

APPENDICES

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APPENDIX

A

CHIANG MAI CANCER REGISTRY

*Yupa Sumitsawan, M.D.
Songphol Srisukho, M.D.*

Registration area

Chiang Mai province is the second civilized city of Thailand, famous for the twists situated in the upper part of the north of Thailand. It is 310 meters above sea level at latitude 16-18 N and longitude 99 E. To the north of Chiang Mai is the country of Myanmar. The land area is 20, 107 square kilometers, divided into 22 districts and 2 sub districts. In Chiang Mai is the plane surrounded by the year 1999 the population of Chiang Mai was 1,481,105 which 746,668 were females and 734,437 were males (1). The population density is 80 persons per square kilometers. The most crowded district is Muang district. The population is mainly Thai and other ethnics include Chinese, hilltribers and some minority groups.

The geography of Chiang Mai is the plane surrounded by high mountains that collect the are population Eighty percent of the population in Chiang Mai are farmers who grow rice, onions, Longans, lychees, oranges, etc. (www.ChiangMaipol.net/webengwebChiangmai)

Cancer area facilities

General health care in Thailand is mainly provided by the government. There is one community hospital with net work health care facilities in each district and subdistrict. Except for Maerim district that has the provincial hospital. In the urban area (Muang district) of Chiang Mai there is one big university hospital, municipal hospital, 3 military hospitals and private hospitals The total number of hospital beds in Chiang Mai was 6643 beds with 1023 doctors in the year 1999 Most of the cancer cases are referred to provincial hospital,

university hospital or big private hospitals which can provide surgery and chemotherapy. Radiotherapy is done in Chiang Mai University Hospital.

Registry structure and methods

The cancer unit, Faculty of Medicine Chiang Mai university has been carried out the hospital based cancer registry in 1963. The data on cancer patients is collected actively from every hospital in Chiang Mai. The data of those who are Chiang Mai residents are extracted from the hospital based cancer registry of Chiang Mai University Hospital. The registry personnel's which are the well trained nurses visit every hospital in Chiang Mai to review the medical charts of patients diagnosed as cancer to fill the registration forms. Lists of pathological diagnosis from every center in Chiang Mai are also explored for cancer cases. The case record form include patient's demography, date of diagnosis, tumor site, histology, extent of disease, method of diagnosis treatment, The follow-up cases are also brought to update the patients status as dead or alive. ICD-O version 3 is used in coding of the primary site of tumor and histology. The case record forms are reviewed by the part time doctors who take care of the cancer unit.

All data are checked for duplication, verified coded and keyed into fox-based program and converted to the Canreg-3 program.

Death certificates with a mentioned of cancer are collected from web site of the office of Ministry of Interior. The information will be matches with the existing record, case of unmatched will be

registered as cancer of death certificate only (DCO)

Interpreting the results

The member of undiagnosed cancer case is difficult to estimate. The unregistered case should be low because of long term experience of our cancer unit staffs and system.

The age standardized inci-

dence rate (ARS) of all cancer sites in male is 138.7 per 100,000 in which lung cancer asks first (ASR = 29.6) and followed by liver and bile duct (ASR = 17.0) ASR of all cancer sites in females is higher than in males (ASR = 152.5), three leading cancer in females are cervix uteri (ASR = 29.4) bronchus, lung (ASR = 22.3), breast (ASR = 20.7)

These events may be described by Chiang Mai grows tobacco leaf the self-made emigrants smoking is popular for both sexes. Another reason is Chiang Mai is very popular for to wrists and charm girls that make more sex partners of the native girls that is one important risk factor for cervix cancer.

Figure 1 Population pyramid, Chiang Mai, 1999

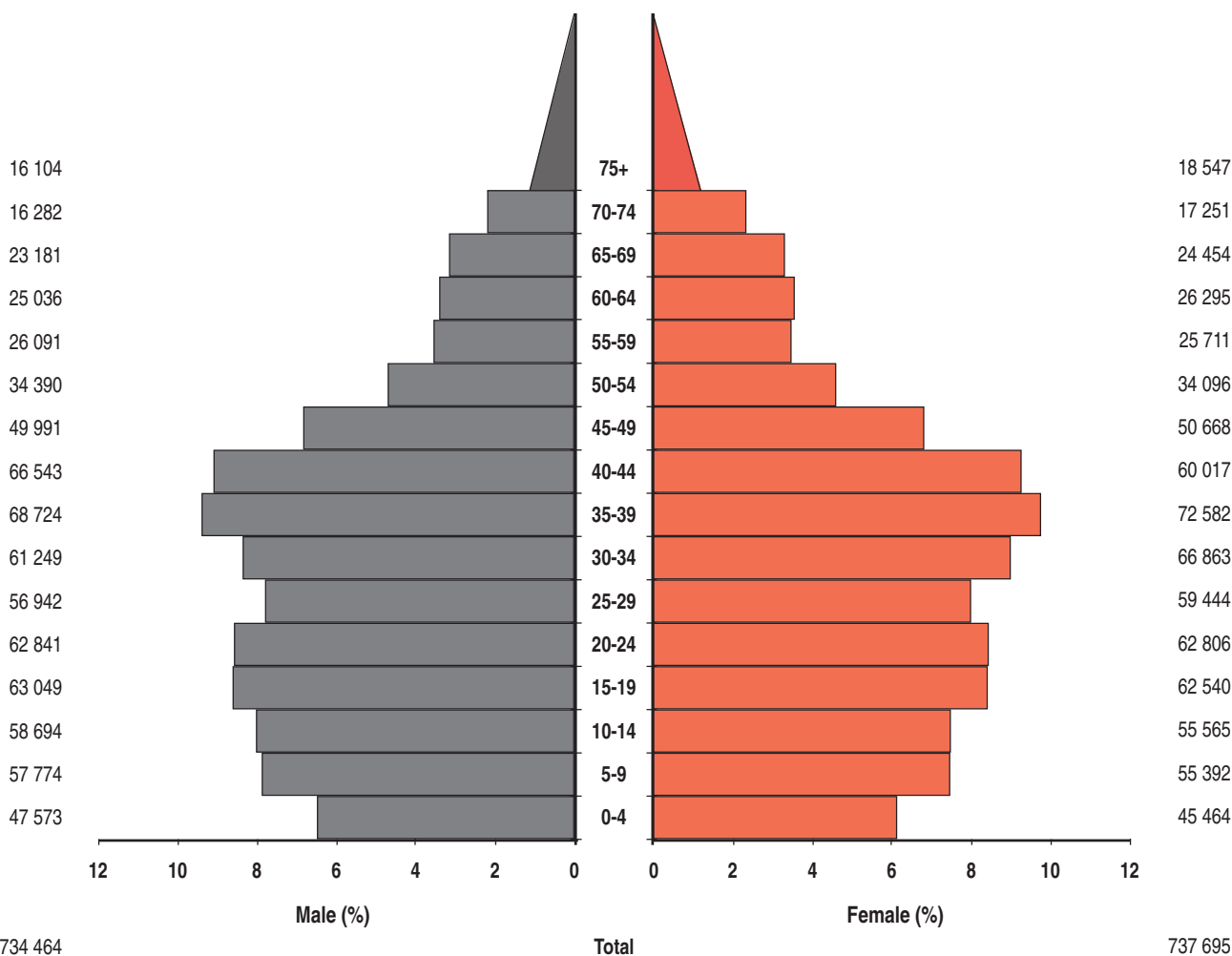


Table 1 Annual incidence, Chiang Mai, 1998-2000

	Male						Female						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	
	Lip	6	0.2	0.3	0.3	0.01	0.04	12	0.3	0.5	0.5	0.02	
Tongue	47	1.5	2.1	2.1	0.12	0.22	21	0.6	0.9	0.8	0.04	0.10	C01-02
Salivary gland	19	0.6	0.9	0.8	0.06	0.09	14	0.4	0.6	0.5	0.04	0.04	C07-C08
Mouth	55	1.7	2.5	2.4	0.10	0.24	48	1.3	2.1	2.0	0.09	0.25	C03-C06
Oropharynx	35	1.1	1.6	1.5	0.10	0.19	13	0.3	0.6	0.5	0.01	0.04	C09-C10
Nasopharynx	90	2.8	4.1	3.8	0.30	0.43	37	1	1.7	1.6	0.14	0.18	C11
Hypopharynx	37	1.2	1.7	1.6	0.09	0.17	7	0.2	0.3	0.3	0.02	0.03	C12-C13
Pharynx unspecified	3	0.1	0.1	0.1	0.00	0.01	4	0.1	0.2	0.2	0.00	0.02	C14
Esophagus	56	1.8	2.5	2.5	0.13	0.31	17	0.5	0.8	0.7	0.02	0.09	C15
Stomach	113	3.6	5.1	5.0	0.32	0.58	109	2.9	4.9	4.4	0.28	0.54	C16
Small intestine	8	0.3	0.4	0.3	0.02	0.04	9	0.2	0.4	0.3	0.02	0.05	C17
Colon	107	3.4	4.9	4.6	0.26	0.53	102	2.7	4.6	4.2	0.27	0.51	C18
Rectum	105	3.3	4.8	4.6	0.26	0.51	90	2.4	4.0	3.6	0.24	0.42	C19-21
Liver and bile duct	393	12.4	17.8	17.0	1.24	2.02	141	3.8	6.3	5.8	0.33	0.72	C22,C24
Gallbladder	16	0.5	0.7	0.7	0.03	0.12	45	1.2	2.0	1.9	0.08	0.23	C23
Pancreas	32	1.0	1.5	1.4	0.10	0.18	27	0.7	1.2	1.1	0.07	0.14	C25
Nose, sinuses etc.	13	0.4	0.6	0.6	0.03	0.08	13	0.3	0.6	0.5	0.04	0.06	C30-C31
Larynx	77	2.4	3.5	3.4	0.18	0.43	14	0.4	0.6	0.6	0.03	0.07	C32
Bronchus, lung	655	20.7	29.7	29.6	1.88	3.80	513	13.6	22.9	22.3	1.50	2.94	C33-C34
Other thoracic organs	10	0.3	0.5	0.5	0.02	0.04	3	0.1	0.1	0.2	0.01	0.01	C37-C38
Bone	12	0.4	0.5	0.6	0.04	0.05	13	0.3	0.6	0.7	0.03	0.03	C40-C41
Connective tissue	31	1.0	1.4	1.4	0.08	0.14	14	0.4	0.6	0.5	0.04	0.06	C47,C49
Melanoma of skin	14	0.4	0.6	0.6	0.04	0.05	9	0.2	0.4	0.4	0.02	0.06	C43
Other skin	83	2.6	3.8	3.6	0.18	0.38	86	2.3	3.8	3.4	0.20	0.36	C44
Breast	8	0.3	0.4	0.3	0.01	0.04	545	14.5	24.3	20.7	1.64	2.16	C50
Uterus unspecified							2	0.1	0.1	0.1	0.00	0.00	C55
Cervix uteri							763	20.3	34.1	29.4	2.46	3.12	C53
Placenta							11	0.3	0.5	0.4	0.03	0.03	C58
Corpus uteri							82	2.2	3.7	3.4	0.29	0.40	C54
Ovary							144	3.8	6.4	5.9	0.51	0.64	C56
Other female genital							41	1.1	1.8	1.7	0.11	0.18	C51,C52,C57
Prostate	107	3.4	4.9	4.6	0.09	0.45							C61
Testis	19	0.6	0.9	0.7	0.05	0.05							C62
Penis	41	1.3	1.9	1.7	0.11	0.20							C60
Bladder	109	3.4	4.9	4.8	0.19	0.61	50	1.3	2.2	2.1	0.10	0.27	C67
Kidney etc.	42	1.3	1.9	1.9	0.13	0.21	28	0.7	1.2	1.3	0.09	0.14	C64-C66:C68
Eye	8	0.3	0.4	0.3	0.01	0.02	2	0.1	0.1	0.1	0.01	0.01	C69
Brain, nervous system	21	0.7	1.0	1.0	0.06	0.08	20	0.5	0.9	0.8	0.06	0.07	C70-C72
Thyroid	27	0.9	1.2	1.2	0.08	0.14	106	2.8	4.7	4.3	0.33	0.42	C73
Other endocrine	4	0.1	0.2	0.2	0.01	0.01	3	0.1	0.1	0.2	0.01	0.01	C74-C75
Hodgkin's disease	22	0.7	1.0	0.9	0.05	0.10	9	0.2	0.4	0.4	0.03	0.04	C81
Non-Hodgkin lymphoma	154	4.9	7.0	6.7	0.41	0.70	102	2.7	4.6	4.1	0.28	0.45	C82-C85,C96
Multiple myeloma	9	0.3	0.4	0.4	0.03	0.05	16	0.4	0.7	0.6	0.03	0.09	C88,C90
Lymphoid leukemia	26	0.8	1.2	1.4	0.07	0.08	18	0.5	0.8	1.0	0.06	0.06	C91
Myeloid leukemia	47	1.5	2.1	2.2	0.14	0.20	43	1.1	1.9	1.8	0.13	0.18	C92
Leukemia unspecified	6	0.2	0.3	0.3	0.00	0.05	6	0.2	0.3	0.2	0.02	0.03	C95
Other and unspecified	503	15.8	22.8	21.3	1.49	2.44	408	10.9	18.2	16.8	1.17	2.04	O&U
All sites	3170	100.0	143.9	138.7	8.51	16.05	3760	100.0	167.9	152.5	10.90	17.35	ALL

Table 2 Percentage of morphologically verified and death certificate only cases, Chiang Mai, 1998-2000

	Male			Female			ICD-10
	Cases	%MV	%DCO	Cases	%MV	%DCO	
Oral cavity	10	97.8	0.0	95	95.8	1.2	C00-C08
Oropharynx, etc.	30	94.4	0.0	17	90.9	0.0	C09-C10; C14
Nasopharynx	90	94.0	0.0	37	97.1	0.0	C11
Hypopharynx	37	96.8	0.0	7	100.0	0.0	C12-C13
Esophagus	56	92.6	0.0	17	75.8	0.0	C15
Stomach	113	89.3	0.0	109	92.5	0.0	C16
Small intestine	8	100.0	0.0	9	88.9	0.0	C17
Colon and rectum	212	90.3	0.0	192	93.1	0.0	C18-C21
Liver and bile duct	105	56.2	0.0	90	52.3	0.0	C22; C24
Gallbladder	16	61.3	0.0	45	80.0	0.0	C23
Pancreas	32	50.8	0.0	27	59.3	0.0	C25
Nose, sinuses etc.	13	100.0	0.0	13	100.0	0.0	C30-C31
Larynx	77	88.3	0.0	14	88.5	0.0	C32
Bronchus, lung	655	75.8	0.0	513	78.7	0.0	C33-C34
Other thoracic organs	10	00.0	0.0	3	100.0	0.0	C37-C38
Bone	12	86.4	0.0	13	91.7	0.0	C40-C41
Skin and melanoma	97	98.9	0.0	95	100.0	0.0	C43-C44
Breast	8	100.0	0.0	545	96.1	0.2	C50
Cervix uteri				763	97.9	0.0	C53
Corpus uteri				82	97.5	0.0	C54
Uterus unspecified				2	100.0	0.0	C55
Ovary				144	94.6	0.0	C56
Placenta				11	72.7	0.0	C58
Panis	41	94.8	0.0				C60
Prostate	107	95.8	0.0				C61
Testis	19	78.4	0.0				C62
Kidney etc.	42	89.4	0.0	28	81.8	0.0	C64-C66, C68
Bladder	109	93.1	0.0	50	92.0	0.0	C67
Eye	8	100.0	0.0	2	100.0	0.0	C69
Brain, nervous system	21	66.7	5.1	20	56.8	0.0	C70-C72
Thyroid	27	92.0	0.0	106	96.1	0.0	C73
Other endocrine	4	100.0	0.0	3	100.0	0.0	C74-C75
Hodgkin's disease	22	100.0	0.0	9	100.0	0.0	C81
Non-Hodgkin lymphoma	154	100.0	0.0	102	100.0	0.0	C82-C85, C96
Multiple myeloma	9	100.0	0.0	16	100.0	0.0	C88; C90
Leukemia	79	100.0	0.0	67	98.4	0.0	C91-C95
Other and unspecified	503	20.4	73.4	408	21.8	70.3	O&U
All sites	3170	72.1	12.3	3760	82.5	8.1	ALL