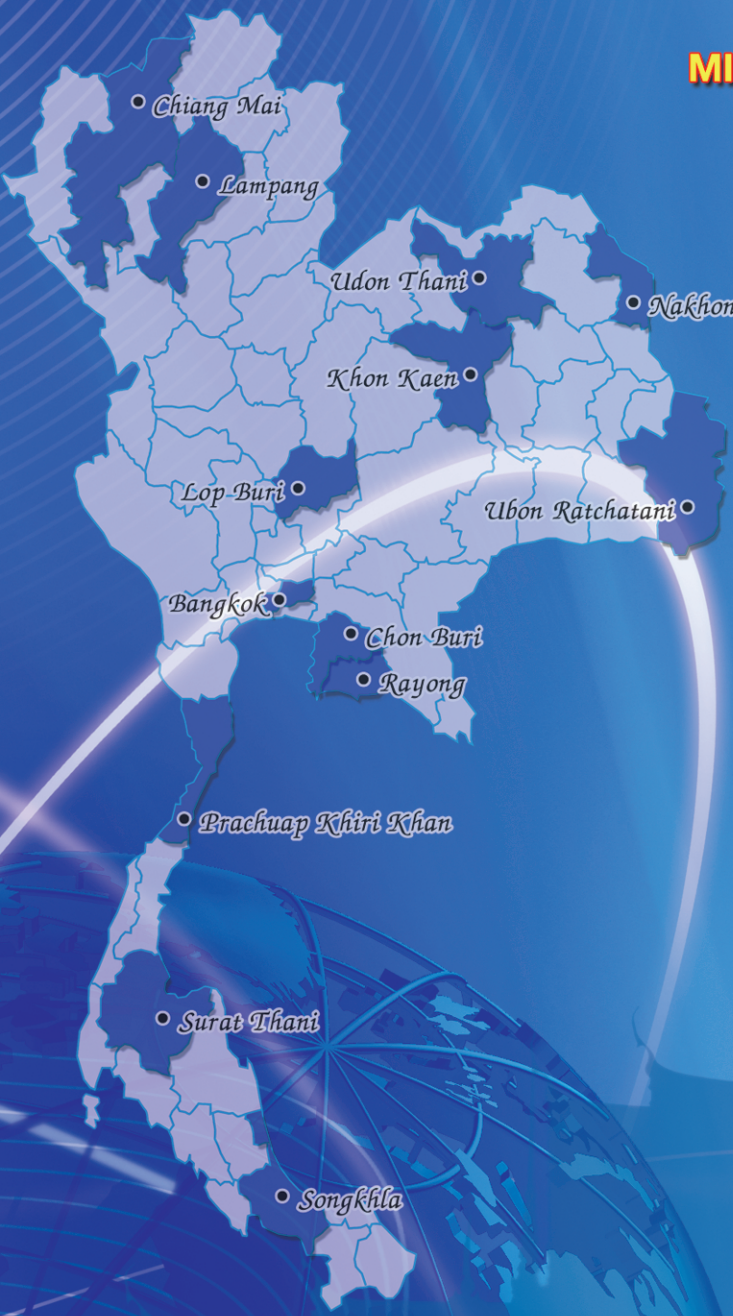
Cancer in Thailand

Volume. V, 2001-2003



MINISTRY OF PUBLIC HEALTH

National Cancer Institute
Lampang Cancer Center
Ubon Ratchathani Cancer Center
Udon Thani Cancer Center
Chon Buri Cancer Center
Lop Buri Cancer Center
Surat Thani Cancer Center

MINISTRY OF EDUCATION

Chiang Mai University
Khon Kaen University
Prince of Songkhla University

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Bangkok, 2010

ISBN 978-974-422-561-0

Foreword

Cancer in Thailand 2001-2003 Vol.V is the result of the fruitful collaboration between National Cancer Institute and the thirteen Population based Cancer Registries in the country.

This volume have an expression of geographical coverage, with data for the first time from Ubon Ratchathani, Chon Buri, Lop Buri and Surat Thani provinces. The data will provide information for researchers in all fields of cancer research. It will be very useful for planning and evaluation of the national cancer control programmes.

I would like to thank all our collaborators for their help in providing data presented in this volume. I would like to express my gratitude to the devoted staffs of cancer registry in all cancer centers for the immense amount of work that has been done in preparation of the statistics and graphics for this volume.

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Acknowledgement

This work supported by government budget of National Cancer Institute, Department of Medical Services, Ministry of Public Health.

On the behalf of the National Cancer Institute and the working committee, I would like to acknowledge the institutes, hospitals, universities and all of the persons who are involved in this study for the completion of this monograph.

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3. Chiang Mai Army Hospital
4. Chiang Mai Police Hospital
5. Chiang Mai Municipal Hospital
6. McCormick Hospital
7. Lanna Hospital
8. Chiang Mai Ram Hospital
9. Roum-Paeth Hospital
10. Maccane Hospital
11. Central Chiangmai Memorial Hospital
12. Chiang Mai klaimor hospital
13. Changpeuk Hospital
14. Siamrad Chiang Mai Hospital
15. Theppunya Hospital
16. Rajavej Chiangmai Hospital
17. Chom Thong Hospital
18. Mae Chaem Hospital
19. Chiang Dao Hospital
20. Doi Saket Hospital
21. Mae Taeng Hospital
22. Mae Rim Hospital
23. Samoeng Hospital
24. Fang Hospital
25. Mae Ai Hospital
26. Phrao Hospital
27. San Pa Tong Hospital
28. San Kamphaeng Hospital
29. San Sai Hospital
30. Hang Dong Hospital
31. Hot Hospital
32. Doi Tao Hospital
33. Omkoi Hospital
34. Saraphi Hospital
35. Wiang Haeng Hospital
36. Chai Prakan Hospital
37. Mae Wang Hospital
38. King amphur Mae On Hospital
39. King amphur Doi Law Hospital
40. Public Health Centers
41. Provincial Chief Medical Officer's Office

LAMPANG

1. Lampang Provincial Hospital
2. Provincial Public Health Service of Lampang
3. Private Hospitals in Lampang
    - 3.1. Khaelang-Ram Hospital
    - 3.2. Vansanwood Hospital
4. Surasakmontri Military Hospital
5. Community Hospitals
    - 5.1. Koh Kha Hospital
    - 5.2. Ngao Hospital
    - 5.3. Chae Hom Hospital
    - 5.4. Theon Hospital
    - 5.5. Mae Tha Hospital
    - 5.6. Mae Prik Hospital
    - 5.7. Mae Moh Hospital
    - 5.8. Wang Nua Hospital
    - 5.9. Sop Prap Hospital
    - 5.10. Soem Ngam Hospital
    - 5.11. Hang Chat Hospital
    - 5.12. Muang Pan Hospital

KHON KAEN

1. Srinagarind Hospital, Faculty of Medicine Khon Kaen University
2. Khon Kaen Regional Hospital
3. Sripatcharin Army Hospital
4. Rachapruk Hospital
5. Khon Kaen Ram Hospital
6. All community Hospital in Khon Kaen Province, 24 community Hospitals consist of
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    - 6.2 Ban Phai Hospital
    - 6.3 Ban Haet Hospital
    - 6.4 Non Sila Hospital
    - 6.5 Chonnabot Hospital
    - 6.6 Chum Phae Hospital
    - 6.7 Khao Suan Kwang Hospital
    - 6.8 Kranuan Hospital
    - 6.9 Sam Sung Hospital
    - 6.10 Mancha Khiri Hospital
    - 6.11 Khok Pho Chai Hospital
    - 6.12 Nam Phong Hospital
    - 6.13 Nong Ruea Hospital
    - 6.14 Nong Song Hong Hospital
    - 6.15 Phon Hospital
    - 6.16 Phra Yuen Hospital
    - 6.17 Phu Pha Man Hospital
    - 6.18 Phu Wiang Hospital
    - 6.19 Nong Na Kham Hospital
    - 6.20 Pueai Noi Hospital
    - 6.21 Si Chomphu Hospital
    - 6.22 Ubolratana Hospital
    - 6.23 Waeng Noi Hospital
    - 6.24 Waeng Yai Hospital

HOSPITALS AND INSTITUTES

NAKHON PHANOM

1. Nakhon Phanom Provincial Health Office
2. Nakhon Phanom Hospital
3. Ban Phaeng Hospital
4. Bangkok Cancer Registry
5. Khon Kaen Cancer Registry
6. Mukdahan Hospital
7. Na Kae Hospital
8. Na Thom Hospital
9. Na Wa Hospital
10. National Cancer Institute
11. Phon Sawan Hospital
12. Pla Pak Hospital
13. Renu Nakhon Hospital
14. Sakhon Nakhon Hospital
15. Si Songkhram Hospital
16. Tha Uthen Hospital
17. That Phanom Hospital
18. Ubon Ratchathani Cancer Registry
19. Udon Thani Cancer Registry
20. Udon Thani Hospital
21. Wang Yang Hospital

UBON RATCHATHANI

1. Ubonratchathani Public Health
2. Khongchiam Hospital
3. Sirinthorn Hospital
4. Warin Chamrap Hospital
5. Samrong Hospital
6. TanSum Hospital
7. Phibunmangsahan Hospital
8. Somdet Phra Yuppharat Hospital
9. Thung Si Udom Hospital
10. Nam Yuen Hospital
11. Buntharik Hospital
12. Khai Sap Sitthi Prasong Hospital
13. Na Chaluai Hospital
14. Khuang Nai Hospital
15. Muang Samsip Hospital
16. Trakan Phuetphon Hospital
17. Pho Sai Hospital
18. Si Mueang Mai Hospital
19. Don Mot Daeng Hospital
20. Kut Khaopun Hospital
21. Khemarat Hospital
22. Sap Pa Sitthi Prasong Hospital

UDON THANI

1. Udon Thani Cancer Center
2. Udon Thani Provincial Health Office
3. Udon Thani Province Hospital
4. Kai Prajuksilapakom Hospital
5. Udon Thani analytical Population Center
6. Ban Dung Hospital
7. Ban Phue Hospital
8. Chai Wan Hospital
9. Kumphawapi Hospital
10. Kut Chap Hospital
11. Na Yung Hospital
12. Nam Som Hospital
13. Non Sa-at Hospital
14. Nong Han Hospital
15. Nong Saeng Hospital
16. Nong Wua So Hospital
17. Phen Hospital
18. Phibun Rak Hospital
19. Sang Khom Hospital
20. Si That Hospital
21. Thung Fon Hospital
22. Wang Sam Mo Hospital

BANGKOK

1. Aekamarin General Hospital (Bangkae)
2. Ananta Pattana Hospital
3. Bamrasnaradura I.D. Hospital
4. Bangkok Adventist Hospital
5. Bangkok Cancer Center Hospital
6. Bangkok Chest Hospital
7. Bangkok General Hospital
8. Bangkok Metropolitan Administration General Hospital
9. Bangkok Nursing Home Hospital
10. Bangkok Pathology-Laboratory
11. Bangmod I Hospital
12. Bangmod II Hospital
13. Bangmod III Hospital
14. Bangna I Hospital
15. Bangna II Hospital
16. Bangpai Hospital
17. Bangpakok I Hospital
18. Bangpakok II Hospital
19. Bangpakok III Hospital
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42. Kasemrad Hospital Prachachuen
43. King Chulalongkorn Memorial Hospital
44. Klongtun Hospital
45. Kluaynamthai Hospital
46. Krungdhon I Hospital
47. Krungdhon II Hospital
48. Ladkrabang Hospital
49. Ladprao General Hospital
50. Lerdsin Hospital
51. Mahachai II Hospital
52. Mahaesuk Hospital
53. Mayo Hospital
54. Metropolitan Electricity Authority Hospital
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57. Mongkutwattana Hospital
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60. Navaminthra Hospital
61. Nopparut Ratchatani Hospital
62. Pakkred Vejchakarn General Hospital
63. Paolo Memorial Hospital
64. Petcharavej Hospital
65. Piyavate Hospital Public company Limited
66. Phaya Thai I Hospital
67. Phaya Thai II Hospital
68. Phaya Thai III Hospital
69. Phra Monkutklao Hospital
70. Phranungklao Hospital
71. Police General Hospital
72. Praram 2 Hospital
73. Prasat Neurological Institute
74. Priest's Hospital
75. Prison Hospital of Ministry of Interia

76. Prommitr Hospital
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79. Rajburana Hospital
80. Rama 9 Hospital
81. Ramasuksawat Hospital
82. Ramathibodi Hospital
83. Ramkhamhaeng Hospital
84. Rattarin Hospital
85. Registration Processing Center
86. Royal Irrigation Hospital
87. Saint Louis Hospital
88. Salaya Hospital
89. Samitivej Hospital
90. Samitivej Srinakarin Hospital
91. Samrong Hospital
92. Siam Hospital
93. Sikarin Hospital
94. Sin Phaet Hospital
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99. Srivichai III Hospital
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108. Theptarin Hospital
109. Thon Buri I Hospital
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120. Yanhee General Hospital
121. Yaowarak Hospital
122. Yosae Hospital

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CHON BURI

1. Chonburi Cancer Center
2. Chonburi Provincial Hospital
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13. Pattaya International Hospital
14. Aikchol Hospital
15. Lamecharbang International Hospital
16. Cholvaej Hospital

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☐ *Death Certificate Only in Surat Thani*

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Chapter I

Registry Procedure and Statistical Methods

Registry Procedure and Statistical Methods

Registry Procedure and Statistical Methods

Pattarawin Attasara, M.D.
Hutcha Sriplung, M.D.

The methods specific to each registry are described in the appendix. Briefly, data on cancer cases are collected from hospitals, laboratories and death certificates. The data collected for each cancer patient consists of registry number, name, residential address, date of birth, age, sex, date and method of diagnosis, topographic site, histology and extent of cancer, and vital status of cancer patient. The data collection in details may differ from one to another registry.

Copies of death certificates are collected from the Chief Medical Officer's Offices. All certificates of death are reviewed and matched with the incident case records of the registries. The cases with no matching record are tracked back to the data sources for relevant information. Cases unable to be traced are registered as diagnosed by death certificate only.

The primary site and histology of cancer are coded according to the ICD-O 3rd edition (Fritz *et al*., 2000). Second and subsequent primary cancers are also registered. A new registration number is given for each new primary and subsequent cancer as indicated by the 3-digit code as specified in the ICD-O manual.

Cases of carcinoma in situ are registered but not included in the calculation of incidence rates. Those carcinoma in situ cases later become invasive cancers are registered as malignant and included in the calculation of incidence rates. The most valid basis of diagnosis is recorded for all registered cases.

All registered cases are followed up by passive and active procedures. Registered cases are matched with death certificates. For the remaining cases, follow up information was obtained by scrutiny of hospital records, postal enquiries, and through the network of health care system.

Population denominators

The population denominator used for the calculation of rates were estimated from 1990 and 2000 censuses published by the National Statistical Office (Nation Statistical Office, 1994; National Statistical Office, 2002) which provided annual estimate by age group and sex for each province in Thailand. Inter-census estimates of the population in 2002 by age group and sex were calculated with the assumption of an exponential change of the population between the two censuses.

The annual populations at risk were calculated for the period 2001-2003 in each registry area. They are shown in the section of each particular registry. The populations of Thailand and the four regions in 2002 were estimated based on the two censuses with the procedure described above.

National estimate

The data from the two northern cancer registries of Chiang Mai and Lampang were first pooled by adding together the cases and the person-years at risk from the two registries. The expected cases of northern region were calculated by adjustment with the ratio of cancer deaths by sex and age groups of the region to the combined cancer deaths in the two provinces in 2004. This adjustment procedure was chosen based on the assumption that the number of cancer death reported by the Ministry of Public Health in 2004 is closed to the true cancer deaths that would have occurred in the province. The same procedure was done in the

northeastern region by adding together cases and person-years at risk from Khon Kaen, Nakhon Phanom, Ubon Ratchatani and Udon Thani. Bangkok, Chon Buri, Lop Buri, Prachuap Khiri Khan and Rayong were representatives of the central region. Songkhla and Surat Thani were the representatives of cancer registry in the southern region.

Then the age (five-year age groups) and sex specific rates for the four regions of Thailand were calculated. The expected number of cases and estimated ASRs for 2002 by sex and site for the whole Kingdom of Thailand were finally obtained.

Crude incidence rate (CR)

Crude incidence rate is the number of new cancer cases observed during a defined period of population divided by the population at risk in the same period. It is expressed per 100,000 population.

Age-specific incidence rate

Age-specific incidence rate is the incidence rate in a specific age group. The age-specific rates are calculated by dividing the number of cancer cases in each five years age and sex structure of population in the age group multiplied by 100,000. The rates are expressed per 100,000 population.

AR = Ni/Pi x 100,000
Ni = Number of new cancer occurring in the age group
Pi = Population of the age group

Age-standardized incidence rate (ASR)

The age-standardized incidence rate is a summary measure of a rate that a population will have if it has a standard age structure. It is calculated first by estimating the age-specific incidence rates and applying these rates to the standard population. The world standard population is used in this book. It is also expressed per 100,000 population. Standardization is necessary when comparing several populations that differ with respect to age because it has powerful influence on the risk of cancer.

Cumulative rate

The cumulative rate is the summation of the age-specific rates over each year of age from birth to a defined upper age limit. 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 (Bray, 2002).

Quality control was carried out through the following indices:

1. Percentage of morphologically verified cases (%MV): The percentage of cases where diagnosis was based on cytology or histology examination of tissue from primary site or from metastatic site, bone morrow, cytology and peripheral blood for leukemia.

2. Percentage of death certificate only cases (%DCO): The percentage of cases where diagnosis was based on information obtained from a death certificate.

Chapter II

Cancer Incidence in Thailand

Cancer Incidence in Thailand

Cancer Incidence in Thailand

Pattarawin Attasara, M.D.
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Hutcha Sriplung, M.D.

The first population-based cancer registry started in 1986 in Chiang Mai, followed by Khon Kaen in 1988, Songkhla and Bangkok in 1990 and Lampang in 1993. The first volume of Cancer in Thailand was published in 1993 with co-operation of the registries of Chiang Mai, Khon Kaen, Songkhla, the National Cancer Institute (Bangkok), and the International Agency for Research on Cancer (Vatanasapt *et al*., 1993). The second (Deerasamee *et al*., 1999), the third (Sriplung *et al*., 2003) and the fourth (Khuhaprema *et al*., 2007) volumes were published in series.

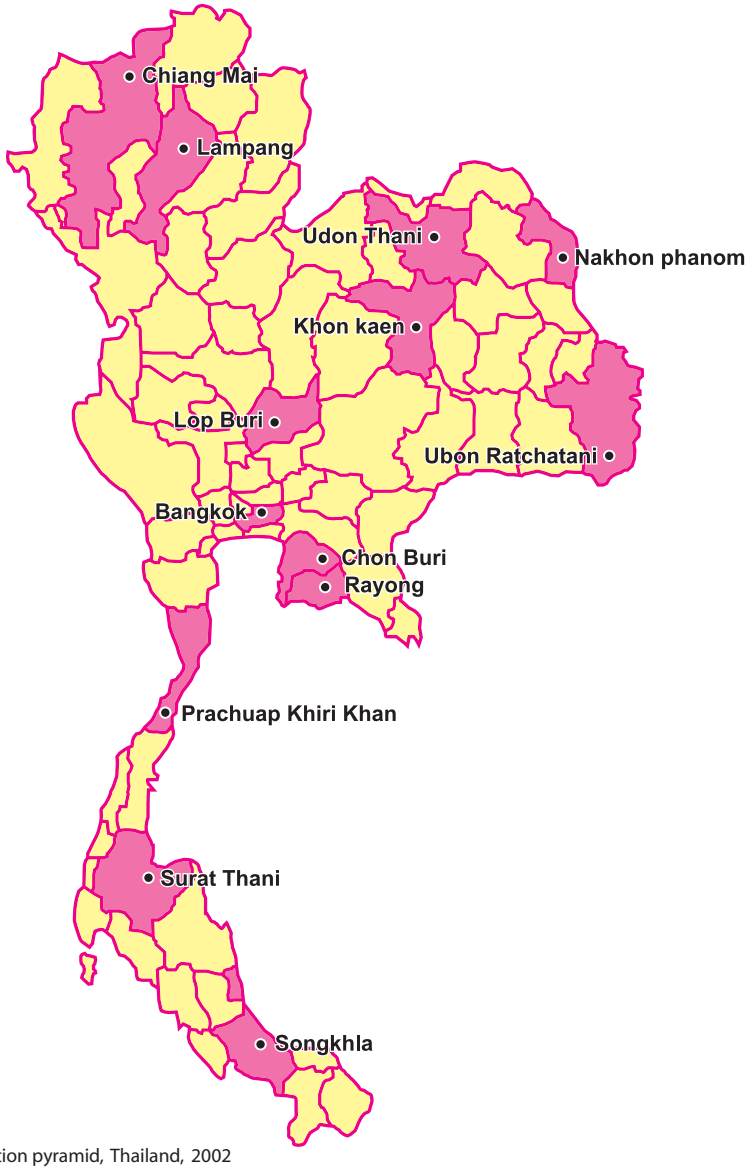
Registration area

Thailand is located in Southeast Asia between latitudes 5:37 N and 20:27 N and between longitudes 97:22 E and 105:37 E, It is bordered to the north by Laos and Burma, to the east by Laos and Cambodia, to the south by the Gulf of Thailand and Malaysia, and to the west by the Andaman Sea and Burma. Its maritime boundaries include Vietnam in the Gulf of Thailand to the southeast and Indonesia and India in the Andaman Sea to the southwest. The total area is 513,155 square kilometers. The climate of the country as a whole is tropical and characterized by monsoons. Thailand is divided into 76 provinces, within four geographical regions: the Northern, Northeastern, Southern and Central. The geographic area covered by the thirteen population based cancer registries are shown in Figure 2.1.1 and the estimated population in each province by sex are shown in Table 2.1.1

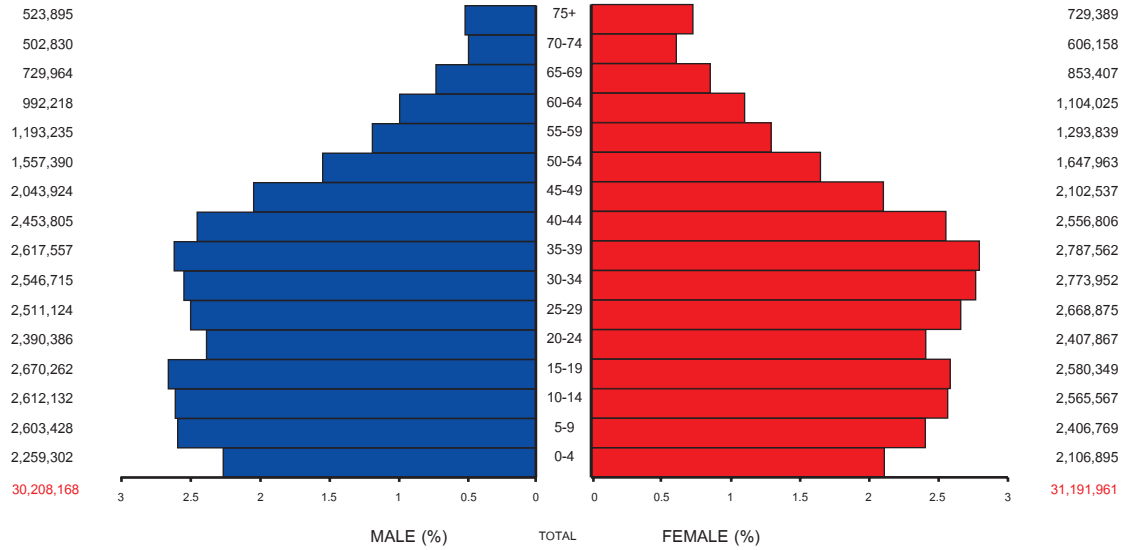
Table 2.1.1 *Land area and estimated population in 2002*

	Population Density (person / km^2)	Land area (km^2)	Estimated population Male	Estimated population Female
Chiang Mai	75.13	20,107	743,730	766,941
Lampang	62.40	12,534	389,307	393,121
Khon Kaen	160.10	10,886	867,876	874,906
Nakhon Phanom	126.20	5,512	346,375	349,475
Ubon Ratchatani	104.70	15,745	825,165	823,439
Udon Thani	124.76	11,730	698,987	764,508
Bangkok	4,034.70	1,569	3,011,460	3,319,013
Chon Buri	262.50	4,363	561,752	583,649
Lop Buri	120.40	6,200	370,389	376,072
Prachuap Khiri Khan	71.20	6,368	225,792	227,401
Rayong	150.60	3,552	269,399	265,563
Songkhla	173.60	7,394	627,945	655,289
Surat Thani	69.20	12,891	444,562	447,084
Thailand	**119.70**	**513,155**	**30,208,168**	**31,191,961**

Figure 2.1.1 Thailand regions and area covered by the cancer registries



Population pyramid, Thailand, 2002



The age-standardized incidence rates (ASR) of cancer at all sites ranged from 113.0 (Males) and 98.4 (Females) in Songkhla to 197.6 (Males) in Ubon Ratchathani and 185.1 (Females) in Udon Thani (Table 2.1.2, Figure 2.1.2).

Table 2.1.2 *Age-standardized incidence rates (ASR), all sites, 2001-2003*

	Male		Female	
	Cases 2001 - 2003	ASR 2002	Cases 2001 - 2003	ASR 2002
Chiang Mai	3,658	151.1	4,157	157.4
Lampang	2,387	175.1	2,461	164.3
Khon Kaen	3,947	172.0	3,575	131.0
Nakhon Phanom	1,320	152.1	1,328	126.2
Ubon Ratchatani	4,322	197.6	4,419	178.8
Udon Thani	3,692	231.3	3,617	185.1
Bangkok	11,246	144.5	13,963	138.0
Chon Buri	2,148	170.9	2,440	154.4
Lop Buri	1,524	130.9	1,611	120.8
Prachuap Khiri Khan	759	129.1	835	118.1
Rayong	1,241	197.1	1,244	163.7
Songkhla	1,940	113.0	1,990	98.4
Surat Thani	1,524	129.2	1,611	119.2
Thailand	**121,986**	**143.3**	**119,065**	**118.6**

Figures 2.1.3,3.1.3-3.13.3 show the 10 leading cancers in Thailand and each registry, in terms of the age-standardized incidence rates.

The detailed results from each of the thirteen registries are shown in the tables of chapter III. The figures for the estimate populations and two tables for each registry: for each sex, the number of cases registered in 2002 (2001 - 2003) are shown by site with summary rates (crude rate, cumulative rate, age-standardized rate). The percentages of microscopically verified and death certificate only cases are the measures of data quality.

Figure 2.1.2 Age-standardized incidence rates (ASR), all sites, 2001-2003

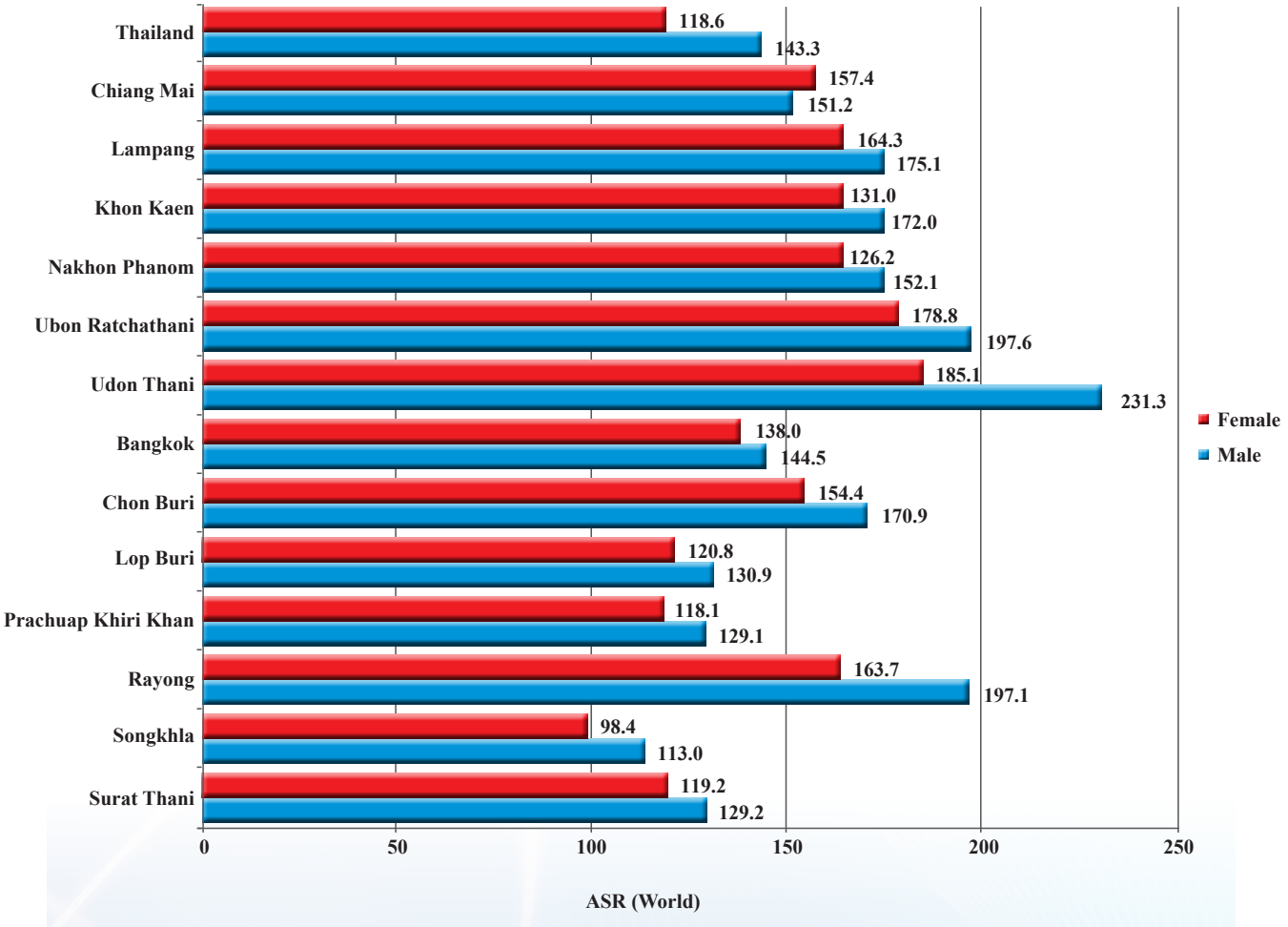
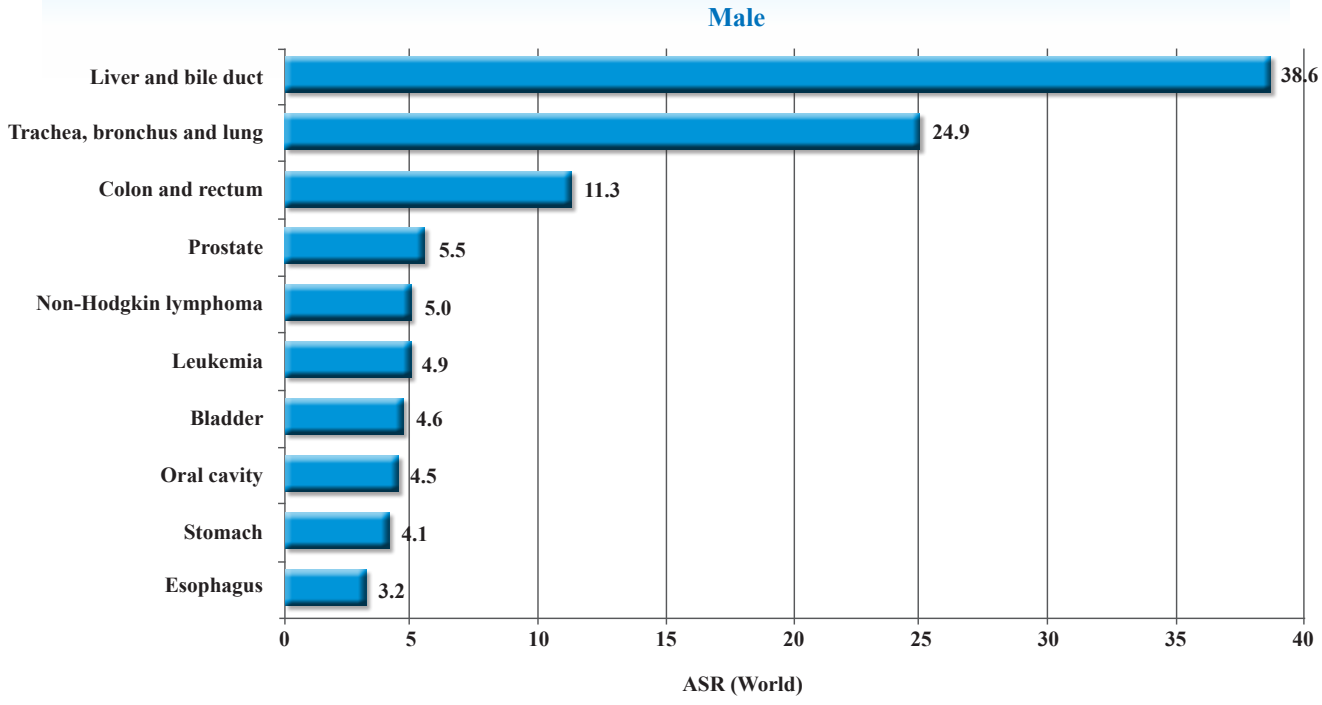


Figure 2.1.3 Leading cancer in Thailand (estimated), 2001-2003



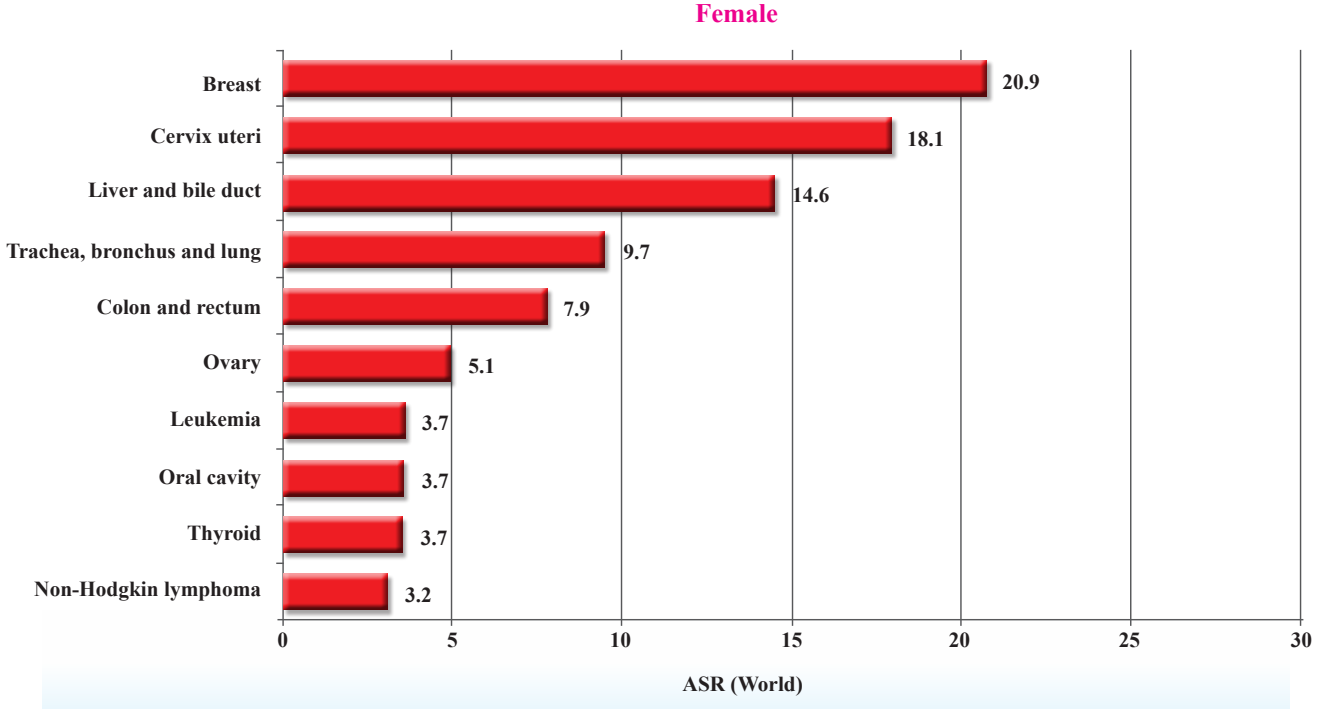


Table 3.1.1 Thailand (2001-2003), Number of Case By Age Group (years) Male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	218	3.1	0.0	3.3	3.3	0.0	2.9	7.5	5.6	20.0	9.0	31.9	17.8	23.5	18.3	17.9	54.2	0.3	0.2
C01-C02	Tongue	1,539	2.7	3.4	0.0	0.0	6.8	27.4	15.7	46.6	127.0	154.3	198.2	210.6	140.3	190.2	172.7	242.7	1.8	1.7
C03-C06	Mouth	1,655	5.8	0.0	10.4	9.9	11.2	18.2	20.6	51.2	49.6	174.9	144.8	237.9	163.8	270.9	176.2	309.3	2.0	1.8
C07-C08	Salivary gland	416	0.0	2.7	5.5	6.2	11.3	15.7	40.2	16.4	17.1	34.2	34.6	56.3	47.1	50.3	37.9	40.6	0.5	0.5
C09	Tonsil	786	38	31	13	6	6	17	13	20	75	62	100	85	71	80	81	89	0.9	0.9
C10	Other oropharynx	165	0	0	0	0	0	0	0	8	5	11	16	23	22	15	17	48	0.2	0.2
C11	Nasopharynx	2,839	0	7	17	51	24	91	78	223	328	381	442	444	291	188	145	131	3.1	3.1
C12-C13	Hypopharynx	825	0	0	0	0	8	0	3	6	37	73	119	103	134	115	88	140	1.0	0.9
C14	Pharynx unspecified	167	0	0	0	0	0	3	0	17	11	17	24	25	9	11	18	33	0.2	0.2
C15	Esophagus	2,601	0	0	0	0	0	0	6	24	61	221	239	419	432	461	387	351	3.2	2.9
C16	Stomach	3,464	5	0	0	17	10	26	73	118	204	298	392	377	525	462	395	564	4.1	3.8
C17	Small intestine	177	0	0	0	5	6	0	13	13	23	6	12	9	16	24	29	23	0.2	0.2
C18	Colon	6,262	3	5	11	17	64	92	131	232	330	467	640	819	729	918	780	1,023	7.4	6.9
C19-C20	Rectum	3,135	3	3	0	11	16	22	76	101	163	258	270	469	438	449	392	465	3.7	3.5
C21	Anus	166	0	0	0	0	3	0	10	3	11	26	18	27	12	14	36	5	0.2	0.2
C22,C24	Liver and bile duct	33,313	40	18	13	24	84	170	531	1,278	2,386	3,435	4,433	5,062	4,920	4,432	3,283	3,204	38.6	36.8
C23	Gallbladder	740	0	0	3	5	0	0	6	14	29	42	62	92	127	134	98	128	0.9	0.8
C25	Pancreas	1,474	0	0	0	6	3	11	28	33	116	140	155	170	226	222	136	228	1.7	1.6
C30-C31	Nose, sinuses etc.	577	10	25	8	21	7	10	12	32	36	55	58	73	36	69	63	62	0.7	0.6
C32	Larynx	2,076	8	10	0	0	0	0	11	30	79	123	260	259	324	330	302	341	2.5	2.3
C33-C34	Trachea, bronchus and lung	20,602	0	7	6	23	53	158	243	500	858	1,349	2,009	2,570	3,080	3,510	2,886	3,350	24.9	22.7
C37-C38	Other thoracic organs	267	6	9	11	19	21	12	17	22	21	14	28	14	24	25	9	15	0.3	0.3
C40-C41	Bone	979	8	30	84	129	90	48	55	28	39	47	68	74	89	66	57	67	1.1	1.1
C43	Melanoma of skin	235	0	0	3	0	3	3	6	14	12	14	20	42	32	27	27	32	0.3	0.3
C44	Other skin	2,476	0	5	0	3	18	30	60	58	114	180	205	322	342	251	319	569	3.0	2.7
C47,C49	Connective and soft tissue	849	45	38	16	26	31	22	75	101	54	61	63	63	67	79	47	63	0.9	0.9
C50	Breast	296	0	0	3	0	6	15	9	17	17	26	39	37	26	47	20	36	0.3	0.3
C60	Penis	1,078	10	5	3	0	6	20	40	73	87	127	100	93	128	125	133	130	1.2	1.2
C61	Prostate	4,305	0	3	0	0	5	0	7	12	23	56	75	469	451	746	810	1,647	5.5	4.8
C62	Testis	542	37	11	24	28	23	45	53	79	79	67	18	11	16	28	17	8	0.6	0.6
C63	Other male genital oragans	26	0	0	0	0	3	0	0	0	0	6	8	0	0	3	0	6	0.0	0.0
C64	Kidney	1,047	63	12	8	6	7	18	9	43	54	91	103	148	144	121	99	122	1.3	1.2
C65	Renal pelvis	170	0	0	0	0	0	3	3	0	9	33	15	36	12	26	14	19	0.2	0.2
C66	Ureter	55	0	0	0	0	0	0	0	0	6	0	0	6	18	9	6	10	0.1	0.1
C67	Bladder	3,773	14	0	0	6	8	6	37	83	164	225	267	376	486	562	638	902	4.6	4.2
C68	Other urinay organs	41	0	5	0	0	0	0	0	0	0	0	3	0	4	10	10	11	0.1	0.0
C69	Eye	226	104	6	0	0	0	15	12	14	11	3	6	14	15	0	9	17	0.3	0.2
C70-C72	Brain, nervous system	2,158	121	142	104	89	97	100	209	159	114	178	181	151	194	138	72	109	2.4	2.4
C73	Thyroid	933	0	3	13	12	47	41	69	86	88	70	88	91	81	96	63	85	1.0	1.0
C74	Adrenal gland	52	5	5	0	0	0	0	3	0	3	9	3	0	3	3	3	16	0.1	0.1
C75	Other endocrine	108	0	3	29	15	0	6	3	5	11	3	11	5	13	3	0	0	0.1	0.1
C81	Hodgkin's disease	346	9	15	32	30	8	8	31	9	23	20	19	39	14	39	25	26	0.4	0.4
C82-C85,C96	Non-Hodgkin lymphoma	4,473	18	95	78	153	76	168	248	296	376	417	425	557	359	442	435	330	5.0	4.9
C88	Immunoproliferative diseases	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C90	Multiple myeloma	520	0	0	0	0	0	3	16	11	38	46	58	86	60	81	56	66	0.6	0.6
C91	Lymphoid leukemia	1,104	190	173	128	61	23	37	40	33	35	53	29	106	37	65	52	43	1.4	1.2
C92	Myeloid leukemia	1,521	51	46	62	69	84	88	93	107	95	154	136	145	104	132	97	57	1.7	1.7
C95	Leukemia unspecified	1,580	109	95	94	80	60	66	125	83	103	98	57	130	94	120	116	152	1.8	1.7
O&U	Other and unspecified	9,571	74	34	59	50	80	230	408	555	658	871	1,081	1,082	1,101	1,279	950	1,059	11.0	10.6
	Total	**121,986**	**982**	**847**	**839**	**988**	**1,010**	**1,652**	**2,956**	**4,666**	**7,201**	**10,207**	**12,768**	**15,645**	**15,682**	**16,487**	**13,621**	**16,433**	**143.3**	**134.6**

Table 3.1.2 Thailand (2001-2003), Number of Case By Age Group (years) Female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	873	3	0	0	3	7	7	7	13	3	15	36	77	128	172	140	264	0.9	0.9
C01-C02	Tongue	761	0	3	0	3	0	19	35	33	52	57	65	114	76	93	99	112	0.8	0.8
C03-C06	Mouth	1,616	3	7	3	7	25	6	25	38	42	104	114	111	194	235	205	497	1.7	1.7
C07-C08	Salivary gland	360	0	0	3	0	18	20	16	15	37	37	50	38	27	35	23	41	0.4	0.4
C09	Tonsil	193	10	0	3	4	8	0	10	10	14	42	15	15	15	16	8	22	0.2	0.2
C10	Other oropharynx	31	0	0	0	0	0	4	0	5	3	0	3	7	0	10	0	0	0.0	0.0
C11	Nasopharynx	1,253	3	0	0	12	30	50	68	153	130	137	157	199	81	97	85	49	1.2	1.3
C12-C13	Hypopharynx	141	0	0	0	0	0	0	0	0	3	11	7	15	20	38	22	25	0.2	0.2
C14	Pharynx unspecified	42	0	0	0	0	3	0	0	0	3	0	3	5	5	6	3	14	0.0	0.0
C15	Esophagus	611	0	0	0	0	0	0	8	7	15	17	42	50	101	119	89	163	0.6	0.7
C16	Stomach	2,354	3	0	0	3	16	48	74	139	194	241	208	301	250	309	232	336	2.4	2.5
C17	Small intestine	176	0	3	0	0	3	0	0	12	11	13	16	33	25	30	6	24	0.2	0.2
C18	Colon	5,115	0	0	3	14	13	59	130	234	265	428	519	700	604	676	578	892	5.2	5.5
C19-C20	Rectum	2,559	3	0	0	3	3	57	67	104	179	204	293	344	291	354	255	402	2.6	2.7
C21	Anus	137	0	0	0	0	0	0	3	3	14	12	26	21	14	18	15	11	0.1	0.1
C22,C24	Liver and bile duct	14,126	29	9	9	24	38	104	169	473	712	1,309	1,671	1,867	2,005	2,187	1,629	1,892	14.6	15.1
C23	Gallbladder	889	0	0	0	0	0	5	12	10	13	38	85	76	118	138	120	276	0.9	1.0
C25	Pancreas	1,187	0	0	0	0	8	7	8	57	39	71	125	157	123	168	197	227	1.2	1.3
C30-C31	Nose, sinuses etc.	302	24	3	4	7	2	0	21	22	23	40	14	46	32	12	29	23	0.3	0.3
C32	Larynx	285	3	0	3	0	0	9	10	11	13	17	18	24	34	41	54	49	0.3	0.3
C33-C34	Trachea, bronchus and lung	9,354	0	7	0	16	30	149	167	251	391	669	978	1,022	1,275	1,419	1,231	1,751	9.7	10.0
C37-C38	Other thoracic organs	181	0	0	0	0	0	14	8	19	9	22	23	35	21	21	6	3	0.2	0.2
C40-C41	Bone	749	6	26	64	68	50	32	42	25	58	45	52	42	74	63	45	58	0.8	0.8
C43	Melanoma of skin	233	0	0	3	0	3	8	7	11	15	34	29	32	13	25	19	35	0.2	0.2
C44	Other skin	2,335	0	0	24	12	3	21	34	79	67	139	161	296	222	294	341	642	2.4	2.5
C47,C49	Connective and soft tissue	835	57	23	23	26	32	44	55	63	66	92	65	106	60	37	26	59	0.9	0.9
C50	Breast	21,967	8	0	0	24	73	295	1,038	2,076	3,403	3,965	3,458	2,879	1,678	1,391	794	885	20.9	23.5
C51	Vulva	334	0	0	0	0	4	0	11	12	33	23	43	25	26	44	25	89	0.3	0.4
C52	Vagina	198	0	0	0	0	0	8	9	2	16	17	14	27	42	17	19	25	0.2	0.2
C53	Cervix uteri	19,011	6	3	0	8	58	305	934	1,985	2,881	3,114	2,533	2,660	1,579	1,242	856	848	18.1	20.3
C54	Corpus uteri	2,787	3	0	0	0	12	20	70	89	166	433	533	628	311	281	126	115	2.8	3.0
C55	Uterus unspecified	595	0	0	0	3	5	21	38	40	52	84	71	73	62	46	42	58	0.6	0.6
C56	Ovary	5,205	9	13	39	130	125	172	261	393	555	788	854	678	427	327	195	239	5.1	5.6
C57	Other female genital	84	0	0	0	0	3	0	0	2	10	14	16	9	6	11	3	10	0.1	0.1
C58	Placenta	156	0	0	0	4	14	26	42	30	15	18	3	3	0	0	3	0	0.1	0.2
C64	Kidney	530	35	20	14	5	2	10	13	31	35	29	49	59	64	71	40	50	0.6	0.6
C65	Renal pelvis	75	0	0	0	0	0	0	0	0	0	7	12	10	3	19	7	16	0.1	0.1
C66	Ureter	63	0	0	0	0	0	0	0	0	0	3	15	4	8	16	5	13	0.1	0.1
C67	Bladder	927	0	0	0	0	3	11	12	14	21	69	65	119	83	120	153	259	0.9	1.0
C68	Other urinay organs	53	0	0	0	0	6	4	0	0	6	0	3	3	12	3	5	12	0.1	0.1
C69	Eye	172	40	15	7	0	3	5	15	7	6	8	13	21	0	10	5	16	0.2	0.2
C70-C72	Brain, nervous system	1,798	71	119	83	69	39	79	104	154	164	170	183	135	157	84	109	78	1.9	1.9
C73	Thyroid	3,896	3	3	23	55	185	302	376	425	423	475	371	390	228	238	179	218	3.7	4.2
C74	Adrenal gland	93	16	14	10	0	0	6	11	8	10	8	0	5	3	0	0	3	0.1	0.1
C75	Other endocrine	74	0	0	6	0	5	8	8	10	4	14	8	3	8	0	0	0	0.1	0.1
C81	Hodgkin's disease	238	8	5	6	4	13	26	15	8	19	33	25	30	14	11	11	9	0.2	0.3
C82-C85,C96	Non-Hodgkin lymphoma	3,180	26	65	58	49	80	128	188	186	182	294	324	491	293	271	255	290	3.2	3.4
C88	Immunoproliferative diseases	18	0	0	0	0	0	0	0	2	0	6	0	0	3	0	8	0	0.0	0.0
C90	Multiple myeloma	476	3	0	0	3	3	0	3	6	22	34	44	99	77	69	59	54	0.5	0.5
C91	Lymphoid leukemia	821	153	131	105	28	33	25	47	38	26	19	27	65	39	25	27	34	1.0	0.9
C92	Myeloid leukemia	1,326	30	35	41	60	57	47	114	110	112	84	102	212	57	112	57	96	1.3	1.4
C95	Leukemia unspecified	1,290	72	43	71	58	45	40	84	66	114	82	86	124	82	62	101	160	1.4	1.4
O&U	Other and unspecified	6,986	40	35	40	26	66	219	251	352	457	592	786	893	855	843	644	887	7.1	7.5
	Total	**119,065**	**664**	**586**	**647**	**726**	**1,130**	**2,420**	**4,621**	**7,837**	**11,102**	**14,173**	**14,415**	**15,376**	**11,925**	**11,926**	**9,187**	**12,330**	**118.6**	**127.2**

Oral cavity

Figure 2.2.1 Oral cavity cancer in different regions, 2001-2003

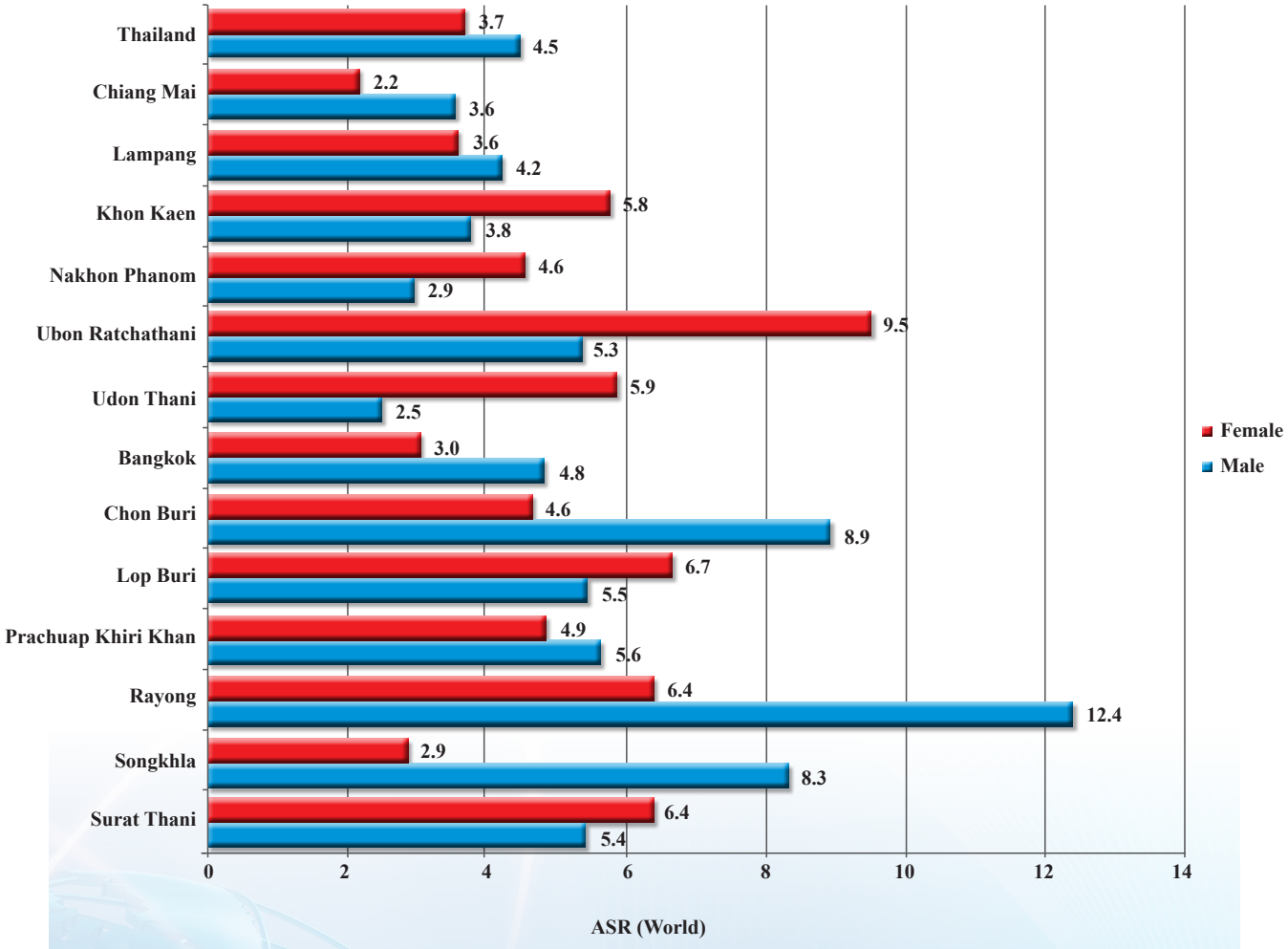
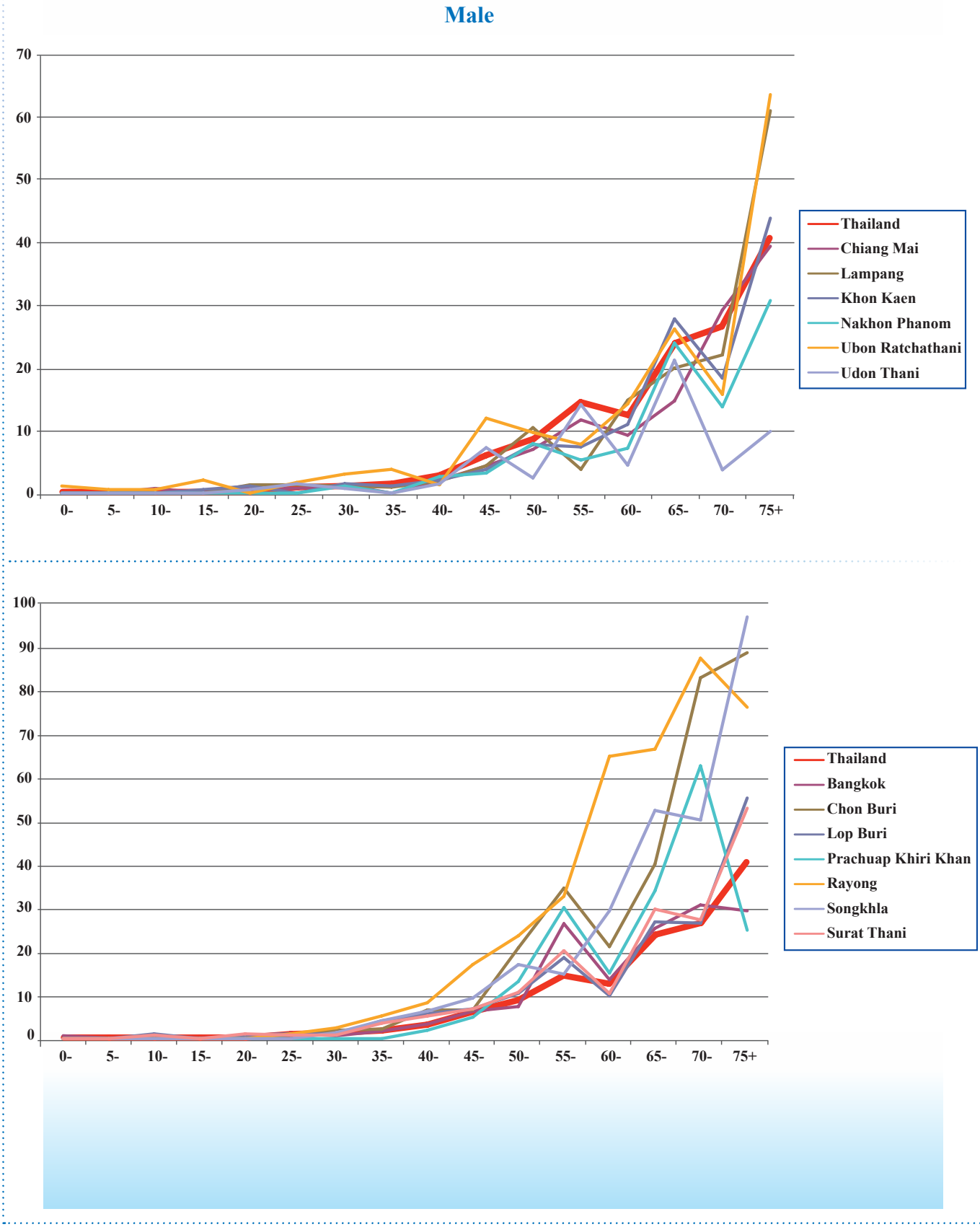


Figure 2.2.2 Age-specific incidence rates of oral cavity cancer, 2001-2003



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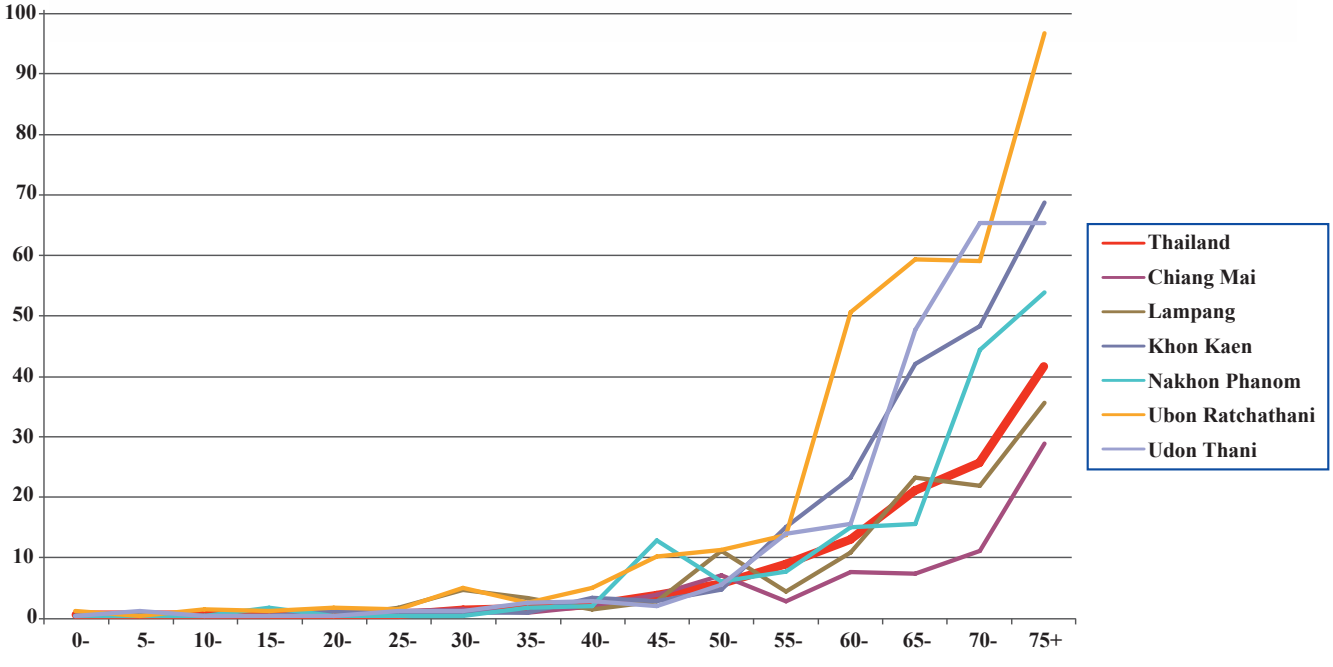
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Lampang
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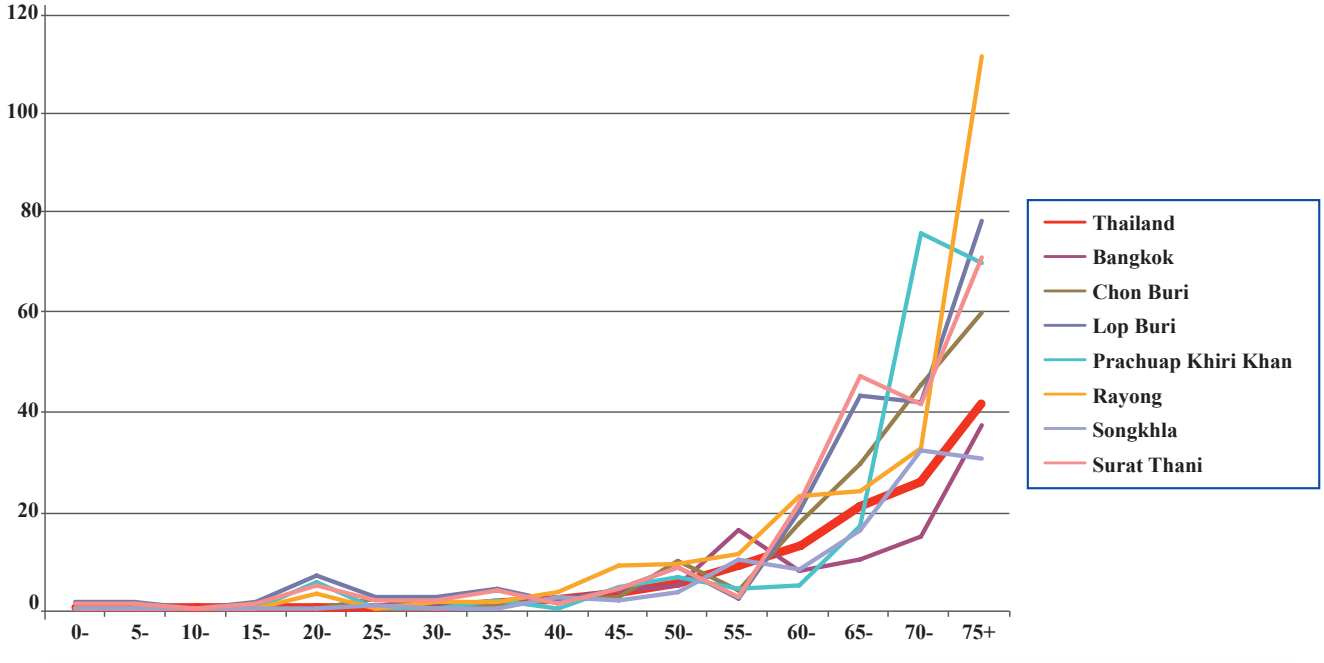
Udon Thani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75+
Thailand
Bangkok
Chon Buri
Lop Buri
Prachuap Khiri Khan
Rayong
Songkhla
Surat Thani

Oropharynx

Figure 2.3.1 Oropharynx cancer in different regions, 2001-2003

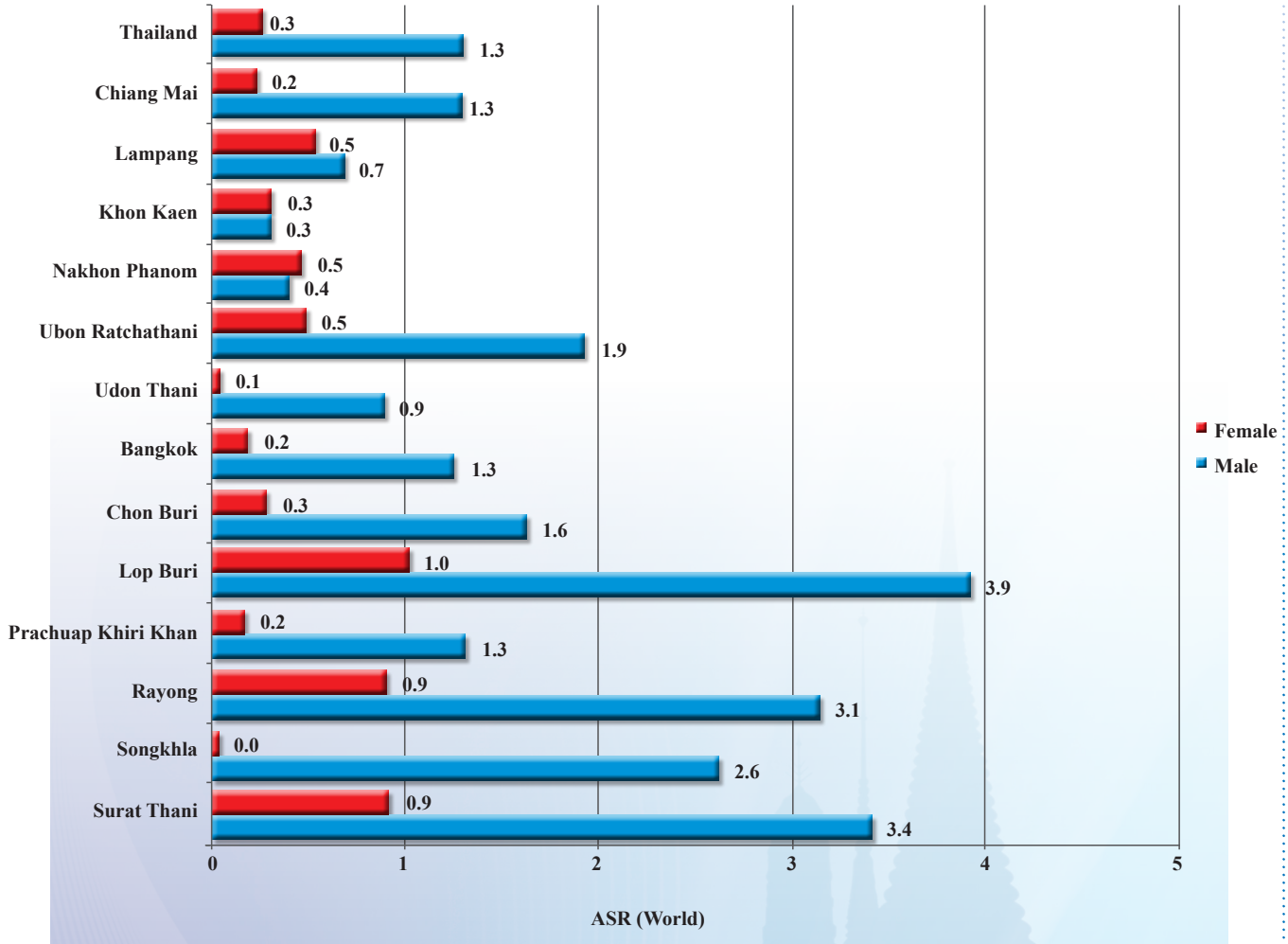
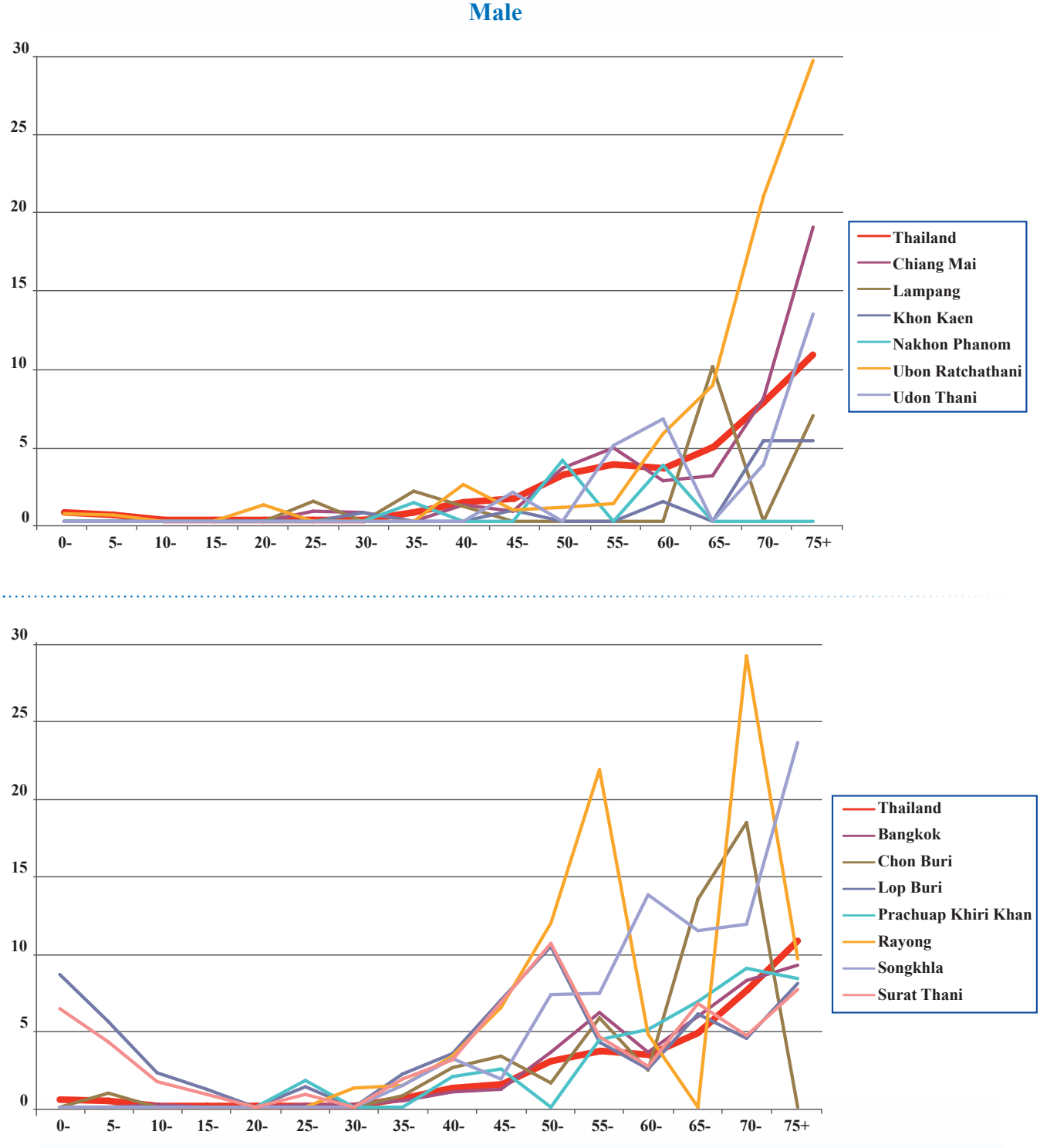


Figure 2.3.2 Age-specific incidence rates of oropharynx cancer, 2001-2003



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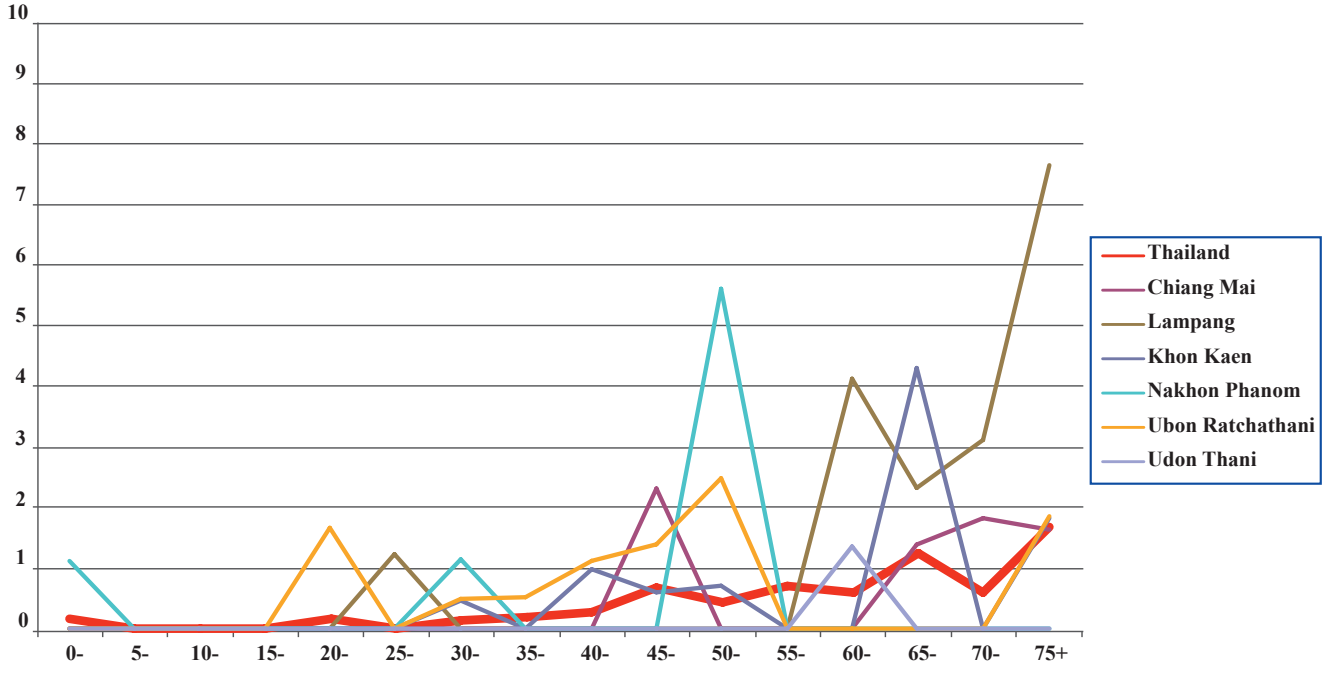
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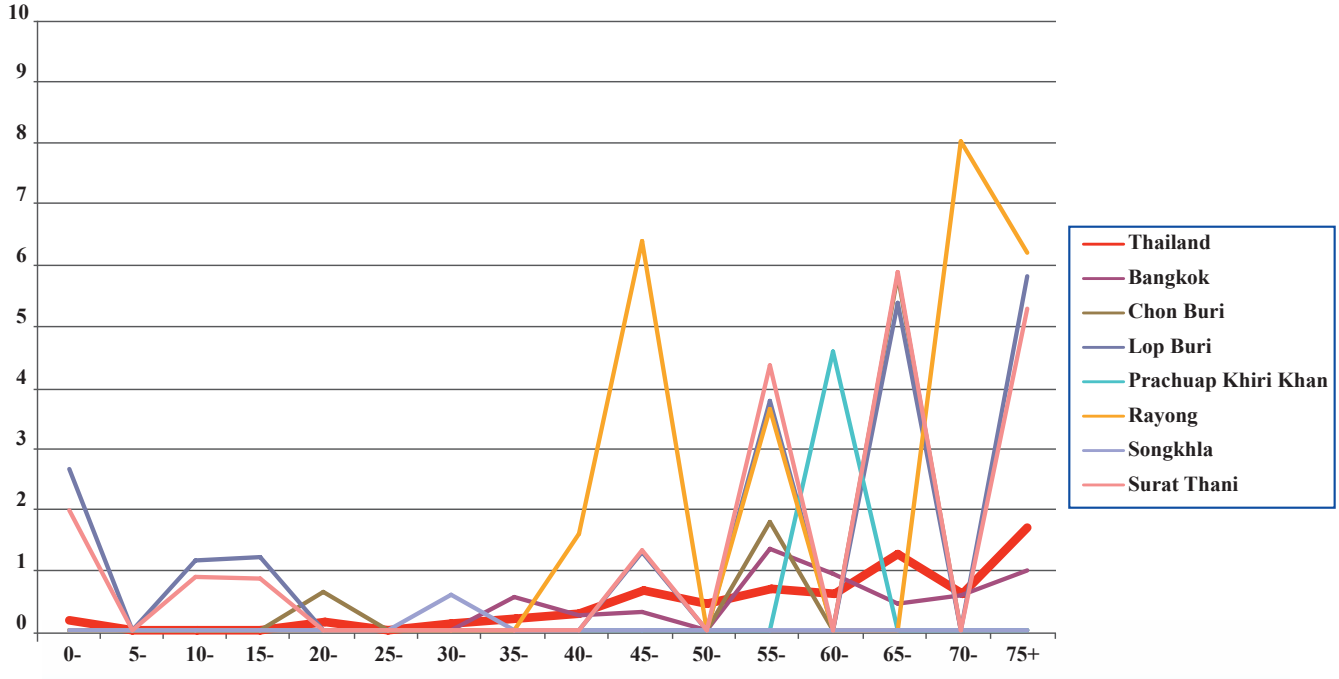
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75+
Thailand
Bangkok
Chon Buri
Lop Buri
Prachuap Khiri Khan
Rayong
Songkhla
Surat Thani

Nasopharynx

Figure 2.4.1 Nasopharynx cancer in different regions, 2001-2003

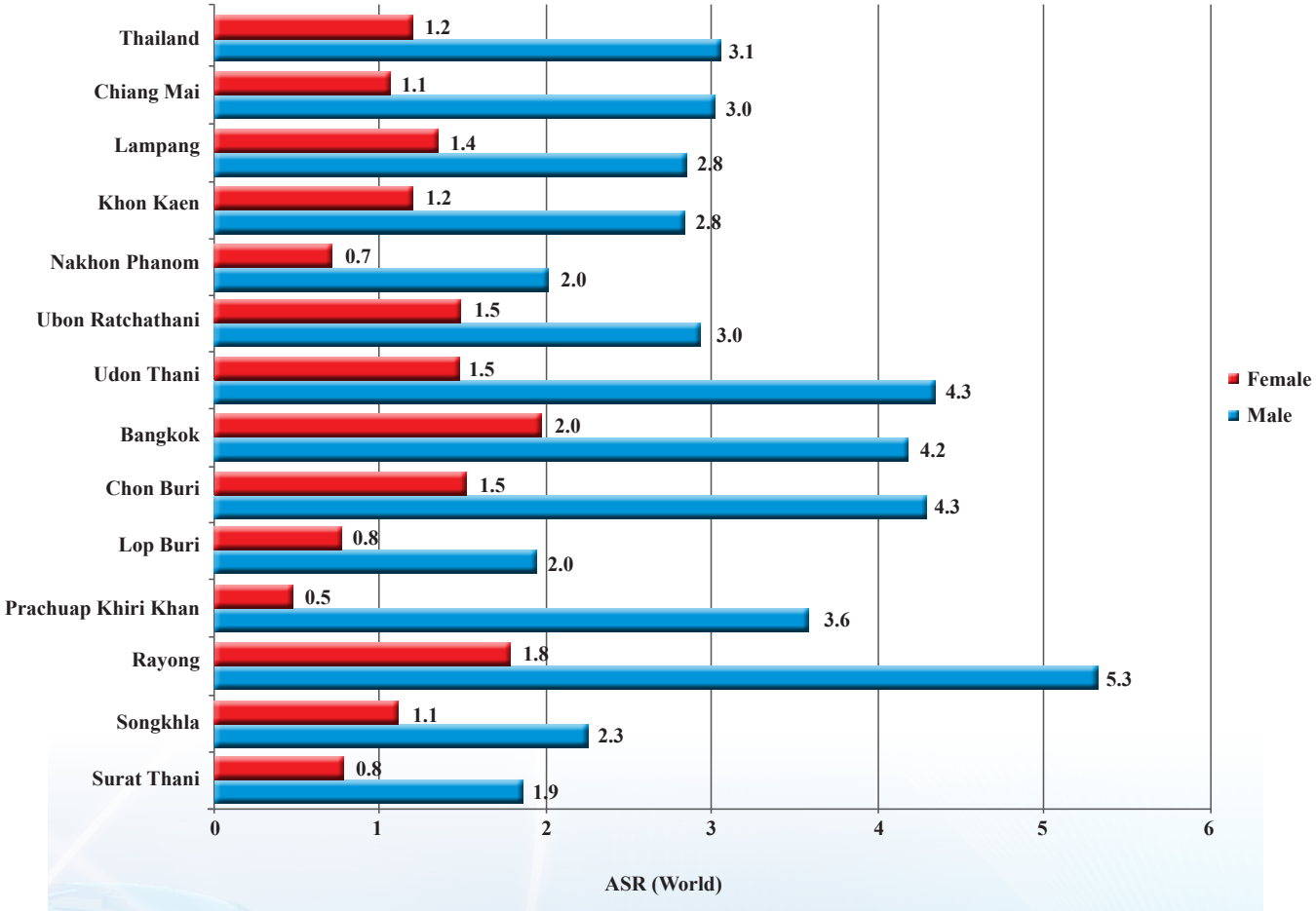
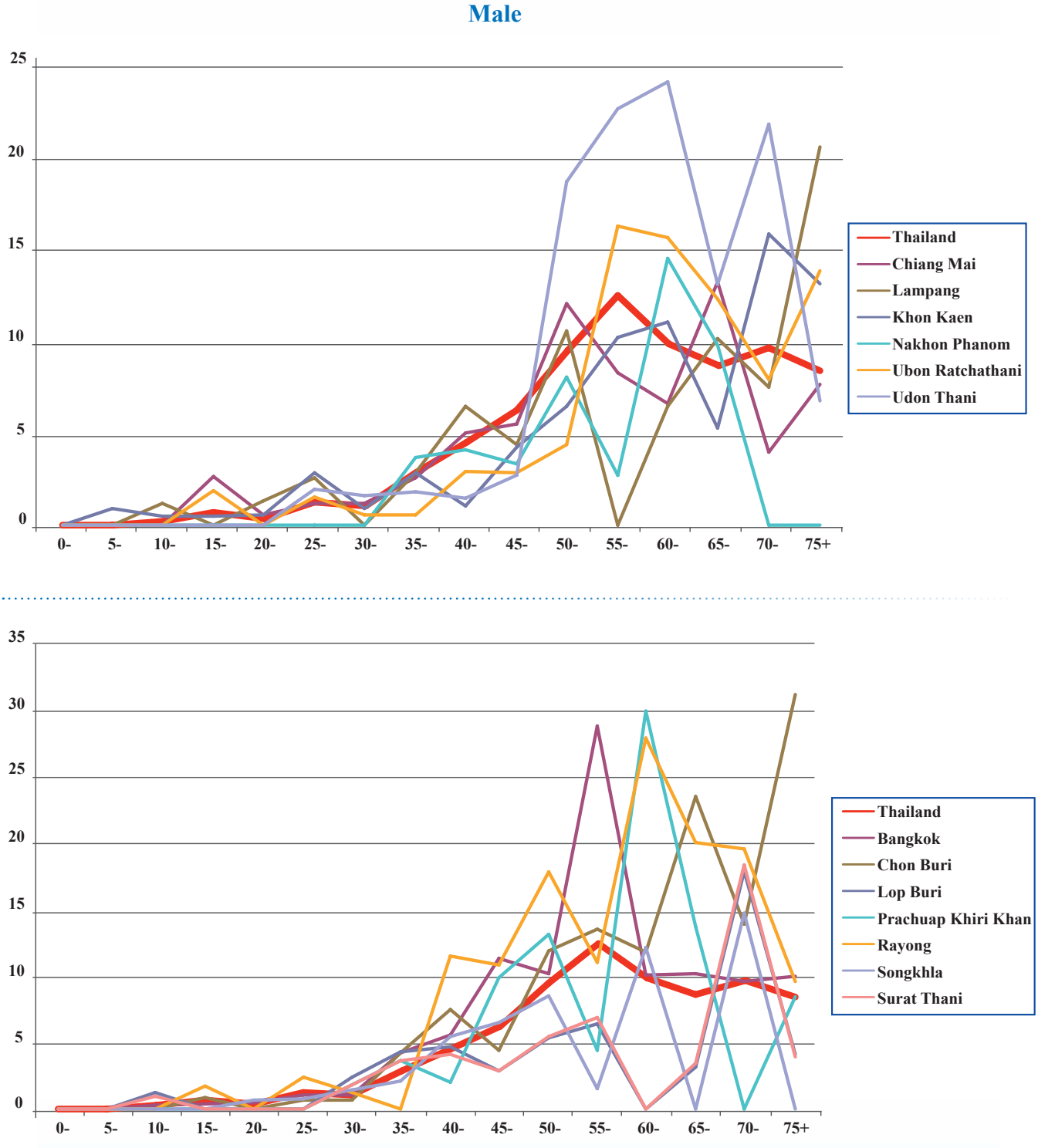


Figure 2.4.2 Age-specific incidence rates of nasopharynx cancer, 2001-2003



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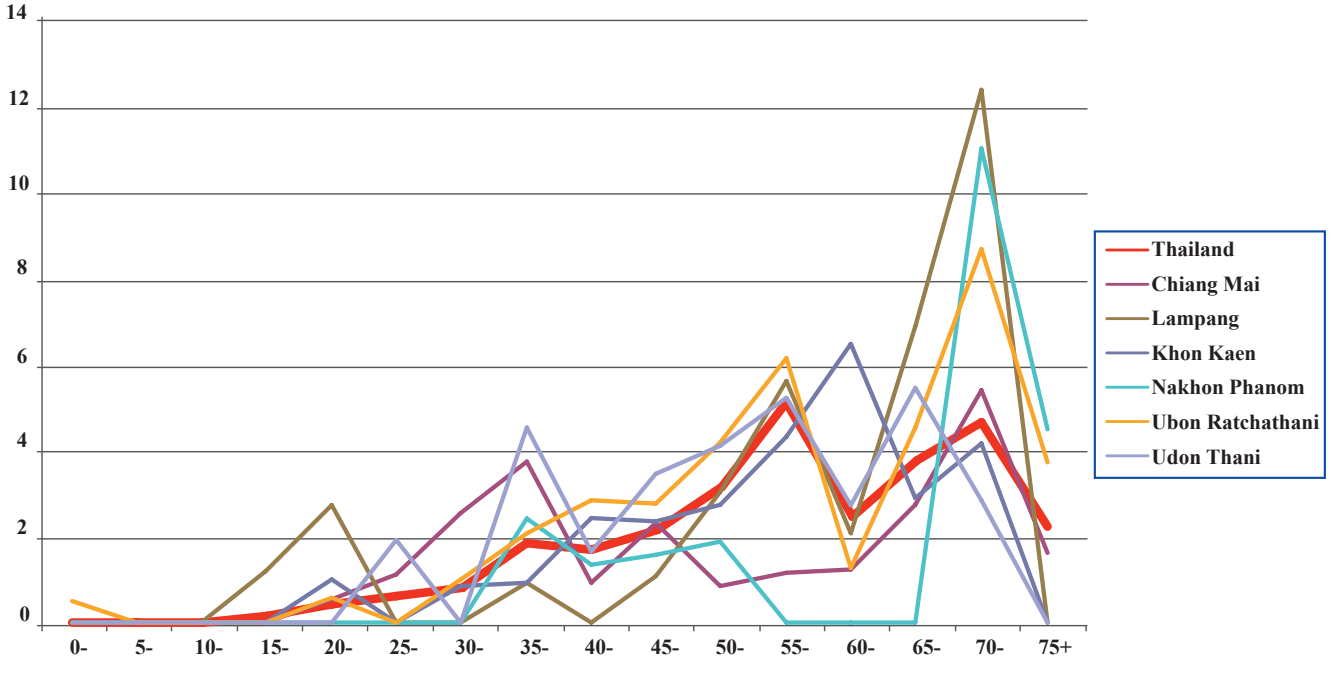
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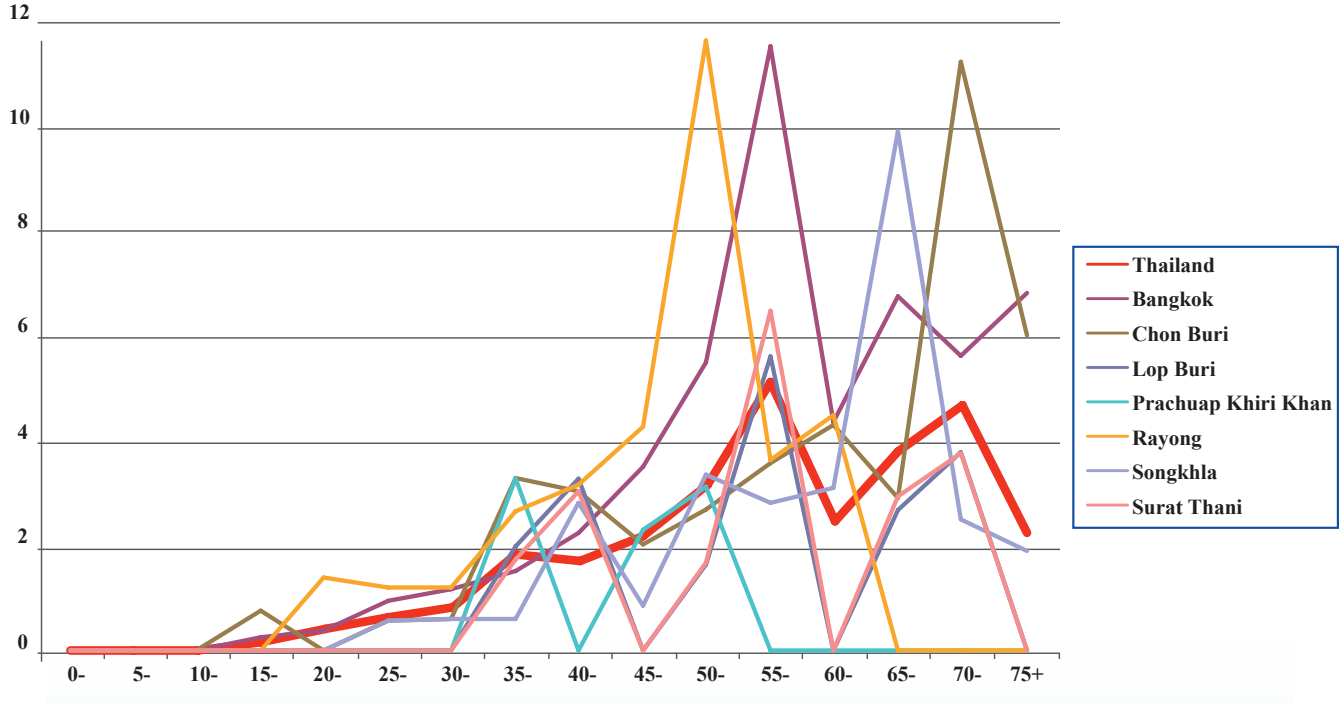
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Thailand
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Prachuap Khiri Khan
Rayong
Songkhla
Surat Thani

Hypopharynx

Figure 2.5.1 Hypopharynx cancer in different regions, 2001-2003

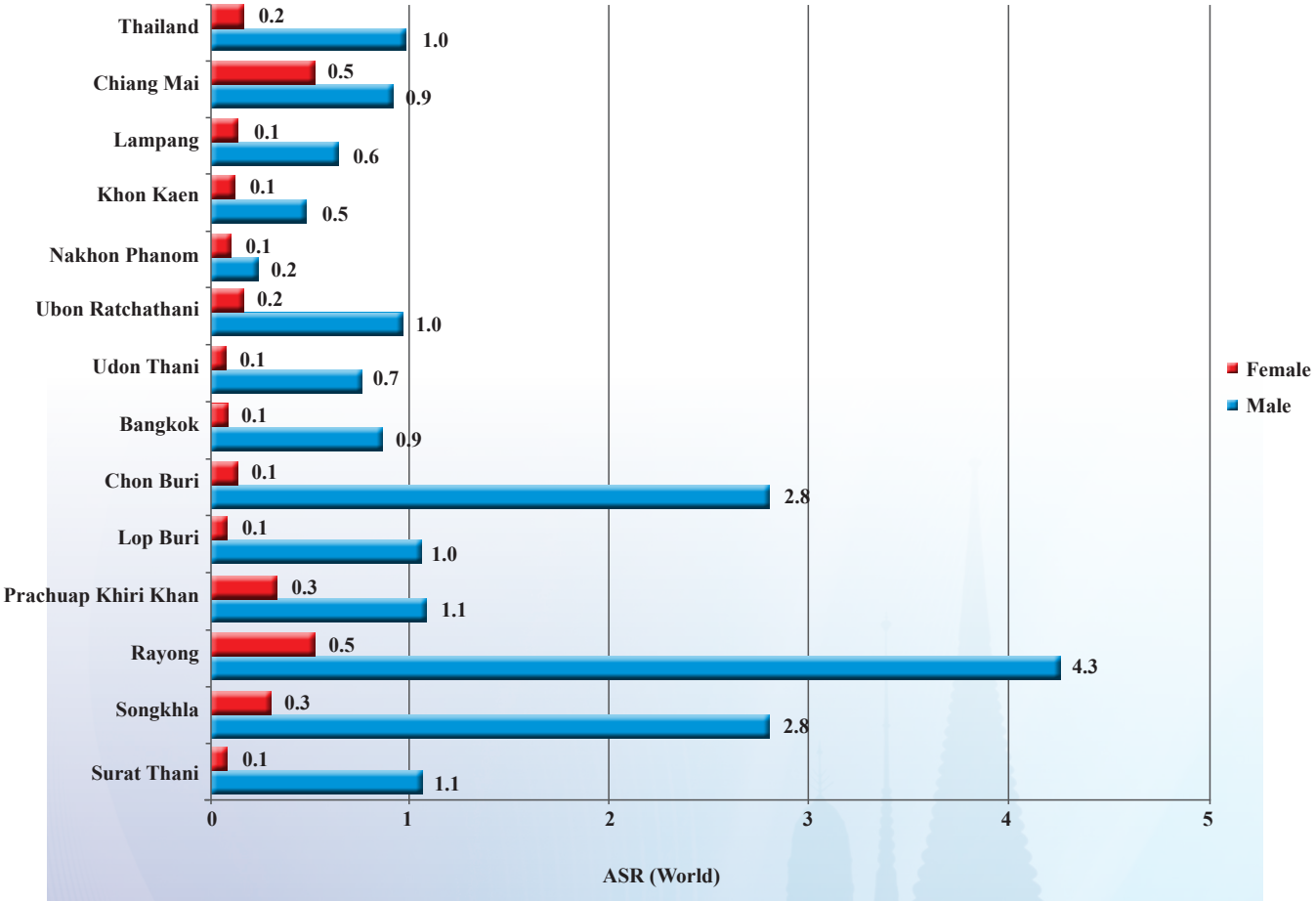
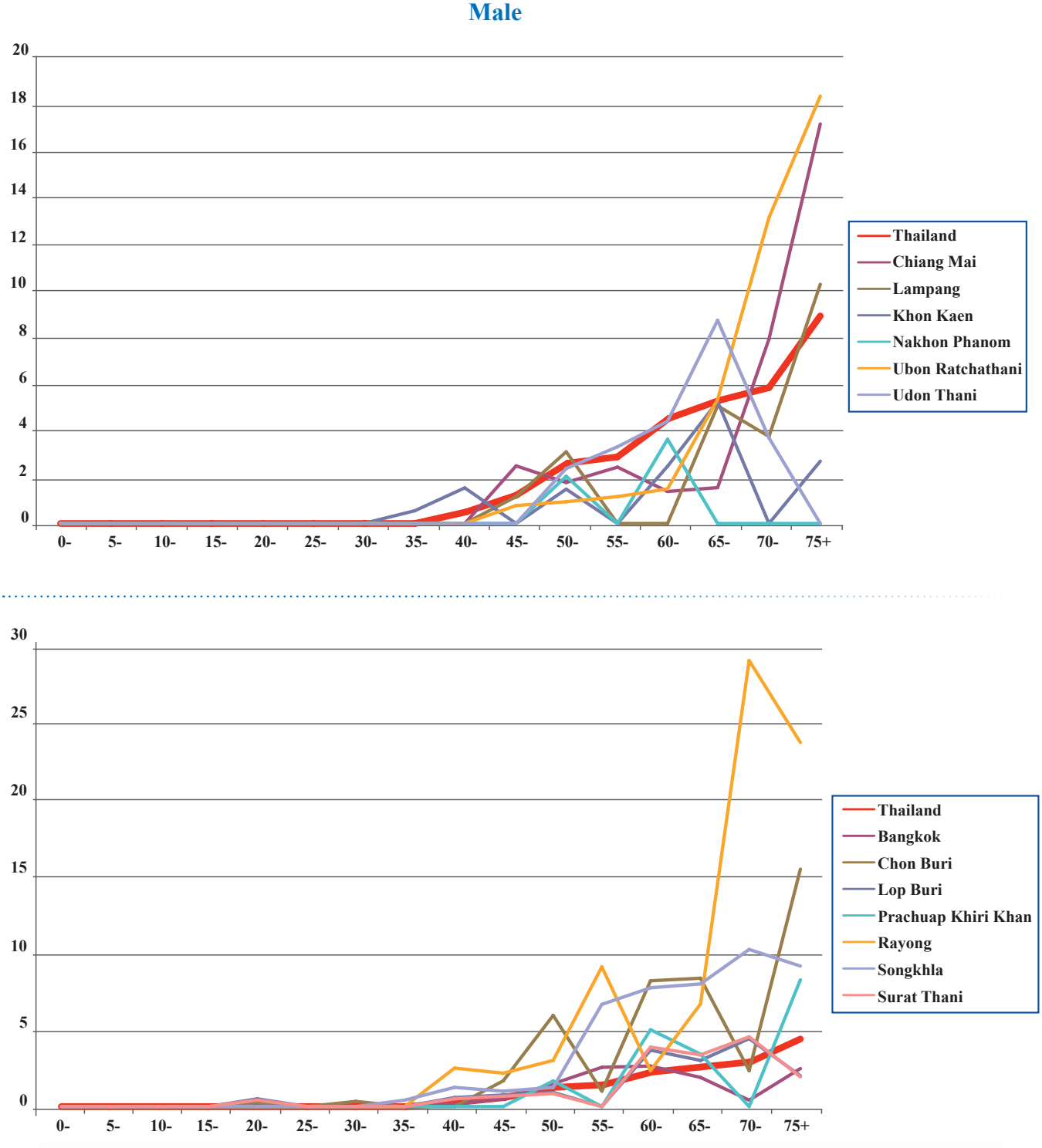


Figure 2.5.2 Age-specific incidence rates of hypopharynx cancer, 2001-2003



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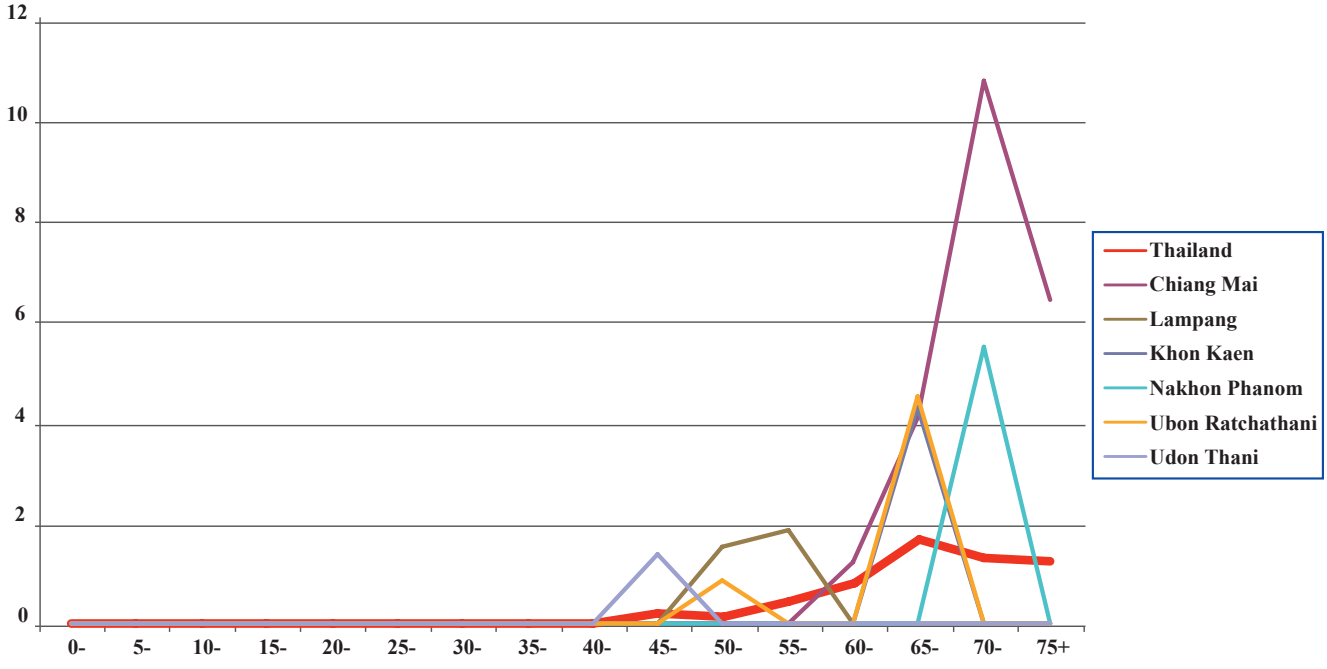
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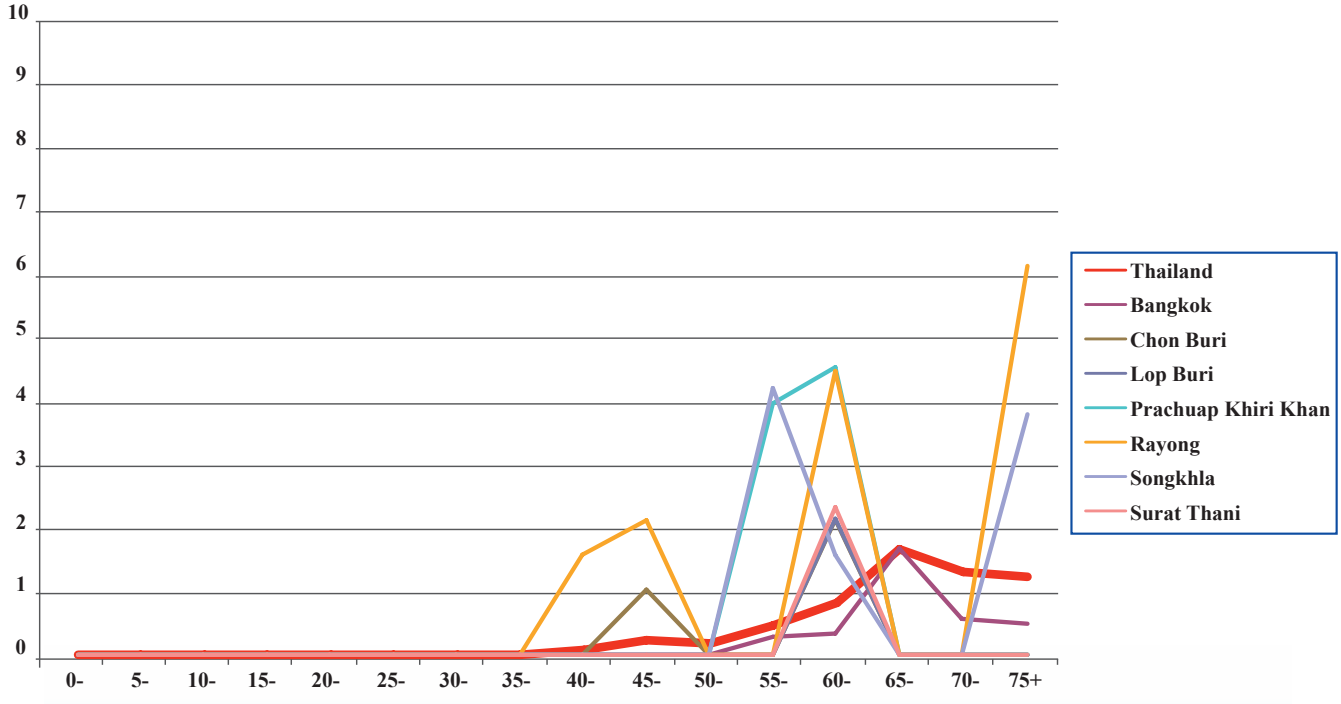
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Thailand
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Rayong
Songkhla
Surat Thani

Esophagus

Figure 2.6.1 Esophagus cancer in different regions, 2001-2003

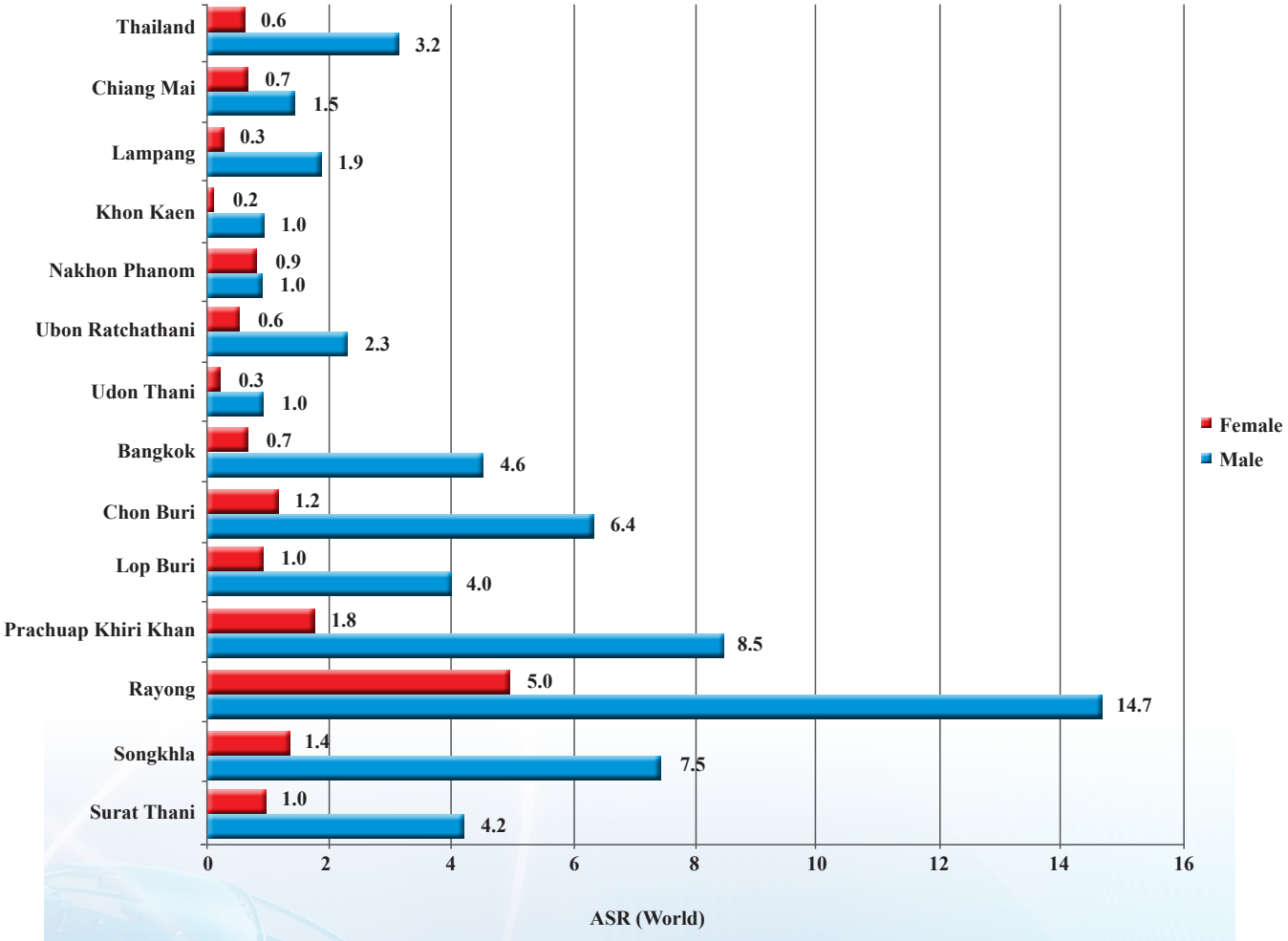
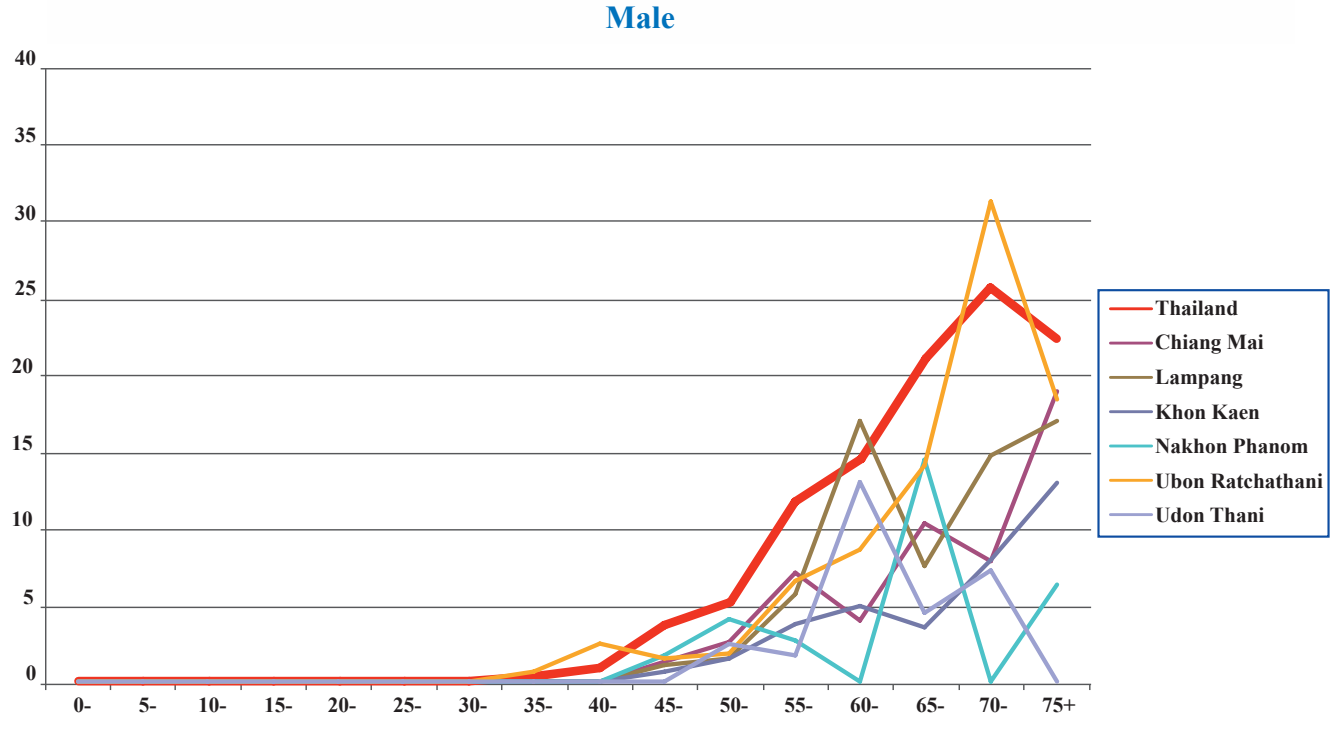
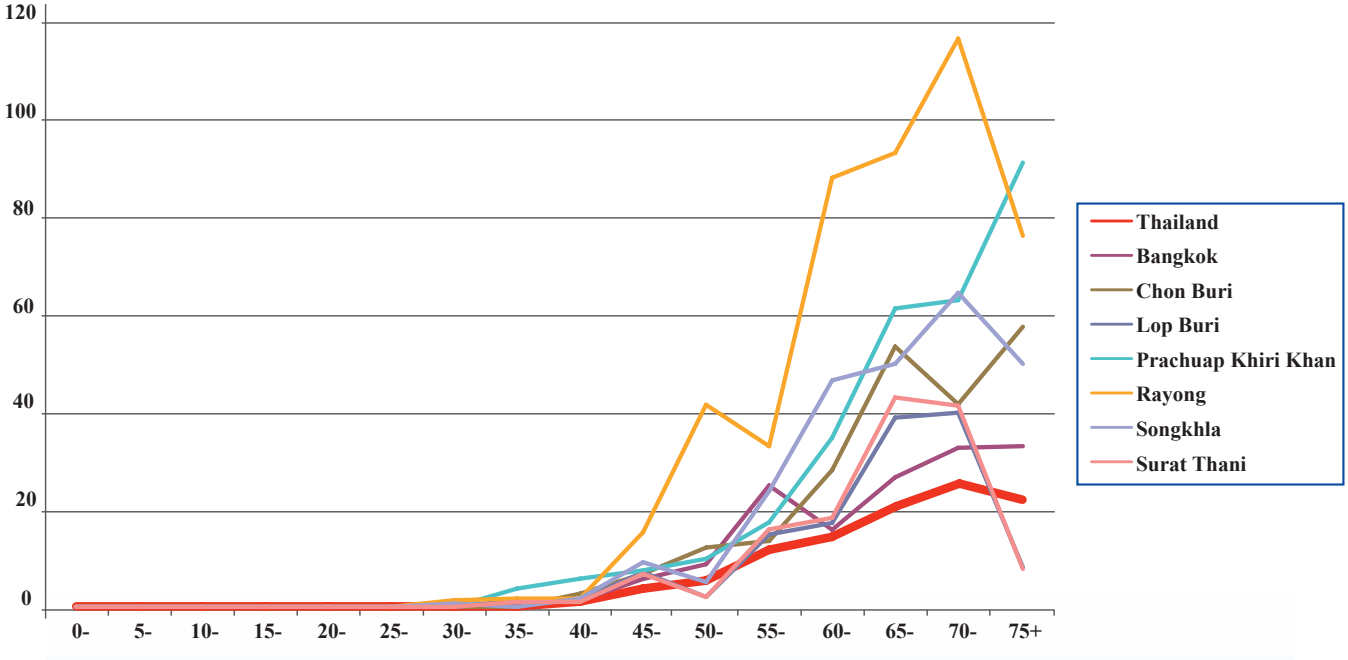


Figure 2.6.2 Age-specific incidence rates of esophagus cancer, 2001-2003





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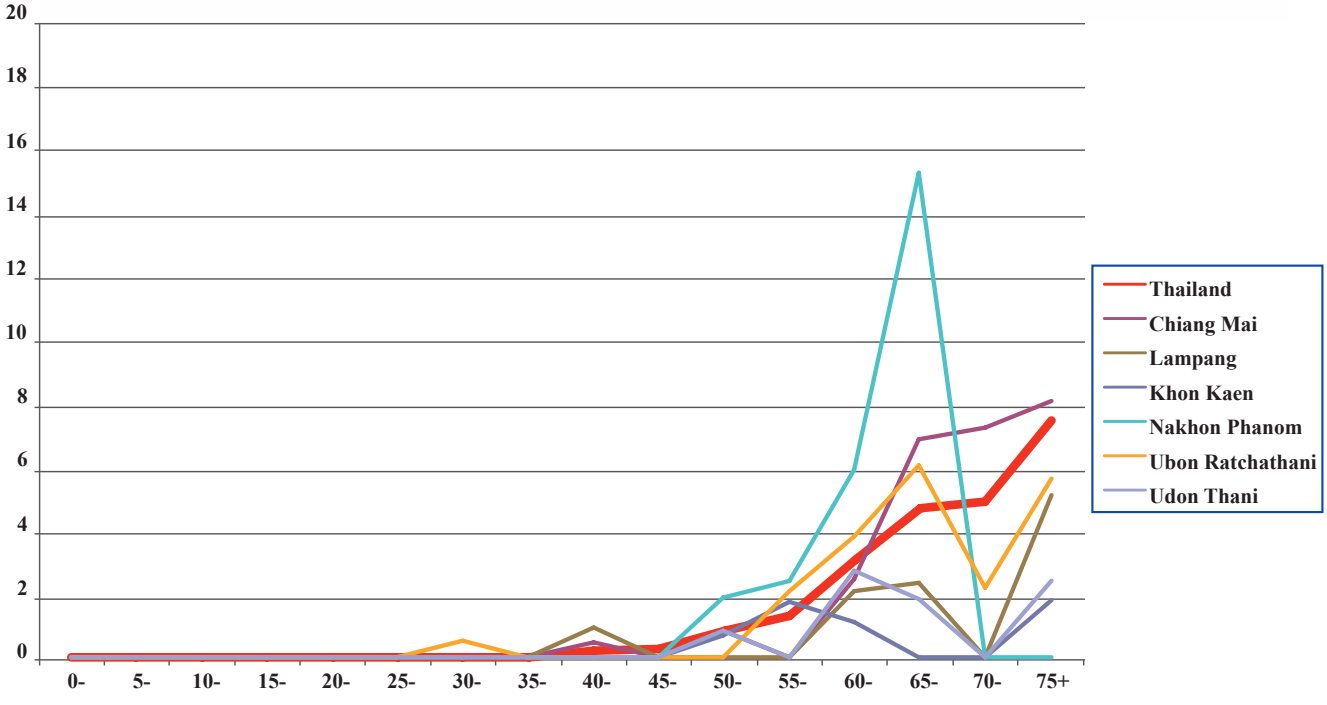
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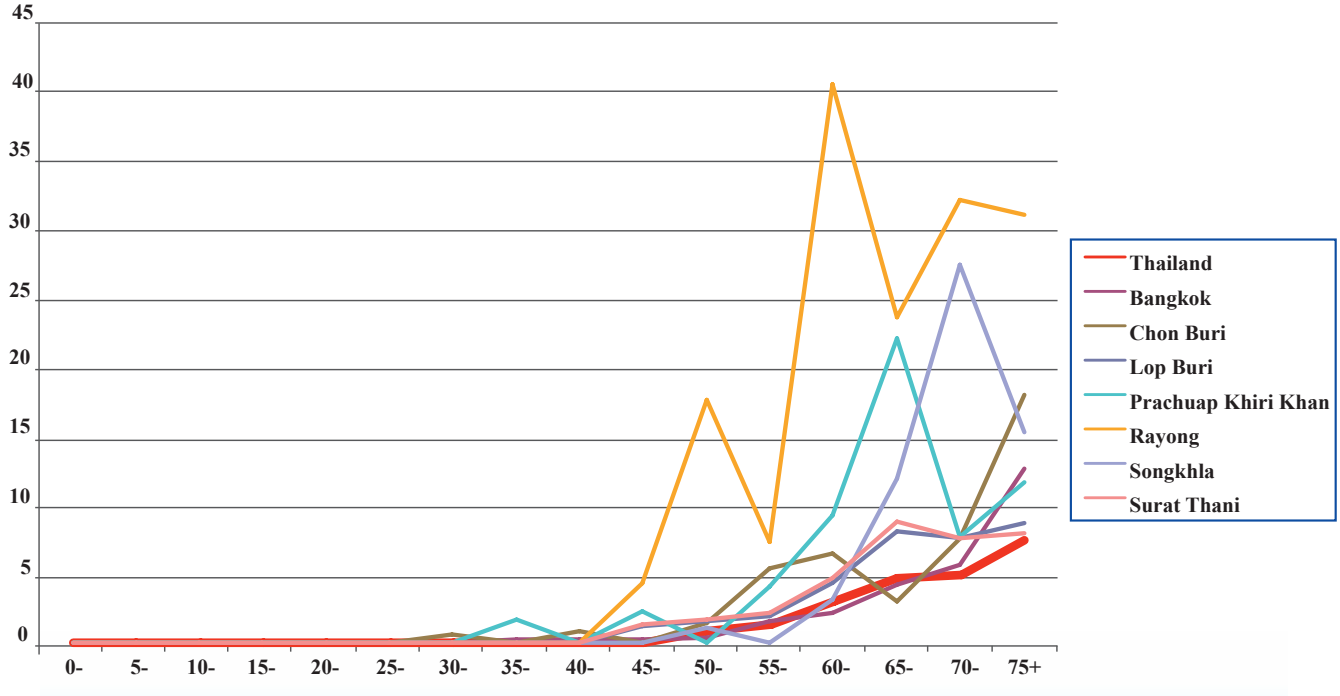
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Thailand
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Chon Buri
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Prachuap Khiri Khan
Rayong
Songkhla
Surat Thani

Stomach

Figure 2.7.1 Stomach cancer in different regions, 2001-2003

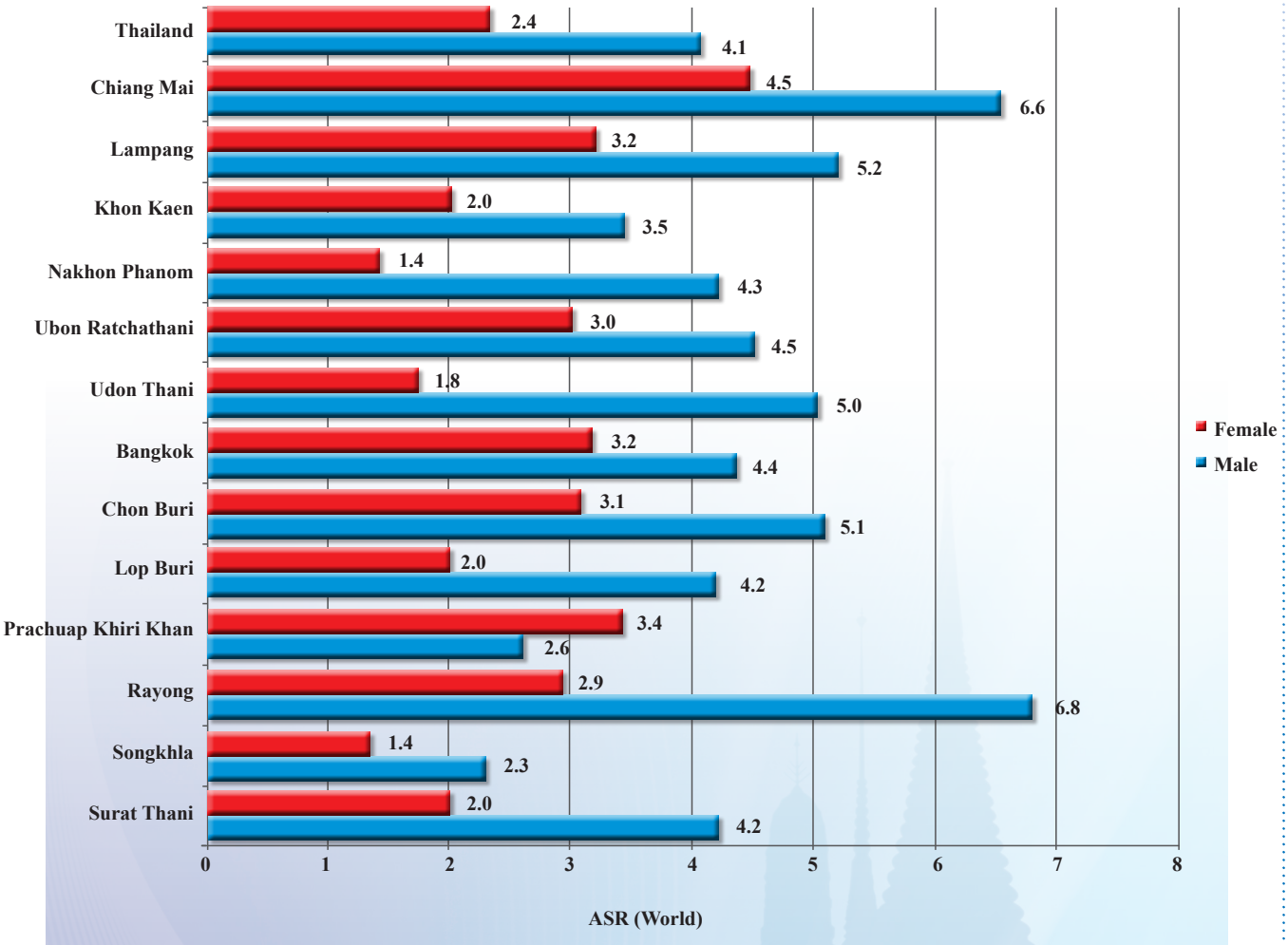
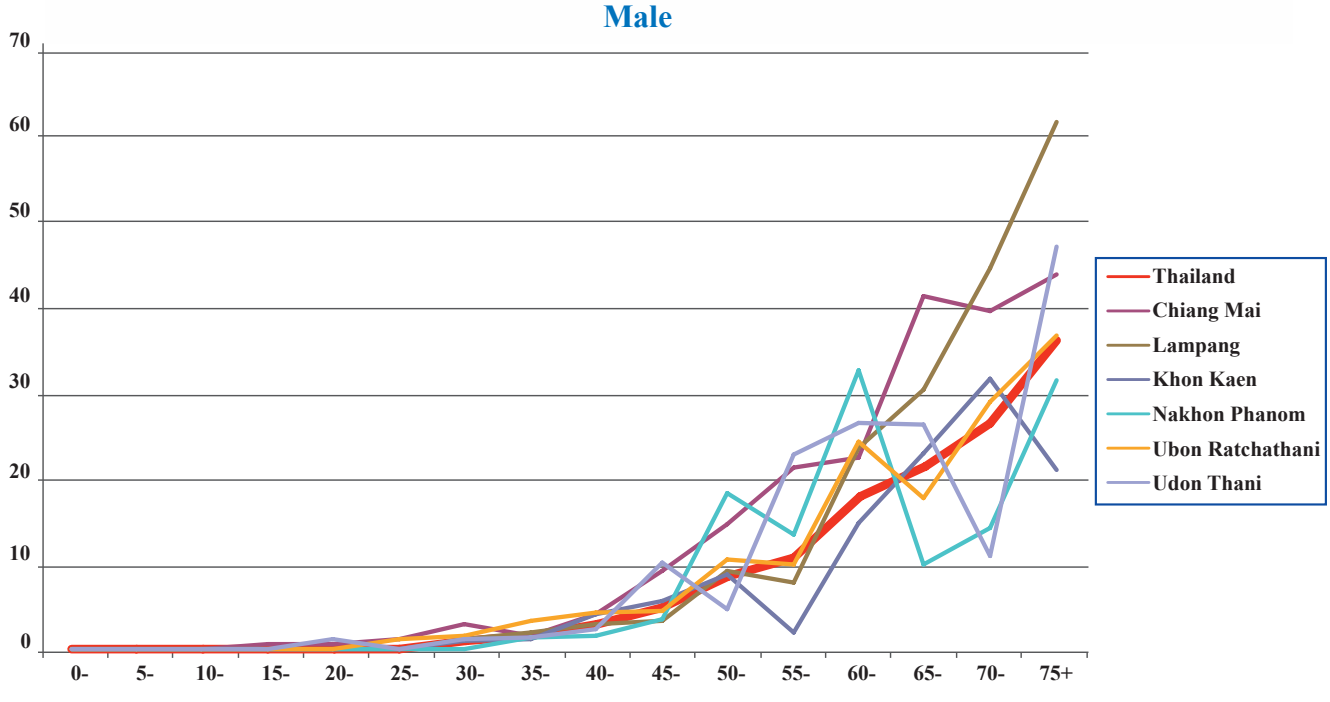
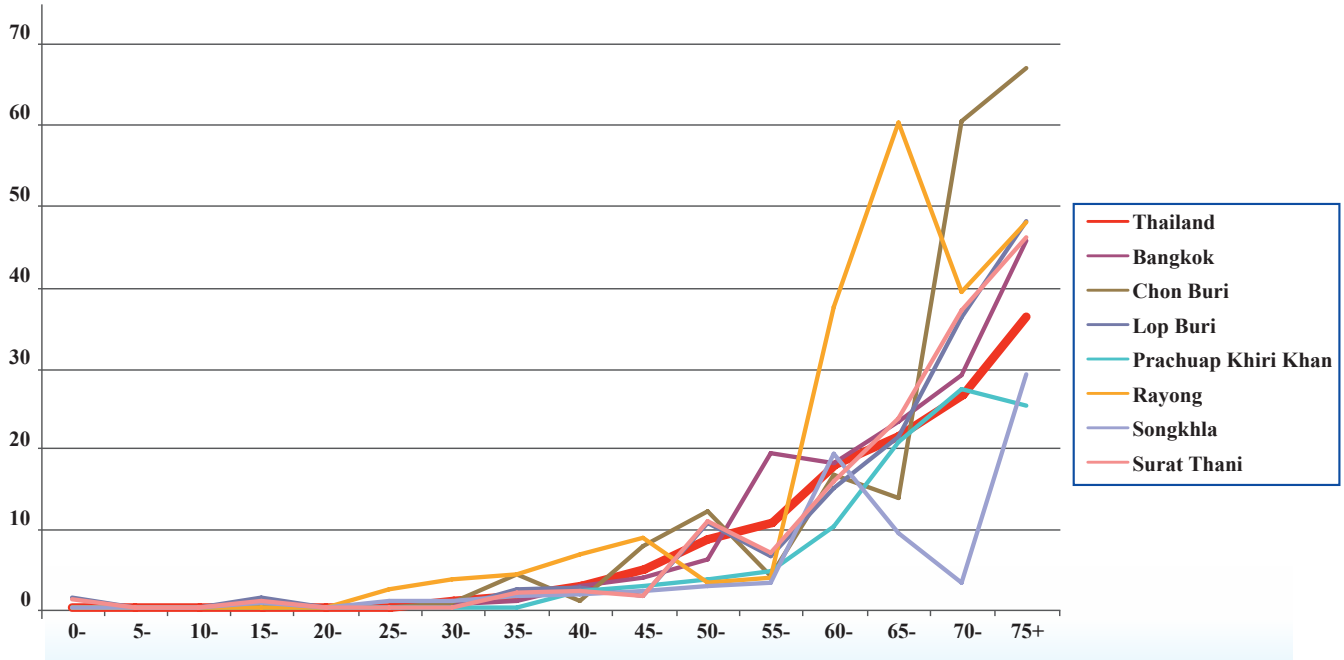


Figure 2.7.2 Age-specific incidence rates of stomach cancer, 2001-2003





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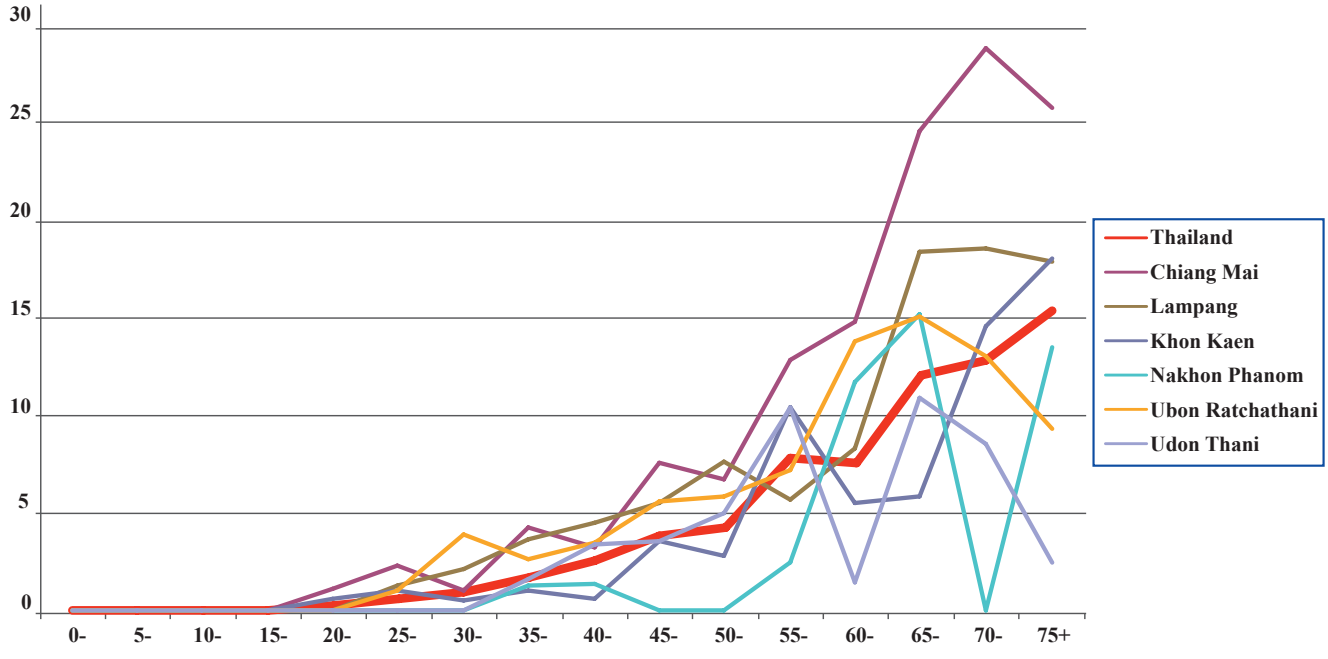
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Thailand
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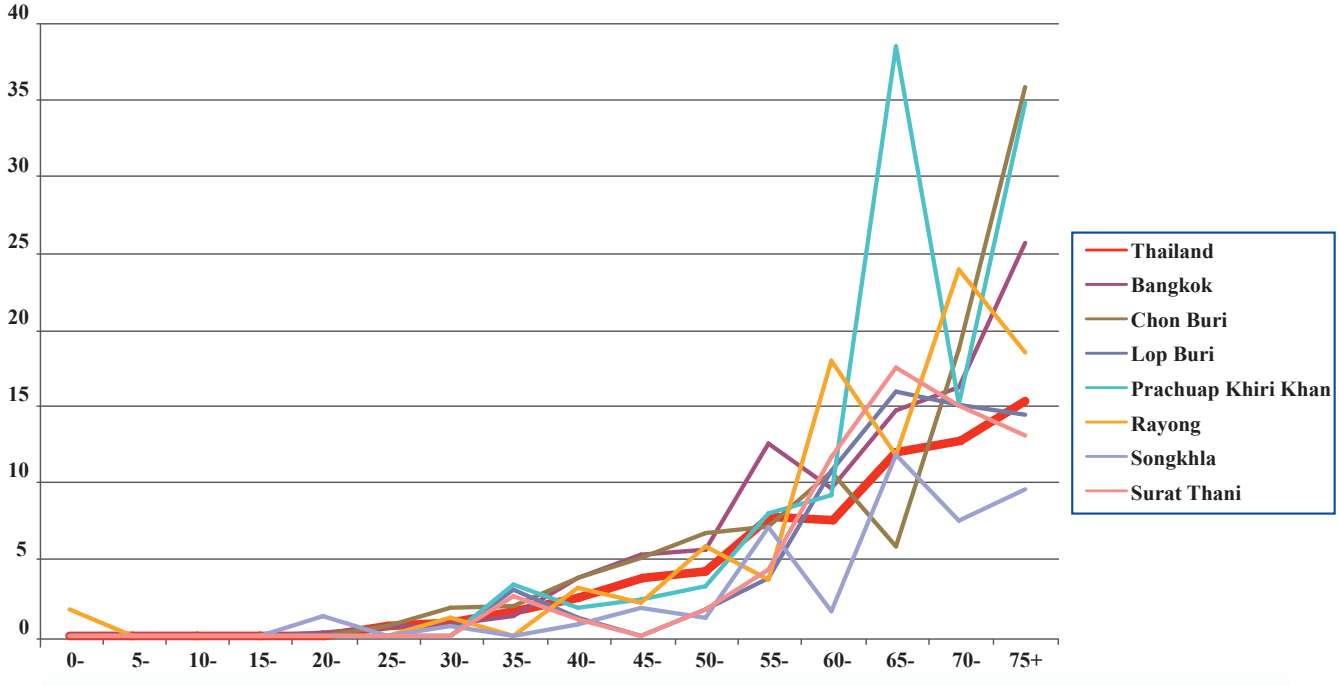
Lampang
Khon Kaen
Nakhon Phanom
Ubon Ratchathani
Udon Thani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Colon and Rectum

Figure 2.8.1 Colon and Rectum cancer in different regions, 2001-2003

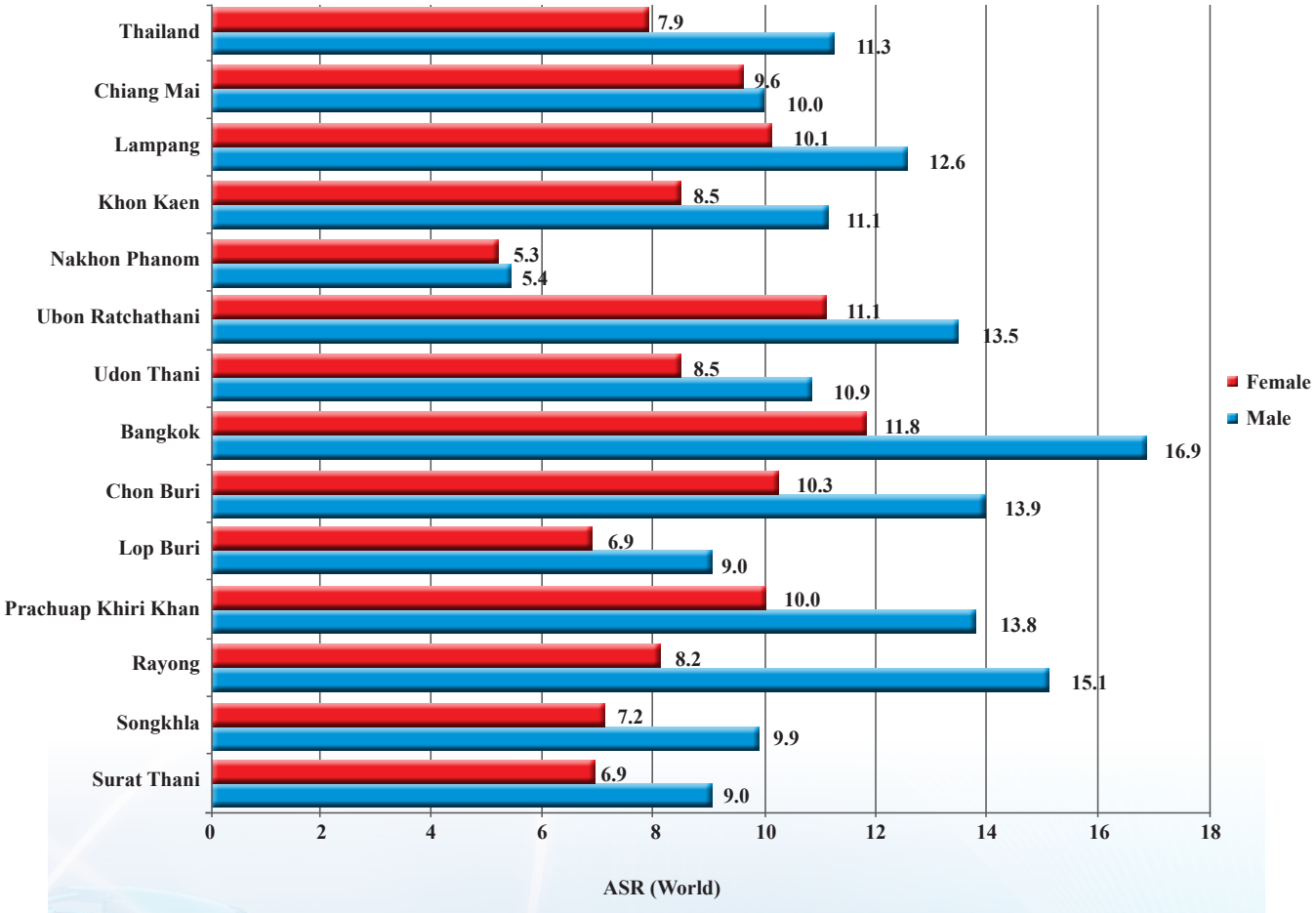
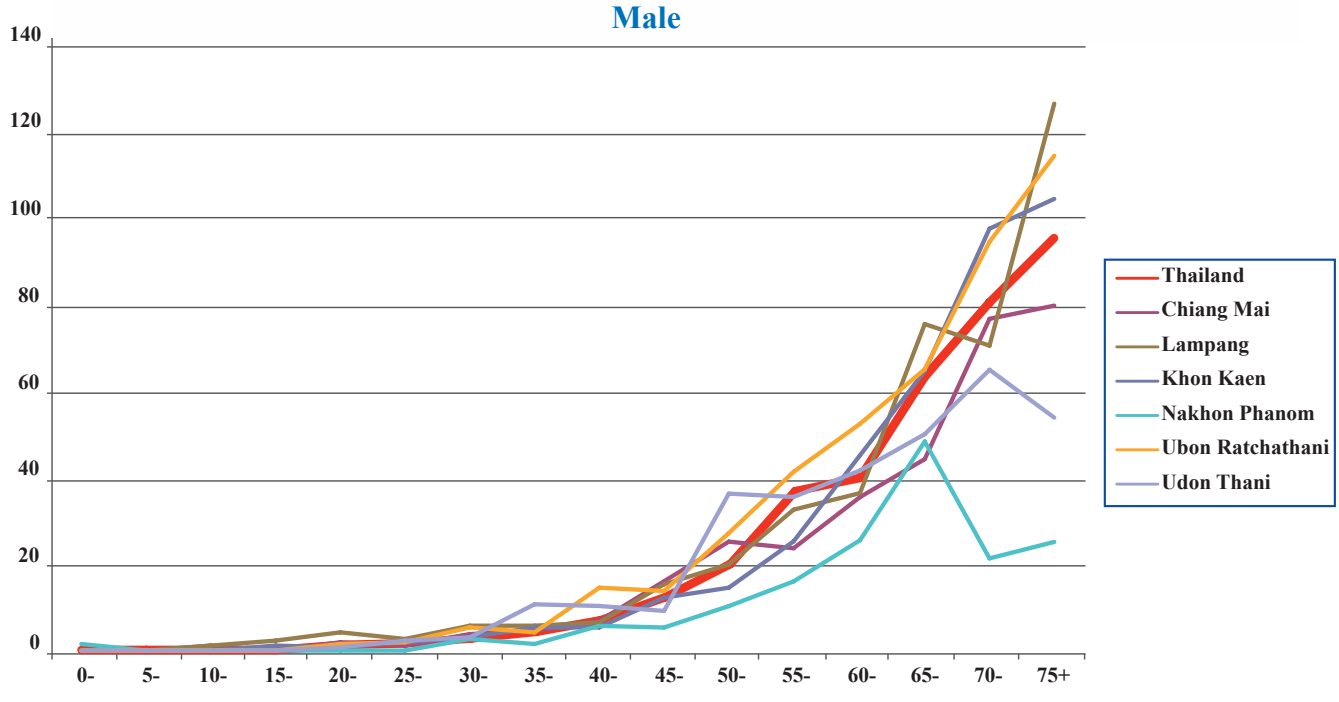
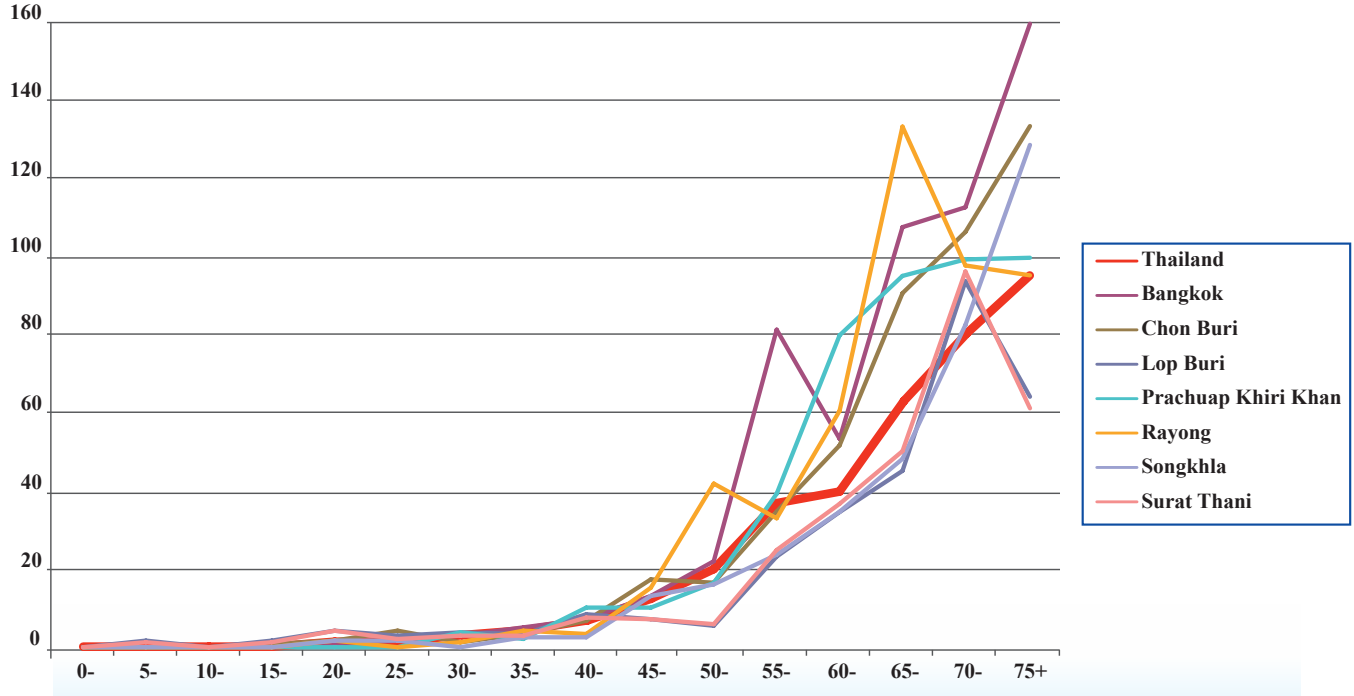


Figure 2.8.2 Age-specific incidence rates of colon and rectum cancer, 2001-2003





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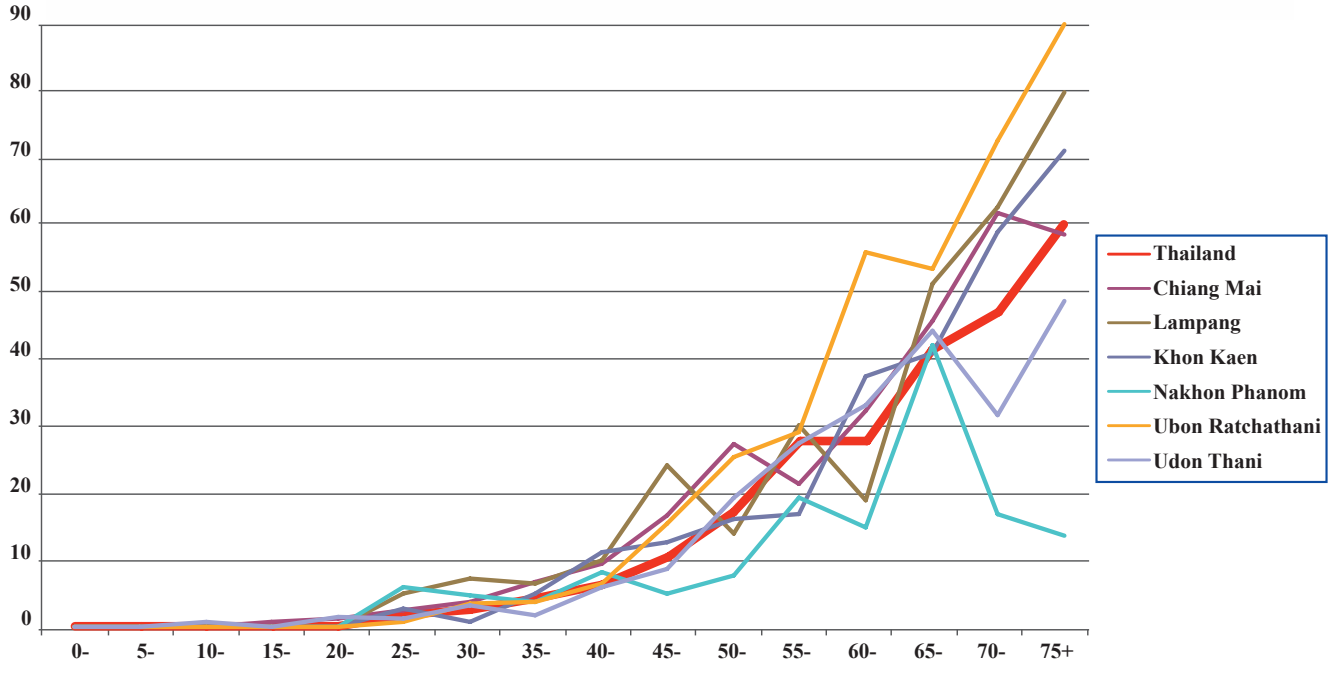
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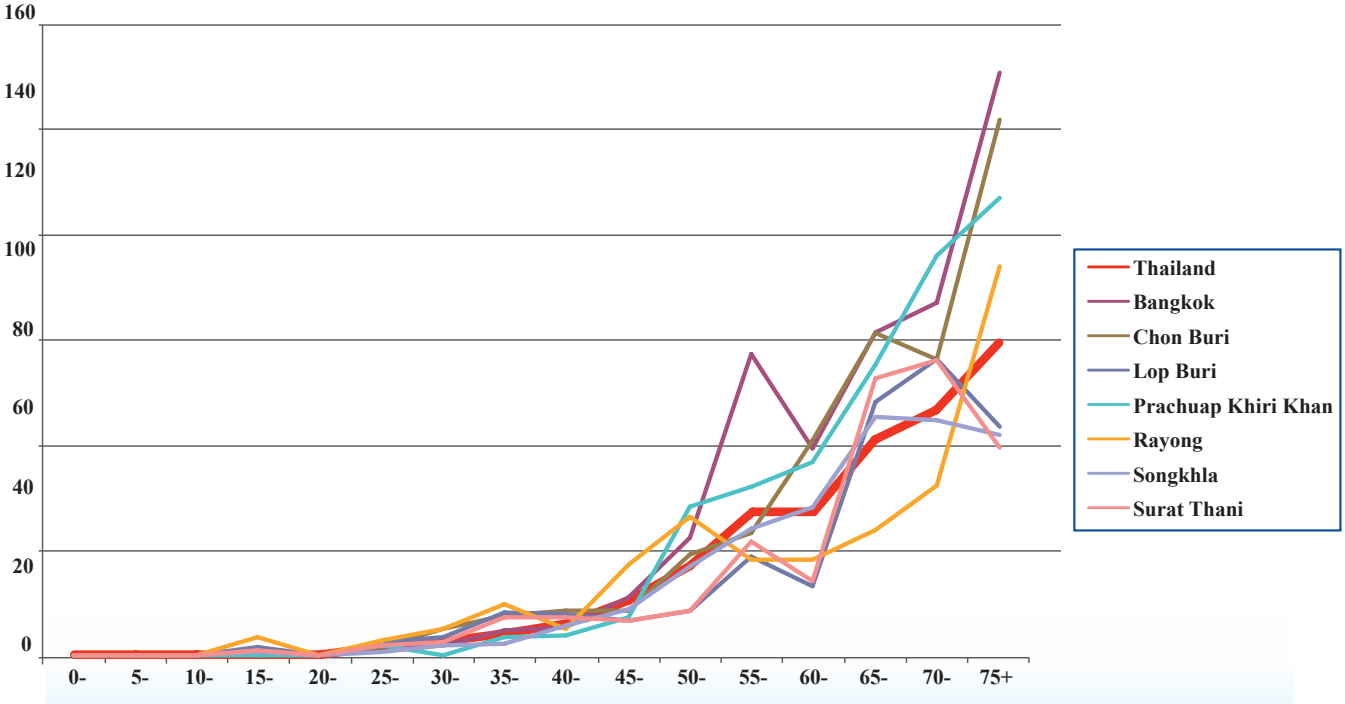
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Liver and Bile duct

Figure 2.9.1 Liver and Bile duct cancer in different regions, 2001-2003

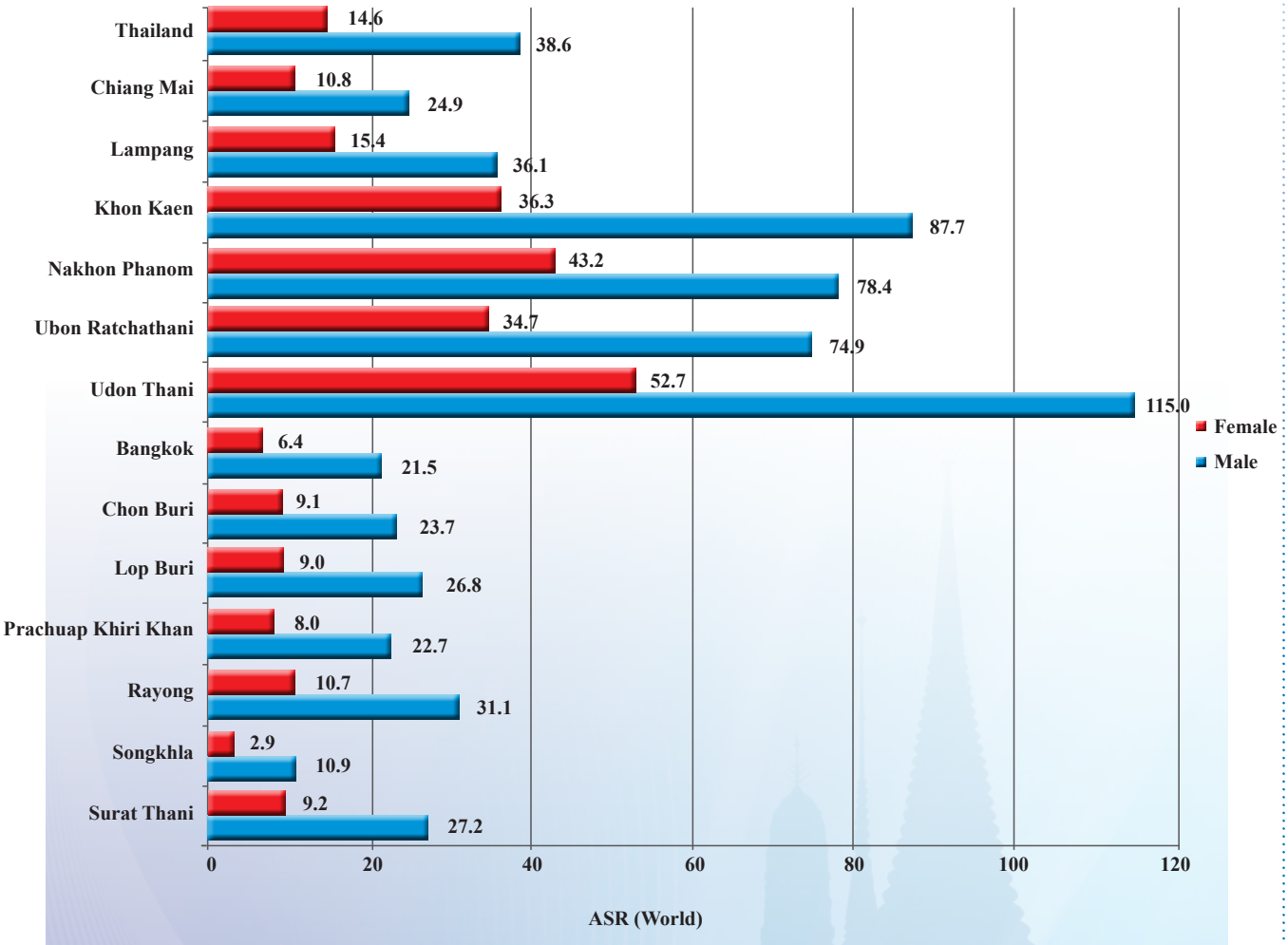
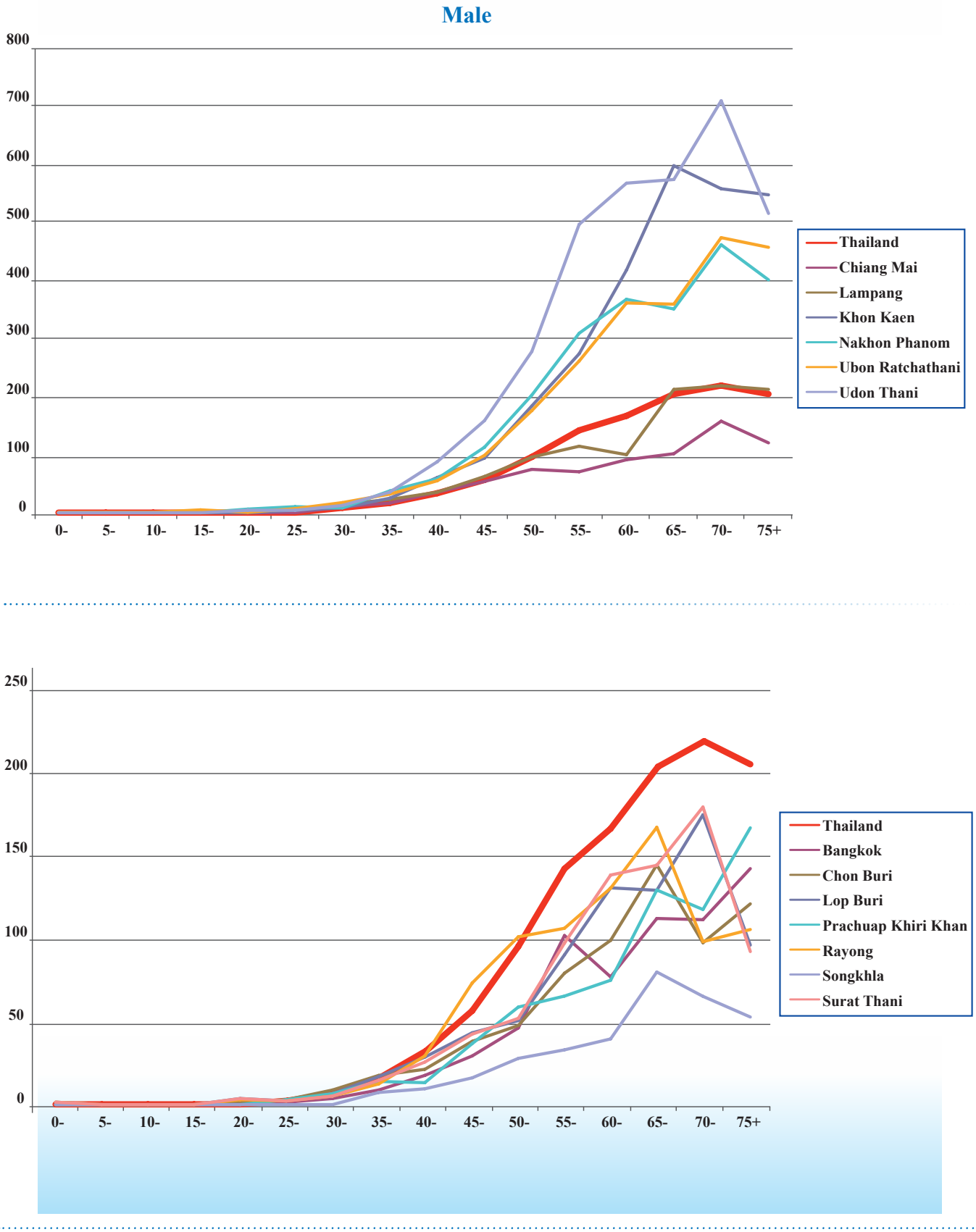


Figure 2.9.2 Age-specific incidence rates of liver and bile duct cancer, 2001-2003



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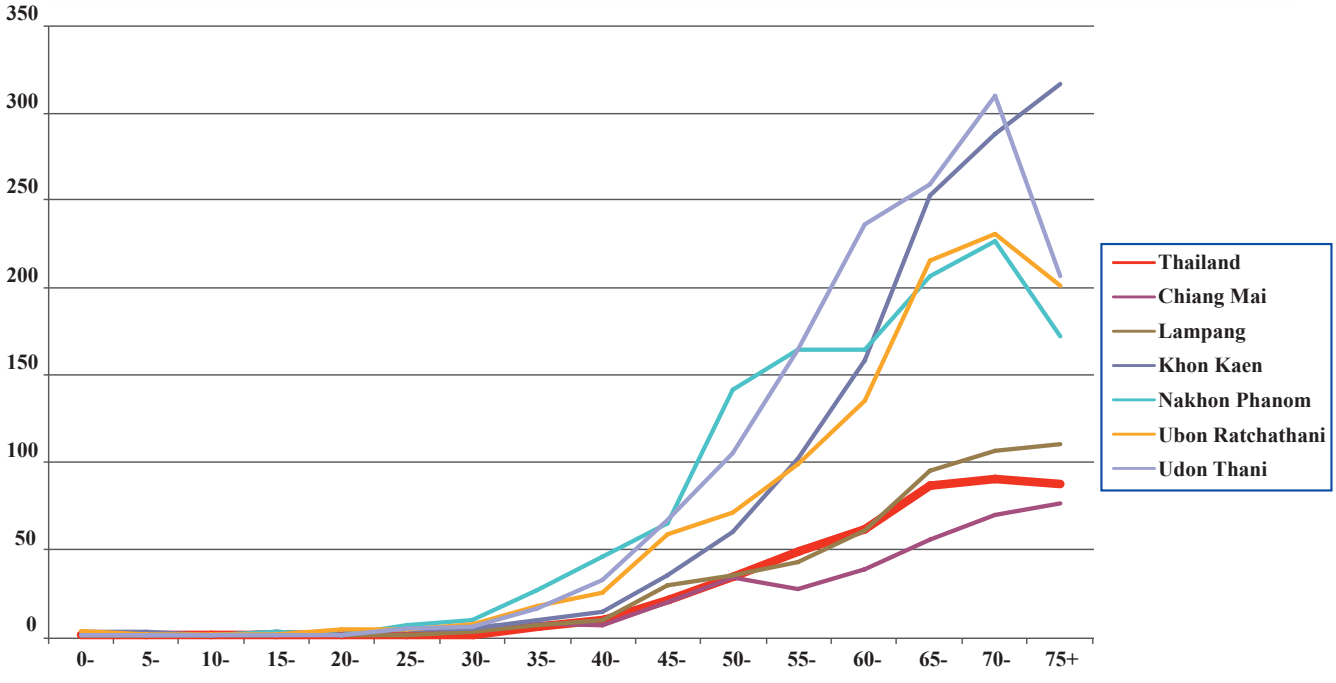
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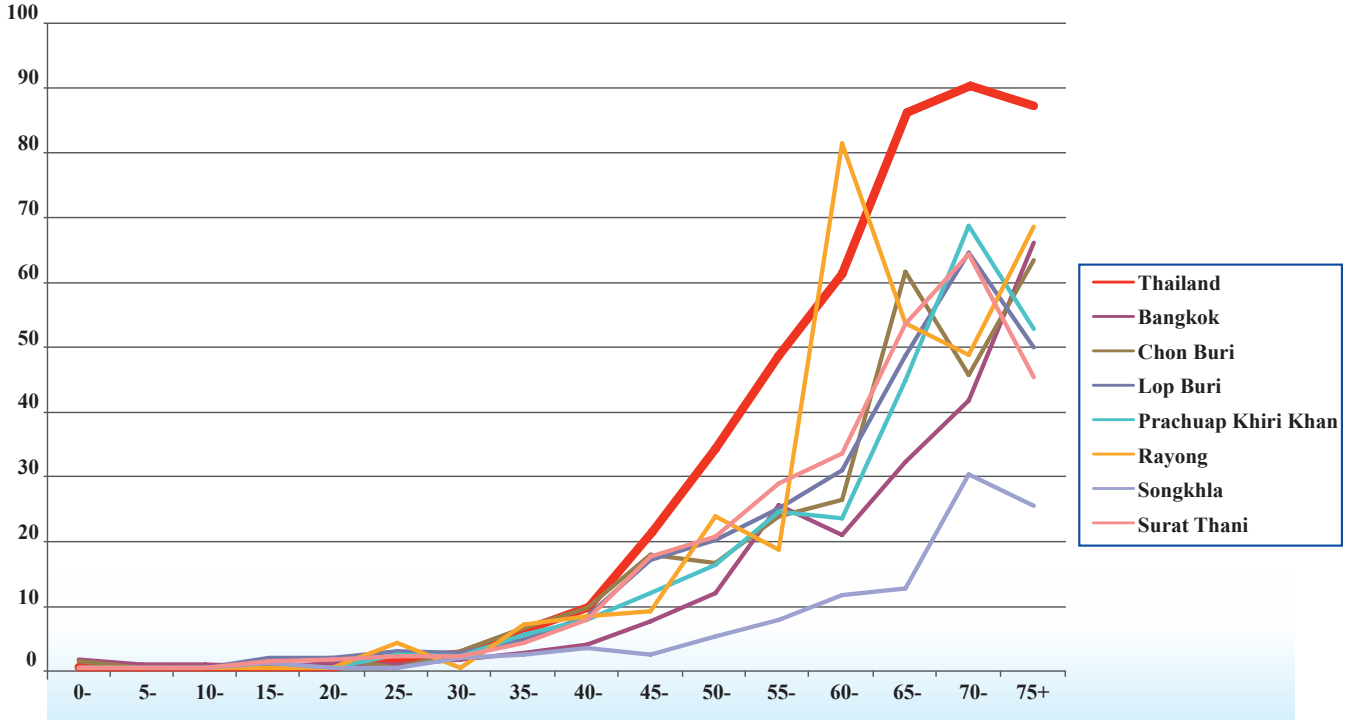
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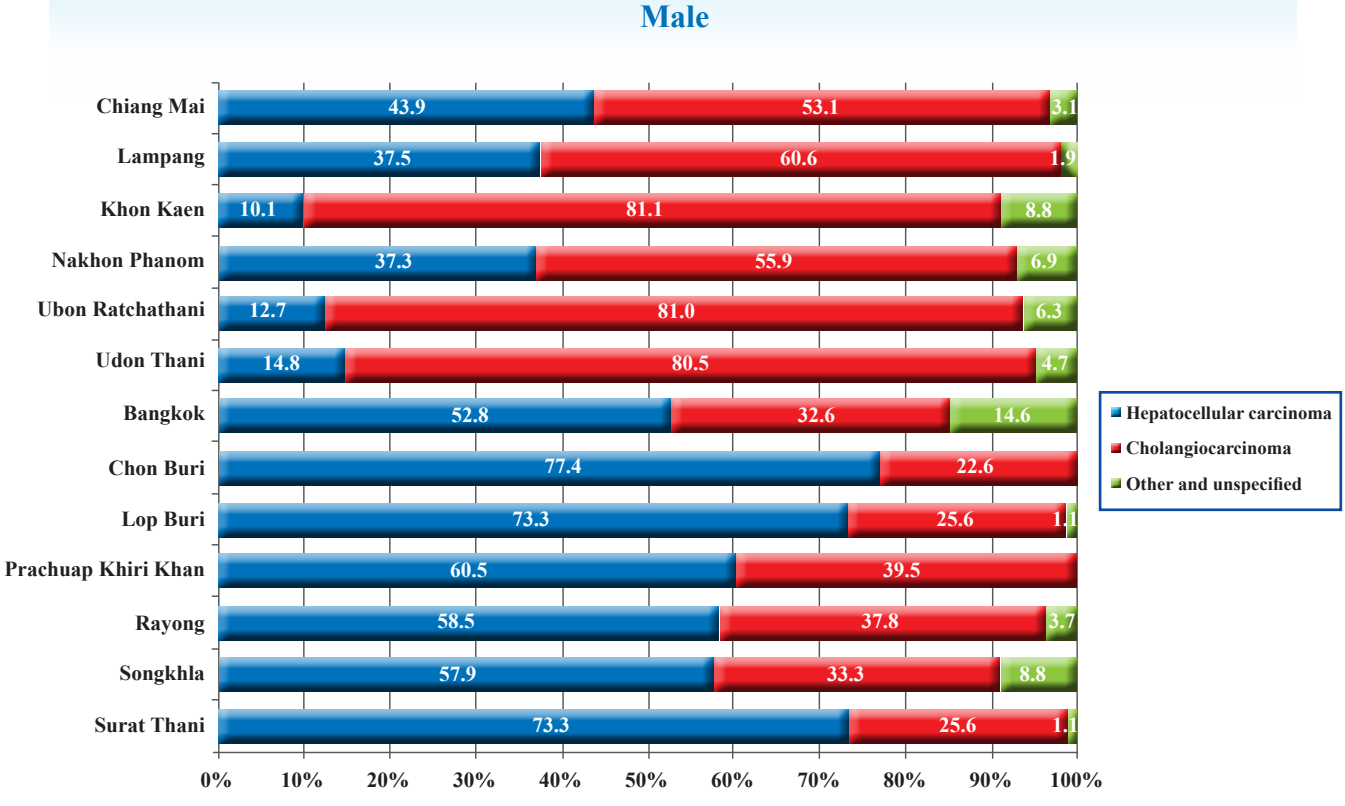
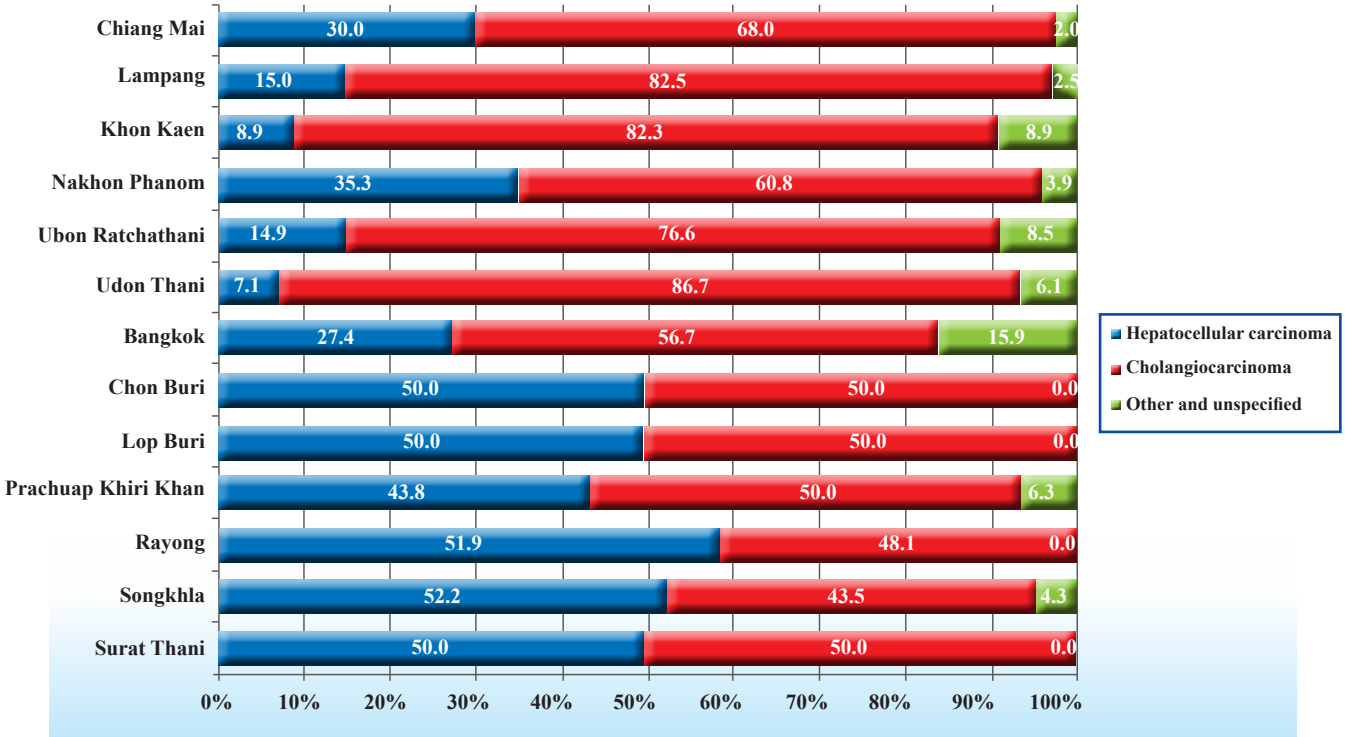
Figure 2.9.3 Histological types of liver and bile duct cancer, 2001-2003





Larynx

Figure 2.10.1 Larynx cancer in different regions, 2001-2003

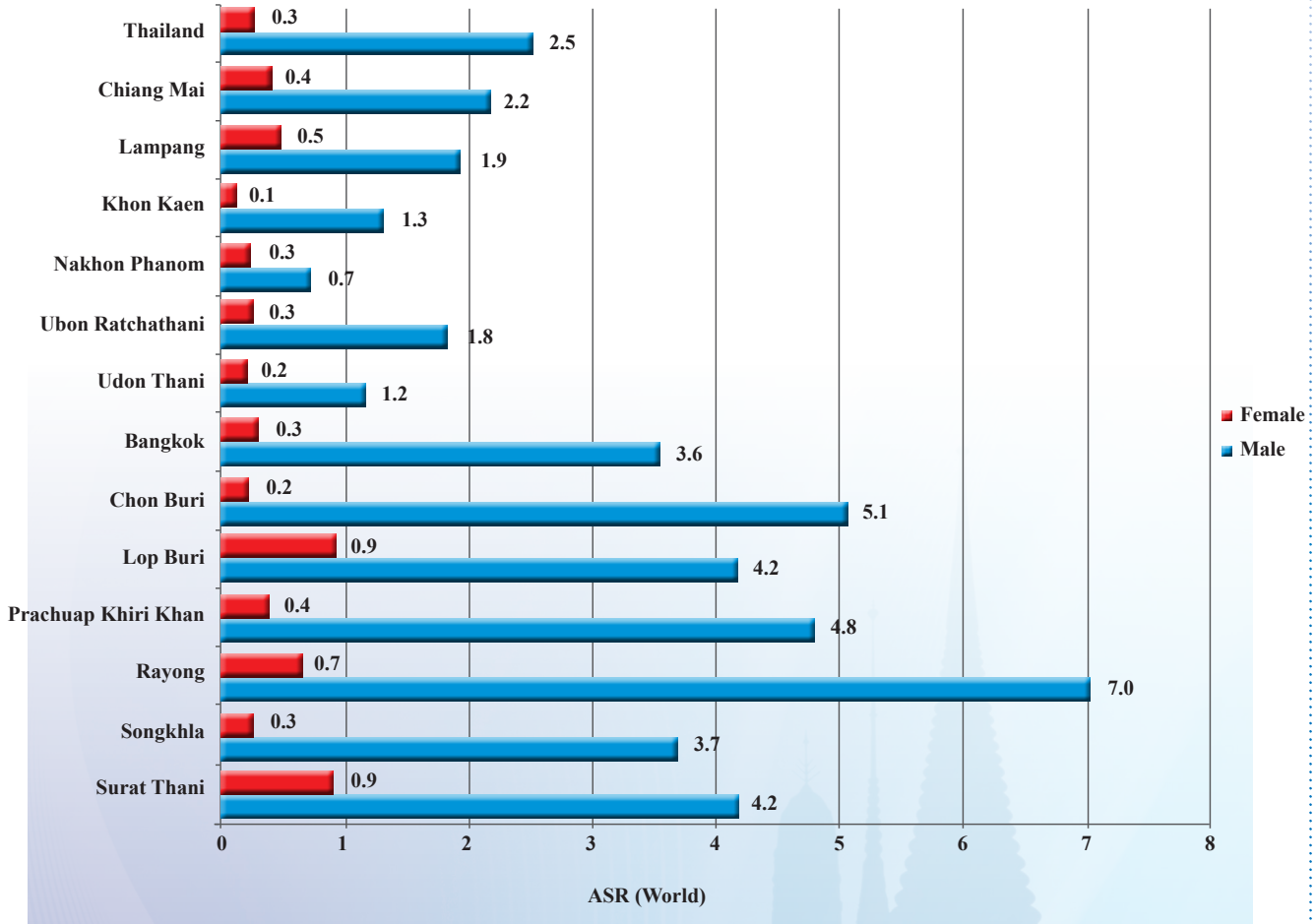


Figure 2.10.2 Age-specific incidence rates of larynx cancer, 2001-2003

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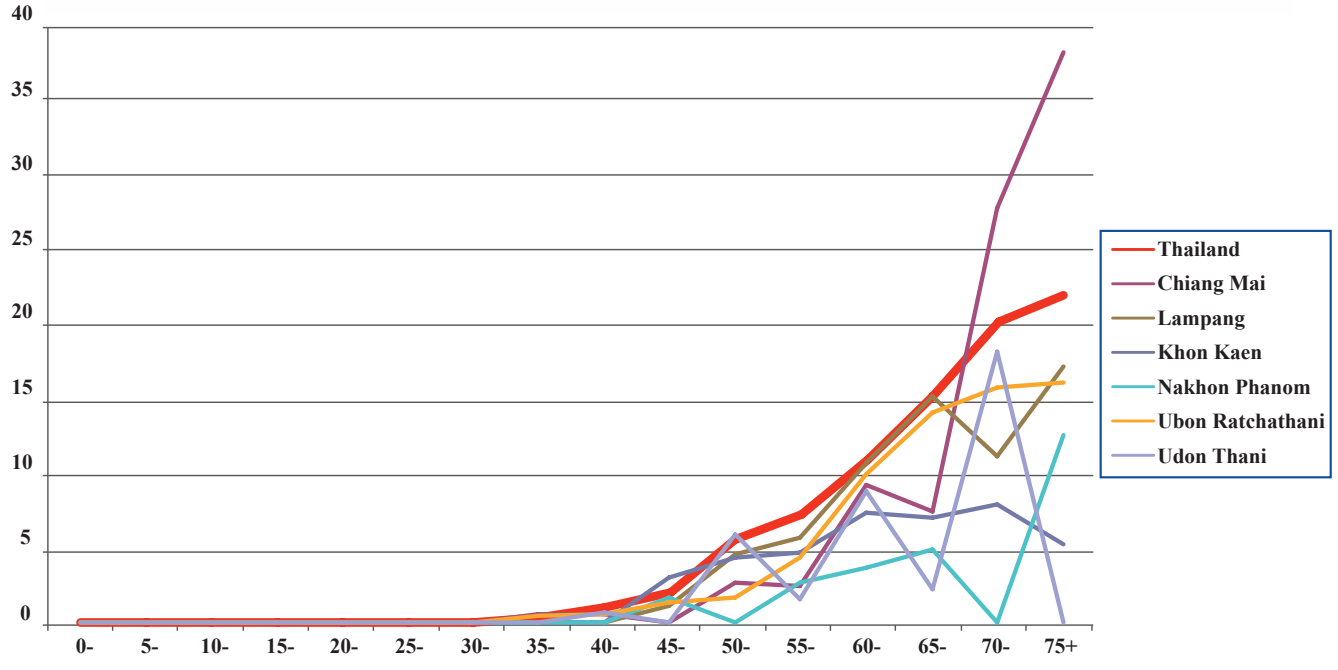

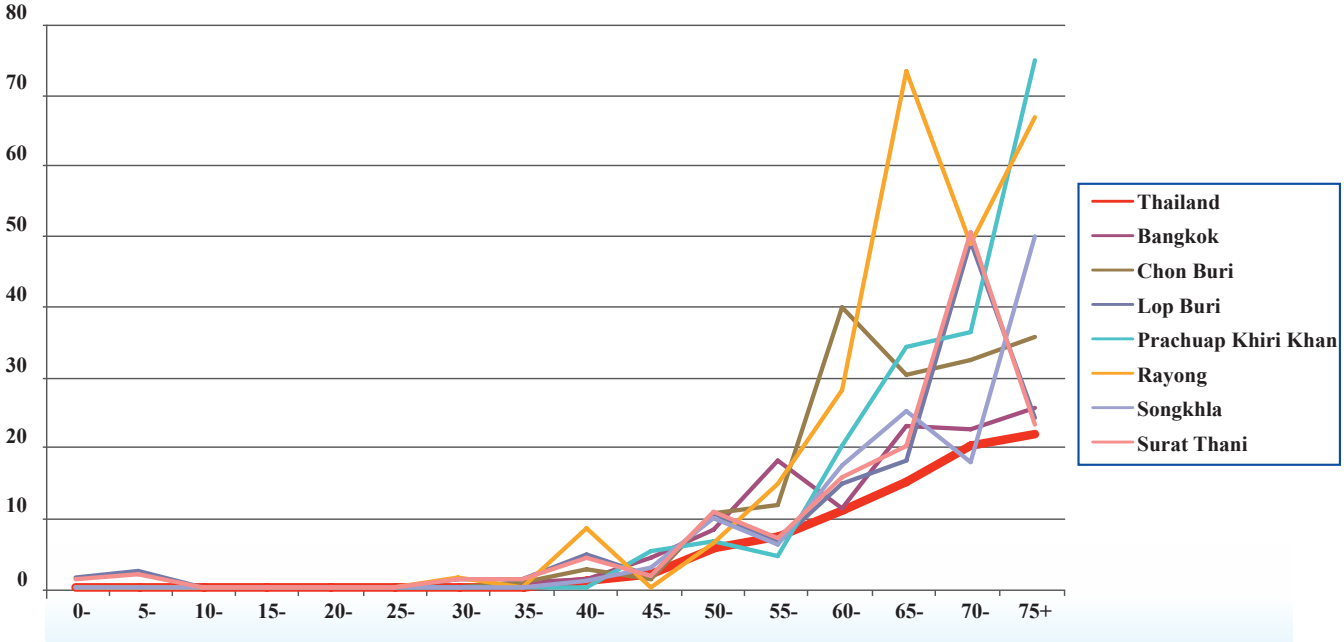

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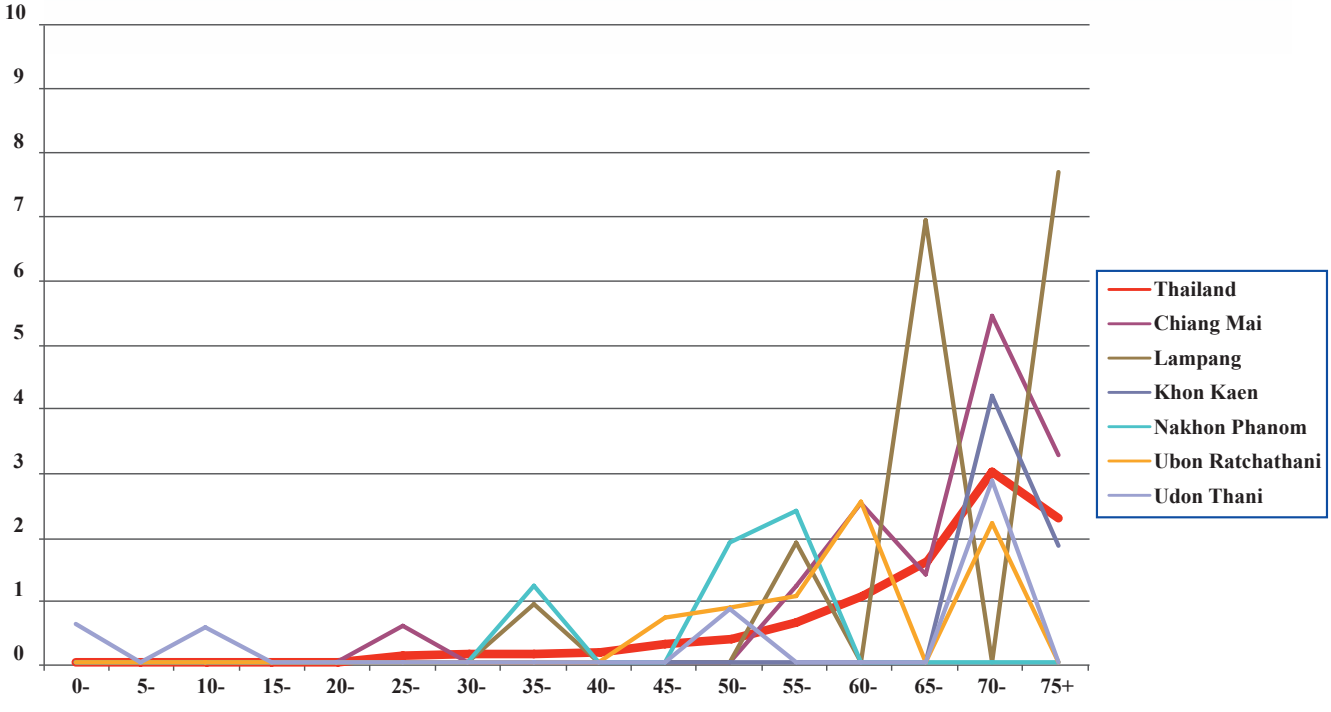
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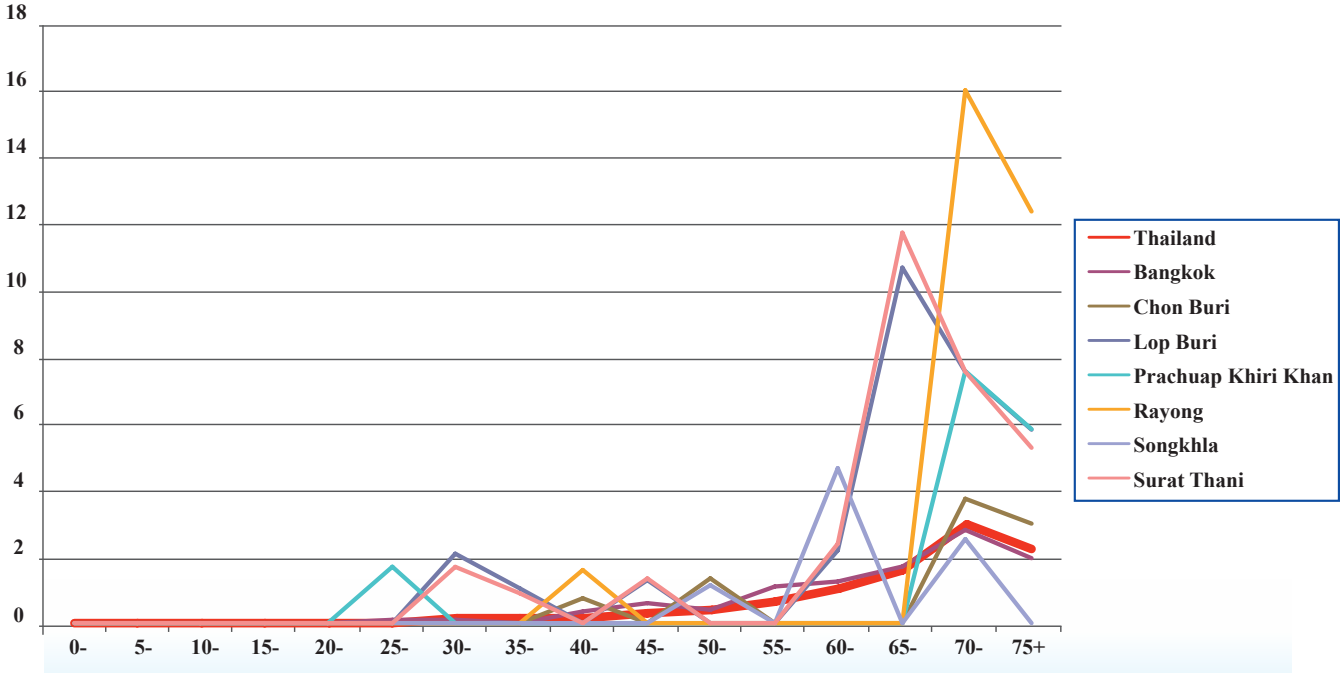
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Rayong
Songkhla
Surat Thani

Trachea, bronchus and lung

Figure 2.11.1 Trachea, bronchus and lung cancer in different regions, 2001-2003

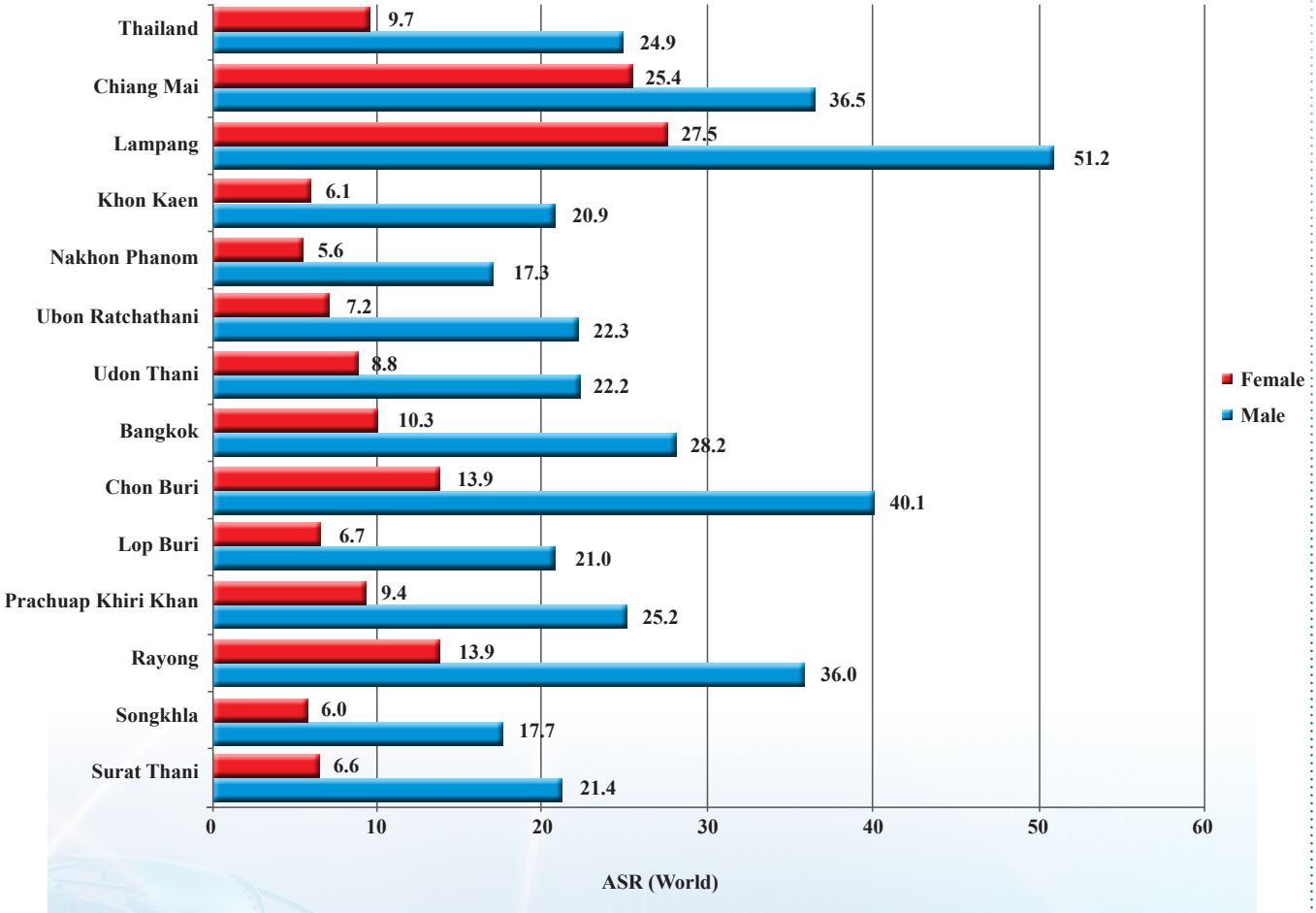
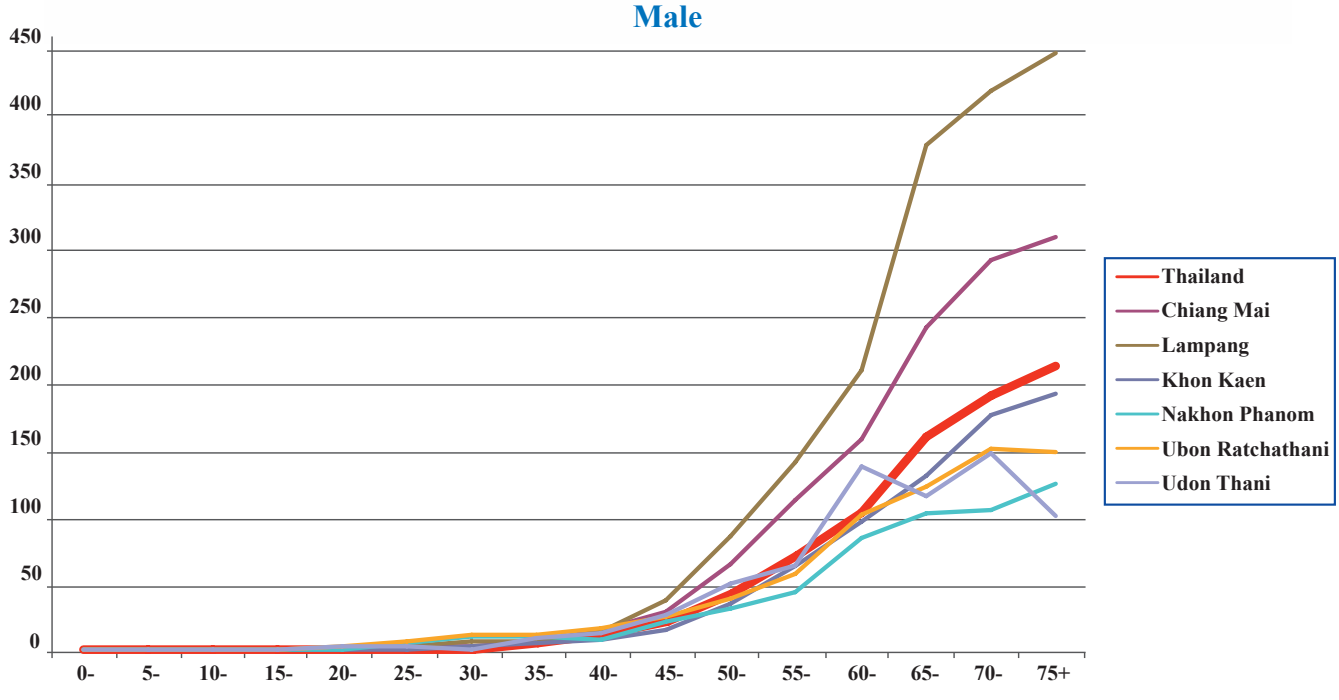
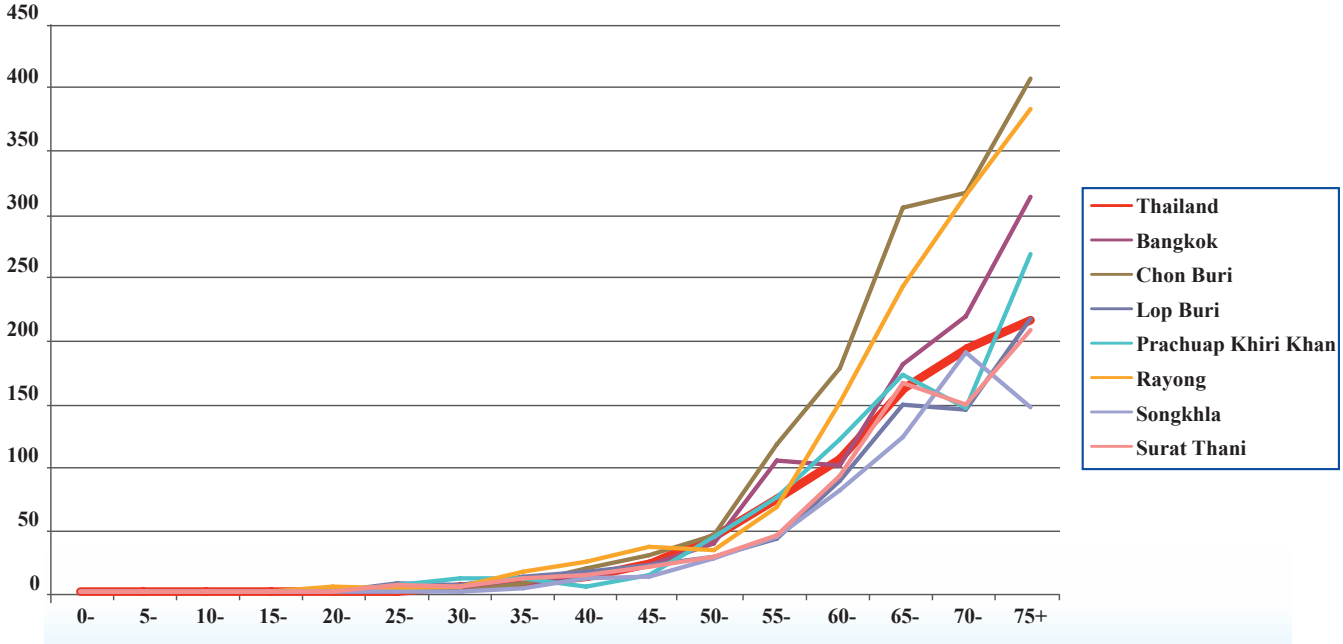


Figure 2.11.2 Age-specific incidence rates of Trachea, bronchus and lung cancer, 2001-2003





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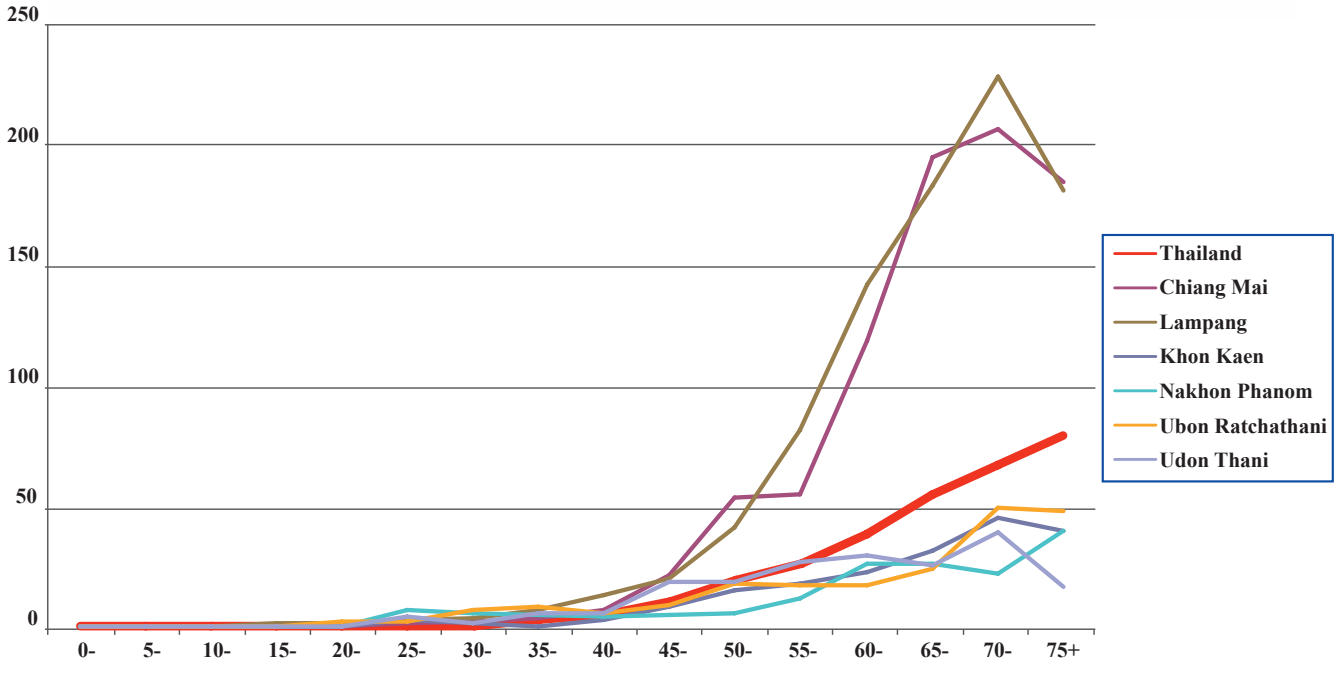
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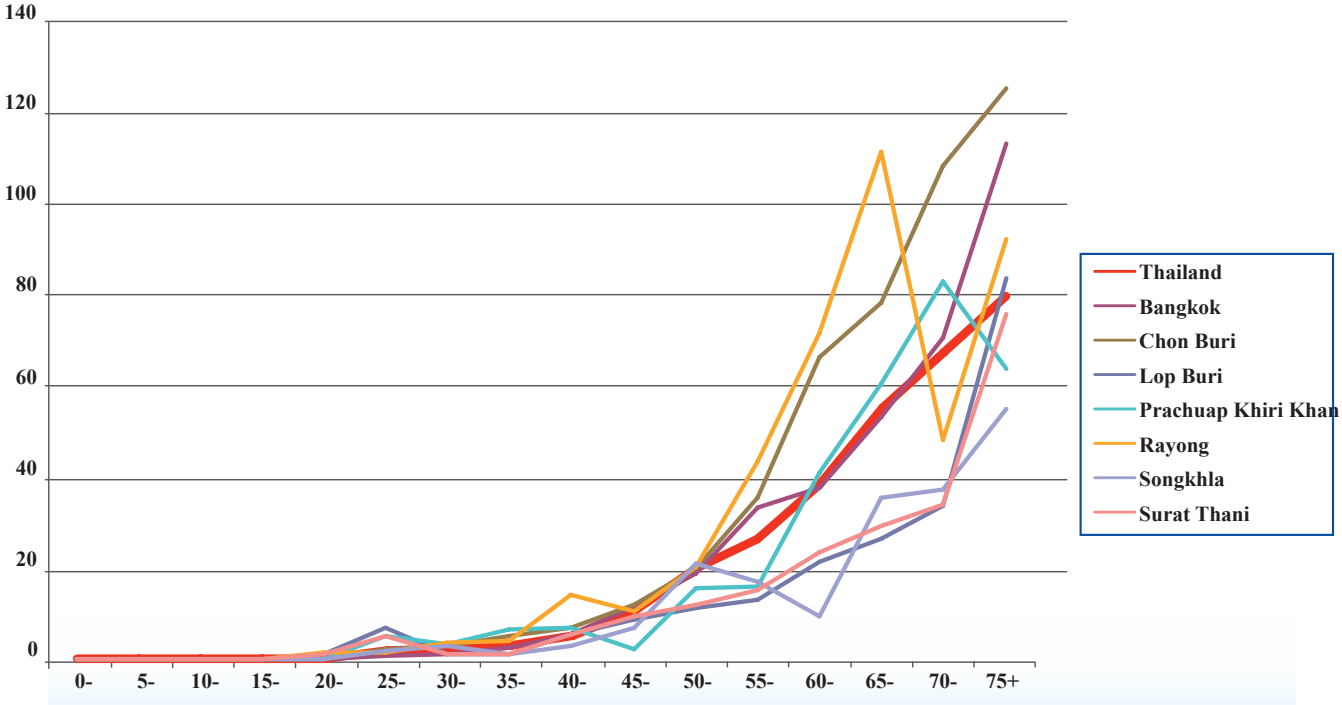
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Rayong
Songkhla
Surat Thani

Figure 2.11.3 Histological types of trachea, bronchus and lung cancer, 2001-2003

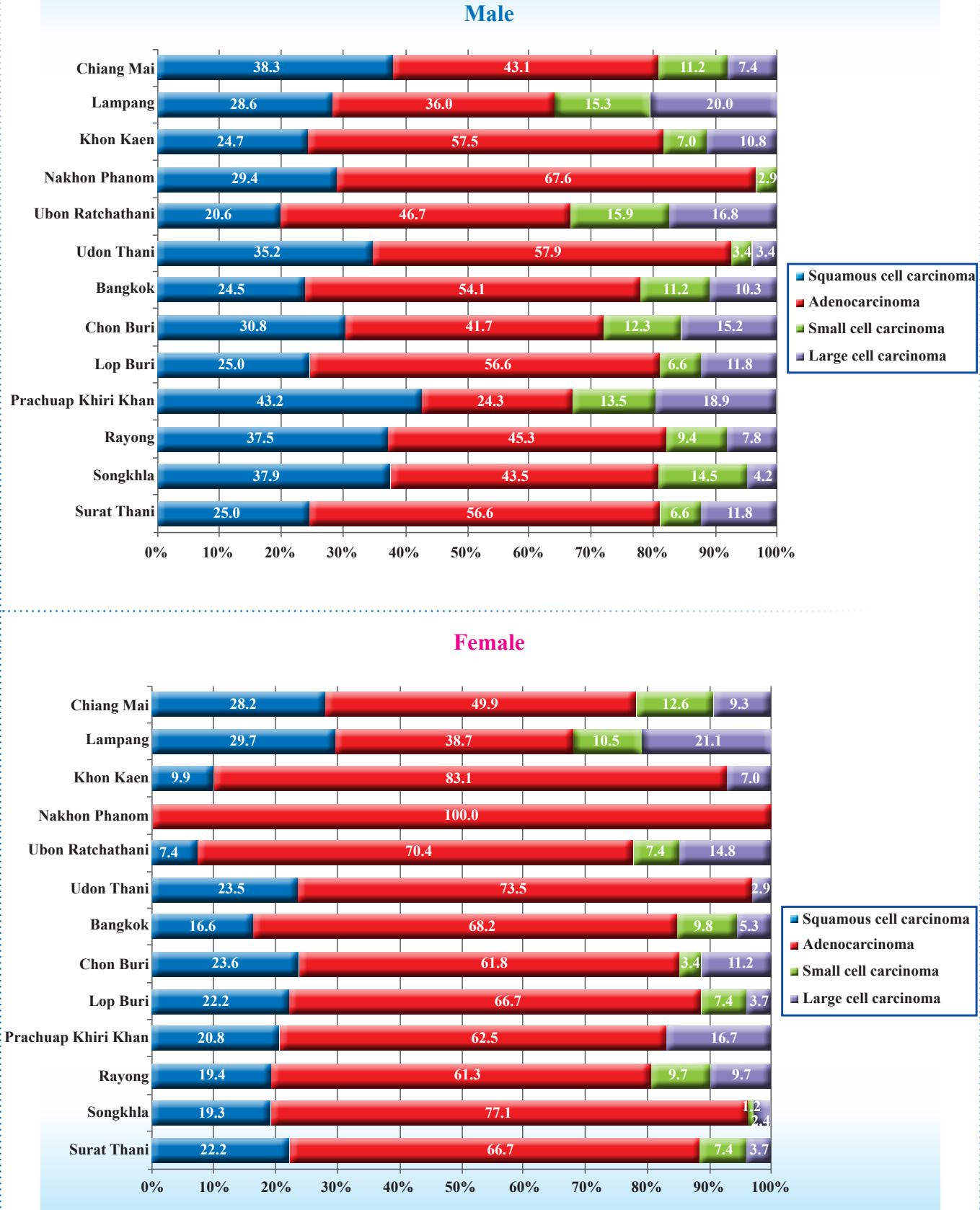
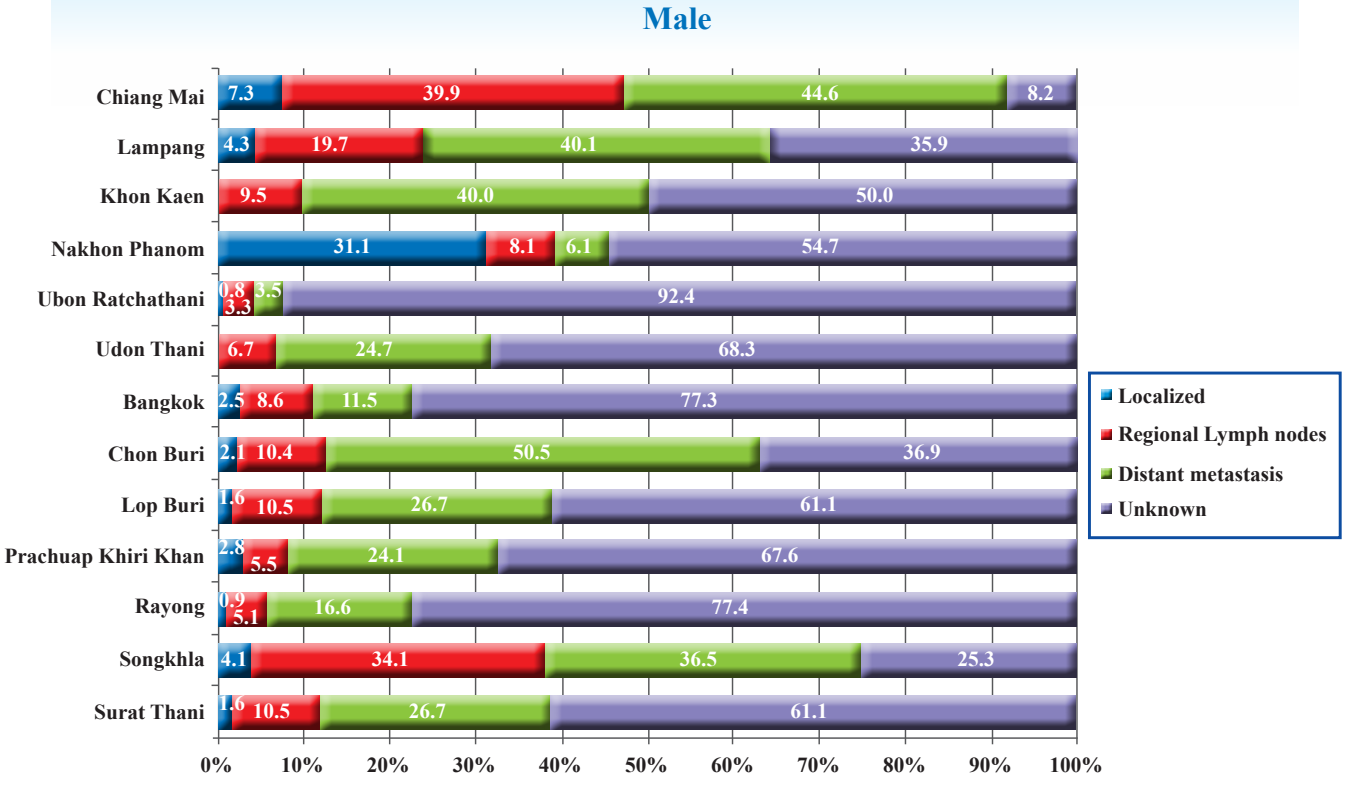
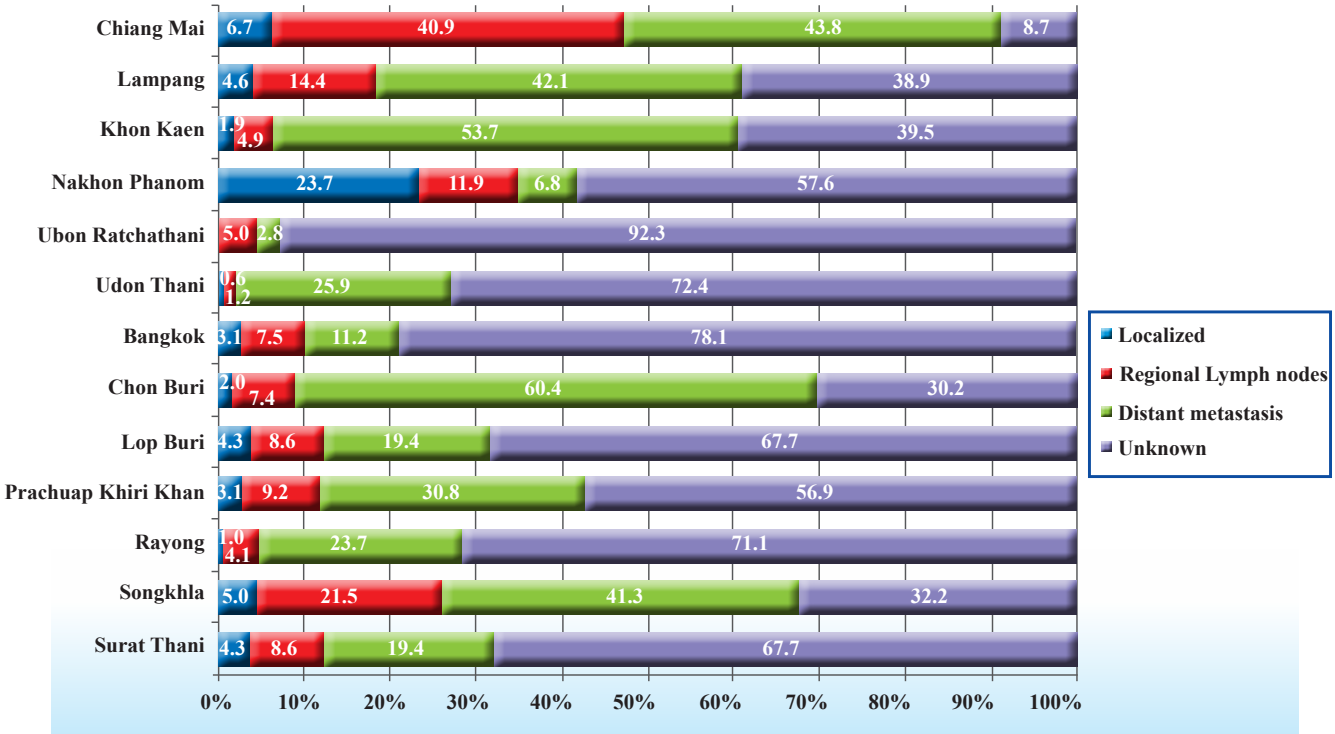


Figure 2.11.4 Stage distribution of trachea, bronchus and lung cancer, 2001-2003





Skin

Figure 2.12.1 Skin cancer in different regions, 2001-2003

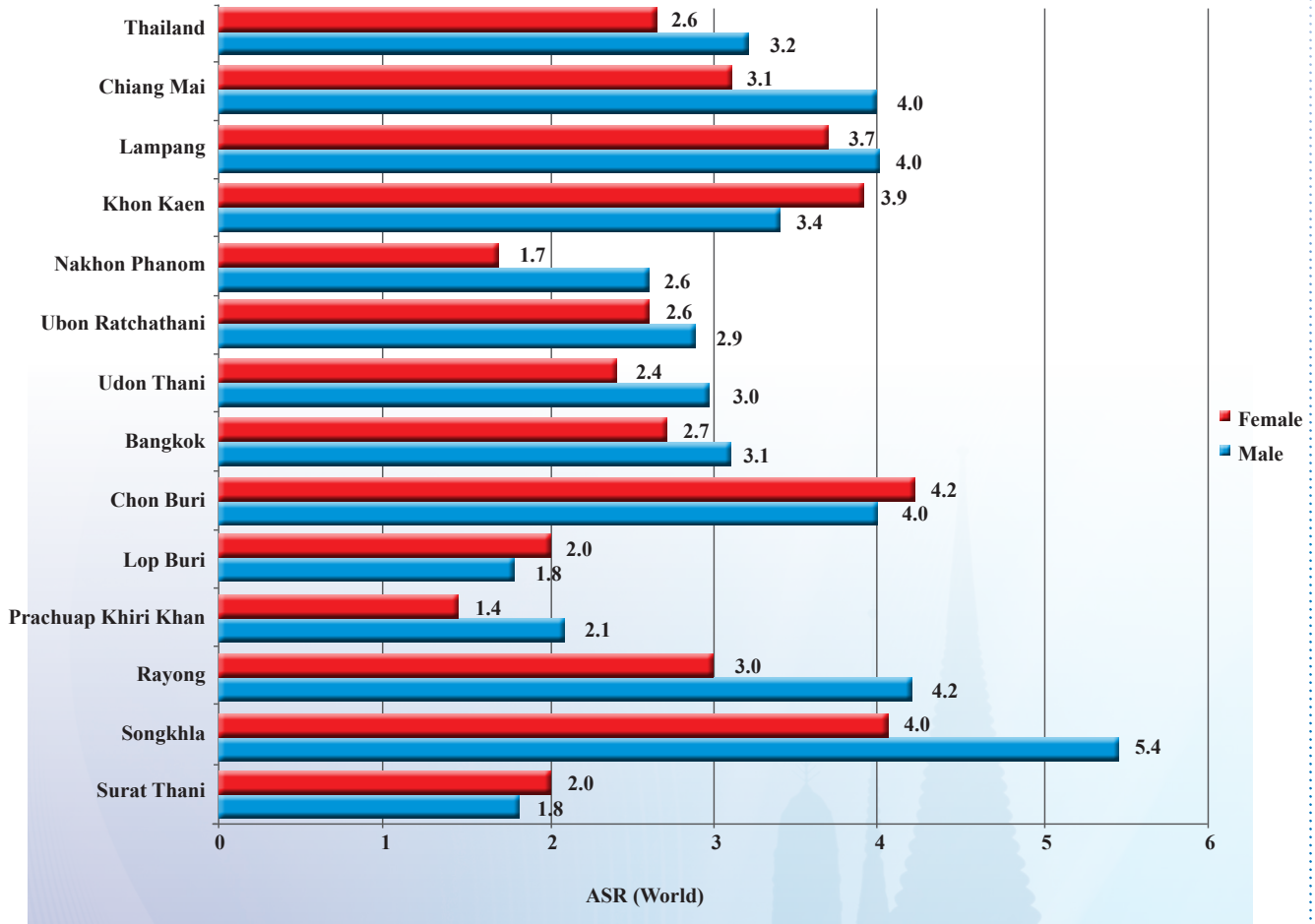
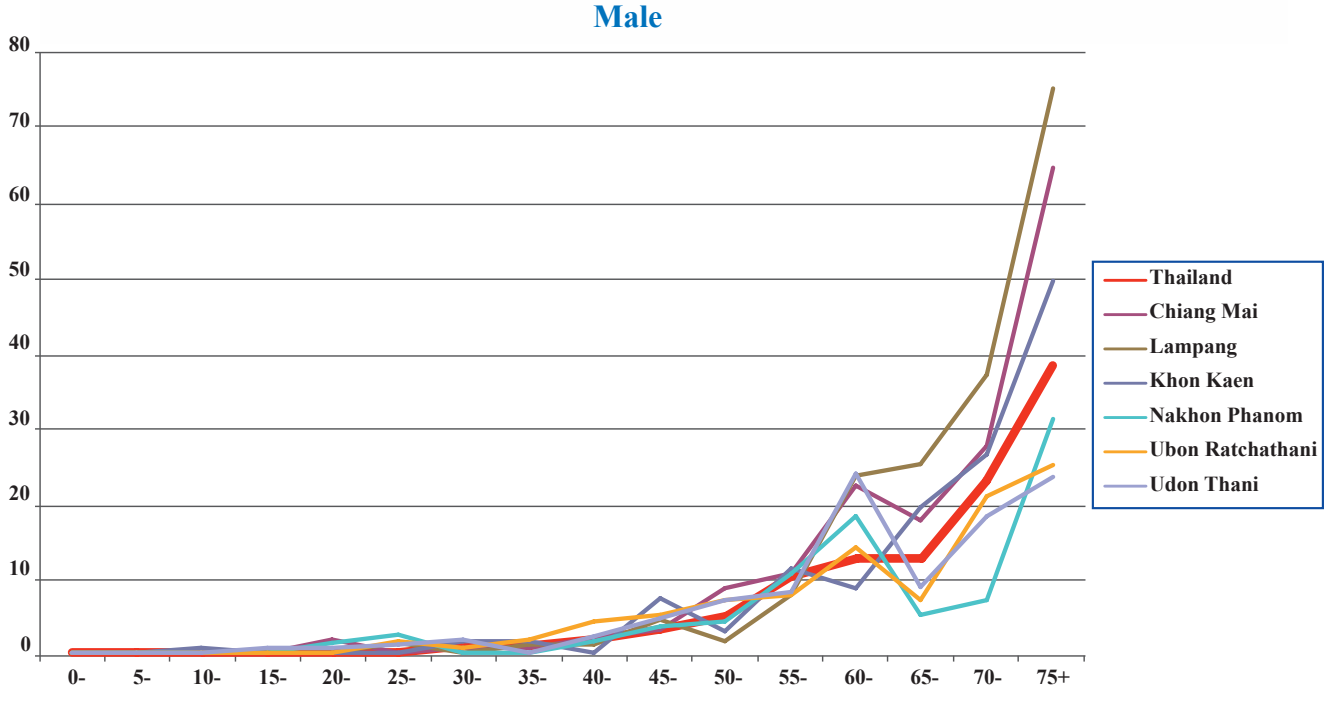
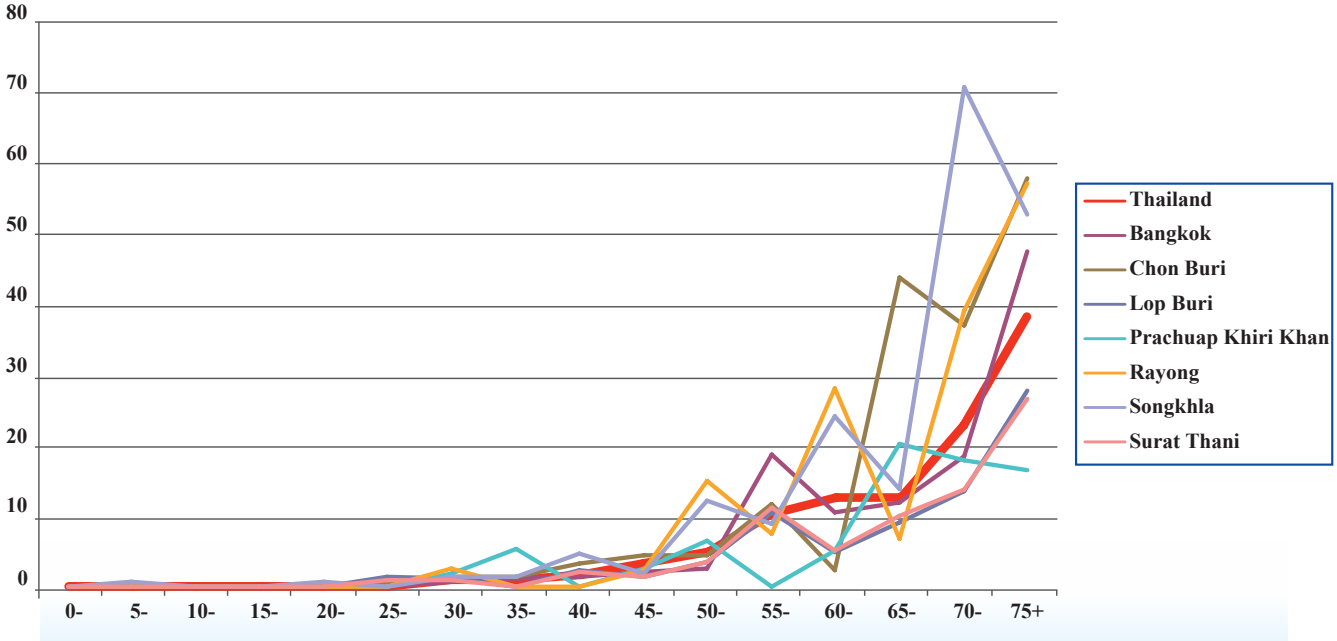


Figure 2.12.2 Age-specific incidence rates of skin cancer, 2001-2003





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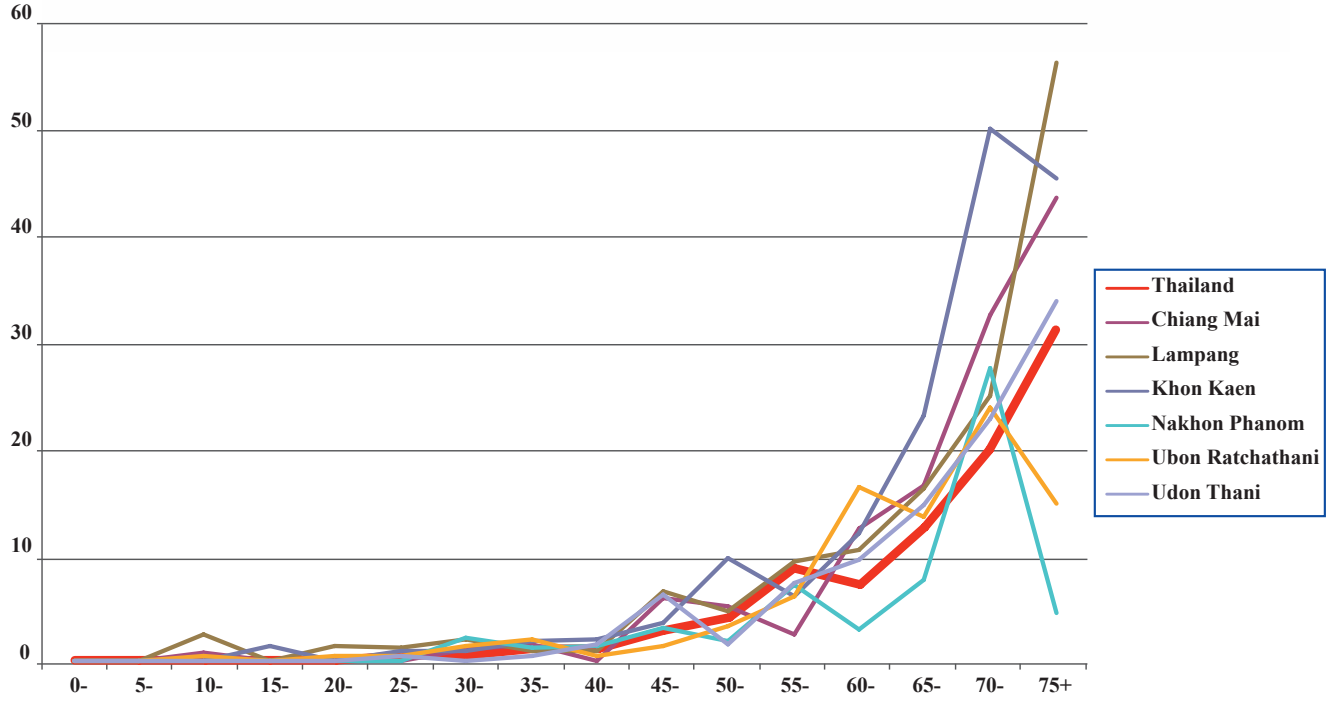
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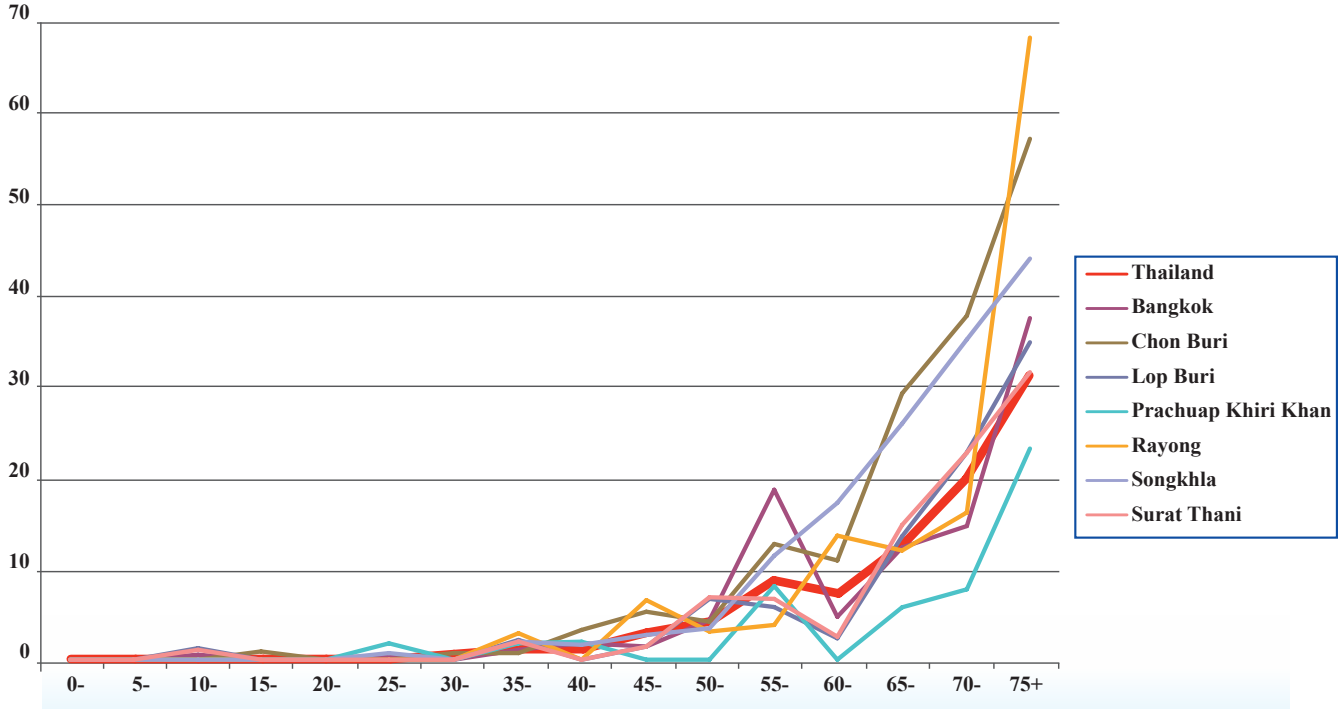
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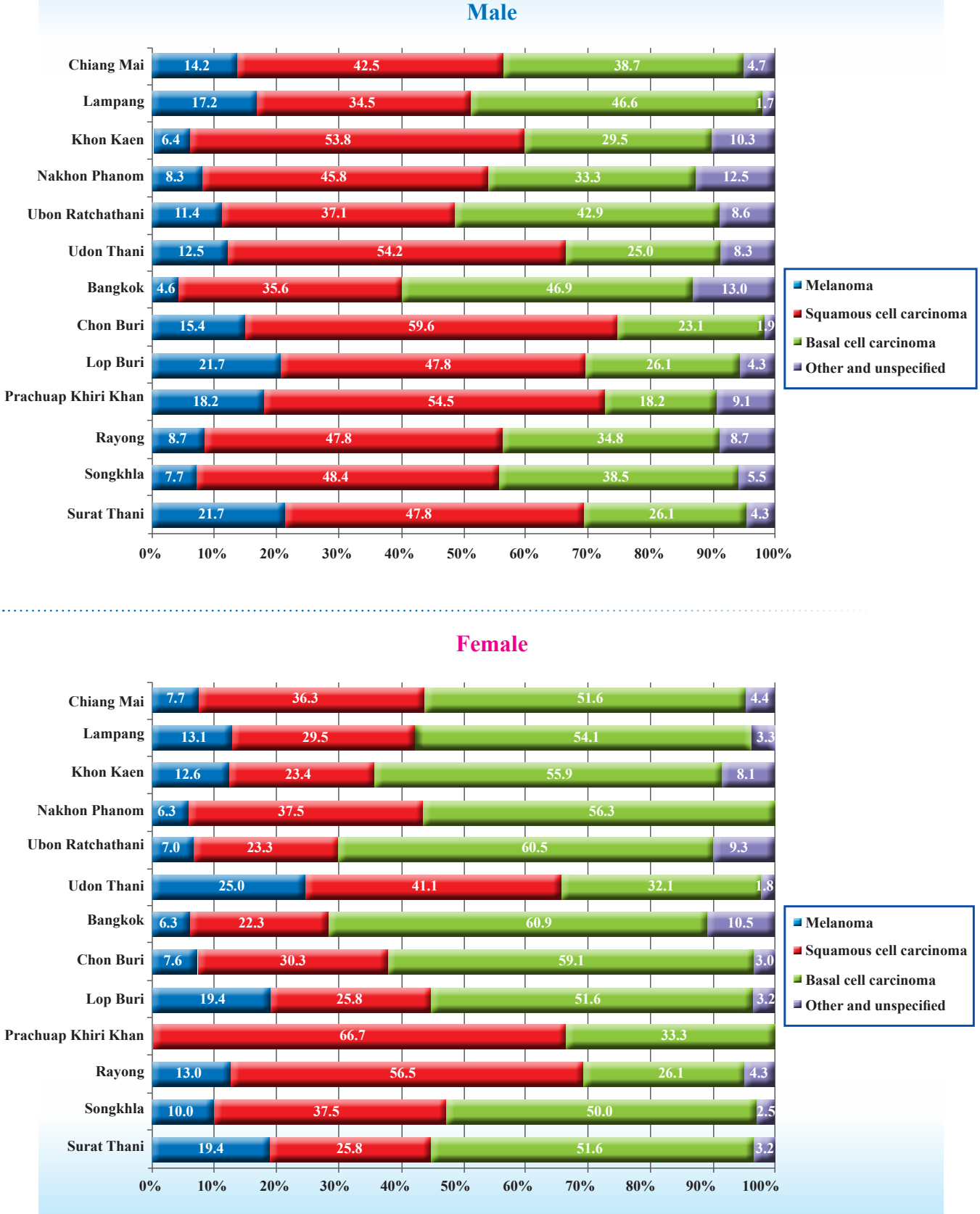
Figure 2.12.3 Histological types of skin cancer, 2001-2003



Breast

Figure 2.13.1 Breast cancer in different regions, 2001-2003

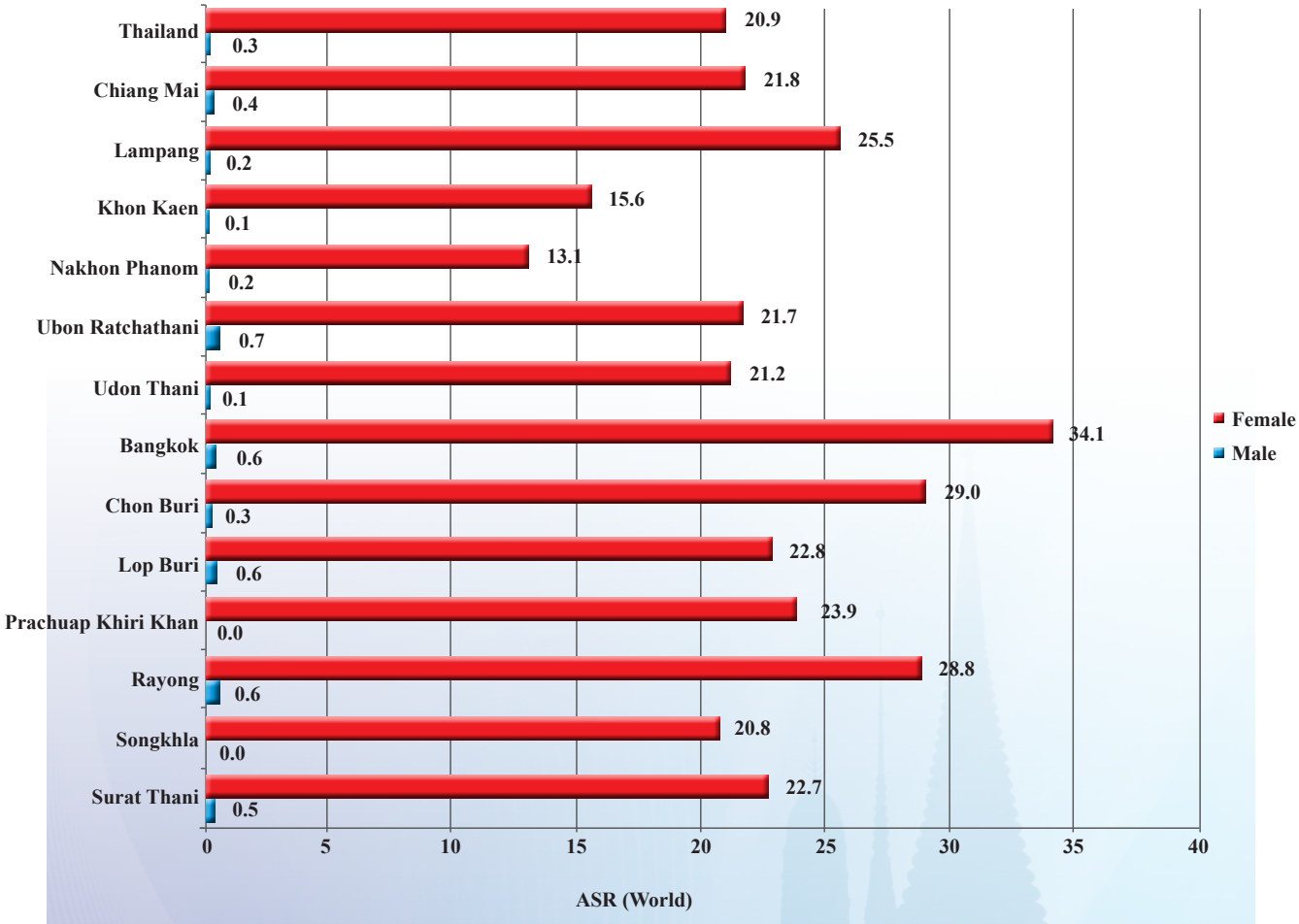
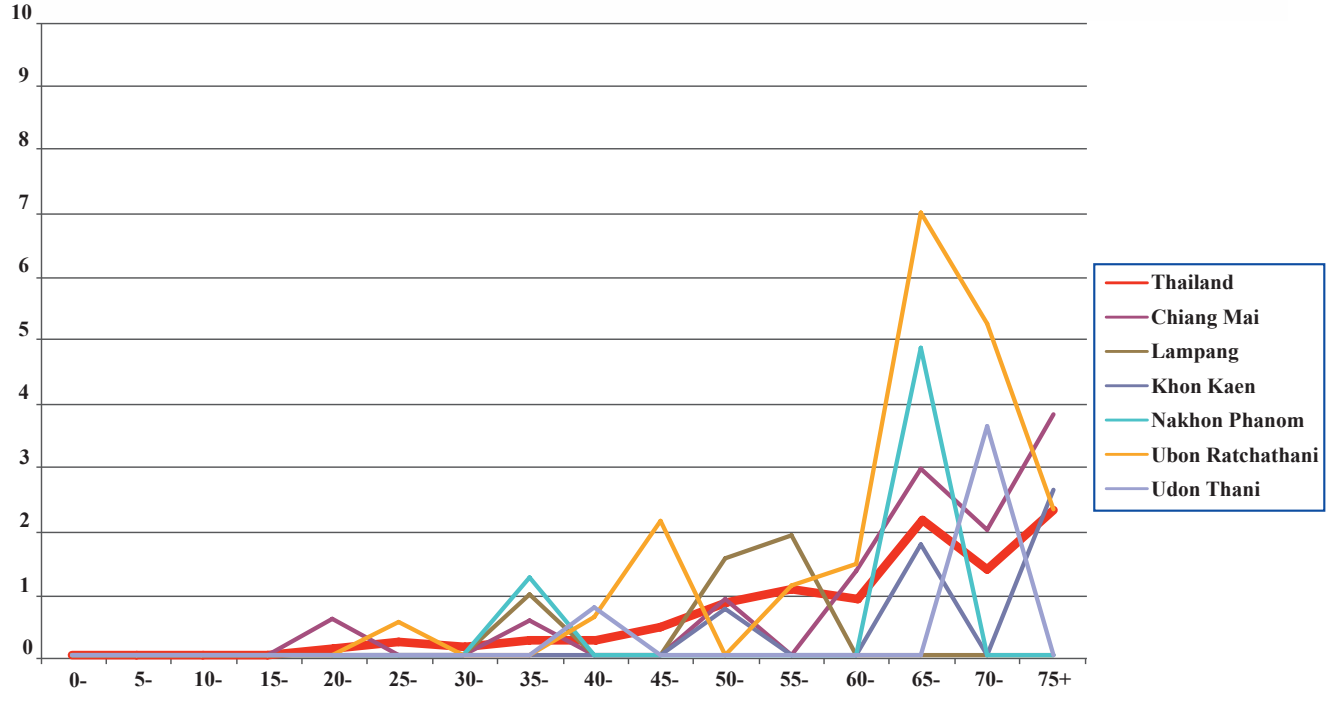
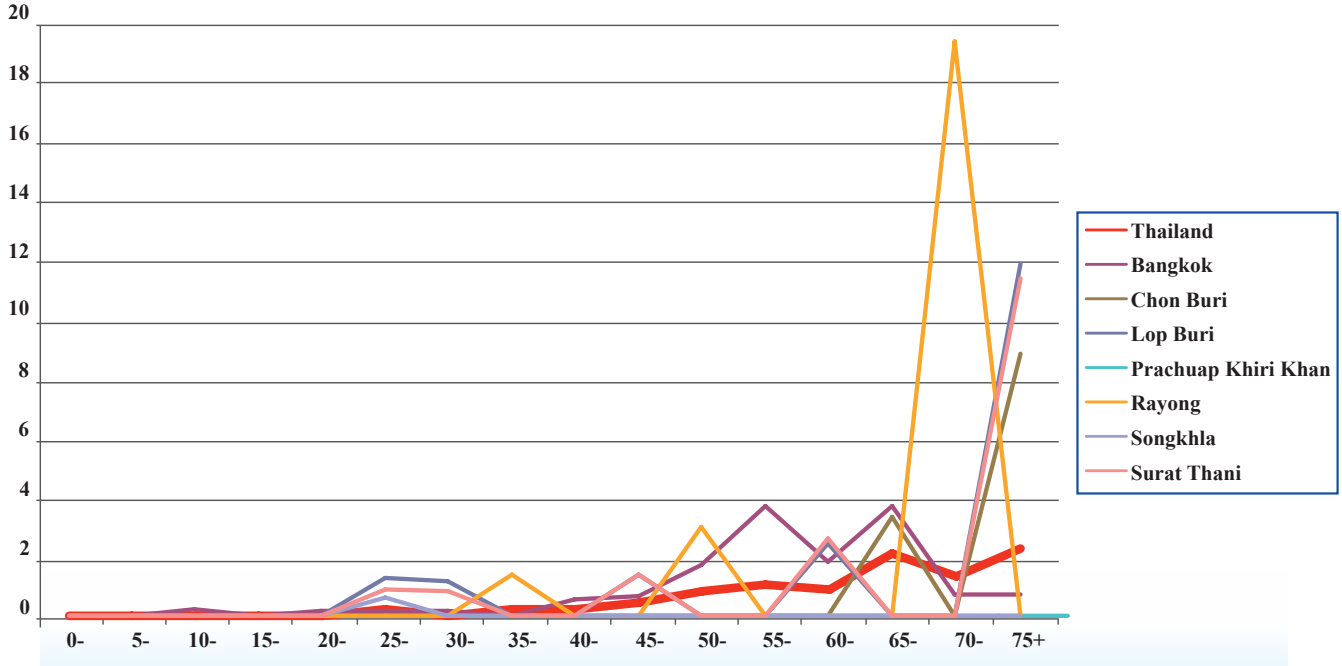


Figure 2.13.2 Age-specific incidence rates of breast cancer, 2001-2003

Male





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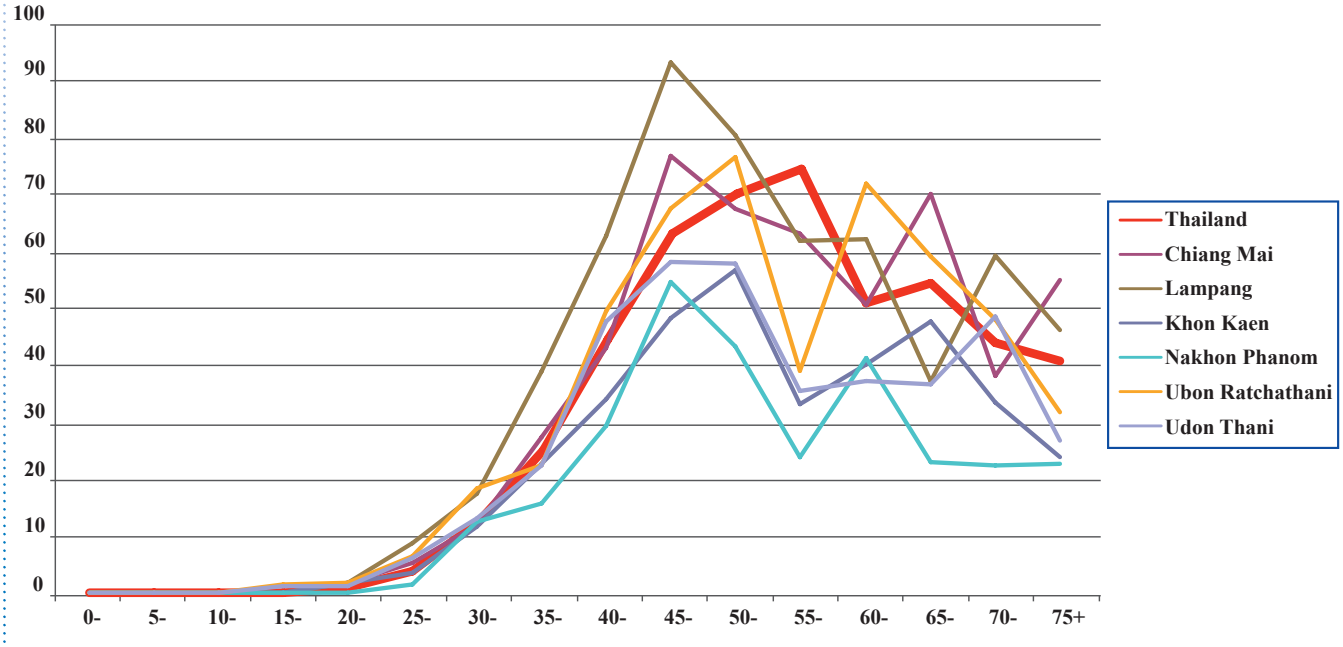
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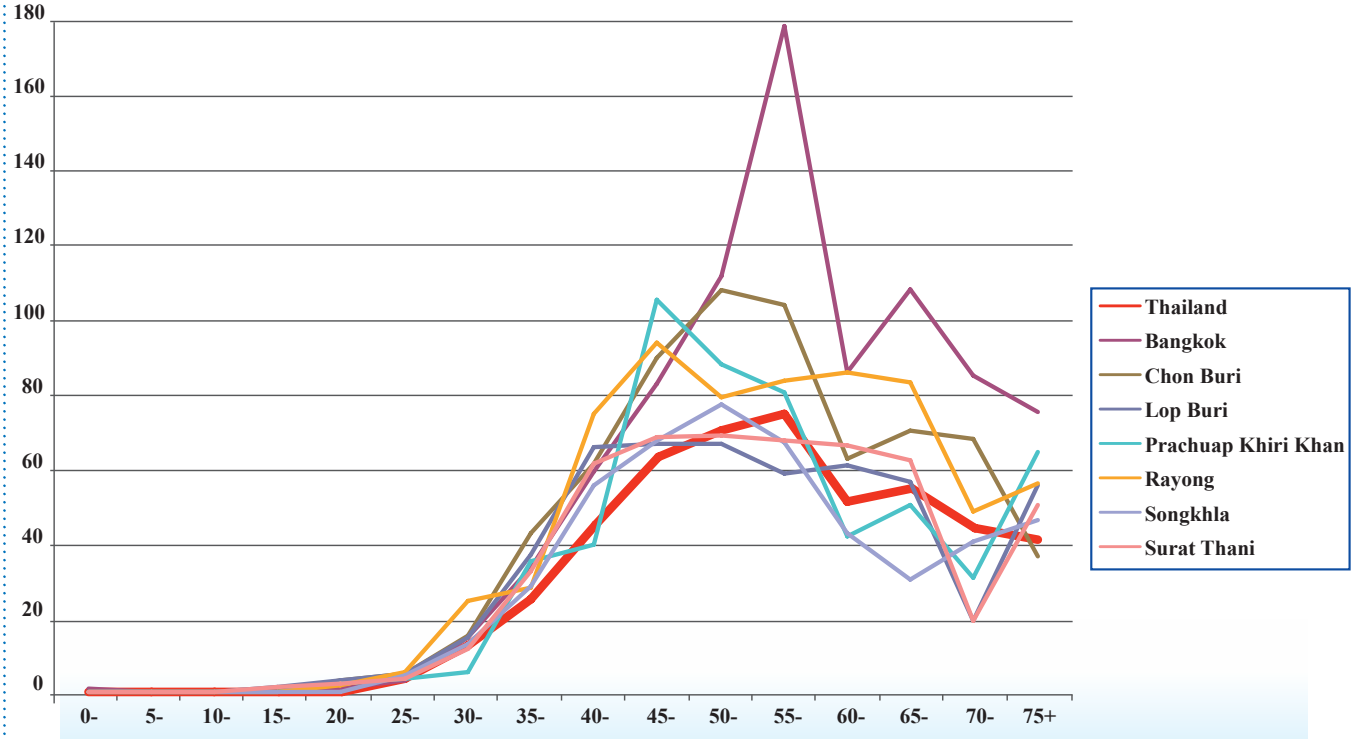
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Figure 2.13.3 Histological types of breast cancer, 2001-2003

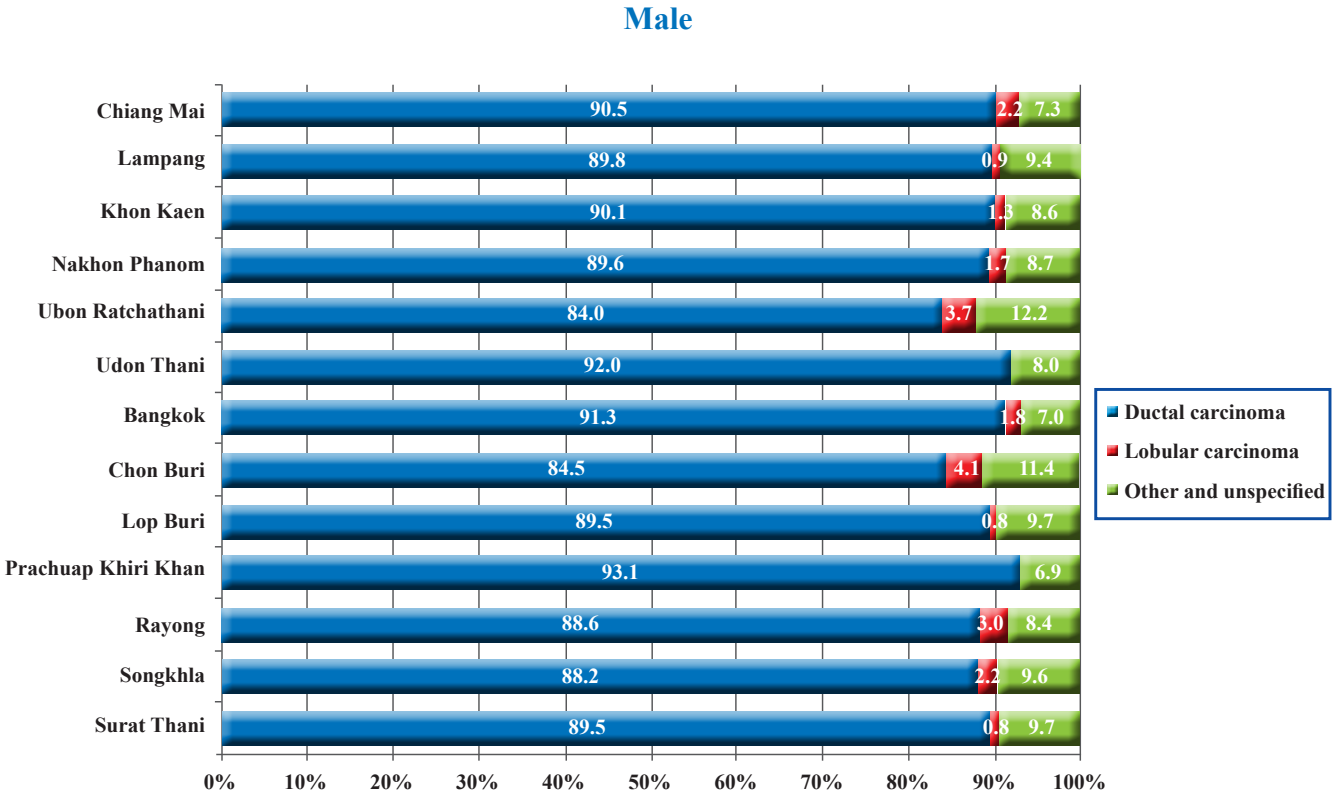
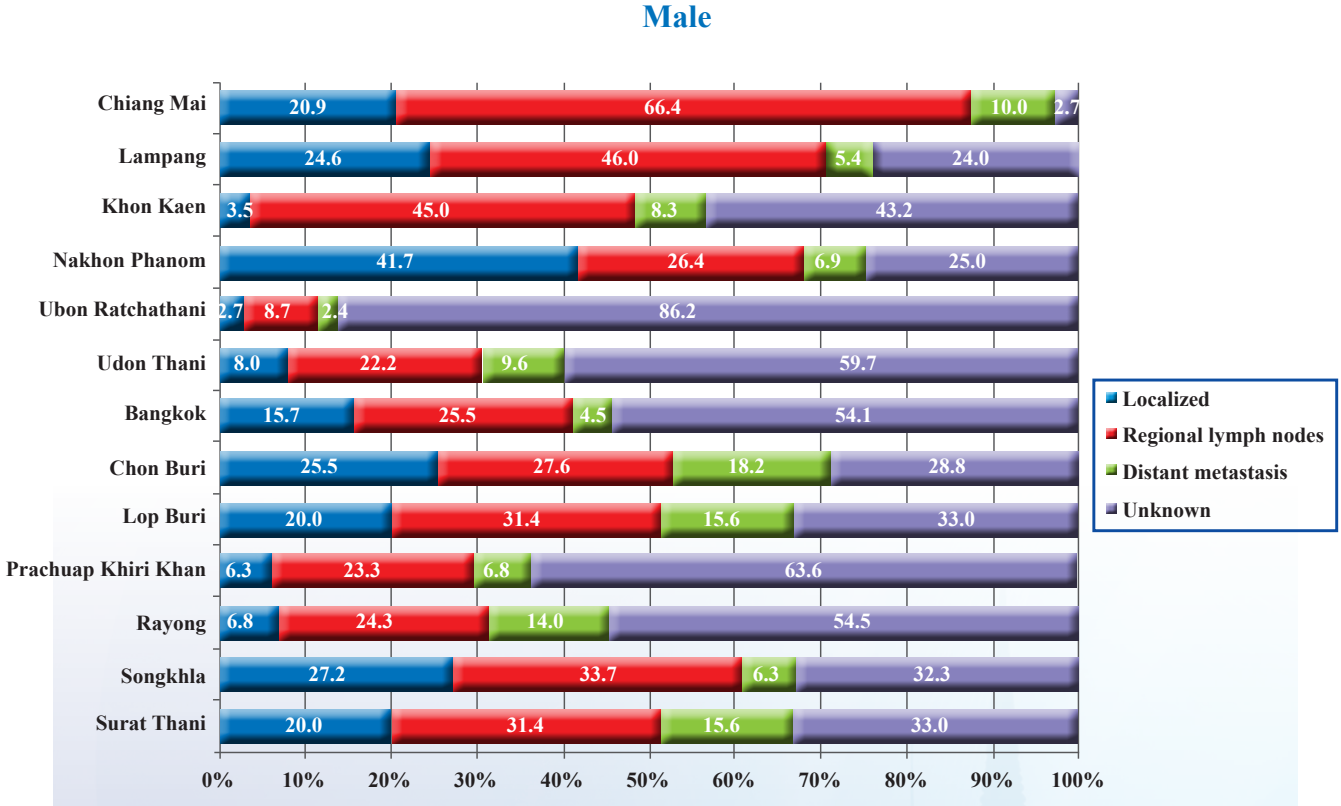


Figure 2.13.4 Stage distribution of breast cancer, 2001-2003



Cervical

Figure 2.14.1 Cervical cancer in different regions, 2001-2003

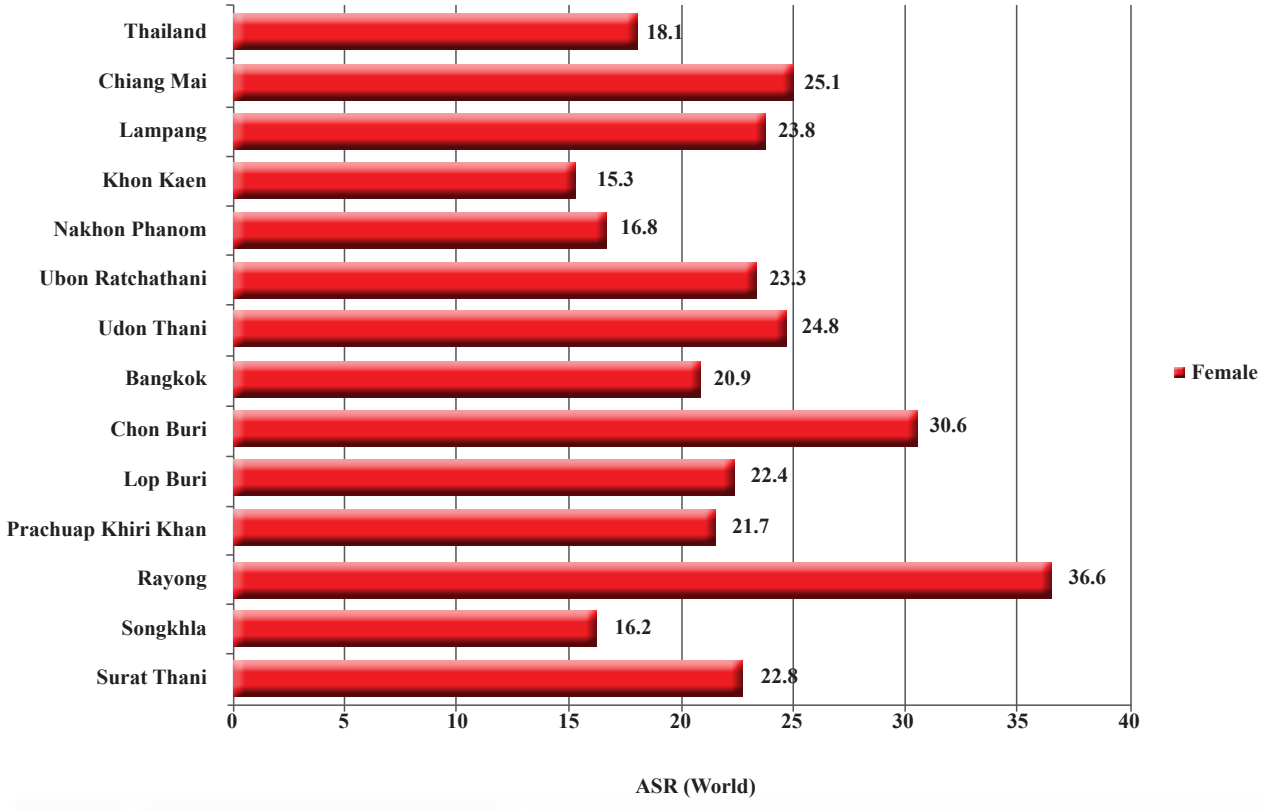
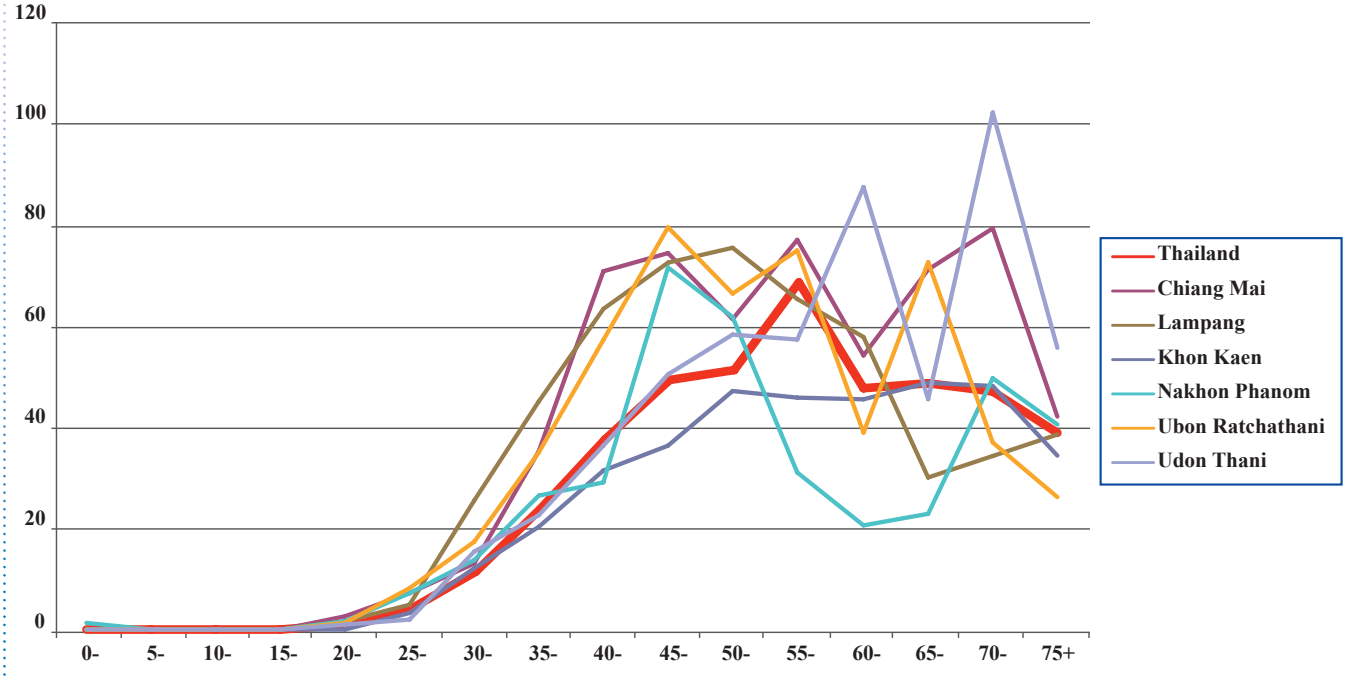


Figure 2.14.2 Age-specific incidence rates of cervical cancer, 2001-2003



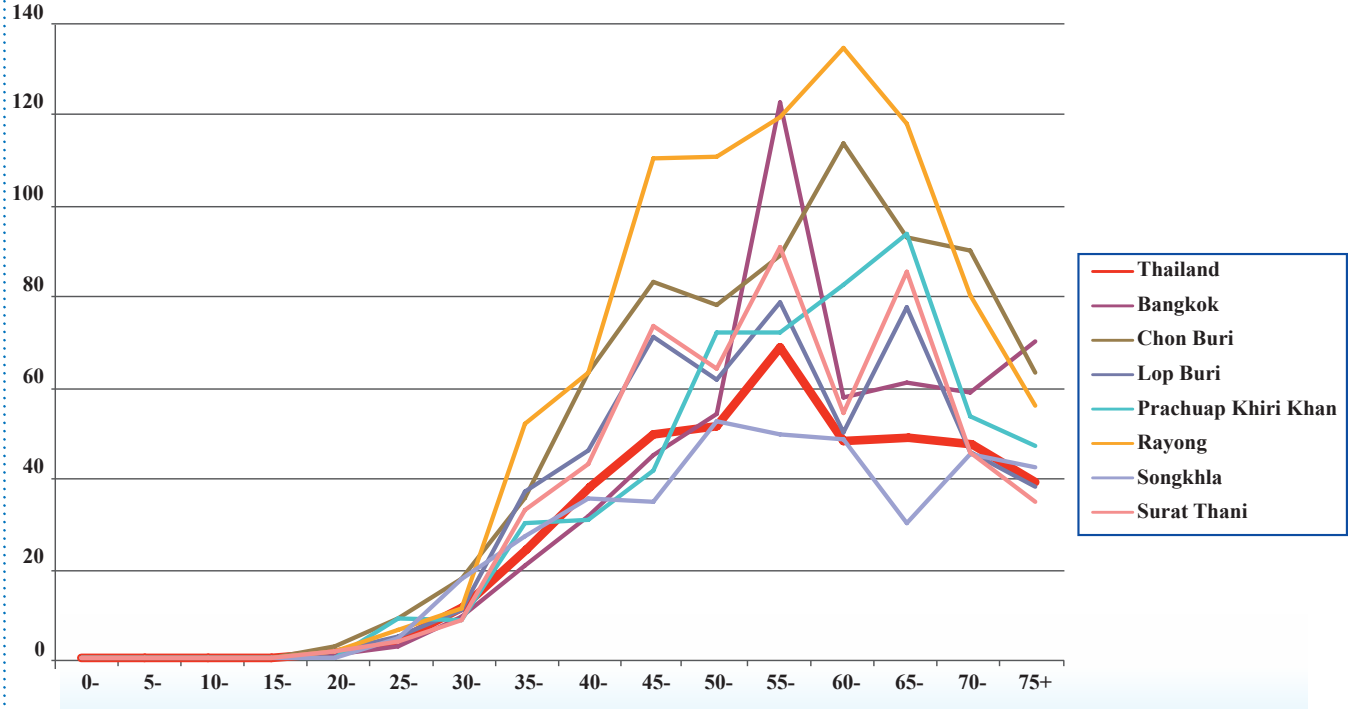


Figure 2.14.3 Cervical cancer : percentage distribution of histological types among microscopically verified, 2001-2003

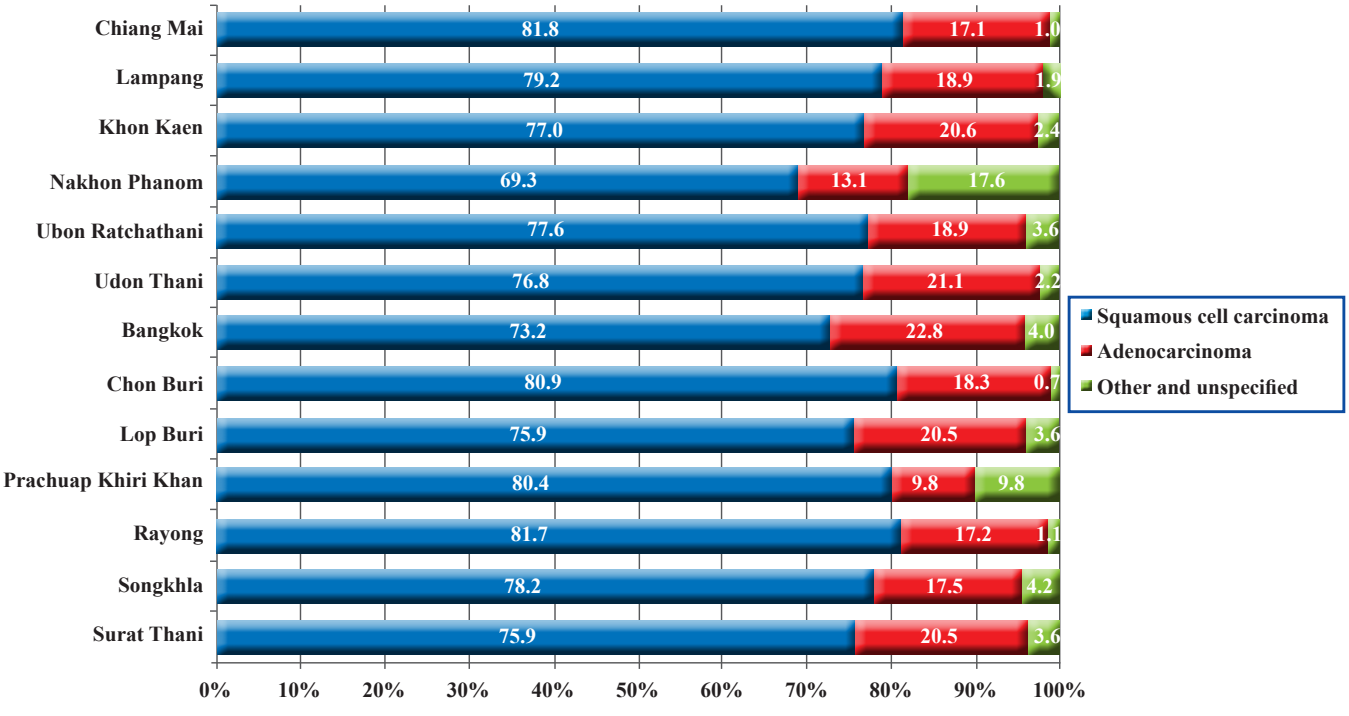
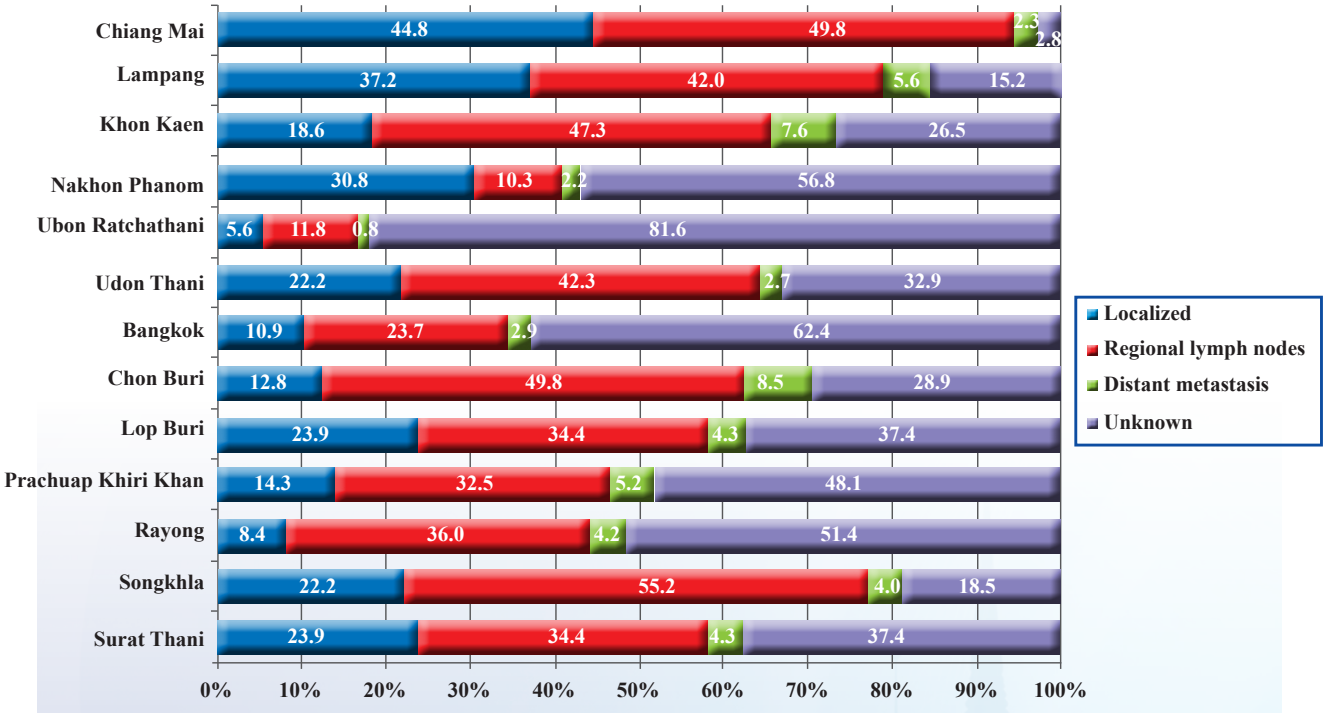


Figure 2.14.4 Stage distribution of cervical cancer, 2001-2003



Corpus Uteri

Figure 2.15.1 Corpus Uteri cancer in different regions, 2001-2003

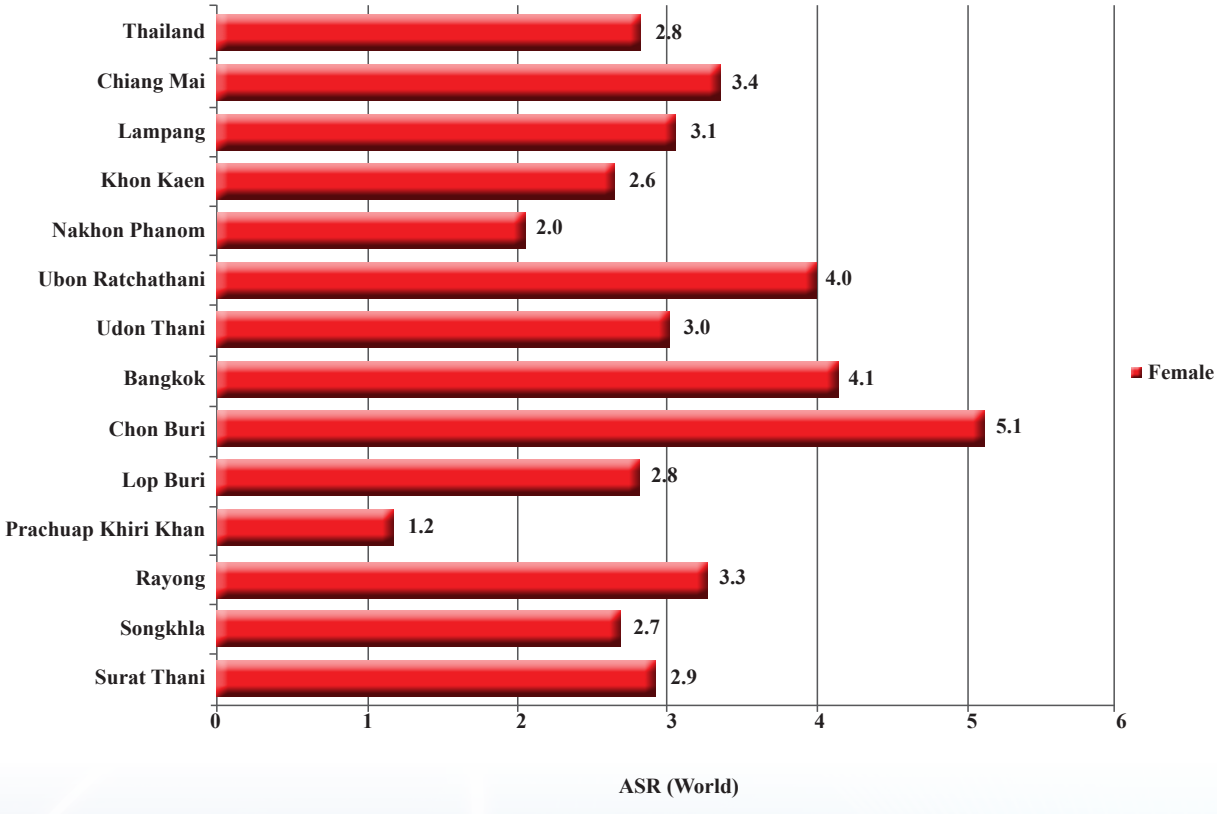
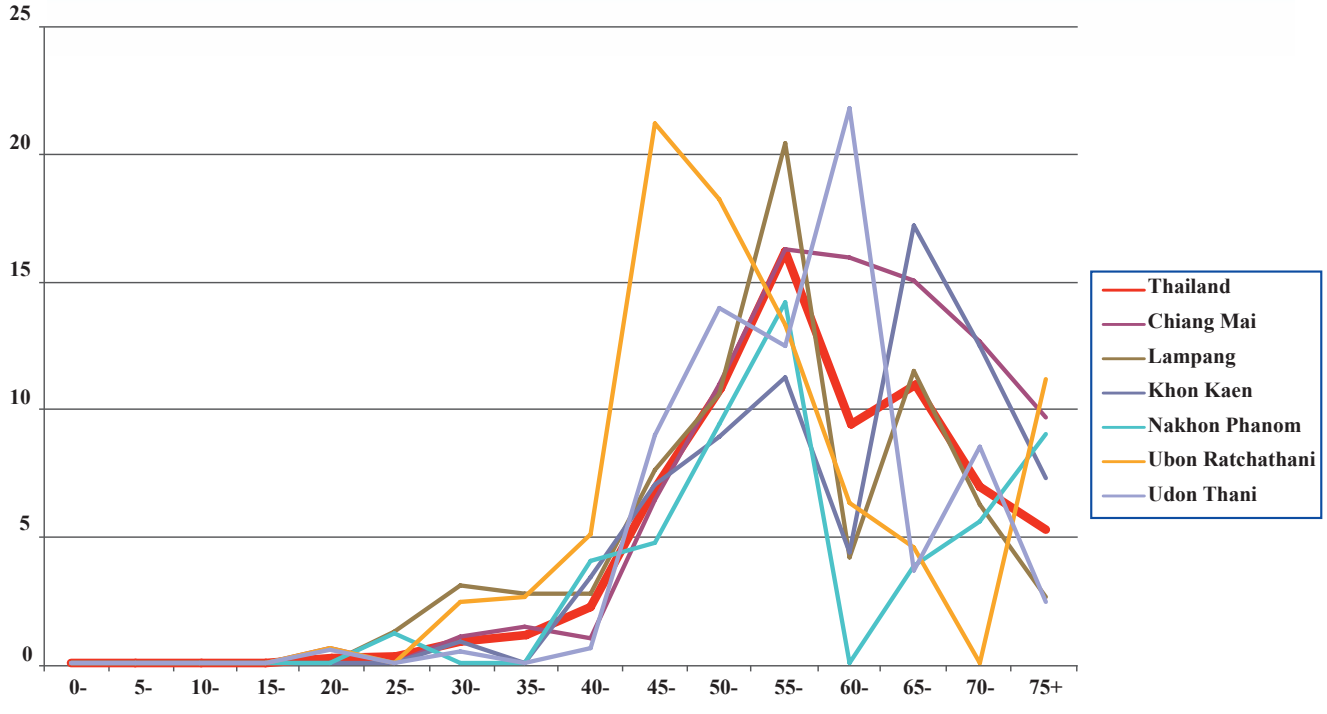
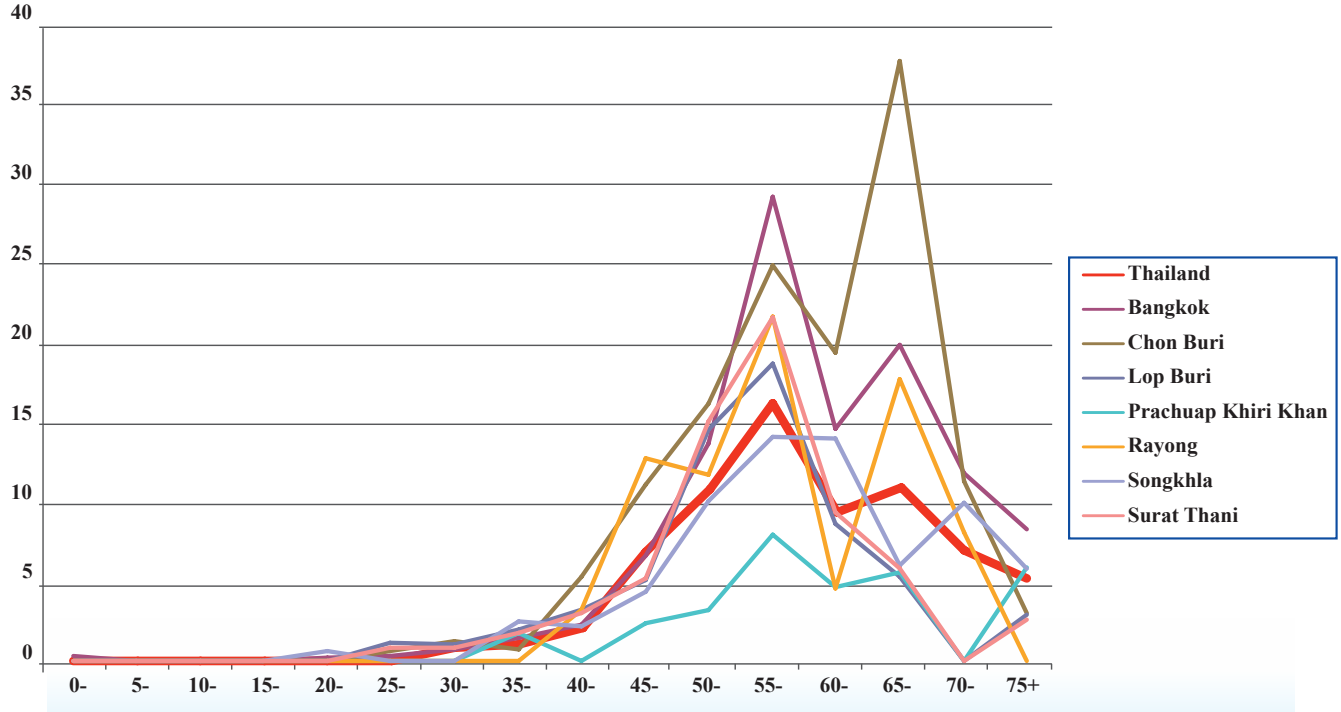


Figure 2.15.2 Age-specific incidence rates of corpus uteri cancer, 2001-2003





Ovary

Figure 2.16.1 Ovary cancer in different regions, 2001-2003

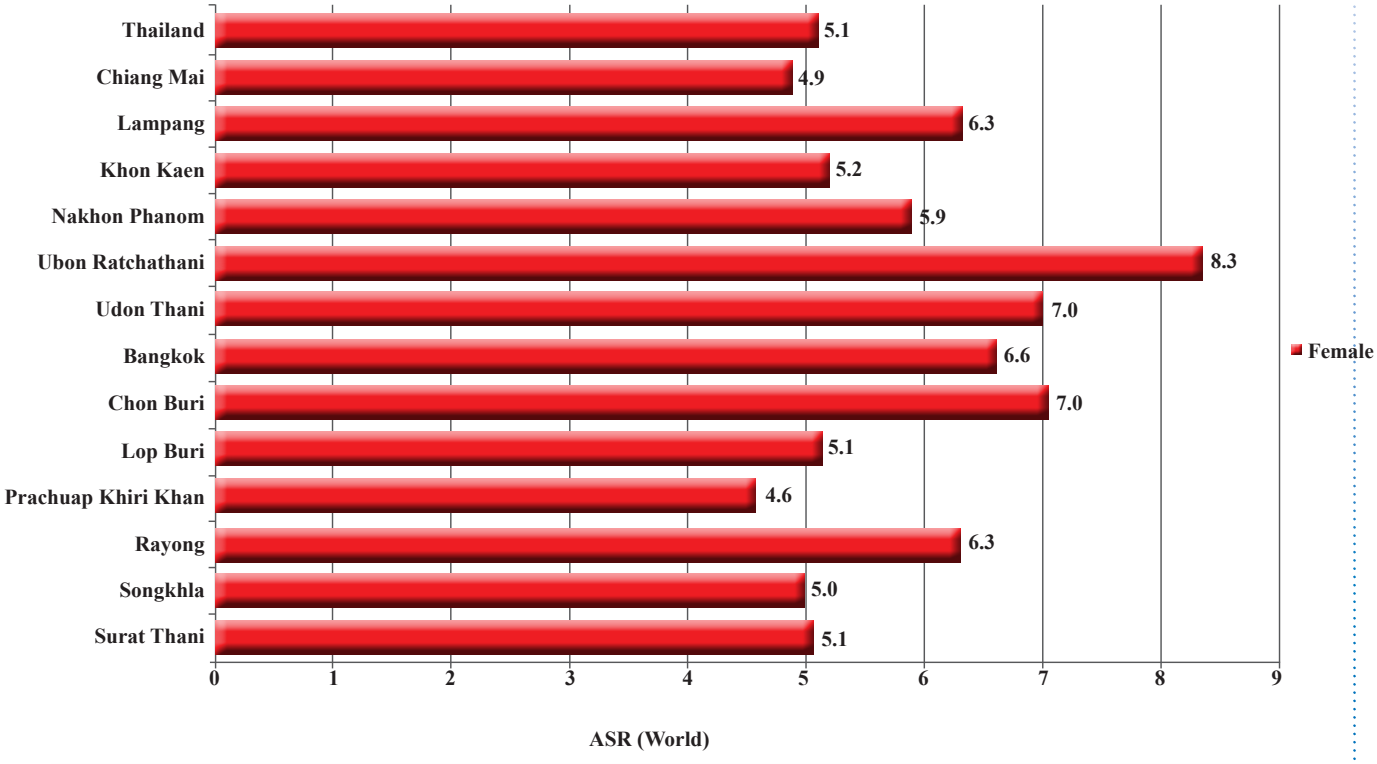
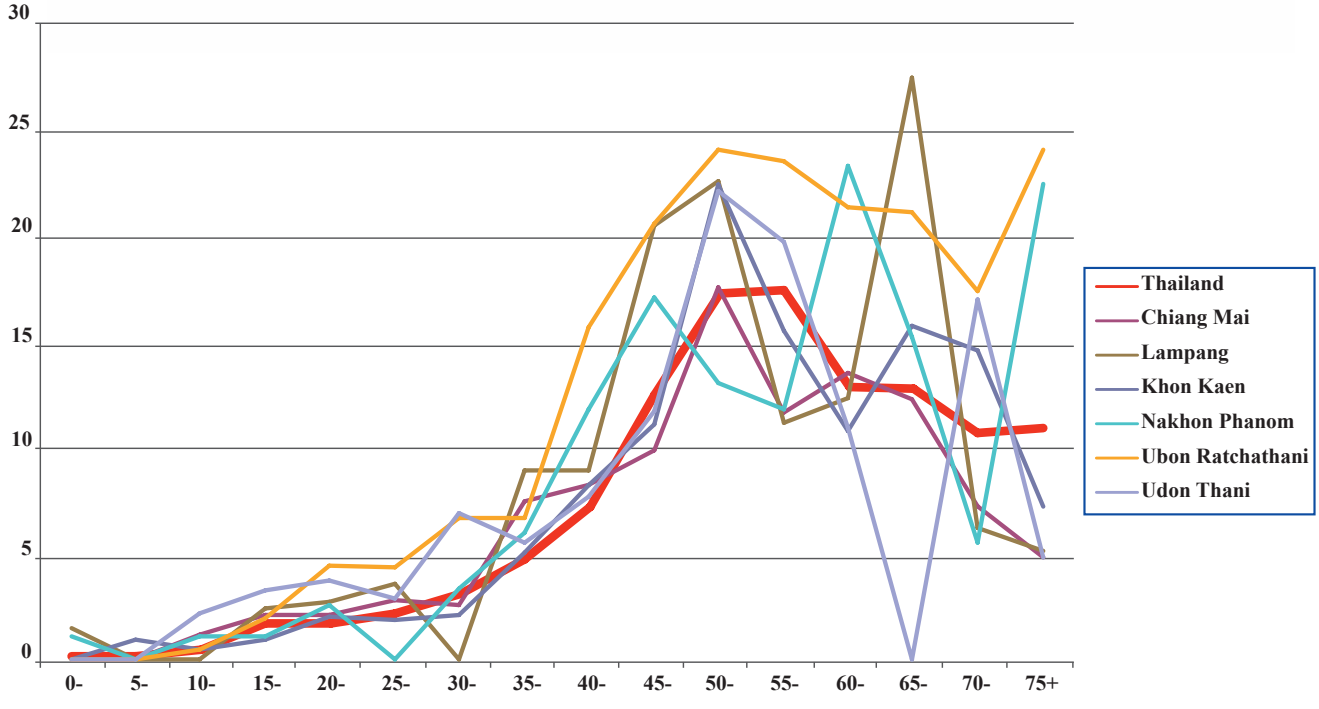


Figure 2.16.2 Age-specific incidence rates of ovary cancer, 2001-2003



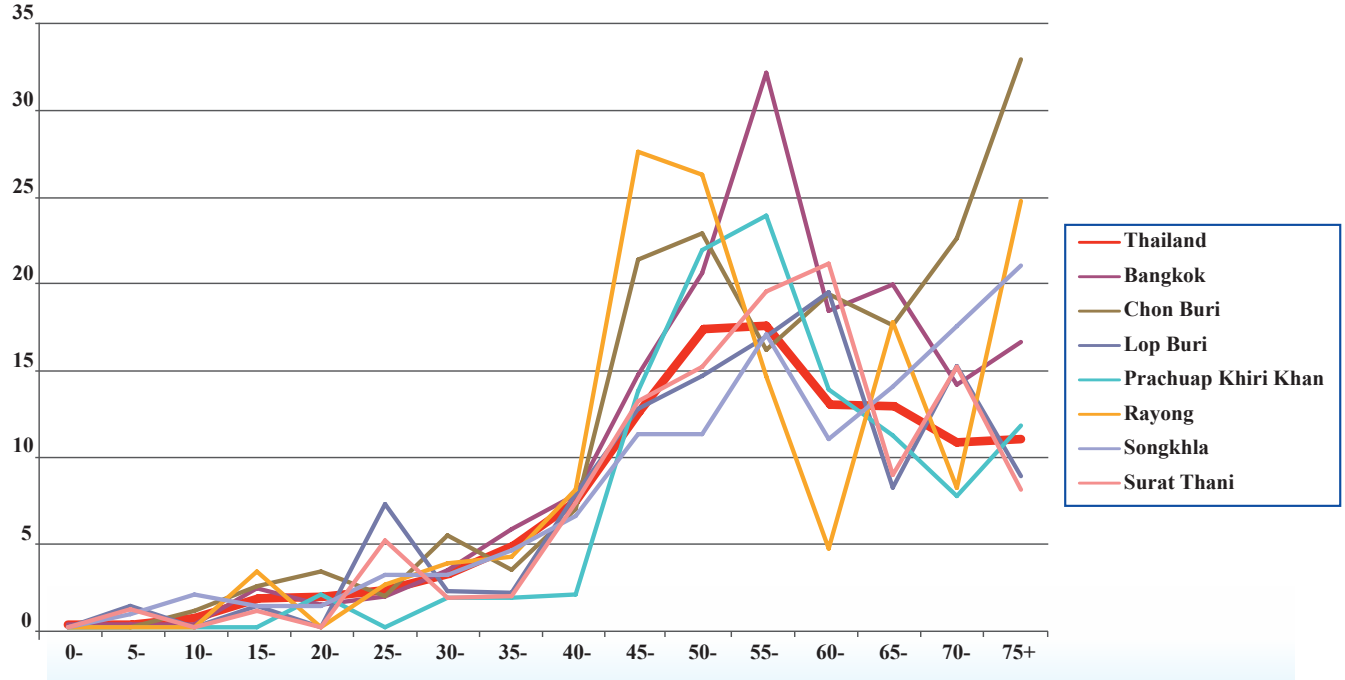
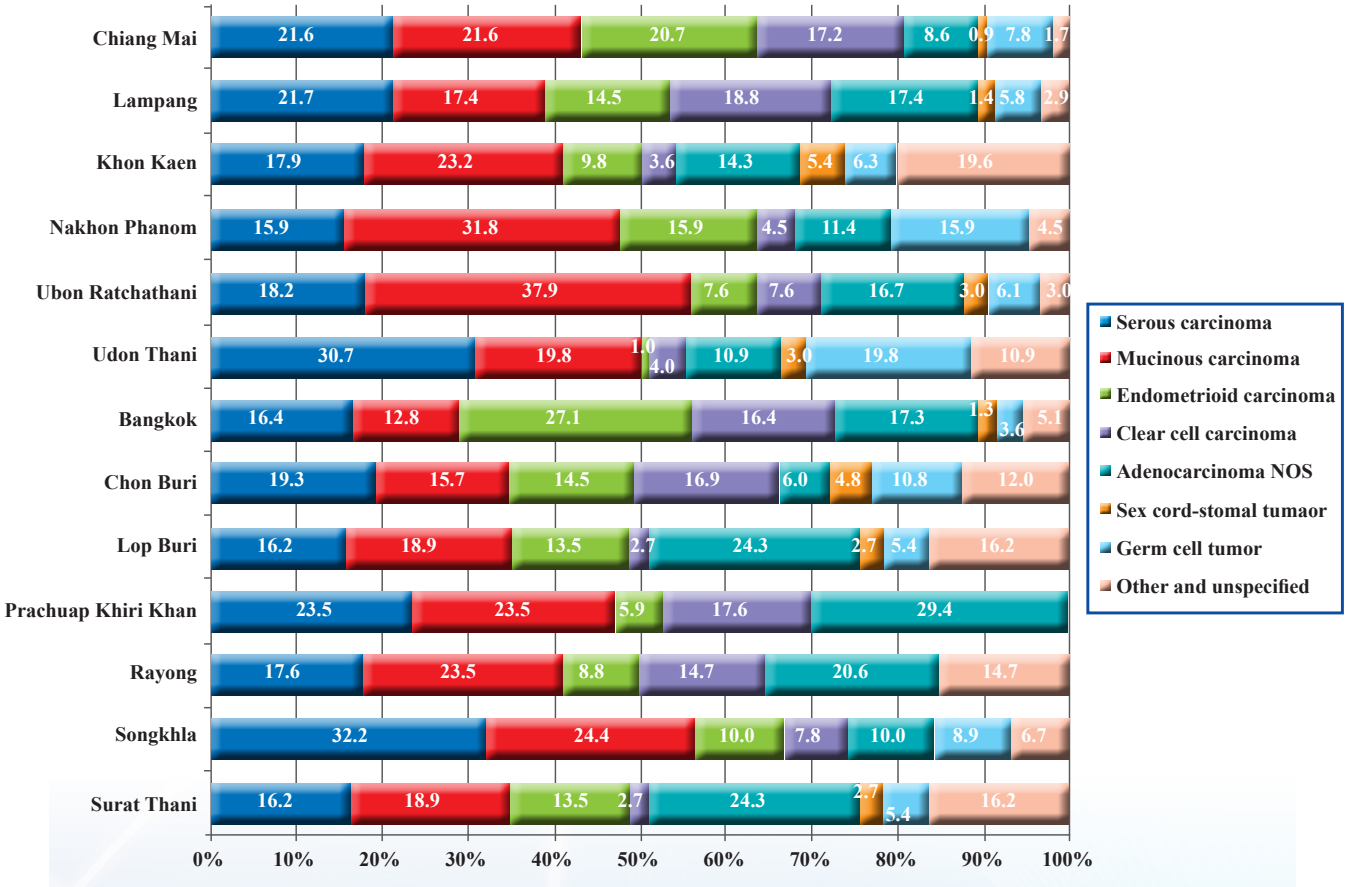


Figure 2.16.3 Histological types of ovarian cancer, 2001-2003



Prostate

Figure 2.17.1 Prostate cancer in different regions, 2001-2003

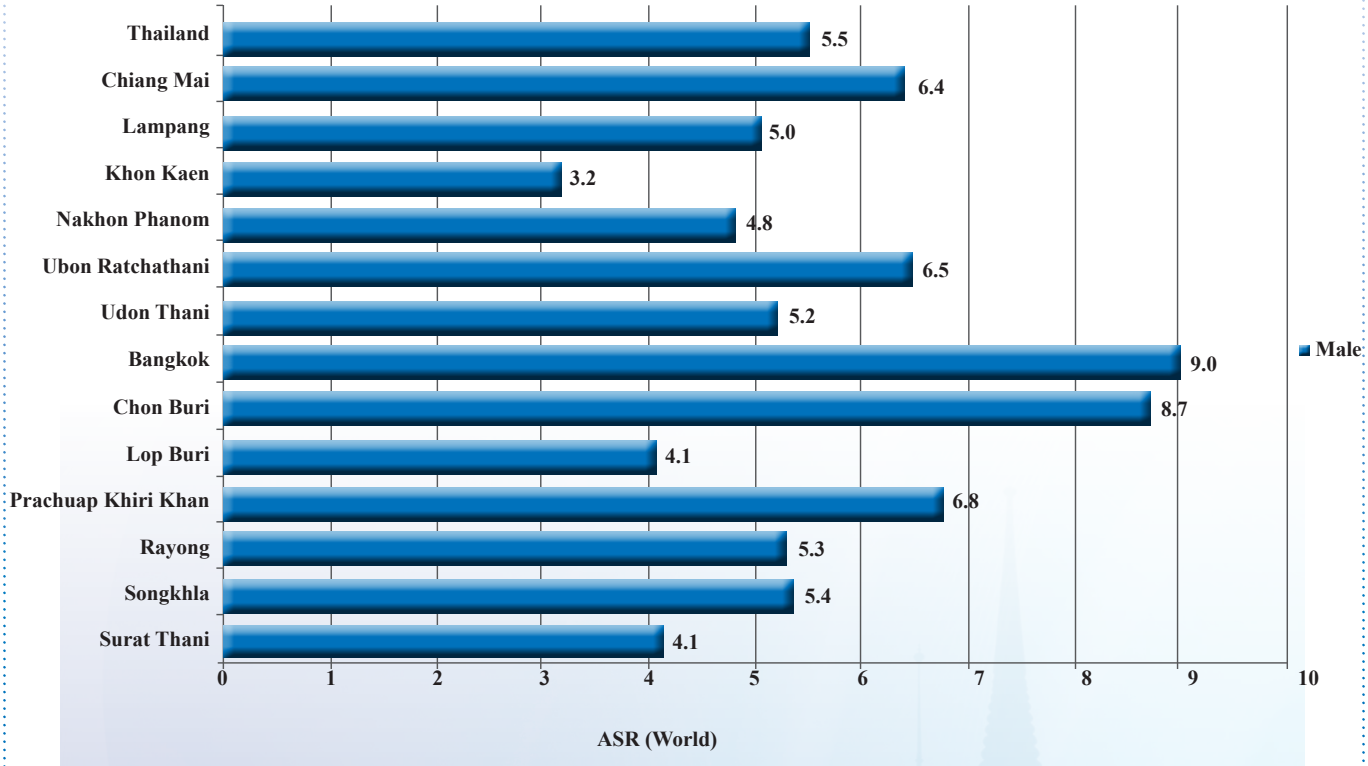
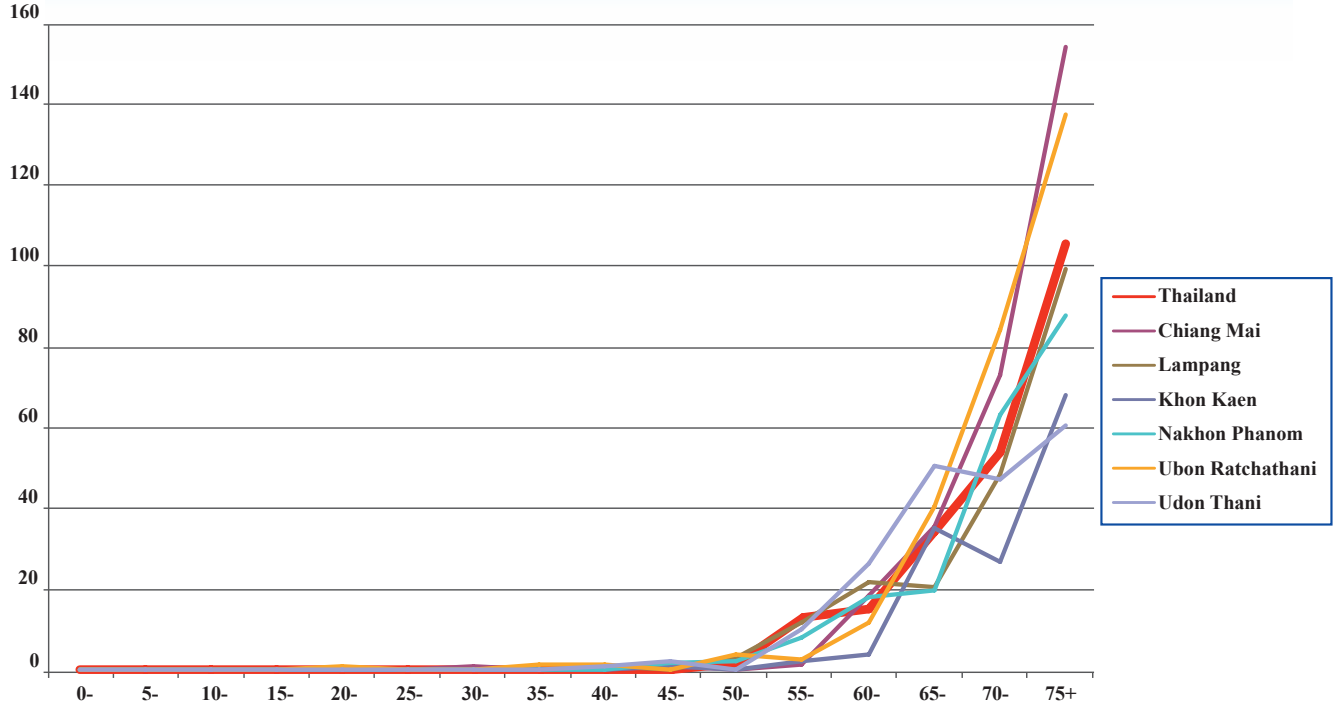
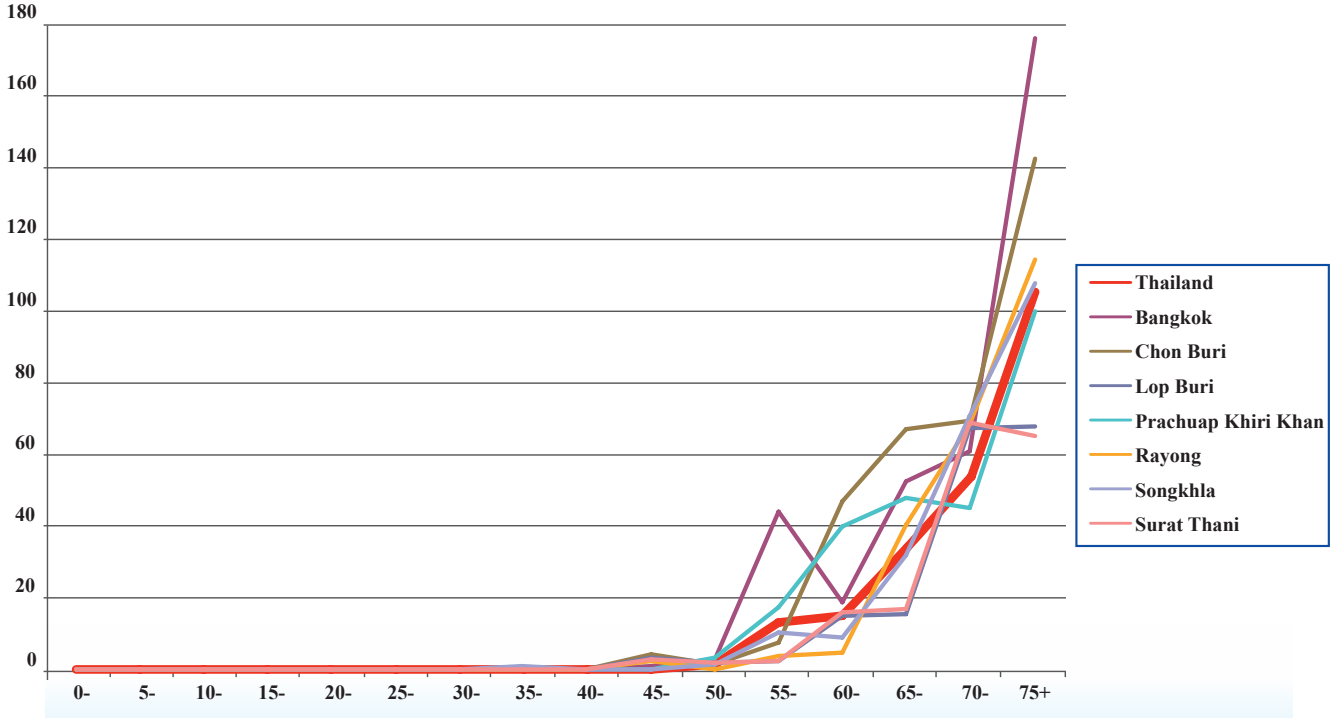


Figure 2.17.2 Age-specific incidence rates of prostate cancer, 2001-2003





Urinary bladder

Figure 2.18.1 Urinary bladder cancer in different regions, 2001-2003

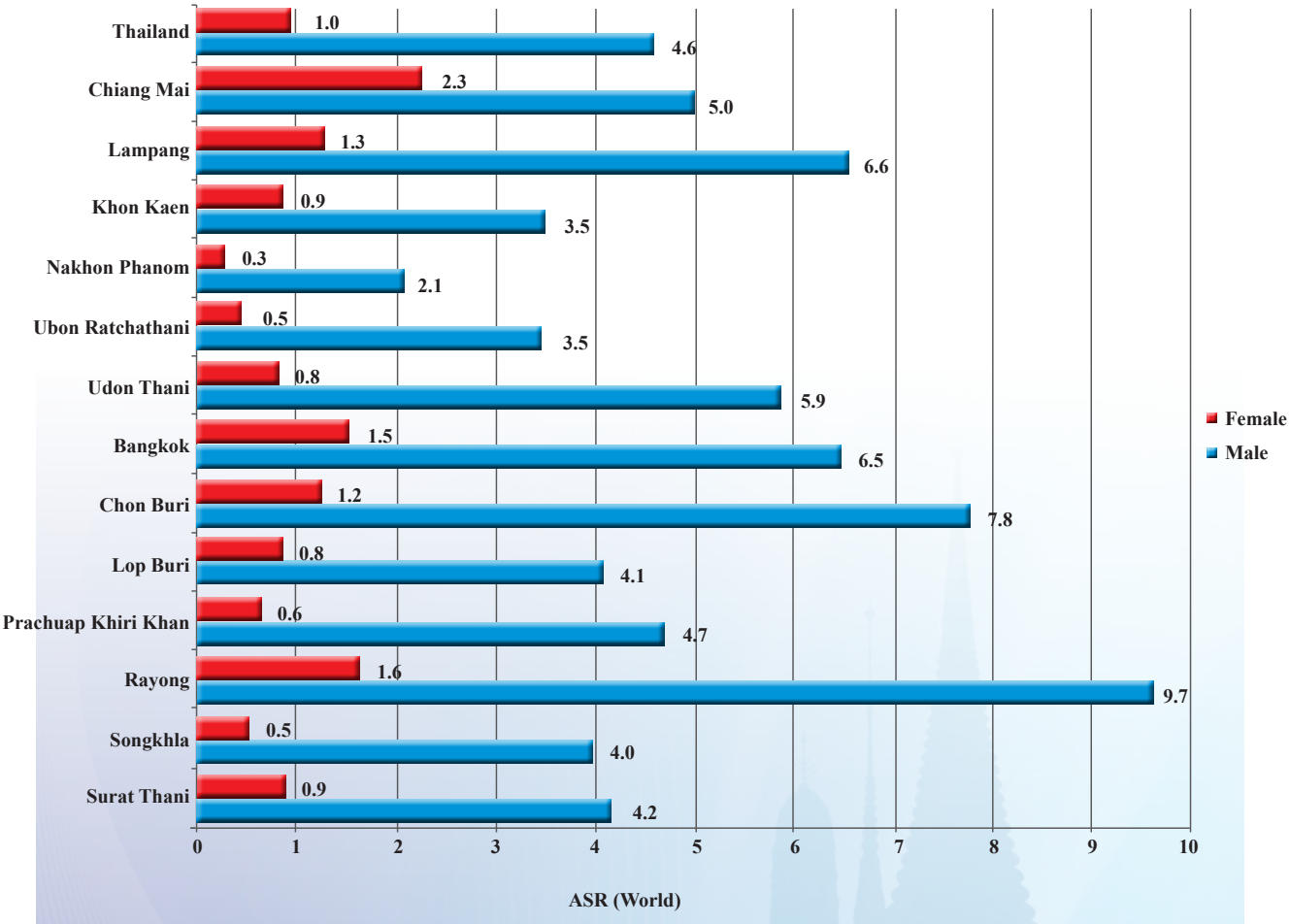
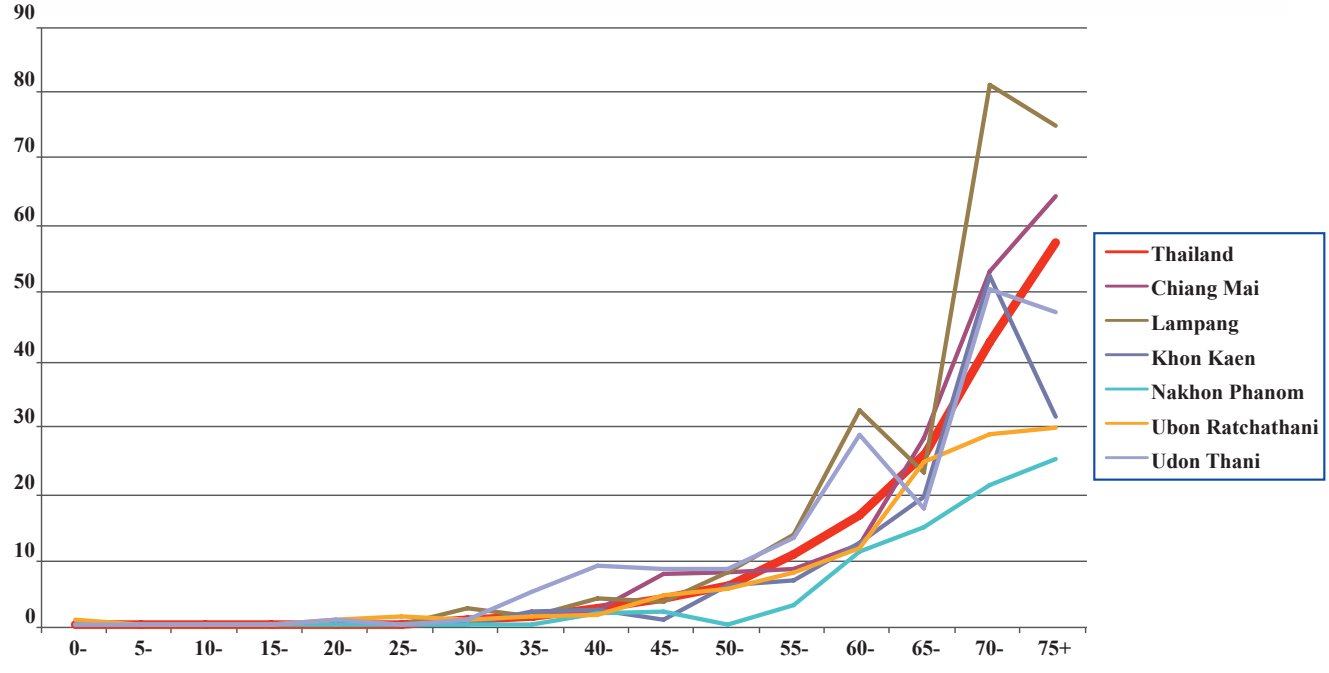
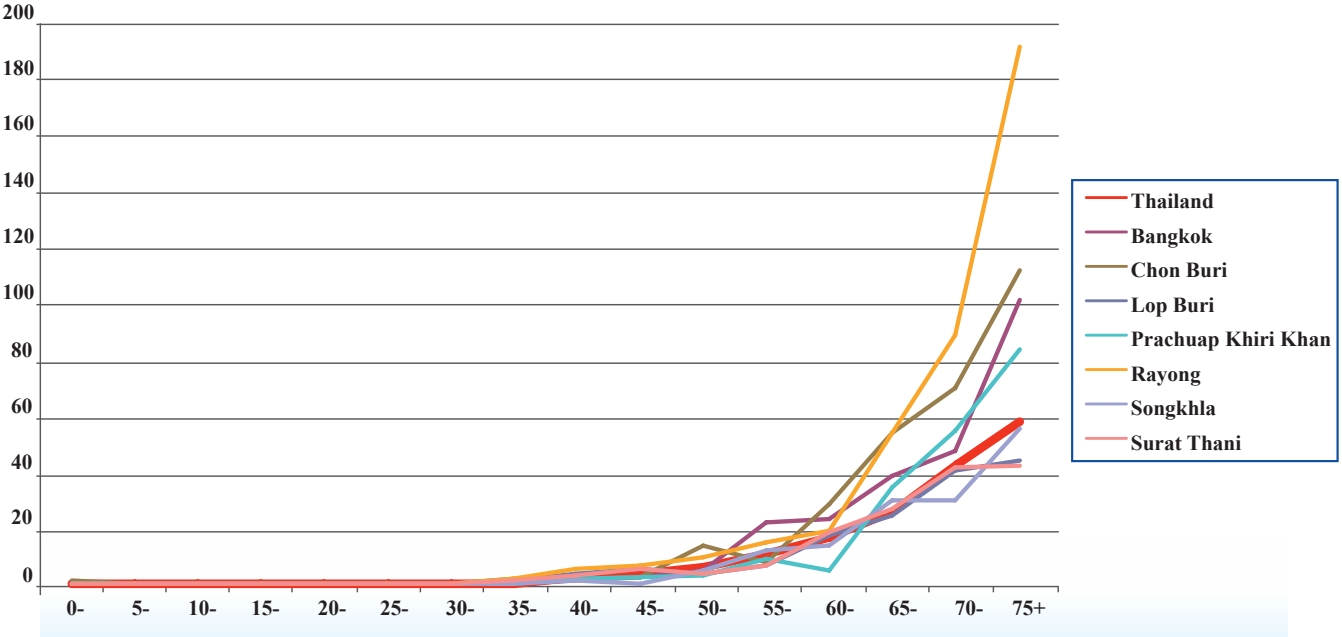


Figure 2.18.2 Age-specific incidence rates of urinary bladder cancer, 2001-2003

Male





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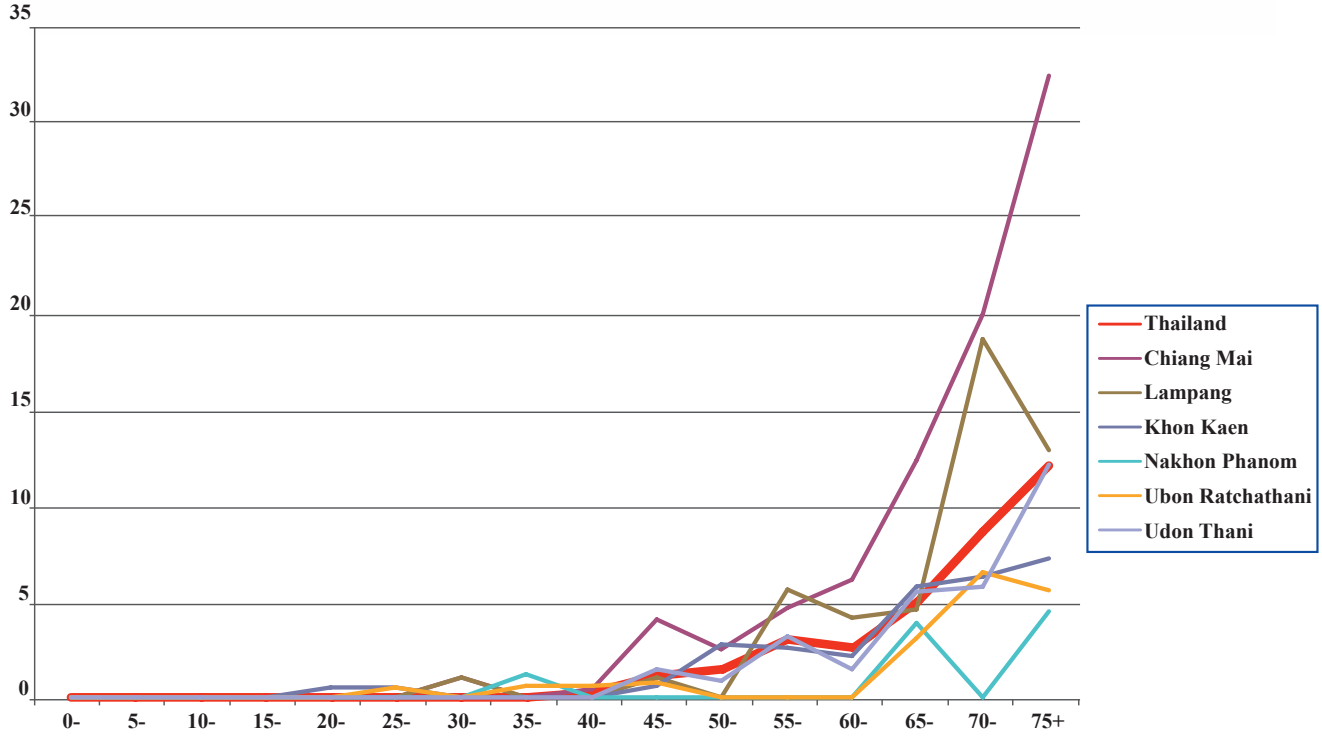
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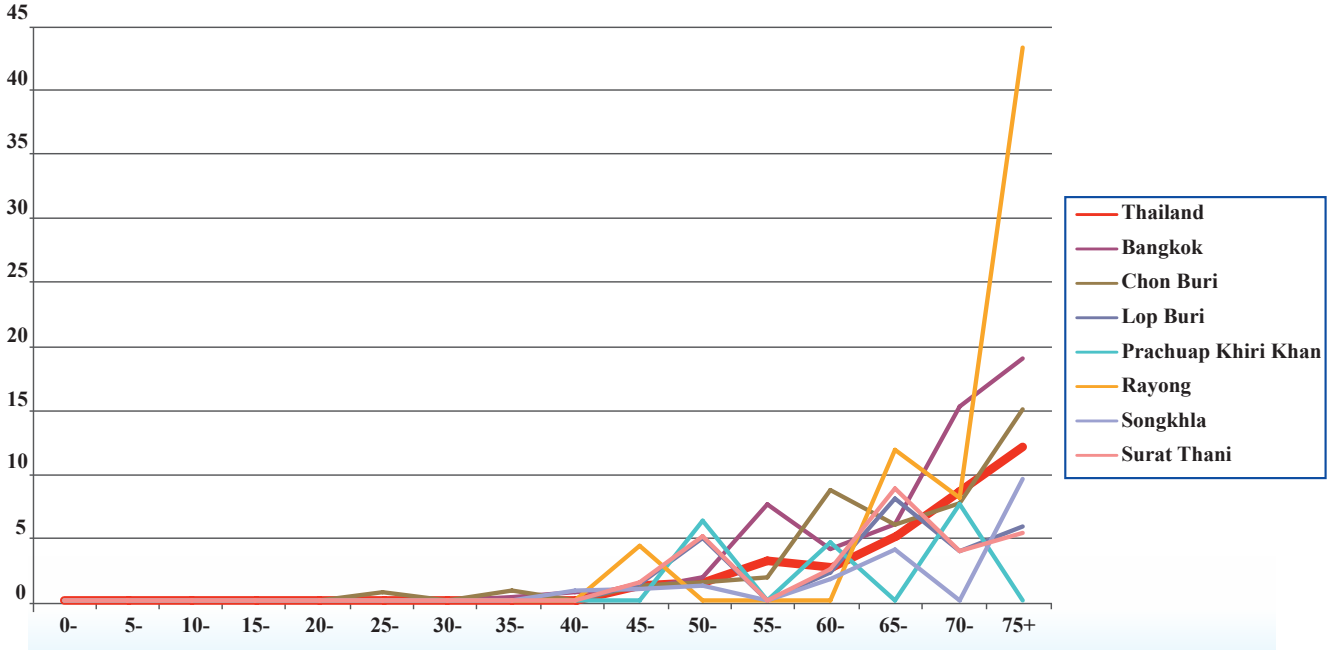
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Thyroid Gland

Figure 2.19.1 Thyroid cancer in different regions, 2001-2003

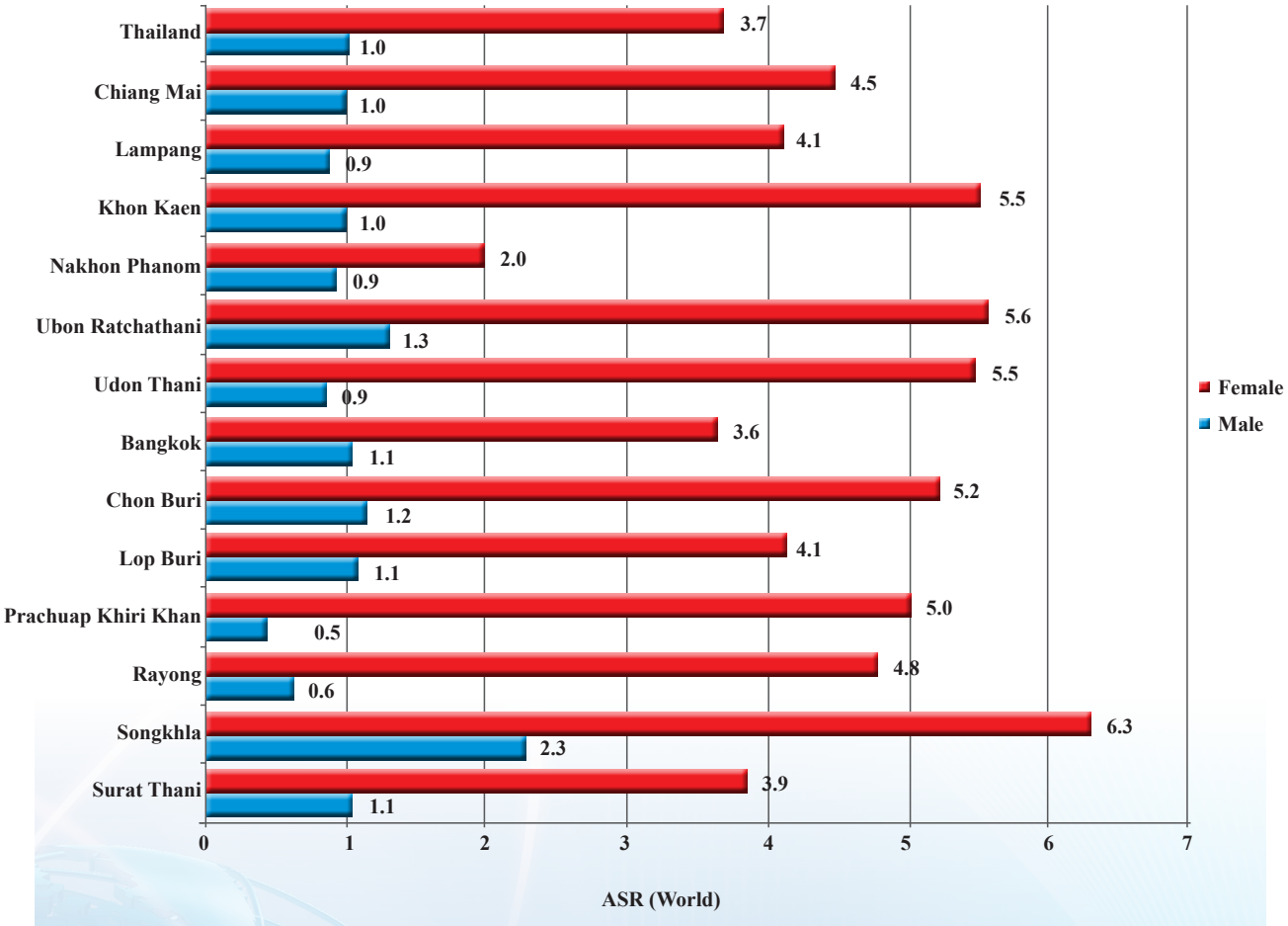
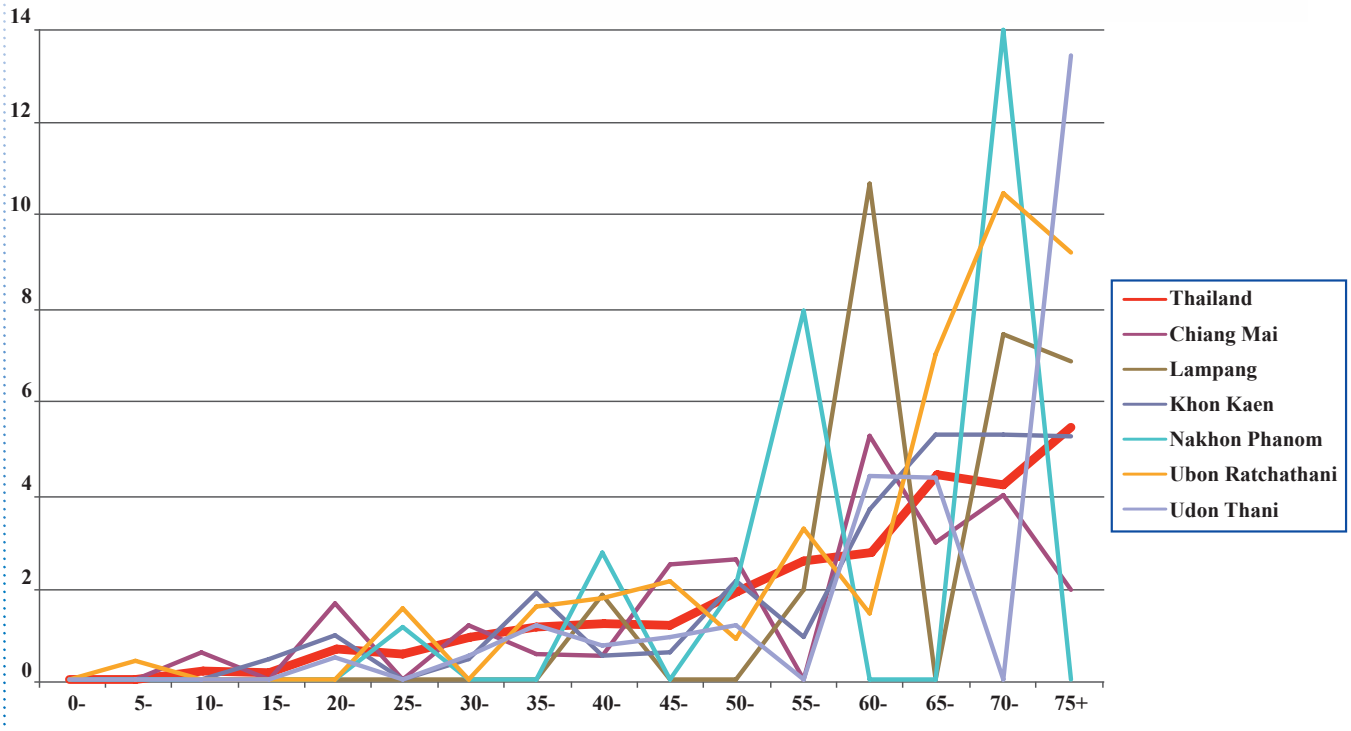
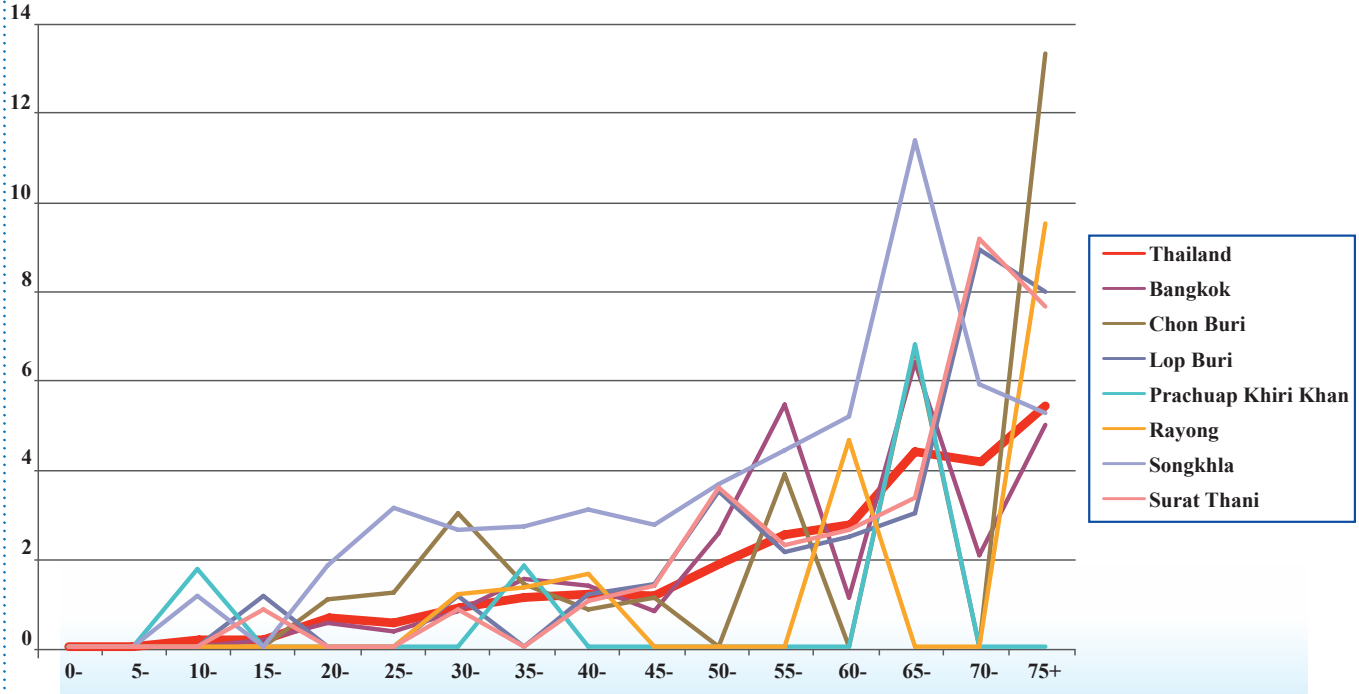


Figure 2.19.2 Age-specific incidence rates of thyroid cancer, 2001-2003

Male





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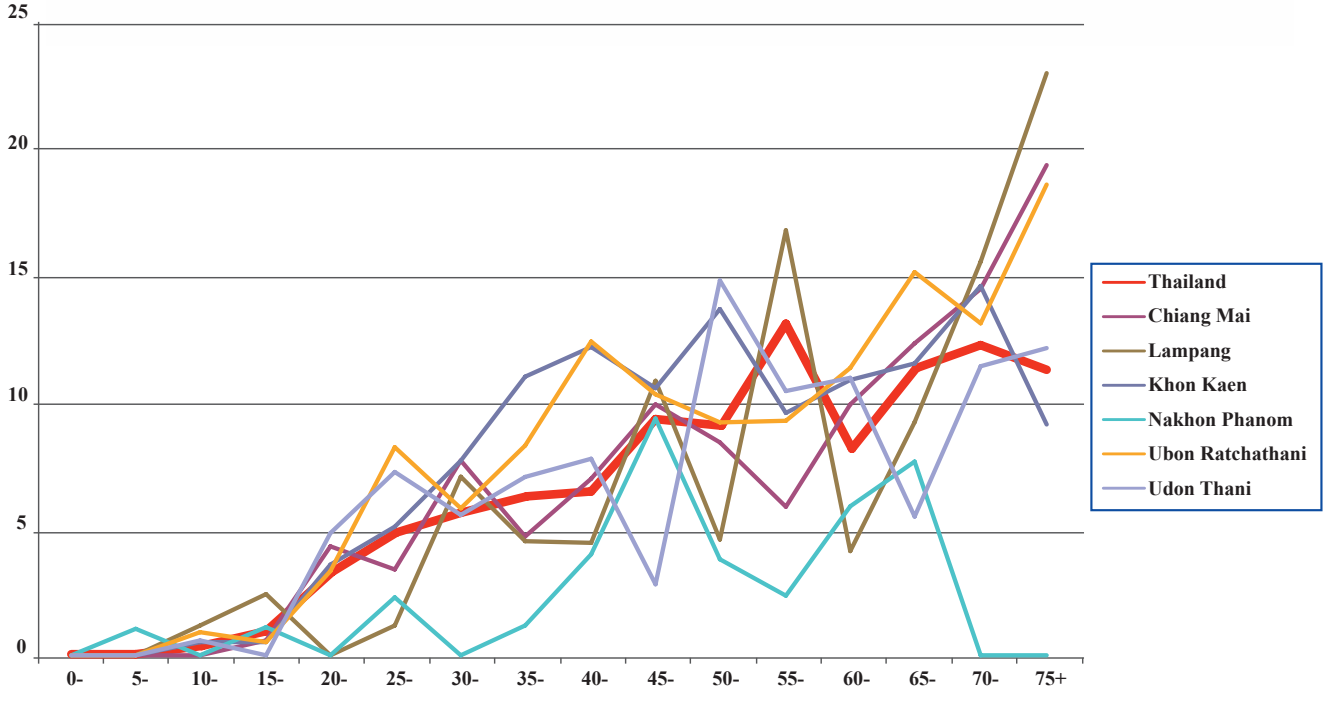
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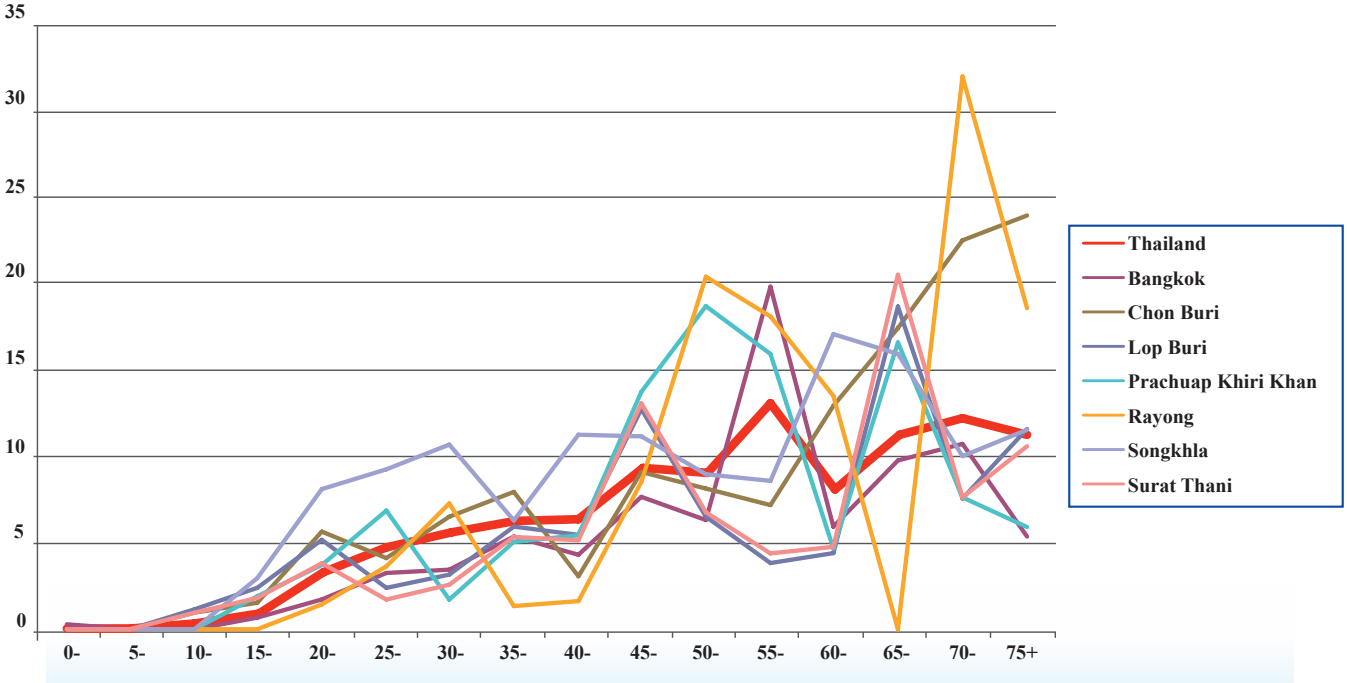
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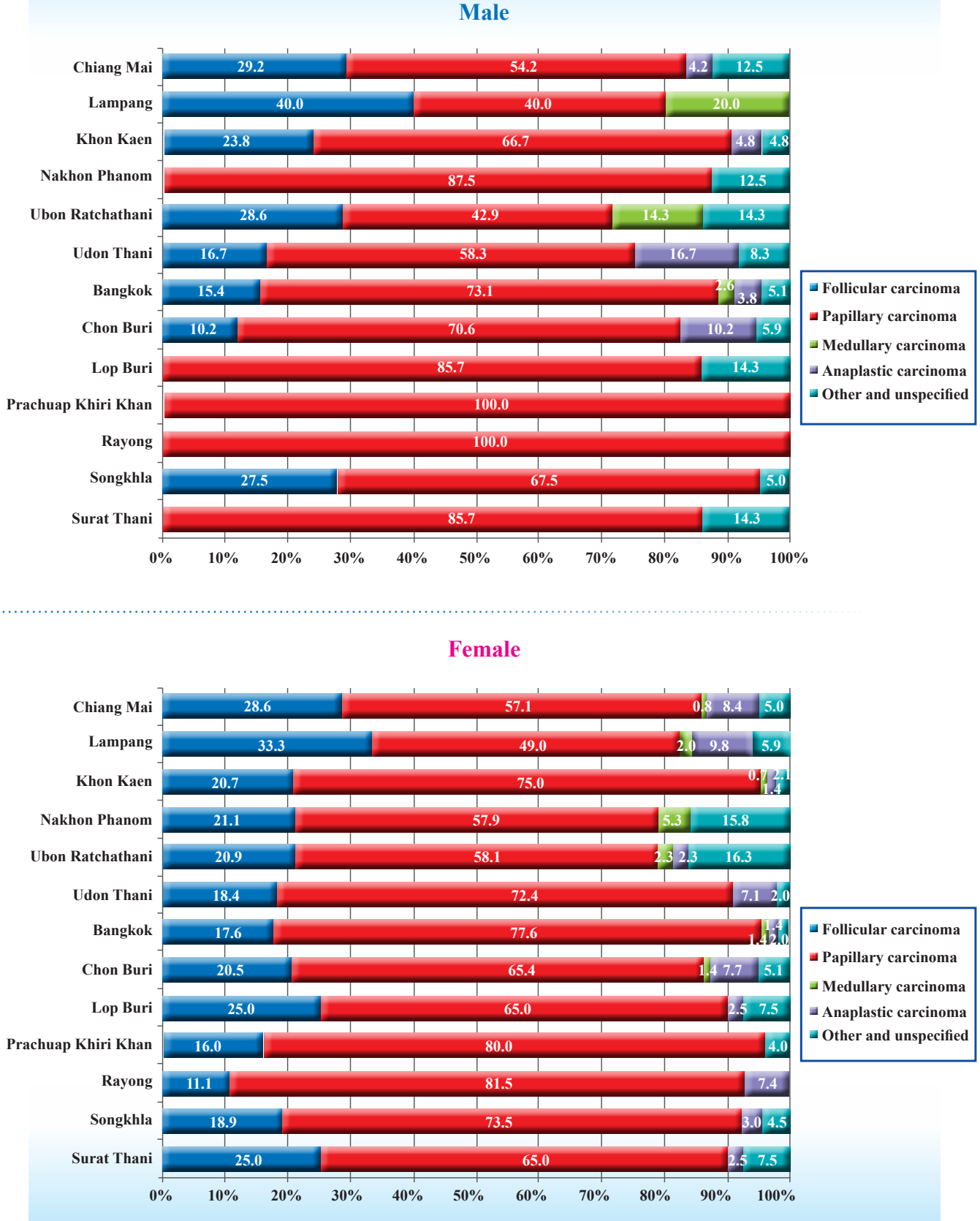
Figure 2.19.3 Histological types of thyroid cancer, 2001-2003



lymphoma

Figure 2.20.1 Non Hodgkin lymphoma in different regions, 2001-2003

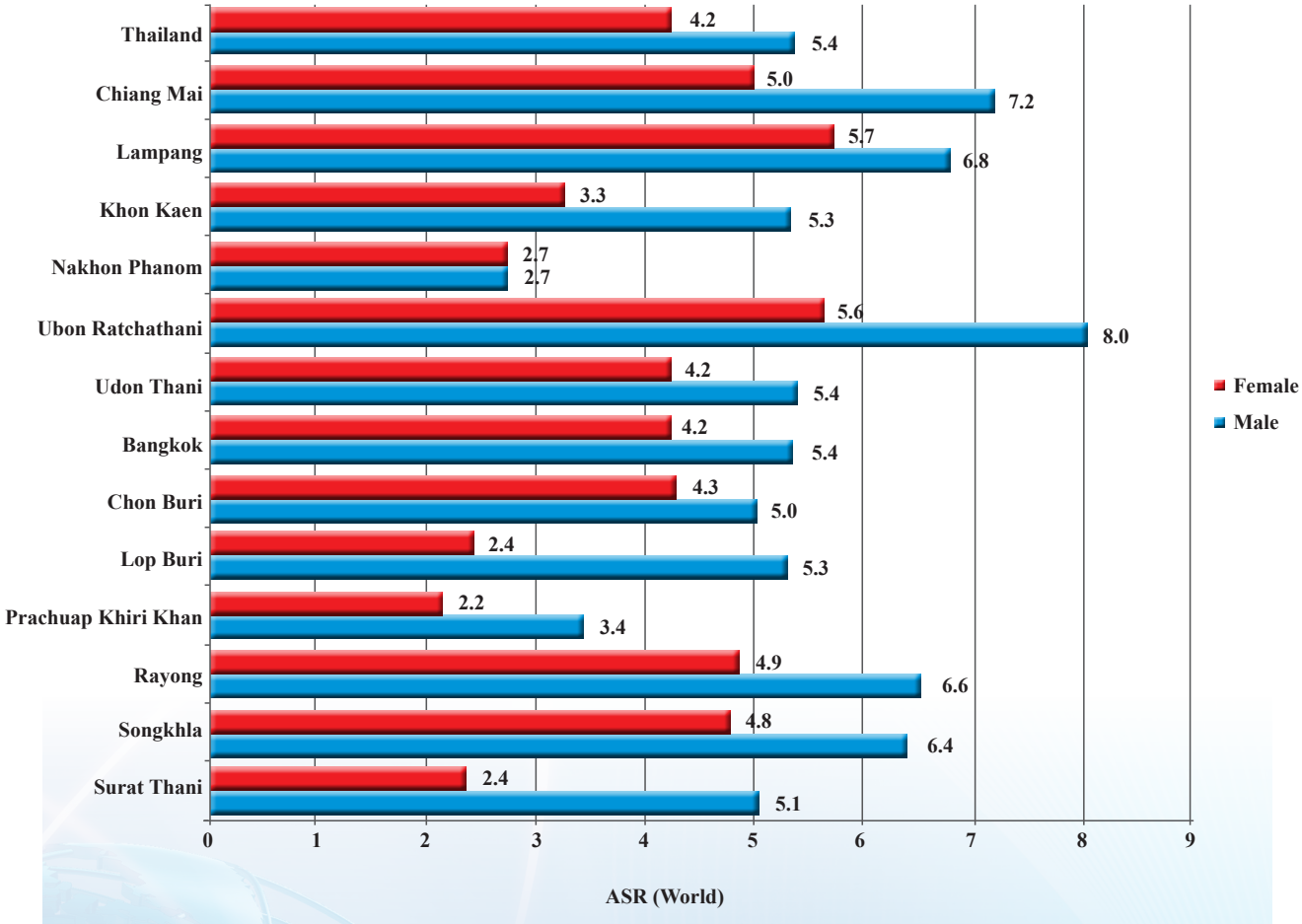
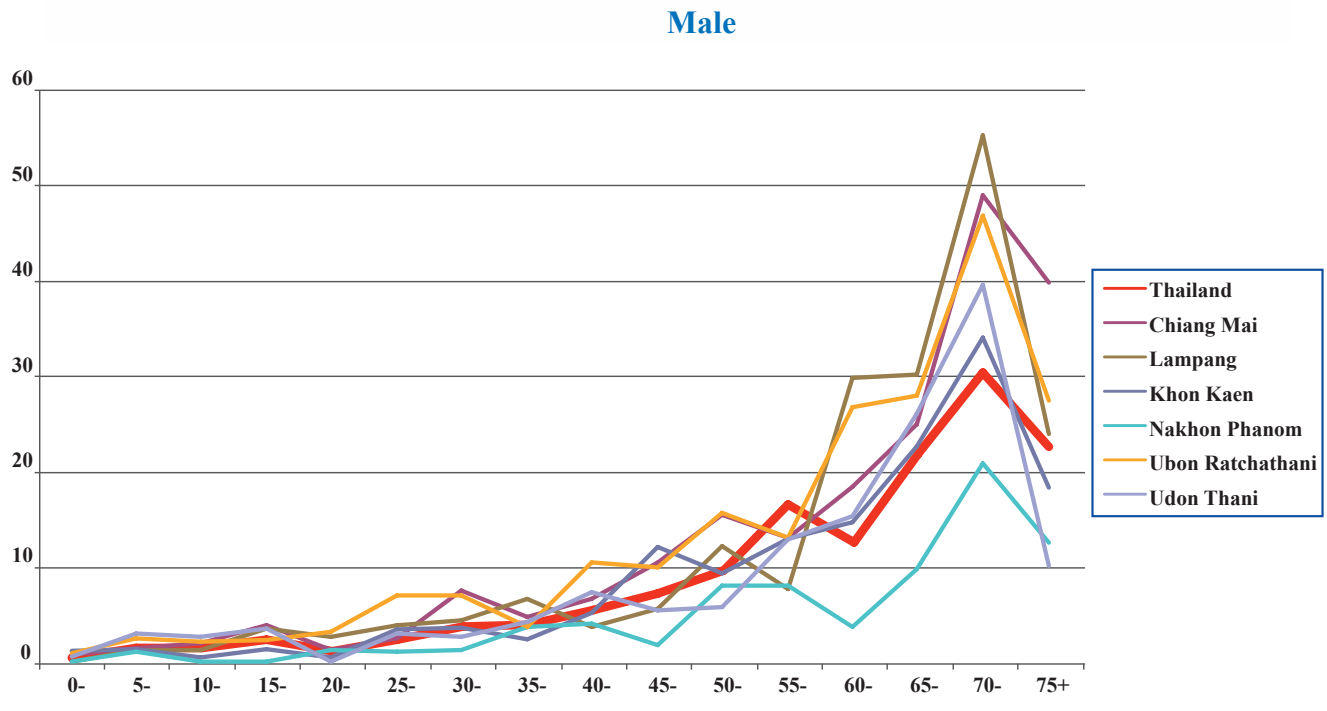
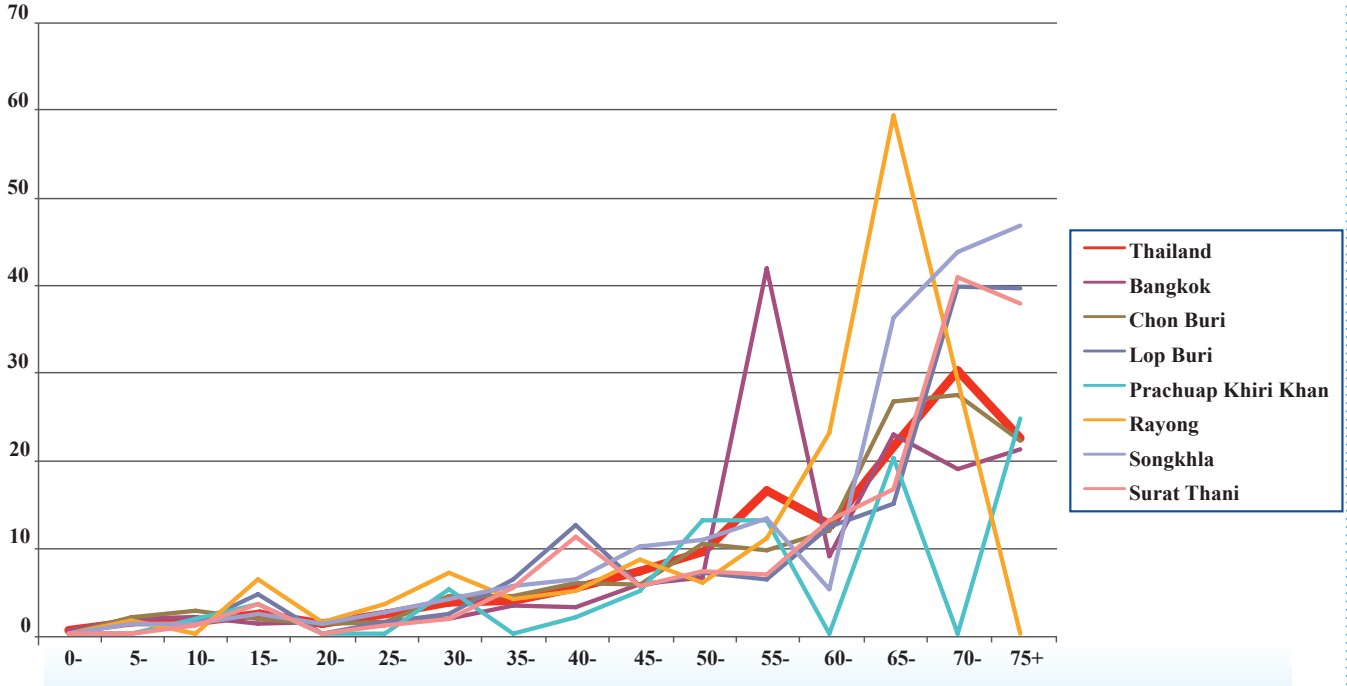


Figure 2.20.2 Age-specific incidence rates of Non Hodgkin lymphoma, 2001-2003





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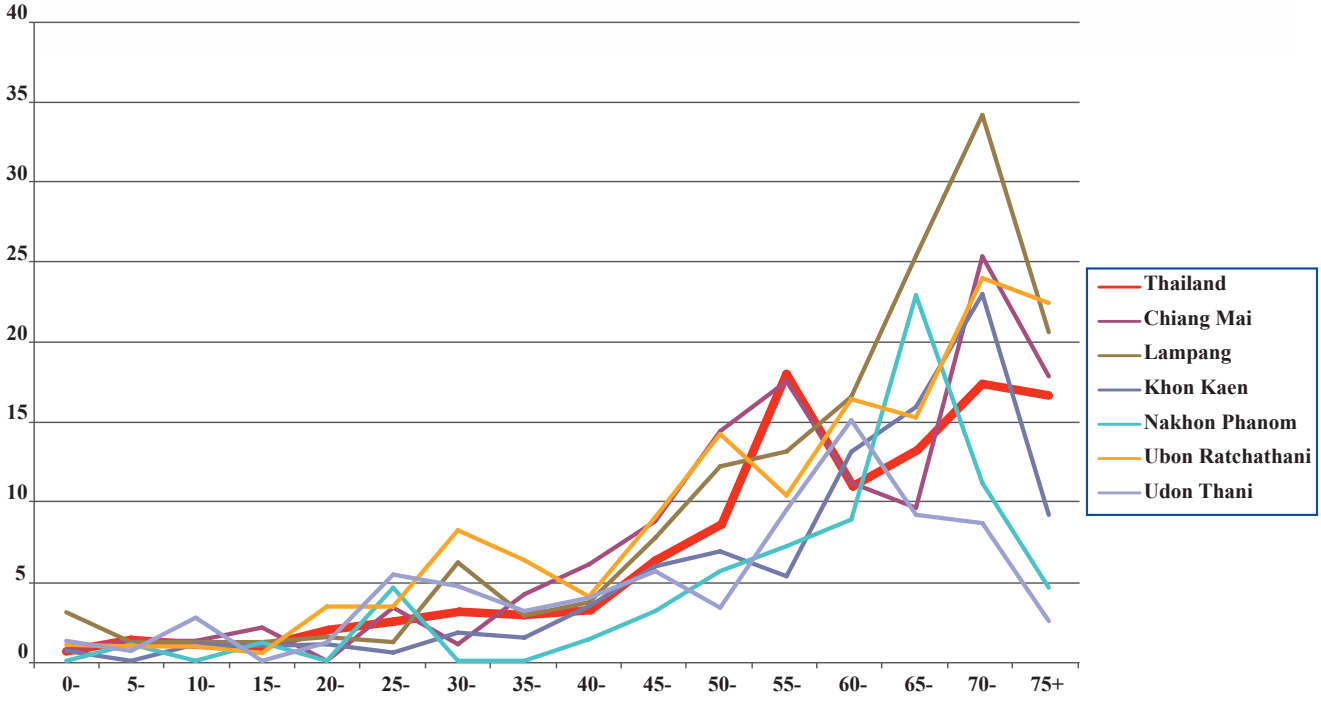
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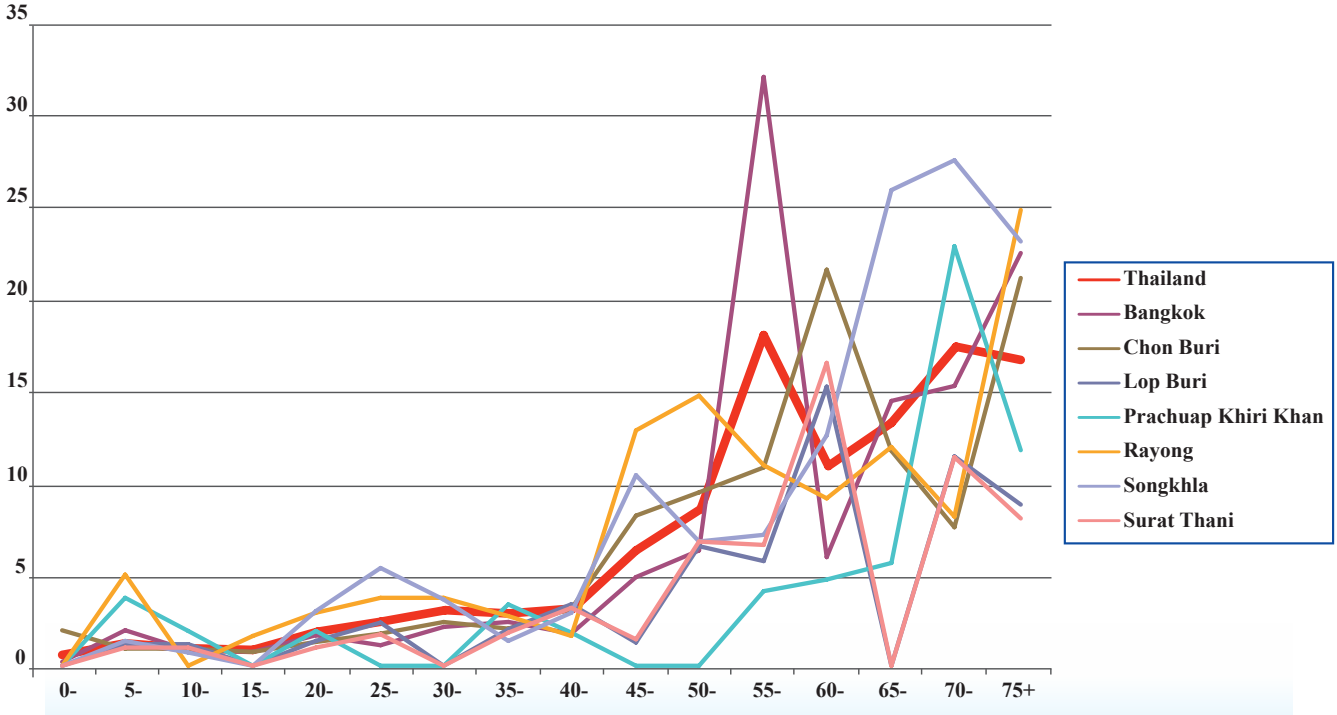
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Leukemia

Figure 2.21.1 Leukemia in different regions, 2001-2003

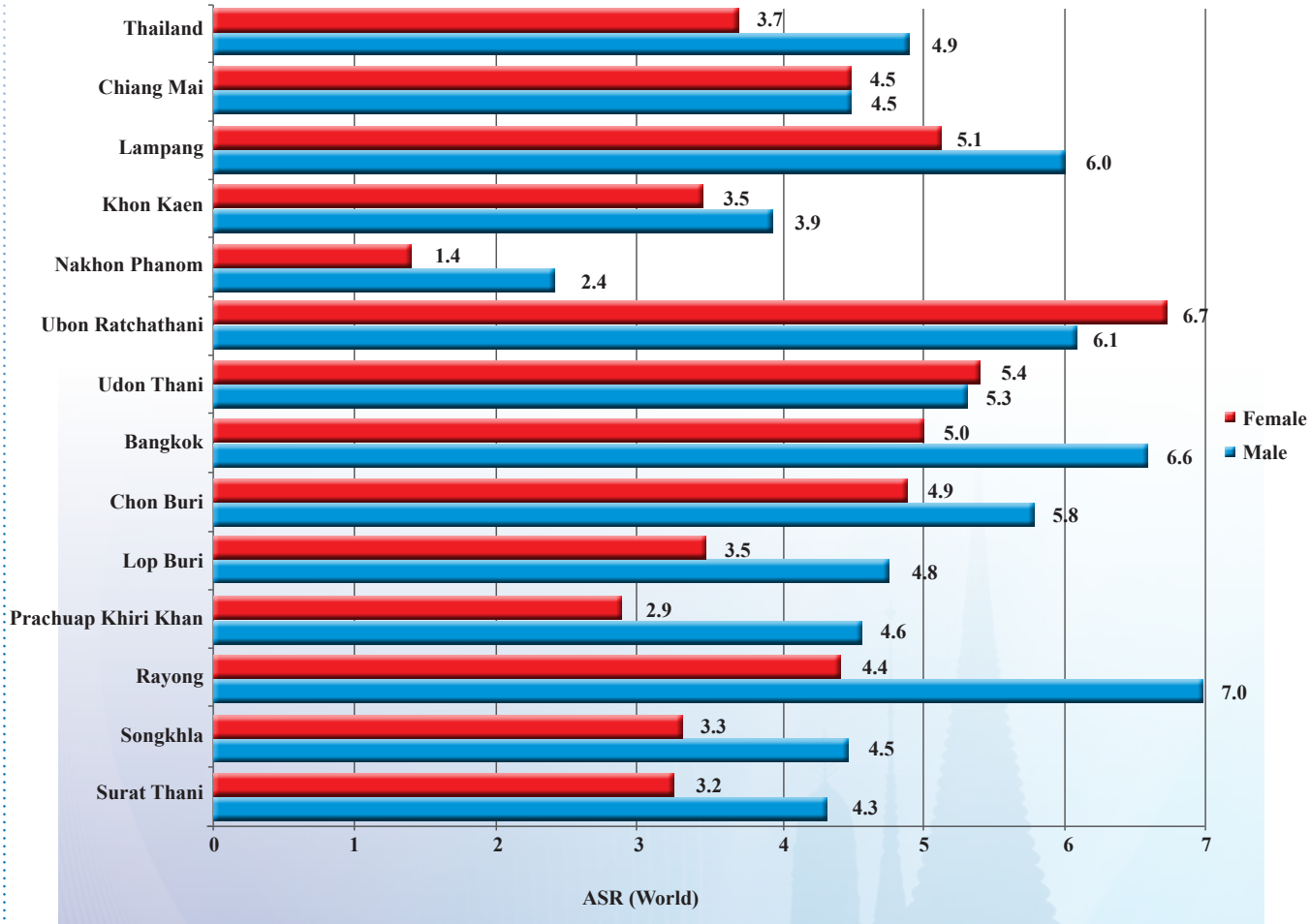
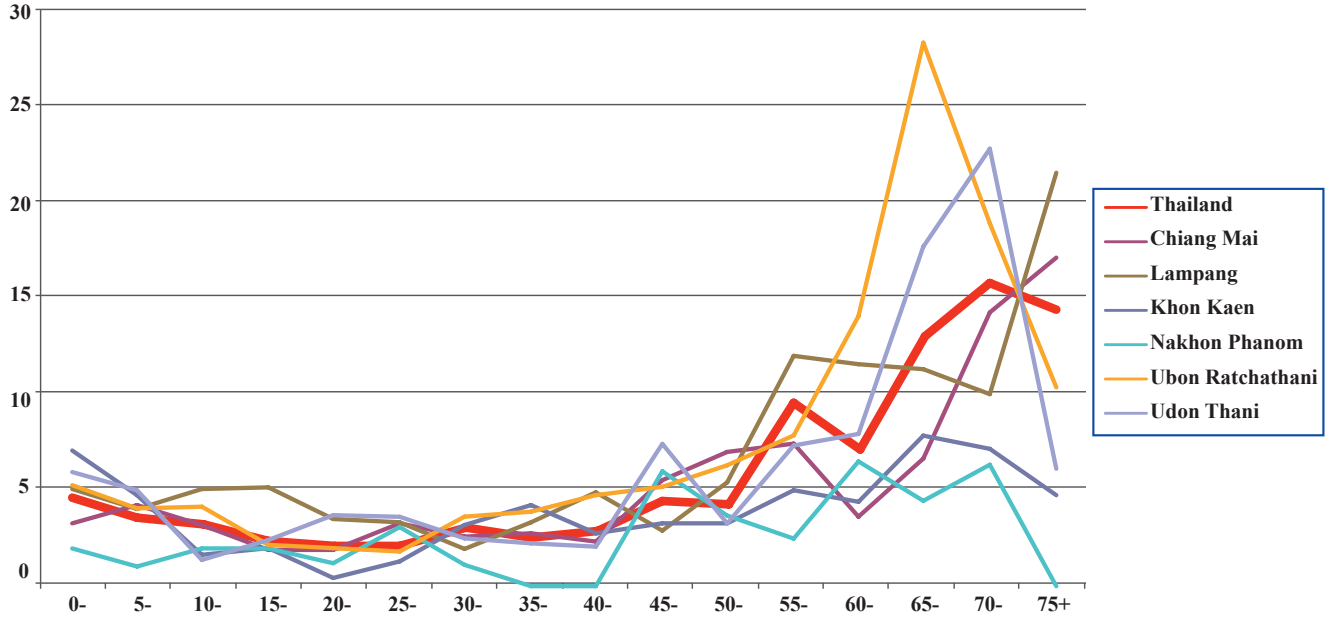
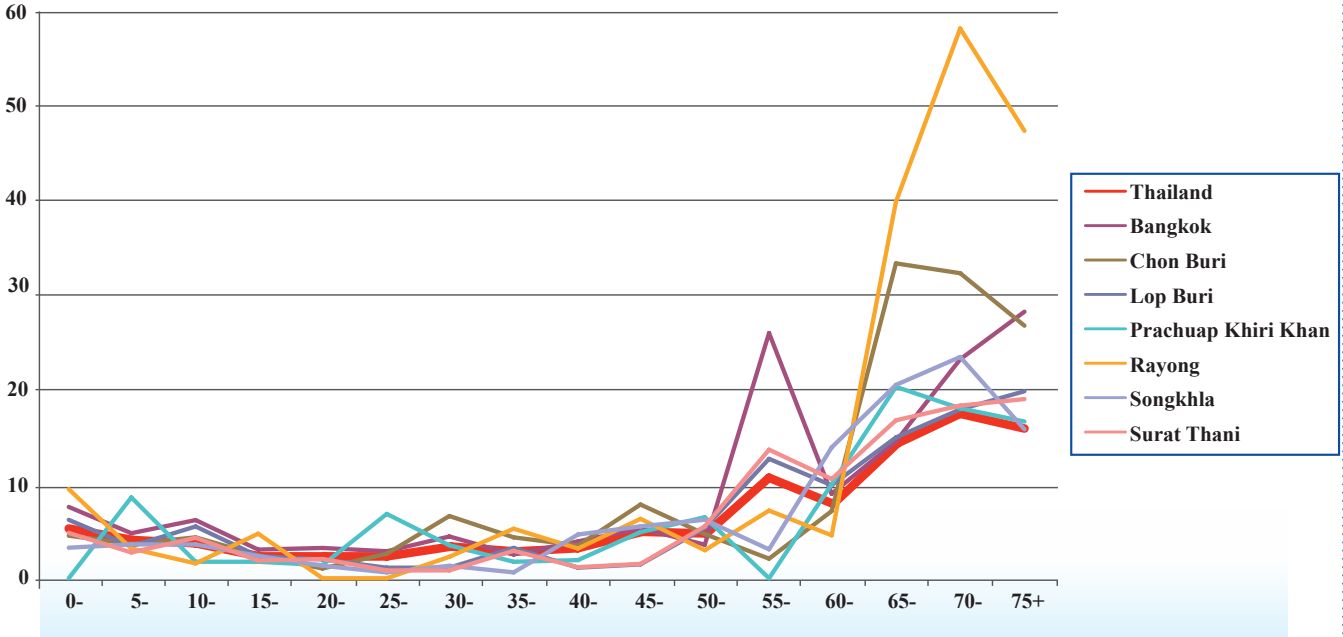


Figure 2.21.2 Age-specific incidence rates of Leukemia, 2001-2003

Male





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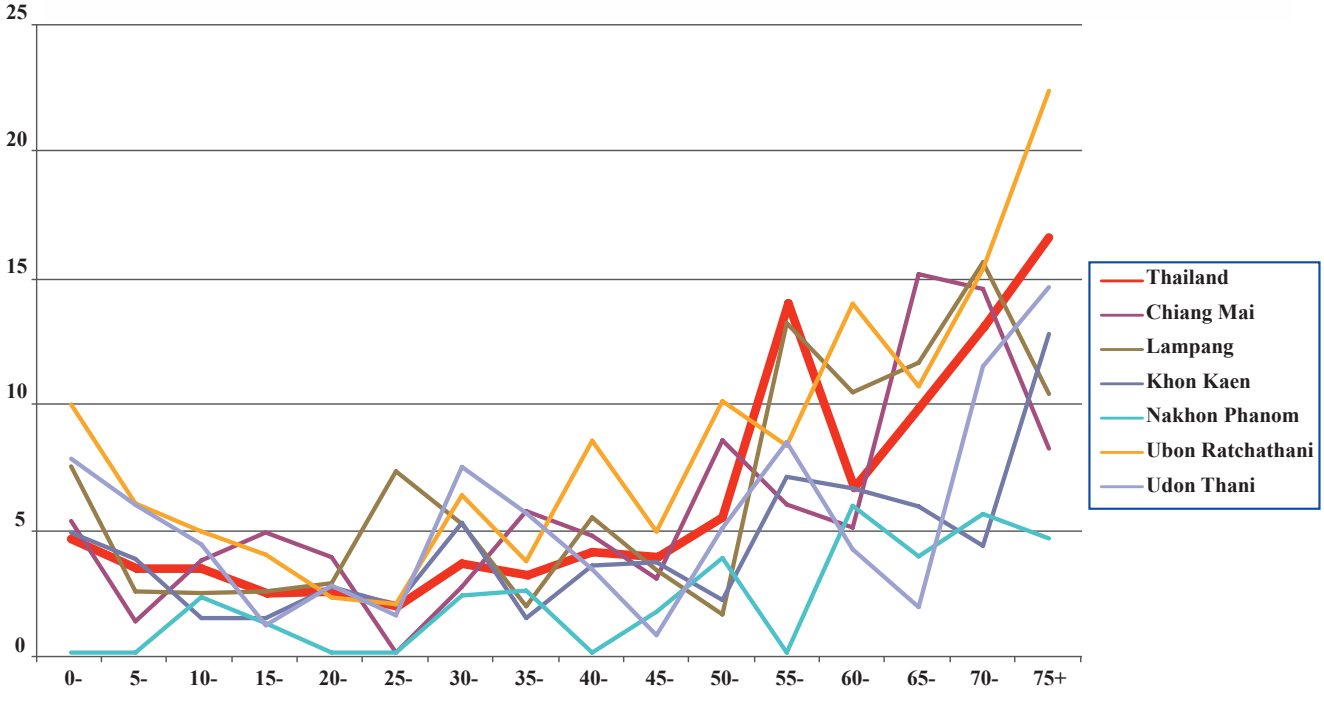
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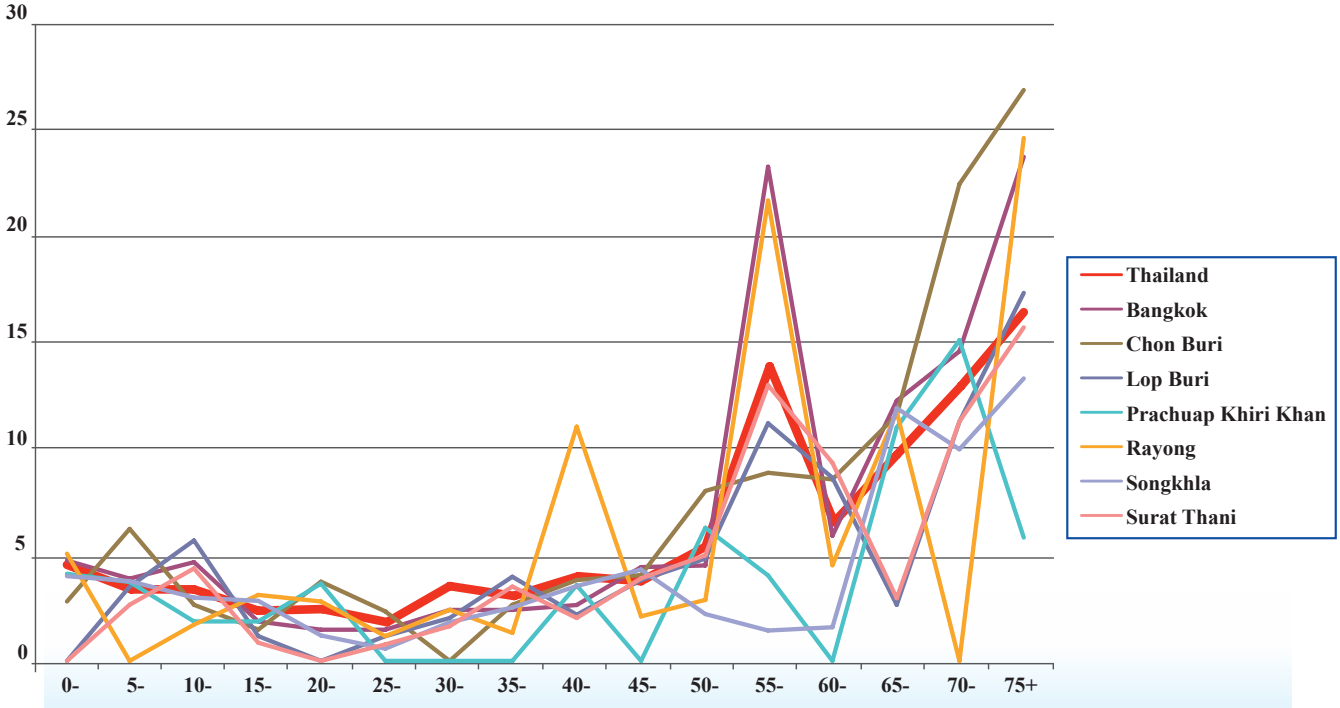
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Prachuap Khiri Khan
Rayong
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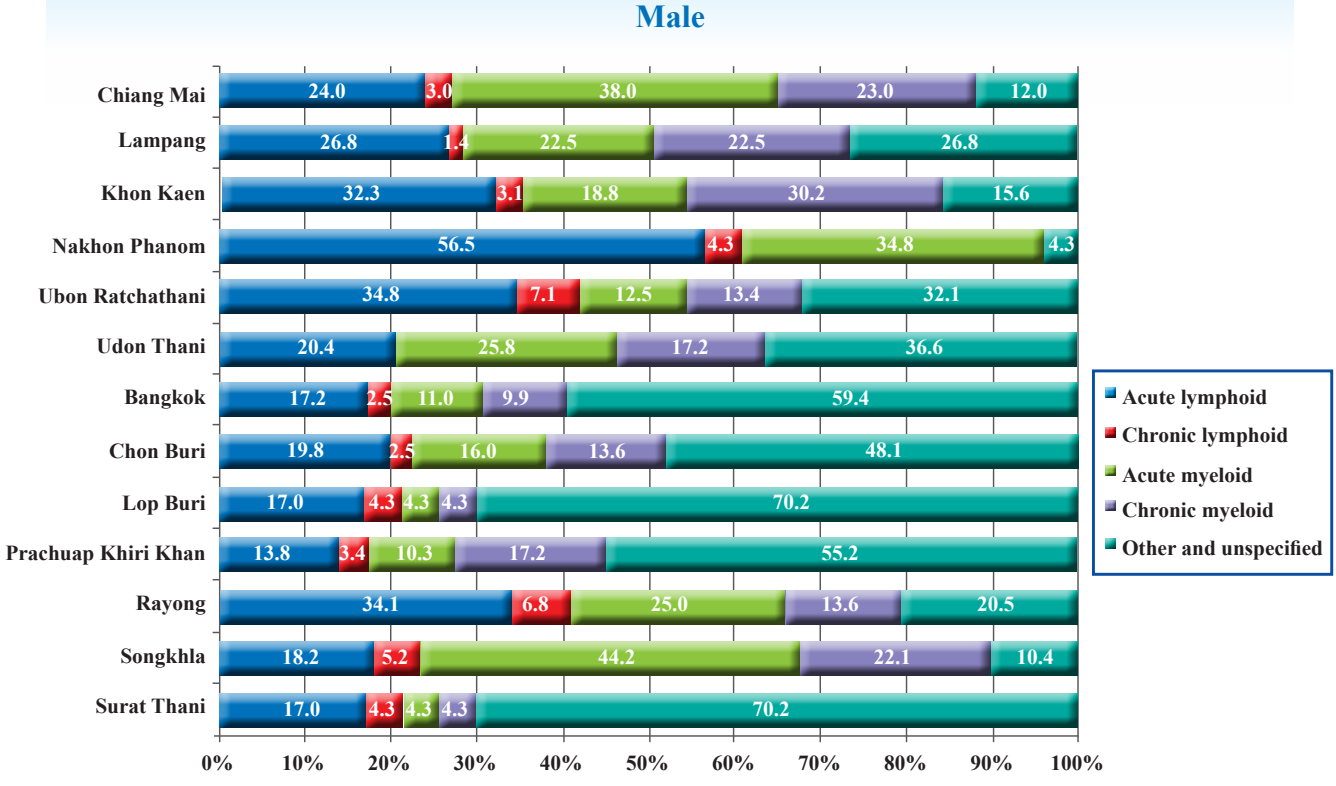
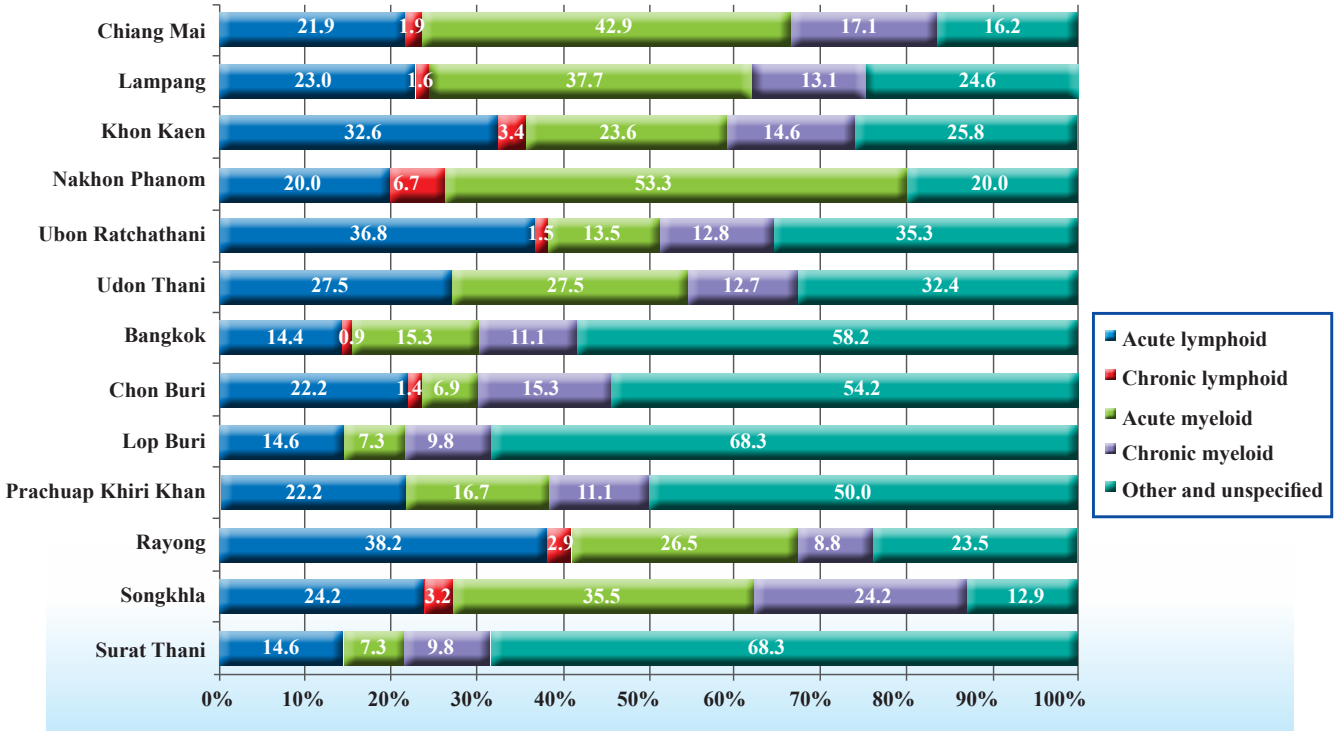
Surat Thani

Figure 2.21.3 Histological types of leukemia cancer, 2001-2003





Chapter III

Chiang Mai Cancer Registry

Lampang Cancer Registry

Khon Kaen Cancer Registry

Nakhon Phanom Cancer Registry

Ubon Ratchathani Cancer Registry

Udon Thani Cancer Registry

Bangkok Cancer Registry

Chon Buri Cancer Registry

Lop Buri Cancer Registry

Prachuap Khiri Khan Cancer Registry

Rayong Cancer Registry

Songkhla Cancer Registry

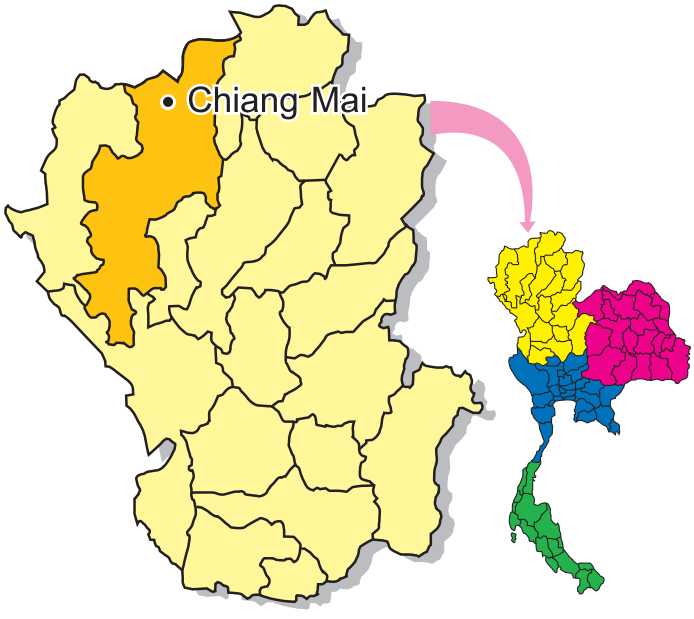
Surat Thani Cancer Registry

Chiang Mai Cancer Registry

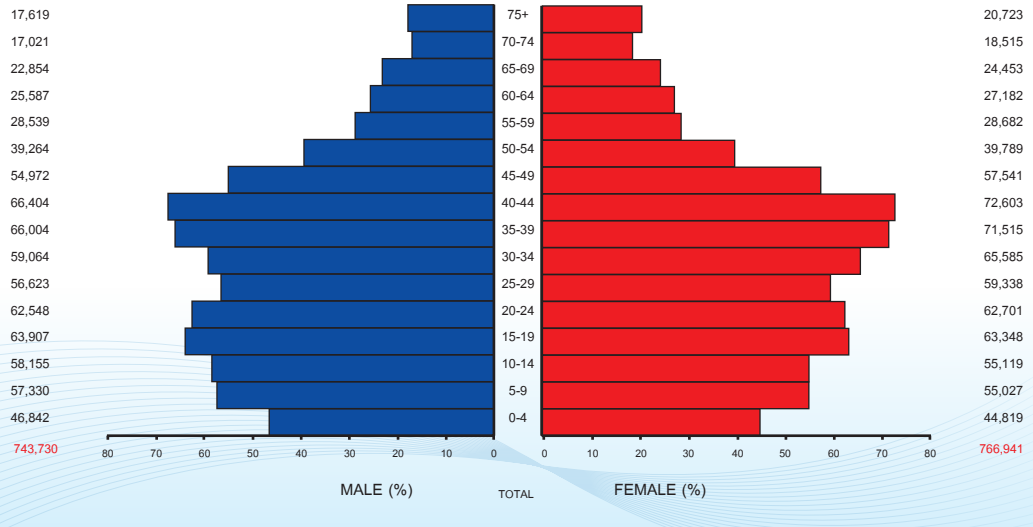
Registration area

Chiang Mai province is the second civilized city of Thailand, famous among 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 the year 2002 the population of Chiang Mai was 1,510,671 which 766,941 were females and 743,730 were males (1). The population density is 74 persons per kilometers. The most crowded district is was Mueang district. The population is mainlyThai, the others and include Chinese, hill tribes and some minority groups.

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



Population pyramid, Chaing Mai, 2002



Cancer care facilities

General health care in Thailand is mainly provided by the government. In each district of Chiang Mai, there is one community hospital with net work health care facilities except for Mae Rim district. In the urban area (Mueang district) of Chiang Mai, there are 1 university hospital, 1 municipal hospital, 3 military hospitals and 9 private hospitals. The total number of hospital beds in Chiang Mai was 9,180 beds with 1,167 doctors in the year 2002. Most of the cancer cases are referred to provincial hospital, university hospital or big private hospitals which can provide surgery and chemotherapy. Radiotherapy can be done only in Chiang Mai University Hospital.

Registry Procedures

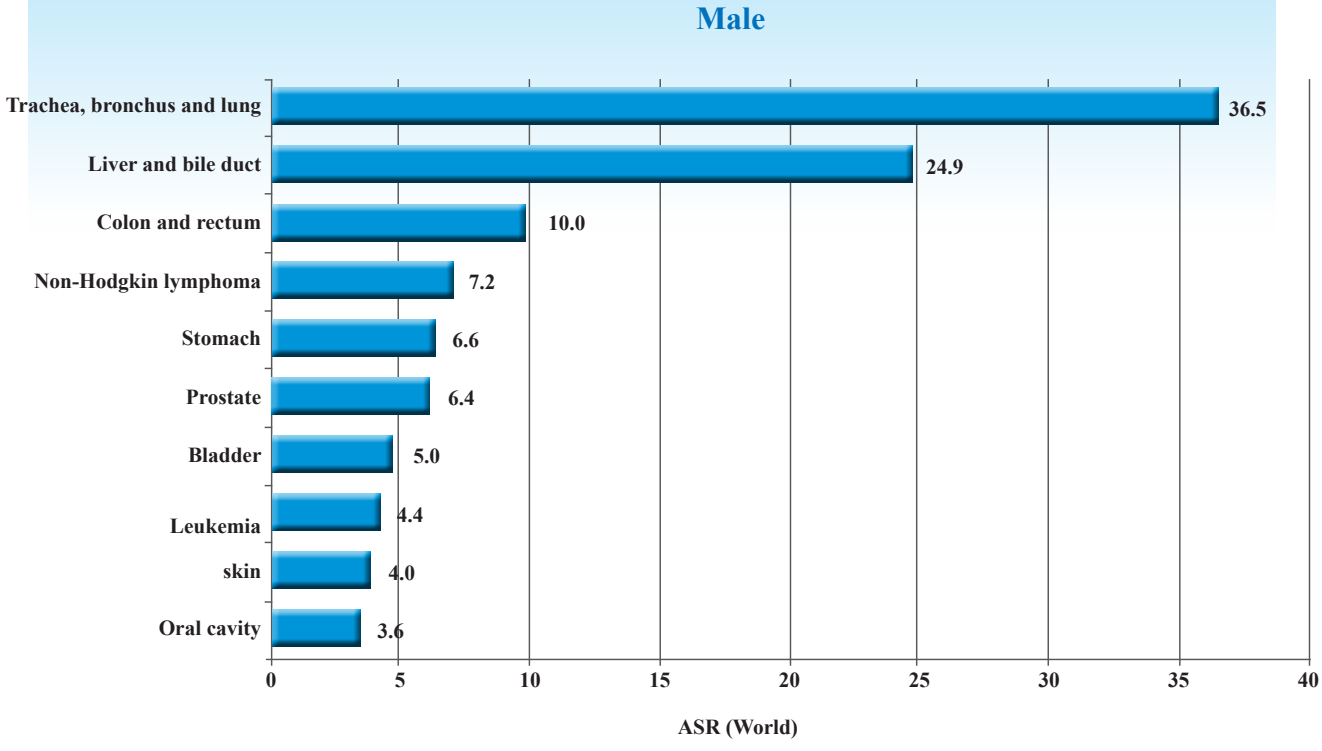
The cancer unit, Faculty of Medicine, Chiang Mai University has been carried out the hospital based cancer registry since 1963. The data on cancer patients is collected actively from every hospital in Chiang Mai. The data of Chiang Mai residents are extracted from the hospital based cancer registry of Chiang Mai University hospital. The registry personnel visit every hospital in Chiang Mai to review the medical records of cancer patients to fill the registration forms. Lists of pathological diagnosis from every pathological center in Chiang Mai are also explored for cancer cases. The case record form includes the patient's demography, date of diagnoses, tumor site, histology, extent of disease, method of diagnosis and treatment modalities. 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 record forms are reviewed by a surgeon who is the chief of the cancer registry.

All data are checked for duplication, verified, coded and keyed into fox-based program and converted to the Canreg-3 program. Death certificates specified as cancer are collected from web site of the office of Ministry of Interior. The information will be matched with the existing records, case of unmatched will be registered as cancer of death certificate only (DCO).

Summary of results

New cases registered in 2001-2003, 3,658 were males and 4,157 were females this made up of 7,815 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 151.1 per 100,000 in which lung cancer ranks first (ASR = 36.5) followed by liver and bile duct (ASR = 24.9), colon and rectum (ASR = 10.0). ASR of all cancer sites in females is higher than in males (ASR = 157.4), three leading cancer in females are lung (ASR = 25.4) and cervix (ASR = 25.1), breast (ASR = 21.8).

Figure 3.1.3 Leading cancer in Chiang Mai, 2001-2003



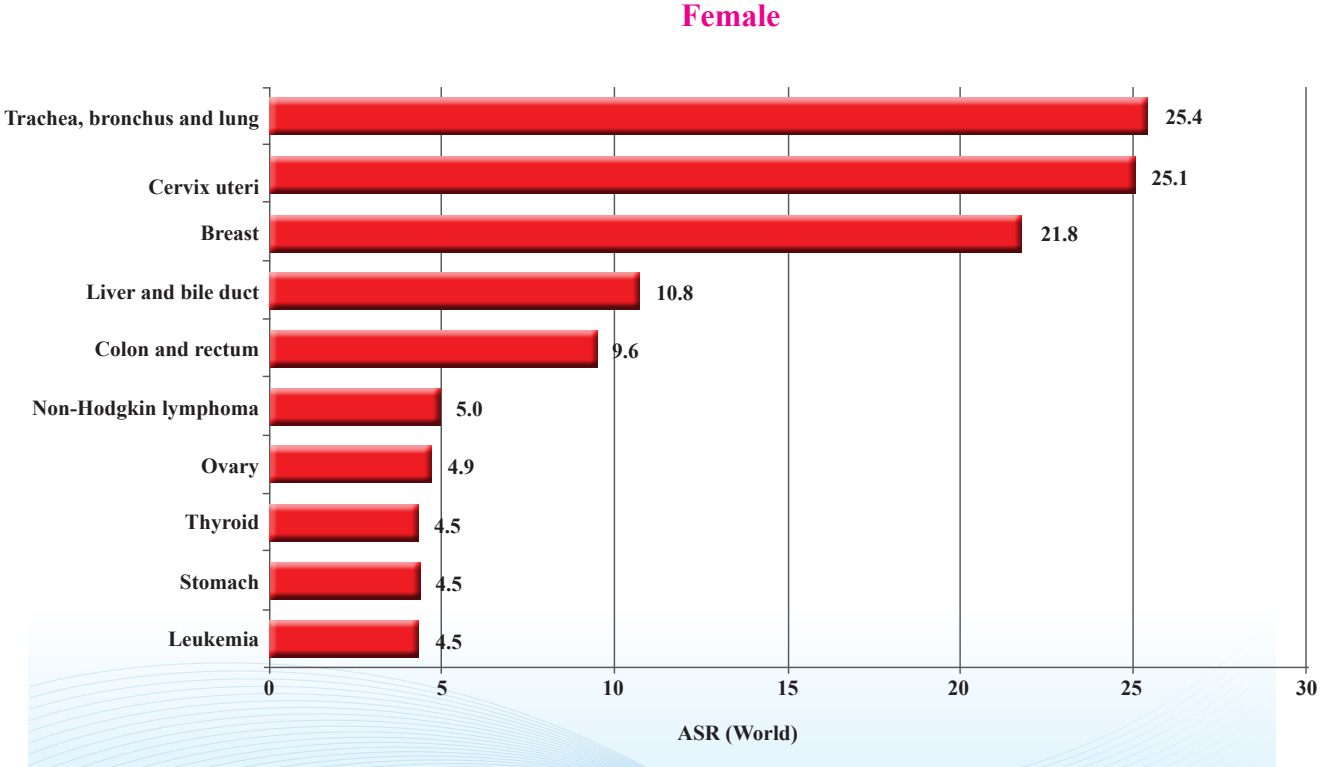


Table 3.2.1 Percentage of morphologically verified and death certificate only cases, Chiang Mai, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	87	94.3	1.1	59	94.9	1.7
C09-C10,C14	Oropharynx, etc.	31	96.8	0.0	7	85.7	0.0
C11	Nasopharynx	75	94.7	1.3	31	90.3	6.5
C12-C13	Hypopharynx	23	91.3	0.0	14	92.9	0.0
C15	Esophagus	35	68.6	2.9	18	55.6	0.0
C16	Stomach	158	88.0	2.5	118	84.7	0.8
C17	Small intestine	8	75.0	0.0	7	85.7	0.0
C18-C21	Colon and rectum	245	85.7	0.8	255	90.2	0.0
C22,C24	Liver and bile duct	618	31.7	8.6	281	35.6	8.2
C23	Gallbladder	18	50.0	16.7	34	70.6	2.9
C25	Pancreas	37	35.1	5.4	46	37.0	8.7
C30-C31	Nose, sinuses etc.	16	87.5	0.0	8	87.5	0.0
C32	Larynx	53	83.0	0.0	10	80.0	0.0
C33-C34	Trachea, bronchus and lung	867	62.7	5.5	646	59.1	5.7
C37-C38	Other thoracic organs	4	75.0	0.0	5	100.0	0.0
C40-C41	Bone	17	82.4	17.6	13	69.2	15.4
C43	Melanoma of skin	15	100.0	0.0	7	100.0	0.0
C44	Other skin	95	95.8	2.1	84	100.0	0.0
C47,C49	Connective and soft tissue	18	88.9	0.0	15	100.0	0.0
C50	Breast	9	100.0	0.0	599	96.7	0.5
C51	Vulva				31	96.8	0.0
C52	Vagina				8	100.0	0.0
C53	Cervix uteri				703	96.3	1.0
C54	Corpus uteri				83	94.0	3.6
C55	Uterus unspecified				4	100.0	0.0
C56	Ovary				129	89.9	1.6
C51,C52,C57	Other female genital				7	100.0	0.0
C58	Placenta				8	50.0	0.0
C60	Penis	39	97.4	0.0			
C61	Prostate	159	89.3	0.6			
C62	Testis	15	93.3	0.0			
C63	Other male genital oragans	0	0.0	0.0			
C64	Kidney	32	75.0	3.1	17	70.6	0.0
C65	Renal pelvis	2	50.0	0.0	3	66.7	0.0
C66	Ureter	3	100.0	0.0	2	100.0	0.0
C67	Bladder	124	95.2	0.8	62	82.3	0.0
C68	Other urinary organs	3	100.0	0.0	3	66.7	0.0
C69	Eye	9	66.7	0.0	3	66.7	0.0
C70-C72	Brain, nervous system	46	52.2	13.0	50	28.0	14.0
C73	Thyroid	24	100.0	0.0	124	96.0	0.0
C74	Adrenal gland	0	0.0	0.0	1	100.0	0.0
C75	Other endocrine	3	33.3	0.0	1	100.0	0.0
C81	Hodgkin's disease	16	100.0	0.0	12	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	161	100.0	0.0	115	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	18	100.0	0.0	10	100.0	0.0
C91-C95	Leukemia	101	99.0	1.0	106	99.1	0.9
O&U	Other and unspecified	474	25.9	62.2	418	29.9	62.0
	AII SITE	**3,658**	**64.7**	**11.6**	**4,157**	**76.6**	**8.5**

Table 3.2.2 Chiang Mai (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	6	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3	0.2	0.3
C01-C02	Tongue	36	0	0	0	0	1	0	1	0	2	1	3	4	4	3	9	8	1.5	1.6
C03-C06	Mouth	36	0	0	0	0	0	0	0	0	1	4	4	5	2	7	4	9	1.5	1.6
C07-C08	Salivary gland	9	0	0	1	0	0	1	1	0	0	2	1	0	0	0	2	1	0.4	0.4
C09	Tonsil	26	0	0	0	0	0	1	1	0	2	1	4	4	2	2	3	6	1.1	1.2
C10	Other oropharynx	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.1	0.1
C11	Nasopharynx	75	0	0	0	5	1	2	2	5	10	9	14	7	5	9	2	4	3.0	3.4
C12-C13	Hypopharynx	23	0	0	0	0	0	0	0	0	0	4	2	2	1	1	4	9	0.9	1.0
C14	Pharynx unspecified	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	0.1
C15	Esophagus	35	0	0	0	0	0	0	0	0	0	2	3	6	3	7	4	10	1.5	1.6
C16	Stomach	158	0	0	0	1	1	2	5	3	8	15	17	18	17	28	20	23	6.6	7.1
C17	Small intestine	8	0	0	0	1	0	0	1	0	2	0	0	0	1	1	1	1	0.3	0.4
C18	Colon	131	0	0	1	0	2	1	3	4	8	13	19	8	13	16	22	21	5.3	5.9
C19-C20	Rectum	108	0	0	0	0	1	0	3	4	5	11	8	11	14	14	16	21	4.4	4.8
C21	Anus	6	0	0	0	0	0	0	0	0	0	2	2	1	0	0	1	0	0.2	0.3
C22,C24	Liver and bile duct	618	0	1	0	1	1	0	13	28	66	84	86	59	68	68	80	63	24.9	27.7
C23	Gallbladder	18	0	0	0	0	0	0	0	0	1	2	1	3	3	2	5	1	0.8	0.8
C25	Pancreas	37	0	0	0	0	0	0	0	1	2	6	4	2	5	4	8	5	1.5	1.7
C30-C31	Nose, sinuses etc.	16	0	0	0	0	1	1	0	1	0	2	2	1	2	1	1	4	0.7	0.7
C32	Larynx	53	0	0	0	0	0	0	0	1	1	0	3	2	7	5	14	20	2.2	2.4
C33-C34	Trachea, bronchus and lung	867	0	0	0	1	0	3	3	12	30	46	76	96	121	166	149	164	36.5	38.9
C37-C38	Other thoracic organs	4	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0.1	0.2
C40-C41	Bone	17	0	1	4	2	4	0	0	0	0	0	1	0	0	2	0	3	0.8	0.8
C43	Melanoma of skin	15	0	0	0	0	0	0	0	1	1	0	0	3	3	0	3	4	0.6	0.7
C44	Other skin	95	0	0	0	0	3	0	1	0	3	5	10	6	14	12	11	30	4.0	4.3
C47,C49	Connective and soft tissue	18	0	0	0	0	2	1	3	3	0	1	2	1	2	2	0	1	0.7	0.8
C50	Breast	9	0	0	0	0	1	0	0	1	0	0	1	0	1	2	1	2	0.4	0.4
C60	Penis	39	0	0	0	0	0	0	1	3	2	7	1	1	6	2	10	6	1.5	1.7
C61	Prostate	159	0	0	0	0	0	0	1	0	0	1	0	1	14	24	37	81	6.4	7.1
C62	Testis	15	1	0	0	0	0	1	0	2	0	6	1	0	0	3	1	0	0.6	0.7
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C64	Kidney	32	3	0	0	0	1	1	0	2	4	1	3	2	5	3	4	3	1.4	1.4
C65	Renal pelvis	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.1	0.1
C66	Ureter	3	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0.1	0.1
C67	Bladder	124	0	0	0	0	0	0	0	3	4	12	9	7	9	19	27	34	5.0	5.6
C68	Other urinary organs	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0.1	0.1
C69	Eye	9	4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	2	0.5	0.4
C70-C72	Brain, nervous system	46	2	3	3	1	3	0	8	3	3	1	5	2	2	5	3	2	2.0	2.1
C73	Thyroid	24	0	0	1	0	3	0	2	1	1	4	3	0	4	2	2	1	1.0	1.1
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C75	Other endocrine	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C81	Hodgkin's disease	16	1	0	2	1	0	0	1	0	1	1	0	0	1	3	2	3	0.7	0.7
C82-C85,C96	Non-Hodgkin lymphoma	161	0	2	1	6	2	4	12	9	12	16	18	11	13	14	23	18	6.5	7.2
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C90	Multiple myeloma	18	0	0	0	0	0	0	0	1	3	1	3	0	3	2	2	3	0.7	0.8
C91	Lymphoid leukemia	27	3	7	4	2	1	1	3	0	1	0	0	1	0	1	2	1	1.4	1.2
C92	Myeloid leukemia	64	1	1	2	1	3	5	1	6	2	9	8	5	2	3	6	9	2.6	2.9
C95	Leukemia unspecified	10	1	0	0	1	0	0	1	0	2	1	1	1	1	1	0	0	0.4	0.4
O&U	Other and unspecified	474	1	0	3	3	2	9	17	23	36	45	51	49	51	70	50	64	19.4	21.2
	All SITE	**3,658**	**17**	**15**	**25**	**26**	**35**	**33**	**85**	**118**	**218**	**315**	**366**	**320**	**402**	**506**	**533**	**644**	**151.2**	**164.1**

Table 3.2.3 Chiang Mai (2001-2003), Number of case by age group (years) -female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	8	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2	2	0.3	0.3
C01-C02	Tongue	20	0	0	0	0	0	1	1	1	1	4	2	0	4	1	2	3	0.8	0.9
C03-C06	Mouth	22	0	0	0	0	0	0	0	0	1	0	3	2	0	2	2	12	0.8	1.0
C07-C08	Salivary gland	9	0	0	0	0	1	0	1	0	1	2	2	0	1	0	0	1	0.3	0.4
C09	Tonsil	7	0	0	0	0	0	0	0	0	0	4	0	0	0	1	1	1	0.2	0.3
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C11	Nasopharynx	31	0	0	0	0	1	2	5	8	2	4	1	1	1	2	3	1	1.1	1.3
C12-C13	Hypopharynx	14	0	0	0	0	0	0	0	0	0	0	0	0	1	3	6	4	0.5	0.6
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C15	Esophagus	18	0	0	0	0	0	0	0	0	1	0	1	0	2	5	4	5	0.7	0.8
C16	Stomach	118	0	0	0	0	2	4	2	9	7	13	8	11	12	18	16	16	4.5	5.1
C17	Small intestine	7	0	0	0	0	0	0	0	0	1	0	1	2	0	1	1	1	0.3	0.3
C18	Colon	143	0	0	0	1	1	2	3	11	9	15	19	11	18	15	17	21	5.4	6.2
C19-C20	Rectum	106	0	0	0	0	1	2	4	3	10	12	13	5	7	17	17	15	3.9	4.6
C21	Anus	6	0	0	0	0	0	0	0	0	1	1	0	2	1	1	0	0	0.2	0.3
C22,C24	Liver and bile duct	281	1	0	0	1	0	5	6	12	10	31	38	22	30	40	38	47	10.8	12.2
C23	Gallbladder	34	0	0	0	0	0	0	0	0	0	0	4	3	7	6	6	8	1.4	1.5
C25	Pancreas	46	0	0	0	0	0	0	0	0	1	3	4	4	4	9	14	7	1.8	2.0
C30-C31	Nose, sinuses etc.	8	0	0	1	0	0	0	1	0	0	1	1	0	2	1	1	0	0.3	0.3
C32	Larynx	10	0	0	0	0	0	1	0	0	0	0	0	1	2	1	3	2	0.4	0.4
C33-C34	Trachea, bronchus and lung	646	0	1	0	0	0	2	4	7	15	36	64	47	97	143	115	115	25.4	28.1
C37-C38	Other thoracic organs	5	0	0	0	0	0	1	0	1	0	1	0	0	0	0	2	0	0.2	0.2
C40-C41	Bone	13	0	0	1	1	0	1	2	1	1	2	1	0	0	0	2	1	0.5	0.6
C43	Melanoma of skin	7	0	0	0	0	0	0	0	0	0	1	0	0	2	1	3	0	0.3	0.3
C44	Other skin	84	0	0	1	0	0	0	2	3	0	9	6	2	8	11	15	27	3.1	3.7
C47,C49	Connective and soft tissue	15	1	1	1	2	1	3	0	0	1	1	1	0	0	1	0	2	0.7	0.7
C50	Breast	599	0	0	0	0	3	9	23	58	93	132	80	54	41	51	21	34	21.8	26.0
C51	Vulva	31	0	0	0	0	1	0	2	0	5	2	5	1	0	4	2	9	1.1	1.3
C52	Vagina	8	0	0	0	0	0	0	1	0	0	0	0	1	2	0	3	1	0.3	0.3
C53	Cervix uteri	703	0	0	0	0	4	12	25	75	154	128	73	66	44	52	44	26	25.1	30.6
C54	Corpus uteri	83	0	0	0	0	1	0	2	3	2	11	13	14	13	11	7	6	3.4	3.6
C55	Uterus unspecified	4	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	1	0.1	0.2
C56	Ovary	129	0	0	2	4	4	5	5	16	18	17	21	10	11	9	4	3	4.9	5.6
C57	Other female genital	7	0	0	0	0	0	0	0	0	0	1	1	1	0	2	0	2	0.3	0.3
C58	Placenta	8	0	0	0	0	2	2	1	1	1	1	0	0	0	0	0	0	0.3	0.3
C64	Kidney	17	1	0	0	0	0	0	0	1	0	2	2	2	2	3	0	4	0.7	0.7
C65	Renal pelvis	3	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0.1	0.1
C66	Ureter	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.1	0.1
C67	Bladder	62	0	0	0	0	0	0	2	0	1	7	3	4	5	9	11	20	2.3	2.7
C68	Other urinary organs	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0.1	0.1
C69	Eye	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.2	0.1
C70-C72	Brain, nervous system	50	2	1	2	2	2	0	3	4	7	4	8	4	6	3	1	1	2.1	2.2
C73	Thyroid	124	0	0	0	1	8	6	15	10	15	17	10	5	8	9	8	12	4.5	5.4
C74	Adrenal gland	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.0	0.0
C75	Other endocrine	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.0
C81	Hodgkin's disease	12	0	0	0	1	0	2	0	0	1	3	2	0	1	1	1	0	0.5	0.5
C82-C85,C96	Non-Hodgkin lymphoma	115	1	2	2	3	0	4	2	9	12	12	15	15	8	6	13	11	4.5	5.0
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C90	Multiple myeloma	10	0	0	0	0	0	0	0	0	0	3	0	2	1	2	2	0	0.4	0.4
C91	Lymphoid leukemia	25	6	2	4	2	2	0	1	2	1	0	1	0	2	1	1	0	1.4	1.1
C92	Myeloid leukemia	72	0	0	2	7	4	0	3	10	7	5	7	5	2	10	7	3	2.7	3.1
C95	Leukemia unspecified	9	1	0	0	0	1	0	1	0	2	0	2	0	0	0	0	2	0.4	0.4
O&U	Other and unspecified	418	2	1	1	1	4	9	12	22	28	38	31	36	53	68	58	54	16.2	18.2
	All SITE	**4,157**	**16**	**8**	**18**	**26**	**43**	**73**	**130**	**267**	**411**	**524**	**446**	**334**	**399**	**526**	**453**	**483**	**157.4**	**180.7**

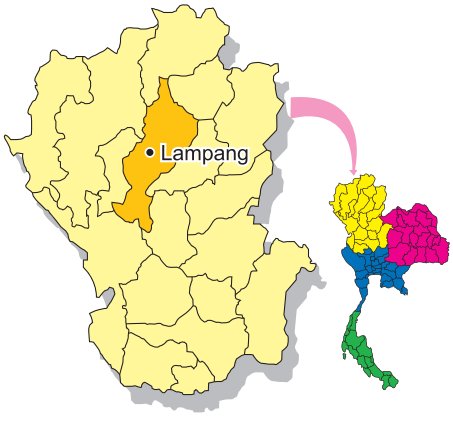
Lampang Cancer Registry

Registration area

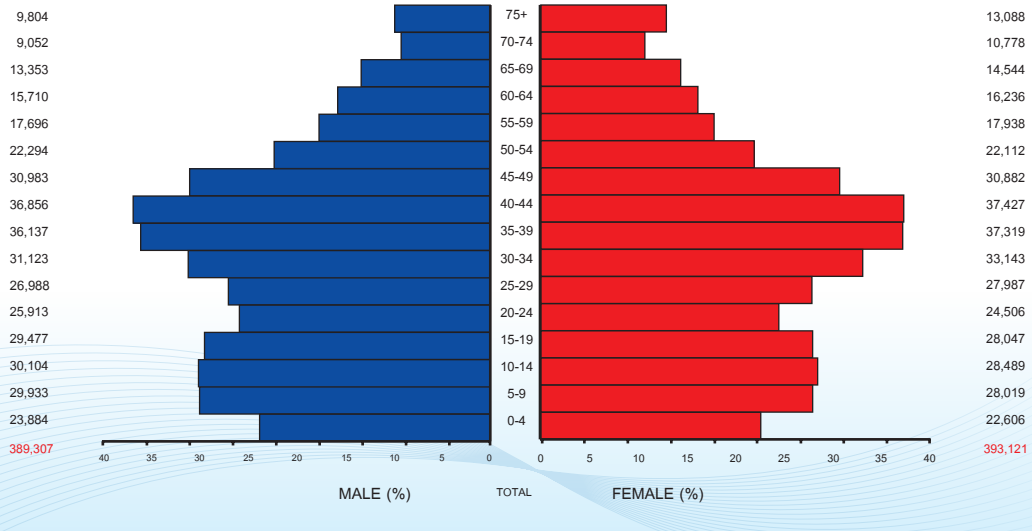
Lampang is a province among 17 provinces located in Northern part of Thailand with the land area of 12,534 square kilometers. Lampang is situated between latitude 17:19 N and longitude 98:100 E. It is 268.8 meters above sea level. It has common boundary with Chiang Mai and Phayao in the north, Phrae in the east, Tak and Sukhothai in the south as well as Lamphun and Chiang Mai in the west. Lampang is divided into 13 districts.

Most important occupations are farming of rice, peanuts, sugar beans and pineapple. Weaving, woodcarving and handicrafts are the small industries. There are large industries in Lampang such as the largest power plant in Thailand is located in Mae Moh district near the lignite mining area. The Moe Moh Power Plant uses the abundant lignite as fuel. It started in 1978 and these plants are working with Fuel Gas Desulfurization System since 2000. In addition, there are more than 200 ceramic factories and the largest concrete plant is also situated in Lampang. For important behavior risks of population in Lampang; percentage of smoking was 23.5 % and alcohol consumption was 36.4 % in both sexes (National Statistics Office, Thailand, 2005).

The total population at 2001 census was 782,152 with 390,256 males and 391,896 females. The population dominators used for the calculation of average incidence rates was taken from extra census estimate population at 2002 was 782,428 with 389,307 males and 393,121 females population.



Population pyramid, Lampang, 2002



Cancer care facilities

In Lampang province, health care service is provided in 12 community hospitals, Lampang provincial hospital, two private hospitals, one military hospital and one cancer center (Lampang cancer center). Patients suspected to have cancer in the primary and secondary health cares in the registry area are mostly referred to Lampang cancer center or Lampang provincial hospital. For cancer care, these hospitals provides cancer diagnostic services (including CT scan, clinical consultations and radiological,pathological investigations), cancer surgery services and chemotherapy are available in Lampang cancer center and Lampang provincial hospital. Radiation therapy are available only in Lampang cancer center. There are one simulator, two cobalt-60 machines, one linear accelerator, one dual energy linear accelerator with multileaf collimator, one high dose rate and two low dose rate for brachytherapy provided in Lampang cancer center. All hospitals in Lampang province provide palliative care. The ratio of doctors to population is 1:2,925. The ratio between registered nurses to population is 1:538 (National Statistic Office, 2007).

Registry structure

The registry unit is located within Lampang cancer center which is one of six Thailand regional cancer centers established in 1994. It is under the supervision of the National Cancer Institute. The Lampang cancer registry was set up in 1995 with back up data of some cancer cases in Lampang.

The registration was passively done by notification from 21 sources which consisting of cancer centers, general hospitals, all community hospitals, 2 private hospitals, Chiang Mai University hospital, provincial public health service of Lampang and pathological laboratories. Cancer cases are collected from all hospitals in Lampang. However, some patients are referred to Chiang Mai University hospital and National Cancer Institute in Bangkok. These cases also have been collected in the registry. New cancer cases from all hospitals were collected from out-patient and in-patient departments, radiotherapy unit, surgical unit, pathological service, cytological unit, laboratory unit, medical record and autopsy service.

The primary site and histology were coded according to ICD-O third edition (Fritz *et al*., 2000). Second primary cancer was also registered; a new registration number was given for each new primary cancer. All death certificates are matched with the incidence case records of the registry. Death certificates were obtained from Bureau of Policy and Strategy, Ministry of Public Health. In addition, ascertainment has probably been more complete. Individual certified as having died of cancer are registered as "Death Certificate Only (DCO)" cases if no other information about the individual can be traced from the other sources.

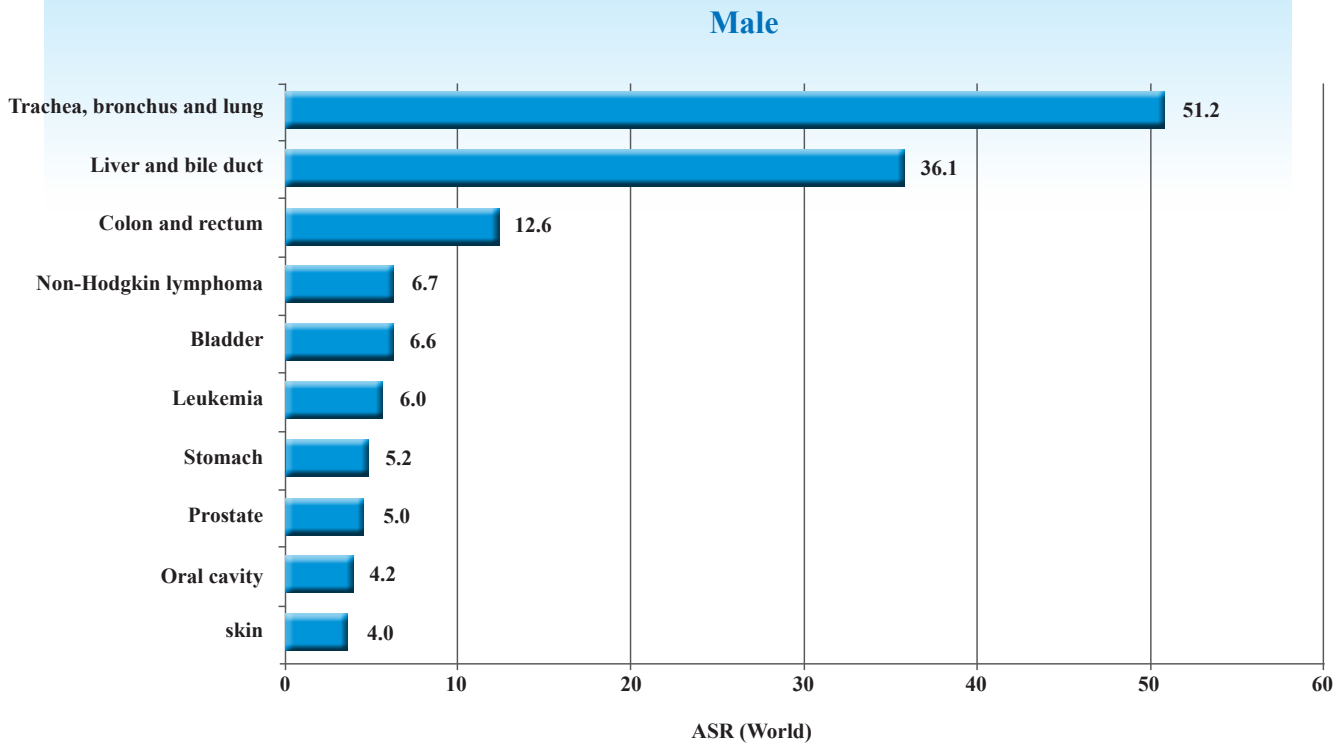
The follow-up of all registered cases were carried out by passive methods with linking database of National Health Security office.

The computed data form was checked and extended into data base files, using the CanReg 4 program for data entry and analysis. Cases of carcinoma in situ were registered but not included in the analysis.

Summary of Results

New cases registered in 2001-2003, 2,387 were males and 2,461 were females this made up of 4,848 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 175.1 per 100,000 in which lung cancer ranks first (ASR = 51.2) followed by liver and bile duct (ASR = 36.1), colon and rectum (ASR = 12.6). ASR of all cancer sites in females is 164.3, three leading cancer in females are lung (ASR = 27.5) and breast (ASR = 25.5), cervix (ASR = 23.8).

Figure 3.2.3 Leading cancer in Lampang, 2001-2003



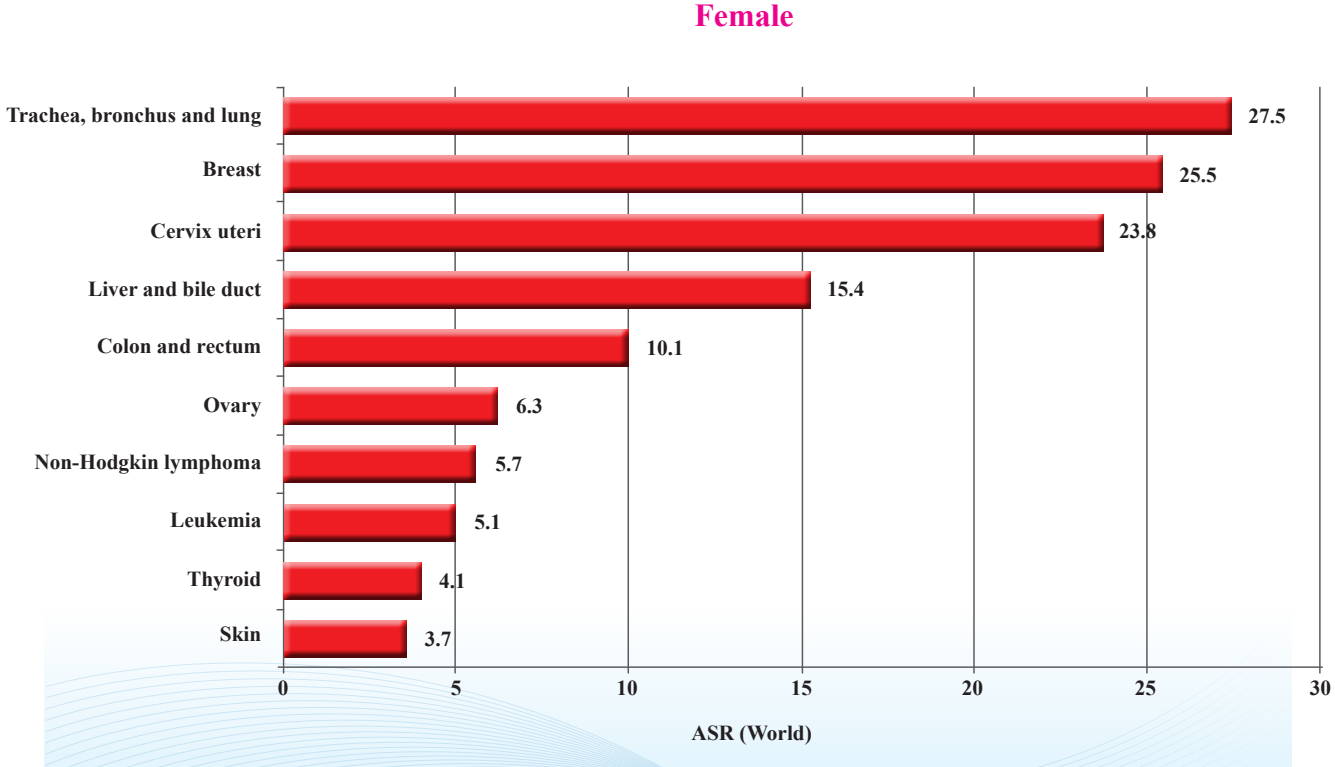


Table 3.3.1 Percentage of morphologically verified and death certificate only cases, Lampang, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	58	84.5	0.0	56	89.3	3.6
C09-C10;C14	Oropharynx, etc.	10	60.0	0.0	8	87.5	0.0
C11	Nasopharynx	40	95.0	0.0	18	72.2	0.0
C12-C13	Hypopharynx	9	88.9	0.0	2	100.0	0.0
C15	Esophagus	25	56.0	0.0	5	60.0	20.0
C16	Stomach	72	66.7	12.5	50	80.0	4.0
C17	Small intestine	1	100.0	0.0	3	66.7	0.0
C18-C21	Colon and rectum	173	63.6	11.0	158	71.5	5.7
C22;C24	Liver and bile duct	506	20.6	17.4	233	17.2	17.2
C23	Gallbladder	16	43.8	6.3	36	41.7	2.8
C25	Pancreas	30	30.0	6.7	23	47.8	4.3
C30-C31	Nose, sinuses etc.	6	100.0	0.0	7	85.7	0.0
C32	Larynx	26	88.5	0.0	8	87.5	12.5
C33-C34	Trachea, bronchus and lung	694	67.4	6.9	411	66.7	9.2
C40-C41	Bone	12	33.3	41.7	6	33.3	33.3
C43	Melanoma of skin	10	100.0	0.0	8	100.0	0.0
C44	Other skin	55	87.3	1.8	56	94.6	1.8
C47,C49	Connective and soft tissue	13	76.9	0.0	19	89.5	5.3
C50	Breast	3	100.0	0.0	393	89.6	0.8
C51	Vulva				12	83.3	8.3
C52	Vagina				2	100.0	0.0
C53	Cervix uteri				370	87.0	1.6
C54	Corpus uteri				45	80.0	13.3
C55	Uterus unspecified				0	0.0	0.0
C56	Ovary				90	76.7	0.0
C51,C52,C57	Other female genital				1	100.0	0.0
C58	Placenta				2	100.0	0.0
C60	Penis	25	72.0	0.0			
C61	Prostate	69	76.8	2.9			
C62	Testis	8	100.0	0.0			
C63	Other male genital oragans	0	0.0	0.0	0	0.0	0.0
C64	Kidney	13	61.5	15.4	6	33.3	16.7
C65	Renal pelvis	13	100.0	0.0	5	80.0	0.0
C66	Ureter						
C67	Bladder	90	82.2	0.0	20	75.0	0.0
C68	Other urinary organs	2	0.0	0.0	1	0.0	0.0
C69	Eye	2	50.0	0.0	1	100.0	0.0
C70-C72	Brain, nervous system	22	40.9	36.4	35	45.7	17.1
C73	Thyroid	12	83.3	8.3	63	81.0	1.6
C74	Adrenal gland	2	0.0	50.0	1	0.0	0.0
C75	Other endocrine	2	50.0	50.0	1	0.0	0.0
C81	Hodgkin's disease	2	100.0	0.0	1	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	88	100.0	0.0	79	100.0	0.0
C88	Immunoproliferative diseases	1	100.0	0.0	0	0.0	0.0
C90	Multiple myeloma	14	100.0	0.0	10	100.0	0.0
C91-C95	Leukemia	71	100.0	0.0	62	100.0	0.0
O&U	Other and unspecified	192	38.5	17.7	153	41.2	20.9
	AII SITE	**2,387**	**59.1**	**9.3**	**2,461**	**71.6**	**6.3**

Table 3.3.2 Lampang (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	5	0	0	0	0	0	0	1	0	1	0	1	1	1	0	0	0	0.4	0.4
C01-C02	Tongue	20	0	0	0	0	0	0	0	0	1	2	3	0	2	3	3	6	1.4	1.7
C03-C06	Mouth	26	0	0	0	0	0	1	0	1	0	2	2	1	4	2	3	10	1.9	2.2
C07-C08	Salivary gland	7	0	0	0	0	1	0	0	0	0	0	1	0	0	3	0	2	0.5	0.6
C09	Tonsil	6	0	0	0	0	0	1	0	1	1	0	0	0	0	2	0	1	0.4	0.5
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C11	Nasopharynx	40	0	0	1	0	1	2	0	3	7	4	7	0	3	4	2	6	2.8	3.4
C12-C13	Hypopharynx	9	0	0	0	0	0	0	0	0	0	1	2	0	0	2	1	3	0.6	0.8
C14	Pharynx unspecified	3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0.2	0.3
C15	Esophagus	25	0	0	0	0	0	0	0	0	0	1	1	3	8	3	4	5	1.9	2.1
C16	Stomach	72	0	0	0	0	0	0	1	2	3	3	6	4	11	12	12	18	5.2	6.2
C17	Small intestine	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C18	Colon	108	0	0	1	1	2	2	3	5	7	8	9	9	5	16	14	26	7.7	9.2
C19-C20	Rectum	63	0	0	0	1	1	0	1	1	0	6	3	8	12	14	5	11	4.7	5.4
C21	Anus	2	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0.1	0.2
C22,C24	Liver and bile duct	506	0	0	0	0	1	4	12	22	37	56	63	60	46	84	59	62	36.1	43.3
C23	Gallbladder	16	0	0	0	1	0	0	0	1	0	0	0	3	2	4	1	4	1.2	1.4
C25	Pancreas	30	0	0	0	0	0	0	1	0	4	1	2	5	5	4	1	7	2.1	2.6
C30-C31	Nose, sinuses etc.	6	0	0	0	0	0	0	0	1	1	1	0	2	0	1	0	0	0.4	0.5
C32	Larynx	26	0	0	0	0	0	0	0	0	0	1	3	3	5	6	3	5	1.9	2.2
C33-C34	Trachea, bronchus and lung	694	0	0	0	0	1	2	6	7	15	34	57	75	99	152	114	132	51.2	59.4
C37-C38	Other thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C40-C41	Bone	12	0	2	0	2	1	0	0	0	2	0	0	0	3	0	2	0	1.0	1.0
C43	Melanoma of skin	10	0	0	0	0	0	0	0	0	0	0	0	1	2	3	1	3	0.7	0.9
C44	Other skin	55	0	0	0	0	0	1	0	1	1	4	1	3	9	7	9	19	4.0	4.7
C47,C49	Connective and soft tissue	13	0	0	0	0	0	0	1	4	1	4	0	1	2	0	0	0	0.8	1.1
C50	Breast	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0.2	0.3
C60	Penis	25	0	0	0	0	0	0	2	1	2	3	1	3	5	3	4	1	1.8	2.1
C61	Prostate	69	0	0	0	0	0	0	0	0	1	0	2	6	10	8	13	29	5.0	5.9
C62	Testis	8	1	0	0	0	1	0	1	3	0	2	0	0	0	0	0	0	0.6	0.7
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	13	0	0	0	0	0	0	0	0	1	1	2	3	0	2	0	4	0.9	1.1
C65	Renal pelvis	13	0	0	0	0	0	0	0	0	0	3	1	5	1	3	0	0	1.0	1.1
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	90	0	0	0	0	0	0	2	1	4	3	5	7	15	9	22	22	6.6	7.7
C68	Other urinary organs	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.1	0.2
C69	Eye	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.2
C70-C72	Brain, nervous system	22	0	0	0	2	0	1	2	1	2	4	3	1	2	0	0	4	1.6	1.9
C73	Thyroid	12	0	0	0	0	0	0	0	0	2	0	0	1	5	0	2	2	0.9	1.0
C74	Adrenal gland	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0.2
C75	Other endocrine	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0.1	0.2
C81	Hodgkin's disease	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0.1	0.2
C82-C85,C96	Non-Hodgkin lymphoma	88	0	1	1	3	2	3	4	7	4	5	8	3	14	12	14	7	6.6	7.5
C88	Immunoproliferative diseases	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C90	Multiple myeloma	14	0	0	0	0	0	0	1	0	0	1	1	1	2	3	1	4	1.0	1.2
C91	Lymphoid leukemia	20	3	2	1	2	0	0	1	2	1	0	1	2	1	0	1	3	1.8	1.7
C92	Myeloid leukemia	34	1	1	1	3	2	3	0	1	3	2	3	5	3	3	0	3	2.8	2.9
C95	Leukemia unspecified	17	0	1	3	0	1	0	1	1	2	1	0	0	2	2	2	1	1.3	1.5
O&U	Other and unspecified	192	2	0	0	0	0	1	6	8	11	8	21	15	20	35	27	38	14.0	16.4
	AII SITE	**2,387**	**8**	**8**	**8**	**16**	**14**	**21**	**48**	**76**	**116**	**161**	**211**	**233**	**299**	**406**	**322**	**440**	**175.1**	**204.5**

Table 3.3.3 Lampang (2001-2003), Number of case by age group (years) female

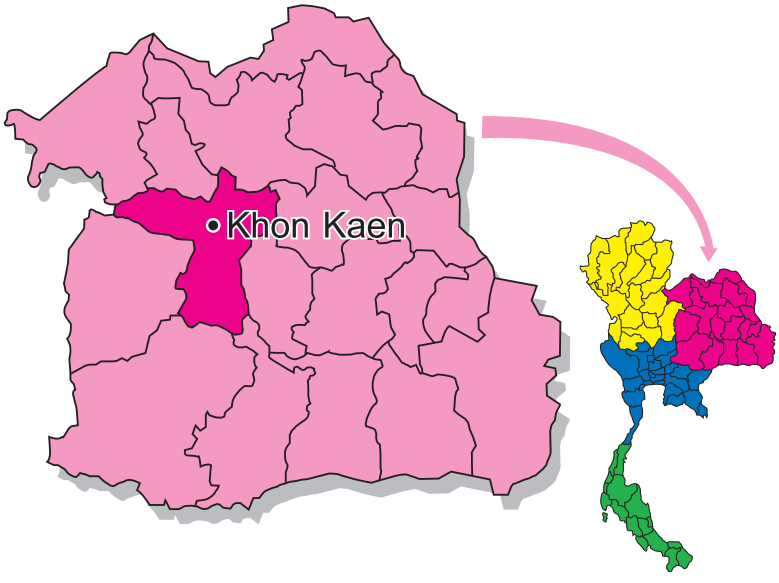
ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	12	0	0	0	0	0	1	1	1	0	0	2	0	2	1	0	4	0.8	1.0
C01-C02	Tongue	15	0	0	0	0	0	0	1	1	0	1	2	1	1	2	3	3	1.0	1.3
C03-C06	Mouth	24	0	0	0	0	0	0	1	1	1	1	3	1	2	6	3	5	1.5	2.0
C07-C08	Salivary gland	5	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	2	0.3	0.4
C09	Tonsil	5	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1	0.3	0.4
C10	Other oropharynx	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C11	Nasopharynx	18	0	0	0	1	2	0	0	1	0	1	2	3	1	3	4	0	1.4	1.5
C12-C13	Hypopharynx	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.1	0.2
C14	Pharynx unspecified	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	0.2
C15	Esophagus	5	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	2	0.3	0.4
C16	Stomach	50	0	0	0	0	0	1	2	4	5	5	5	3	4	8	6	7	3.2	4.2
C17	Small intestine	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0.2	0.3
C18	Colon	93	0	0	0	0	0	1	6	5	5	17	7	7	7	11	10	17	6.0	7.9
C19-C20	Rectum	63	0	0	0	0	0	3	1	2	6	5	2	9	2	10	10	13	4.1	5.3
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.1	0.2
C22,C24	Liver and bile duct	233	0	0	0	1	0	0	1	5	9	26	22	22	29	41	34	43	15.4	19.8
C23	Gallbladder	36	0	0	0	0	0	0	1	1	0	1	1	2	7	4	7	12	2.3	3.1
C25	Pancreas	23	0	0	0	0	0	0	0	0	0	1	6	1	3	5	3	4	1.6	2.0
C30-C31	Nose, sinuses etc.	7	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	2	0.5	0.6
C32	Larynx	8	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	3	0.5	0.7
C33-C34	Trachea, bronchus and lung	411	0	0	0	1	1	2	3	7	14	18	27	44	69	80	74	71	27.5	34.8
C37-C38	Other thoracic organs	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C40-C41	Bone	6	0	0	0	0	0	0	0	0	2	0	1	0	1	1	1	0	0.4	0.5
C43	Melanoma of skin	8	0	0	0	0	0	0	1	0	0	2	0	1	0	1	0	3	0.5	0.7
C44	Other skin	56	0	0	2	0	1	1	1	1	1	4	3	4	5	6	8	19	3.7	4.7
C47,C49	Connective and soft tissue	19	2	2	0	0	2	1	3	2	1	1	0	0	3	1	0	1	1.7	1.6
C50	Breast	393	0	0	0	0	1	7	17	43	70	86	53	33	30	16	19	18	25.5	33.3
C51	Vulva	12	0	0	0	0	0	0	0	1	2	0	0	1	1	3	1	3	0.7	1.0
C52	Vagina	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	0.2
C53	Cervix uteri	370	0	0	0	0	1	4	25	50	71	67	50	35	28	13	11	15	23.8	31.4
C54	Corpus uteri	45	0	0	0	0	0	1	3	3	3	7	7	11	2	5	2	1	3.1	3.8
C55	Uterus unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C56	Ovary	90	1	0	0	2	2	3	0	10	10	19	15	6	6	12	2	2	6.3	7.6
C57	Other female genital	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C58	Placenta	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0.2	0.2
C64	Kidney	6	0	0	0	0	0	2	0	0	0	1	1	0	0	1	1	0	0.5	0.5
C65	Renal pelvis	5	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2	0.3	0.4
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	20	0	0	0	0	0	0	1	0	0	1	0	3	2	2	6	5	1.3	1.7
C68	Other urinary organs	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C69	Eye	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C70-C72	Brain, nervous system	35	3	3	3	2	0	0	1	4	7	4	2	2	0	1	2	1	2.9	3.0
C73	Thyroid	63	0	0	1	2	0	1	7	5	5	10	3	9	2	4	5	9	4.1	5.3
C74	Adrenal gland	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C75	Other endocrine	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.1
C82-C85,C96	Non-Hodgkin lymphoma	79	2	1	1	1	1	1	6	3	4	6	8	7	8	11	11	8	5.6	6.7
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	10	0	0	0	0	0	0	0	0	1	0	0	1	1	2	4	1	0.6	0.8
C91	Lymphoid leukemia	15	3	2	2	1	0	1	0	1	1	0	0	2	0	0	2	0	1.6	1.3
C92	Myeloid leukemia	34	2	0	0	1	2	3	4	1	4	2	1	4	3	4	1	2	2.7	2.9
C95	Leukemia unspecified	13	0	0	0	0	0	2	1	0	1	1	0	1	2	1	2	2	0.9	1.1
O&U	Other and unspecified	153	0	0	1	2	2	2	3	5	8	12	18	13	14	21	20	32	10.2	13.0
	All SITE	**2,461**	**13**	**9**	**10**	**14**	**16**	**38**	**92**	**159**	**235**	**301**	**242**	**231**	**241**	**285**	**256**	**319**	**164.3**	**208.7**

Khon Kaen Cancer Registry

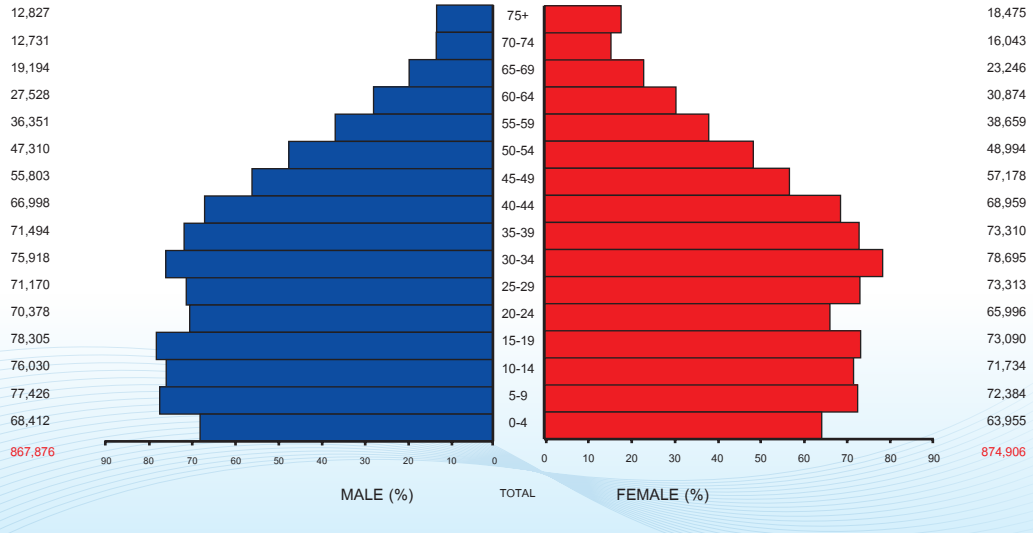
Registration area

Khon Kaen province is located in the northeastern region of Thailand, at latitude 16:30 N and longitude 102:47 E, 163 meters above the sea level. It covers an area of 10,886 square kilometers with a population of 1.7 million. It has a common boundary with Loei and Udon Thani provinces to the north, Kalasin and Maha Sarakham to the east, Nakhon Ratchasima and Buri Ram to the south, and Phetchabun and Chaiyaphum to the west.

Khon Kaen province is divided to 26 sanitary districts. The climate is generally hot and dry. The mean temperature is 28 Celsius and the average annual rainfall is 1,188 millimeters. The majority of people do rice farming. New industrial plants have been established in this area, causing problems of environmental pollution.



Population pyramid, Khon Khaen, 2002



Cancer care facilities

Most of the public hospitals in Khon Kaen belong to the Ministry of Health; others are a university hospital and an army hospital. There are three large private hospitals. Attempts to improve the referral system have gained some support, but many patients still refer themselves according to their preferences.

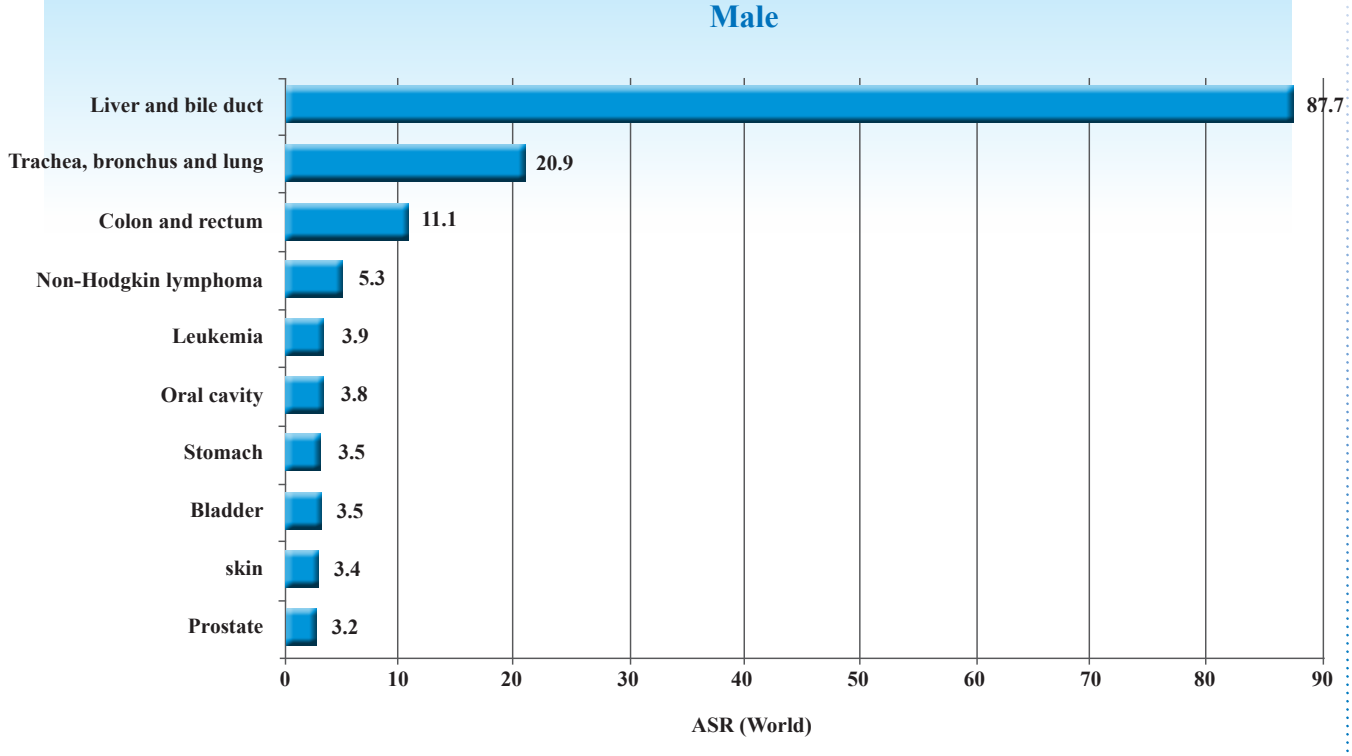
Registry procedures

The data on cancer patient is collected by both active and passive methods from a university hospital (Srinagarind hospital), 1 regional hospital (Khon Kaen provincial hospital), 1 army hospital, 2 private hospitals and 24 community hospitals. The registrars visit all registered sites by regular schedule. The medical charts of patients diagnosed as having cancer are reviewed and registered by registry personnel. Any questionable cases are traced to the original source(s) of information for clarification. Multiple primary cases are checked by physicians using their original records and with any other physicians concerned. Death certificates with a mention of cancer are collected from the population statistics of the office of the Ministry of Interior. The registrars revise these sources to notify and recheck with health personnel in that area. The vital status of registered cases has been regularly updated by checking with the population statistics of the office of the Ministry of Interior using personal identification number. To prevent the duplication, all data are reviewed and checked with existing registry files before data entry. All the data are verified, checked for duplication coded and entered into the CanReg4 software.

Summary of results

New cases registered in 2001-2003, 3,947 were males and 3,575 were females this made up of 7,522 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 172.0 per 100,000 in which liver and bile duct cancer ranks first (ASR = 87.7) followed by lung (ASR = 20.9), colon and rectum (ASR = 11.1). ASR of all cancer sites in females is 131.0, three leading cancer in females are liver and bile duct (ASR = 36.3) and breast (ASR = 15.6), cervix (ASR = 15.3).

Figure 3.3.3 Leading cancer in Khon Kaen, 2001-2003



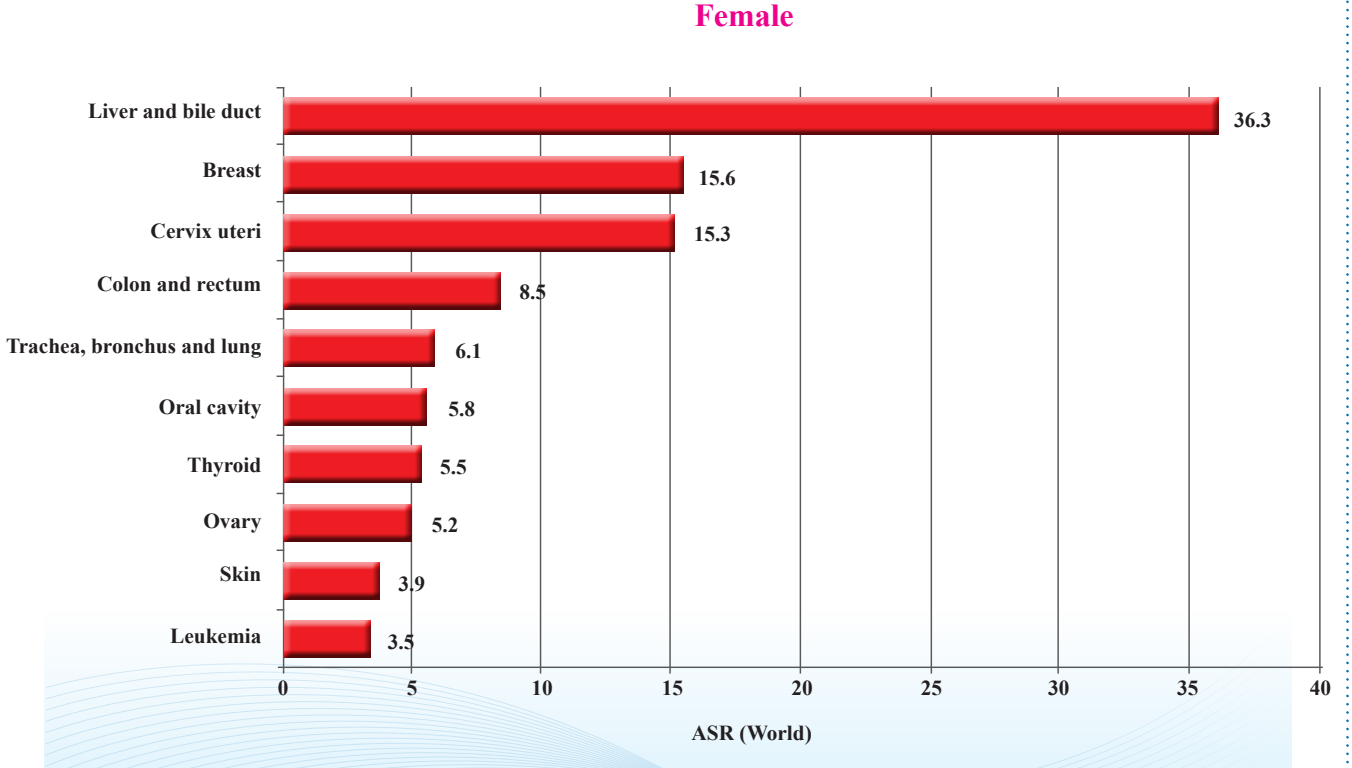


Table 3.4.1 Percentage of morphologically verified and death certificate only cases, Khon Kaen, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	86	87.2	0.0	149	86.6	0.7
C09-C10;C14	Oropharynx, etc.	7	71.4	0.0	9	55.6	0.0
C11	Nasopharynx	71	87.3	0.0	34	79.4	0.0
C12-C13	Hypopharynx	12	91.7	0.0	3	33.3	0.0
C15	Esophagus	21	61.9	0.0	5	60.0	0.0
C16	Stomach	80	71.3	1.3	55	69.1	0.0
C17	Small intestine	4	25.0	0.0	6	100.0	0.0
C18-C21	Colon and rectum	251	63.7	1.2	230	66.5	1.3
C22,C24	Liver and bile duct	2,012	7.9	3.3	943	8.4	3.8
C23	Gallbladder	32	56.3	9.4	41	39.0	7.3
C25	Pancreas	35	20.0	2.9	24	20.8	8.3
C30-C31	Nose, sinuses etc.	11	63.6	0.0	7	100.0	0.0
C32	Larynx	31	80.6	0.0	3	100.0	0.0
C33-C34	Trachea, bronchus and lung	462	45.5	2.2	162	50.0	5.6
C37-C38	Other thoracic organs	9	88.9	0.0	3	66.7	0.0
C40-C41	Bone	27	74.1	7.4	13	69.2	15.4
C43	Melanoma of skin	6	83.3	0.0	14	100.0	0.0
C44	Other skin	76	96.1	2.6	104	93.3	0.0
C47,C49	Connective and soft tissue	23	100.0	0.0	29	96.6	0.0
C50	Breast	3	100.0	0.0	458	86.2	0.7
C51	Vulva				11	100.0	0.0
C52	Vagina				4	50.0	25.0
C53	Cervix uteri				446	82.7	0.7
C54	Corpus uteri				73	83.6	0.0
C55	Uterus unspecified				11	54.5	18.2
C56	Ovary				148	75.7	0.7
C57	Other female genital				3	66.7	0.0
C58	Placenta				10	40.0	0.0
C60	Penis	40	75.0	2.5			
C61	Prostate	62	61.3	0.0			
C62	Testis	15	93.3	0.0			
C63	Other male genital oragans	0	0.0	0.0			
C64	Kidney	15	93.3	0.0	16	50.0	0.0
C65	Renal pelvis	7	71.4	0.0	3	100.0	0.0
C66	Ureter	2	100.0	0.0	2	100.0	0.0
C67	Bladder	77	79.2	0.0	23	73.9	0.0
C68	Other urinary organs	0	0.0	0.0	1	100.0	0.0
C69	Eye	12	83.3	0.0	7	100.0	0.0
C70-C72	Brain, nervous system	55	38.2	5.5	51	49.0	3.9
C73	Thyroid	24	87.5	0.0	166	84.3	0.0
C74	Adrenal gland	1	100.0	0.0	4	100.0	0.0
C75	Other endocrine	5	20.0	0.0	0	0.0	0.0
C81	Hodgkin's disease	16	100.0	0.0	11	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	116	100.0	0.0	76	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	17	100.0	0.0	18	100.0	0.0
C91-C95	Leukemia	96	100.0	0.0	90	97.8	0.0
O&U	Other and unspecified	128	32.8	11.7	109	29.4	11.0
	All site	**3,947**	**36.7**	**2.7**	**3,575**	**58.7**	**2.2**

Table 3.4.2 Khon Kaen (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	10	0	0	0	0	0	0	0	0	1	1	1	0	2	1	2	2	0.5	0.4
C01-C02	Tongue	26	0	0	0	0	1	0	1	0	2	0	6	2	1	8	0	5	1.1	1.0
C03-C06	Mouth	32	0	0	0	1	1	0	0	1	0	3	3	4	3	4	4	8	1.4	1.2
C07-C08	Salivary gland	18	0	0	0	0	0	0	2	1	1	2	1	2	3	3	1	2	0.7	0.7
C09	Tonsil	5	0	0	0	0	0	0	1	0	0	1	0	0	1	0	2	0	0.2	0.2
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0.0
C11	Nasopharynx	71	0	2	1	1	1	6	2	6	2	7	9	11	9	3	6	5	2.8	2.7
C12-C13	Hypopharynx	12	0	0	0	0	0	0	0	1	3	0	2	0	2	3	0	1	0.5	0.5
C14	Pharynx unspecified	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0.0
C15	Esophagus	21	0	0	0	0	0	0	0	0	0	1	2	4	4	2	3	5	1.0	0.8
C16	Stomach	80	0	0	0	0	0	0	2	2	8	9	12	2	12	13	12	8	3.5	3.1
C17	Small intestine	4	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0.2	0.2
C18	Colon	143	0	0	0	2	0	3	4	6	7	13	10	15	20	21	19	23	6.3	5.5
C19-C20	Rectum	106	0	0	0	0	1	0	2	5	3	7	10	12	16	16	17	17	4.7	4.1
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0.1	0.1
C22,C24	Liver and bile duct	2,012	2	0	1	0	2	6	18	52	117	155	259	296	342	342	211	209	87.7	77.3
C23	Gallbladder	32	0	0	0	0	0	0	0	0	1	1	5	3	8	5	4	5	1.5	1.2
C25	Pancreas	35	0	0	0	1	0	1	1	0	4	4	9	2	5	5	3	0	1.4	1.3
C30-C31	Nose, sinuses etc.	11	0	0	1	0	1	0	1	3	0	0	1	0	0	1	1	2	0.4	0.4
C32	Larynx	31	0	0	0	0	0	0	0	0	0	5	6	5	6	4	3	2	1.3	1.2
C33-C34	Trachea, bronchus and lung	462	0	0	1	0	1	2	3	8	13	24	47	68	79	75	67	74	20.9	17.7
C37-C38	Other thoracic organs	9	0	1	1	0	1	1	0	2	1	0	1	1	0	0	0	0	0.3	0.3
C40-C41	Bone	27	0	0	1	7	2	1	3	1	1	1	4	1	1	1	3	0	1.0	1.0
C43	Melanoma of skin	6	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1	1	0.2	0.2
C44	Other skin	76	0	0	0	0	0	0	2	3	0	11	3	12	7	11	9	18	3.4	2.9
C47,C49	Connective and soft tissue	23	2	1	2	1	1	0	2	2	2	1	1	1	2	2	1	2	0.9	0.9
C50	Breast	3	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0.1	0.1
C60	Penis	40	0	0	0	0	0	3	1	0	3	9	7	0	2	5	6	4	1.7	1.5
C61	Prostate	62	0	0	0	0	0	0	0	0	0	1	0	2	3	20	10	26	3.2	2.4
C62	Testis	15	0	0	0	1	0	0	1	5	4	1	0	0	1	2	0	0	0.5	0.6
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	15	2	0	0	0	1	0	0	2	1	4	1	0	0	2	0	2	0.6	0.6
C65	Renal pelvis	7	0	0	0	0	0	0	0	0	1	2	1	1	0	2	0	0	0.3	0.3
C66	Ureter	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.1	0.1
C67	Bladder	77	0	0	0	0	0	0	0	4	4	1	8	7	10	11	20	12	3.5	3.0
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	12	5	0	0	0	0	1	0	0	0	0	0	1	1	0	2	2	0.6	0.5
C70-C72	Brain, nervous system	55	4	3	4	4	4	1	5	5	1	5	2	3	7	3	0	4	2.2	2.1
C73	Thyroid	24	0	0	0	1	2	0	1	4	1	1	3	1	3	3	2	2	1.0	0.9
C74	Adrenal gland	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0	0.0
C75	Other endocrine	5	0	1	1	0	0	1	0	0	0	0	1	0	1	0	0	0	0.2	0.2
C81	Hodgkin's disease	16	0	0	0	1	1	0	2	1	0	2	2	2	1	3	1	0	0.6	0.6
C82-C85,C96	Non-Hodgkin lymphoma	116	2	3	1	2	0	7	6	4	10	18	11	12	11	10	12	7	4.7	4.5
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	17	0	0	0	0	0	1	2	0	2	0	1	4	3	2	2	0	0.7	0.7
C91	Lymphoid leukemia	35	11	8	3	1	1	0	1	2	0	1	0	3	0	1	1	2	1.6	1.3
C92	Myeloid leukemia	47	2	4	1	3	0	2	5	6	4	4	5	2	4	4	1	0	1.8	1.8
C95	Leukemia unspecified	14	3	0	0	1	0	1	2	2	2	1	0	1	0	0	1	0	0.5	0.5
O&U	Other and unspecified	128	2	0	1	1	4	1	5	4	9	10	14	12	15	20	9	21	5.5	4.9
	Total	**3,947**	**35**	**23**	**20**	**28**	**25**	**38**	**77**	**133**	**208**	**307**	**450**	**492**	**587**	**609**	**440**	**475**	**172.0**	**151.6**

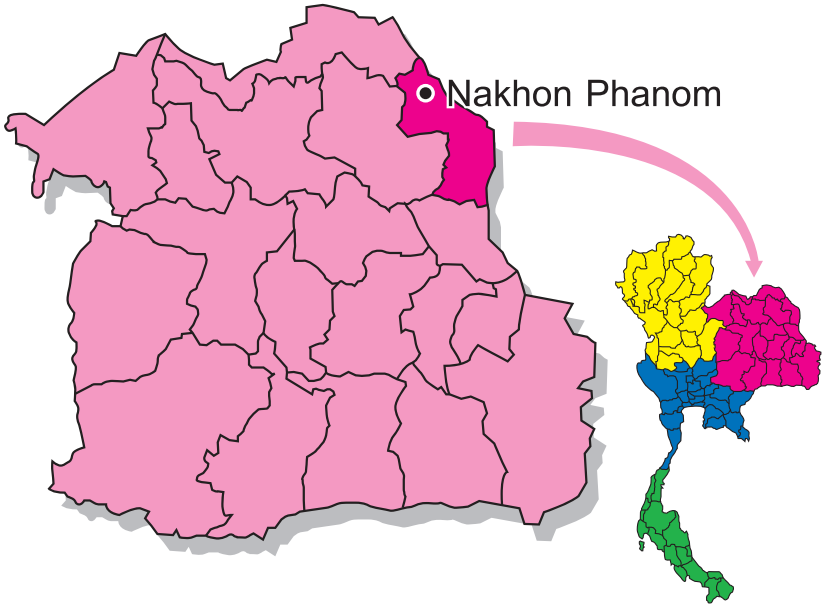
Table 3.4.3 Khon Kaen (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	50	0	0	0	0	0	0	0	1	0	0	0	7	8	10	8	16	2.0	1.9
C01-C02	Tongue	31	0	1	0	0	0	0	1	0	1	3	2	4	4	9	2	4	1.2	1.2
C03-C06	Mouth	57	0	0	0	0	0	0	0	0	2	0	2	5	8	9	13	18	2.2	2.2
C07-C08	Salivary gland	11	0	0	0	0	1	1	0	0	3	1	2	1	1	1	0	0	0.4	0.4
C09	Tonsil	6	0	0	0	0	0	0	1	0	2	1	0	0	0	1	0	1	0.2	0.2
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.0	0.0
C11	Nasopharynx	34	0	0	0	0	2	0	2	2	5	4	4	5	6	2	2	0	1.2	1.3
C12-C13	Hypopharynx	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.1	0.1
C14	Pharynx unspecified	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0.1	0.1
C15	Esophagus	5	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	1	0.2	0.2
C16	Stomach	55	0	0	0	0	1	2	1	2	1	6	4	12	5	4	7	10	2.0	2.1
C17	Small intestine	6	0	0	0	0	0	0	0	1	1	0	0	1	2	1	0	0	0.2	0.2
C18	Colon	142	0	0	0	0	0	4	1	7	12	14	9	9	23	18	16	29	5.3	5.4
C19-C20	Rectum	86	0	0	0	0	0	1	0	3	10	7	12	10	11	10	12	10	3.2	3.3
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0.1	0.1
C22,C24	Liver and bile duct	943	1	1	0	0	2	3	5	15	25	57	85	116	145	175	138	175	36.3	35.9
C23	Gallbladder	41	0	0	0	0	0	0	0	1	1	1	3	4	4	7	8	12	1.6	1.6
C25	Pancreas	24	0	0	0	0	0	0	0	4	1	0	1	5	2	2	2	7	0.9	0.9
C30-C31	Nose, sinuses etc.	7	0	0	0	1	0	0	1	0	2	0	0	1	0	1	0	1	0.2	0.3
C32	Larynx	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0.1	0.1
C33-C34	Trachea, bronchus and lung	162	0	0	0	0	1	6	4	1	6	14	22	21	21	22	22	22	6.1	6.2
C37-C38	Other thoracic organs	3	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0.1	0.1
C40-C41	Bone	13	0	1	1	4	1	0	0	0	0	2	0	0	2	2	0	0	0.5	0.5
C43	Melanoma of skin	14	0	0	0	0	0	1	1	0	1	1	2	1	2	2	2	1	0.5	0.5
C44	Other skin	104	0	0	0	3	0	1	1	4	3	5	12	6	9	14	22	24	3.9	4.0
C47,C49	Connective and soft tissue	29	3	1	2	0	2	1	1	5	2	1	2	5	1	1	0	2	1.1	1.1
C50	Breast	458	0	0	0	0	3	7	27	49	70	82	83	38	37	33	16	13	15.6	17.4
C51	Vulva	11	0	0	0	0	0	0	0	0	1	2	1	1	0	2	1	3	0.4	0.4
C52	Vagina	4	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1	0	0.2	0.2
C53	Cervix uteri	446	0	0	0	0	0	7	28	44	65	62	69	53	42	34	23	19	15.3	17.0
C54	Corpus uteri	73	0	0	0	0	0	0	2	0	7	12	13	13	4	12	6	4	2.6	2.8
C55	Uterus unspecified	11	0	0	0	0	0	0	0	1	1	2	0	2	3	0	0	2	0.4	0.4
C56	Ovary	148	0	2	1	2	4	4	5	11	17	19	33	18	10	11	7	4	5.2	5.6
C57	Other female genital	3	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0.1	0.1
C58	Placenta	10	0	0	0	0	1	2	2	4	0	1	0	0	0	0	0	0	0.3	0.4
C64	Kidney	16	2	0	0	0	0	0	0	1	1	2	2	3	2	2	0	1	0.6	0.6
C65	Renal pelvis	3	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0.1	0.1
C66	Ureter	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.1	0.1
C67	Bladder	23	0	0	0	0	1	1	0	0	0	1	4	3	2	4	3	4	0.9	0.9
C68	Other urinary organs	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.0	0.0
C69	Eye	7	2	1	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0.3	0.3
C70-C72	Brain, nervous system	51	2	5	3	1	4	2	2	3	4	4	6	3	6	1	2	3	1.9	1.9
C73	Thyroid	166	0	0	1	1	7	11	18	24	25	18	20	11	10	8	7	5	5.5	6.3
C74	Adrenal gland	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0.2
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	11	0	0	1	0	0	0	0	0	0	3	0	2	2	1	2	0	0.4	0.4
C82-C85,C96	Non-Hodgkin lymphoma	76	1	0	1	2	2	1	4	3	7	7	10	4	10	10	9	5	2.8	2.9
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	18	0	0	0	0	0	0	0	0	2	0	1	2	6	3	1	3	0.7	0.7
C91	Lymphoid leukemia	32	7	5	1	2	2	0	3	1	3	2	0	1	2	1	1	1	1.4	1.2
C92	Myeloid leukemia	36	1	2	2	1	3	2	5	2	1	3	1	5	1	2	1	4	1.3	1.4
C95	Leukemia unspecified	22	1	1	0	0	0	2	4	0	3	1	2	2	3	1	0	2	0.8	0.8
O&U	Other and unspecified	109	0	0	1	0	1	3	1	4	11	5	13	16	13	13	15	13	4.0	4.2
	Total	**3,575**	**21**	**22**	**14**	**17**	**38**	**62**	**123**	**193**	**298**	**346**	**425**	**393**	**413**	**434**	**353**	**423**	**131.0**	**136.2**

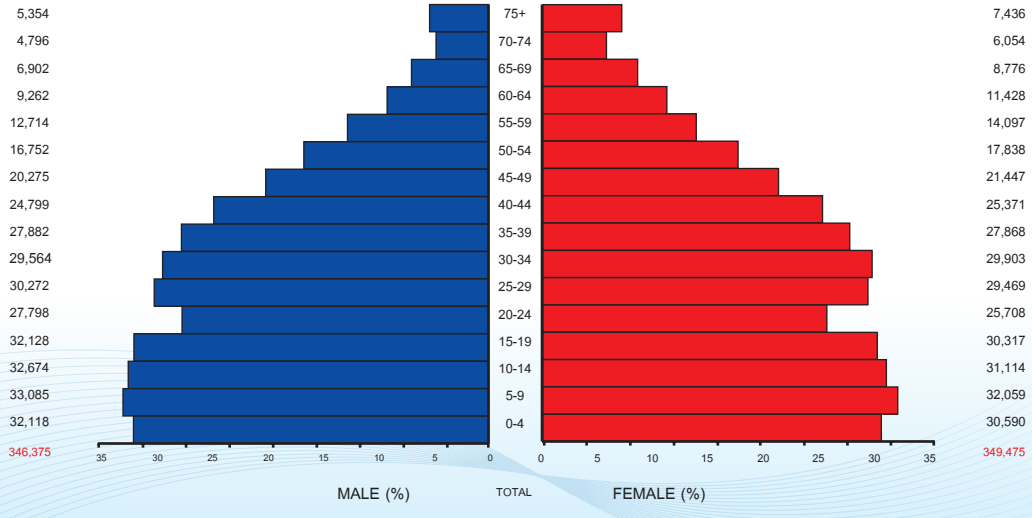
Nakhon Phanom Cancer Registry

Registration area

Nakhon Phanom, which is 740 kilometers from Bangkok, covers an area of 5,512 square kilometers, at a latitude 17:23 N and longitude 104: 43 E, 142 meters above sea level, and is comprised of the following; Mueang Nakhon Phanom, Pla Pak, Tha Uthen, Phon Sawan, Ban Phaeng, That Phanom, Renu Nakhon, Na Kae, Si Song-khram, Na Wa, Na Thom districts and Wang Yang sub-district. Nakhon Phanom is located on the right bank of the Maekong River. Throughout history, Laotians and people from other ethnic groups had migrated across the Maekong River. This recurring pattern of migration left its mark on the local dialects, customs and cuisine of Nakhon Phanom



Population pyramid, Nakhon Phanom, 2002



Cancer care facilities

Thailand has a national health care system. At the primary health care level, there is no facility for specialized cancer diagnosis and treatment. The provincial hospital is a general hospital. At the provincial level, there are facilities for cancer surgery, no chemotherapy and radiotherapy. Most of cancer patients are referred to cancer centers and other hospitals for diagnosis and treatment. Cancer surgery services are provided at Nakhon Phanom provincial hospital. The cancer patients are referred for surgery, chemotherapy and radiotherapy to Udon Thani and Ubon Ratchathani cancer centers or other hospitals in Khon Kaen and Bangkok.

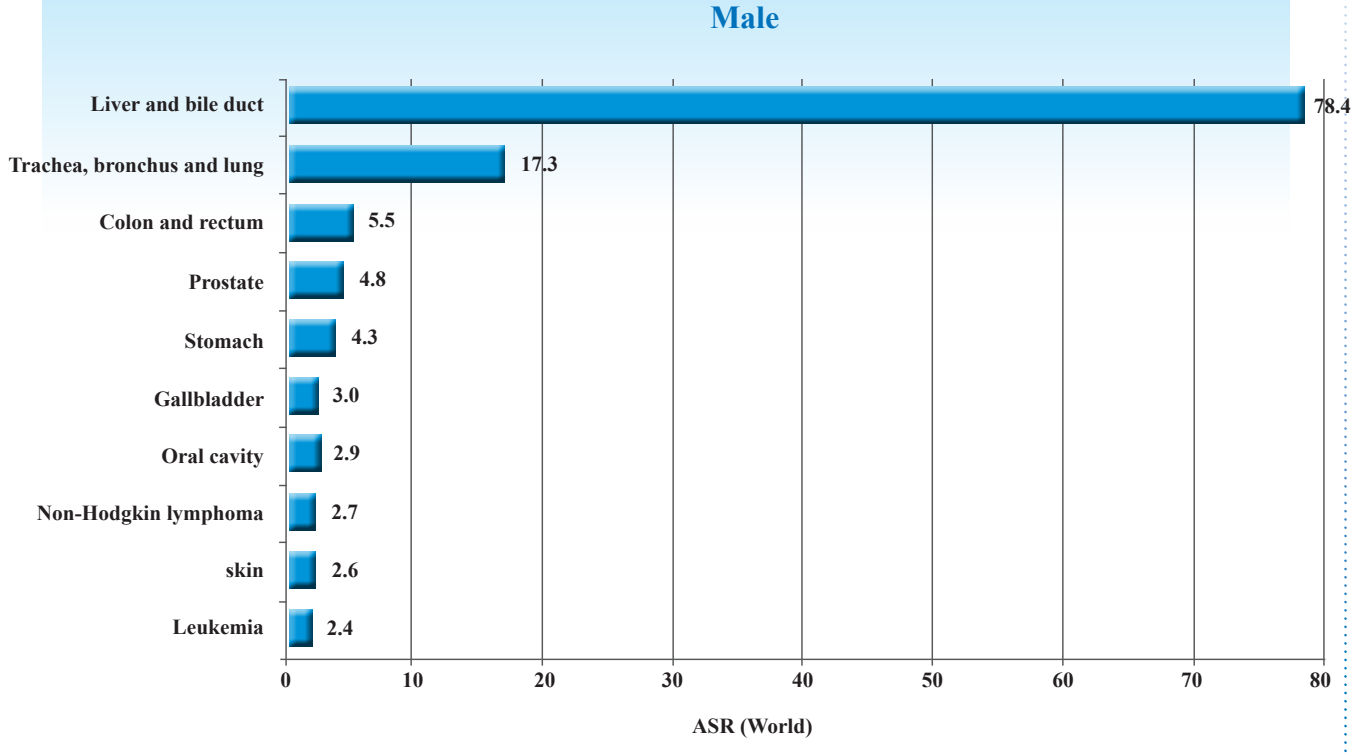
Registry procedures

The population-based cancer registry of Nakhon Phanom province was set up at the National Cancer Institute, Bangkok in 1997. The sources of information are all hospitals in Nakhon Phanom province, Udon Thani cancer registry, Ubon Ratchathani cancer registry, Khon Kaen cancer registry and Bangkok cancer registry.

Summary of Results

New cases registered in 2001-2003, 1,320 were males and 1,328 were females this made up of 2,648 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 152.1 per 100,000 in which liver and bile duct cancer ranks first (ASR = 78.4) followed by lung (ASR = 17.3), colon and rectum (ASR = 5.5). ASR of all cancer sites in females is 126.2, three leading cancer in females are liver and bile duct (ASR = 43.2) and cervix (ASR = 16.8), breast (ASR = 13.1).

Figure 3.4.3 Leading cancer in Nakhon Phanom, 2001-2003



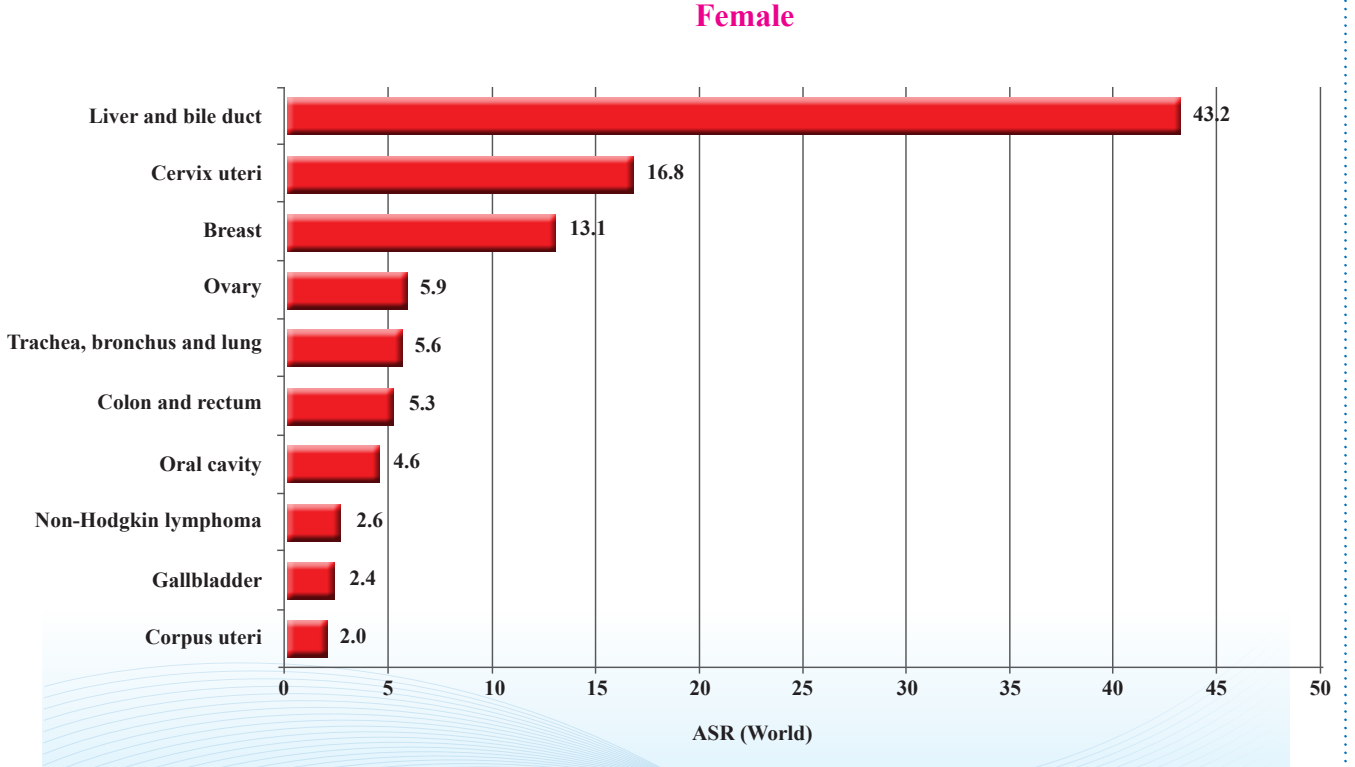


Table 3.5.1 Percentage of morphologically verified and death certificate only cases, Nakhon Phanom, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	25	100.0	0.0	46	93.5	4.3
C09-C10;C14	Oropharynx, etc.	4	75.0	0.0	5	100.0	0.0
C10	Other oropharynx	0	0.0	0.0	0	0.0	0.0
C11	Nasopharynx	19	94.7	0.0	8	87.5	0.0
C12-C13	Hypopharynx	2	100.0	0.0	1	100.0	0.0
C14	Pharynx unspecified	0	0.0	0.0	0	0.0	0.0
C15	Esophagus	8	62.5	12.5	8	62.5	12.5
C16	Stomach	36	47.2	13.9	14	57.1	14.3
C17	Small intestine	2	50.0	0.0	2	100.0	0.0
C18-C21	Colon and rectum	46	50.0	8.7	55	58.2	7.3
C22;C24	Liver and bile duct	681	14.7	7.6	442	11.3	7.9
C23	Gallbladder	23	52.2	30.4	24	50.0	25.0
C25	Pancreas	6	16.7	50.0	12	0.0	41.7
C30-C31	Nose, sinuses etc.	5	40.0	40.0	3	100.0	0.0
C32	Larynx	6	50.0	33.3	3	100.0	0.0
C33-C34	Trachea, bronchus and lung	148	26.4	18.2	59	27.1	13.6
C37-C38	Other thoracic organs	0	0.0	0.0	4	50.0	25.0
C40-C41	Bone	12	8.3	83.3	21	19.0	42.9
C43	Melanoma of skin	2	100.0	0.0	1	100.0	0.0
C44	Other skin	22	100.0	0.0	18	83.3	16.7
C47,C49	Connective and soft tissue	4	75.0	0.0	4	100.0	0.0
C50	Breast	2	100.0	0.0	144	79.9	5.6
C51	Vulva				2	50.0	0.0
C52	Vagina						
C53	Cervix uteri				187	81.8	7.0
C54	Corpus uteri				22	81.8	0.0
C55	Uterus unspecified				15	13.3	80.0
C56	Ovary				63	69.8	7.9
C57	Other female genital						
C58	Placenta				2	100.0	0.0
C60	Penis	10	60.0	0.0			
C61	Prostate	37	81.1	5.4			
C62	Testis	4	100.0	0.0			
C63	Other male genital oragans	10	0.0	0.0			
C64	Kidney	0	0.0	0.0	2	50.0	50.0
C65	Renal pelvis	2	100.0	0.0	0	0.0	0.0
C66	Ureter	0	0.0	0.0	0	0.0	0.0
C67	Bladder	16	56.3	6.3	3	0.0	0.0
C68	Other urinary organs	0	0.0	0.0	1	100.0	0.0
C69	Eye	1	100.0	0.0	0	0.0	0.0
C70-C72	Brain, nervous system	15	20.0	60.0	15	20.0	73.3
C73	Thyroid	9	88.9	0.0	21	90.5	0.0
C74	Adrenal gland	0	0.0	0.0	0	0.0	0.0
C75	Other endocrine	0	0.0	0.0	1	100.0	0.0
C81	Hodgkin's disease	1	100.0	0.0	1	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	25	88.0	0.0	26	84.6	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	3	100.0	0.0	1	100.0	0.0
C91-C95	Leukemia	23	100.0	0.0	15	100.0	0.0
O&U	Other and unspecified	111	36.9	54.1	77	41.6	46.8
	AII SITE	**1,320**	**33.5**	**14.2**	**1,328**	**48.5**	**12.2**

Table 3.5.2 Nakhon Phanom (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0.3	0.3
C01-C02	Tongue	8	0	0	0	0	0	0	0	0	1	0	1	1	2	2	0	1	1.0	0.8
C03-C06	Mouth	10	0	0	0	0	0	0	0	0	1	2	1	0	0	2	0	4	1.2	1.0
C07-C08	Salivary gland	4	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0.5	0.4
C09	Tonsil	4	0	0	0	0	0	0	0	1	0	0	2	0	1	0	0	0	0.4	0.4
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	19	0	0	0	0	0	0	0	3	3	2	4	1	4	2	0	0	2.0	1.8
C12-C13	Hypopharynx	2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0.2	0.2
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	8	0	0	0	0	0	0	0	0	0	1	2	1	0	3	0	1	1.0	0.8
C16	Stomach	36	0	0	0	0	0	0	0	1	1	2	9	5	9	2	2	5	4.3	3.5
C17	Small intestine	2	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0.2	0.2
C18	Colon	34	1	0	0	0	0	0	2	1	2	3	3	6	5	6	3	2	4.0	3.3
C19-C20	Rectum	12	0	0	0	0	0	0	0	0	2	0	2	0	2	4	0	2	1.5	1.2
C21	Anus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C22,C24	Liver and bile duct	681	1	0	0	0	4	9	7	30	42	67	101	117	101	72	66	64	78.4	65.5
C23	Gallbladder	23	0	0	0	0	0	0	0	0	1	1	1	3	6	4	3	4	3.0	2.2
C25	Pancreas	6	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0.7	0.6
C30-C31	Nose, sinuses etc.	5	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	2	0.6	0.5
C32	Larynx	6	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	2	0.7	0.6
C33-C34	Trachea, bronchus and lung	148	0	1	0	0	0	4	8	8	5	12	15	16	23	21	15	20	17.3	14.2
C37-C38	Other thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C40-C41	Bone	12	0	0	0	0	0	0	0	0	0	0	3	3	2	3	0	1	1.5	1.2
C43	Melanoma of skin	2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0.2	0.2
C44	Other skin	22	0	0	0	0	1	1	0	0	1	2	2	3	5	1	1	5	2.6	2.1
C47,C49	Connective and soft tissue	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0.5	0.4
C50	Breast	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0.2	0.2
C60	Penis	10	0	0	0	0	0	0	0	2	0	0	2	1	1	0	2	2	1.1	1.0
C61	Prostate	37	0	0	0	0	0	0	0	0	0	1	1	3	5	4	9	14	4.8	3.6
C62	Testis	4	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0.3	0.4
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	10	1	0	0	0	0	0	1	0	1	0	2	2	1	2	0	0	1.1	1.0
C65	Renal pelvis	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.3	0.2
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	16	0	0	0	0	0	0	0	0	1	1	0	1	3	3	3	4	2.1	1.5
C68	Other urinay organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C70-C72	Brain, nervous system	15	0	1	2	1	0	1	1	2	0	1	0	3	1	2	0	0	1.5	1.4
C73	Thyroid	9	0	0	0	0	0	1	0	0	2	0	1	3	0	0	2	0	0.9	0.9
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.1	0.1
C82-C85,C96	Non-Hodgkin lymphoma	25	0	1	0	0	1	1	0	3	3	1	4	3	1	2	3	2	2.7	2.4
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0.3	0.3
C91	Lymphoid leukemia	14	2	1	0	1	1	1	1	0	0	2	1	1	1	1	1	0	1.5	1.3
C92	Myeloid leukemia	8	0	0	2	1	0	2	0	0	0	1	1	0	1	0	0	0	0.8	0.8
C95	Leukemia unspecified	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.1
O&U	Other and unspecified	111	1	1	0	1	1	2	8	6	5	12	15	15	17	13	5	9	12.4	10.7
	All SITE	**1,320**	**6**	**5**	**4**	**4**	**8**	**23**	**32**	**61**	**74**	**116**	**178**	**193**	**195**	**155**	**119**	**147**	**152.1**	**127.0**

Table 3.5.3 Nakhon Phanom (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	11	0	0	0	0	0	0	0	0	0	1	1	1	1	1	3	3	1.1	1.0
C01-C02	Tongue	6	0	0	0	0	0	0	0	0	1	0	1	0	0	1	2	1	0.6	0.6
C03-C06	Mouth	28	0	0	0	1	0	0	0	1	0	7	1	2	4	2	2	8	2.7	2.7
C07-C08	Salivary gland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.1	0.1
C09	Tonsil	5	1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0.5	0.5
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	8	0	0	0	0	0	0	0	2	1	1	1	0	0	0	2	1	0.7	0.8
C12-C13	Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.1	0.1
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	8	0	0	0	0	0	0	0	0	0	0	1	1	2	4	0	0	0.9	0.8
C16	Stomach	14	0	0	0	0	0	0	0	1	1	0	0	1	4	4	0	3	1.4	1.3
C17	Small intestine	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0.1	0.2
C18	Colon	35	0	0	0	0	0	2	4	2	2	2	4	5	1	8	3	2	3.3	3.3
C19-C20	Rectum	20	0	0	0	0	0	3	0	1	4	1	0	3	4	3	0	1	1.9	1.9
C21	Anus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C22,C24	Liver and bile duct	442	0	0	0	1	0	5	7	21	34	41	75	69	56	54	41	38	43.2	42.2
C23	Gallbladder	24	0	0	0	0	0	0	1	0	1	3	3	1	3	1	5	6	2.4	2.3
C25	Pancreas	12	0	0	0	0	0	0	1	2	0	1	1	4	0	2	1	0	1.1	1.1
C30-C31	Nose, sinuses etc.	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0.3	0.3
C32	Larynx	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0.3	0.3
C33-C34	Trachea, bronchus and lung	59	0	0	0	1	0	6	5	4	3	3	3	5	9	7	4	9	5.6	5.6
C37-C38	Other thoracic organs	4	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0.4	0.4
C40-C41	Bone	21	0	0	1	1	1	0	1	0	3	3	2	1	3	2	0	3	2.0	2.0
C43	Melanoma of skin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C44	Other skin	18	0	0	0	0	0	0	2	1	1	2	1	3	1	1	5	1	1.7	1.7
C47,C49	Connective and soft tissue	4	1	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0.4	0.4
C50	Breast	144	0	0	0	0	0	1	11	13	22	35	23	10	14	6	4	5	13.1	13.7
C51	Vulva	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.2	0.2
C52	Vagina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C53	Cervix uteri	187	1	0	0	0	1	6	12	22	22	46	33	13	7	6	9	9	16.8	17.8
C54	Corpus uteri	22	0	0	0	0	0	1	0	0	3	3	5	6	0	1	1	2	2.0	2.1
C55	Uterus unspecified	15	0	0	0	0	0	0	4	1	0	2	5	0	0	1	2	0	1.3	1.4
C56	Ovary	63	1	0	1	1	2	0	3	5	9	11	7	5	8	4	1	5	5.9	6.0
C57	Other female genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C58	Placenta	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0.2	0.2
C64	Kidney	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0.2	0.2
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0.3	0.3
C68	Other urinary organs	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C69	Eye	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C70-C72	Brain, nervous system	15	1	0	0	0	0	1	1	1	1	2	2	3	2	1	0	0	1.4	1.4
C73	Thyroid	21	0	1	0	1	0	2	0	1	3	6	2	1	2	2	0	0	2.0	2.0
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C82-C85,C96	Non-Hodgkin lymphoma	26	0	1	0	1	0	4	0	0	1	2	3	2	3	6	2	1	2.6	2.5
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C91	Lymphoid leukemia	4	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0.4	0.4
C92	Myeloid leukemia	8	0	0	1	1	0	0	1	1	0	1	1	0	0	1	0	1	0.7	0.8
C95	Leukemia unspecified	3	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0.3	0.3
O&U	Other and unspecified	77	0	2	0	0	1	1	5	4	6	13	8	11	12	5	3	6	7.3	7.3
	All SITE	**1,328**	**5**	**4**	**4**	**9**	**5**	**34**	**61**	**88**	**119**	**189**	**192**	**151**	**140**	**127**	**93**	**107**	**126.2**	**126.7**

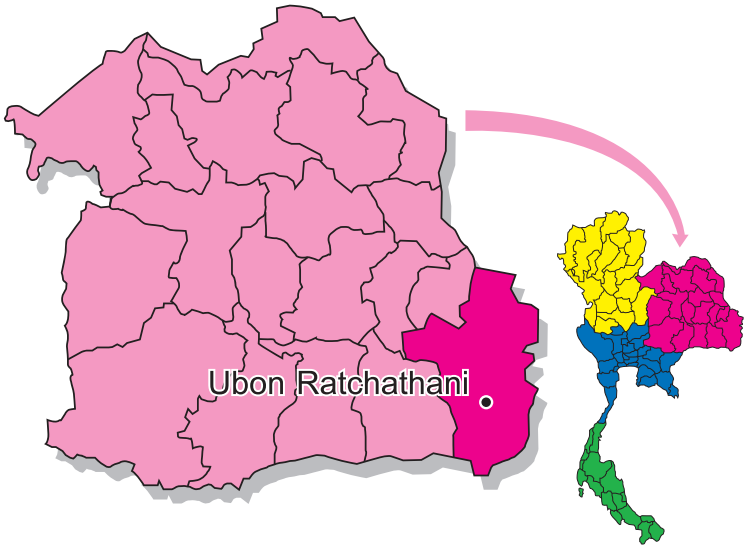
Ubon Ratchathani Cancer Registry

Registration area

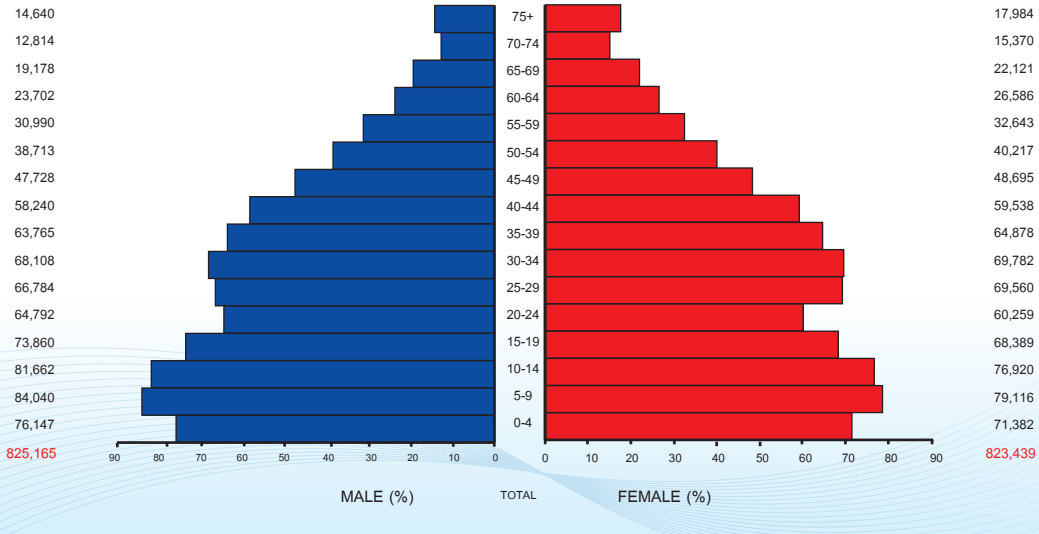
Ubon Ratchathani is one of the northeastern provinces of Thailand, and the country's easternmost. It covers an area of 15,745 square kilometers. It's about 600 kilometers away from Bangkok. Neighboring Provinces are (from west clockwise) Si Sa Ket, Yasothon and Amnat Charoen. To the north and east it borders Laos, to the south is Cambodia.

The province is subdivided into 25 districts. The districts are subdivided into 219 sub-districts and 2,469 villages.

There are 1,648,604 peoples in the year of 2002. Most of people are engaged in activities related to agriculture. They usually well in groups of houses, speak their own dialects.



Population pyramid, Ubon Ratchathani, 2002



Cancer care facilities

The cancer care facilities in community hospitals (district hospitals) are limited to screening, provisional diagnosis and some palliative treatment. Most of the cancer patients and suspected cancer patients are referred to Sappasitthiprasong hospital (regional hospital) or Ubon Ratchathani cancer center. The Ubon Ratchathani cancer committee was established to facilitate the referral system between the regional hospital, cancer center and community hospitals .The facilities of surgery, chemotherapy, radiation and palliative treatment are provided. There are also a military hospital and two private hospitals that can provide surgery and some chemotherapy.

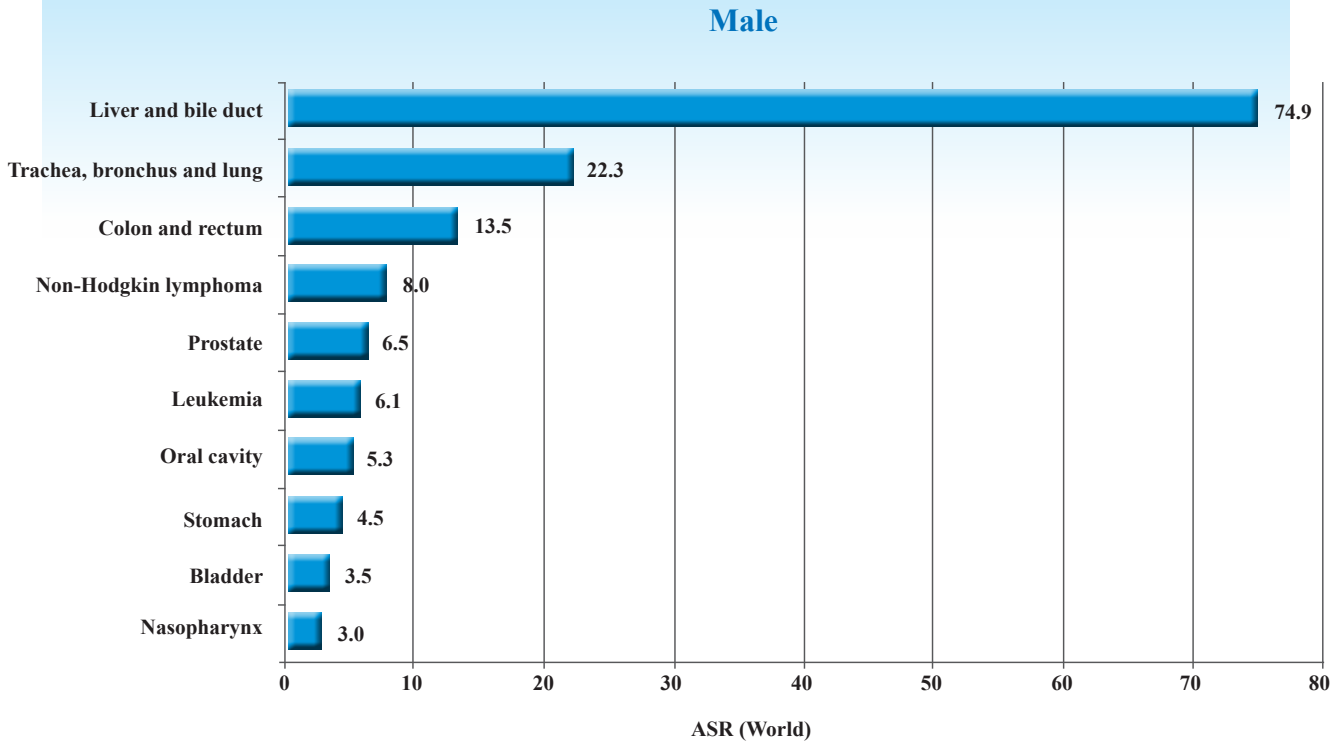
Registry procedures

The population-based cancer registry of Ubon Ratchathani was set up at Ubon Ratchathani cancer center. The sources of data are from all community hospitals, Sappasitthiprasong hospital, Ubon Ratchathani cancer center, military hospital and 2 private hospitals.

Summary of Results

New cases registered in 2001-2003, 4,322 were males and 4,419 were females this made up of 8,741 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 197.6 per 100,000 in which liver and bile duct cancer ranks first (ASR = 74.9) followed by lung (ASR = 22.3), colon and rectum (ASR = 13.5). ASR of all cancer sites in females is 178.8, three leading cancer in females are liver and bile duct (ASR = 34.7) and cervix (ASR = 23.3), breast (ASR = 21.7).

Figure 3.5.3 Leading cancer in Ubon Ratchathani, 2001-2003



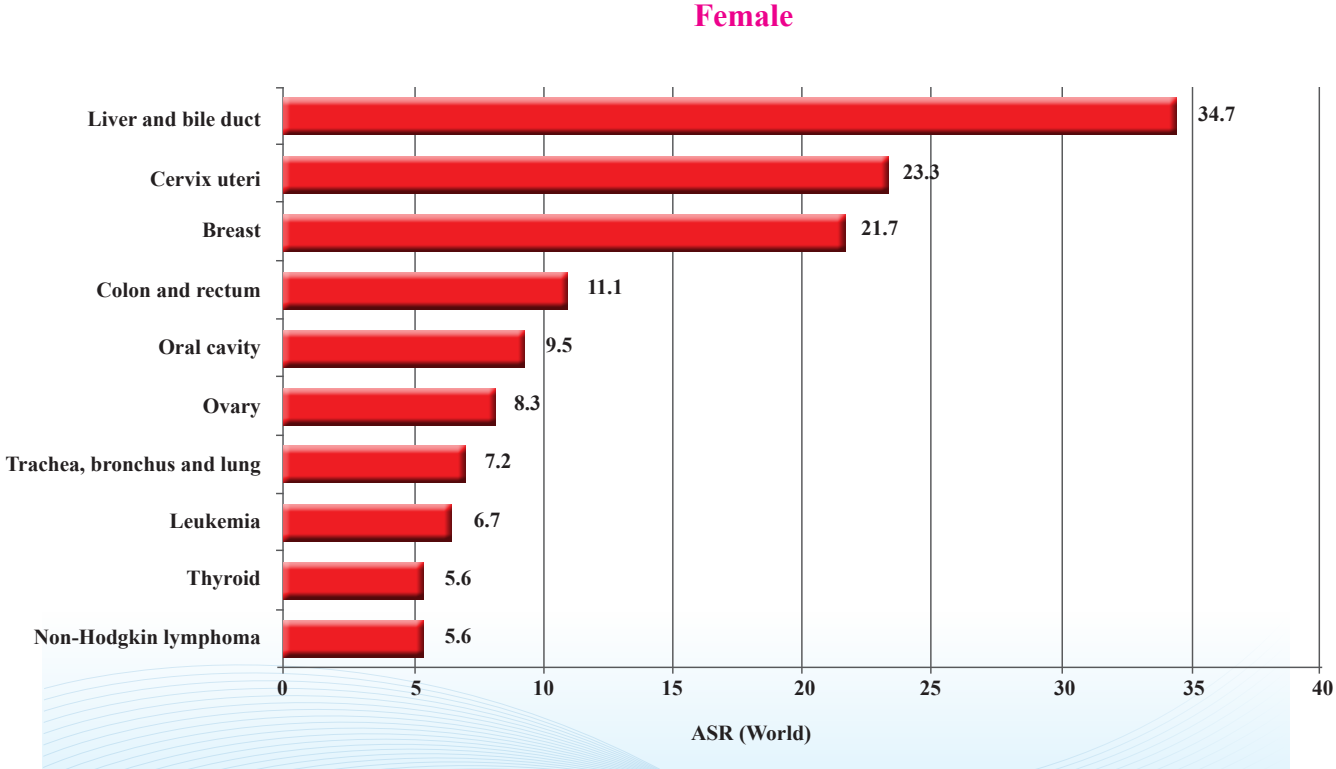


Table 3.6.1 Percentage of morphologically verified and death certificate only cases, Ubon Ratchatani, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	120	38.3	2.5	227	46.3	2.2
C09-C10;C14	Oropharynx, etc.	41	36.6	17.1	13	30.8	7.7
C11	Nasopharynx	65	53.8	3.1	38	36.8	0.0
C12-C13	Hypopharynx	20	65.0	0.0	4	50.0	0.0
C15	Esophagus	49	30.6	10.2	14	35.7	21.4
C16	Stomach	99	26.3	9.1	75	33.3	8.0
C17	Small intestine	6	50.0	0.0	7	57.1	0.0
C18-C21	Colon and rectum	295	28.5	3.7	266	22.2	0.4
C22;C24	Liver and bile duct	1,618	3.9	25.5	828	5.7	23.4
C23	Gallbladder	37	21.6	35.1	35	31.4	25.7
C25	Pancreas	26	11.5	0.0	36	5.6	11.1
C30-C31	Nose, sinuses etc.	15	53.3	0.0	9	33.3	0.0
C32	Larynx	38	50.0	7.9	6	0.0	0.0
C33-C34	Trachea, bronchus and lung	486	23.3	27.8	181	17.7	27.6
C37-C38	Other thoracic organs	12	33.3	8.3	10	50.0	10.0
C40-C41	Bone	52	9.6	51.9	56	12.5	28.6
C43	Melanoma of skin	4	100.0	0.0	3	100.0	0.0
C44	Other skin	65	47.7	1.5	61	65.6	0.0
C47,C49	Connective and soft tissue	37	29.7	0.0	30	26.7	0.0
C50	Breast	14	7.1	0.0	551	34.1	6.0
C51	Vulva				7	28.6	0.0
C52	Vagina				4	25.0	0.0
C53	Cervix uteri				604	32.5	3.8
C54	Corpus uteri				100	24.0	0.0
C55	Uterus unspecified				55	9.1	61.8
C56	Ovary				211	31.3	1.9
C57	Other female genital				0	0.0	0.0
C58	Placenta				5	20.0	0.0
C60	Penis	47	34.0	0.0			
C61	Prostate	134	18.7	3.7			
C62	Testis	19	36.8	5.3			
C63	Other male genital oragans	3	0.0	0.0			
C64	Kidney	38	28.9	5.3	15	46.7	6.7
C65	Renal pelvis	4	0.0	0.0	0	0.0	0.0
C66	Ureter	0	0.0	0.0	0	0.0	0.0
C67	Bladder	74	40.5	2.7	12	41.7	0.0
C68	Other urinary organs	2	100.0	0.0	3	0.0	0.0
C69	Eye	7	14.3	0.0	13	15.4	0.0
C70-C72	Brain, nervous system	68	17.6	50.0	63	19.0	47.6
C73	Thyroid	30	20.0	3.3	146	29.5	0.7
C74	Adrenal gland	1	0.0	0.0	6	33.3	0.0
C75	Other endocrine	3	33.3	0.0	3	0.0	0.0
C81	Hodgkin's disease	18	100.0	0.0	15	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	168	98.8	1.2	127	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	1	100.0	0.0
C90	Multiple myeloma	21	33.3	0.0	29	100.0	0.0
C91-C95	Leukemia	139	38.1	19.4	161	82.6	16.8
O&U	Other and unspecified	447	12.1	37.1	389	11.8	40.9
	All site	**4,322**	**21.2**	**20.1**	**4,419**	**29.0**	**13.6**

Table 3.6.2 Ubon Ratchatani (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	18	1	0	1	1	0	1	1	0	0	1	2	1	1	4	0	4	0.8	0.7
C01-C02	Tongue	30	0	1	0	0	0	1	0	2	1	7	2	2	2	4	4	4	1.4	1.2
C03-C06	Mouth	64	1	0	0	2	0	1	2	5	0	9	6	4	6	7	2	19	2.9	2.6
C07-C08	Salivary gland	8	0	0	0	1	0	0	3	0	1	0	1	0	1	0	0	1	0.3	0.3
C09	Tonsil	29	1	1	0	0	2	0	0	0	2	1	1	0	3	5	5	8	1.4	1.2
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.0
C11	Nasopharynx	65	0	0	0	4	0	3	1	1	5	4	5	15	11	7	3	6	3.0	2.6
C12-C13	Hypopharynx	20	0	0	0	0	0	0	0	0	0	1	1	1	1	3	5	8	1.0	0.8
C14	Pharynx unspecified	11	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3	5	0.5	0.4
C15	Esophagus	49	0	0	0	0	0	0	0	1	4	2	2	6	6	8	12	8	2.3	2.0
C16	Stomach	99	0	0	0	0	0	2	3	6	7	6	12	9	17	10	11	16	4.5	4.0
C17	Small intestine	6	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	1	0.3	0.2
C18	Colon	191	0	0	0	0	2	3	6	5	17	16	23	28	20	18	23	30	8.6	7.7
C19-C20	Rectum	100	0	0	0	0	0	0	3	2	7	3	8	10	17	18	12	20	4.7	4.0
C21	Anus	4	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0.2	0.2
C22,C24	Liver and bile duct	1,618	2	2	2	6	2	11	30	56	90	138	200	240	254	205	181	199	74.9	65.4
C23	Gallbladder	37	0	0	0	0	0	0	1	1	1	2	5	1	6	10	2	8	1.8	1.5
C25	Pancreas	26	0	0	0	0	1	0	1	0	2	2	4	4	3	5	1	3	1.2	1.1
C30-C31	Nose, sinuses etc.	15	0	0	0	0	0	0	1	0	1	1	0	4	0	2	4	2	0.7	0.6
C32	Larynx	38	0	0	0	0	0	0	0	1	1	2	2	4	7	8	6	7	1.8	1.5
C33-C34	Trachea, bronchus and lung	486	0	1	0	2	3	12	22	21	28	35	44	53	72	70	58	65	22.3	19.6
C37-C38	Other thoracic organs	12	1	0	0	0	0	0	0	0	0	1	2	0	4	1	1	2	0.6	0.5
C40-C41	Bone	52	1	1	4	3	3	4	4	1	2	3	2	4	4	7	3	6	2.3	2.1
C43	Melanoma of skin	4	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0.2	0.2
C44	Other skin	65	0	0	0	0	0	3	1	2	6	7	7	7	10	4	7	11	2.9	2.6
C47,C49	Connective and soft tissue	37	2	3	1	3	1	0	1	2	2	2	3	3	7	4	0	3	1.7	1.5
C50	Breast	14	0	0	0	0	0	1	0	0	1	3	0	1	1	4	2	1	0.7	0.6
C60	Penis	47	0	0	1	0	2	3	3	1	5	4	6	2	6	7	3	4	2.1	1.9
C61	Prostate	134	0	0	0	0	1	0	0	2	2	0	4	2	8	23	32	60	6.5	5.4
C62	Testis	19	2	0	2	0	1	1	2	0	6	0	2	0	1	1	1	0	0.8	0.8
C63	Other male genital oragans	3	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0.1	0.1
C64	Kidney	38	3	1	0	0	0	1	1	3	1	1	4	3	6	5	6	3	1.8	1.5
C65	Renal pelvis	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0.2	0.2
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	74	1	0	0	0	1	2	1	2	2	6	6	7	8	14	11	13	3.5	3.0
C68	Other urinary organs	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	0.1
C69	Eye	7	3	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0.3	0.3
C70-C72	Brain, nervous system	68	2	6	3	4	6	6	10	4	5	4	4	2	5	4	0	3	2.7	2.7
C73	Thyroid	30	0	1	0	0	0	3	0	3	3	3	1	3	1	4	4	4	1.3	1.2
C74	Adrenal gland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	0.0
C75	Other endocrine	3	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0.1	0.1
C81	Hodgkin's disease	18	0	2	3	0	1	0	2	0	2	0	2	0	1	0	2	3	0.7	0.7
C82-C85,C96	Non-Hodgkin lymphoma	168	2	4	2	5	5	14	12	7	16	14	16	12	18	16	16	9	7.3	6.8
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	21	0	0	0	0	0	0	0	1	2	3	1	4	2	3	2	3	1.0	0.8
C91	Lymphoid leukemia	47	10	8	6	1	0	1	1	0	0	2	2	1	4	7	3	1	2.2	1.9
C92	Myeloid leukemia	46	1	1	3	2	3	1	1	4	5	1	5	2	4	7	4	2	2.0	1.9
C95	Leukemia unspecified	46	2	2	2	2	1	2	6	4	4	5	1	5	3	4	1	2	1.9	1.9
O&U	Other and unspecified	447	5	2	2	6	9	20	28	21	26	29	46	39	51	56	49	58	20.1	18.1
	Total	**4,322**	**40**	**37**	**33**	**42**	**45**	**98**	**150**	**159**	**261**	**319**	**434**	**480**	**575**	**559**	**483**	**607**	**197.6**	**174.6**

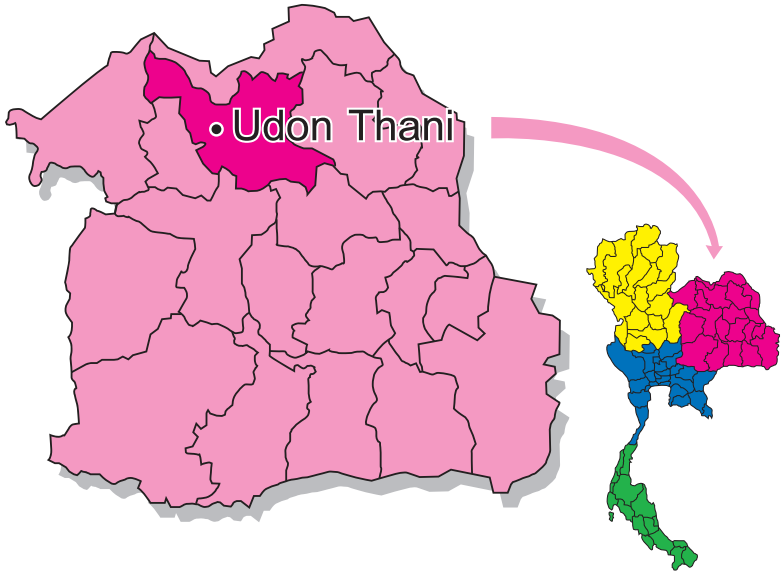
Table 3.6.3 Ubon Ratchatani (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	85	1	0	0	1	0	1	1	1	0	2	3	6	18	20	12	19	3.7	3.4
C01-C02	Tongue	18	0	0	0	0	0	0	3	0	2	1	1	3	3	2	1	2	0.7	0.7
C03-C06	Mouth	110	0	0	1	0	1	1	3	3	4	8	9	4	17	16	14	29	4.6	4.5
C07-C08	Salivary gland	14	0	0	1	0	1	0	2	0	2	3	0	0	2	1	0	2	0.6	0.6
C09	Tonsil	9	0	0	0	0	2	0	1	1	1	2	2	0	0	0	0	0	0.3	0.4
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	38	1	0	0	0	1	0	2	4	5	4	5	6	1	3	4	2	1.5	1.5
C12-C13	Hypopharynx	4	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0.2	0.2
C14	Pharynx unspecified	4	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0.2	0.2
C15	Esophagus	14	0	0	0	0	0	0	1	0	0	0	0	2	3	4	1	3	0.6	0.6
C16	Stomach	75	0	0	0	0	0	2	8	5	6	8	7	7	11	10	6	5	3.0	3.0
C17	Small intestine	7	0	0	0	0	0	0	0	1	0	1	0	1	2	1	0	1	0.3	0.3
C18	Colon	183	0	0	0	0	0	0	4	4	5	15	17	21	32	23	26	36	7.7	7.4
C19-C20	Rectum	74	0	0	0	0	0	1	2	2	6	7	10	6	11	12	6	11	3.1	3.0
C21	Anus	9	0	0	0	0	0	0	1	1	0	0	3	1	1	0	1	1	0.4	0.4
C22,C24	Liver and bile duct	828	3	1	2	1	4	6	11	31	43	84	84	95	107	142	106	108	34.7	33.5
C23	Gallbladder	35	0	0	0	0	0	0	0	1	0	2	2	5	8	3	5	9	1.5	1.4
C25	Pancreas	36	0	0	0	0	0	0	1	3	2	5	4	6	3	4	3	5	1.5	1.5
C30-C31	Nose, sinuses etc.	9	0	0	0	0	0	0	0	0	0	0	1	0	4	0	2	2	0.4	0.4
C32	Larynx	6	0	0	0	0	0	0	0	0	0	1	1	1	2	0	1	0	0.3	0.2
C33-C34	Trachea, bronchus and lung	181	0	1	0	1	4	4	14	16	10	13	22	17	14	16	23	26	7.2	7.3
C37-C38	Other thoracic organs	10	0	0	0	0	0	0	0	0	0	3	3	1	2	0	0	1	0.4	0.4
C40-C41	Bone	56	0	1	6	2	7	1	4	1	3	0	3	3	7	6	5	7	2.3	2.3
C43	Melanoma of skin	3	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0.1	0.1
C44	Other skin	61	0	0	1	0	0	1	3	3	1	2	3	6	13	9	11	8	2.6	2.5
C47,C49	Connective and soft tissue	30	1	0	0	2	0	3	0	3	2	5	4	1	4	2	1	2	1.2	1.2
C50	Breast	551	0	0	0	3	3	13	38	43	88	98	92	38	57	39	22	17	21.7	22.3
C51	Vulva	7	0	0	0	0	0	0	0	1	0	0	1	0	2	1	0	2	0.3	0.3
C52	Vagina	4	0	0	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0.2	0.2
C53	Cervix uteri	604	0	0	0	0	2	17	36	68	102	116	80	73	31	48	17	14	23.3	24.5
C54	Corpus uteri	100	0	0	0	0	1	0	5	5	9	31	22	13	5	3	0	6	4.0	4.0
C55	Uterus unspecified	55	0	0	0	1	1	4	3	3	11	10	5	7	4	2	2	2	2.1	2.2
C56	Ovary	211	0	0	1	4	8	9	14	13	28	30	29	23	17	14	8	13	8.3	8.5
C57	Other female genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C58	Placenta	5	0	0	0	0	0	1	0	0	2	1	0	0	0	0	1	0	0.2	0.2
C64	Kidney	15	2	3	2	0	0	0	0	2	0	0	0	0	4	1	1	0	0.7	0.6
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	12	0	0	0	0	0	1	0	1	1	1	0	0	0	2	3	3	0.5	0.5
C68	Other urinary organs	3	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0.1	0.1
C69	Eye	13	3	1	2	0	0	0	1	0	2	0	2	1	0	0	0	1	0.5	0.5
C70-C72	Brain, nervous system	63	1	4	4	2	2	6	4	7	5	9	6	3	5	2	2	1	2.5	2.6
C73	Thyroid	146	0	0	2	1	6	17	12	16	22	15	11	9	9	10	6	10	5.6	5.9
C74	Adrenal gland	6	2	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0.3	0.2
C75	Other endocrine	3	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0.1	0.1
C81	Hodgkin's disease	15	1	0	0	0	1	1	3	1	1	1	2	2	0	0	1	1	0.6	0.6
C82-C85,C96	Non-Hodgkin lymphoma	127	1	2	2	1	5	6	14	11	6	12	15	8	13	10	10	11	5.0	5.1
C88	Immunoproliferative diseases	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0
C90	Multiple myeloma	29	0	0	0	1	0	0	1	0	1	2	2	4	7	4	3	4	1.2	1.2
C91	Lymphoid leukemia	51	18	12	10	1	1	0	2	0	0	2	0	2	2	0	0	1	2.4	2.1
C92	Myeloid leukemia	61	2	0	0	4	1	3	5	4	7	4	7	4	6	5	2	7	2.4	2.5
C95	Leukemia unspecified	49	1	2	1	3	2	1	6	3	8	1	5	2	3	2	5	4	1.9	2.0
O&U	Other and unspecified	389	5	2	6	0	5	14	19	28	30	30	39	48	55	44	34	30	15.9	15.7
	Total	**4,419**	**42**	**29**	**42**	**28**	**61**	**115**	**226**	**288**	**416**	**531**	**505**	**430**	**489**	**465**	**345**	**407**	**178.8**	**178.9**

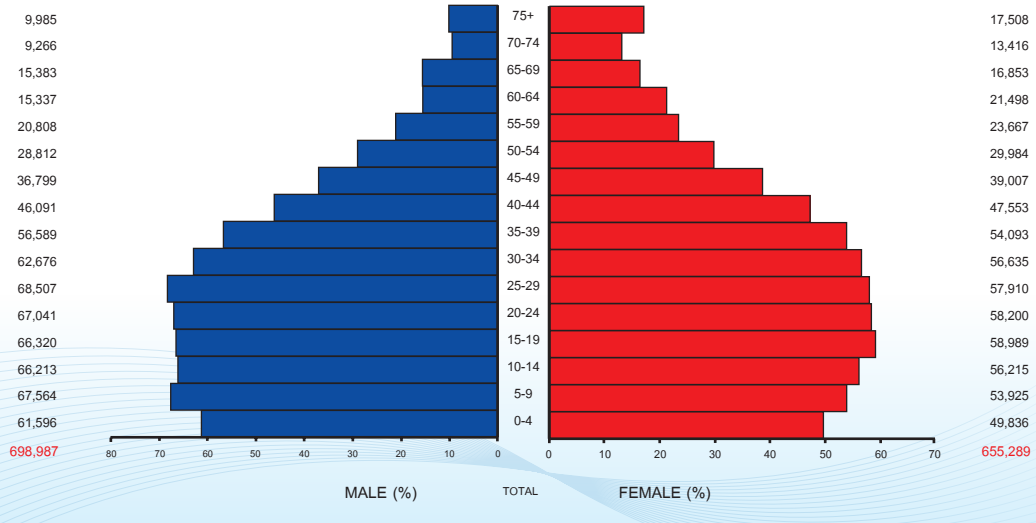
Udon Thani Cancer Registry

Registration area

Udon Thani cancer registry covers the population of Udon Thani provinces in the northeastern region of Thailand, covering an area of about 11,730 square kilometers. It locates 564 kilometers to the northeast of Bangkok. Administrative, it is divided into 18 districts and 2 sub-districts. Wang Sam Mo districts and Prachaksinlapakhom and Ku Kaeo sub - districts. The estimated population at the year 2002 was 1,463,495. About 95% of the population are Buddhists. The remainders are mainly Christians and Moslems.



Population pyramid, Udon Thani, 2002



Cancer care facilities

Community hospitals are provided in all 18 districts of Udon Thani. One cancer center (Udon Thani regional cancer center) is situated in Mueang district which is the center of the province. The Udon Thani provincial hospital and Prajaksilapakom Military Hospital are the other two large hospitals which have facilities for cancer surgery and chemotherapy. The Udon Thani regional cancer center is the only place that provides radiotherapy services in province. Patients suspected to have cancer in the health care system and community hospitals are referred to the Udon Thani provincial hospital, Udon Thani regional cancer center or Srinagarind hospital.

Registry procedures

Udon Thani cancer registry was established in 2002 at the Udon Thani regional cancer center, and is funded by Thai National Cancer Institute. It provides treatment facilities, training and education for health personals in the upper northeastern part of Thailand. The registry unit has one part - time expert consultant (Dr. Hutcha Sriplung), a part - time doctor, 3 part - time nurses and one computer statistician and 2 full time clerks.

The data registry are actively collected for cancer cases from two large hospitals (Udon Thani provincial hospital and Prajaksilapakom Military Hospital), one cancer center (Udon Thani cancer center) and passively collected from community hospitals, private hospital in Udon Thani, Srinagarind hospital in Khon Kaen and the National Cancer Institute in Bangkok.

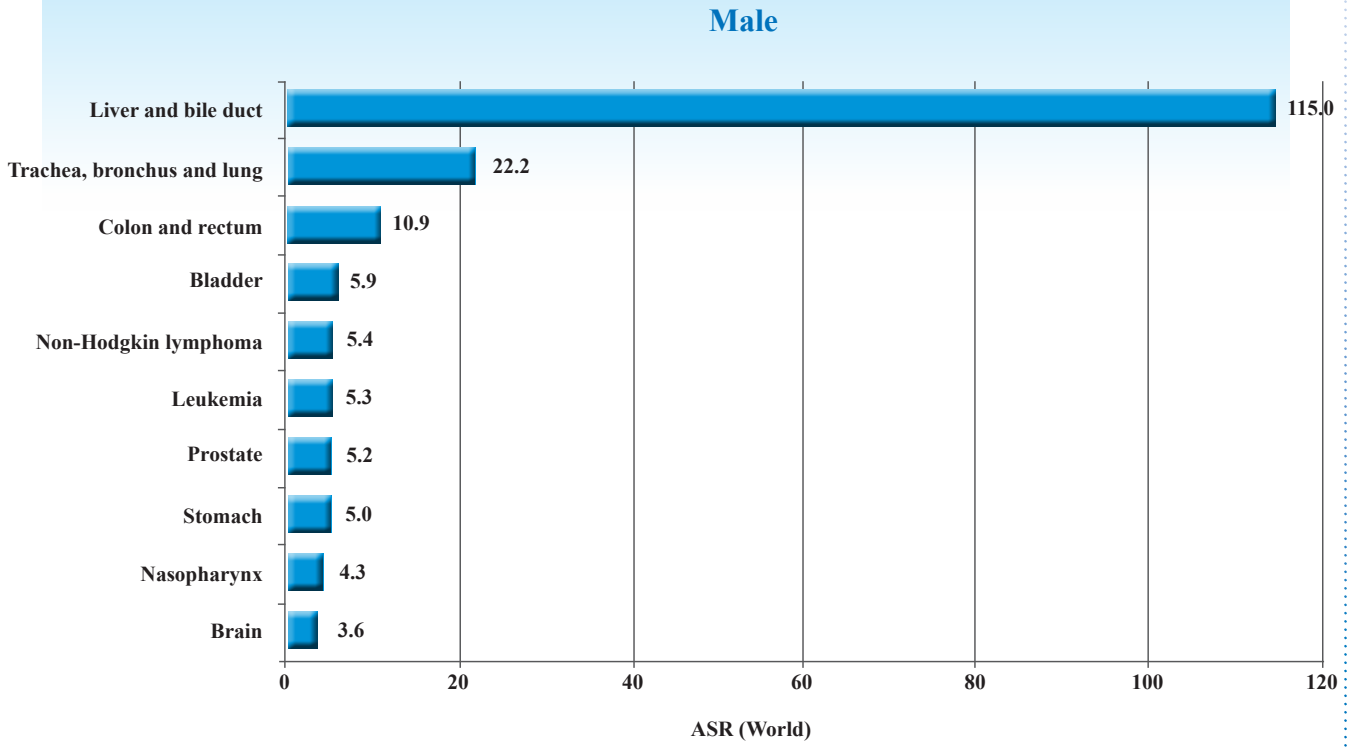
The sources of information on cancer cases are mainly hospital and pathology laboratory records. Each completed case notification from is checked for duplication with computer software for Thai names before entering into the database programme, CanReg4.

Death certificates are taken from the Udon Thani Population Analytical Center, all certificates are reviewed to match with the cases in the data base, and efforts are made to trace further information before registering the case as a DCO case.

Summary of Results

New cases registered in 2001-2003, 3,692 were males and 3,617 were females this made up of 7,309 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 231.3 per 100,000 in which liver and bile duct cancer ranks first (ASR = 115.0) followed by lung (ASR = 22.2), colon and rectum (ASR = 10.9). ASR of all cancer sites in females is 185.1, three leading cancer in females are liver and bile duct (ASR = 52.7) and cervix (ASR = 24.8), breast (ASR = 21.2).

Figure 3.6.3 Leading cancer in Udon Thani, 2001-2003



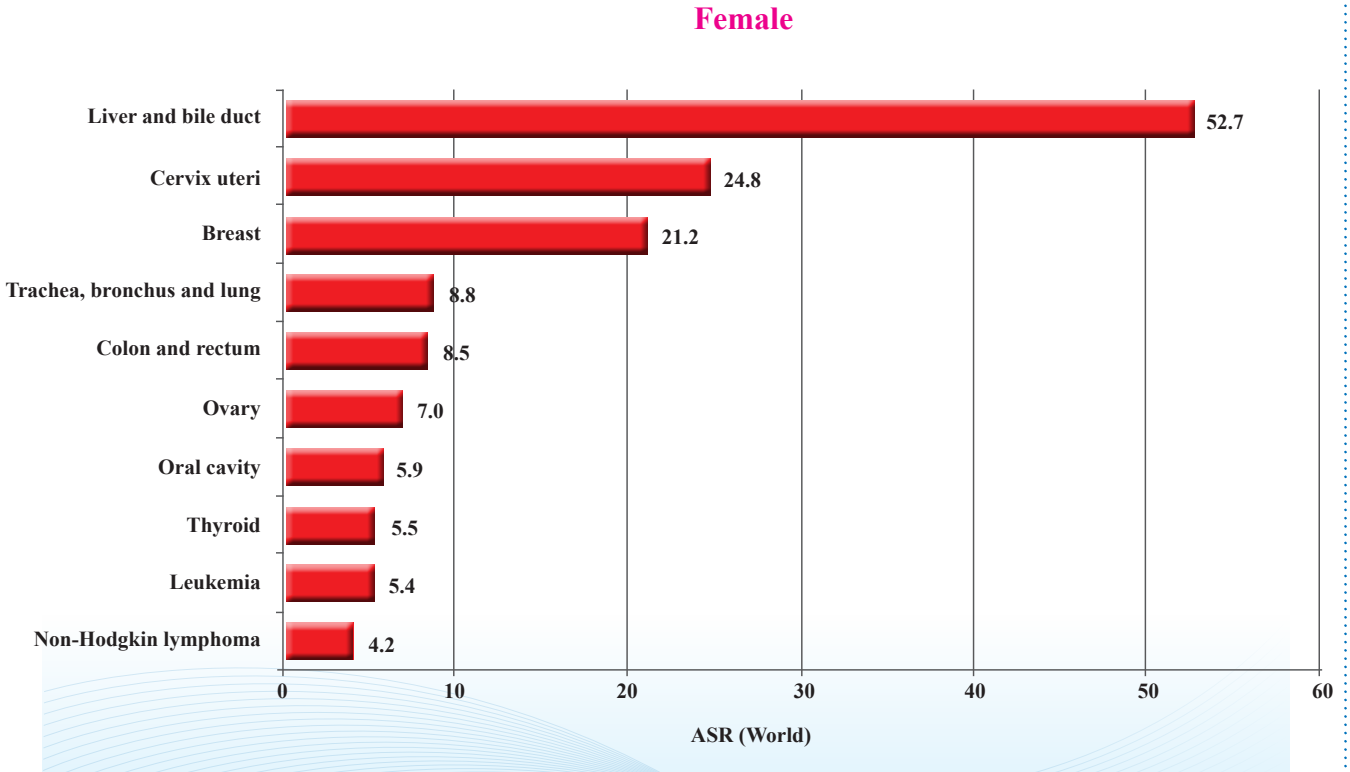


Table 3.7.1 Percentage of morphologically verified and death certificate only cases, Udon Thani, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	42	88.1	0.0	119	87.4	0.0
C09-C10;C14	Oropharynx, etc.	13	69.2	0.0	1	100.0	0.0
C11	Nasopharynx	70	85.7	0.0	37	86.5	0.0
C12-C13	Hypopharynx	11	63.6	0.0	2	50.0	0.0
C15	Esophagus	13	61.5	0.0	5	60.0	0.0
C16	Stomach	79	59.5	1.3	41	58.5	0.0
C17	Small intestine	2	100.0	0.0	3	66.7	0.0
C18-C21	Colon and rectum	181	56.9	4.4	164	50.6	6.7
C22;C24	Liver and bile duct	1,795	6.2	7.5	991	9.4	6.1
C23	Gallbladder	24	54.2	0.0	29	41.4	0.0
C25	Pancreas	22	9.1	0.0	16	0.0	0.0
C30-C31	Nose, sinuses etc.	15	66.7	0.0	8	100.0	0.0
C32	Larynx	17	82.4	0.0	4	50.0	0.0
C33-C34	Trachea, bronchus and lung	344	45.6	5.5	170	47.1	7.1
C37-C38	Other thoracic organs	6	33.3	0.0	0	0.0	0.0
C40-C41	Bone	36	55.6	0.0	28	60.7	7.1
C43	Melanoma of skin	6	100.0	0.0	14	100.0	0.0
C44	Other skin	47	89.4	0.0	46	91.3	0.0
C47,C49	Connective and soft tissue	19	78.9	0.0	31	93.5	0.0
C50	Breast	2	50.0	0.0	437	82.2	0.5
C51	Vulva				7	100.0	0.0
C52	Vagina				6	83.3	0.0
C53	Cervix uteri				497	84.1	0.2
C54	Corpus uteri				67	94.0	1.5
C55	Uterus unspecified				3	66.7	0.0
C56	Ovary				142	69.7	0.0
C51,C52,C57	Other female genital				1	100.0	0.0
C58	Placenta				9	77.8	0.0
C60	Penis	27	74.1	0.0			
C61	Prostate	75	60.0	0.0			
C62	Testis	20	90.0	0.0			
C63	Other male genital oragans	1	100.0	0.0			
C64	Kidney	23	78.3	0.0	20	60.0	0.0
C65	Renal pelvis	4	50.0	0.0	1	0.0	0.0
C66	Ureter	1	100.0	0.0	1	100.0	0.0
C67	Bladder	95	80.0	0.0	17	70.6	0.0
C69	Eye	6	66.7	0.0	4	100.0	0.0
C70-C72	Brain, nervous system	60	60.0	6.7	59	40.7	0.0
C73	Thyroid	15	80.0	0.0	117	83.8	0.9
C74	Adrenal gland	1	0.0	0.0	5	20.0	0.0
C75	Other endocrine	2	50.0	0.0	4	50.0	0.0
C81	Hodgkin's disease	9	100.0	0.0	3	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	90	91.1	0.0	82	87.8	1.2
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	16	93.8	0.0	12	100.0	0.0
C91-C95	Leukemia	98	94.9	0.0	104	98.1	1.0
O&U	Other and unspecified	405	22.2	39.3	310	29.4	32.6
	All SITE	**3,692**	**32.3**	**8.8**	**3,617**	**53.7**	**5.3**

Table 3.7.2 Udon Thani (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	0.1
C01-C02	Tongue	15	0	0	0	0	0	2	0	0	1	2	2	5	0	2	0	1	0.9	0.7
C03-C06	Mouth	24	0	0	0	0	1	1	1	0	1	6	0	3	2	8	0	1	1.4	1.1
C07-C08	Salivary gland	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.0
C09	Tonsil	10	0	0	0	0	0	0	0	0	0	2	0	2	2	0	1	3	0.7	0.5
C10	Other oropharynx	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.1	0.1
C11	Nasopharynx	70	0	0	0	0	0	4	3	3	2	3	16	14	11	6	6	2	4.3	3.3
C12-C13	Hypopharynx	11	0	0	0	0	0	0	0	0	0	0	2	2	2	4	1	0	0.7	0.5
C14	Pharynx unspecified	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.0
C15	Esophagus	13	0	0	0	0	0	0	0	0	0	0	2	1	6	2	2	0	1.0	0.6
C16	Stomach	79	0	0	0	0	2	0	2	2	3	11	4	14	12	12	3	14	5.0	3.8
C17	Small intestine	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0.1	0.1
C18	Colon	123	0	0	0	0	1	3	3	15	9	9	24	10	10	16	13	10	7.2	5.9
C19-C20	Rectum	51	0	0	0	0	0	1	2	2	4	1	7	10	8	7	3	6	3.2	2.4
C21	Anus	7	0	0	0	0	0	0	0	1	1	0	0	2	1	0	2	0	0.4	0.3
C22,C24	Liver and bile duct	1,795	2	1	0	0	3	5	21	58	119	171	237	307	259	263	196	153	115.0	85.6
C23	Gallbladder	24	0	0	0	0	0	0	0	1	2	3	0	4	3	3	4	4	1.6	1.1
C25	Pancreas	22	0	0	0	0	0	2	0	0	2	3	2	3	4	2	3	1	1.4	1.0
C30-C31	Nose, sinuses etc.	15	0	0	0	0	0	1	1	3	0	2	1	0	1	3	3	0	0.8	0.7
C32	Larynx	17	0	0	0	0	0	0	0	0	1	0	5	1	4	1	5	0	1.2	0.8
C33-C34	Trachea, bronchus and lung	344	0	0	0	0	6	6	3	15	17	28	43	39	63	53	41	30	22.2	16.4
C37-C38	Other thoracic organs	6	1	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0.3	0.3
C40-C41	Bone	36	0	0	4	7	8	1	1	1	0	0	3	2	3	0	3	3	1.9	1.7
C43	Melanoma of skin	6	0	0	0	0	1	0	0	0	1	0	1	0	2	0	0	1	0.4	0.3
C44	Other skin	47	0	0	0	1	0	2	3	0	2	5	5	5	9	4	5	6	3.0	2.2
C47,C49	Connective and soft tissue	19	1	0	1	0	0	3	2	4	1	1	1	0	1	3	1	0	0.9	0.9
C50	Breast	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.1	0.1
C60	Penis	27	0	0	0	0	0	0	0	6	4	0	1	4	5	0	0	7	1.6	1.3
C61	Prostate	75	0	0	0	0	0	0	0	0	1	2	0	6	12	23	13	18	5.2	3.6
C62	Testis	20	0	0	2	3	0	3	1	1	5	2	0	0	1	0	1	1	1.0	1.0
C63	Other male genital oragans	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.0
C64	Kidney	23	2	0	0	0	0	0	0	2	1	4	1	8	1	2	1	1	1.4	1.1
C65	Renal pelvis	4	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0.3	0.2
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.0
C67	Bladder	95	0	0	0	0	1	0	1	8	12	9	7	8	13	8	14	14	5.9	4.5
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	6	3	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0.4	0.3
C70-C72	Brain, nervous system	60	4	5	2	3	3	5	0	3	1	2	11	5	12	2	1	1	3.6	2.9
C73	Thyroid	15	0	0	0	0	1	0	1	2	1	1	1	0	2	2	0	4	0.9	0.7
C74	Adrenal gland	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.0
C75	Other endocrine	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	9	0	0	0	1	0	0	0	1	0	0	2	2	1	2	0	0	0.5	0.4
C82-C85,C96	Non-Hodgkin lymphoma	90	1	6	5	6	0	6	5	6	10	6	3	6	6	10	11	3	4.9	4.3
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	16	0	0	0	0	0	0	0	0	0	2	3	1	1	3	3	3	1.0	0.8
C91	Lymphoid leukemia	20	2	3	2	1	2	2	0	1	0	4	0	1	0	2	0	0	1.0	1.0
C92	Myeloid leukemia	46	1	3	0	2	6	4	2	2	1	5	2	4	1	5	7	1	2.5	2.2
C95	Leukemia unspecified	32	9	5	1	2	0	2	3	1	2	0	1	0	3	2	0	1	1.8	1.5
O&U	Other and unspecified	405	2	1	5	2	3	6	25	26	17	33	51	57	60	47	36	34	24.8	19.3
	All SITE	**3,692**	**28**	**24**	**23**	**29**	**38**	**60**	**82**	**165**	**226**	**319**	**439**	**531**	**523**	**499**	**381**	**325**	**231.3**	**176.2**

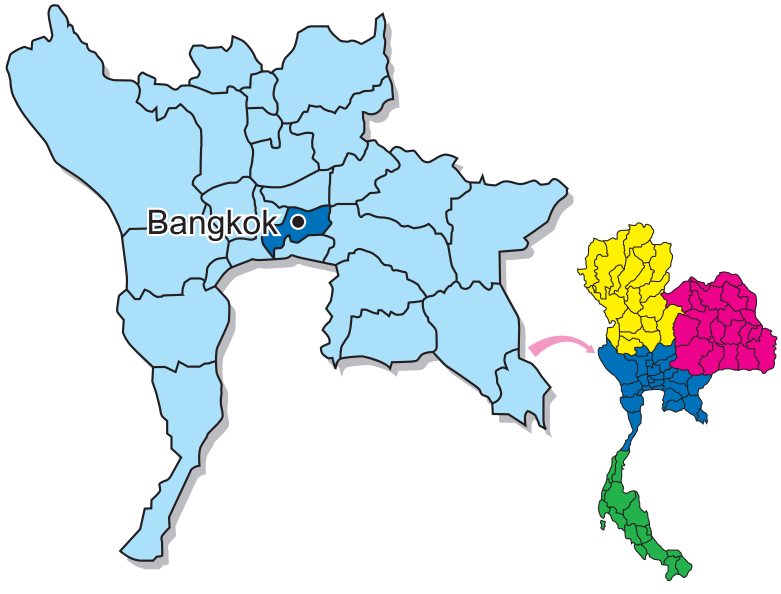
Table 3.7.3 Udon Thani (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	37	0	0	0	0	0	0	0	0	1	1	1	5	4	8	10	7	1.9	1.9
C01-C02	Tongue	19	0	0	0	0	0	1	1	3	1	0	1	2	1	2	5	2	0.9	1.0
C03-C06	Mouth	51	0	1	0	0	0	0	0	0	0	1	1	6	6	13	7	16	2.6	2.6
C07-C08	Salivary gland	12	0	0	0	0	0	0	0	1	2	0	3	0	0	3	1	2	0.6	0.6
C09	Tonsil	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	37	0	0	0	0	0	4	0	9	3	5	5	5	2	3	1	0	1.8	1.9
C12-C13	Hypopharynx	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0.1	0.1
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	5	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	1	0.3	0.3
C16	Stomach	41	0	0	0	0	0	0	0	3	6	5	6	10	1	6	3	1	2.1	2.1
C17	Small intestine	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0.1	0.2
C18	Colon	109	0	0	1	0	2	2	4	3	8	11	16	15	15	16	6	10	5.7	5.5
C19-C20	Rectum	54	0	0	0	0	0	0	2	0	1	1	7	11	9	8	5	10	2.8	2.7
C21	Anus	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.0	0.1
C22,C24	Liver and bile duct	991	0	0	0	1	1	7	9	30	56	95	127	157	172	142	109	85	52.7	50.4
C23	Gallbladder	29	0	0	0	0	0	0	0	0	0	3	5	1	2	8	3	7	1.5	1.5
C25	Pancreas	16	0	0	0	0	2	0	0	3	1	2	4	1	1	0	1	1	0.8	0.8
C30-C31	Nose, sinuses etc.	8	0	0	0	0	0	0	0	3	0	0	0	3	1	1	0	0	0.4	0.4
C32	Larynx	4	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0.2	0.2
C33-C34	Trachea, bronchus and lung	170	0	0	0	2	1	9	4	11	10	27	23	26	22	14	14	7	8.8	8.6
C37-C38	Other thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C40-C41	Bone	28	0	3	3	5	2	1	2	1	3	0	2	0	0	5	1	0	1.4	1.4
C43	Melanoma of skin	14	0	0	0	0	0	0	0	1	3	4	0	1	0	1	1	3	0.6	0.7
C44	Other skin	46	0	0	0	0	0	1	0	0	0	5	2	6	7	7	7	11	2.4	2.3
C47,C49	Connective and soft tissue	31	5	0	0	1	0	1	2	1	1	9	2	5	2	0	1	1	1.7	1.6
C50	Breast	437	0	0	0	2	2	12	28	44	86	84	70	34	27	20	17	11	21.2	22.2
C51	Vulva	7	0	0	0	0	0	0	1	0	0	0	2	0	1	0	3	0	0.4	0.4
C52	Vagina	6	0	0	0	0	0	0	0	0	3	0	2	0	0	1	0	0	0.3	0.3
C53	Cervix uteri	497	0	0	0	0	2	4	33	45	66	73	71	55	64	25	36	23	24.8	25.3
C54	Corpus uteri	67	0	0	0	0	1	0	1	0	1	13	17	12	16	2	3	1	3.7	3.4
C55	Uterus unspecified	3	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0.2	0.2
C56	Ovary	142	0	0	4	6	7	6	15	11	14	17	27	19	8	0	6	2	7.0	7.2
C57	Other female genital	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C58	Placenta	9	0	0	0	0	0	1	4	2	0	1	1	0	0	0	0	0	0.4	0.5
C64	Kidney	20	1	1	0	0	0	0	0	3	7	0	2	0	3	1	2	0	1.0	1.0
C65	Renal pelvis	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C67	Bladder	17	0	0	0	0	0	0	0	0	0	2	1	3	1	3	2	5	0.9	0.9
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	4	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0.2	0.2
C70-C72	Brain, nervous system	59	2	6	3	2	2	5	2	5	7	4	7	5	5	3	0	1	3.1	3.0
C73	Thyroid	117	0	0	1	0	9	15	12	14	14	4	18	10	8	3	4	5	5.5	6.0
C74	Adrenal gland	5	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0.3	0.3
C75	Other endocrine	4	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0.2	0.2
C81	Hodgkin's disease	3	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0.1	0.2
C82-C85,C96	Non-Hodgkin lymphoma	82	2	1	5	0	2	9	10	6	6	8	4	9	11	5	3	1	4.1	4.2
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	12	0	0	0	0	1	0	0	0	0	1	3	4	0	1	2	0	0.6	0.6
C91	Lymphoid leukemia	30	7	7	4	0	1	2	6	1	0	0	1	0	0	0	1	0	1.7	1.5
C92	Myeloid leukemia	49	2	2	2	1	3	1	8	6	5	0	4	7	3	1	0	4	2.4	2.5
C95	Leukemia unspecified	25	4	2	2	1	1	0	2	4	1	1	1	1	0	0	3	2	1.3	1.3
O&U	Other and unspecified	310	0	2	1	0	2	19	18	16	15	20	44	45	40	36	29	23	15.9	15.8
	All SITE	**3,617**	**26**	**25**	**29**	**21**	**42**	**105**	**164**	**228**	**323**	**403**	**482**	**462**	**436**	**340**	**288**	**243**	**185.1**	**184.0**

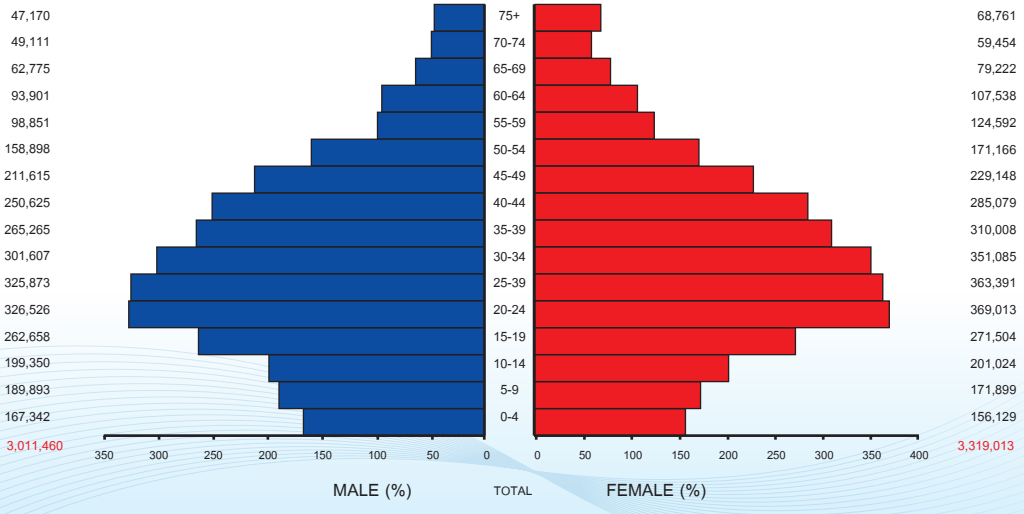
Bangkok Cancer Registry

Registration area

Bangkok Metropolis is the capital of Thailand. It is the centre of politics, economy, education,culture and transportation. Bangkok is located in the central part of the country on the low-flat plain of the Chao Phraya River. The location is at latitude 13:45 N and longitude 100:28 E. The climate is tropical, influenced by seasonal monsoon, with long hours of sunshine, high temperature and humidity. Bangkok comprises 50 districts with total area of 1,569 square kilometers. Bangkok Metropolitan Administration is the sole organization at the local authority level responsible for the wellbeing of Bangkok residents with some financial support from the central government. Bangkok is the commercial center of Thailand, as well as Southeast Asia, for import and export. Bangkok is moving towards westernized metropolitan with wide range of standard of living. The traffic congestion is the major unsolved problem and causes air pollution.



Population pyramid, Bangkok, 2002



Cancer area facilities

In Bangkok, there are 9 excellent government cancer centers of all 12 centers in Thailand, namely National Cancer Institute, King Chulalongkorn Memorial hospital, Siriraj hospital, Ramathibodi hospital, Phra Mongkutklao hospital, Queen Sirikit National Institute of Child Health, Rajavithi hospital, Vajira hospital and Bhumibhol Adulyadej hospital. Moreover, there are three international private cancer centers; Bangkok hospital, Bumrungrad hospital and Samitivej hospital. From the previous data, more than half of patients are treated in government hospital. Regarding the data from Public Health statistics, Bangkok has the highest level of facilities for general health care. The ratio of population per physician is 793:1, while it is 6,237:1 in other part of Thailand. Bangkok cancer registry is important base for collection cancer cases and in addition, referring the data of those patients treated in Bangkok back to other cancer registries.

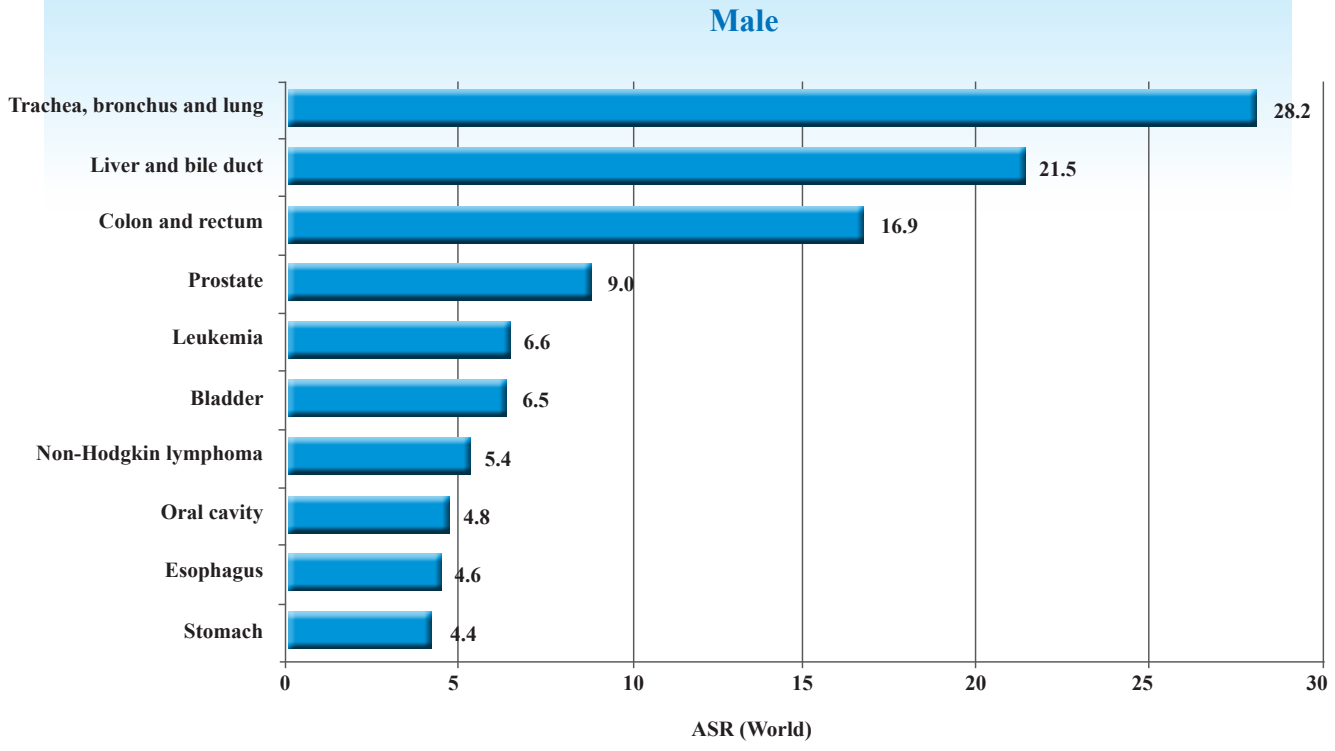
Registry procedures

The cancer registry functions as one unit of the National Cancer Institute. The registry is supported by the government and funded partly by the Cancer Research Foundation of the National Cancer Institute. National Cancer Institute developed a population - based cancer registry for Bangkok Metropolis in 1990. The processes of work began with a retrospective review of records covering the period 1988-1990. Data are collected both actively and passively from the government cancer centers, university, hospital, government hospitals, private hospitals, pathology laboratories and from death certificates. All death certificates are reviewed to match with the incident case records, and efforts are made to trace further information before registering the case as a DCO.

Summary of Results

New cases registered in 2001-2003, 11,246 were males and 13,963 were females this made up of 25,209 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 144.5 per 100,000 in which lung cancer ranks first (ASR = 28.2) followed by liver and bile duct (ASR = 21.5), colon and rectum (ASR = 16.9). ASR of all cancer sites in females is 138.0, three leading cancer in females are breast (ASR = 34.1) and cervix (ASR = 20.9), colon and rectum (ASR = 11.8).

Figure 3.7.3 Leading cancer in Bangkok, 2001-2003



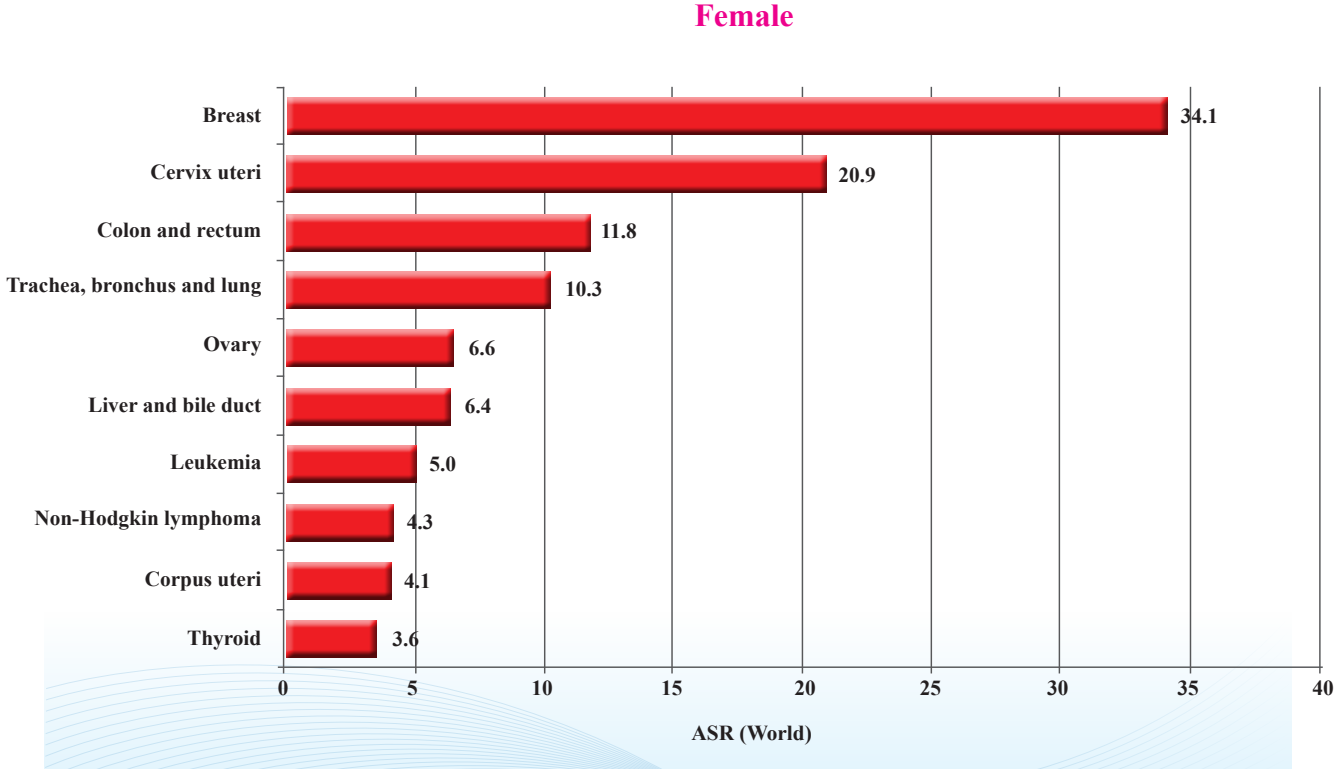


Table 3.8.1 Percentage of morphologically verified and death certificate only cases, Bangkok, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	384	78.9	4.7	306	80.1	5.6
C09-C10;C14	Oropharynx, etc.	101	69.3	7.9	21	76.2	14.3
C11	Nasopharynx	378	75.4	6.1	210	72.9	4.3
C12-C13	Hypopharynx	67	79.1	0.0	8	87.5	0.0
C15	Esophagus	348	61.8	7.8	68	50.0	14.7
C16	Stomach	337	66.8	10.4	321	60.4	10.0
C17	Small intestine	18	66.7	11.1	27	66.7	29.6
C18-C21	Colon and rectum	1,296	68.4	6.4	1,140	69.5	5.4
C22;C24	Liver and bile duct	1,739	25.2	31.7	616	26.6	32.0
C23	Gallbladder	42	69.0	4.8	60	53.3	16.7
C25	Pancreas	209	34.9	14.4	175	34.3	16.6
C30-C31	Nose, sinuses etc.	52	82.7	5.8	31	74.2	3.2
C32	Larynx	275	72.0	4.4	32	78.1	0.0
C33-C34	Trachea, bronchus and lung	2,134	51.1	18.8	992	53.2	18.0
C37-C38	Other thoracic organs	28	82.1	14.3	25	72.0	20.0
C40-C41	Bone	100	49.0	22.0	86	54.7	11.6
C43	Melanoma of skin	11	100.0	0.0	16	100.0	0.0
C44	Other skin	237	96.2	2.1	262	91.6	3.1
C47,C49	Connective and soft tissue	85	74.1	11.8	114	82.5	9.6
C50	Breast	45	75.6	0.0	3,633	83.5	2.9
C51	Vulva				15	73.3	0.0
C52	Vagina				26	76.9	7.7
C53	Cervix uteri				2,202	73.1	3.0
C54	Corpus uteri				400	85.0	1.0
C55	Uterus unspecified				104	29.8	30.8
C56	Ovary				695	67.5	5.0
C51,C52,C57	Other female genital				12	41.7	33.3
C58	Placenta				3	100.0	0.0
C60	Penis	49	71.4	4.1			
C61	Prostate	641	80.0	2.3			
C62	Testis	47	91.5	4.3			
C63	Other male genital oragans	3	33.3	0.0			
C64	Kidney	171	75.4	6.4	88	78.4	4.5
C65	Renal pelvis	9	88.9	0.0	9	88.9	0.0
C66	Ureter	7	71.4	28.6	7	71.4	14.3
C67	Bladder	472	78.6	1.7	144	72.9	4.9
C68	Other urinary organs	5	20.0	20.0	7	42.9	42.9
C69	Eye	16	87.5	0.0	21	76.2	0.0
C70-C72	Brain, nervous system	288	70.1	6.9	238	66.8	8.8
C73	Thyroid	96	81.3	5.2	410	87.1	5.4
C74	Adrenal gland	9	11.1	44.4	13	38.5	38.5
C75	Other endocrine	13	69.2	0.0	10	40.0	20.0
C81	Hodgkin's disease	23	100.0	0.0	26	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	417	99.5	0.0	395	98.2	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	37	100.0	0.0	57	100.0	0.0
C91-C95	Leukemia	517	100.0	0.0	450	100.0	0.0
O&U	Other and unspecified	540	55.4	9.1	488	53.5	10.0
	All SITE	**11,246**	**62.5**	**12.1**	**13,963**	**72.6**	**6.8**

Table 3.8.2 Bangkok (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	7	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	2	0.1	0.1
C01-C02	Tongue	172	1	0	0	0	0	7	1	6	15	24	18	34	18	12	20	16	2.1	1.9
C03-C06	Mouth	154	1	0	2	0	0	2	1	2	8	10	12	34	15	31	17	19	2.0	1.7
C07-C08	Salivary gland	51	0	1	0	1	3	1	2	3	0	4	3	10	4	5	9	5	0.6	0.6
C09	Tonsil	63	0	0	1	0	0	1	1	0	4	6	12	11	4	7	8	8	0.8	0.7
C10	Other oropharynx	24	0	0	0	0	0	0	0	3	2	0	3	3	4	2	3	4	0.3	0.3
C11	Nasopharynx	378	0	0	1	2	4	9	9	33	41	71	48	85	28	19	14	14	4.2	4.2
C12-C13	Hypopharynx	67	0	0	0	0	0	0	0	0	2	6	14	15	15	7	1	7	0.9	0.7
C14	Pharynx unspecified	14	0	0	0	0	0	0	0	0	1	1	2	4	2	2	1	1	0.2	0.2
C15	Esophagus	348	0	0	0	0	0	0	0	3	7	34	41	74	44	50	48	47	4.6	3.9
C16	Stomach	337	0	0	0	1	0	1	4	6	19	23	28	56	50	43	42	64	4.4	3.7
C17	Small intestine	18	0	0	0	0	0	0	2	3	1	1	1	1	2	2	3	2	0.2	0.2
C18	Colon	931	0	0	0	1	3	8	16	29	32	48	74	155	112	158	119	176	12.2	10.3
C19-C20	Rectum	345	1	1	0	0	1	5	7	8	19	30	29	80	35	40	42	47	4.4	3.8
C21	Anus	20	0	0	0	0	0	0	1	0	2	2	0	4	2	3	4	2	0.3	0.2
C22,C24	Liver and bile duct	1,739	3	1	0	0	3	10	32	68	131	185	219	300	214	210	163	200	21.5	19.2
C23	Gallbladder	42	0	0	1	0	0	0	0	1	3	1	4	6	5	5	4	12	0.6	0.5
C25	Pancreas	209	0	0	0	0	0	0	3	3	8	13	19	29	31	35	21	47	2.8	2.3
C30-C31	Nose, sinuses etc.	52	0	0	0	1	0	1	0	0	6	5	10	12	7	4	3	3	0.6	0.6
C32	Larynx	275	1	0	0	0	0	0	1	5	8	26	38	53	31	43	33	36	3.6	3.0
C33-C34	Trachea, bronchus and lung	2,134	0	0	1	4	4	10	18	44	80	126	177	302	276	335	318	439	28.2	23.6
C37-C38	Other thoracic organs	28	0	2	0	1	3	1	5	1	0	3	3	3	2	2	1	1	0.3	0.3
C40-C41	Bone	100	2	2	2	8	8	8	8	5	5	9	5	14	8	5	7	4	1.1	1.1
C43	Melanoma of skin	11	0	0	0	0	0	0	0	1	0	0	1	3	1	2	0	3	0.1	0.1
C44	Other skin	237	0	1	0	0	0	0	5	8	9	12	11	52	28	20	27	64	3.1	2.6
C47,C49	Connective and soft tissue	85	7	6	0	2	5	1	10	9	6	3	2	12	3	8	6	5	1.1	0.9
C50	Breast	45	0	0	1	0	1	1	1	0	4	4	8	11	5	7	1	1	0.6	0.5
C60	Penis	49	0	0	0	0	0	1	1	5	3	2	4	8	4	7	8	6	0.6	0.5
C61	Prostate	641	0	1	0	0	1	0	1	1	3	5	13	129	52	98	89	248	9.0	7.1
C62	Testis	47	7	3	3	0	1	6	6	4	7	1	1	3	1	1	2	1	0.6	0.5
C63	Other male genital oragans	3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.0	0.0
C64	Kidney	171	6	3	1	2	0	4	1	2	4	13	14	27	32	20	17	25	2.3	1.9
C65	Renal pelvis	9	0	0	0	0	0	0	0	0	0	1	0	2	2	0	2	2	0.1	0.1
C66	Ureter	7	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	3	0.1	0.1
C67	Bladder	472	3	0	0	2	0	0	7	2	8	16	23	64	64	72	69	142	6.5	5.2
C68	Other urinary organs	5	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0.1	0.1
C69	Eye	16	7	1	0	0	0	0	0	1	1	0	1	4	1	0	0	0	0.3	0.2
C70-C72	Brain, nervous system	288	21	19	14	8	12	14	21	20	15	27	18	25	21	24	15	14	3.6	3.2
C73	Thyroid	96	0	0	0	1	5	3	7	12	10	5	12	16	3	12	3	7	1.1	1.1
C74	Adrenal gland	9	2	0	0	0	0	0	0	0	1	0	1	0	1	1	1	2	0.1	0.1
C75	Other endocrine	13	0	0	1	3	0	1	1	1	1	1	1	2	1	0	0	0	0.1	0.1
C81	Hodgkin's disease	23	1	3	3	1	1	0	1	1	1	0	0	7	0	2	0	2	0.3	0.3
C82-C85,C96	Non-Hodgkin lymphoma	417	1	7	8	8	12	12	15	25	22	36	31	118	25	41	28	28	5.1	4.6
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	37	0	0	0	0	0	0	0	0	2	4	4	9	3	8	3	4	0.5	0.4
C91	Lymphoid leukemia	112	16	7	13	5	3	6	4	3	6	5	4	23	3	4	6	4	1.6	1.2
C92	Myeloid leukemia	110	7	2	4	3	10	7	16	6	6	7	3	23	6	4	5	1	1.3	1.2
C95	Leukemia unspecified	295	14	17	19	15	17	13	19	11	16	21	9	31	16	19	23	35	3.7	3.3
O&U	Other and unspecified	540	3	1	2	1	2	8	6	19	33	46	48	105	60	81	54	71	6.9	6.0
	All SITE	**11,246**	**104**	**78**	**77**	**70**	**99**	**141**	**233**	**356**	**552**	**839**	**973**	**1,961**	**1,244**	**1,451**	**1,240**	**1,828**	**144.5**	**124.6**

Table 3.8.3 Bangkok (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	24	0	0	0	0	0	0	0	1	0	0	2	3	3	2	0	13	0.2	0.2
C01-C02	Tongue	102	0	0	0	1	0	5	4	4	8	7	8	29	6	9	11	10	1.0	1.0
C03-C06	Mouth	126	0	0	0	0	1	0	2	2	6	12	8	15	15	9	11	45	1.3	1.3
C07-C08	Salivary gland	54	0	0	0	0	3	2	1	5	3	5	5	12	1	4	4	9	0.5	0.5
C09	Tonsil	14	0	0	0	0	0	0	0	3	1	2	0	4	2	0	1	1	0.1	0.1
C10	Other oropharynx	4	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0.0	0.0
C11	Nasopharynx	210	0	0	0	2	4	10	12	14	19	24	28	43	14	16	10	14	2.0	2.1
C12-C13	Hypopharynx	8	0	0	0	0	0	0	0	0	0	0	0	1	1	4	1	1	0.1	0.1
C14	Pharynx unspecified	3	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0.0	0.0
C15	Esophagus	68	0	0	0	0	0	0	1	2	2	2	2	6	7	10	10	26	0.7	0.7
C16	Stomach	321	0	0	0	1	2	6	8	12	32	36	29	47	31	35	29	53	3.2	3.2
C17	Small intestine	27	0	0	0	0	0	0	0	0	0	4	4	5	3	7	0	4	0.3	0.3
C18	Colon	827	0	0	0	1	2	7	15	32	32	52	72	151	89	108	92	174	8.5	8.3
C19-C20	Rectum	294	1	0	0	0	0	4	4	10	10	20	38	60	34	36	24	53	3.1	3.0
C21	Anus	19	0	0	0	0	0	0	0	0	3	2	4	2	3	1	3	1	0.2	0.2
C22,C24	Liver and bile duct	616	4	1	1	0	5	3	10	19	27	47	58	93	65	75	73	135	6.4	6.2
C23	Gallbladder	60	0	0	0	0	0	2	2	0	1	2	5	7	5	9	5	22	0.6	0.6
C25	Pancreas	175	0	0	0	0	1	1	1	5	6	6	6	21	25	27	32	44	1.9	1.8
C30-C31	Nose, sinuses etc.	31	0	0	0	0	1	0	0	2	5	9	0	9	1	1	3	0	0.3	0.3
C32	Larynx	32	0	0	0	0	0	1	1	0	3	4	2	4	4	4	5	4	0.3	0.3
C33-C34	Trachea, bronchus and lung	992	0	0	0	0	2	7	10	22	45	78	97	124	121	126	126	234	10.3	10.0
C37-C38	Other thoracic organs	25	0	0	0	0	0	2	2	5	2	1	4	6	0	3	0	0	0.2	0.3
C40-C41	Bone	86	2	2	6	6	3	8	2	4	4	7	6	10	8	4	5	9	0.9	0.9
C43	Melanoma of skin	16	0	0	1	0	0	2	0	1	0	1	4	5	0	0	0	2	0.2	0.2
C44	Other skin	262	0	0	2	0	0	2	1	8	14	8	18	64	15	29	26	75	2.7	2.6
C47,C49	Connective and soft tissue	114	5	2	4	1	2	2	11	3	12	11	13	23	4	7	8	6	1.2	1.1
C50	Breast	3,633	3	0	0	2	7	33	149	305	502	565	569	664	275	255	150	154	34.1	36.5
C51	Vulva	15	0	0	0	0	0	0	0	1	0	3	0	4	3	2	1	1	0.2	0.2
C52	Vagina	26	0	0	0	0	0	0	1	1	2	2	0	7	4	3	2	4	0.3	0.3
C53	Cervix uteri	2,202	1	1	0	3	5	25	94	189	267	307	275	458	185	144	104	144	20.9	22.1
C54	Corpus uteri	400	1	0	0	0	1	3	7	13	19	45	70	109	47	47	21	17	4.1	4.0
C55	Uterus unspecified	104	0	0	0	0	0	1	3	9	4	9	12	16	14	12	8	16	1.0	1.0
C56	Ovary	695	1	1	1	18	14	19	34	52	65	100	105	120	59	47	25	34	6.6	7.0
C57	Other female genital	12	0	0	0	0	1	0	0	1	0	3	3	0	1	2	1	0	0.1	0.1
C58	Placenta	3	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0.0	0.0
C64	Kidney	88	4	3	3	0	1	0	4	3	2	3	5	16	6	16	9	13	1.0	0.9
C65	Renal pelvis	9	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	4	0.1	0.1
C66	Ureter	7	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	3	0.1	0.1
C67	Bladder	144	0	0	0	0	0	1	0	2	5	6	9	28	13	14	27	39	1.5	1.4
C68	Other urinary organs	7	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1	2	0.1	0.1
C69	Eye	21	5	2	0	0	0	0	1	0	0	2	1	6	0	2	1	1	0.3	0.2
C70-C72	Brain, nervous system	238	8	13	6	11	1	9	12	19	14	21	23	20	21	19	21	20	2.6	2.4
C73	Thyroid	410	1	0	0	5	18	35	36	49	36	52	32	74	19	23	19	11	3.6	4.1
C74	Adrenal gland	13	1	3	0	0	0	0	2	1	1	3	0	2	0	0	0	0	0.2	0.1
C75	Other endocrine	10	0	0	0	0	2	1	1	0	0	2	2	1	1	0	0	0	0.1	0.1
C81	Hodgkin's disease	26	1	1	0	0	3	2	2	2	3	1	2	6	0	1	0	2	0.3	0.3
C82-C85,C96	Non-Hodgkin lymphoma	395	0	9	5	6	15	10	20	20	12	32	30	113	19	33	27	44	4.0	4.0
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	57	1	0	0	0	0	0	0	2	3	2	7	20	4	7	4	7	0.6	0.6
C91	Lymphoid leukemia	71	4	8	5	1	6	5	2	5	1	2	3	12	3	6	3	5	0.8	0.7
C92	Myeloid leukemia	120	2	6	4	2	3	3	10	6	5	7	4	44	2	9	5	8	1.3	1.2
C95	Leukemia unspecified	259	16	6	19	12	8	8	13	11	16	21	16	31	14	14	18	36	2.9	2.6
O&U	Other and unspecified	488	2	0	1	0	2	9	8	20	24	42	58	90	54	47	42	89	5.0	4.9
	All SITE	**13,963**	**63**	**58**	**58**	**72**	**113**	**229**	**487**	**867**	**1,218**	**1,570**	**1,641**	**2,588**	**1,205**	**1,234**	**970**	**1,590**	**138.0**	**140.3**

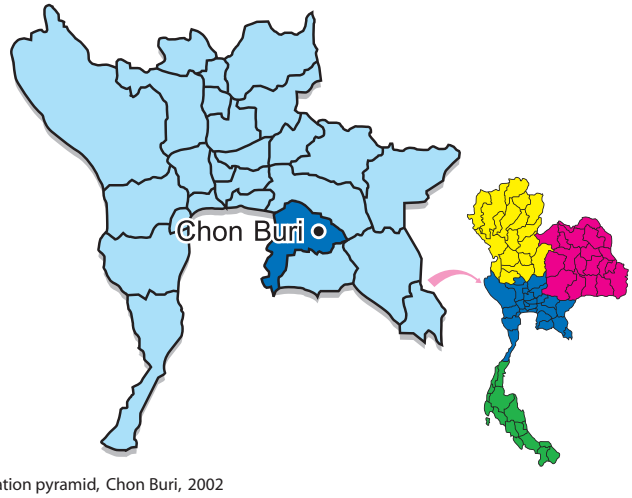
Chonburi Cancer Registry

Registration area

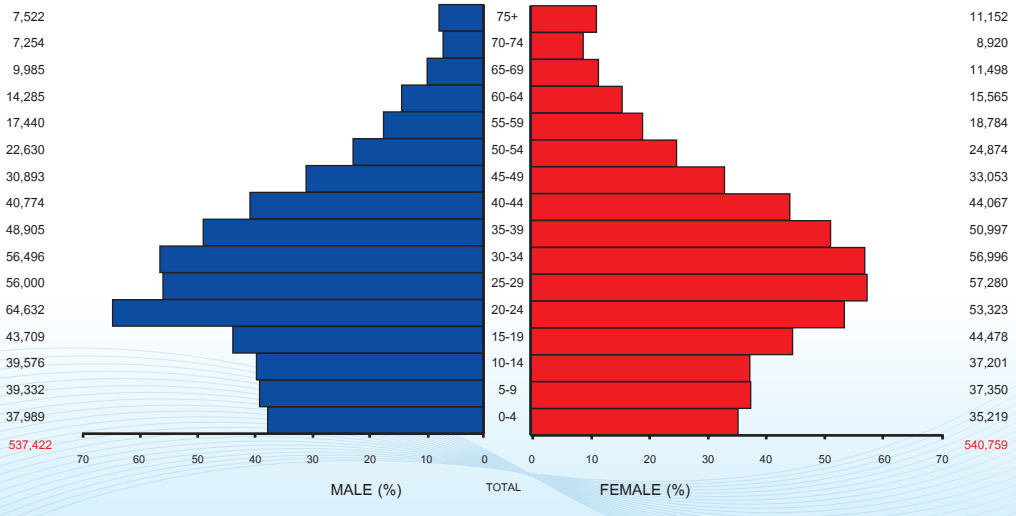
Chon Buri is situated in the eastern part of Thailand, between 12:13 N and 100:102 E, 80 kilometers from Bangkok by car or bus and train, with land area 4,363 square kilometers and is bounded in the north by Chachoengsao, in the east by Chanthaburi, in the south by Rayong and in the west by the bank of Gulf of Thailand.

The central part of the province is predominantly mountainous stretching from north-west to southeast, about 200 meters above the sea level. The climate is hot and dry the highest temperature about 42 o C in summer from March to May, in winter from November to February,rainy season started from June to October. The average total rainfall is 1,342.2 millimeters per year.

At the time of census, in April 2000, Chon Buri was divided into 10 districts, 1 subdistrict, 92 communes (Tambon), 692 villages and 26 municipal areas. The districts of Chon Buri were: Muang Chon Buri, Sri Racha, Ban Bung, Nong Yai, Bang Lamung, Sattahip, Phan Thong, Phanat Nikhom, Bo Thong, Ko Sichang and subdistrict Ko Chan.



Population pyramid, Chon Buri, 2002



Cancer care facilities

The total number of hospitals in Chon Buri province was 26 hospitals composed of 12 community hospitals, 8 private hospitals and 1 provincial hospital, 3 military hospitals and university hospital providing 4,745 total beds. Cancer diagnostic services including radiological diagnosis equipment such as: X-ray, ultrasound, computed radiography, mammogram, CT scan and pathological investigations are available in Chon Buri provincial hospital, private hospitals and Chon Buri cancer center. Cancer treatment, radiotherapy equipments: one simulator, cobalt-60 machine, linear accelerator and remote after-loading devices for brachytherapy are available at the Chon Buri cancer center. Cancer surgery and cancer chemotherapy service are provided in Chon Buri cancer center, provincial hospital and private hospitals.

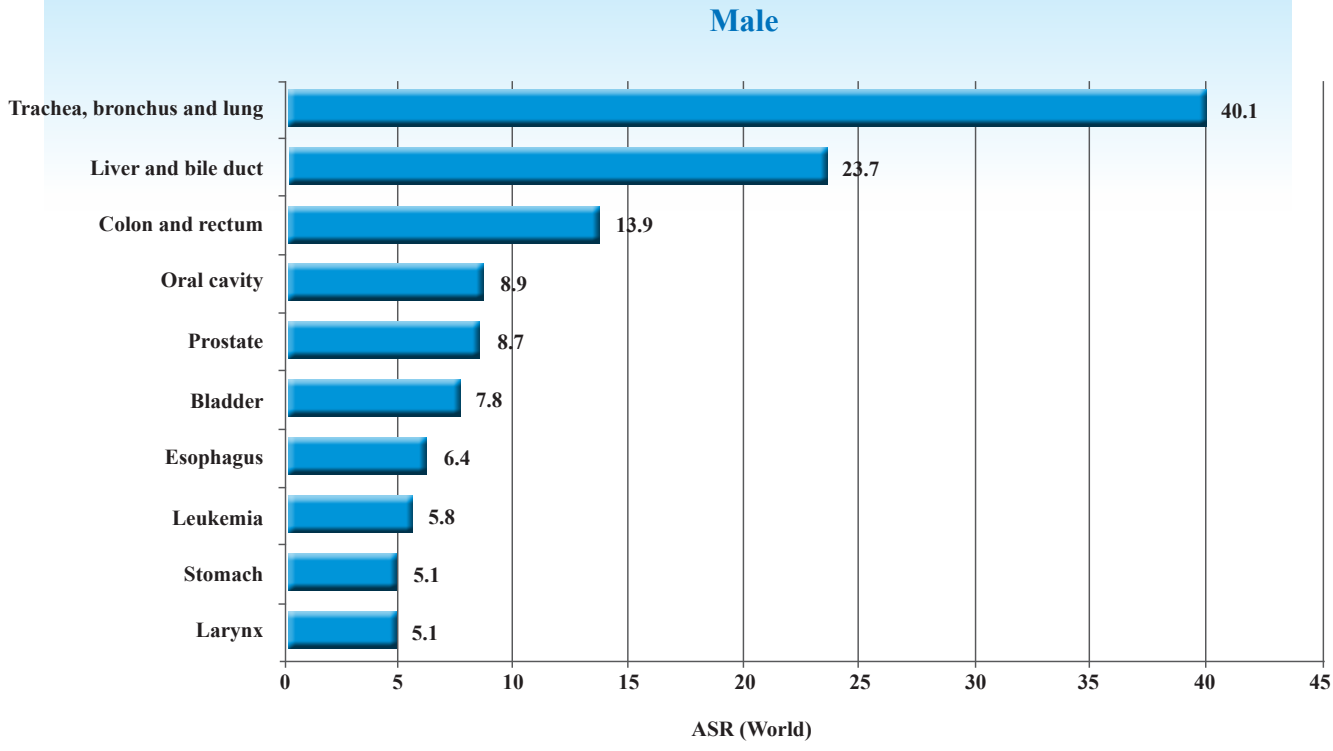
Registry procedures

All data on cancer patients were collected by mixture of passive and active methods involving notification by the staff of Chon Buri cancer center, Chon Buri provincial hospital, 8 private hospitals, 12 community hospitals, 1 university hospital, 3 military hospitals and 1 pathological laboratory. Registry receives information from Chon Buri Provincial Public Health Service on some case of deaths from all causes. All death certificates are matched with the incidence case records of the registry. Individual certified as having died of cancer are registered as "Death Certificate Only (DCO)" cases if no other information about the individual can be traced from the other sources. New cancer cases were collected from out and in patient departments, wards, radiotherapy unit, surgery unit, cytology unit, hematology unit, medical record, pathological unit and autopsy service. The data information collected includes demographic details for each cancer patient that consists of: registry number, name, residential address, date of birth, age, sex, date of diagnosis, site of cancer, histology of cancer, staging, extension of disease, method of diagnosis, treatment, date of last contact and status of cancer patients (alive or dead).

Summary of Results

New cases registered in 2001-2003, 2,148 were males and 2,440 were females this made up of 4,588 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 170.9 per 100,000 in which lung cancer ranks first (ASR = 40.1) followed by liver and bile duct (ASR = 23.7), colon and rectum (ASR = 14.0). ASR of all cancer sites in females is 154.4, three leading cancer in females are cervix (ASR = 30.6) and breast (ASR = 29.0), lung (ASR = 13.9).

Figure 3.8.3 Leading cancer in Chon Buri, 2001-2003



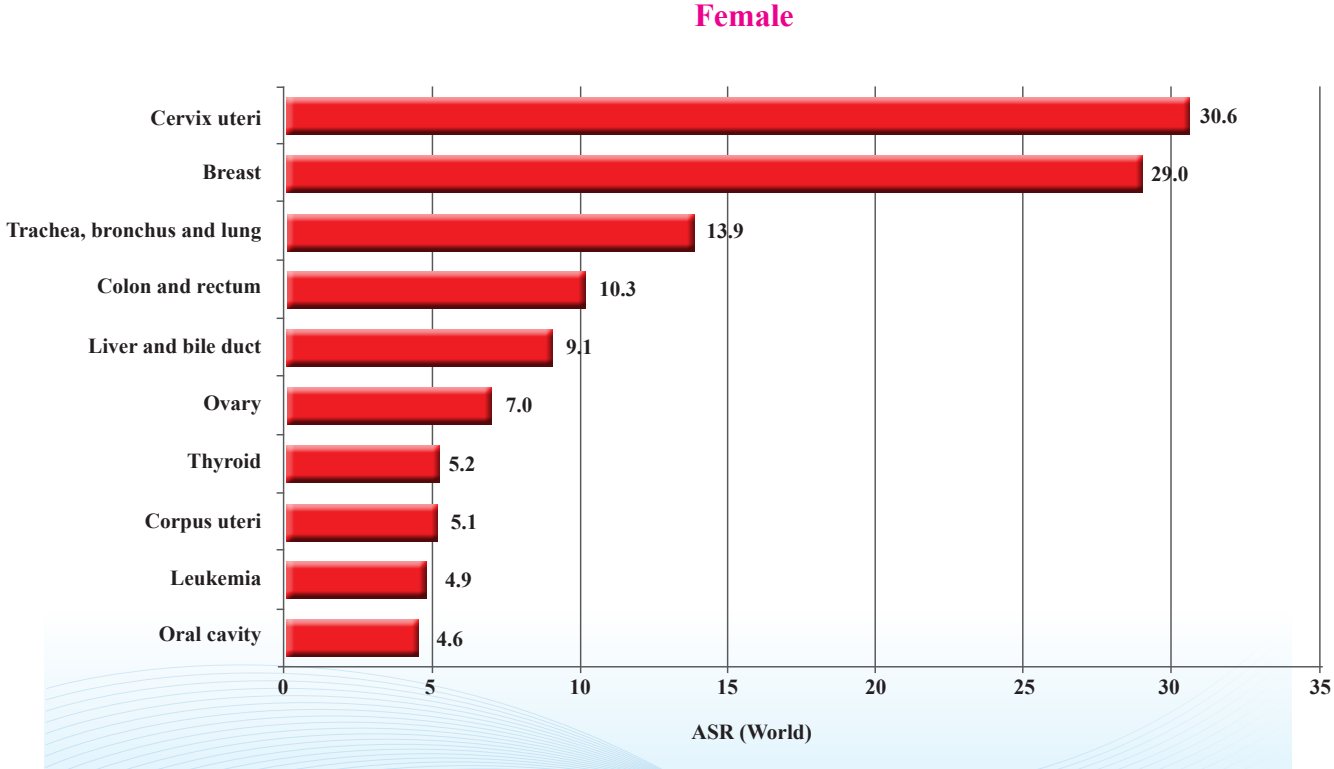


Table 3.9.1 Percentage of morphologically verified and death certificate only cases, Chon Buri, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	112	86.6	0.0	67	91.0	0.0
C09-C10;C14	Oropharynx, etc.	21	100.0	0.0	4	75.0	25.0
C11	Nasopharynx	59	83.1	1.7	26	80.8	0.0
C12-C13	Hypopharynx	34	100.0	0.0	2	100.0	0.0
C15	Esophagus	74	66.2	0.0	18	61.1	5.6
C16	Stomach	64	70.3	4.7	50	66.0	4.0
C17	Small intestine	0	0.0	0.0	3	100.0	0.0
C18-C21	Colon and rectum	173	77.5	5.8	156	76.9	2.6
C22;C24	Liver and bile duct	317	26.5	8.2	137	20.4	10.9
C23	Gallbladder	4	75.0	0.0	14	64.3	7.1
C25	Pancreas	29	24.1	3.4	35	25.7	5.7
C30-C31	Nose, sinuses etc.	12	100.0	0.0	3	100.0	0.0
C32	Larynx	59	81.4	0.0	4	50.0	0.0
C33-C34	Trachea, bronchus and lung	469	52.0	7.5	202	57.4	6.4
C37-C38	Other thoracic organs	3	100.0	0.0	2	100.0	0.0
C40-C41	Bone	11	54.5	9.1	9	88.9	0.0
C43	Melanoma of skin	8	100.0	0.0	5	100.0	0.0
C44	Other skin	49	89.8	6.1	61	100.0	0.0
C47,C49	Connective and soft tissue	19	100.0	0.0	19	100.0	0.0
C50	Breast	3	100.0	0.0	490	80.4	2.2
C51	Vulva				6	100.0	0.0
C52	Vagina				3	100.0	0.0
C53	Cervix uteri				506	80.8	1.6
C54	Corpus uteri				74	85.1	2.7
C55	Uterus unspecified				0	0.0	0.0
C56	Ovary				114	72.8	0.9
C51,C52,C57	Other female genital				3	66.7	33.3
C58	Placenta				3	100.0	0.0
C60	Penis	22	86.4	0.0			
C61	Prostate	96	75.0	4.2			
C62	Testis	21	85.7	0.0			
C63	Other male genital oragans	0	0.0	0.0			
C64	Kidney	13	84.6	7.7	12	58.3	16.7
C65	Renal pelvis	4	100.0	0.0	4	100.0	0.0
C66	Ureter	1	100.0	0.0	0	0.0	0.0
C67	Bladder	90	70.0	2.2	18	72.2	0.0
C68	Other urinary organs	0	0.0	0.0	0	0.0	0.0
C69	Eye	5	100.0	0.0	5	100.0	0.0
C70-C72	Brain, nervous system	31	41.9	12.9	35	31.4	25.7
C73	Thyroid	20	85.0	0.0	91	85.7	0.0
C74	Adrenal gland	0	0.0	0.0	1	100.0	0.0
C75	Other endocrine	0	0.0	0.0	1	0.0	0.0
C81	Hodgkin's disease	2	100.0	0.0	4	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	70	100.0	0.0	61	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	15	100.0	0.0	11	100.0	0.0
C91-C95	Leukemia	81	100.0	0.0	72	100.0	0.0
O&U	Other and unspecified	157	12.1	40.1	109	10.1	36.7
	All site	**2,148**	**61.5**	**7.2**	**2,440**	**72.0**	**4.6**

Table 3.9.2 Chon Buri (2001-2003), Number of Case By Age Group (years) Male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	6	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	2	0.5	0.4
C01-C02	Tongue	49	0	0	0	0	0	0	1	1	3	4	7	8	4	6	5	10	3.9	3.0
C03-C06	Mouth	48	0	0	0	0	0	0	2	1	2	2	6	8	4	5	11	7	3.9	3.0
C07-C08	Salivary gland	9	0	0	0	0	0	1	0	1	2	0	1	2	0	0	1	1	0.6	0.6
C09	Tonsil	17	0	1	0	0	0	0	0	0	3	2	1	2	1	3	4	0	1.3	1.1
C10	Other oropharynx	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0.1	0.1
C11	Nasopharynx	59	0	0	0	1	0	1	1	6	9	4	8	7	5	7	3	7	4.3	3.7
C12-C13	Hypopharynx	34	0	0	0	0	1	0	1	0	0	3	8	1	7	5	1	7	2.8	2.1
C14	Pharynx unspecified	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0.1	0.1
C15	Esophagus	74	0	0	0	0	0	0	0	0	3	6	8	7	12	16	9	13	6.4	4.6
C16	Stomach	64	0	0	0	0	0	0	1	6	1	7	8	2	7	4	13	15	5.1	4.0
C17	Small intestine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C18	Colon	111	0	0	0	1	2	7	1	3	3	9	7	12	11	18	15	22	9.0	6.9
C19-C20	Rectum	60	0	0	0	0	1	0	1	2	5	7	4	6	11	8	7	8	4.8	3.7
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.2	0.1
C22,C24	Liver and bile duct	317	1	0	1	0	3	5	15	25	26	35	32	41	42	43	21	27	23.7	19.7
C23	Gallbladder	4	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	1	0.3	0.2
C25	Pancreas	29	0	0	0	0	0	0	1	1	0	4	1	5	5	6	1	5	2.4	1.8
C30-C31	Nose, sinuses etc.	12	0	0	0	0	0	0	0	0	2	1	3	0	0	2	1	3	0.9	0.7
C32	Larynx	59	0	0	0	0	0	0	0	1	3	1	7	6	17	9	7	8	5.1	3.7
C33-C34	Trachea, bronchus and lung	469	0	0	0	0	1	2	0	7	21	25	29	60	75	90	68	91	40.1	29.1
C37-C38	Other thoracic organs	3	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0.2	0.2
C40-C41	Bone	11	0	0	2	3	2	0	0	0	0	1	0	0	1	2	0	0	0.8	0.7
C43	Melanoma of skin	8	0	0	0	0	0	0	1	0	0	2	1	1	0	2	1	0	0.6	0.5
C44	Other skin	49	0	0	0	0	0	1	1	2	4	2	2	5	1	11	7	13	4.0	3.0
C47, C49	Connective and soft tissue	19	2	1	0	0	2	0	1	4	1	1	2	1	1	1	0	2	1.3	1.2
C50	Breast	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.3	0.2
C60	Penis	22	0	0	0	0	0	0	0	2	1	3	2	4	2	1	1	6	1.7	1.4
C61	Prostate	96	0	0	0	0	0	0	0	0	0	4	1	4	20	20	15	32	8.7	6.0
C62	Testis	21	0	0	1	4	1	1	3	3	3	1	1	1	0	1	1	0	1.2	1.3
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	13	1	0	0	0	0	0	0	0	0	1	1	1	2	2	1	4	1.2	0.8
C65	Renal pelvis	4	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0.3	0.2
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0.1
C67	Bladder	90	1	0	0	0	1	0	1	2	2	2	9	4	12	16	15	25	7.8	5.6
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	5	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	1	0.3	0.3
C70-C72	Brain, nervous system	31	3	3	2	2	2	1	3	2	2	3	2	1	1	0	1	3	2.1	1.9
C73	Thyroid	20	0	0	0	0	2	2	5	2	1	1	0	2	0	2	0	3	1.2	1.2
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.2	0.1
C82-C85,C96	Non-Hodgkin lymphoma	70	0	2	3	2	2	2	7	6	7	5	7	4	5	7	6	5	4.9	4.3
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	15	0	0	0	0	0	0	1	1	0	2	1	0	1	2	2	5	1.2	0.9
C91	Lymphoid leukemia	18	2	1	3	1	0	1	1	0	1	2	0	0	2	2	0	2	1.4	1.1
C92	Myeloid leukemia	24	1	1	0	0	2	1	3	2	2	5	1	0	1	3	1	1	1.6	1.5
C95	Leukemia unspecified	39	2	2	2	2	0	2	7	4	1	0	2	1	0	5	6	3	2.8	2.4
O&U	Other and unspecified	157	3	0	0	0	1	7	5	21	12	17	11	14	15	19	10	22	11.5	9.7
	Total	**2,148**	**17**	**11**	**15**	**17**	**23**	**36**	**63**	**109**	**121**	**163**	**176**	**212**	**267**	**325**	**236**	**358**	**170.9**	**133.3**

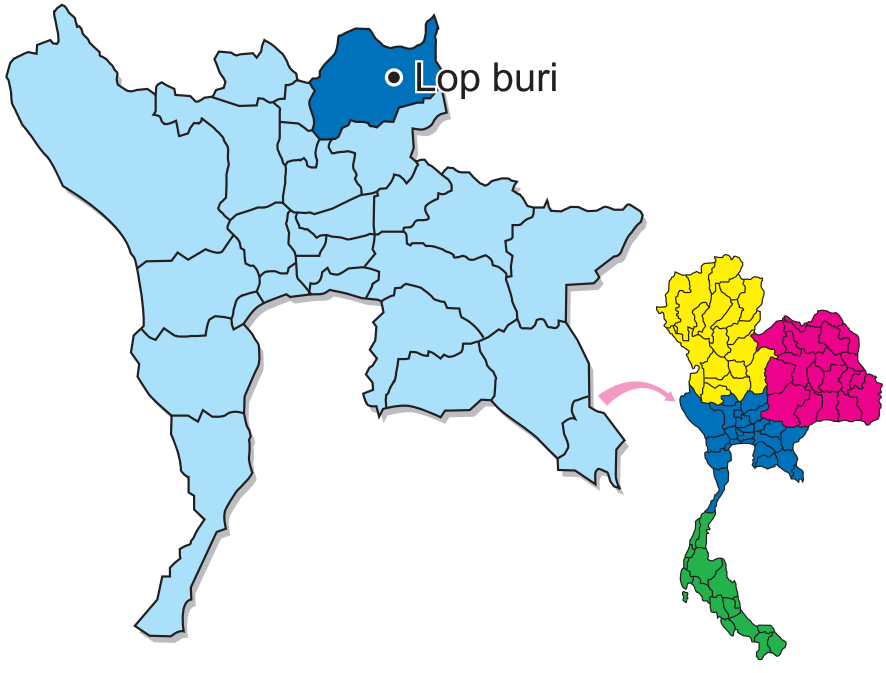
Table 3.9.3 Chon Buri (2001-2003), Number of Case By Age Group (years) Female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	14	0	0	0	0	0	0	0	0	0	0	1	0	2	2	3	6	1.0	0.9
C01-C02	Tongue	9	0	0	0	0	0	0	0	1	1	0	0	1	2	1	1	2	0.6	0.6
C03-C06	Mouth	37	0	0	0	0	0	0	0	0	0	1	4	1	4	7	8	12	2.7	2.3
C07-C08	Salivary gland	7	0	0	0	0	0	3	0	0	1	1	2	0	0	0	0	0	0.4	0.4
C09	Tonsil	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C11	Nasopharynx	26	0	0	0	1	0	1	1	5	4	2	2	2	2	1	3	2	1.5	1.6
C12-C13	Hypopharynx	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0.1	0.1
C14	Pharynx unspecified	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C15	Esophagus	18	0	0	0	0	0	0	1	0	1	0	1	3	3	1	2	6	1.2	1.1
C16	Stomach	50	0	0	0	0	0	1	3	3	5	5	5	4	5	2	5	12	3.1	3.1
C17	Small intestine	3	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0.2	0.2
C18	Colon	90	0	0	0	0	0	0	2	4	6	3	7	8	9	15	13	23	6.1	5.5
C19-C20	Rectum	65	0	0	0	0	0	2	6	7	5	5	7	5	10	5	2	11	4.0	4.0
C21	Anus	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.1
C22,C24	Liver and bile duct	137	1	0	0	1	2	0	4	9	12	17	12	13	12	21	12	21	9.1	8.4
C23	Gallbladder	14	0	0	0	0	0	0	0	0	0	0	3	1	2	3	1	4	1.0	0.9
C25	Pancreas	35	0	0	0	0	0	0	0	1	1	3	6	4	3	3	6	8	2.4	2.2
C30-C31	Nose, sinuses etc.	3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0.2	0.2
C32	Larynx	4	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	0.2	0.2
C33-C34	Trachea, bronchus and lung	202	0	0	0	0	0	4	5	8	9	12	15	20	31	27	29	42	13.9	12.5
C37-C38	Other thoracic organs	2	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C40-C41	Bone	9	0	1	3	1	0	1	0	0	2	0	0	0	0	1	0	0	0.6	0.6
C43	Melanoma of skin	5	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	0.3	0.3
C44	Other skin	61	0	0	0	1	0	0	1	1	3	5	2	7	5	9	9	18	4.2	3.8
C47,C49	Connective and soft tissue	19	1	1	0	0	2	0	2	4	1	2	0	1	3	1	0	1	1.2	1.2
C50	Breast	490	0	0	0	0	4	8	25	64	80	88	80	58	29	24	18	12	29.0	30.2
C51	Vulva	6	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	4	0.4	0.4
C52	Vagina	3	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0.2	0.2
C53	Cervix uteri	506	0	0	0	0	4	15	30	54	83	82	58	50	53	32	24	21	30.6	31.2
C54	Corpus uteri	74	0	0	0	0	0	1	2	1	7	11	12	14	9	13	3	1	5.1	4.6
C55	Uterus unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C56	Ovary	114	0	0	1	3	5	3	9	5	9	21	17	9	9	6	6	11	7.0	7.0
C57	Other female genital	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0.2	0.2
C58	Placenta	3	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0.1	0.2
C64	Kidney	12	1	0	0	2	0	0	1	0	2	0	1	0	1	0	2	2	0.8	0.7
C65	Renal pelvis	4	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0.3	0.2
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	18	0	0	0	0	0	1	0	1	0	1	1	1	4	2	2	5	1.2	1.1
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	5	0	0	0	0	0	1	0	3	0	1	0	0	0	0	0	0	0.2	0.3
C70-C72	Brain, nervous system	35	2	3	3	2	0	1	3	1	2	2	5	1	1	1	6	2	2.4	2.2
C73	Thyroid	91	0	0	1	2	9	7	11	12	4	9	6	4	6	6	6	8	5.2	5.6
C74	Adrenal gland	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0	0.1
C75	Other endocrine	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	4	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0.3	0.2
C82-C85,C96	Non-Hodgkin lymphoma	61	1	1	1	1	2	3	4	3	4	7	6	6	9	4	2	7	4.0	3.8
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C88	Multiple myeloma	11	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	5	0.8	0.7
C90	Lymphoid leukemia	17	1	3	2	0	0	1	0	1	0	0	2	2	1	0	2	2	1.3	1.0
C91	Myeloid leukemia	19	1	0	0	0	2	2	0	2	2	2	2	1	1	2	1	1	1.2	1.2
C92	Leukemia unspecified	36	1	4	1	2	4	1	0	1	3	2	2	2	2	2	3	6	2.4	2.2
O&U	Other and unspecified	109	0	2	0	0	4	10	6	8	11	8	9	9	5	14	8	15	6.7	6.7
	Total	**2,440**	**10**	**15**	**13**	**16**	**39**	**67**	**118**	**201**	**262**	**294**	**274**	**230**	**231**	**213**	**182**	**275**	**154.4**	**150.4**

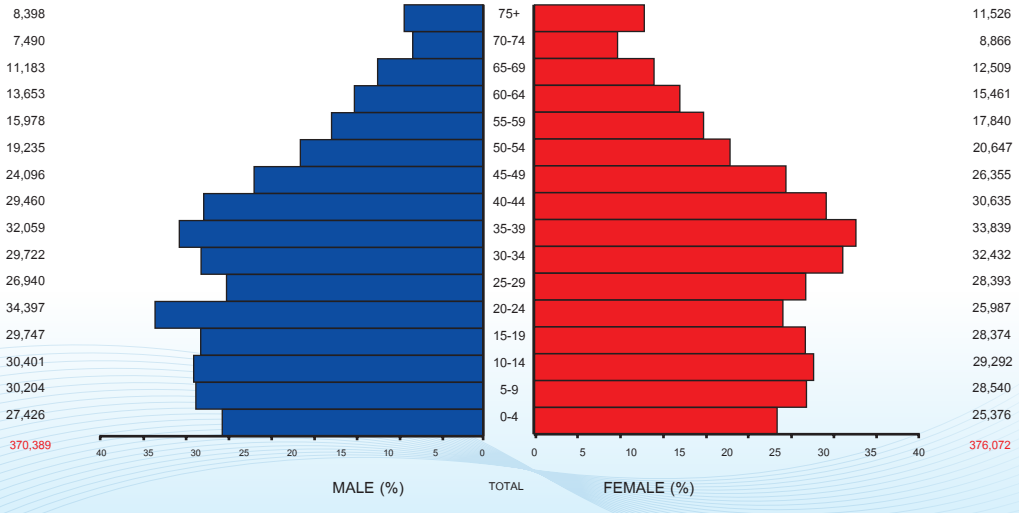
Lop buri Cancer Registry

Registration area

Lop Buri is located on the east side of the Chao Phraya river valley, between the Lop Buri river and Pa Sak rivers at latitude 14:48 N and 100:37 E. The land area is 6,200 square kilometers, the Songkhla registry covers of 11 districts and the population estimated at the year 2002 of 746,461. Thirty percent of the area is a low plain and the rest seventy percent is intermixed between plain and hills.



Population pyramid, Lop buri, 2002



Cancer care facilities

The government of Thailand provides general health care in the region predominantly. Hospitals providing extensive cancer patient care include Lop Buri cancer center, Lop Buri hospital, and Ananthamahidol (Army) Hospital. Facilities for surgery, chemotherapy, and radiotherapy are available. Two private hospitals, 1 Air Force hospital, and 10 community hospitals are capable of basic care to cancer patients. Like in other provinces in Thailand, an extensive network of health care facilities take care of the patients at the household level.

Registry Procedure

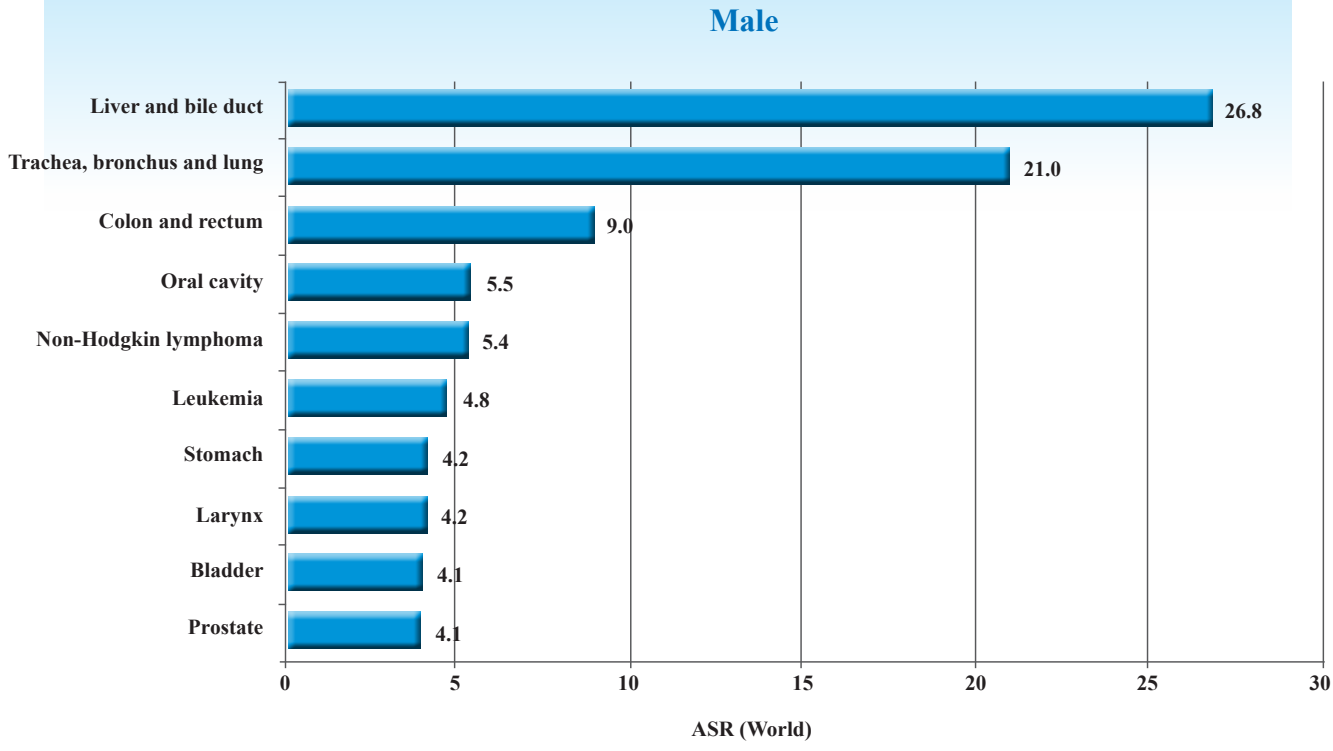
The registry is located within the Lop Buri cancer center. The registry is staffed by one part - time medical doctors and a number of full - time registrars.

The Lop Buri registry undertakes active case finding from sources of data consisting of hospitals mentioned above. The completeness of death registration is acceptable but the cause of death is not so accurate, being mostly cardiopulmonary arrest and senility. After the national heath care reform started in 2000, the validity of the death certificates has been improving.

Summary of Results

New cases registered in 2001-2003, 1,524 were males and 1,611 were females this made up of 3,135 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 130.9 per 100,000 in which liver and bile duct cancer ranks first (ASR = 26.8) followed by lung (ASR = 21.0), colon and rectum (ASR = 9.0). ASR of all cancer sites in females is 120.8, three leading cancer in females are breast (ASR = 22.8) and cervix (ASR = 22.4), liver and bile duct (ASR = 9.0).

Figure 3.9.3 Leading cancer in Lop Buri, 2001-2003



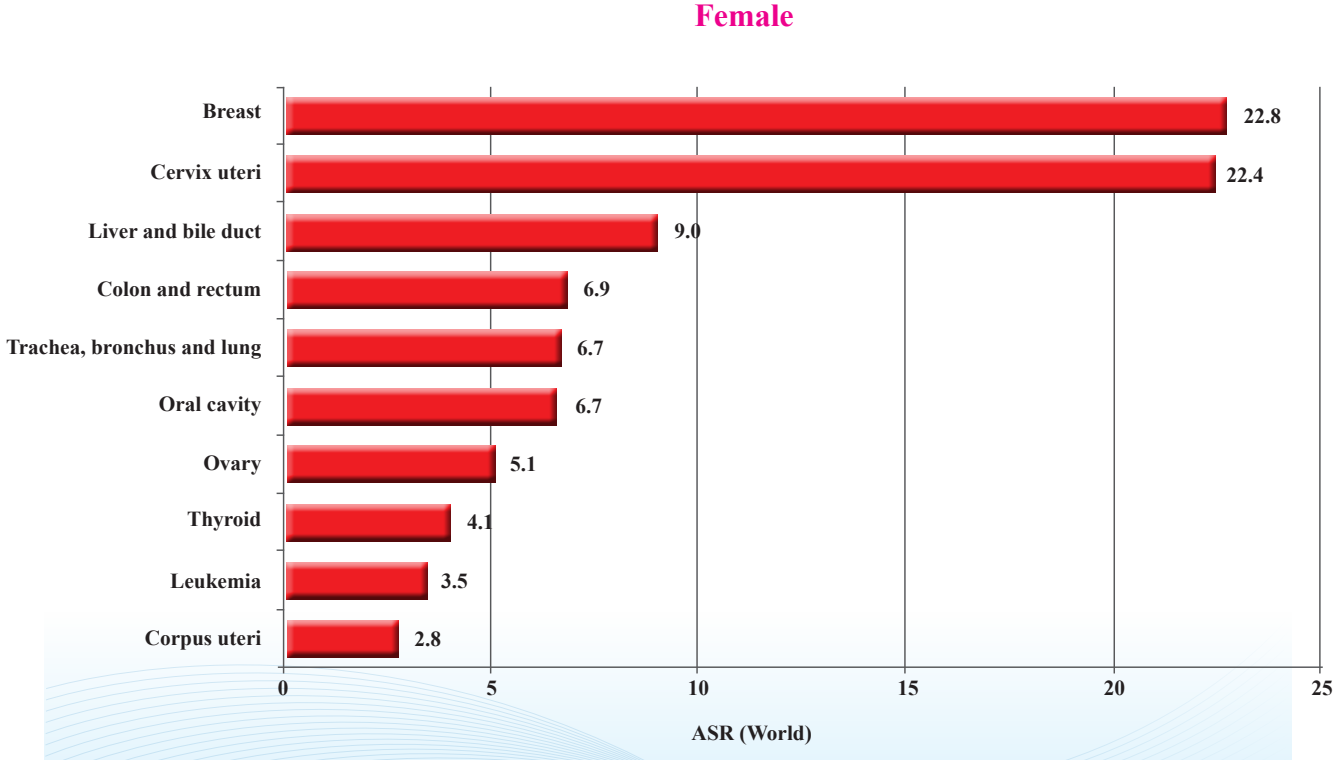


Table 3.10.1 Percentage of morphologically verified and death certificate only cases, Lop Buri, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	66	69.7	1.5	89	49.4	0.0
C09-C10;C14	Oropharynx, etc.	40	40.0	0.0	11	9.1	9.1
C11	Nasopharynx	25	76.0	4.0	11	100.0	0.0
C12-C13	Hypopharynx	12	91.7	0.0	1	100.0	0.0
C15	Esophagus	46	52.2	0.0	13	38.5	0.0
C16	Stomach	49	38.8	8.2	27	40.7	3.7
C17	Small intestine	2	100.0	0.0	2	0.0	0.0
C18-C21	Colon and rectum	106	45.3	3.8	95	62.1	0.0
C22;C24	Liver and bile duct	316	24.4	6.6	121	24.0	9.1
C23	Gallbladder	14	28.6	7.1	9	22.2	33.3
C25	Pancreas	23	26.1	0.0	17	5.9	11.8
C30-C31	Nose, sinuses etc.	19	15.8	0.0	18	16.7	0.0
C32	Larynx	48	64.6	8.3	13	15.4	0.0
C33-C34	Trachea, bronchus and lung	247	36.8	7.7	93	31.2	6.5
C37-C38	Other thoracic organs	8	62.5	0.0	8	37.5	0.0
C40-C41	Bone	12	8.3	0.0	9	33.3	11.1
C43	Melanoma of skin	5	100.0	0.0	6	100.0	0.0
C44	Other skin	22	81.8	0.0	29	86.2	0.0
C47,C49	Connective and soft tissue	12	25.0	0.0	7	28.6	0.0
C50	Breast	7	28.6	0.0	315	78.7	0.6
C51	Vulva				3	100.0	0.0
C52	Vagina				5	100.0	0.0
C53	Cervix uteri				307	81.1	1.0
C54	Corpus uteri				37	70.3	0.0
C55	Uterus unspecified				7	42.9	0.0
C56	Ovary				66	56.1	1.5
C51,C52,C57	Other female genital				1	100.0	0.0
C58	Placenta				3	33.3	0.0
C60	Penis	13	46.2	0.0			
C61	Prostate	47	48.9	0.0			
C62	Testis	3	100.0	0.0			
C63	Other male genital oragans	1	100.0	0.0			
C64	Kidney	6	66.7	0.0	2	0.0	50.0
C65	Renal pelvis	0	0.0	0.0	0	0.0	0.0
C66	Ureter	1	100.0	0.0	0	0.0	0.0
C67	Bladder	48	52.1	2.1	11	54.5	0.0
C68	Other urinary organs	1	0.0	0.0	2	0.0	0.0
C69	Eye	3	66.7	0.0	3	33.3	0.0
C70-C72	Brain, nervous system	30	23.3	10.0	23	21.7	17.4
C73	Thyroid	13	53.8	0.0	54	74.1	1.9
C74	Adrenal gland	2	0.0	0.0	0	0.0	0.0
C75	Other endocrine	2	50.0	0.0	1	0.0	0.0
C81	Hodgkin's disease	2	100.0	0.0	0	0.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	63	95.2	3.2	31	96.8	3.2
C88	Immunoproliferative diseases	0	0.0	0.0	0	0.0	0.0
C90	Multiple myeloma	2	100.0	0.0	3	100.0	0.0
C91-C95	Leukemia	51	92.2	7.8	44	93.2	6.8
O&U	Other and unspecified	157	15.9	12.7	114	11.4	18.4
	All site	**1,524**	**42.5**	**5.6**	**1,611**	**58.9**	**3.8**

Table 3.10.2 Lop Buri (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2	0.2
C01-C02	Tongue	24	0	0	0	0	0	0	0	3	3	1	4	1	0	3	3	6	1.9	2.2
C03-C06	Mouth	29	0	0	1	0	1	0	0	1	1	3	1	6	1	5	3	6	2.4	2.6
C07-C08	Salivary gland	11	0	0	0	0	0	1	1	0	1	1	0	2	3	1	0	1	0.9	1.0
C09	Tonsil	29	7	5	2	1	0	1	0	1	3	2	2	1	1	2	1	0	3.0	2.6
C10	Other oropharynx	5	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	2	0.4	0.4
C11	Nasopharynx	25	0	0	1	0	0	0	2	4	4	2	3	3	0	1	4	1	2.0	2.2
C12-C13	Hypopharynx	12	0	0	0	0	1	0	0	0	1	1	1	0	3	2	2	1	1.0	1.1
C14	Pharynx unspecified	6	0	0	0	0	0	0	0	1	0	2	3	0	0	0	0	0	0.5	0.5
C15	Esophagus	46	0	0	0	0	0	0	0	1	1	5	1	7	7	13	9	2	4.0	4.1
C16	Stomach	49	1	0	0	1	0	0	0	2	2	1	6	3	6	7	8	12	4.2	4.4
C17	Small intestine	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0.2	0.2
C18	Colon	75	0	1	0	0	4	1	1	1	4	4	3	7	12	10	15	12	6.5	6.7
C19-C20	Rectum	28	0	0	0	1	0	1	2	2	3	0	0	3	2	5	5	4	2.3	2.5
C21	Anus	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0.3	0.3
C22,C24	Liver and bile duct	316	1	0	0	0	4	2	6	16	25	31	29	43	53	43	39	24	26.8	28.4
C23	Gallbladder	14	0	0	0	0	0	0	0	0	0	1	1	1	2	3	5	1	1.2	1.3
C25	Pancreas	23	0	0	0	0	0	0	0	2	4	1	2	1	4	4	1	4	1.9	2.1
C30-C31	Nose, sinuses etc.	19	2	5	1	3	0	0	0	0	0	1	0	0	0	3	3	1	1.9	1.7
C32	Larynx	48	1	2	0	0	0	0	1	1	4	1	6	3	6	6	11	6	4.2	4.3
C33-C34	Trachea, bronchus and lung	247	0	0	0	0	0	4	3	10	12	14	15	19	35	49	32	54	21.0	22.2
C37-C38	Other thoracic organs	8	0	0	1	1	0	0	0	1	1	0	1	0	0	2	0	1	0.7	0.7
C40-C41	Bone	12	0	0	2	1	0	0	1	1	0	1	0	0	3	1	0	2	1.1	1.1
C43	Melanoma of skin	5	0	0	0	0	0	0	0	0	0	1	0	2	0	1	1	0	0.4	0.4
C44	Other skin	22	0	0	0	0	0	1	1	0	2	0	2	3	2	2	2	7	1.8	2.0
C47,C49	Connective and soft tissue	12	0	0	0	0	0	1	0	0	1	0	3	0	1	2	1	3	1.0	1.1
C50	Breast	7	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	3	0.6	0.6
C60	Penis	13	2	1	0	0	0	0	0	0	0	2	1	1	2	1	1	0	2	1.2	1.2
C61	Prostate	47	0	0	0	0	0	0	0	0	0	0	2	1	1	6	5	15	17	4.1	4.2
C62	Testis	3	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0.2	0.3
C63	Other male genital oragans	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C64	Kidney	6	0	0	1	0	0	0	0	1	0	1	0	0	0	0	2	1	0.5	0.5
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C67	Bladder	48	0	0	0	0	0	0	0	1	3	4	2	3	7	8	9	11	4.1	4.3
C68	Other urinary organs	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C69	Eye	3	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.4	0.3
C70-C72	Brain, nervous system	30	2	1	0	0	0	1	4	4	2	2	3	2	2	3	1	3	2.5	2.7
C73	Thyroid	13	0	0	0	1	0	0	1	0	1	1	2	1	1	1	2	2	1.1	1.2
C74	Adrenal gland	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.2	0.2
C75	Other endocrine	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0.2	0.2
C81	Hodgkin's disease	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0.2	0.2
C82-C85,C96	Non-Hodgkin lymphoma	63	0	0	1	4	0	1	2	6	10	3	4	3	5	5	9	10	5.2	5.7
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0.2	0.2
C91	Lymphoid leukemia	10	2	2	3	1	0	0	0	0	0	0	0	2	0	0	0	0	1.1	0.9
C92	Myeloid leukemia	6	0	0	1	0	0	0	0	0	0	0	0	1	1	3	0	0	0.5	0.5
C95	Leukemia unspecified	35	3	1	1	1	2	1	1	3	1	1	3	3	3	2	4	5	3.1	3.1
O&U	Other and unspecified	157	1	3	2	0	2	9	10	10	9	13	11	4	11	23	31	18	13.3	14.1
	Total	**1,524**	**24**	**22**	**17**	**16**	**16**	**25**	**38**	**73**	**101**	**106**	**114**	**131**	**181**	**216**	**220**	**224**	**130.9**	**137.2**

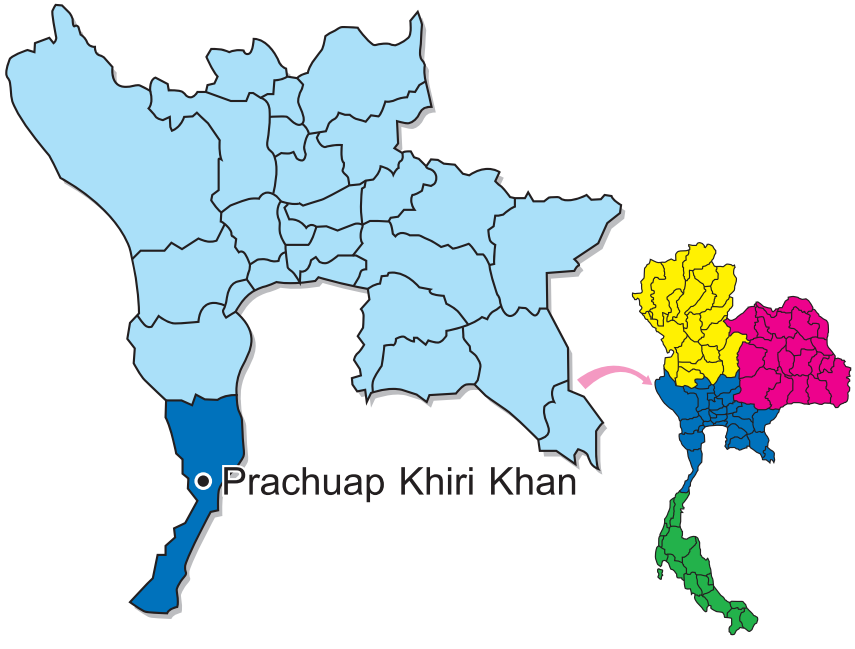
Table 3.10.3 Lop Buri (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	22	0	0	0	0	2	0	0	0	0	0	0	1	1	6	4	8	1.6	1.9
C01-C02	Tongue	12	0	0	0	0	0	0	0	1	1	0	0	0	2	2	2	4	0.8	1.1
C03-C06	Mouth	48	1	1	0	1	3	1	2	3	0	3	3	0	4	7	4	15	3.6	4.3
C07-C08	Salivary gland	7	0	0	0	0	0	1	0	0	0	0	2	0	2	1	1	0	0.6	0.6
C09	Tonsil	9	2	0	1	1	0	0	0	0	0	1	0	1	0	1	0	2	0.9	0.8
C10	Other oropharynx	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.2	0.2
C11	Nasopharynx	11	0	0	0	0	0	0	0	2	3	0	1	3	0	1	1	0	0.8	1.0
C12-C13	Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	13	0	0	0	0	0	0	0	0	0	1	1	1	2	3	2	3	1.0	1.2
C16	Stomach	27	0	0	0	0	0	0	0	3	1	0	1	2	5	6	4	5	2.0	2.4
C17	Small intestine	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2
C18	Colon	61	0	0	0	1	0	1	3	5	4	2	4	8	4	9	10	10	4.4	5.4
C19-C20	Rectum	32	0	0	0	0	0	1	0	3	3	3	1	2	2	8	4	5	2.3	2.8
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.2	0.2
C22,C24	Liver and bile duct	121	0	0	0	1	1	2	2	4	7	13	12	13	14	18	17	17	9.0	10.7
C23	Gallbladder	9	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	6	0.6	0.8
C25	Pancreas	17	0	0	0	0	0	0	0	0	0	1	4	4	0	2	3	3	1.3	1.5
C30-C31	Nose, sinuses etc.	18	7	1	0	1	0	0	4	1	0	1	0	1	0	0	1	1	1.9	1.6
C32	Larynx	13	0	0	0	0	0	0	2	1	0	1	0	0	1	4	2	2	0.9	1.2
C33-C34	Trachea, bronchus and lung	93	0	0	0	0	1	6	1	1	5	7	7	7	10	10	9	29	6.7	8.2
C37-C38	Other thoracic organs	8	0	0	0	0	0	0	0	0	0	0	1	3	1	3	0	0	0.6	0.7
C40-C41	Bone	9	0	0	0	1	1	0	1	0	0	1	1	1	3	0	0	0	0.8	0.8
C43	Melanoma of skin	6	0	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1	0.4	0.5
C44	Other skin	29	0	0	1	0	0	0	0	2	0	0	3	1	1	4	6	11	2.0	2.6
C47,C49	Connective and soft tissue	7	0	0	0	0	0	2	0	0	2	1	0	1	0	0	0	1	0.5	0.6
C50	Breast	315	0	0	0	1	2	4	14	37	60	52	41	31	28	21	5	19	22.8	27.9
C51	Vulva	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.2	0.3
C52	Vagina	5	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0	0.4	0.4
C53	Cervix uteri	307	0	0	0	0	1	4	10	37	42	56	38	42	23	29	12	13	22.4	27.2
C54	Corpus uteri	37	0	0	0	0	0	1	1	2	3	4	9	10	4	2	0	1	2.8	3.3
C55	Uterus unspecified	7	0	0	0	0	0	2	2	0	0	1	1	0	0	0	0	1	0.5	0.6
C56	Ovary	66	0	1	0	1	0	6	2	2	7	10	9	9	9	3	4	3	5.1	5.8
C57	Other female genital	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C58	Placenta	3	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0.2	0.3
C64	Kidney	2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0.2	0.2
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	11	0	0	0	0	0	0	0	0	0	1	3	0	1	3	1	2	0.8	1.0
C67	Bladder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C68	Other urinary organs	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.2	0.2
C69	Eye	3	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0.2	0.3
C70-C72	Brain, nervous system	23	2	2	1	0	1	3	2	2	0	2	0	1	4	0	2	1	2.1	2.0
C73	Thyroid	54	0	0	1	2	4	2	3	6	5	10	4	2	2	7	2	4	4.1	4.8
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C82-C85,C96	Non-Hodgkin lymphoma	31	0	1	1	0	1	2	0	2	3	1	4	3	7	0	3	3	2.4	2.7
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	3	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0.2	0.3
C91	Lymphoid leukemia	6	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0.6	0.5
C92	Myeloid leukemia	8	0	1	1	0	0	1	0	1	0	1	2	1	0	0	0	0	0.7	0.7
C95	Leukemia unspecified	30	0	0	2	1	0	0	2	3	2	2	1	4	3	1	3	6	2.2	2.7
O&U	Other and unspecified	114	2	2	1	3	2	6	6	1	6	8	13	11	11	17	8	17	8.9	10.1
	Total	**1,611**	**14**	**12**	**11**	**14**	**21**	**46**	**59**	**119**	**157**	**187**	**173**	**168**	**149**	**174**	**112**	**195**	**120.8**	**142.8**

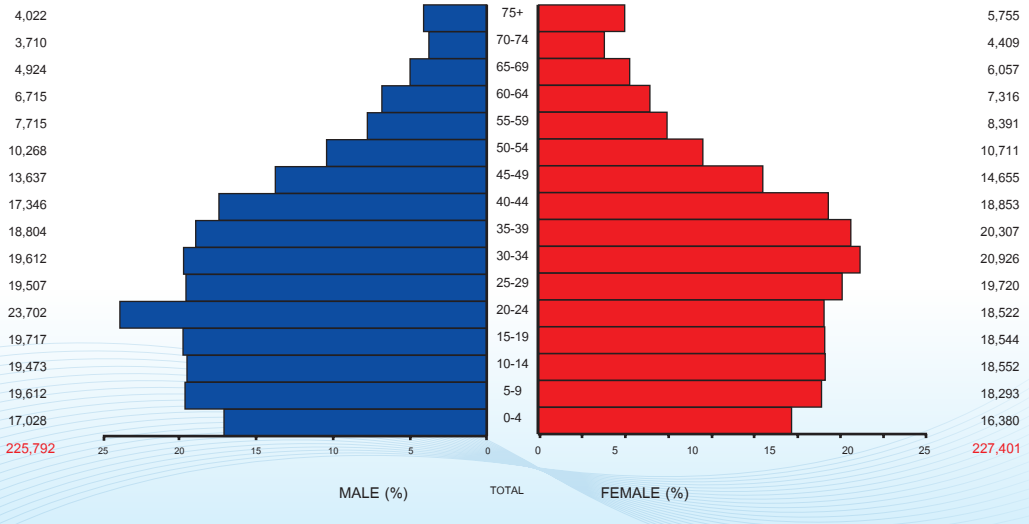
Prachuap Khiri Khan Cancer Registry

Registration area

Prachuap Khiri Khan province is located in the South, about 281 kilometers from Bangkok, at a latitude 11:49 N and longitude 99:48 E, 3 Ft (o meters) above sea level. The north of Prachuap Khiri Khan is Phetchaburi province, Chumphon on the south, the Gulf of Thailand on the east and Myanmar on the west. The total area is 6,368 square kilometers. The province, today, is more famous for its natural charm of beaches and mountains than historical attractions. Hua Hin, its major attraction, is one of Thailand's most popular seaside resorts among overseas visitors as well asThais. Prachuap Khiri Khan is now divided into 7 districts and 1 sub-district.



Population pyramid, Prachuap Khiri Khan, 2002



Cancer care facilities

Prachuap Khiri Khan cancer registry in under the supervision of the National Cancer Institute. At the primary health care level, there are no facilities for specialized cancer diagnosis and treatment. Prachuap Khiri Khan provincial hospital is a general hospital. This has no facilities for chemotherapy and radiotherapy. Most of cancer patients are referred to the cancer centers and the other hospitals for diagnosis and treatment.

Cancer surgery services are provided at Prachuap Khiri Khan provincial hospital and private hospitals. The cancer patients are referred for chemotherapy and radiotherapy to other in Ratchaburi hospitals and hospitals in Bangkok.

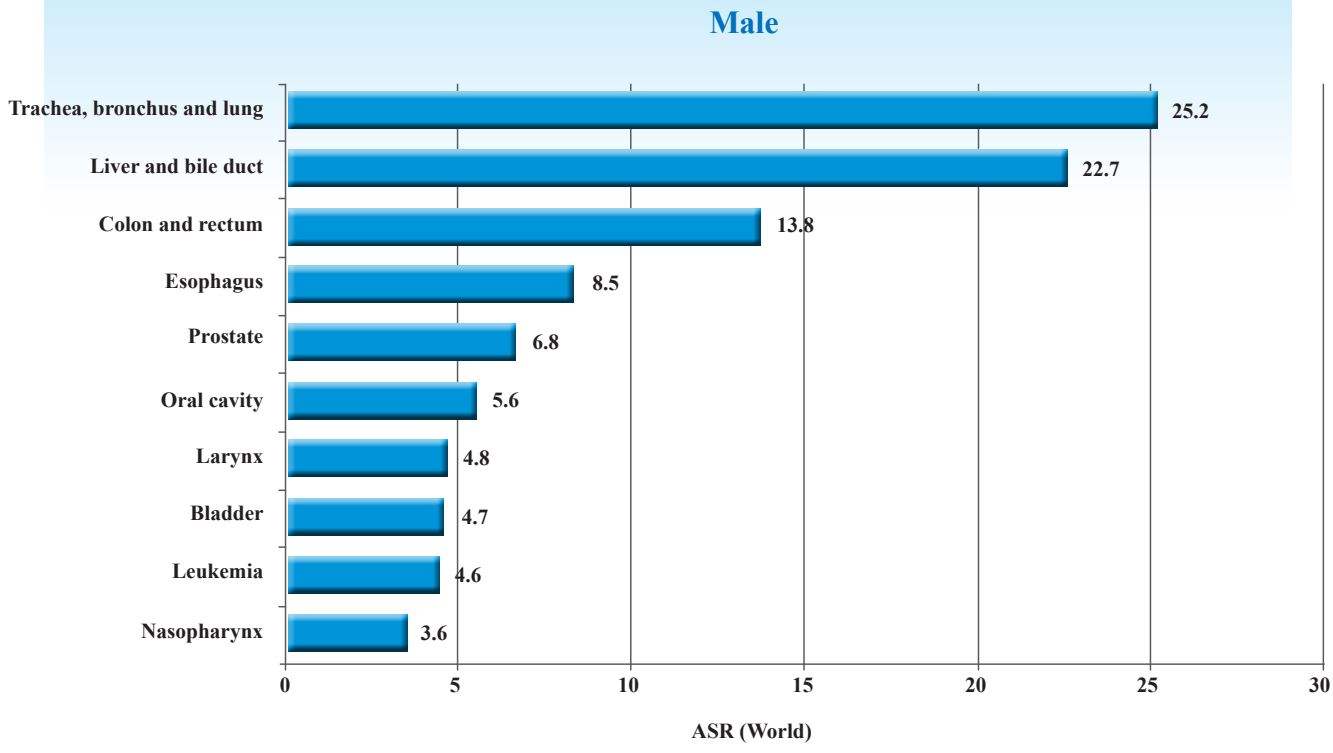
Registry structure

The population-based cancer registry of Prachuap Khiri Khan province was set up at the National Cancer Institute, Bangkok in 1997. The source of information comes from all hospitals in Prachuap Khiri Khan province and Bangkok cancer registry. Cancer cases are collected from the medical records department, outpatient clinics, pathology laboratories, clinical laboratories and death certificates. All data are checked for duplication, verified, coded and keyed into The Thai Cancer Base Programme and IARC/IACR Cancer Registry tools programme.

Summary of Results

New cases registered in 2001-2003, 759 were males and 835 were females this made up of 1,594 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 129.1 per 100,000 in which lung cancer ranks first (ASR = 25.2) followed by liver and bile duct (ASR = 22.7), colon and rectum (ASR = 13.8). ASR of all cancer sites in females is 118.1, three leading cancer in females are breast (ASR = 23.9) and cervix (ASR = 21.7), colon and rectum (ASR = 10.0).

Figure 3.10.3 Leading cancer in Prachuap Khiri Khan, 2001-2003



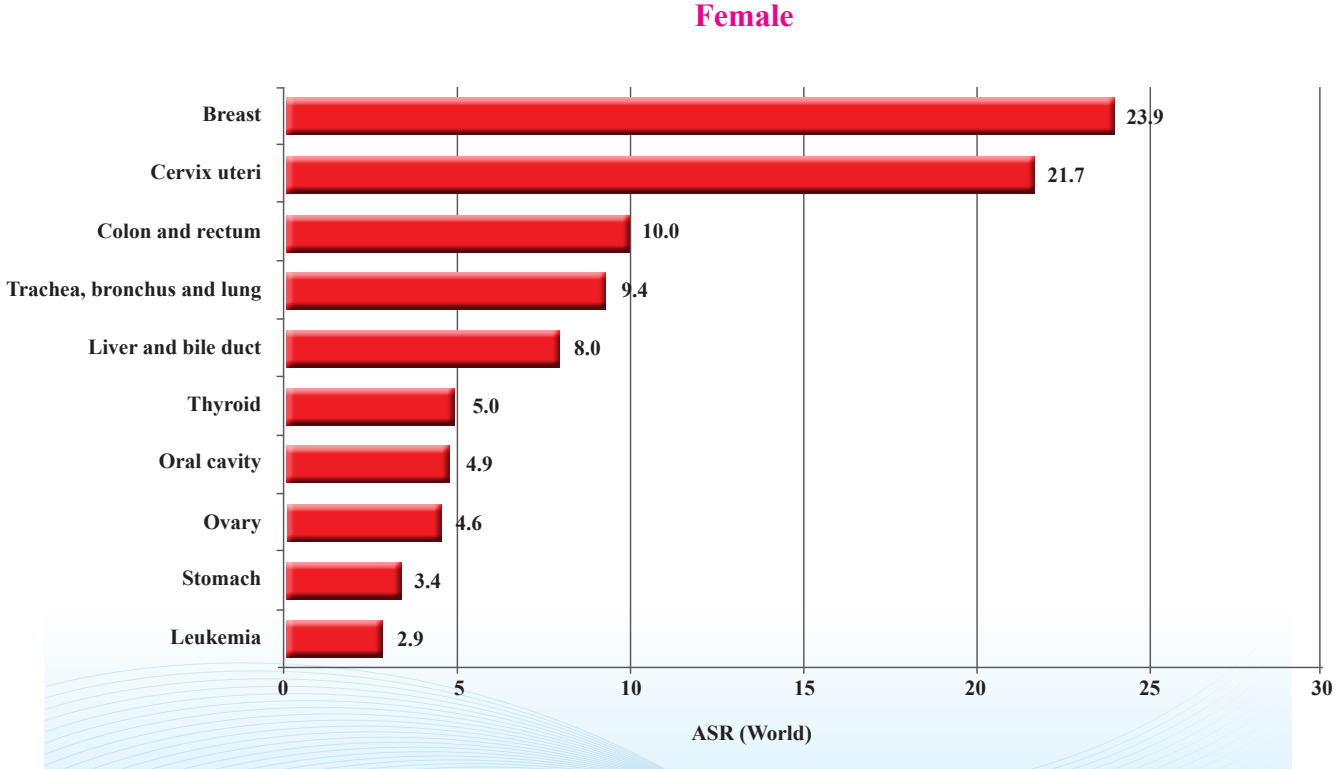


Table 3.11.1 Percentage of morphologically verified and death certificate only cases, Prachuap Khiri Khan, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	32	56.3	9.4	35	42.9	11.4
C09-C10;C14	Oropharynx, etc.	8	50.0	37.5	1	0.0	0.0
C11	Nasopharynx	22	63.6	0.0	4	50.0	0.0
C12-C13	Hypopharynx	6	33.3	0.0	2	0.0	0.0
C15	Esophagus	49	51.0	4.1	12	41.7	0.0
C16	Stomach	15	26.7	6.7	24	33.3	4.2
C17	Small intestine	2	50.0	0.0	1	0.0	0.0
C18-C21	Colon and rectum	79	48.1	5.1	68	54.4	2.9
C22,C24	Liver and bile duct	137	31.4	18.2	56	28.6	12.5
C23	Gallbladder	2	0.0	0.0	4	0.0	50.0
C25	Pancreas	12	25.0	8.3	13	15.4	30.8
C30-C31	Nose, sinuses etc.	4	25.0	50.0	1	100.0	0.0
C32	Larynx	27	22.2	22.2	3	33.3	33.3
C33-C34	Trachea, bronchus and lung	145	30.3	15.9	65	43.1	6.2
C37-C38	Other thoracic organs	4	75.0	0.0	1	100.0	0.0
C40-C41	Bone	7	57.1	14.3	6	50.0	33.3
C43	Melanoma of skin	2	100.0	0.0	0	0.0	0.0
C44	Other skin	13	69.2	23.1	11	54.5	27.3
C47,C49	Connective and soft tissue	4	100.0	0.0	3	100.0	0.0
C50	Breast	0	0.0	0.0	176	57.4	6.3
C51	Vulva				3	66.7	0.0
C52	Vagina				4	75.0	0.0
C53	Cervix uteri				154	66.2	7.8
C54	Corpus uteri				8	75.0	0.0
C55	Uterus unspecified				9	22.2	44.4
C56	Ovary				31	54.8	16.1
C51,C52,C57	Other female genital				0	0.0	0.0
C58	Placenta				1	100.0	0.0
C60	Penis	9	66.7	0.0			
C61	Prostate	37	32.4	16.2			
C62	Testis	2	50.0	50.0			
C63	Other male genital oragans	0	0.0	0.0			
C64	Kidney	4	50.0	25.0	4	50.0	0.0
C65	Renal pelvis	1	0.0	0.0	0	0.0	0.0
C66	Ureter	0	0.0	0	0	0	0.0
C67	Bladder	27	40.7	11.1	4	75.0	0.0
C68	Other urinary organs	0	0.0	0	0	0	0.0
C69	Eye	1	100.0	0.0	0	0.0	0.0
C70-C72	Brain, nervous system	8	62.5	25.0	20	40.0	30.0
C73	Thyroid	3	66.7	0.0	36	69.4	2.8
C74	Adrenal gland	0	0.0	0	0	0	0.0
C75	Other endocrine	0	0.0	0	0	0	0.0
C81	Hodgkin's disease	1	100.0	0.0	1	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	21	100.0	0.0	14	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0	0	0	0.0
C90	Multiple myeloma	2	100.0	0.0	6	100.0	0.0
C91-C95	Leukemia	29	100.0	0.0	18	100.0	0.0
O&U	Other and unspecified	44	29.5	50.0	36	27.8	38.9
	All site	**759**	**43.6**	**14.4**	**835**	**53.9**	**9.9**

Table 3.11.2 Prachuap Khiri Khan (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.3	0.3
C01-C02	Tongue	17	0	0	0	0	0	0	0	0	1	0	2	5	2	2	3	2	3.0	2.5
C03-C06	Mouth	12	0	0	0	0	0	0	0	0	0	2	1	2	1	2	4	0	2.1	1.8
C07-C08	Salivary gland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.2	0.1
C09	Tonsil	5	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	0.8	0.7
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	22	0	0	0	0	0	0	1	2	1	4	4	1	6	2	0	1	3.6	3.2
C12-C13	Hypopharynx	6	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	2	1.1	0.9
C14	Pharynx unspecified	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0.5	0.4
C15	Esophagus	49	0	0	0	0	0	0	0	2	3	3	3	4	7	9	7	11	8.5	7.2
C16	Stomach	15	0	0	0	0	0	0	0	0	1	1	1	1	2	3	3	3	2.6	2.2
C17	Small intestine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4	0.3
C18	Colon	53	0	0	0	0	0	0	1	1	4	3	4	5	10	10	8	7	9.2	7.8
C19-C20	Rectum	26	0	0	0	0	0	0	1	0	1	1	1	4	6	4	3	5	4.6	3.8
C21	Anus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C22,C24	Liver and bile duct	137	0	0	0	0	1	2	4	8	7	15	18	15	15	19	13	20	22.7	20.2
C23	Gallbladder	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.4	0.3
C25	Pancreas	12	0	0	0	1	0	0	0	0	1	0	2	0	2	0	5	1	2.1	1.8
C30-C31	Nose, sinuses etc.	4	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0.6	0.6
C32	Larynx	27	0	0	0	0	0	0	0	0	0	2	2	1	4	5	4	9	4.8	4.0
C33-C34	Trachea, bronchus and lung	145	0	0	0	0	0	2	5	5	1	5	13	17	24	25	16	32	25.2	21.4
C37-C38	Other thoracic organs	4	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0.7	0.6
C40-C41	Bone	7	0	0	1	0	0	0	0	0	1	1	0	1	1	0	1	1	1.1	1.0
C43	Melanoma of skin	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0.3	0.3
C44	Other skin	13	0	0	0	0	0	0	1	2	0	1	2	0	0	3	2	2	2.1	1.9
C47,C49	Connective and soft tissue	4	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0.7	0.6
C50	Breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C60	Penis	9	0	0	0	0	0	0	1	2	1	1	3	0	0	1	0	0	1.3	1.3
C61	Prostate	37	0	0	0	0	0	0	0	0	0	0	1	4	8	7	5	12	6.8	5.5
C62	Testis	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4	0.3
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	4	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0.7	0.6
C65	Renal pelvis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0.1
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	27	0	0	0	0	0	0	0	0	1	1	1	2	1	5	6	10	4.7	4.0
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C70-C72	Brain, nervous system	8	0	1	0	0	0	1	3	0	0	1	0	0	2	0	0	0	1.2	1.2
C73	Thyroid	3	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0.5	0.4
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.1
C82-C85,C96	Non-Hodgkin lymphoma	21	0	0	1	2	0	0	3	0	1	1	4	3	0	3	0	3	3.3	3.1
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.3	0.3
C91	Lymphoid leukemia	5	0	2	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0.8	0.7
C92	Myeloid leukemia	8	0	0	0	0	1	1	0	1	0	1	2	0	1	0	1	0	1.2	1.2
C95	Leukemia unspecified	16	0	3	1	0	0	2	2	0	1	1	0	0	1	3	0	2	2.5	2.4
O&U	Other and unspecified	44	0	0	0	0	0	2	1	1	3	6	4	7	2	6	6	6	7.3	6.5
	Total	**759**	**1**	**7**	**4**	**4**	**2**	**12**	**23**	**28**	**29**	**53**	**72**	**75**	**102**	**118**	**92**	**137**	**129.1**	**112.1**

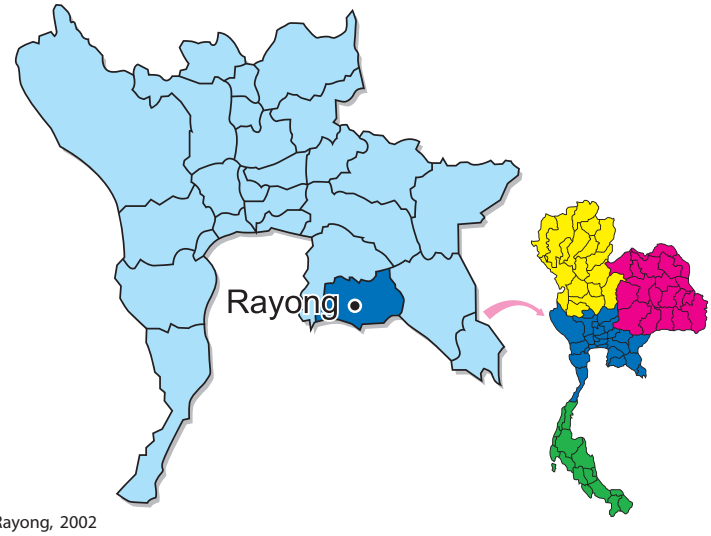
Table 3.11.3 Prachuap Khiri Khan (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	12	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4	6	1.6	1.8
C01-C02	Tongue	8	0	0	0	0	0	0	0	0	0	0	2	1	0	2	2	1	1.2	1.2
C03-C06	Mouth	13	0	0	0	0	2	0	0	1	0	1	0	0	0	0	4	5	1.7	1.9
C07-C08	Salivary gland	2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0.3	0.3
C09	Tonsil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	4	0	0	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0.5	0.6
C12-C13	Hypopharynx	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.3	0.3
C14	Pharynx unspecified	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.2	0.1
C15	Esophagus	12	0	0	0	0	0	0	0	1	0	1	0	1	2	4	1	2	1.8	1.8
C16	Stomach	24	0	0	0	0	0	0	0	2	1	1	1	2	2	7	2	6	3.4	3.5
C17	Small intestine	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.2	0.1
C18	Colon	47	0	0	0	0	0	1	0	2	2	2	8	5	7	6	7	7	7.0	6.9
C19-C20	Rectum	18	0	0	0	0	0	0	0	0	0	1	1	2	1	3	3	7	2.6	2.6
C21	Anus	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0.4	0.4
C22,C24	Liver and bile duct	56	0	0	0	0	0	1	1	3	4	5	5	6	5	8	9	9	8.0	8.2
C23	Gallbladder	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0.6	0.6
C25	Pancreas	13	0	0	0	0	0	1	0	1	0	0	2	1	0	2	2	4	1.8	1.9
C30-C31	Nose, sinuses etc.	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C32	Larynx	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0.4	0.4
C33-C34	Trachea, bronchus and lung	65	0	0	0	0	0	3	2	4	4	1	5	4	9	11	11	11	9.4	9.5
C37-C38	Other thoracic organs	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.1	0.1
C40-C41	Bone	6	0	0	0	1	1	0	2	0	1	0	0	0	0	0	1	0	0.8	0.9
C43	Melanoma of skin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C44	Other skin	11	0	0	0	0	0	1	0	1	1	0	0	2	0	1	1	4	1.4	1.6
C47,C49	Connective and soft tissue	3	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0.4	0.4
C50	Breast	176	0	0	0	0	1	2	3	21	22	46	28	20	9	9	4	11	23.9	25.8
C51	Vulva	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0.4	0.4
C52	Vagina	4	0	0	0	0	0	0	1	0	0	0	1	0	1	0	1	0	0.6	0.6
C53	Cervix uteri	154	0	0	0	0	0	5	5	18	17	18	23	18	18	17	7	8	21.7	22.6
C54	Corpus uteri	8	0	0	0	0	0	0	0	1	0	1	1	2	1	1	0	1	1.2	1.2
C55	Uterus unspecified	9	0	0	0	0	0	0	1	1	2	0	1	1	1	0	2	0	1.2	1.3
C56	Ovary	31	0	0	0	0	1	0	1	1	1	6	7	6	3	2	1	2	4.6	4.5
C57	Other female genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C58	Placenta	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C64	Kidney	4	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0	0.7	0.6
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	4	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	0	0.6	0.6
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C70-C72	Brain, nervous system	20	0	1	0	1	0	1	4	1	4	1	1	1	1	0	3	1	2.6	2.9
C73	Thyroid	36	0	0	0	1	2	4	1	3	3	6	6	4	1	3	1	1	5.0	5.3
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C82-C85,C96	Non-Hodgkin lymphoma	14	0	2	0	0	1	0	0	2	1	0	0	1	1	1	3	2	2.0	2.1
C88	Immunoproliferative diseases	6	0	0	0	0	0	0	0	1	0	1	0	0	1	0	3	0	0.9	0.9
C90	Multiple myeloma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C91	Lymphoid leukemia	4	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.7	0.6
C92	Myeloid leukemia	5	0	1	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0.8	0.7
C95	Leukemia unspecified	9	1	0	1	1	1	0	0	0	2	0	1	0	0	1	1	0	1.4	1.3
O&U	Other and unspecified	36	1	0	0	0	0	0	2	3	2	3	1	5	7	3	5	4	5.3	5.3
	Total	**835**	**3**	**5**	**2**	**6**	**12**	**20**	**23**	**71**	**68**	**97**	**98**	**85**	**78**	**87**	**82**	**98**	**118.1**	**122.4**

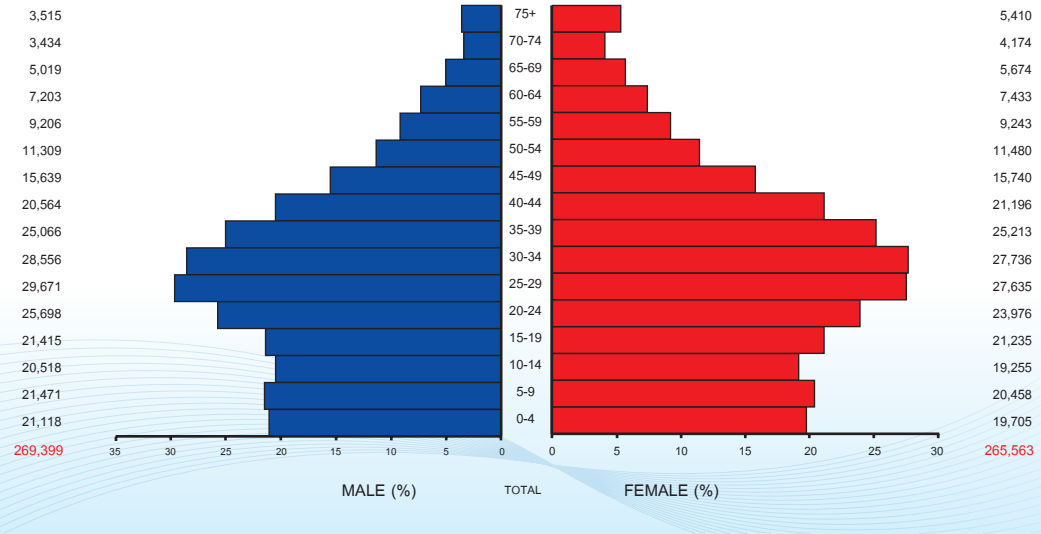
Rayong Cancer Registry

Registration area

Rayong is one of the country's major agricultural and industrial provinces. The province is well known for its pristine beaches stretching along a 100 kilometer coastline both on the mainland and islands and scenic waterfalls amidst exotic surroundings. Rayong is located on the east coast of Thailand, about 220 kilometers from Bangkok, at a latitude 12:40 N and longitude 101:20 E, 5 meters above sea level. The north and the west of Rayong is Chon Buri province, Chanthaburi province on the east and the Gulf of Thailand on the South. The total area is 3,552 square kilometers. Most of the land is marked by a series of mountains and large tracts of forest and fruit plantation. Administrative, it is divided into 6 districts and 2 sub-districts Amphoe Mueang Rayong, Klaeng, Ban Khai, Ban Chang, Pluak Daeng, Wang Chan districts and Khao Chamao and Nikhom Phatthana sub-districts. There is evidence that expo- sure to known and suspected carcinogens occurs at the Map Ta Phut Industrial Estate (MTPIE) in the Amphoe Mueang Rayong, and in the surrounding residential areas. The MTPIE was established in the 1980. This has generated wide- spread concern about possible health effects in the local communities. Among the chemicals that have been detected in a survey con- ducted in December 1998 are benzene , vinyl chloride and 1,3-butadiene (IARC Group 1), dichloromethane and dichloroethane (IARC Group 2B), and various polycyclic aromatic hydrocarbons (PAHs; IARC Groups 2A and 2B).



Population pyramid, Rayong, 2002



Cancer care facilities

Thailand has a national health care system. At the primary health care level, there are no facilities for specialized cancer diagnosis and treatment. The provincial hospital is a general hospital. At the provincial level, there are facilities for cancer surgery, no chemotherapy or radiotherapy. Most of cancer patients are referred to cancer centers and other hospitals for diagnosis and treatment. Cancer surgery services are provided at Rayong provincial hospital and private hospitals. The cancer patients are referred for chemotherapy and radiotherapy to Chon Buri cancer center or other hospitals in Bangkok.

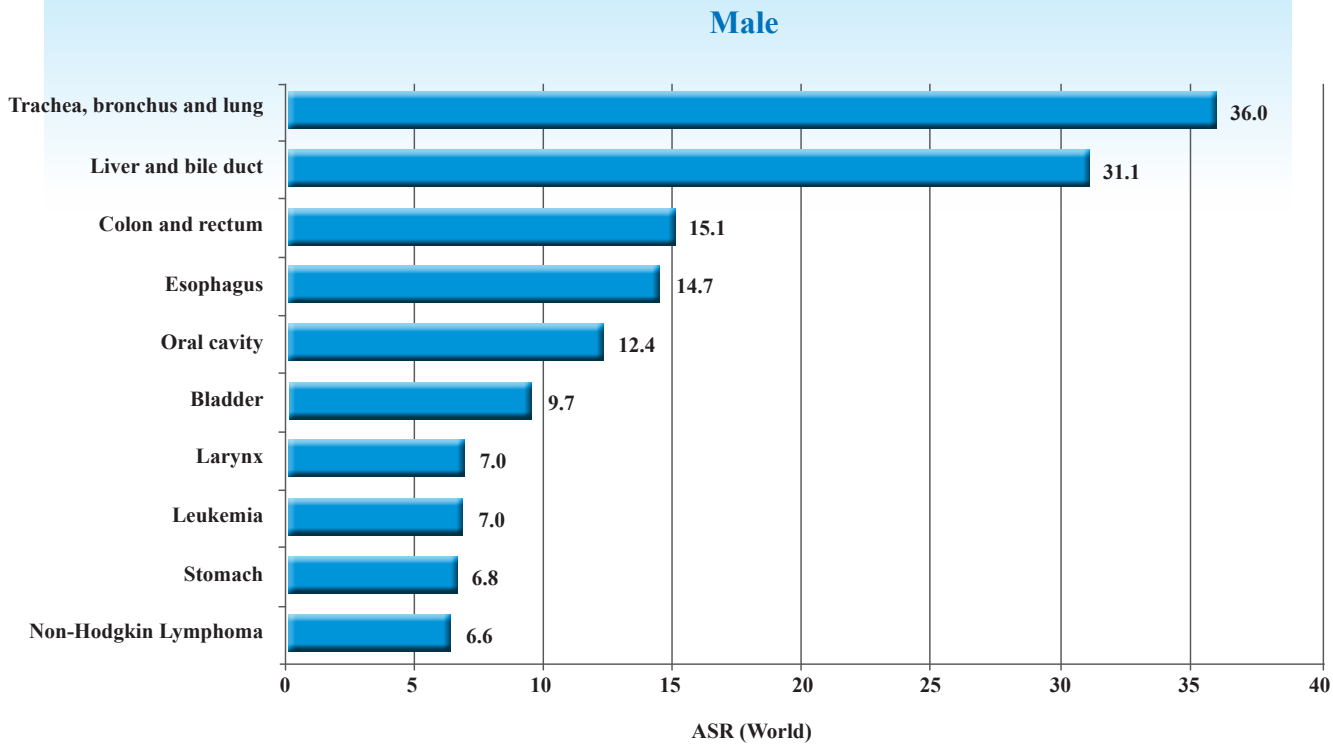
Registry structure

The population-based cancer registry of Rayong province was set up at National Cancer Institute, Bangkok in 1999. The sources of information are all hospitals in Rayong province, Chon Buri hospital, Queen Sirikit hospital, Chon Buri cancer center, Pra Pokklao hospital in Chanthaburi province and Bangkok cancer registry.

Summary of Results

New cases registered in 2001-2003, 1,241 were males and 1,244 were females this made up of 2,485 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 197.1 per 100,000 in which lung cancer ranks first (ASR = 36.0) followed by liver and bile duct (ASR = 31.1), colon and rectum (ASR = 15.1). ASR of all cancer sites in females is 163.7, three leading cancer in females are cervix (ASR = 36.6) breast and (ASR = 28.8), lung (ASR = 13.9).

Figure 3.11.3 Leading cancer in Rayong, 2001-2003



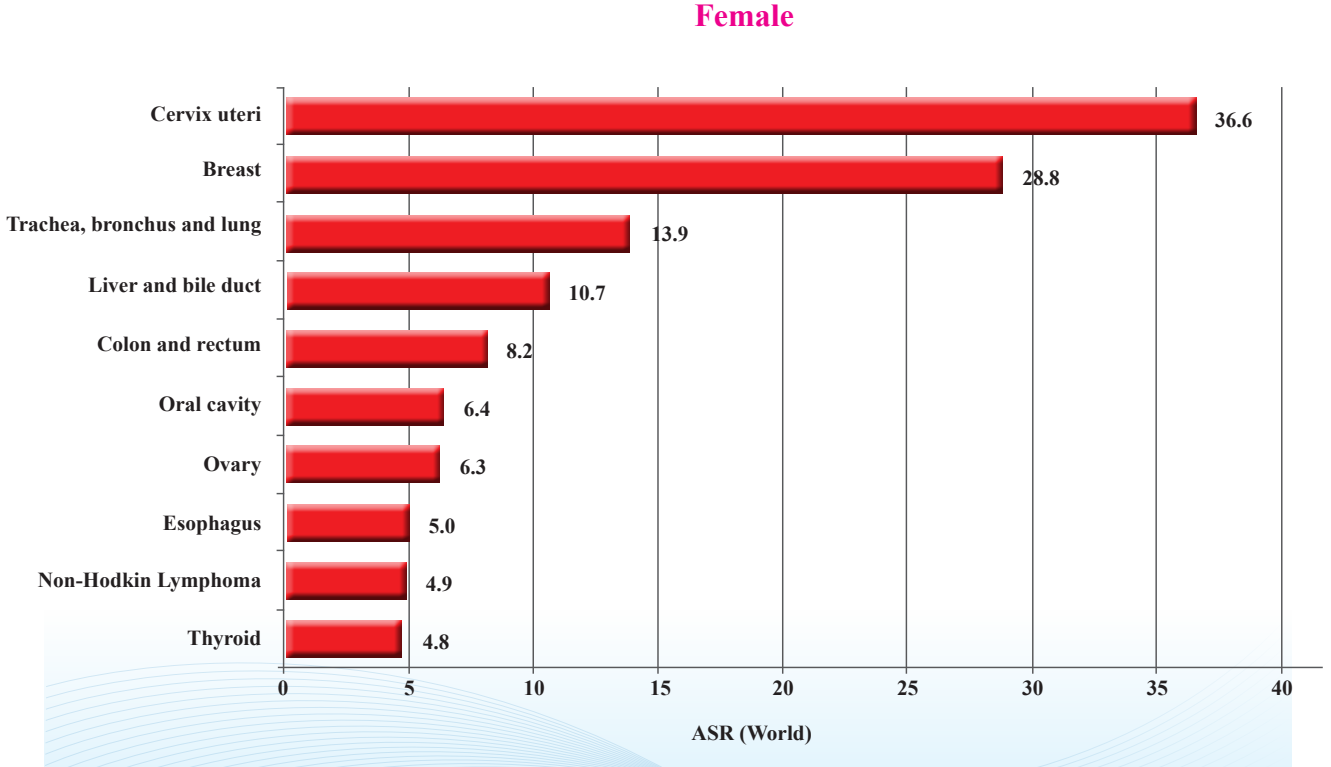


Table 3.12.1 Percentage of morphologically verified and death certificate only cases, Rayong, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	78	75.6	6.4	47	66.0	12.8
C09-C10;C14	Oropharynx, etc.	22	68.2	4.5	7	42.9	28.6
C11	Nasopharynx	37	70.3	8.1	15	73.3	0.0
C12-C13	Hypopharynx	26	84.6	0.0	4	100.0	0.0
C15	Esophagus	86	58.1	9.3	32	53.1	15.6
C16	Stomach	44	52.3	20.5	20	40.0	15.0
C17	Small intestine	2	50.0	0.0	0	0.0	0.0
C18-C21	Colon and rectum	90	53.3	6.7	64	65.6	1.6
C22;C24	Liver and bile duct	207	39.6	5.8	74	36.5	10.8
C23	Gallbladder	6	16.7	50.0	7	14.3	14.3
C25	Pancreas	20	25.0	10.0	11	18.2	18.2
C30-C31	Nose, sinuses etc.	2	50.0	0.0	2	0.0	100.0
C32	Larynx	41	58.5	9.8	5	40.0	0.0
C33-C34	Trachea, bronchus and lung	217	35.0	21.2	97	40.2	23.7
C37-C38	Other thoracic organs	2	50.0	0.0	0	0.0	0.0
C40-C41	Bone	11	72.7	18.2	9	55.6	11.1
C43	Melanoma of skin	2	100.0	0.0	3	100.0	0.0
C44	Other skin	25	84.0	8.0	22	90.9	9.1
C47,C49	Connective and soft tissue	5	0.0	0.0	5	100.0	0.0
C50	Breast	4	75.0	0.0	235	70.6	3.4
C51	Vulva				5	80.0	0.0
C52	Vagina				2	50.0	0.0
C53	Cervix uteri				286	62.9	5.2
C54	Corpus uteri				23	95.7	0.0
C55	Uterus unspecified				8	12.5	87.5
C56	Ovary				50	68.0	0.0
C51,C52,C57	Other female genital						
C58	Placenta						
C60	Penis	9	77.8	0.0			
C61	Prostate	28	46.4	14.3			
C62	Testis	6	83.3	0.0			
C63	Other male genital oragans	0	0.0	0.0	0	0.0	0.0
C64	Kidney	7	42.9	0.0	0	0.0	0.0
C65	Renal pelvis	1	100.0	0.0	0	0.0	0.0
C66	Ureter	0	0.0	0.0	1	0.0	0.0
C67	Bladder	55	50.9	1.8	12	50.0	8.3
C68	Other urinary organs	0	0.0	0	0	0	0.0
C69	Eye	1	0.0	0.0	2	100.0	0.0
C70-C72	Brain, nervous system	28	35.7	25.0	18	27.8	44.4
C73	Thyroid	5	20.0	20.0	38	71.1	0.0
C74	Adrenal gland	0	0.0	0.0	1	100.0	0.0
C75	Other endocrine	1	100.0	0.0	4	25.0	0.0
C81	Hodgkin's disease	11	100.0	0.0	6	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	36	100.0	0.0	32	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0	0	0	0.0
C90	Multiple myeloma	4	100.0	0.0	5	100.0	0.0
C91-C95	Leukemia	44	100.0	0.0	34	100.0	0.0
O&U	Other and unspecified	78	38.5	12.8	58	34.5	12.1
	AII SITE	**1,241**	**53.7**	**10.1**	**1,244**	**61.7**	**8.2**

Table 3.12.2 Rayong (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.3	0.2
C01-C02	Tongue	41	0	0	0	0	0	0	1	1	5	4	6	5	5	4	5	5	6.4	5.1
C03-C06	Mouth	30	0	0	0	0	0	1	0	2	0	4	1	3	9	5	4	1	5.0	3.7
C07-C08	Salivary gland	5	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	1	0.8	0.6
C09	Tonsil	15	0	0	0	0	0	0	1	1	1	2	4	3	0	0	2	1	2.1	1.9
C10	Other oropharynx	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0.3	0.2
C11	Nasopharynx	37	0	0	0	1	0	2	1	0	7	5	6	3	6	3	2	1	5.3	4.6
C12-C13	Hypopharynx	26	0	0	0	0	0	0	0	0	3	2	2	5	1	2	6	5	4.3	3.2
C14	Pharynx unspecified	5	0	0	0	0	0	0	0	0	1	0	0	3	0	0	1	0	0.7	0.6
C15	Esophagus	86	0	0	0	0	0	0	1	1	1	7	14	9	19	14	12	8	14.7	10.6
C16	Stomach	44	0	0	0	0	0	2	3	3	4	4	1	1	8	9	4	5	6.8	5.4
C17	Small intestine	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0.2	0.2
C18	Colon	61	0	0	0	0	1	0	1	2	2	6	9	6	8	12	6	8	10.0	7.5
C19-C20	Rectum	28	0	0	0	0	0	0	0	1	0	1	5	3	5	8	3	2	4.9	3.5
C21	Anus	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.2	0.1
C22,C24	Liver and bile duct	207	1	0	0	0	2	2	4	9	18	34	34	29	28	25	10	11	31.1	25.6
C23	Gallbladder	6	0	0	0	0	0	0	1	0	0	0	0	1	0	3	0	1	1.0	0.7
C25	Pancreas	20	0	0	0	0	0	1	0	1	2	3	0	3	2	4	1	3	3.1	2.5
C30-C31	Nose, sinuses etc.	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0.3	0.2
C32	Larynx	41	0	0	0	0	0	0	1	0	5	0	2	4	6	11	5	7	7.0	5.1
C33-C34	Trachea, bronchus and lung	217	0	0	0	0	2	2	3	11	14	16	11	18	32	36	32	40	36.0	26.8
C37-C38	Other thoracic organs	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0.3	0.2
C40-C41	Bone	11	0	1	2	0	1	1	1	0	1	0	3	0	0	0	1	0	1.4	1.4
C43	Melanoma of skin	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0.3	0.2
C44	Other skin	25	0	0	0	0	0	0	2	0	0	1	3	2	6	1	4	6	4.2	3.1
C47,C49	Connective and soft tissue	5	2	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0.8	0.6
C50	Breast	4	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0.6	0.5
C60	Penis	9	0	0	0	0	0	0	1	0	1	1	0	1	1	3	1	0	1.4	1.1
C61	Prostate	28	0	0	0	0	0	0	0	0	0	1	0	1	1	6	7	12	5.3	3.5
C62	Testis	6	0	0	0	1	0	0	2	0	1	1	0	0	1	0	0	0	0.7	0.7
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
C64	Kidney	7	0	0	0	0	0	0	0	0	0	1	1	1	0	2	2	0	1.2	0.9
C65	Renal pelvis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0.1
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	55	0	0	0	0	0	0	0	1	3	3	3	4	4	8	9	20	9.7	6.8
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.1
C70-C72	Brain, nervous system	28	1	1	1	1	2	1	2	1	2	2	4	3	1	1	3	2	4.0	3.5
C73	Thyroid	5	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	1	0.6	0.6
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	11	0	0	0	2	0	3	2	0	1	0	0	0	0	2	1	0	1.4	1.4
C82-C85,C96	Non-Hodgkin lymphoma	36	0	1	0	2	1	0	4	3	2	4	2	3	5	7	2	0	5.2	4.5
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	4	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0.7	0.5
C91	Lymphoid leukemia	18	3	2	1	1	0	0	0	2	1	1	0	0	0	3	1	3	2.9	2.2
C92	Myeloid leukemia	18	2	0	0	2	0	0	2	2	0	2	1	1	1	1	3	1	2.7	2.2
C95	Leukemia unspecified	8	1	0	0	0	0	0	0	0	1	0	0	1	0	2	2	1	1.4	1.0
O&U	Other and unspecified	78	0	0	0	0	2	0	3	13	9	4	5	6	8	14	6	8	11.4	9.7
	All SITE	**1,241**	**10**	**6**	**4**	**10**	**11**	**15**	**39**	**59**	**86**	**113**	**124**	**121**	**160**	**188**	**140**	**155**	**197.1**	**153.7**

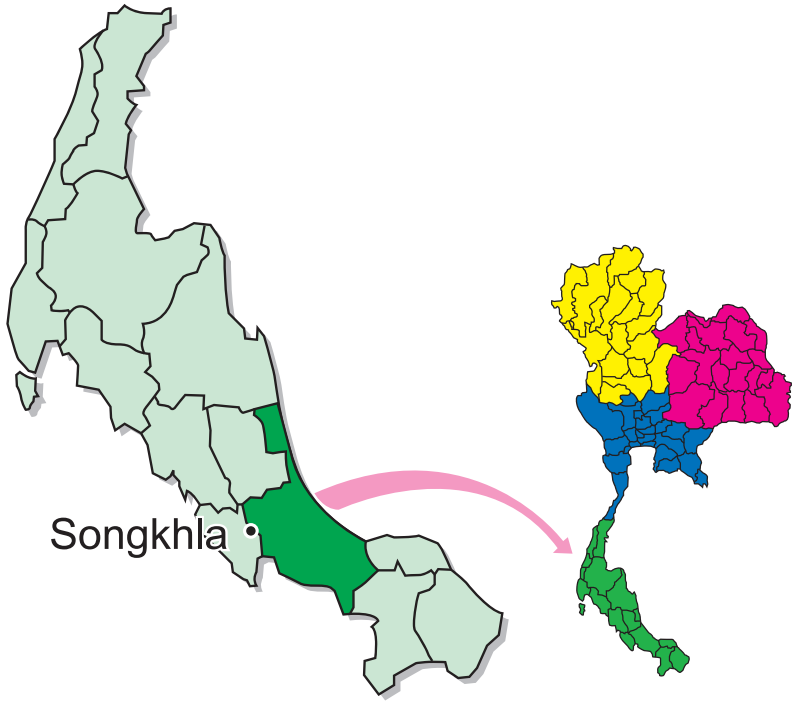
Table 3.12.3 Rayong (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	14	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	7	2.0	1.8
C01-C02	Tongue	13	0	0	0	0	0	0	1	0	2	3	2	0	1	0	0	4	1.6	1.6
C03-C06	Mouth	20	0	0	0	0	2	0	0	1	0	1	1	2	2	2	2	7	2.8	2.5
C07-C08	Salivary gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C09	Tonsil	4	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0.5	0.5
C10	Other oropharynx	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C11	Nasopharynx	15	0	0	0	0	1	1	1	2	2	2	4	1	1	0	0	0	1.8	1.9
C12-C13	Hypopharynx	4	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0.5	0.5
C14	Pharynx unspecified	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.3	0.3
C15	Esophagus	32	0	0	0	0	0	0	0	0	0	2	6	2	9	4	4	5	5.0	4.0
C16	Stomach	20	1	0	0	0	0	0	1	0	2	1	2	1	4	2	3	3	2.9	2.5
C17	Small intestine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C18	Colon	32	0	0	0	1	0	0	1	3	2	5	4	2	2	2	3	7	4.2	4.0
C19-C20	Rectum	31	0	0	0	1	0	2	3	4	1	3	5	2	2	2	1	5	3.8	3.9
C21	Anus	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1	0.1
C22,C24	Liver and bile duct	74	0	0	0	0	0	3	0	5	5	4	8	5	18	9	6	11	10.7	9.3
C23	Gallbladder	7	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	3	1.0	0.9
C25	Pancreas	11	0	0	0	0	0	0	0	1	2	1	0	1	0	1	2	3	1.4	1.4
C30-C31	Nose, sinuses etc.	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0.2	0.3
C32	Larynx	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	0.7	0.6
C33-C34	Trachea, bronchus and lung	97	0	0	0	0	1	1	3	3	9	5	7	12	16	19	6	15	13.9	12.2
C37-C38	Other thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C40-C41	Bone	9	0	1	0	1	3	0	0	2	0	0	1	0	0	0	1	0	1.1	1.1
C43	Melanoma of skin	3	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0.3	0.4
C44	Other skin	22	0	0	0	0	0	0	0	1	0	3	0	1	3	2	2	10	3.0	2.8
C47,C49	Connective and soft tissue	5	0	0	0	0	0	1	0	2	0	0	0	1	1	0	0	0	0.6	0.6
C50	Breast	235	0	0	0	0	1	4	20	21	47	44	27	23	19	14	6	9	28.8	29.5
C51	Vulva	5	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0.7	0.6
C52	Vagina	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0.2	0.3
C53	Cervix uteri	286	0	0	0	0	1	5	9	39	40	52	38	33	30	20	10	9	36.6	35.9
C54	Corpus uteri	23	0	0	0	0	0	0	0	0	2	6	4	6	1	3	1	0	3.3	2.9
C55	Uterus unspecified	8	0	0	0	0	1	0	0	0	0	2	1	1	0	0	1	2	1.1	1.0
C56	Ovary	50	0	0	0	2	0	2	3	3	5	13	9	4	1	3	1	4	6.3	6.3
C57	Other female genital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C58	Placenta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.2	0.1
C67	Bladder	12	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	7	1.6	1.5
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.3
C70-C72	Brain, nervous system	18	0	1	1	0	1	0	1	4	3	4	0	1	1	0	0	1	2.1	2.3
C73	Thyroid	38	0	0	0	0	1	3	6	1	1	4	7	5	3	0	4	3	4.8	4.8
C74	Adrenal gland	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.1	0.1
C75	Other endocrine	4	0	0	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0.4	0.5
C81	Hodgkin's disease	6	0	1	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0.8	0.8
C82-C85,C96	Non-Hodgkin lymphoma	32	0	2	0	1	1	2	3	2	1	6	4	3	2	1	1	3	4.1	4.0
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	5	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	0.8	0.6
C91	Lymphoid leukemia	14	2	0	1	2	0	0	1	1	2	0	1	2	1	0	0	1	1.9	1.8
C92	Myeloid leukemia	12	0	0	0	0	1	1	1	0	3	0	0	3	0	1	0	2	1.4	1.5
C95	Leukemia unspecified	8	1	0	0	0	1	0	0	0	2	1	0	1	0	1	0	1	1.1	1.0
O&U	Other and unspecified	58	1	0	0	1	0	0	0	2	3	5	9	6	7	7	5	12	8.4	7.3
	All SITE	**1,244**	**7**	**5**	**2**	**9**	**16**	**29**	**55**	**101**	**137**	**175**	**145**	**123**	**130**	**102**	**67**	**141**	**163.7**	**156.1**

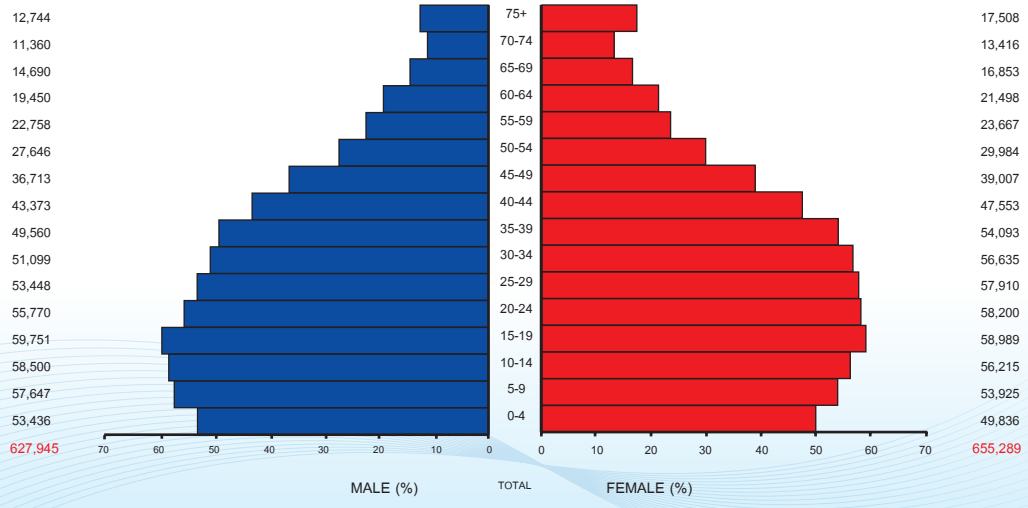
Songkhla Cancer Registry

Registration area

Songkhla is one among 14 provinces located in the southern part of Thailand at latitude 07:12 N and longitude 100:36 E. The land area 7,394 square kilometres, the Songkhla registry covers of 16 districts and the population estimated at the year 2002 of 1,283,234. About 80% of the population is Buddhist, and nearly 20% are Moslems. Christians and others account of less than 1% of the population. People with Chinese blood live in Songkhla town and Hat Yai city, which is the economic centre of the south of Thailand.



Population pyramid, Songkhla, 2002



Cancer care facilities

The government of Thailand provides general health care in the region predominantly. There are three hospitals with over 500 beds, 13 community hospitals and an extensive network of health care facilities at the household level. Private practitioners, a few private hospitals, and a few small special hospitals, all in the urban area, supplement this. The university hospital of Prince of Songkla University is the biggest one of the two places in the south of Thailand that provides radiotherapy services. A few other large hospitals also have facilities for cancer surgery and chemotherapy. Patients suspected to have cancer in the health care system and community hospitals are referred to Songkhla, Hat Yai or Songklanagarind hospitals.

Registry procedures

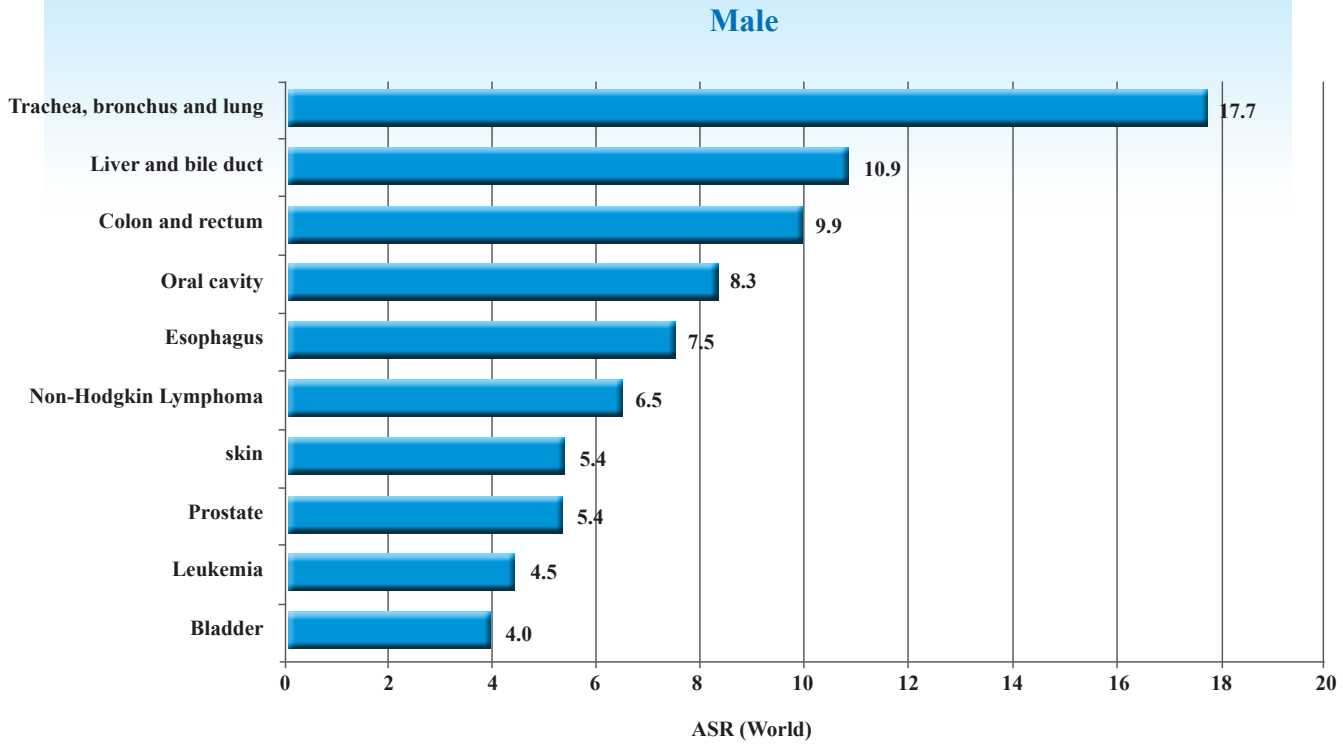
The registry is located with in the Faculty of Medicine, Prince of Songkla University. The registry is staffed by three part-time medical doctors, a full-time nurse as a registrar and four full-time workers. The Songkhla registry undertakes active case finding from 23 sources of data consisting of Songklanagarind hospital, Hat Yai hospital, Songkhla hospital, community hospitals, private hospitals, special hospitals, provincial health office, and the population registration office of the province. The completeness of death registration is acceptable but the cause of death is not so accurate, being mostly cardiopulmonary arrest and senility. After the national heath care reform started in 2000, the validity of the death certificates has been improving. The hospital-based registry of the Songklanagarind hospital is also run by the registry staff and the data are shared with the registry of Songkhla. Hat Yai hospital has its own system of cancer case report but not a full scaled hospital-based cancer registry and provides the cases residing in Songkhla to the registry. The registry staff visits Hat Yai, Songkhla, and private hospitals and consults the medical records and pathology records. Assigned staff in community hospitals sends the record forms of cancer cases to the registry once a year. They are regularly visited by registry staff to reviews procedures. Some cases are sent to the registry by the network of cancer registries in Thailand, especially the registry of Bangkok.

The number of undiagnosed and unregistered cancer cases is difficult to estimate. Some Moslems in a remote area in the south of Songkhla visit large hospitals in the two nearby provinces and some of them, especially the elderly, use traditional herbal medicines and never enter the health care system of the country. Because of the linkage between the referral system and the new national health assurance system, it is expected that only a small number of cancer patients in that remote area seek medical facilities outside the province. A few other cases look for special medical care in Bangkok, the capital of Thailand.

Summary of Results

New cases registered in 2001-2003, 1,940 were males and 1,990 were females this made up of 3,930 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 113.0 per 100,000 in which lung cancer ranks first (ASR = 17.7) followed by liver and bile duct (ASR = 10.9), colon and rectum (ASR = 9.9). ASR of all cancer sites in females is 98.4, three leading cancer in females are breast (ASR = 20.8) and cervix (ASR = 16.2), colon and rectum (ASR = 7.2).

Figure 3.12.3 Leading cancer in Songkhla, 2001-2003



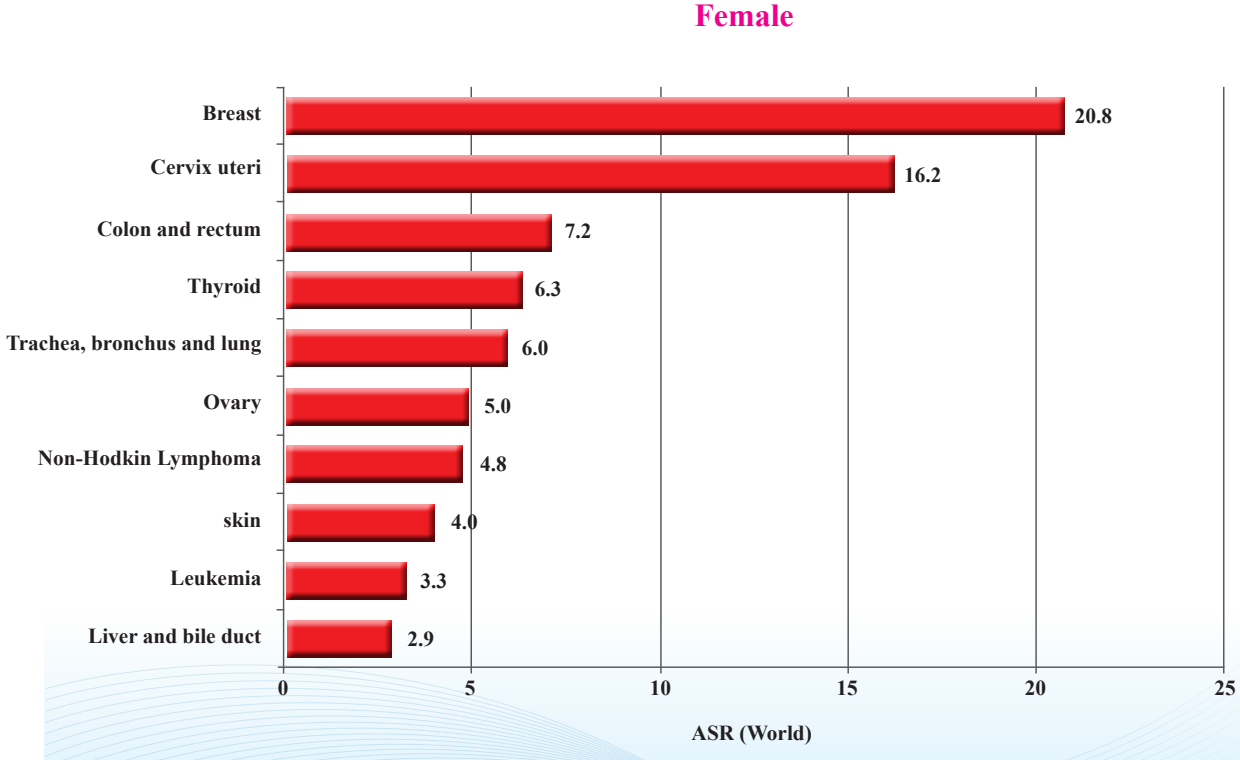


Table 3.13.1 Percentage of morphologically verified and death certificate only cases, Songkhla, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	144	97.2	0.0	58	96.6	0.0
C09-C10;C14	Oropharynx, etc.	45	100.0	0.0	1	100.0	0.0
C11	Nasopharynx	41	95.1	0.0	22	100.0	0.0
C12-C13	Hypopharynx	47	95.7	0.0	6	83.3	0.0
C15	Esophagus	123	86.2	0.0	28	92.9	0.0
C16	Stomach	40	100.0	0.0	27	92.6	0.0
C17	Small intestine	8	87.5	0.0	2	50.0	0.0
C18-C21	Colon and rectum	171	90.6	0.0	139	89.2	0.7
C22;C24	Liver and bile duct	184	30.4	0.5	59	39.0	0.0
C23	Gallbladder	4	50.0	0.0	11	45.5	0.0
C25	Pancreas	27	40.7	0.0	19	63.2	0.0
C30-C31	Nose, sinuses etc.	16	100.0	0.0	7	100.0	0.0
C32	Larynx	62	91.9	0.0	5	100.0	0.0
C33-C34	Trachea, bronchus and lung	296	81.4	0.0	121	81.8	0.8
C37-C38	Other thoracic organs	6	100.0	0.0	1	0.0	0.0
C40-C41	Bone	13	84.6	7.7	8	75.0	12.5
C43	Melanoma of skin	0	0.0	0	0	0	0.0
C44	Other skin	94	96.8	1.1	81	98.8	0.0
C47,C49	Connective and soft tissue	23	91.3	0.0	25	100.0	0.0
C50	Breast	1	0.0	100.0	427	97.4	0.0
C51	Vulva				7	100.0	0.0
C52	Vagina				7	100.0	0.0
C53	Cervix uteri				337	98.2	0.0
C54	Corpus uteri				51	98.0	0.0
C55	Uterus unspecified				1	100.0	0.0
C56	Ovary				101	89.1	0.0
C51,C52,C57	Other female genital				1	100.0	0.0
C58	Placenta				11	54.5	0.0
C60	Penis	36	97.2	0.0			
C61	Prostate	93	83.9	0.0			
C62	Testis	7	85.7	0.0			
C63	Other male genital oragans	0	0.0	0.0			
C64	Kidney	12	58.3	0.0	11	72.7	0.0
C65	Renal pelvis	3	100.0	0.0	1	100.0	0.0
C66	Ureter	2	100.0	0.0	0	0.0	0.0
C67	Bladder	67	86.6	0.0	11	100.0	0.0
C68	Other urinary organs	0	0.0	0	0	0	0.0
C69	Eye	6	100.0	0.0	1	100.0	0.0
C70-C72	Brain, nervous system	35	68.6	2.9	27	77.8	0.0
C73	Thyroid	43	93.0	0.0	135	97.8	0.0
C74	Adrenal gland	0	0.0	0.0	2	50.0	0.0
C75	Other endocrine	0	0.0	0	0	0	0.0
C81	Hodgkin's disease	7	100.0	0.0	6	100.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	110	100.0	0.0	90	100.0	0.0
C88	Immunoproliferative diseases	0	0.0	0	0	0	0.0
C90	Multiple myeloma	14	100.0	0.0	19	100.0	0.0
C91-C95	Leukemia	77	100.0	0.0	63	98.4	0.0
O&U	Other and unspecified	83	72.3	8.4	61	91.8	0.0
	AII SITE	**1,940**	**83.3**	**0.6**	**1,990**	**92.4**	**0.2**

Table 3.13.2 Songkhla (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0.2	0.2
C01-C02	Tongue	69	0	0	0	0	0	0	0	1	5	6	7	5	8	12	7	18	4.0	3.7
C03-C06	Mouth	66	0	0	0	0	0	0	1	3	2	4	7	5	7	10	9	18	3.8	3.5
C07-C08	Salivary gland	5	0	0	0	0	0	0	1	1	0	0	0	0	2	1	0	0	0.3	0.3
C09	Tonsil	28	0	0	0	0	0	0	0	1	4	1	4	4	6	3	1	4	1.6	1.5
C10	Other oropharynx	13	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	0.8	0.7
C11	Nasopharynx	41	0	0	0	0	1	1	2	3	7	7	7	1	7	0	5	0	2.3	2.2
C12-C13	Hypopharynx	47	0	0	0	0	0	0	0	1	3	2	2	9	9	7	7	7	2.8	2.5
C14	Pharynx unspecified	4	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	0.2	0.2
C15	Esophagus	123	0	0	0	0	0	0	1	0	2	10	4	16	27	22	22	19	7.5	6.5
C16	Stomach	40	0	0	0	1	0	1	1	2	2	2	2	2	11	4	1	11	2.3	2.1
C17	Small intestine	8	0	0	0	0	0	0	0	0	1	1	1	0	0	1	2	2	0.5	0.4
C18	Colon	93	0	0	0	0	1	2	0	1	2	6	7	11	11	13	9	30	5.4	4.9
C19-C20	Rectum	76	0	0	0	0	0	0	0	2	1	7	6	5	9	8	19	19	4.4	4.0
C21	Anus	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0.1	0.1
C22,C24	Liver and bile duct	184	0	0	0	0	0	0	0	10	12	17	23	22	23	35	22	20	10.9	9.8
C23	Gallbladder	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0.2	0.2
C25	Pancreas	27	0	0	0	0	0	0	1	0	2	3	1	2	5	4	3	6	1.6	1.4
C30-C31	Nose, sinuses etc.	16	0	0	0	0	0	0	1	0	1	1	1	4	1	3	2	2	0.9	0.8
C32	Larynx	62	0	0	0	0	0	0	0	0	1	3	8	4	10	11	6	19	3.7	3.3
C33-C34	Trachea, bronchus and lung	296	0	0	0	0	1	0	1	2	12	12	21	29	46	53	64	55	17.7	15.7
C37-C38	Other thoracic organs	6	0	0	0	1	1	1	0	0	0	0	1	1	0	0	1	0	0.3	0.3
C40-C41	Bone	13	0	1	1	5	2	2	0	0	0	0	1	0	0	0	0	1	0.7	0.7
C43	Melanoma of skin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C44	Other skin	94	0	1	0	0	1	0	2	2	6	2	10	6	14	6	24	20	5.4	5.0
C47,C49	Connective and soft tissue	23	0	0	1	2	0	0	2	1	3	3	2	2	0	2	4	1	1.2	1.2
C50	Breast	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0	0.1
C60	Penis	36	0	0	0	0	0	0	2	0	0	1	3	2	4	10	9	5	2.2	1.9
C61	Prostate	93	0	0	0	0	0	0	0	1	0	0	1	7	5	14	24	41	5.4	4.9
C62	Testis	7	0	1	0	0	2	3	0	1	0	0	0	0	0	0	0	0	0.3	0.4
C63	Other male genital oragans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C64	Kidney	12	1	0	0	0	0	0	0	0	1	1	1	2	2	2	0	2	0.7	0.6
C65	Renal pelvis	3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0.2	0.2
C66	Ureter	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.1	0.1
C67	Bladder	67	0	0	0	0	0	0	0	0	2	1	4	8	8	13	10	21	4.0	3.6
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	6	3	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0.4	0.3
C70-C72	Brain, nervous system	35	1	2	2	1	3	2	4	4	1	4	0	2	5	1	2	1	1.9	1.9
C73	Thyroid	43	0	0	2	0	3	5	4	4	4	3	3	3	3	5	2	2	2.3	2.3
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	7	0	0	1	3	0	0	1	0	0	0	0	0	0	0	1	1	0.4	0.4
C82-C85,C96	Non-Hodgkin lymphoma	110	0	2	1	1	2	4	5	8	8	11	9	9	3	16	14	17	6.1	5.8
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	14	0	0	0	0	0	0	1	0	0	0	1	3	2	3	3	1	0.8	0.7
C91	Lymphoid leukemia	19	5	6	1	0	0	0	0	0	1	1	1	0	1	1	2	0	1.2	1.0
C92	Myeloid leukemia	51	0	0	4	3	2	1	2	1	5	5	4	2	7	7	5	3	2.9	2.7
C95	Leukemia unspecified	7	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	3	0.4	0.4
O&U	Other and unspecified	83	2	1	0	0	0	1	1	4	5	10	5	8	14	13	9	10	4.9	4.4
	All SITE	**1,940**	**12**	**14**	**14**	**18**	**20**	**25**	**33**	**56**	**94**	**127**	**149**	**177**	**254**	**284**	**295**	**368**	**113.0**	**103.0**

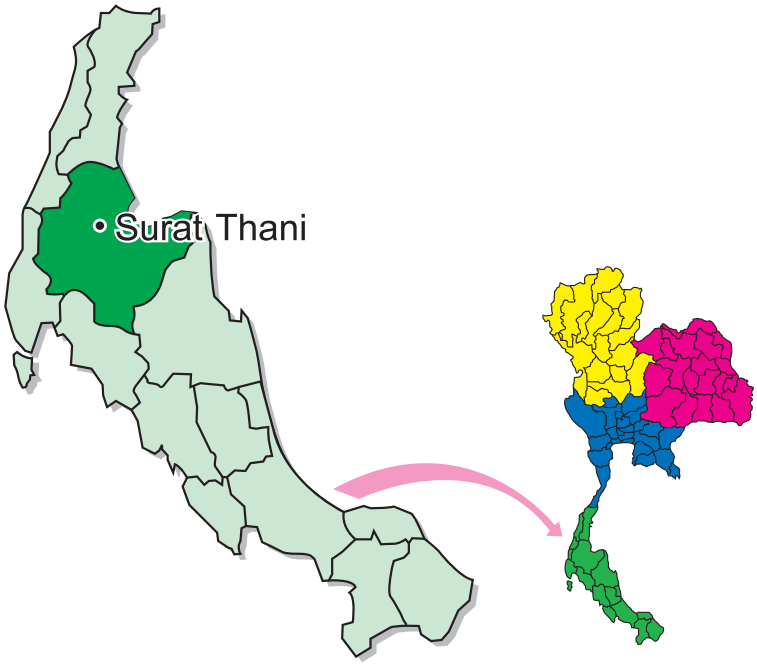
Table 3.13.3 Songkhla (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	9	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5	0.4	0.5
C01-C02	Tongue	15	0	0	0	0	0	0	0	0	1	0	1	2	1	1	6	3	0.7	0.8
C03-C06	Mouth	28	0	0	0	0	0	0	0	0	1	1	2	1	4	6	5	8	1.4	1.4
C07-C08	Salivary gland	6	0	0	0	0	0	1	0	0	1	1	0	2	0	1	0	0	0.3	0.3
C09	Tonsil	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0	0.1
C10	Other oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	Nasopharynx	22	0	0	0	0	0	1	1	1	4	1	3	2	2	5	1	1	1.1	1.1
C12-C13	Hypopharynx	6	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0.3	0.3
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	28	0	0	0	0	0	0	0	0	0	0	1	0	2	6	11	8	1.4	1.4
C16	Stomach	27	0	0	0	0	2	0	1	0	1	2	1	5	1	6	3	5	1.4	1.4
C17	Small intestine	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0.1	0.1
C18	Colon	79	0	0	0	1	0	1	0	1	6	6	12	10	6	14	8	14	4.1	4.0
C19-C20	Rectum	58	0	0	0	0	0	0	3	2	2	2	3	7	12	9	10	8	3.0	3.0
C21	Anus	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0.1	0.1
C22,C24	Liver and bile duct	59	0	0	0	1	0	0	2	3	4	2	4	5	7	6	12	13	2.9	3.0
C23	Gallbladder	11	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	6	0.5	0.6
C25	Pancreas	19	0	0	0	0	0	2	0	0	0	1	0	1	5	4	3	3	1.0	1.0
C30-C31	Nose, sinuses etc.	7	1	0	0	0	0	0	0	1	1	1	3	0	0	0	0	0	0.4	0.4
C32	Larynx	5	0	0	0	0	0	0	0	0	0	0	1	0	3	0	1	0	0.3	0.3
C33-C34	Trachea, bronchus and lung	121	0	0	0	0	0	3	5	2	4	8	19	12	6	18	15	29	6.0	6.2
C37-C38	Other thoracic organs	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C40-C41	Bone	8	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	3	0.4	0.4
C43	Melanoma of skin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C44	Other skin	81	0	0	0	0	0	1	0	3	2	3	3	8	11	13	14	23	4.0	4.1
C47,C49	Connective and soft tissue	25	0	1	3	1	4	0	1	2	0	1	0	2	4	1	0	5	1.2	1.3
C50	Breast	427	0	0	0	0	0	7	21	45	78	78	69	47	27	15	16	24	20.8	21.7
C51	Vulva	7	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	3	0.3	0.4
C52	Vagina	7	0	0	0	0	0	0	0	0	1	1	2	0	1	1	0	1	0.4	0.4
C53	Cervix uteri	337	0	0	0	0	0	7	29	43	50	40	47	35	31	15	18	22	16.2	17.1
C54	Corpus uteri	51	0	0	0	0	1	0	0	4	3	5	9	10	9	3	4	3	2.7	2.6
C55	Uterus unspecified	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.0	0.1
C56	Ovary	101	0	1	3	2	2	5	5	7	9	13	10	12	7	7	7	11	5.0	5.1
C57	Other female genital	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
C58	Placenta	11	0	0	0	1	1	4	1	2	1	1	0	0	0	0	0	0	0.5	0.6
C64	Kidney	11	4	0	0	0	0	0	0	1	0	1	1	1	1	2	0	0	0.7	0.6
C65	Renal pelvis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.0	0.1
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	11	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	5	0.5	0.6
C68	Other urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C69	Eye	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C70-C72	Brain, nervous system	27	2	4	2	1	3	1	3	3	1	1	1	3	1	0	1	0	1.4	1.4
C73	Thyroid	135	0	0	0	5	14	16	18	10	16	13	8	6	11	8	4	6	6.3	6.9
C74	Adrenal gland	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C75	Other endocrine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C81	Hodgkin's disease	6	0	0	0	0	1	2	1	0	1	0	0	0	1	0	0	0	0.3	0.3
C82-C85,C96	Non-Hodgkin lymphoma	90	0	2	1	0	4	7	5	2	3	12	6	5	7	13	11	12	4.5	4.6
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	19	0	0	0	0	0	0	0	1	1	1	0	2	5	2	5	2	1.0	1.0
C91	Lymphoid leukemia	18	3	3	1	0	1	0	0	2	1	1	1	0	0	2	0	3	1.0	0.9
C92	Myeloid leukemia	37	0	1	4	3	1	0	3	2	4	4	1	1	1	4	4	4	1.8	1.9
C95	Leukemia unspecified	8	3	2	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0.5	0.4
O&U	Other and unspecified	61	0	0	0	0	1	2	4	1	5	6	4	5	11	6	5	11	3.0	3.1
	All SITE	**1,990**	**17**	**14**	**14**	**17**	**38**	**61**	**104**	**138**	**205**	**211**	**214**	**189**	**180**	**174**	**171**	**243**	**98.4**	**101.2**

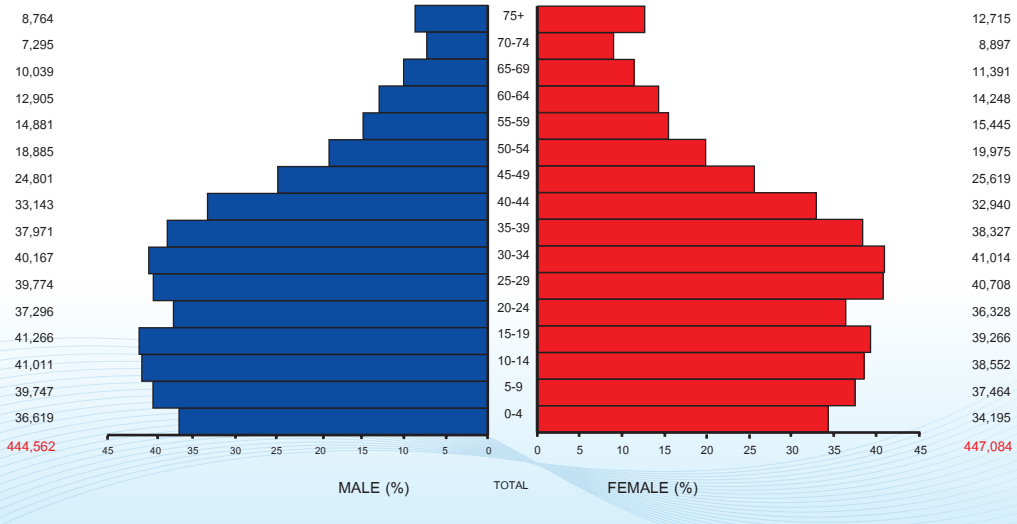
Surat Thani Cancer Registry

Registration area

Surat Thani is one of the 14 provinces of the Southern Region of Thailand, the province is subdivided into 19 districts , which are further subdivided into 131 subdistricts and 1,028 villages. Population at the year 2002 of 891,646. About 97.5% of the population are Buddhists, and nearly 2% are Moslems. Christrans and others account for less than 0.5% of the population. Surat Thani province borders the Gulf of Thailand to the north and east, Chumphon province to the north, Nakhon Si Thammarat and Krabi provinces to the south, Phang Nga and Ranong provinces to the west and Nakhon Si Thammarat province to the east.



Population pyramid, Surat Thani, 2002



Cancer care facilities

Community hospitals are provided in all 19 districts of Suratthani. One cancer center (Surat Thani cancer center) is situated in Muaeng district which is the center of the province. The Surat Thani provincial hospital is one large hospitals have facilities for cancer surgery and chemotherapy. The Surat Thani cancer center is the only place the province radiotherapy services in province. Patients suspected to have cancer in the health care system and community hospitals are referred to the Surat Thani provincial hospital, Surat Thani cancer center or Songklanagarind hospital.

Registry procedures

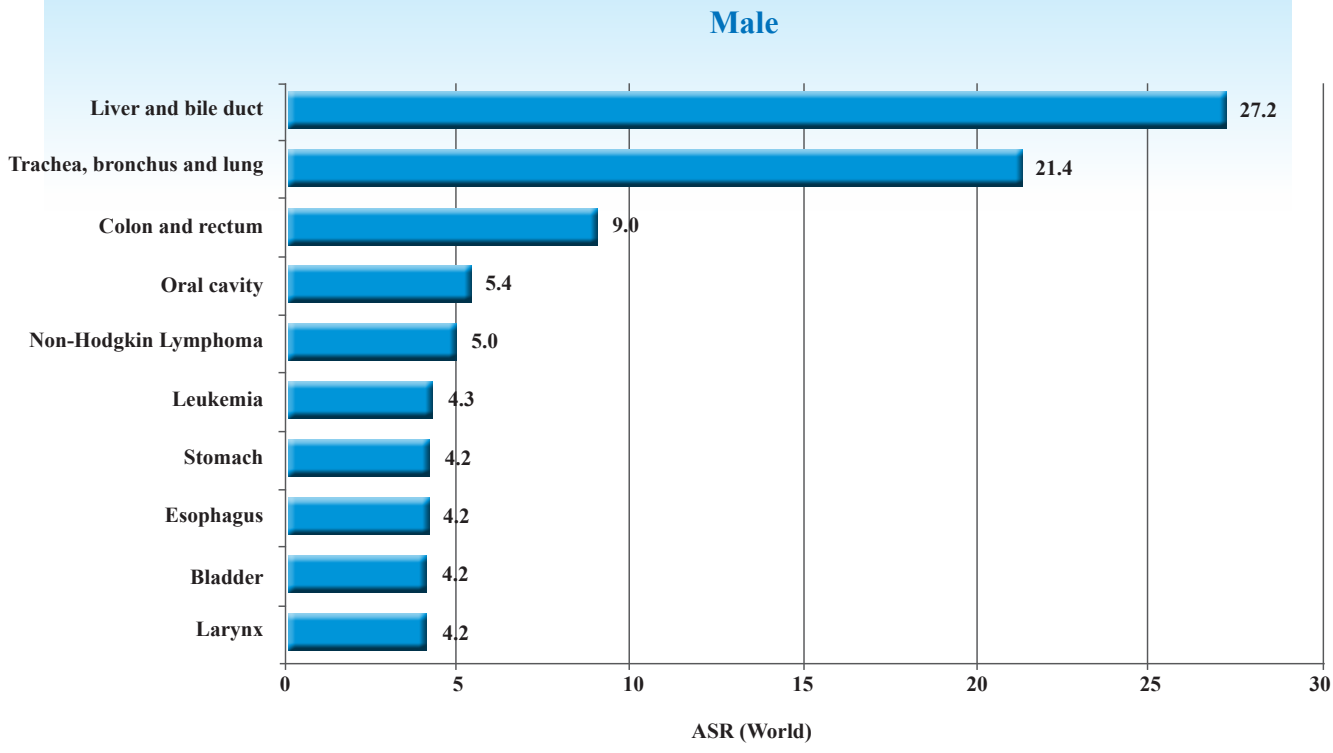
All data on cancer patients were collected by mixture of passive and active methods involving notification by the staff of Suratthani cancer center, Suratthani provincial hospital, one Suratthani provincial hospital, 19 community hospitals, pathological laboratory in Suratthani hospital, cancer registration unit of Songklanagarind hospital and information of deaths from all causes of death from Bureau of health policy and strategy, Ministry of public health. All death certificates are matched with the incidence case records of the registry.

Individual certified as having dies of cancer are registered as "Death Certificate Only (DCO)" cases if no other information about the individual can be traced from the other sources.

Summary of Results

New cases registered in 2001-2003, 1,524 were males and 1,611 were females this made up of 3,135 for both sex. The age - standardized incidence rate (ASR) of all cancer sites in males is 129.2 per 100,000 in which liver and bile duct cancer ranks first (ASR = 27.2) followed by lung (ASR = 21.4), colon and rectum (ASR = 9.0). ASR of all cancer sites in females is 119.2, three leading cancer in females are cervix (ASR = 22.8) and breast (ASR = 22.7), liver and bile duct (ASR = 9.2).

Figure 3.13.3 Leading cancer in Surat Thani, 2001-2003



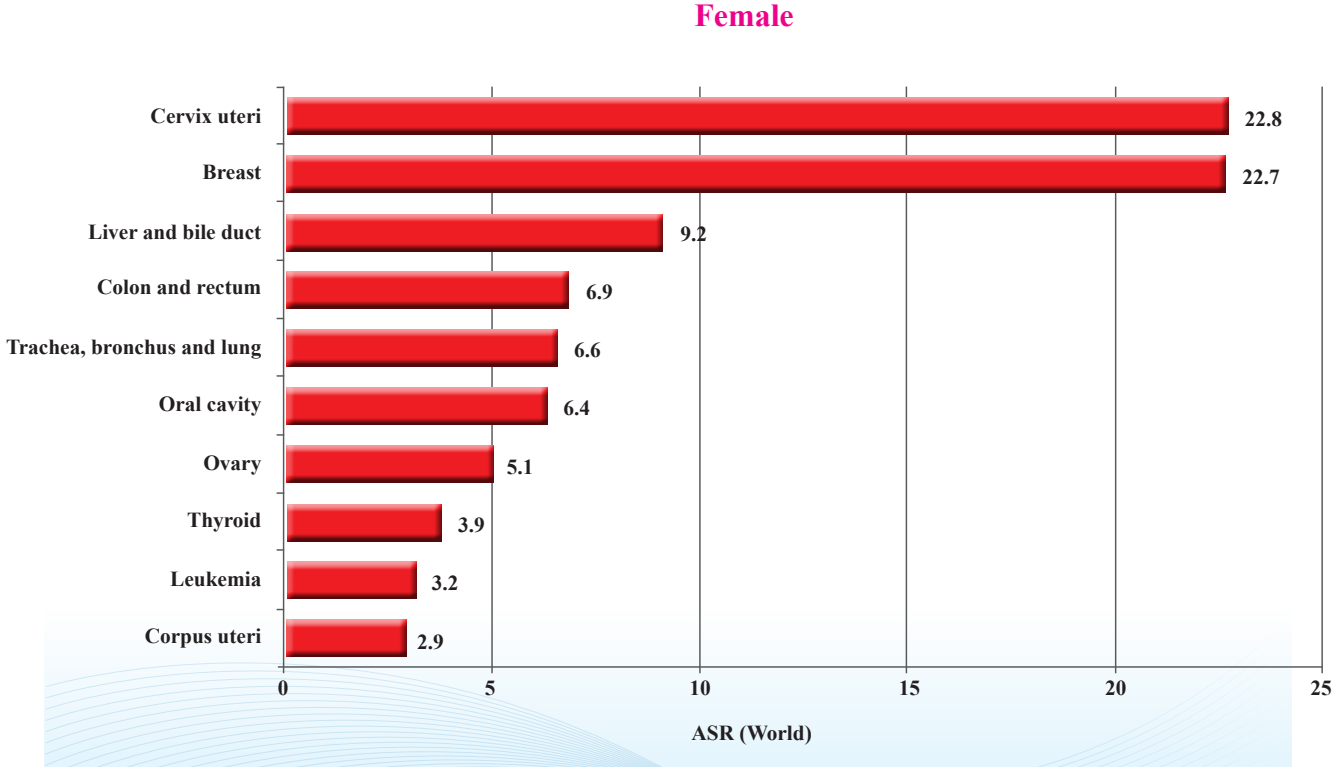


Table 3.14.1 Percentage of morphologically verified and death certificate only cases, Surat Thani, 2001-2003

ICD -10	SITE	Male			Female		
		Case	%MV	%DCO	Case	%MV	%DCO
C00-C08	Oral cavity	66	69.7	1.5	89	49.4	0.0
C09-C10;C14	Oropharynx, etc.	40	40.0	0.0	11	9.1	9.1
C11	Nasopharynx	25	76.0	4.0	11	100.0	0.0
C12-C13	Hypopharynx	12	91.7	0.0	1	100.0	0.0
C15	Esophagus	46	52.2	0.0	13	38.5	0.0
C16	Stomach	49	38.8	8.2	27	40.7	3.7
C17	Small intestine	2	100.0	0.0	2	0.0	0.0
C18-C21	Colon and rectum	106	45.3	3.8	95	62.1	0.0
C22;C24	Liver and bile duct	316	24.4	6.6	121	24.0	9.1
C23	Gallbladder	14	28.6	7.1	9	22.2	33.3
C25	Pancreas	23	26.1	0.0	17	5.9	11.8
C30-C31	Nose, sinuses etc.	19	15.8	0.0	18	16.7	0.0
C32	Larynx	48	64.6	8.3	13	15.4	0.0
C33-C34	Trachea, bronchus and lung	247	36.8	7.7	93	31.2	6.5
C37-C38	Other thoracic organs	8	62.5	0.0	8	37.5	0.0
C40-C41	Bone	12	8.3	0.0	9	33.3	11.1
C43	Melanoma of skin	5	100.0	0.0	6	100.0	0.0
C44	Other skin	22	81.8	0.0	29	86.2	0.0
C47,C49	Connective and soft tissue	12	25.0	0.0	7	28.6	0.0
C50	Breast	7	28.6	0.0	315	78.7	0.6
C51	Vulva				3	100.0	0.0
C52	Vagina				5	100.0	0.0
C53	Cervix uteri				307	81.1	1.0
C54	Corpus uteri				37	70.3	0.0
C55	Uterus unspecified				7	42.9	0.0
C56	Ovary				66	56.1	1.5
C51,C52,C57	Other female genital				1	100.0	0.0
C58	Placenta				3	33.3	0.0
C60	Penis	13	46.2	0.0			
C61	Prostate	47	48.9	0.0			
C62	Testis	3	100.0	0.0			
C63	Other male genital oragans	1	100.0	0.0			
C64	Kidney	6	66.7	0.0	2	0.0	50.0
C65	Renal pelvis						
C66	Ureter	1	100.0	0.0	0	0.0	0.0
C67	Bladder	48	52.1	2.1	11	54.5	0.0
C68	Other urinary organs	1	0.0	0.0	2	0.0	0.0
C69	Eye	3	66.7	0.0	3	33.3	0.0
C70-C72	Brain, nervous system	30	23.3	10.0	23	21.7	17.4
C73	Thyroid	13	53.8	0.0	54	74.1	1.9
C74	Adrenal gland	2	0.0	0.0	0	0.0	0.0
C75	Other endocrine	2	50.0	0.0	1	0.0	0.0
C81	Hodgkin's disease	2	100.0	0.0	0	0.0	0.0
C82-C85,C96	Non-Hodgkin lymphoma	63	95.2	3.2	31	96.8	3.2
C88	Immunoproliferative diseases						
C90	Multiple myeloma	2	100.0	0.0	3	100.0	0.0
C91-C95	Leukemia	51	92.2	7.8	44	93.2	6.8
O&U	Other and unspecified	157	15.9	12.7	114	11.4	18.4
	ALL	**1,524**	**42.5**	**5.6**	**1,611**	**58.9**	**3.8**

Table 3.14.2 Surat Thani (2001-2003), Number of case by age group (years) male

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2	0.1
C01-C02	Tongue	24	0	0	0	0	0	0	0	3	3	1	4	1	0	3	3	6	1.9	1.8
C03-C06	Mouth	29	0	0	1	0	1	0	0	1	1	3	1	6	1	5	3	6	2.5	2.2
C07-C08	Salivary gland	11	0	0	0	0	0	1	1	0	1	1	0	2	3	1	0	1	0.9	0.8
C09	Tonsil	29	7	5	2	1	0	1	0	1	3	2	2	1	1	2	1	0	2.5	2.2
C10	Other oropharynx	5	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	2	0.4	0.4
C11	Nasopharynx	25	0	0	1	0	0	0	2	4	4	2	3	3	0	1	4	1	1.9	1.9
C12-C13	Hypopharynx	12	0	0	0	0	1	0	0	0	1	1	1	0	3	2	2	1	1.1	0.9
C14	Pharynx unspecified	6	0	0	0	0	0	0	0	1	0	2	3	0	0	0	0	0	0.5	0.4
C15	Esophagus	46	0	0	0	0	0	0	0	1	1	5	1	7	7	13	9	2	4.2	3.4
C16	Stomach	49	1	0	0	1	0	0	0	2	2	1	6	3	6	7	8	12	4.2	3.7
C17	Small intestine	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0.2	0.1
C18	Colon	75	0	1	0	0	4	1	1	1	4	4	3	7	12	10	15	12	6.5	5.6
C19-C20	Rectum	28	0	0	0	1	0	1	2	2	3	0	0	3	2	5	5	4	2.3	2.1
C21	Anus	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0.3	0.2
C22,C24	Liver and bile duct	316	1	0	0	0	4	2	6	16	25	31	29	43	53	43	39	24	27.2	23.7
C23	Gallbladder	14	0	0	0	0	0	0	0	0	0	1	1	1	2	3	5	1	1.3	1.0
C25	Pancreas	23	0	0	0	0	0	0	0	2	4	1	2	1	4	4	1	4	1.9	1.7
C30-C31	Nose, sinuses etc.	19	2	5	1	3	0	0	0	0	0	1	0	0	0	3	3	1	1.7	1.4
C32	Larynx	48	1	2	0	0	0	0	1	1	4	1	6	3	6	6	11	6	4.2	3.6
C33-C34	Trachea, bronchus and lung	247	0	0	0	0	0	4	3	10	12	14	15	19	35	49	32	54	21.4	18.5
C37-C38	Other thoracic organs	8	0	0	1	1	0	0	0	1	1	0	1	0	0	2	0	1	0.6	0.6
C40-C41	Bone	12	0	0	2	1	0	0	1	1	0	1	0	0	3	1	0	2	1.0	0.9
C43	Melanoma of skin	5	0	0	0	0	0	0	0	0	0	1	0	2	0	1	1	0	0.5	0.4
C44	Other skin	22	0	0	0	0	0	1	1	0	2	0	2	3	2	2	2	7	1.8	1.6
C47,C49	Connective and soft tissue	12	0	0	0	0	0	1	0	0	1	0	3	0	1	2	1	3	1.0	0.9
C50	Breast	7	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	3	0.5	0.5
C60	Penis	13	2	1	0	0	0	0	0	0	2	1	1	2	1	1	0	2	1.1	1.0
C61	Prostate	47	0	0	0	0	0	0	0	0	0	2	1	1	6	5	15	17	4.1	3.5
C62	Testis	3	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0.2	0.2
C63	Other male genital oragans	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C64	Kidney	6	0	0	1	0	0	0	0	1	0	1	0	0	0	0	2	1	0.5	0.4
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C67	Bladder	48	0	0	0	0	0	0	0	1	3	4	2	3	7	8	9	11	4.2	3.6
C68	Other urinary organs	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C69	Eye	3	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.3	0.2
C70-C72	Brain, nervous system	30	2	1	0	0	0	1	4	4	2	2	3	2	2	3	1	3	2.3	2.2
C73	Thyroid	13	0	0	0	1	0	0	1	0	1	1	2	1	1	1	2	2	1.1	1.0
C74	Adrenal gland	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.2	0.1
C75	Other endocrine	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0.2	0.1
C81	Hodgkin's disease	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0.1	0.1
C82-C85,C96	Non-Hodgkin lymphoma	63	0	0	1	4	0	1	2	6	10	3	4	3	5	5	9	10	4.9	4.7
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0.2	0.1
C91	Lymphoid leukemia	10	2	2	3	1	0	0	0	0	0	0	0	2	0	0	0	0	0.9	0.7
C92	Myeloid leukemia	6	0	0	1	0	0	0	0	0	0	0	0	1	1	3	0	0	0.6	0.4
C95	Leukemia unspecified	35	3	1	1	1	2	1	1	3	1	1	3	3	3	2	4	5	2.9	2.6
O&U	Other and unspecified	157	1	3	2	0	2	9	10	10	9	13	11	4	11	23	31	18	12.8	11.8
	All SITE	**1,524**	**24**	**22**	**17**	**16**	**16**	**25**	**38**	**73**	**101**	**106**	**114**	**131**	**181**	**216**	**220**	**224**	**129.2**	**114.3**

Table 3.14.3 Surat Thani (2001-2003), Number of case by age group (years) female

ICD -10	SITE	ALL AGE	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75+	ASR World	Crude rate
C00	Lip	22	0	0	0	0	2	0	0	0	0	0	0	1	1	6	4	8	1.6	1.6
C01-C02	Tongue	12	0	0	0	0	0	0	0	1	1	0	0	0	2	2	2	4	0.8	0.9
C03-C06	Mouth	48	1	1	0	1	3	1	2	3	0	3	3	0	4	7	4	15	3.4	3.6
C07-C08	Salivary gland	7	0	0	0	0	0	1	0	0	0	0	2	0	2	1	1	0	0.6	0.5
C09	Tonsil	9	2	0	1	1	0	0	0	0	0	1	0	1	0	1	0	2	0.7	0.7
C10	Other oropharynx	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.2	0.1
C11	Nasopharynx	11	0	0	0	0	0	0	0	2	3	0	1	3	0	1	1	0	0.8	0.8
C12-C13	Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.1
C14	Pharynx unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	Esophagus	13	0	0	0	0	0	0	0	0	0	1	1	1	2	3	2	3	1.0	1.0
C16	Stomach	27	0	0	0	0	0	0	0	3	1	0	1	2	5	6	4	5	2.0	2.0
C17	Small intestine	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2	0.1
C18	Colon	61	0	0	0	1	0	1	3	5	4	2	4	8	4	9	10	10	4.4	4.5
C19-C20	Rectum	32	0	0	0	0	0	1	0	3	3	3	1	2	2	8	4	5	2.3	2.4
C21	Anus	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.2	0.1
C22,C24	Liver and bile duct	121	0	0	0	1	1	2	2	4	7	13	12	13	14	18	17	17	9.2	9.0
C23	Gallbladder	9	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	6	0.5	0.7
C25	Pancreas	17	0	0	0	0	0	0	0	0	0	1	4	4	0	2	3	3	1.3	1.3
C30-C31	Nose, sinuses etc.	18	7	1	0	1	0	0	4	1	0	1	0	1	0	0	1	1	1.5	1.3
C32	Larynx	13	0	0	0	0	0	0	2	1	0	1	0	0	1	4	2	2	0.9	1.0
C33-C34	Trachea, bronchus and lung	93	0	0	0	0	1	6	1	1	5	7	7	7	10	10	9	29	6.6	6.9
C37-C38	Other thoracic organs	8	0	0	0	0	0	0	0	0	0	0	1	3	1	3	0	0	0.7	0.6
C40-C41	Bone	9	0	0	0	1	1	0	1	0	0	1	1	1	3	0	0	0	0.7	0.7
C43	Melanoma of skin	6	0	0	0	0	0	0	0	0	0	1	1	2	0	1	0	1	0.5	0.4
C44	Other skin	29	0	0	1	0	0	0	0	2	0	0	3	1	1	4	6	11	2.0	2.2
C47,C49	Connective and soft tissue	7	0	0	0	0	0	2	0	0	2	1	0	1	0	0	0	1	0.5	0.5
C50	Breast	315	0	0	0	1	2	4	14	37	60	52	41	31	28	21	5	19	22.7	23.5
C51	Vulva	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.2	0.2
C52	Vagina	5	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0	0.4	0.4
C53	Cervix uteri	307	0	0	0	0	1	4	10	37	42	56	38	42	23	29	12	13	22.8	22.9
C54	Corpus uteri	37	0	0	0	0	0	1	1	2	3	4	9	10	4	2	0	1	2.9	2.8
C55	Uterus unspecified	7	0	0	0	0	0	2	2	0	0	1	1	0	0	0	0	1	0.4	0.5
C56	Ovary	66	0	1	0	1	0	6	2	2	7	10	9	9	9	3	4	3	5.1	4.9
C57	Other female genital	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1	0.1
C58	Placenta	3	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0.2	0.2
C64	Kidney	2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0.2	0.1
C65	Renal pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C66	Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C67	Bladder	11	0	0	0	0	0	0	0	0	0	1	3	0	1	3	1	2	0.9	0.8
C68	Other urinary organs	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.1	0.1
C69	Eye	3	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0.2	0.2
C70-C72	Brain, nervous system	23	2	2	1	0	1	3	2	2	0	2	0	1	4	0	2	1	1.8	1.7
C73	Thyroid	54	0	0	1	2	4	2	3	6	5	10	4	2	2	7	2	4	3.9	4.0
C74	Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C75	Other endocrine	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	0.1
C81	Hodgkin's disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C82-C85,C96	Non-Hodgkin lymphoma	31	0	1	1	0	1	2	0	2	3	1	4	3	7	0	3	3	2.4	2.3
C88	Immunoproliferative diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C90	Multiple myeloma	3	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0.2	0.2
C91	Lymphoid leukemia	6	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0.5	0.4
C92	Myeloid leukemia	8	0	1	1	0	0	1	0	1	0	1	2	1	0	0	0	0	0.6	0.6
C95	Leukemia unspecified	30	0	0	2	1	0	0	2	3	2	2	1	4	3	1	3	6	2.1	2.2
O&U	Other and unspecified	114	2	2	1	3	2	6	6	1	6	8	13	11	11	17	8	17	8.6	8.5
	All SITE	**1,611**	**14**	**12**	**11**	**14**	**21**	**46**	**59**	**119**	**157**	**187**	**173**	**168**	**149**	**174**	**112**	**195**	**119.2**	**120.1**