	62.1	C18
Rectum	70	-	87.1	64.3	C19-C20
Anus	3	-	66.7	100.0	C21
Liver	271	2.2	21.0	97.4	C22
Gallbladder etc.	23	-	30.4	87.0	C23-C24
Pancreas	28	-	10.7	85.7	C25
Nose, sinuses etc.	2	-	100.0	100.0	C30-C31
Larynx	25	-	96.0	60.0	C32
Trachea, Bronchus, Lung	330	1.2	59.1	95.2	C33-C34
Other Thoracic organs	2	-	100.0	150.0	C37-C38
Bone	7	-	100.0	42.9	C40-C41
Melanoma of Skin	6	-	100.0	83.3	C43
Other Skin	50	-	100.0	30.0	C44
Mesothelioma	1	-	100.0	100.0	C45
Kaposi sarcoma	1	-	100.0	0.0	C46
Connective, Soft tissue	6	-	100.0	83.3	C47;C49
Breast	2	-	100.0	100.0	C50
Penis	6	-	100.0	100.0	C60
Prostate	66	-	92.4	45.5	C61
Testis	4	-	100.0	-	C62
Other male genital	0	-	-	-	C63
Kidney	23	-	73.9	21.7	C64
Renal Pelvis	4	-	100.0	75.0	C65
Ureter	2	-	100.0	0.0	C66
Bladder	69	-	89.9	65.2	C67
Other Urinary organs	0	-	-	-	
Eye	3	-	100.0	33.3	C69
Brain, Nervous system	22	-	50.0	40.9	C70-C72
Thyroid	14	-	100.0	42.9	C73
Adrenal gland	3	-	100.0	-	C74
Other Endocrine	0	-	-	-	
Hodgkin disease	6	-	100.0	100.0	C81
Non-Hodgkin lymphoma	66	-	100.0	65.2	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	
Multiple Myeloma	10	-	100.0	70.0	C90
Lymphoid Leukaemia	12	-	100.0	58.3	C91
Myeloid Leukaemia	25	-	100.0	76.0	C92-C94
Leukaemia unspec.	2	-	100.0	100.0	C95
Other & unspecified	62	6.5	58.1	90.3	Other
All sites Total	1433	1.1	66.9	79.4	All

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

%HV Percentage of cases with histological verification of diagnosis

M/I ratio The ratio of deaths to cases registered (percent)

Table 9: Indices of quality control of cancer data in Chiang Mai, 2008, females

Cancer/site	Cases	%DCO	%HV	M/I ratio	ICD (10 th)
Lip	2	-	100.0	50.0	C00
Tongue	2	-	100.0	150.0	C01-C02
Mouth	14	-	85.7	57.1	C03-C06
Salivary glands	3	-	100.0	-	C07-C08
Tonsil	3	-	100.0	66.7	C09
Other Oropharynx	1	-	100.0	100.0	C10
Nasopharynx	10	-	100.0	70.0	C11
Hypopharynx	0	-	-	-	C12-C13
Pharynx unspec.	0	-	-	-	C14
Oesophagus	3	33.3	66.7	66.7	C15
Stomach	39	-	87.2	87.2	C16
Small intestine	2	-	100.0	100.0	C17
Colon	76	-	88.2	42.1	C18
Rectum	56	-	94.6	62.5	C19-C20
Anus	5	-	100.0	40.0	C21
Liver	126	0.8	24.6	88.1	C22
Gallbladder etc.	18	5.6	33.3	100.0	C23-C24
Pancreas	20	5.0	20.0	130.0	C25
Nose, sinuses etc.	2	-	100.0	150.0	C30-C31
Larynx	6	-	100.0	50.0	C32
Trachea,Bronchus,Lung	242	2.1	57.0	88.0	C33-C34
Other Thoracic organs	0	-	-	-	C37-C38
Bone	2	-	100.0	200.0	C40-C41
Melanoma of Skin	5	-	100.0	80.0	C43
Other Skin	59	-	100.0	23.7	C44
Mesothelioma	0	-	-	-	C45
Kaposi sarcoma	0	-	-	-	C46
Connective,Soft tissue	5	-	80.0	100.0	C47;C49
Breast	353	0.3	98.6	24.4	C50
Vulva	6	-	100.0	33.3	C51
Vagina	2	-	50.0	100.0	C52
Cervix Uteri	303	-	99.0	36.0	C53
Corpus Uteri	56	-	98.2	17.9	C54
Uterus unspec.	0	-	-	-	C55
Ovary	65	-	98.5	24.6	C56
Other Female Genital	2	-	100.0	50.0	C57
Placenta	2	-	100.0	100.0	C58
Kidney	11	-	54.5	81.8	C64
Renal Pelvis	2	-	100.0	50.0	C65
Ureter	3	-	100.0	-	C66
Bladder	22	-	86.4	50.0	C67
Other Urinary organs	0	-	-	-	C68
Eye	3	-	100.0	66.7	C69
Brain, Nervous system	10	-	30.0	70.0	C70-C72
Thyroid	41	-	100.0	31.7	C73
Adrenal gland	2	-	50.0	50.0	C74
Other Endocrine	0	-	-	-	C75
Hodgkin disease	2	-	100.0	50.0	C81
Non-Hodgkin lymphoma	57	-	100.0	63.2	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	C88
Multiple Myeloma	5	-	100.0	80.0	C90
Lymphoid Leukaemia	7	-	100.0	42.9	C91
Myeloid Leukaemia	18	-	100.0	66.7	C92-C94
Leukaemia unspec.	2	-	100.0	100.0	C95
Other & unspecified	59	3.4	50.8	88.1	Other
All sites Total	1734	0.7	82.5	52.8	All

Table 10: NUMBER OF NEW CANCER CASES IN CHIANGMAI 2008, 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	1	0	0	0	1	0.1	C00
Tongue	7	0	0	0	1	1	1	2	2	0	0.5	C01-C02
Mouth	13	0	0	0	0	2	2	2	2	5	0.9	C03-C06
Salivary glands	8	0	0	0	2	0	2	4	0	0	0.6	C07-C08
Tonsil	6	0	0	0	1	0	1	1	1	2	0.4	C09
Other Oropharynx	2	0	0	0	0	1	0	0	1	0	0.1	C10
Nasopharynx	24	0	0	0	3	3	6	5	3	4	1.7	C11
Hypopharynx	6	0	0	0	0	0	4	1	0	1	0.4	C12-C13
Pharynx unspec.	1	0	0	0	0	1	0	0	0	0	0.1	C14
Oesophagus	16	0	0	0	1	0	4	4	3	4	1.1	C15
Stomach	52	0	0	0	4	3	8	14	12	11	3.6	C16
Small intestine	4	0	0	0	0	0	2	1	1	0	0.3	C17
Colon	66	0	0	0	2	6	17	14	12	15	4.6	C18
Rectum	70	0	0	0	3	4	13	17	18	15	4.9	C19-C20
Anus	3	0	0	0	0	0	0	1	1	1	0.2	C21
Liver	271	0	1	1	8	29	70	60	64	38	18.9	C22
Gallbladder etc.	23	0	0	0	0	2	4	2	6	9	1.6	C23-C24
Pancreas	28	0	0	0	0	1	2	7	10	8	2.0	C25
Nose, sinuses etc.	2	0	0	0	0	0	0	0	2	0	0.1	C30-C31
Larynx	25	0	0	0	0	1	6	6	4	8	1.7	C32
Lung	330	0	0	0	3	10	47	82	120	68	23.0	C33-C34
Other Thoracic organs	2	0	0	1	0	1	0	0	0	0	0.1	C37-C38
Bone	7	0	1	1	1	1	1	0	1	1	0.5	C40-C41
Melanoma of Skin	6	0	0	0	0	0	3	0	1	2	0.4	C43
Other Skin	50	0	0	1	3	3	8	5	17	13	3.5	C44
Mesothelioma	1	0	1	0	0	0	0	0	0	0	0.1	C45
Kaposi sarcoma	1	0	0	0	1	0	0	0	0	0	0.1	C46
Connective,Soft tissue	6	0	1	0	0	1	1	2	1	0	0.4	C47;C49
Breast	2	0	0	0	0	0	0	2	0	0	0.1	C50
Penis	6	0	0	0	0	2	1	2	1	0	0.4	C60
Prostate	66	0	0	0	0	0	2	16	23	25	4.6	C61
Testis	4	0	0	1	2	1	0	0	0	0	0.3	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	23	0	1	0	0	0	9	7	5	1	1.6	C64
Renal Pelvis	4	0	0	0	1	0	0	3	0	0	0.3	C65
Ureter	2	0	0	0	0	0	2	0	0	0	0.1	C66
Bladder	69	0	0	0	0	1	8	19	19	22	4.8	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	3	0	0	1	0	1	0	0	0	1	0.2	C69
Brain, Nervous system	22	0	5	1	0	2	5	3	5	1	1.5	C70-C72
Thyroid	14	0	0	0	3	3	6	0	1	1	1.0	C73
Adrenal gland	2	0	1	0	0	0	0	1	0	0	0.1	C74
Other Endocrine	1	0	1	0	0	0	0	0	0	0	0.1	C75
Hodgkin disease	6	0	0	0	1	0	0	2	0	3	0.4	C81
Non-Hodgkin lymphoma	66	0	1	5	2	17	7	9	10	15	4.6	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	10	0	0	0	0	1	3	3	0	3	0.7	C90
Lymphoid Leukaemia	12	0	6	1	0	1	3	0	0	1	0.8	C91
Myeloid Leukaemia	25	0	0	1	3	3	10	3	2	3	1.7	C92-C94
Leukaemia unspec.	2	0	0	0	0	2	0	0	0	0	0.1	C95
Other & unspecified	62	0	0	0	1	3	7	21	17	13	4.3	Other
All sites Total	1433	0	19	14	46	108	265	321	365	295	100.0	All
All sites but C44	1383	0	19	13	43	105	257	316	348	282	96.5	Not C44

Table 11: NUMBER OF NEW CANCER CASES IN CHIANGMAI 2008, FEMALES

SITE	Number of cases by Age Group (years)										%	ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+		
Lip	2	0	0	0	0	0	0	0	0	2	0.1	C00
Tongue	2	0	0	0	0	0	1	1	0	0	0.1	C01-C02
Mouth	14	0	0	0	0	0	3	2	6	3	0.8	C03-C06
Salivary glands	3	0	0	0	0	1	0	0	2	0	0.2	C07-C08
Tonsil	3	0	0	0	0	0	0	1	1	1	0.2	C09
Other Oropharynx	1	0	0	0	0	0	0	0	0	1	0.1	C10
Nasopharynx	10	0	0	0	0	1	3	3	2	1	0.6	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0.0	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Oesophagus	3	0	0	0	0	0	0	0	1	2	0.2	C15
Stomach	39	0	0	1	3	7	10	3	9	6	2.2	C16
Small intestine	2	0	0	0	0	0	0	0	2	0	0.1	C17
Colon	76	0	0	1	2	5	13	20	13	22	4.4	C18
Rectum	56	0	0	1	0	5	15	9	9	17	3.2	C19-C20
Anus	5	0	0	0	0	0	0	3	2	0	0.3	C21
Liver	126	0	0	2	0	4	23	38	34	25	7.3	C22
Gallbladder etc.	18	0	0	0	0	0	3	5	7	3	1.0	C23-C24
Pancreas	20	0	0	0	0	3	2	5	4	6	1.2	C25
Nose, sinuses etc.	2	0	0	0	0	1	1	0	0	0	0.1	C30-C31
Larynx	6	0	0	0	1	0	1	2	2	0	0.3	C32
Lung	242	0	0	0	1	13	27	53	85	63	14.0	C33-C34
Other Thoracic organs	0	0	0	0	0	0	0	0	0	0	0.0	C37-C38
Bone	2	0	0	0	1	0	0	0	1	0	0.1	C40-C41
Melanoma of Skin	5	0	0	0	0	1	1	1	2	0	0.3	C43
Other Skin	59	0	2	0	1	5	10	11	13	17	3.4	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	5	0	0	0	1	4	0	0	0	0	0.3	C47;C49
Breast	353	0	0	0	10	62	174	60	29	18	20.4	C50
Vulva	6	0	0	0	0	0	2	0	3	1	0.3	C51
Vagina	2	0	0	0	0	0	1	1	0	0	0.1	C52
Cervix Uteri	303	0	0	1	14	68	121	56	26	17	17.5	C53
Corpus Uteri	56	0	0	0	0	4	22	17	9	4	3.2	C54
Uterus unspec.	2	0	0	0	0	0	1	0	0	1	0.1	C55
Ovary	65	0	2	4	4	6	26	15	5	3	3.7	C56
Other Female Genital	2	0	0	0	0	0	0	0	1	1	0.1	C57
Placenta	2	0	0	0	1	1	0	0	0	0	0.1	C58
Kidney	11	0	0	1	1	1	0	1	2	5	0.6	C64
Renal Pelvis	2	0	0	0	0	0	0	1	1	0	0.1	C65
Ureter	3	0	0	0	0	0	1	1	1	0	0.2	C66
Bladder	22	0	0	0	0	1	0	4	12	5	1.3	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	3	0	1	0	0	1	0	0	0	1	0.2	C69
Brain, Nervous system	10	0	2	1	2	0	2	1	1	1	0.6	C70-C72
Thyroid	41	0	0	4	7	10	7	5	5	3	2.4	C73
Adrenal gland	1	0	0	0	0	0	0	1	0	0	0.1	C74
Other Endocrine	1	0	0	1	0	0	0	0	0	0	0.1	C75
Hodgkin disease	2	0	1	0	0	1	0	0	0	0	0.1	C81
Non-Hodgkin lymphoma	57	0	0	4	4	6	15	12	4	12	3.3	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	5	0	0	0	0	0	1	4	0	0	0.3	C90
Lymphoid Leukaemia	7	0	2	3	0	0	0	1	0	1	0.4	C91
Myeloid Leukaemia	18	0	1	2	3	0	5	1	3	3	1.0	C92-C94
Leukaemia unspec.	2	0	0	0	0	0	0	0	1	1	0.1	C95
Other & unspecified	57	0	2	0	1	7	10	6	14	17	3.3	Other
All sites Total	1734	0	13	26	57	218	501	344	312	263	100.0	All
All sites but C44	1675	0	11	26	56	213	491	333	299	246	96.6	Not C44

Table 12: CANCER INCIDENCE IN CHIANGMAI, 2008, MALES

SITE	Incidence per 100,000 by Age Group (years)									ASR				
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+	Crude rate	CR 64	CR 74	(W)	ICD (10th)
Lip	2	-	-	-	0.9	-	-	-	3.6	0.3	0.01	0.01	0.2	C00
Tongue	7	-	-	0.8	0.9	0.8	2.9	5.2	-	0.9	0.05	0.10	0.8	C01-C02
Mouth	13	-	-	-	1.8	1.6	2.9	5.2	18.1	1.7	0.06	0.12	1.2	C03-C06
Salivary glands	8	-	-	1.7	-	1.6	5.8	-	-	1.1	0.09	0.09	0.9	C07-C08
Tonsil	6	-	-	0.8	-	0.8	1.4	2.6	7.3	0.8	0.03	0.05	0.5	C09
Other Oropharynx	2	-	-	-	0.9	-	-	2.6	-	0.3	0.01	0.04	0.2	C10
Nasopharynx	24	-	-	2.5	2.6	4.7	7.2	7.8	14.5	3.2	0.17	0.24	2.5	C11
Hypopharynx	6	-	-	-	-	3.1	1.4	-	3.6	0.8	0.04	0.04	0.5	C12-C13
Pharynx unspec.	1	-	-	-	0.9	-	-	-	-	0.1	0.01	0.01	0.1	C14
Oesophagus	16	-	-	0.8	-	3.1	5.8	7.8	14.5	2.1	0.10	0.18	1.6	C15
Stomach	52	-	-	3.4	2.6	6.2	20.1	31.3	39.9	6.9	0.33	0.62	5.4	C16
Small intestine	4	-	-	-	-	1.6	1.4	2.6	-	0.5	0.03	0.06	0.4	C17
Colon	66	-	-	1.7	5.3	13.2	20.1	31.3	54.4	8.7	0.40	0.70	6.5	C18
Rectum	70	-	-	2.5	3.5	10.1	24.5	46.9	54.4	9.2	0.38	0.85	6.9	C19-C20
Anus	3	-	-	-	-	-	1.4	2.6	3.6	0.4	0.02	0.04	0.4	C21
Liver	271	0.7	0.8	6.8	25.5	54.3	86.3	167	137.8	35.8	1.77	3.37	28.7	C22
Gallbladder etc.	23	-	-	-	1.8	3.1	2.9	15.6	32.6	3	0.08	0.24	2.2	C23-C24
Pancreas	28	-	-	-	0.9	1.6	10.1	26.1	29	3.7	0.14	0.40	3.1	C25
Nose, sinuses etc.	2	-	-	-	-	-	-	5.2	-	0.3	0.00	0.05	0.3	C30-C31
Larynx	25	-	-	-	0.9	4.7	8.6	10.4	29	3.3	0.13	0.23	2.4	C32
Lung	330	-	-	2.5	8.8	36.4	118	313	246.6	43.6	1.75	4.79	35.7	C33-C34
Other Thoracic organs	2	-	0.8	-	0.9	-	-	-	-	0.3	0.02	0.02	0.3	C37-C38
Bone	7	0.7	0.8	0.8	0.9	0.8	-	2.6	3.6	0.9	0.04	0.07	0.8	C40-C41
Melanoma of Skin	6	-	-	-	-	2.3	-	2.6	7.3	0.8	0.02	0.05	0.5	C43
Other Skin	50	-	0.8	2.5	2.6	6.2	7.2	44.3	47.1	6.6	0.18	0.62	4.9	C44
Mesothelioma	1	0.7	-	-	-	-	-	-	-	0.1	0.01	0.01	0.2	C45
Kaposi sarcoma	1	-	-	0.8	-	-	-	-	-	0.1	0.01	0.00	0.1	C46
Connective,Soft tissue	6	0.7	-	-	0.9	0.8	2.9	2.6	-	0.8	0.05	0.08	0.6	C47;C49
Breast	2	-	-	-	-	-	2.9	-	-	0.3	0.03	0.03	0.2	C50
Penis	6	-	-	-	1.8	0.8	2.9	2.6	-	0.8	0.06	0.09	0.7	C60
Prostate	66	-	-	-	-	1.6	23	60	90.7	8.7	0.27	0.87	6.9	C61
Testis	4	-	0.8	1.7	0.9	-	-	-	-	0.5	0.03	0.03	0.5	C62
Other male genital	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C63
Kidney	23	0.7	-	-	-	7	10.1	13	3.6	3	0.18	0.31	2.5	C64
Renal Pelvis	4	-	-	0.8	-	-	4.3	-	-	0.5	0.04	0.04	0.4	C65
Ureter	2	-	-	-	-	1.6	-	-	-	0.3	0.01	0.01	0.2	C66
Bladder	69	-	-	-	0.9	6.2	27.3	49.5	79.8	9.1	0.38	0.88	7.2	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C68
Eye	3	-	0.8	-	0.9	-	-	-	3.6	0.4	0.01	0.02	0.3	C69
Brain, Nervous system	22	3.5	0.8	-	1.8	3.9	4.3	13	3.6	2.9	0.17	0.30	3.0	C70-C72
Thyroid	14	-	-	2.5	2.6	4.7	-	2.6	3.6	1.8	0.10	0.11	1.4	C73
Adrenal gland	2	0.7	-	-	-	-	1.4	-	-	0.3	0.03	0.03	0.4	C74
Other Endocrine	1	0.7	-	-	-	-	-	-	-	0.1	0.01	0.01	0.2	C75
Hodgkin disease	6	-	-	0.8	-	-	2.9	-	10.9	0.8	0.03	0.03	0.5	C81
Non-Hodgkin lymphoma	66	0.7	4.2	1.7	14.9	5.4	13	26.1	54.4	8.7	0.38	0.65	6.9	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C88
Multiple Myeloma	10	-	-	-	0.9	2.3	4.3	-	10.9	1.3	0.08	0.08	1.0	C90
Lymphoid Leukaemia	12	4.2	0.8	-	0.9	2.3	-	-	3.6	1.6	0.11	0.11	1.9	C91
Myeloid Leukaemia	25	-	0.8	2.5	2.6	7.8	4.3	5.2	10.9	3.3	0.19	0.23	2.5	C92-C94
Leukaemia unspec.	2	-	-	-	1.8	-	-	-	-	0.3	0.02	0.02	0.2	C95
Other & unspecified	62	-	-	0.8	2.6	5.4	30.2	44.3	47.1	8.2	0.39	0.82	6.6	Other
All sites Total	1433	13	12	39	95	205	462	952	1070	189.1	8.16	16.43	151.5	All
All sites but C44	1383	13	11	37	92	199	455	907	1023	182.5	7.99	15.92	146.6	Not C44

Table 13: CANCER INCIDENCE IN CHIANGMAI, 2008, FEMALES

SITE	Incidence per 100,000 by Age Group (years)									Crude rate	CR 64	CR 74	ASR (W)	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+					
Lip	2	-	-	-	-	-	-	-	5.8	0.3	0.00	0.03	0.1	C00
Tongue	2	-	-	-	-	0.7	1.3	-	-	0.3	0.02	0.02	0.2	C01-C02
Mouth	14	-	-	-	-	2.1	2.7	14	8.8	1.8	0.09	0.23	1.2	C03-C06
Salivary glands	3	-	-	-	0.8	-	-	-	4.7	0.4	0.03	0.05	0.3	C07-C08
Tonsil	3	-	-	-	-	-	1.3	2.3	2.9	0.4	0.04	0.06	0.3	C09
Other Oropharynx	1	-	-	-	-	-	-	-	2.9	0.1	0.00	0.01	0.1	C10
Nasopharynx	10	-	-	-	0.8	2.1	4	4.7	2.9	1.3	0.10	0.14	1.0	C11
Hypopharynx	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C14
Oesophagus	3	-	-	-	-	-	-	2.3	5.8	0.4	0.00	0.05	0.2	C15
Stomach	39	-	0.8	2.5	5.5	6.9	4	20.9	17.5	4.9	0.26	0.48	3.5	C16
Small intestine	2	-	-	-	-	-	-	4.7	-	0.3	0.05	0.05	0.3	C17
Colon	76	-	0.8	1.7	3.9	9	26.7	30.2	64.3	9.5	0.55	1.00	6.5	C18
Rectum	56	-	0.8	-	3.9	10.4	12	20.9	49.7	7	0.39	0.73	4.8	C19-C20
Anus	5	-	-	-	-	-	4	4.7	-	0.6	0.05	0.09	0.6	C21
Liver	126	-	1.7	-	3.1	16	50.6	79.1	73.1	15.8	1.10	1.85	11.8	C22
Gallbladder etc.	18	-	-	-	-	2.1	6.7	16.3	8.8	2.3	0.18	0.30	1.8	C23-C24
Pancreas	20	-	-	-	2.3	1.4	6.7	9.3	17.5	2.5	0.17	0.30	1.9	C25
Nose, sinuses etc.	2	-	-	-	0.8	0.7	-	-	-	0.3	0.01	0.01	0.2	C30-C31
Larynx	6	-	-	0.8	-	0.7	2.7	4.7	-	0.8	0.06	0.09	0.7	C32
Lung	242	-	-	0.8	10.2	18.7	70.6	198	184	30.4	2.15	3.85	23.1	C33-C34
Other Thoracic organs	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C37-C38
Bone	2	-	-	0.8	-	-	-	2.3	-	0.3	0.03	0.02	0.2	C40-C41
Melanoma of Skin	5	-	-	-	0.8	0.7	1.3	4.7	-	0.6	0.08	0.08	0.6	C43
Other Skin	59	1.5	-	0.8	3.9	6.9	14.7	30.2	49.7	7.4	0.35	0.80	5.3	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C45
Kaposi sarcoma	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C46
Connective,Soft tissue	5	-	-	0.8	3.1	-	-	-	-	0.6	0.03	0.04	0.5	C47;C49
Breast	353	-	-	8.5	48.4	121	80	67.4	52.6	44.3	2.79	3.35	30.6	C50
Vulva	6	-	-	-	-	1.4	-	7	2.9	0.8	0.04	0.10	0.5	C51
Vagina	2	-	-	-	-	0.7	1.3	-	-	0.3	0.02	0.02	0.2	C52
Cervix Uteri	303	-	0.8	11.8	53.1	83.9	74.6	60.5	49.7	38.1	2.48	2.90	26.8	C53
Corpus Uteri	56	-	-	-	3.1	15.3	22.7	20.9	11.7	7	0.51	0.68	5.1	C54
Uterus unspec.	2	-	-	-	-	0.7	-	-	2.9	0.3	0.01	0.02	0.1	C55
Ovary	65	1.5	3.3	3.4	4.7	18	20	11.6	8.8	8.2	0.52	0.68	6.2	C56
Other Female Genital	2	-	-	-	-	-	-	2.3	2.9	0.3	0.02	0.04	0.2	C57
Placenta	2	-	-	0.8	0.8	-	-	-	-	0.3	0.02	0.01	0.2	C58
Kidney	11	-	0.8	0.8	0.8	-	1.3	4.7	14.6	1.4	0.06	0.15	1.0	C64
Renal Pelvis	2	-	-	-	-	-	1.3	2.3	-	0.3	0.01	0.03	0.2	C65
Ureter	3	-	-	-	-	0.7	1.3	2.3	-	0.4	0.04	0.04	0.3	C66
Bladder	22	-	-	-	0.8	-	5.3	27.9	14.6	2.8	0.23	0.42	2.3	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C68
Eye	3	0.7	-	-	0.8	-	-	-	2.9	0.4	0.01	0.02	0.4	C69
Brain, Nervous system	10	1.5	0.8	1.7	-	1.4	1.3	2.3	2.9	1.3	0.06	0.11	1.2	C70-C72
Thyroid	41	-	3.3	5.9	7.8	4.9	6.7	11.6	8.8	5.1	0.33	0.41	4.1	C73
Adrenal gland	1	-	-	-	-	-	1.3	-	-	0.1	0.01	0.01	0.1	C74
Other Endocrine	1	-	0.8	-	-	-	-	-	-	0.1	0.01	0.01	0.2	C75
Hodgkin disease	2	0.7	-	-	0.8	-	-	-	-	0.3	0.02	0.02	0.3	C81
Non-Hodgkin lymphoma	57	-	3.3	3.4	4.7	10.4	16	9.3	35.1	7.2	0.45	0.63	5.3	C82-C85;C96
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C88
Multiple Myeloma	5	-	-	-	-	0.7	5.3	-	-	0.6	0.06	0.06	0.5	C90
Lymphoid Leukaemia	7	1.5	2.5	-	-	-	1.3	-	2.9	0.9	0.05	0.06	1.1	C91
Myeloid Leukaemia	18	0.7	1.7	2.5	-	3.5	1.3	7	8.8	2.3	0.10	0.18	1.7	C92-C94
Leukaemia unspec.	2	-	-	-	-	-	-	2.3	2.9	0.3	0.00	0.04	0.2	C95
Other & unspecified	57	1.5	-	0.8	5.5	6.9	8	32.6	49.7	7.2	0.37	0.79	5.3	Other
All sites Total	1734	10	22	48	170	348	459	725	769	217.8	13.09	19.16	159.0	
All sites but C44	1675	8	22	47	166	341	444	695	719	210.4	12.79	18.51	153.7	

Table 14: NUMBER OF CANCER DEATHS IN CHIANGMAI, 2008, MALES

SITE	Number of cases by Age Group (years)											ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+	%	
Lip	1	0	0	0	0	0	0	0	1	0	0.1	C00
Tongue	5	0	0	0	0	1	2	0	2	0	0.4	C01-C02
Mouth	8	0	0	0	0	0	1	2	2	3	0.7	C03-C06
Salivary glands	2	0	0	0	0	0	1	1	0	0	0.2	C07-C08
Tonsil	4	0	0	0	0	0	2	0	0	2	0.4	C09
Other Oropharynx	3	0	0	0	0	0	0	1	0	2	0.3	C10
Nasopharynx	25	0	1	0	2	2	7	6	4	3	2.2	C11
Hypopharynx	4	0	0	0	0	1	0	1	0	2	0.4	C12-C13
Pharynx unspec.	1	0	0	0	0	1	0	0	0	0	0.1	C14
Oesophagus	21	0	0	0	1	0	3	4	7	6	1.8	C15
Stomach	53	0	0	0	2	4	12	7	16	12	4.7	C16
Small intestine	4	0	0	0	0	0	2	0	2	0	0.4	C17
Colon	41	0	0	0	0	3	5	11	9	13	3.6	C18
Rectum	45	0	0	1	1	3	1	6	17	16	4.0	C19-C20
Anus	3	0	0	0	0	1	1	0	0	1	0.3	C21
Liver	264	0	1	0	9	28	66	59	63	38	23.2	C22
Gallbladder etc.	20	0	0	0	0	1	2	3	7	7	1.8	C23-C24
Pancreas	24	0	0	0	0	0	2	5	11	6	2.1	C25
Nose, sinuses etc.	2	0	0	0	1	0	1	0	0	0	0.2	C30-C31
Larynx	15	0	0	0	0	0	4	4	2	5	1.3	C32
Lung	314	0	0	0	1	12	32	78	110	81	27.6	C33-C34
Other Thoracic organs	3	0	1	0	0	0	0	2	0	0	0.3	C37-C38
Bone	3	0	0	0	0	0	3	0	0	0	0.3	C40-C41
Melanoma of Skin	5	0	0	0	0	0	0	1	0	4	0.4	C43
Other Skin	15	0	0	0	0	0	0	2	1	12	1.3	C44
Mesothelioma	1	0	1	0	0	0	0	0	0	0	0.1	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	5	0	0	0	0	2	2	1	0	0	0.4	C47;C49
Breast	2	0	0	0	0	0	1	1	0	0	0.2	C50
Penis	6	0	0	0	0	0	1	0	0	5	0.5	C60
Prostate	30	0	0	0	0	0	0	2	5	23	2.6	C61
Testis	0	0	0	0	0	0	0	0	0	0	0.0	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	5	0	0	0	0	0	2	3	0	0	0.4	C64
Renal Pelvis	3	0	0	0	1	0	0	2	0	0	0.3	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0.0	C66
Bladder	45	0	0	0	0	0	5	5	9	26	4.0	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	1	0	0	0	0	0	1	0	0	0	0.1	C69
Brain, Nervous system	9	0	0	1	0	1	2	3	2	0	0.8	C70-C72
Thyroid	6	0	0	0	0	0	3	0	2	1	0.5	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0.0	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	6	0	0	0	1	0	1	2	1	1	0.5	C81
Non-Hodgkin lymphoma	43	0	0	1	2	5	7	5	9	14	3.8	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	7	0	0	0	0	2	0	2	0	3	0.6	C90
Lymphoid Leukaemia	7	0	1	0	0	1	1	1	0	3	0.6	C91
Myeloid Leukaemia	19	0	0	1	3	1	4	3	2	5	1.7	C92-C94
Leukaemia unspec.	2	0	0	0	0	1	1	0	0	0	0.2	C95
Other & unspecified	56	0	0	0	1	4	6	15	17	13	4.9	Other
All sites Total	1138	0	5	4	25	74	184	238	301	307	100.0	All
All sites but C44	1123	0	5	4	25	74	184	236	300	295	98.7	Not C44

Table 15: NUMBER OF CANCER DEATHS IN CHIANGMAI, 2008, FEMALES

SITE	Number of cases by Age Group (years)										%	ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+		
Lip	1	0	0	0	0	0	0	0	0	1	0.1	C00
Tongue	3	0	0	0	0	0	0	0	2	1	0.3	C01-C02
Mouth	8	0	0	0	0	0	0	4	2	2	0.9	C03-C06
Salivary glands	0	0	0	0	0	0	0	0	0	0	0.0	C07-C08
Tonsil	2	0	0	0	0	0	0	1	0	1	0.2	C09
Other Oropharynx	1	0	0	0	0	0	0	0	0	1	0.1	C10
Nasopharynx	7	0	0	1	0	0	2	3	0	1	0.8	C11
Hypopharynx	1	0	0	0	0	0	0	0	0	1	0.1	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Oesophagus	2	0	0	0	0	0	1	0	0	1	0.2	C15
Stomach	34	0	0	0	2	4	9	3	9	7	3.7	C16
Small intestine	2	0	0	0	0	0	1	1	0	0	0.2	C17
Colon	32	0	0	0	1	0	5	7	8	11	3.5	C18
Rectum	35	0	0	0	1	2	6	5	7	14	3.8	C19-C20
Anus	2	0	0	0	0	0	1	0	1	0	0.2	C21
Liver	111	0	0	1	0	5	18	31	37	19	12.1	C22
Gallbladder etc.	18	0	0	0	0	0	2	4	9	3	2.0	C23-C24
Pancreas	26	0	0	0	0	2	5	5	9	5	2.8	C25
Nose, sinuses etc.	3	0	0	0	0	0	1	1	1	0	0.3	C30-C31
Larynx	3	0	0	0	0	0	0	0	1	2	0.3	C32
Lung	213	0	0	0	1	8	20	52	76	56	23.3	C33-C34
Other Thoracic organs	2	0	0	1	0	0	0	1	0	0	0.2	C37-C38
Bone	4	0	1	0	1	0	1	0	0	1	0.4	C40-C41
Melanoma of Skin	4	0	0	0	0	0	0	1	2	1	0.4	C43
Other Skin	14	0	0	0	0	0	0	2	4	8	1.5	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	5	0	0	0	0	1	3	1	0	0	0.5	C47;C49
Breast	86	0	0	0	2	14	22	25	10	13	9.4	C50
Vulva	2	0	0	0	1	0	1	0	0	0	0.2	C51
Vagina	2	0	0	0	0	0	0	1	1	0	0.2	C52
Cervix Uteri	109	0	0	0	1	11	35	31	17	14	11.9	C53
Corpus Uteri	10	0	0	0	0	0	4	1	4	1	1.1	C54
Uterus unspec.	1	0	0	0	0	0	0	0	0	1	0.1	C55
Ovary	16	0	1	0	0	3	4	4	1	3	1.7	C56
Other Female Genital	1	0	0	0	0	0	1	0	0	0	0.1	C57
Placenta	2	0	0	0	0	1	1	0	0	0	0.2	C58
Kidney	9	0	0	1	0	0	1	1	1	5	1.0	C64
Renal Pelvis	1	0	0	0	0	0	0	0	1	0	0.1	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0.0	C66
Bladder	11	0	0	0	0	1	0	1	5	4	1.2	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	2	0	0	0	0	1	0	0	0	1	0.2	C69
Brain, Nervous system	7	0	1	0	2	1	1	0	1	1	0.8	C70-C72
Thyroid	13	0	0	0	0	0	2	1	7	3	1.4	C73
Adrenal gland	1	0	0	0	0	0	0	1	0	0	0.1	C74
Other Endocrine	0	0	0	0	0	0	0	0	0	0	0.0	C75
Hodgkin disease	1	0	0	0	1	0	0	0	0	0	0.1	C81
Non-Hodgkin lymphoma	36	0	0	0	3	5	11	7	4	6	3.9	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	4	0	0	0	1	0	0	3	0	0	0.4	C90
Lymphoid Leukaemia	3	0	0	0	1	0	0	1	0	1	0.3	C91
Myeloid Leukaemia	12	0	1	0	3	0	2	1	3	2	1.3	C92-C94
Leukaemia unspec.	2	0	0	0	0	0	0	0	1	1	0.2	C95
Other & unspecified	52	0	3	0	0	2	8	8	11	20	5.7	Other
All sites Total	916	0	7	4	21	61	168	208	235	212	100.0	All
All sites but C44	902	0	7	4	21	61	168	206	231	204	98.5	Not C44

Table 16: CANCER DEATHS IN CHIANGMAI, 2008, MALES

SITE	Incidence per 100,000 by Age Group (years)										Crude rate	CR 64	CR 74	ASR (W)	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+						
Lip	1	-	-	-	-	-	-	2.6	-	0.1	0.00	0.03	0.1	C00	
Tongue	5	-	-	-	0.9	1.6	-	5.2	-	0.7	0.02	0.08	0.5	C01-C02	
Mouth	8	-	-	-	-	0.8	2.9	5.2	10.9	1.1	0.04	0.09	0.8	C03-C06	
Salivary glands	2	-	-	-	-	0.8	1.4	-	-	0.3	0.03	0.03	0.2	C07-C08	
Tonsil	4	-	-	-	-	1.6	-	-	7.3	0.5	0.02	0.02	0.3	C09	
Other Oropharynx	3	-	-	-	-	-	1.4	-	7.3	0.4	0.01	0.01	0.3	C10	
Nasopharynx	25	0.7	-	1.7	1.8	5.4	8.6	10.4	10.9	3.3	0.19	0.29	2.7	C11	
Hypopharynx	4	-	-	-	0.9	-	1.4	-	7.3	0.5	0.02	0.02	0.4	C12-C13	
Pharynx unspec.	1	-	-	-	0.9	-	-	-	-	0.1	0.01	0.01	0.1	C14	
Oesophagus	21	-	-	0.8	-	2.3	5.8	18.3	21.8	2.8	0.09	0.28	2.2	C15	
Stomach	53	-	-	1.7	3.5	9.3	10.1	41.7	43.5	7	0.26	0.67	5.4	C16	
Small intestine	4	-	-	-	-	1.6	-	5.2	-	0.5	0.02	0.07	0.4	C17	
Colon	41	-	-	-	2.6	3.9	15.8	23.5	47.1	5.4	0.25	0.48	4.1	C18	
Rectum	45	-	0.8	0.8	2.6	0.8	8.6	44.3	58	5.9	0.14	0.59	4.7	C19-C20	
Anus	3	-	-	-	0.9	0.8	-	-	3.6	0.4	0.02	0.02	0.3	C21	
Liver	264	0.7	-	7.6	24.6	51.2	84.9	164	137.8	34.8	1.75	3.33	27.6	C22	
Gallbladder etc.	20	-	-	-	0.9	1.6	4.3	18.3	25.4	2.6	0.07	0.25	2	C23-C24	
Pancreas	24	-	-	-	-	1.6	7.2	28.7	21.8	3.2	0.10	0.39	2.6	C25	
Nose, sinuses etc.	2	-	-	0.8	-	0.8	-	-	-	0.3	0.02	0.02	0.2	C30-C31	
Larynx	15	-	-	-	-	3.1	5.8	5.2	18.1	2	0.10	0.15	1.4	C32	
Lung	314	-	-	0.8	10.5	24.8	112	287	293.7	41.4	1.51	4.31	33.3	C33-C34	
Other Thoracic organs	3	0.7	-	-	-	-	2.9	-	-	0.4	0.05	0.05	0.4	C37-C38	
Bone	3	-	-	-	-	2.3	-	-	-	0.4	0.02	0.02	0.3	C40-C41	
Melanoma of Skin	5	-	-	-	-	-	1.4	-	14.5	0.7	0.02	0.02	0.4	C43	
Other Skin	15	-	-	-	-	-	2.9	2.6	43.5	2	0.02	0.05	1.2	C44	
Mesothelioma	1	0.7	-	-	-	-	-	-	-	0.1	0.01	0.01	0.2	C45	
Kaposi sarcoma	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C46	
Connective,Soft tissue	5	-	-	-	1.8	1.6	1.4	-	-	0.7	0.05	0.05	0.5	C47;C49	
Breast	2	-	-	-	-	0.8	1.4	-	-	0.3	0.03	0.03	0.2	C50	
Penis	6	-	-	-	-	0.8	-	-	18.1	0.8	0.01	0.01	0.4	C60	
Prostate	30	-	-	-	-	-	2.9	13	83.4	4	0.04	0.17	2.6	C61	
Testis	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C62	
Other male genital	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C63	
Kidney	5	-	-	-	-	1.6	4.3	-	-	0.7	0.05	0.05	0.5	C64	
Renal Pelvis	3	-	-	0.8	-	-	2.9	-	-	0.4	0.03	0.03	0.3	C65	
Ureter	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C66	
Bladder	45	-	-	-	-	3.9	7.2	23.5	94.3	5.9	0.12	0.36	4.1	C67	
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C68	
Eye	1	-	-	-	-	0.8	-	-	-	0.1	0.01	0.01	0.1	C69	
Brain, Nervous system	9	-	0.8	-	0.9	1.6	4.3	5.2	-	1.2	0.07	0.13	1	C70-C72	
Thyroid	6	-	-	-	-	2.3	-	5.2	3.6	0.8	0.02	0.08	0.6	C73	
Adrenal gland	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C74	
Other Endocrine	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C75	
Hodgkin disease	6	-	-	0.8	-	0.8	2.9	2.6	3.6	0.8	0.04	0.06	0.6	C81	
Non-Hodgkin lymphoma	43	-	0.8	1.7	4.4	5.4	7.2	23.5	50.8	5.7	0.19	0.42	4.3	C82-C85;C96	
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0	C88	
Multiple Myeloma	7	-	-	-	1.8	-	2.9	-	10.9	0.9	0.05	0.05	0.7	C90	
Lymphoid Leukaemia	7	0.7	-	-	0.9	0.8	1.4	-	10.9	0.9	0.05	0.05	0.7	C91	
Myeloid Leukaemia	19	-	0.8	2.5	0.9	3.1	4.3	5.2	18.1	2.5	0.11	0.15	1.9	C92-C94	
Leukaemia unspec.	2	-	-	-	0.9	0.8	-	-	-	0.3	0.02	0.02	0.2	C95	
Other & unspecified	56	-	-	0.8	3.5	4.7	21.6	44.3	47.1	7.4	0.31	0.74	5.9	Other	
All sites Total	1138	4	3	21	65	143	343	785	1113	150.2	5.83	12.90	117	All	
All sites but C44	1123	4	3	21	65	143	340	782	1070	148.2	5.80	12.86	116	Not C44	

Table 17: CANCER DEATHS IN CHIANGMAI, 2008, FEMALES

SITE	Incidence per 100,000 by Age Group (years)										Crude rate	CR 64	CR 74	ASR (W)	ICD (10th)
	All Ages	0-	15-	25-	35-	45-	55-	65-	75+						
Lip	1	-	-	-	-	-	-	-	2.9	0.1	0.00	0.00	0.1	C00	
Tongue	3	-	-	-	-	-	-	4.7	2.9	0.4	0.00	0.05	0.3	C01-C02	
Mouth	8	-	-	-	-	-	5.3	4.7	5.8	1	0.06	0.10	0.8	C03-C06	
Salivary glands	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C07-C08	
Tonsil	2	-	-	-	-	-	-	1.3	-	2.9	0.3	0.02	0.02	0.2	C09
Other Oropharynx	1	-	-	-	-	-	-	-	-	2.9	0.1	0.00	0.00	0.1	C10
Nasopharynx	7	-	0.8	-	-	1.4	4	-	2.9	0.9	0.06	0.06	0.7	C11	
Hypopharynx	1	-	-	-	-	-	-	-	2.9	0.1	0.00	0.00	0.1	C12-C13	
Pharynx unspec.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C14	
Oesophagus	2	-	-	-	-	0.7	-	-	2.9	0.3	0.01	0.01	0.1	C15	
Stomach	34	-	-	1.7	3.1	6.2	4	20.9	20.5	4.3	0.14	0.34	2.9	C16	
Small intestine	2	-	-	-	-	0.7	1.3	-	-	0.3	0.02	0.02	0.2	C17	
Colon	32	-	-	0.8	-	3.5	9.3	18.6	32.2	4	0.14	0.32	2.9	C18	
Rectum	35	-	-	0.8	1.6	4.2	6.7	16.3	40.9	4.4	0.15	0.31	3.0	C19-C20	
Anus	2	-	-	-	-	0.7	-	-	2.3	0.3	0.01	0.03	0.2	C21	
Liver	111	-	0.8	-	3.9	12.5	41.3	86	55.6	13.9	0.57	1.43	10.6	C22	
Gallbladder etc.	18	-	-	-	-	1.4	5.3	20.9	8.8	2.3	0.08	0.29	1.9	C23-C24	
Pancreas	26	-	-	-	1.6	3.5	6.7	20.9	14.6	3.3	0.13	0.34	2.4	C25	
Nose, sinuses etc.	3	-	-	-	-	0.7	1.3	2.3	-	0.4	0.02	0.04	0.3	C30-C31	
Larynx	3	-	-	-	-	-	-	2.3	5.8	0.4	0.00	0.02	0.3	C32	
Lung	213	-	-	0.8	6.2	13.9	69.3	177	164	26.8	0.92	2.66	20.0	C33-C34	
Other Thoracic organs	2	-	0.8	-	-	-	1.3	-	-	0.3	0.02	0.02	0.2	C37-C38	
Bone	4	0.7	-	0.8	-	0.7	-	-	2.9	0.5	0.02	0.02	0.4	C40-C41	
Melanoma of Skin	4	-	-	-	-	-	1.3	4.7	2.9	0.5	0.01	0.06	0.4	C43	
Other Skin	14	-	-	-	-	-	2.7	9.3	23.4	1.8	0.04	0.13	1.2	C44	
Mesothelioma	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C45	
Kaposi sarcoma	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C46	
Connective,Soft tissue	5	-	-	-	0.8	2.1	1.3	-	-	0.6	0.04	0.04	0.4	C47;C49	
Breast	86	-	-	1.7	10.9	15.3	33.3	23.3	38	10.8	0.59	0.81	7.6	C50	
Vulva	2	-	-	0.8	-	0.7	-	-	-	0.3	0.02	0.02	0.2	C51	
Vagina	2	-	-	-	-	-	1.3	2.3	-	0.3	0.02	0.04	0.3	C52	
Cervix Uteri	109	-	-	0.8	8.6	24.3	41.3	39.5	40.9	13.7	0.77	1.16	10.0	C53	
Corpus Uteri	10	-	-	-	-	2.8	1.3	9.3	2.9	1.3	0.04	0.13	0.9	C54	
Uterus unspec.	1	-	-	-	-	-	-	-	2.9	0.1	0.00	0.00	0.1	C55	
Ovary	16	0.7	-	-	2.3	2.8	5.3	2.3	8.8	2	0.11	0.14	1.4	C56	
Other Female Genital	1	-	-	-	-	0.7	-	-	-	0.1	0.01	0.01	0.1	C57	
Placenta	2	-	-	-	0.8	0.7	-	-	-	0.3	0.01	0.01	0.2	C58	
Kidney	9	-	0.8	-	-	0.7	1.3	2.3	14.6	1.1	0.03	0.05	0.7	C64	
Renal Pelvis	1	-	-	-	-	-	-	2.3	-	0.1	0.00	0.02	0.1	C65	
Ureter	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C66	
Bladder	11	-	-	-	0.8	-	1.3	11.6	11.7	1.4	0.03	0.14	1.1	C67	
Other Urinary organs	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C68	
Eye	2	-	-	-	0.8	-	-	-	2.9	0.3	0.01	0.01	0.2	C69	
Brain, Nervous system	7	0.7	-	1.7	0.8	0.7	-	2.3	2.9	0.9	0.04	0.05	0.8	C70-C72	
Thyroid	13	-	-	-	-	1.4	1.3	16.3	8.8	1.6	0.02	0.19	1.3	C73	
Adrenal gland	1	-	-	-	-	-	1.3	-	-	0.1	0.01	0.01	0.1	C74	
Other Endocrine	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C75	
Hodgkin disease	1	-	-	0.8	-	-	-	-	-	0.1	0.01	0.01	0.1	C81	
Non-Hodgkin lymphoma	36	-	-	2.5	3.9	7.6	9.3	9.3	17.5	4.5	0.25	0.33	3.4	C82-C85;C96	
Immunoproliferative dis.	0	-	-	-	-	-	-	-	-	0	0.00	0.00	0.0	C88	
Multiple Myeloma	4	-	-	0.8	-	-	4	-	-	0.5	0.05	0.05	0.4	C90	
Lymphoid Leukaemia	3	-	-	0.8	-	-	1.3	-	2.9	0.4	0.02	0.02	0.2	C91	
Myeloid Leukaemia	12	0.7	-	2.5	-	1.4	1.3	7	5.8	1.5	0.06	0.12	1.3	C92-C94	
Leukaemia unspec.	2	-	-	-	-	-	-	2.3	2.9	0.3	0.00	0.02	0.2	C95	
Other & unspecified	52	2.2	-	-	1.6	5.5	10.7	25.6	58.5	6.5	0.21	0.47	4.9	Other	
All sites Total	916	5	3	18	48	117	277	546	620	115.1	4.66	9.69	85.0	All	
All sites but C44	902	5	3	18	48	117	275	537	597	113.3	4.63	9.58	83.8	Not C44	

CHIANG MAI POPULATION AND ADMINISTRATIVE DIVISIONS

In 2008, Chiang Mai province was composed of 24 districts (amphurs) (Fig. 53). Local administration consisted of one municipality and 35 subdistrict municipalities. Total population in Chiang Mai in 2008 was 1,670,317 consisting of 819,750 males and 850,567 females. The population density averaged 83.1 people per km². The highest population density was in Muang District (1,453.4 people per km²), followed by Saraphi, Sanpatong, Sansai, and Sankamphaeng districts. The lowest population density was in Mae Chaem District (20.2 people per km²). Eighty percent of the population was born in the province; the remainder was made up of Thai, Chinese, Laos, and hill tribe people. Buddhism was the professed religion of 91.4% of the people in the province. Of the remainder, most were either Christians or Muslims.

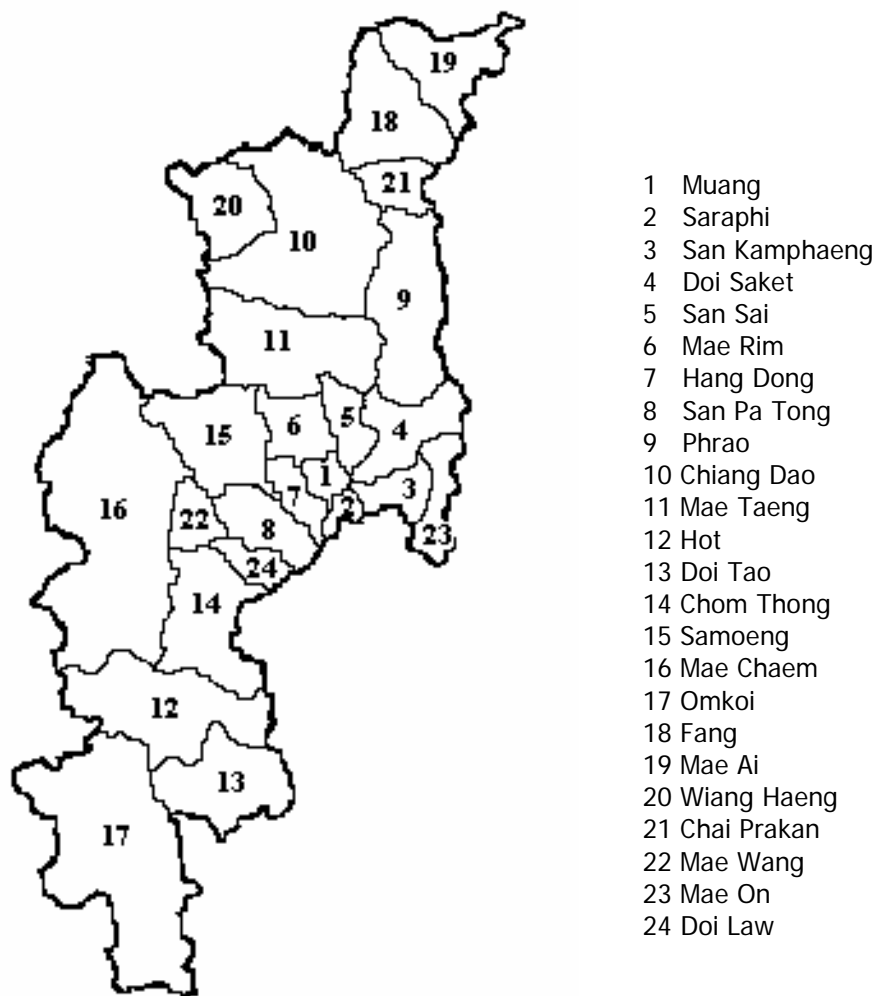


Figure 53: Districts of Chiang Mai

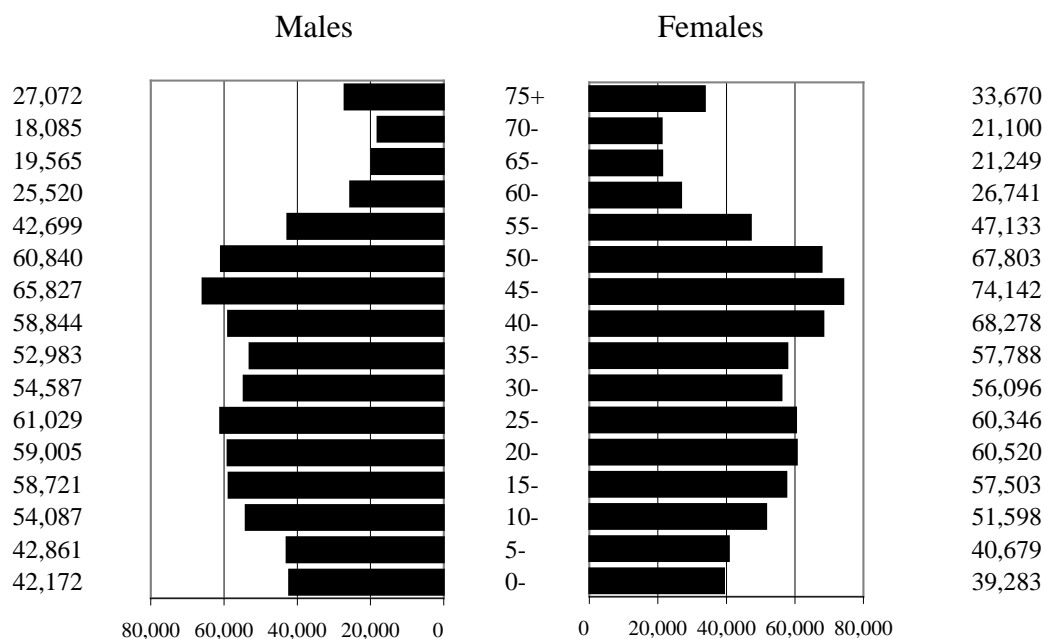


Figure 54: Population pyramid, Chiang Mai, 2008

Age and Sex

The age-sex distribution in 2008 is illustrated by population pyramids (Fig. 54). In 2008, 17.5% of the total population was under age 15 and 12.4% was over age 60.

HOSPITAL-BASED REGISTRATION

Maharaj Nakorn Chiang Mai Hospital

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

Overview

In 2008, there were 5,146 cases of new cancer at Maharaj Nakorn Chiang Mai Hospital. Forty percent were Chiang Mai residents, 39.5% came from nearby provinces (Lampoon, Lampang, Phayao and Chiang Rai), 18.5% came from the other provinces in the northern region, and only 1.7% resided outside the northern region.

Non-invasive cancers

There were 270 cases of non-invasive cancer registered in the year 2008, accounting for 5.2% of all cases. The most common non-invasive cancer was carcinoma in situ of cervix, followed by benign neoplasm of brain, meninges and other parts of central nervous system. The age distribution was shown in table 18.

Table 18: Age distribution of non-invasive cancers, 2008

SITE	All Ages	0-	15-	25-	35-	45-	55-	65-	75+	ICD (10th)
Cervix	132	0	3	18	35	51	17	4	4	D06
Brain, Nervous system	63	7	1	3	12	25	8	6	1	D32,D33,D42,D43
Myelodysplastic syndrome	61	1	0	5	8	7	15	16	9	D46,D47
Breast	4	0	0	0	1	3	0	0	0	D05
Other	10	0	1	3	0	2	3	1	0	
All sites	270	8	5	29	56	88	43	27	14	

Invasive cancers

Age and sex

There were 2,277 male and 2,599 female invasive cancer cases in the year 2008, with a male to female ratio of 1:1.1, but 1,187 (45.7%) of the cancers in females occurred in sex-specific sites (i.e. breast and reproductive organs), while only 108 cases (4.7%) of cancers of males occurred in sex-specific sites (i.e. prostate, testis, and penis). When sex-specific sites were excluded, the male to female ratio increased to 1.6:1.

Ages ranged from less than one year to 97 years. The mean age at diagnosis was 55.8; the median age was 56 years. For males, the mean age was 57.6 and the median age was 59 years. For females, the mean age was 54.2 and the median age was 54 years. In the age group 30 to 54, female cancer cases were much more common than male cancer cases, but male cancer cases were more common than female cancer cases after age 60 (Fig. 55). There were 100 cases of cancer in children (age less than 15), accounting for only 2.1% of all cases, but there were 1,982 cases in the old-age group (age 60 and over), accounting for 40.6% of all cases.

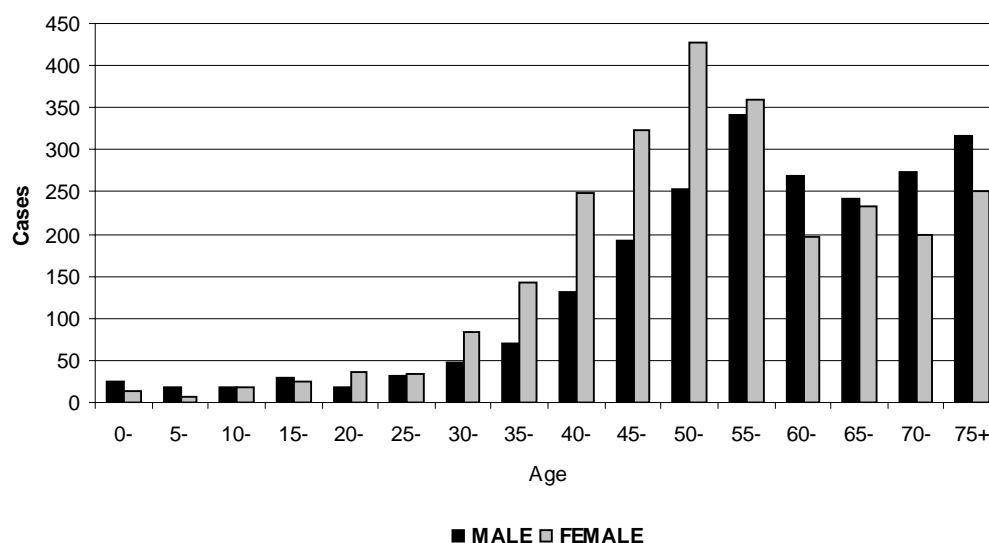


Figure 55: Age distribution of new cancer cases at Maharaj Nakorn Chiang Mai Hospital, 2008

Basis of diagnosis

There were 3,938 histologically verified cases (80.8%). Sixty-four percent had primary sites and 7.8% had metastasis sites (Table 19). By site, for both males and females the incidence of clinically diagnosed cases was high for the liver, pancreas and lung (Table 22).

Table 19: Type of diagnosis

Type of diagnosis	No.	%
Histological verification	3938	80.8
Histology of primary	3130	64.2
Histology of metastasis	382	7.8
Cytology/hematology	426	8.7
No histological verification	938	19.2
Clinical only	24	0.5
Clinical and Investigations	840	17.2
Operation/surgery	68	1.4
Immuno/Biochemistry	6	0.1
	4876	100.0

Table 20: Stages of diseases

Stage	No.	%
Localized	767	15.7
Locally advanced	1587	32.5
Regional node metastasis	720	14.8
Distant metastasis	1187	24.3
Not applicable	506	10.4
Unknown/Not staged	109	2.2
	4876	100.0

Stages of diseases

Thirty-nine percent of cases were diagnosed at an advanced stage (24.3% distant metastasis and 14.8% regional node metastasis), and 48.3% were diagnosed at a localized stage and locally advanced (Table 20). Ten percent were staged as not applicable; most of these groups were lymphoma, leukemia, and brain tumor cases.

In 1,187 cases of distant metastasis at first visit, 16.9% had multiple sites of metastasis. The most common site of distant metastasis was lung (25.1%), followed by distant lymph nodes (16.7%), bone (14.7%), liver (13.1%), and brain (12.9%).

Leading sites of invasive cancer cases

For invasive cancer in both sexes combined, lung cancer was the most common (16.5%), followed by liver, cervix, breast, and non-Hodgkin's lymphoma (Table 21). Together these five types of cancer accounted for 53.5% of all new cancers. For males, the most common cancers were liver cancer and lung cancer, each accounting for 21.6% of all new cases, followed by non-Hodgkin's lymphoma, bladder cancer, and rectal cancer. For females, the most common cancers were cervical cancer, accounting for 19.2% of all new cases, followed by breast, lung, liver, and corpus cancers.

Table 21: Ten leading cancers at Maharaj Nakorn Chiang Mai Hospital, 2008

Males	cases	%	Females	cases	%	Both sexes	cases	%
Liver	492	21.6	Cervix	499	19.2	Lung	805	16.5
Lung	492	21.6	Breast	393	15.1	Liver	669	13.7
NHL	143	6.3	Lung	313	12.0	Cervix	499	10.2
Bladder	89	3.9	Liver	177	6.8	Breast	394	8.1
Rectum	87	3.8	Corpus	129	5.0	NHL	244	5.0
Prostate	85	3.7	Ovary	126	4.8	Rectum	162	3.3
Nasopharynx	78	3.4	Thyroid	102	3.9	Thyroid	130	2.7
Stomach	63	2.8	NHL	101	3.9	Corpus	129	2.6
Colon	61	2.7	Rectum	75	2.9	Ovary	126	2.6
Larynx	52	2.3	Skin,non-melanoma	70	2.7	Colon	123	2.5

Childhood cancer

There were 100 cases of childhood cancer (age less than 1 to 14), accounting for 2.1% of all cancer cases. The most common childhood cancer was leukemia, accounting for 30.0% of all childhood cancer, followed by brain and nervous system (21.0%), NHL (8.0%), bone (6.0%), and kidney (6.0%).

Table 22: Percentage of data verification by sites, 2008

	Males				Females			
	cases	Clinical	Cyto	Histo	cases	Clinical	Cyto	Histo
Lip	2	0.0	0.0	100.0	6	0.0	0.0	100.0
Tongue	24	0.0	0.0	100.0	11	9.1	0.0	90.9
Mouth	35	5.7	0.0	94.3	32	6.3	0.0	93.8
Salivary glands	18	0.0	27.8	72.2	6	16.7	16.7	66.7
Tonsil	10	10.0	10.0	80.0	7	0.0	0.0	100.0
Other Oropharynx	4	0.0	0.0	100.0	4	0.0	0.0	100.0
Nasopharynx	78	6.4	2.6	91.0	34	2.9	0.0	97.1
Hypopharynx	15	0.0	0.0	100.0	2	0.0	0.0	100.0
Oesophagus	28	10.7	3.6	85.7	4	0.0	25.0	75.0
Stomach	63	15.9	1.6	82.5	57	7.0	1.8	91.2
Small intestine	2	50.0	0.0	50.0	1	0.0	0.0	100.0
Colon	61	8.2	1.6	90.2	62	17.7	0.0	82.3
Rectum	87	9.2	0.0	90.8	75	9.3	1.3	89.3
Anus	5	20.0	0.0	80.0	7	0.0	0.0	100.0
Liver	492	66.5	9.1	24.4	177	57.1	10.7	32.2
Gallbladder	25	64.0	0.0	36.0	26	38.5	0.0	61.5
Pancreas	29	58.6	6.9	34.5	29	51.7	6.9	41.4
Nose, sinuses	13	7.7	0.0	92.3	9	0.0	0.0	100.0
Larynx	52	1.9	1.9	96.2	13	0.0	0.0	100.0
Lung	492	29.9	19.1	51.0	313	31.9	19.5	48.6
Other Thoracic organs	9	22.2	33.3	44.4	5	40.0	0.0	60.0
Bone	14	7.1	0.0	92.9	10	10.0	0.0	90.0
Melanoma of Skin	5	0.0	20.0	80.0	8	0.0	0.0	100.0
Other Skin	47	0.0	0.0	100.0	70	1.4	0.0	98.6
Kaposi sarcoma	3	0.0	0.0	100.0	0	-	-	-
Connective,Soft tissue	15	6.7	6.7	86.7	14	14.3	0.0	85.7
Breast	1	0.0	0.0	100.0	393	2.3	5.1	92.4
Vulva					19	0.0	0.0	100.0
Vagina					12	8.3	0.0	91.7
Cervix Uteri					499	0.4	0.0	99.6
Corpus Uteri					129	2.3	0.0	97.7
Uterus unspec.					2	0.0	0.0	100.0
Ovary					126	2.4	2.4	95.2
Other Female Genital					3	0.0	0.0	100.0
Placenta					4	0.0	0.0	100.0
Penis	13	7.7	0.0	92.3				
Prostate	85	11.8	0.0	88.2				
Testis	9	11.1	0.0	88.9				
Other male genital	0	-	-	-				
Kidney	28	17.9	7.1	75.0	12	25.0	0.0	75.0
Renal Pelvis	5	0.0	20.0	80.0	1	0.0	0.0	100.0
Ureter	0	-	-	-	2	0.0	0.0	100.0
Bladder	89	6.7	0.0	92.1	27	11.1	0.0	88.9
Other Urinary organs	1	0.0	0.0	100.0	0	-	-	-
Eye	4	0.0	0.0	100.0	8	12.5	12.5	75.0
Brain, Nervous system	46	32.6	0.0	67.4	23	34.8	4.3	60.9
Thyroid	28	0.0	35.7	64.3	102	1.0	19.6	79.4
Adrenal gland	4	0.0	0.0	100.0	1	0.0	0.0	100.0
Other Endocrine	4	0.0	0.0	100.0	2	0.0	0.0	100.0
Hodgkin disease	16	0.0	0.0	100.0	3	0.0	0.0	100.0
Non-Hodgkin lymphoma	143	0.0	4.9	95.1	101	0.0	9.9	90.1
Multiple Myeloma	17	0.0	35.3	64.7	1	0.0	0.0	100.0
Lymphoid Leukaemia	29	0.0	72.4	27.6	15	0.0	40.0	60.0
Myeloid Leukaemia	48	0.0	41.7	58.3	21	0.0	57.1	42.9
Leukaemia unspec.	3	0.0	66.7	33.3	49	0.0	46.9	53.1
Other & unspecified	76	42.1	14.5	43.4	62	38.7	9.7	51.6
All sites Total	2277	27.2	10.5	62.3	2599	12.2	7.2	80.5

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

Table 23: NUMBER OF NEW CANCER CASES IN MAHARAJ NAKORN CHIANGMAI HOSPITAL, 2008, 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	1	0	0	0	1	0.1	C00
Tongue	24	0	0	0	1	6	7	5	2	3	1.1	C01-C02
Mouth	35	0	0	0	1	5	7	9	5	8	1.5	C03-C06
Salivary glands	18	0	0	1	3	3	4	6	0	1	0.8	C07-C08
Tonsil	10	0	0	0	1	0	2	1	2	4	0.4	C09
Other Oropharynx	4	0	0	0	0	2	0	1	1	0	0.2	C10
Nasopharynx	78	0	1	4	7	8	20	20	14	4	3.4	C11
Hypopharynx	15	0	0	0	0	0	5	5	4	1	0.7	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Oesophagus	28	0	0	0	0	0	13	9	3	3	1.2	C15
Stomach	63	0	1	1	3	6	14	15	14	9	2.8	C16
Small intestine	2	0	0	0	0	0	2	0	0	0	0.1	C17
Colon	61	0	0	0	2	7	15	19	11	7	2.7	C18
Rectum	87	0	0	2	3	4	16	30	15	17	3.8	C19-C20
Anus	5	0	0	0	0	0	1	1	1	2	0.2	C21
Liver	492	0	2	1	14	61	133	152	92	37	21.6	C22
Gallbladder etc.	25	0	0	0	0	2	5	1	7	10	1.1	C23-C24
Pancreas	29	0	0	0	1	3	5	7	8	5	1.3	C25
Nose, sinuses etc.	13	0	0	0	1	1	2	4	3	2	0.6	C30-C31
Larynx	52	0	0	0	0	4	7	10	14	17	2.3	C32
Lung	492	0	0	1	6	20	72	159	168	66	21.6	C33-C34
Other Thoracic organs	9	0	1	3	2	2	0	1	0	0	0.4	C37-C38
Bone	14	0	4	3	1	1	2	0	2	1	0.6	C40-C41
Melanoma of Skin	5	0	1	0	0	0	1	1	0	2	0.2	C43
Other Skin	47	0	0	0	3	1	6	8	11	18	2.1	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	3	0	0	0	1	2	0	0	0	0	0.1	C46
Connective,Soft tissue	15	0	2	2	1	3	2	2	1	2	0.7	C47;C49
Breast	1	0	0	0	0	0	0	0	1	0	0.0	C50
Penis	13	0	0	0	1	2	4	2	4	0	0.6	C60
Prostate	85	0	0	1	0	0	3	17	38	26	3.7	C61
Testis	9	0	0	0	4	4	1	0	0	0	0.4	C62
Other male genital	0	0	0	0	0	0	0	0	0	0	0.0	C63
Kidney	28	0	2	0	1	1	6	9	7	2	1.2	C64
Renal Pelvis	5	0	0	0	1	0	0	4	0	0	0.2	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0.0	C66
Bladder	89	0	1	0	0	2	10	24	28	24	3.9	C67
Other Urinary organs	1	0	0	0	0	0	0	0	1	0	0.0	C68
Eye	4	0	1	0	1	1	1	0	0	0	0.2	C69
Brain, Nervous system	46	0	14	4	4	5	7	7	4	1	2.0	C70-C72
Thyroid	28	0	1	0	3	6	11	3	3	1	1.2	C73
Adrenal gland	4	0	3	0	0	0	0	1	0	0	0.2	C74
Other Endocrine	4	0	2	2	0	0	0	0	0	0	0.2	C75
Hodgkin disease	16	0	1	2	2	0	1	4	2	4	0.7	C81
Non-Hodgkin lymphoma	143	0	7	12	6	23	24	33	19	19	6.3	C82-C85;C96
Immunoproliferative dis.	0	0	0	0	0	0	0	0	0	0	0.0	C88
Multiple Myeloma	17	0	0	0	0	1	5	7	1	3	0.7	C90
Lymphoid Leukaemia	29	0	14	4	0	4	6	0	1	0	1.3	C91
Myeloid Leukaemia	48	0	4	3	4	5	15	7	6	4	2.1	C92-C94
Leukaemia unspec.	3	0	0	1	0	1	0	0	0	1	0.1	C95
Other & unspecified	76	0	0	0	1	4	11	25	24	11	3.3	Other
All sites Total	2277	0	62	47	79	201	446	609	517	316	100.0	All
All sites but C44	2230	0	62	47	76	200	440	601	506	298	97.9	Not C44

Table 24: NUMBER OF NEW CANCER CASES IN MAHARAJ NAKORN CHIANGMAI HOSPITAL, 2008, FEMALES

SITE	Number of cases by Age Group (years)										%	ICD (10th)
	All Ages	Age Unk.	0-	15-	25-	35-	45-	55-	65-	75+		
Lip	6	0	0	0	0	1	0	1	2	2	0.2	C00
Tongue	11	0	0	0	0	1	3	2	2	3	0.4	C01-C02
Mouth	32	0	0	2	0	0	3	6	15	6	1.2	C03-C06
Salivary glands	6	0	0	1	0	2	0	1	2	0	0.2	C07-C08
Tonsil	7	0	0	0	0	0	2	2	2	1	0.3	C09
Other Oropharynx	4	0	0	0	0	0	2	0	1	1	0.2	C10
Nasopharynx	34	0	1	2	1	3	7	13	4	3	1.3	C11
Hypopharynx	2	0	0	0	0	0	0	1	1	0	0.1	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C14
Oesophagus	4	0	0	0	0	0	1	0	2	1	0.2	C15
Stomach	57	0	0	1	3	13	20	9	8	3	2.2	C16
Small intestine	1	0	0	0	0	0	0	0	1	0	0.0	C17
Colon	62	0	1	2	2	6	10	16	11	14	2.4	C18
Rectum	75	0	0	2	2	10	25	16	10	10	2.9	C19-C20
Anus	7	0	0	0	0	0	2	2	2	1	0.3	C21
Liver	177	0	0	2	3	12	49	50	41	20	6.8	C22
Gallbladder etc.	26	0	0	0	0	2	7	7	6	4	1.0	C23-C24
Pancreas	29	0	0	0	0	2	5	8	8	6	1.1	C25
Nose, sinuses etc.	9	0	0	0	1	3	3	1	1	0	0.3	C30-C31
Larynx	13	0	0	0	1	1	2	4	3	2	0.5	C32
Lung	313	0	0	0	6	22	52	90	98	45	12.0	C33-C34
Other Thoracic organs	5	0	1	0	0	0	0	2	2	0	0.2	C37-C38
Bone	10	0	2	2	2	1	0	0	2	1	0.4	C40-C41
Melanoma of Skin	8	0	0	0	0	2	2	2	2	0	0.3	C43
Other Skin	70	0	0	0	1	4	13	15	14	23	2.7	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0.0	C45
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0.0	C46
Connective,Soft tissue	14	0	2	1	1	4	2	1	3	0	0.5	C47;C49
Breast	393	0	0	1	21	78	178	73	29	13	15.1	C50
Vulva	19	0	0	0	0	2	5	1	5	6	0.7	C51
Vagina	12	0	0	0	0	2	6	1	2	1	0.5	C52
Cervix Uteri	499	0	0	3	21	125	183	95	48	24	19.2	C53
Corpus Uteri	129	0	0	0	2	11	52	37	21	6	5.0	C54
Uterus unspec.	2	0	0	0	0	0	1	1	0	0	0.1	C55
Ovary	126	0	2	5	9	23	46	21	16	4	4.8	C56
Other Female Genital	3	0	0	0	0	0	0	1	1	1	0.1	C57
Placenta	4	0	0	1	1	2	0	0	0	0	0.2	C58
Kidney	12	0	4	0	0	1	1	3	1	2	0.5	C64
Renal Pelvis	1	0	0	0	0	0	0	0	1	0	0.0	C65
Ureter	2	0	0	0	0	0	0	1	1	0	0.1	C66
Bladder	27	0	1	0	0	2	2	9	9	4	1.0	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0.0	C68
Eye	8	0	3	0	0	0	1	0	0	4	0.3	C69
Brain, Nervous system	23	0	7	2	4	2	3	3	1	1	0.9	C70-C72
Thyroid	102	0	0	10	17	26	13	18	13	5	3.9	C73
Adrenal gland	1	0	0	1	0	0	0	0	0	0	0.0	C74
Other Endocrine	2	0	0	1	1	0	0	0	0	0	0.1	C75
Hodgkin disease	3	0	1	0	0	1	1	0	0	0	0.1	C81
Non-Hodgkin lymphoma	101	0	1	7	7	13	23	19	19	12	3.9	C82-C85;C96
Immunoproliferative dis.	1	0	0	0	0	0	1	0	0	0	0.0	C88
Multiple Myeloma	15	0	0	0	0	0	2	7	5	1	0.6	C90
Lymphoid Leukaemia	21	0	9	7	0	1	1	1	0	2	0.8	C91
Myeloid Leukaemia	49	0	3	6	9	6	9	4	7	5	1.9	C92-C94
Leukaemia unspec.	0	0	0	0	0	0	0	0	0	0	0.0	C95
Other & unspecified	62	0	0	2	2	8	13	11	12	14	2.4	Other
All sites Total	2599	0	38	61	117	392	751	555	434	251	100.0	All
All sites but C44	2529	0	38	61	116	388	738	540	420	228	97.3	Not C44

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