

APPENDIX

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BANGKOK
CANCER
REGISTRY*Pattarawin Attasara, M.D.***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. It is a tropical land with long hours of sunshine, high temperature and humidity. Bangkok comprises of 50 districts with total area of 1 568.737 square kilometers. The climate is influenced by seasonal monsoon. Bangkok Metropolitan Administration is the sole organization at the local authority level responsible for the well-being of Bangkok residents with some financial support from the central government. Bangkok is the commercial center of Thailand, as well as Southeast Asia, for imports and exports. There are two important sectors of economy in Bangkok. First, Thailand has been an agricultural country in South East Asia, so agriculture was the main source generating income. Now the expansion of the agricultural sector is steadily increasing. The population then was only 600 000 and urbanized area was about 18 square kilometers. After the Second World War, the city was increasingly populated with rapid urbanization which brought about number of infrastructures and other constructions. The registered population in Bangkok increased from 1.6 million in 1958 to 5.4 million in 1986 and 5.6 million in 1999. The population of Bangkok is now close to 7 million by registered record or about 10 million of daytime population.

Cancer area facilities

Bangkok contains 9 of excel-

lent level of government cancer center from total 12 centers in Thailand. National Cancer Institute, King Chulalongkorn Memorial hospital, Siriraj hospital, Ramathibodi hospital, Phra Mongkutkloa hospital, Queen Sirikit National Institute fo Child Health, Rajavithi Hospital, Vajira hospital and Bhumibol Adulyadei Hospital. Bangkok also contain three excellent level of private cancer center. Bangkok hospital, Bumrungrad hospital and Samitivej hospital. Bangkok also contains many advance and basic level cancer centers. More than 50% of cancer cases were threatred in Bangkok. Data from Public Health statistics shows that Bangkok has the highest level of facilities for general health care. The ratio of population per physician is 793:1, while in other provinces is 6 237:1. Bangkok cancer registry is important base for collection cancer cases and send data back to other cancer registries for their completeness that cause best accuracy of Thailand cancer surveillane estimate.

Registry structure and methods

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. The registry is staffed by one full-time and two part-time physicians, one full-time nurse and one full-time statistician, two senior, five junior registrars and five health workers. National Cancer Institute developed a population-based cancer registry for Bangkok Metropolis in 1990. The precesses of work began with a retrospective review of records covering the

period 1988-1990. Data are collected both actively and passively from the excellent level of government cancer centers, university hospitals, government hospitals, private hospitals, pathology laboratories and from death certificates. All death certificates are reviewed to match with the incident case records, and efforts made to trace further information before register-

ing the case as a DCO.

Interpreting the results

Despite intensive efforts to ensure completeness, there can be a delay between date of diagnosis and the notification being received. The database is therefore continually being updated and quality of data will be improved. The data must also be comparable with data

from other cancer registries and from one period to the other.

Use of the data

The aim of the registry is to present data on annual cancer incidence in Bangkok, identifying the leading cancers and highlighting trends. Survivals of registered cases are reported for selected sites.

Figure 1 Population pyramid, Bangkok, 1999

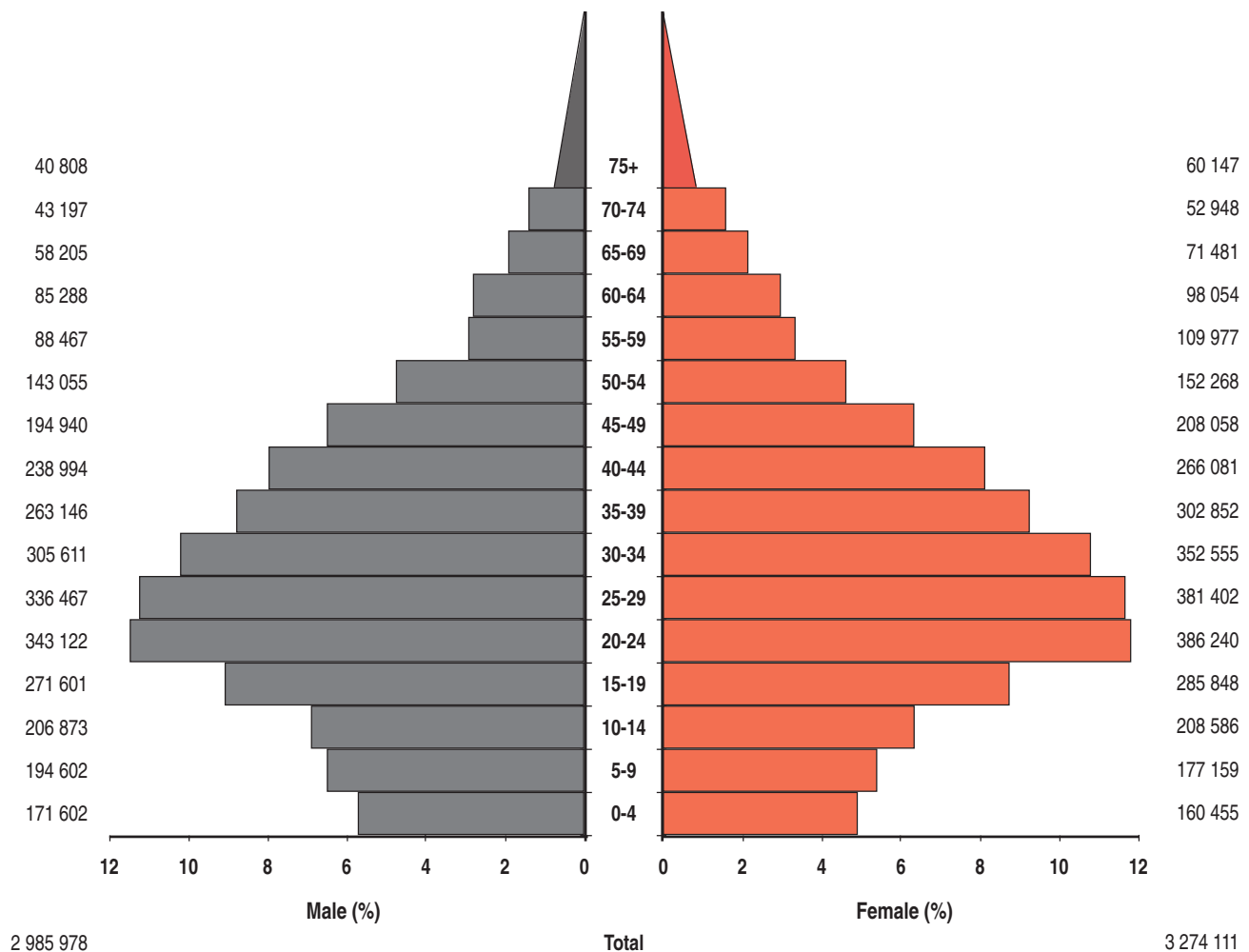


Table 1 Annual incidence, Bangkok, 1998-2000

	Male						Female						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74 (percent)	
Lip	15	0.2	0.2	0.2	0.01	0.02	45	0.4	0.5	0.5	0.02	0.05	C00
Tongue	147	1.7	1.6	2.0	0.12	0.25	84	0.8	0.9	0.9	0.06	0.09	C01-02
Salivary gland	28	0.3	0.3	0.3	0.02	0.04	37	0.3	0.4	0.4	0.03	0.04	C07-C08
Mouth	171	2.0	1.9	2.4	0.15	0.31	127	1.2	1.3	1.5	0.05	0.18	C03-C06
Oropharynx	89	1.1	1.0	1.2	0.08	0.14	22	0.2	0.2	0.3	0.02	0.03	C09-C10
Nasopharynx	314	3.7	3.5	3.6	0.30	0.36	143	1.3	1.5	1.3	0.11	0.13	C11
Hypopharynx	86	1.0	1.0	1.2	0.06	0.14	16	0.1	0.2	0.2	0.01	0.03	C12-C13
Pharynx unspecified	15	0.2	0.2	0.2	0.02	0.03	6	0.1	0.1	0.1	0.01	0.01	C14
Esophagus	232	2.7	2.6	3.4	0.20	0.42	44	0.4	0.4	0.5	0.03	0.07	C15
Stomach	249	2.9	2.8	3.6	0.14	0.40	232	2.1	2.4	2.5	0.13	0.29	C16
Small intestine	23	0.3	0.3	0.3	0.01	0.03	16	0.1	0.2	0.2	0.01	0.01	C17
Colon	545	6.4	6.1	7.8	0.39	0.93	553	5.1	5.6	6.3	0.34	0.69	C18
Rectum	340	4.0	3.8	4.7	0.26	0.54	290	2.7	3.0	3.3	0.19	0.40	C19-21
Liver and bile duct	1017	12.0	11.4	13.4	0.97	1.57	378	3.5	3.8	4.3	0.27	0.48	C22,C24
Gallbladder	36	0.4	0.4	0.5	0.03	0.05	39	0.4	0.4	0.4	0.02	0.05	C23
Pancreas	103	1.2	1.1	1.5	0.08	0.17	100	0.9	1.0	1.2	0.07	0.14	C25
Nose, sinuses etc.	43	0.5	0.5	0.6	0.04	0.07	36	0.3	0.4	0.4	0.02	0.03	C30-C31
Larynx	240	2.8	2.7	3.5	0.21	0.45	31	0.3	0.3	0.4	0.02	0.04	C32
Bronchus, lung	1249	14.8	13.9	18.4	0.92	2.25	564	5.2	5.7	6.5	0.35	0.78	C33-C34
Other thoracic organs	32	0.4	0.4	0.3	0.03	0.03	23	0.2	0.2	0.2	0.01	0.02	C37-C38
Bone	81	1.0	0.9	0.9	0.06	0.07	73	0.7	0.7	0.8	0.05	0.06	C40-C41
Connective tissue	88	1.0	1.0	1.2	0.07	0.11	103	0.9	1.0	1.3	0.07	0.11	C47,C49
Melanoma of skin	12	0.1	0.1	0.2	0.01	0.02	21	0.2	0.2	0.2	0.01	0.02	C43
Other skin	237	2.8	2.6	3.4	0.15	0.37	312	2.9	3.2	3.6	0.15	0.35	C44
Breast	18	0.2	0.2	0.2	0.02	0.02	2430	22.3	24.7	24.3	1.96	2.61	C50
Uterus unspecified							28	0.3	0.3	0.3	0.02	0.03	C55
Cervix uteri							1941	17.8	19.8	19.3	1.53	2.10	C53
Placenta							6	0.1	0.1	0.0	0.00	0.00	C58
Corpus uteri							360	3.3	3.7	3.9	0.30	0.48	C54
Ovary							514	4.7	5.2	5.1	0.38	0.52	C56
Other female genital							52	0.5	0.5	0.5	0.03	0.05	C51,C52,C57
Prostate	417	4.9	4.7	6.7	0.14	0.77							C61
Testis	40	0.5	0.4	0.5	0.03	0.03							C62
Penis	55	0.6	0.6	0.7	0.05	0.09							C60
Bladder	397	4.7	4.4	5.9	0.24	0.69	148	1.4	1.5	1.8	0.07	0.22	C67
Kidney etc.	112	1.3	1.3	1.6	0.09	0.18	94	0.9	1.0	1.2	0.06	0.12	C64-C66:C68
Eye	44	0.5	0.5	0.9	0.04	0.04	28	0.3	0.3	0.6	0.02	0.03	C69
Brain, nervous system	242	2.9	2.7	3.0	0.18	0.27	252	2.3	2.6	3.0	0.20	0.26	C70-C72
Thyroid	107	1.3	1.2	1.2	0.07	0.13	455	4.2	4.6	3.9	0.29	0.39	C73
Other endocrine	25	0.3	0.3	0.3	0.02	0.02	20	0.2	0.2	0.3	0.01	0.02	C74-C75
Hodgkin's disease	32	0.4	0.4	0.4	0.02	0.03	22	0.2	0.2	0.2	0.02	0.02	C81
Non-Hodgkin lymphoma	358	4.2	4.0	4.6	0.28	0.47	268	2.5	2.7	3.0	0.18	0.30	C82-C85,C96
Multiple myeloma	50	0.6	0.6	0.7	0.04	0.10	46	0.4	0.5	0.5	0.03	0.07	C88,C90
Lymphoid leukaemia	21	0.2	0.2	0.3	0.01	0.02	25	0.2	0.3	0.3	0.02	0.03	C91
Myeloid leukaemia	137	1.6	1.5	1.6	0.09	0.17	116	1.1	1.2	1.3	0.08	0.13	C92
Leukaemia unspecified	52	0.6	0.6	0.7	0.04	0.07	61	0.6	0.6	0.7	0.05	0.06	C95
Other and unspecified	967	11.4	10.8	13.1	0.77	1.38	746	6.8	7.6	8.6	0.57	0.90	O&U
All sites	8466	100.0	94.5	117.4	6.44	13.24	10907	100.0	111.0	116.0	7.87	12.43	ALL

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

	Male			Female			ICD-10
	Cases	%MV	%DCO	Cases	%MV	%DCO	
Oral cavity	361	88.8	2.4	293	93.0	0.3	C00-C08
Oropharynx, etc.	104	77.6	2.6	28	83.9	3.2	C09-C10;C14
Nasopharynx	314	87.8	0.9	143	89.7	0.0	C11
Hypopharynx	86	87.2	2.3	16	64.7	17.6	C12-C13
Esophagus	232	69.2	3.3	44	78.3	2.2	C15
Stomach	249	66.6	6.8	232	73.6	5.2	C16
Small intestine	23	85.2	3.7	16	88.9	0.0	C17
Colon and rectum	885	73.8	5.1	843	77.9	3.4	C18-C21
Liver and bile duct	1017	36.0	19.4	378	40.9	11.5	C22;C24
Gallbladder	36	61.0	7.3	39	65.3	4.1	C23
Pancreas	103	31.1	8.9	100	35.4	13.8	C25
Nose, sinuses etc.	43	65.5	9.1	36	76.7	2.3	C30-C31
Larynx	240	80.3	2.3	31	75.8	6.1	C32
Bronchus, lung	1249	47.7	11.8	564	47.8	10.4	C33-C34
Other thoracic organs	32	87.9	3.0	23	87.0	0.0	C37-C38
Bone	81	77.2	8.7	73	79.5	7.2	C40-C41
Connective tissue	88	0.0	0.0	103	0.0	0.0	C47,C49
Skin and melanoma	249	95.7	0.8	333	97.1	0.3	C43-C44
Breast	18	94.7	0.0	2430	86.7	1.2	C50
Cervix uteri				1941	85.9	1.0	C53
Corpus uteri				360	92.6	0.3	C54
Uterus unspecified				28	14.5	30.6	C55
Ovary				514	79.4	1.3	C56
Other female genital				52	0.0	0.0	C51,C52,C57
Placenta				6	100.0	0.0	C58
Penis	55	93.0	1.8				C60
Prostate	417	76.8	0.0				C61
Testis	40	97.6	0.0				C62
Kidney etc.	112	81.3	2.4	94	82.5	4.9	C64-C66,C68
Bladder	397	85.9	2.2	148	81.1	1.3	C67
Eye	44	95.6	0.0	28	92.9	0.0	C69
Brain, nervous system	242	68.56	11.7	252	74.6	6.6	C70-C72
Thyroid	107	90.9	1.8	455	92.1	0.0	C73
Other endocrine	25	84.6	0.0	20	95.0	0.0	C74-C75
Hongkin's disease	32	100.0	0.0	22	100.0	0.0	C81
Non-Hongkin lymphoma	358	98.6	0.3	268	97.0	0.0	C82-C85,C96
Multiple myeloma	50	100.0	0.0	46	100.0	0.0	C88;C90
Leukemia	210	84.1	0.0	202	82.9	0.0	C91-C95
Other and unspecified	967	48.8	24.0	746	50.1	20.3	O&U
All sites	8466	64.6	9.5	10907	77.4	4.4	ALL