

APPENDIX

C

NAKHON
PHANOM
CANCER
REGISTRY*Petcharin Srivatanakul, Ph.D.***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 Songkhram, Na Wa, Na Thom districts and Wang Yang sub-district. Located on the right bank of the Maekong River is Nakhon Phanom, an ancient city with a name that literally means of City of Hills. The lovely setting of the provincial capital is enhanced by the rugged beauty of jungle covered mountains which lie beyond the Laotian town of Tha Khaek, located on the opposite bank of the river. Nakhon Phanom is renowned as a great place with beautiful scenery by 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.

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 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 structure and methods

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. Cancer cases are collected from the medical record departments, outpatient clinics, pathology laboratories, clinical laboratories and death certificates. All data are checked for duplication, verified, coded and keyed into the CanReg4 Programme.

The data on cancer patients are collected by both active and passive methods. Active reporting (collection at source) involves registry personnel actually visiting the sources of data and abstracting the required information onto special forms, or obtaining copies of the necessary documents.

Passive reporting relies upon other health care workers to complete notification forms and forward them to the registry, or send copies of the necessary data.

The primary site and histology are coded according to ICD-O version 3. Second and subsequent primary cancers are also registered. A new registration number is given for each new primary cancer as indicated by the 3 digit ICD-O code, (or cancers with different histology at the same site), as specified in the ICD-O manual.

Cases of carcinoma *in situ* are registered but not included in the calculation of incidence rates. Those that become invasive are re-registered as invasive carcinomas, with the behaviour code changed to “3” (malignant). The most valid

basis of diagnosis is recorded for all registered cases.

Follow up of registered cancer patients is performed by a mixture of active and passive methods. Registered cases are first matched

with death certificates. For the remaining cases thought to be alive, follow-up information is obtained by repeated scrutiny of hospital case records, postal enquires and by home visits.

Figure 1 Population pyramid, Nakhon Phanom, 1999

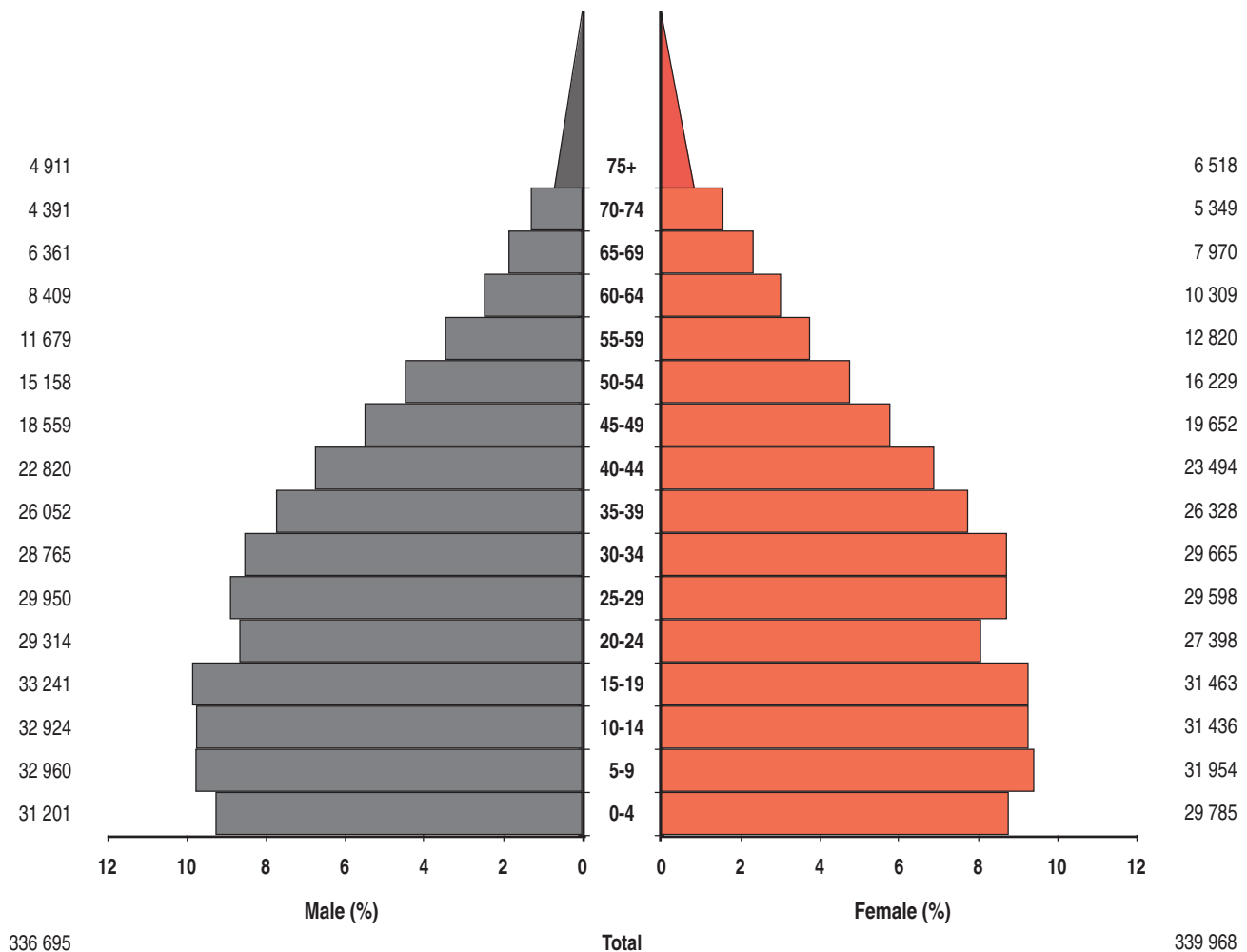


Table 1 Annual incidence, Nakhon Phanom, 1998-2000

	Male						Female						ICD-10
	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	No. cases	Freq. (%)	Crude rate (per 100,000)	ASR world	Cum. rates 0-64 (percent)	Cum. rates 0-74	
Lip	1	0.1	0.1	0.2	0.0	0.0	17	1.9	1.7	2.0	0.1	0.2	C00
Tongue	5	0.6	0.5	0.7	0.0	0.0	5	0.6	0.5	0.5	0.0	0.1	C01-02
Salivary gland	0	0.0	0.0	0.0	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C07-C08
Mouth	4	0.5	0.4	0.5	0.0	0.0	20	2.3	2.0	2.3	0.1	0.3	C03-C06
Oropharynx	0	0.0	0.0	0.0	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C09-C10
Nasopharynx	14	1.6	1.4	1.5	0.1	0.2	8	0.9	0.8	0.8	0.0	0.1	C11
Hypopharynx	0	0.0	0.0	0.0	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C12-C13
Pharynx unspecified	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	C14
Esophagus	6	0.7	0.6	0.8	0.1	0.1	5	0.6	0.5	0.6	0.0	0.1	C15
Stomach	29	3.3	2.9	3.7	0.2	0.5	10	1.1	1.0	1.1	0.1	0.1	C16
Small intestine	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	C17
Colon	36	4.1	3.6	4.1	0.3	0.5	38	4.3	3.7	4.0	0.3	0.4	C18
Rectum	12	1.4	1.2	1.4	0.1	0.2	7	0.8	0.7	0.8	0.0	0.1	C19-21
Liver and bile duct	516	59.0	51.1	63.5	4.2	7.5	286	32.4	28.0	31.1	2.2	3.7	C22,C24
Gallbladder	14	1.6	1.4	1.7	0.1	0.3	11	1.2	1.1	1.2	0.0	0.1	C23
Pancreas	6	0.7	0.6	0.6	0.0	0.0	2	0.2	0.2	0.3	0.0	0.0	C25
Nose, sinuses etc.	2	0.2	0.2	0.2	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C30-C31
Larynx	5	0.6	0.5	0.7	0.0	0.1	0	0.0	0.0	0.0	0.0	0.0	C32
Bronchus, lung	55	6.3	5.4	7.0	0.5	0.8	34	3.8	3.3	3.7	0.2	0.5	C33-C34
Other thoracic organs	1	0.1	0.1	0.2	0.0	0.0	2	0.2	0.2	0.2	0.0	0.0	C37-C38
Bone	5	0.6	0.5	0.5	0.0	0.0	8	0.9	0.8	0.8	0.0	0.1	C40-C41
Connective tissue	6	0.7	0.6	0.7	0.0	0.0	4	0.5	0.4	0.4	0.0	0.0	C47,C49
Melanoma of skin	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	C43
Other skin	5	0.6	0.5	0.7	0.0	0.1	10	1.1	1.0	1.1	0.1	0.1	C44
Breast	2	0.2	0.2	0.3	0.0	0.0	103	11.7	10.1	10.1	0.8	1.0	C50
Uterus unspecified							12	1.4	1.2	1.2	0.1	0.1	C55
Cervix uteri							114	12.9	11.2	11.3	1.0	1.2	C53
Placenta							0	0.0	0.0	0.0	0.0	0.0	C58
Corpus uteri							19	2.1	1.9	2.1	0.2	0.2	C54
Ovary							45	5.1	4.4	4.7	0.4	0.5	C56
Other female genital							5	0.6	0.5	0.5	0.0	0.0	C51,C52,C57
Prostate	12	1.4	1.2	1.7	0.0	0.1							C61
Testis	1	0.1	0.1	0.1	0.0	0.0							C62
Penis	11	1.3	1.1	1.3	0.1	0.1							C60
Bladder	16	1.8	1.6	2.3	0.1	0.3	0	0.0	0.0	0.0	0.0	0.0	C67
Kidney etc.	6	0.7	0.6	0.8	0.0	0.1	4	0.5	0.4	0.5	0.0	0.0	C64-C66:C68
Eye	1	0.1	0.1	0.1	0.0	0.0	2	0.2	0.2	0.2	0.0	0.0	C69
Brain, nervous system	7	0.8	0.7	0.8	0.1	0.1	6	0.7	0.6	0.6	0.0	0.0	C70-C72
Thyroid	1	0.1	0.1	0.1	0.0	0.0	9	1.0	0.9	0.9	0.1	0.1	C73
Other endocrine	1	0.1	0.1	0.1	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C74-C75
Hodgkin disease	1	0.1	0.1	0.1	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	C81
Non-Hodgkin lymphoma	9	1.0	0.9	1.1	0.1	0.1	7	0.8	0.7	0.7	0.0	0.1	C82-C85,C96
Multiple myeloma	0	0.0	0.0	0.0	0.0	0.0	1	0.1	0.1	0.1	0.0	0.0	C88,C90
Lymphoid leukemia	1	0.1	0.1	0.2	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	C91
Myeloid leukemia	2	0.2	0.2	0.2	0.0	0.0	3	0.3	0.3	0.3	0.0	0.0	C92
Leukemia unspecified	0	0.0	0.0	0.0	0.0	0.0	2	0.2	0.2	0.2	0.0	0.0	C95
Other and unspecified	81	9.3	8.0	10.0	0.7	1.1	79	8.9	7.7	8.1	0.6	0.8	O&U
All sites	874	100.0	86.5	107.7	7.0	12.5	883	100.0	86.6	92.6	6.7	10.4	ALL

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

	Male			Female			ICD-10
	Cases	%MV	%DCO	Cases	%MV	%DCO	
Oral cavity	10	80.0	0.0	43	81.4	0.0	C00-C08
Oropharynx, etc.	0	0.0	0.0	1	100.0	0.0	C09-C10;C14
Nasopharynx	14	92.9	0.0	8	62.5	0.0	C11
Hypopharynx	0	0.0	0.0	1	100.0	0.0	C12-C13
Esophagus	6	50.0	0.0	5	0.0	0.0	C15
Stomach	29	48.3	3.4	10	20.0	0.0	C16
Small intestine	0	0.0	0.0	0	0.0	0.0	C17
Colon and rectum	48	27.1	22.9	45	37.8	20.0	C18-C21
Liver and bile duct	516	16.7	12.8	286	9.8	14.0	C22;C24
Gallbladder	14	35.7	35.7	11	45.5	9.1	C23
Pancreas	6	0.0	0.0	2	0.0	0.0	C25
Nose, sinuses etc.	2	50.0	0.0	1	0.0	0.0	C30-C31
Larynx	5	20.0	20.0	0	0.0	0.0	C32
Bronchus, lung	55	18.2	9.1	34	5.9	14.7	C33-C34
Other thoracic organs	1	0.0	0.0	2	100.0	0.0	C37-C38
Bone	5	40.0	20.0	8	25.0	25.0	C40-C41
Connective tissue	6	0.0	0.0	4	0.0	0.0	C47, C49
Skin and melanoma	5	100.0	0.0	10	70.0	10.0	C43-C44
Breast	2	50.0	0.0	103	75.7	0.0	C50
Cervix uteri				114	77.2	0.9	C53
Corpus uteri				19	89.5	0.0	C54
Uterus unspecified				12	66.7	25.0	C55
Ovary				45	46.7	2.2	C56
Other female genital				5	0.0	0.0	C51,C52,C57
Placenta				0	0.0	0.0	C58
Penis	11	90.9	0.0				C60
Prostate	12	66.7	0.0				C61
Testis	1	100.0	0.0				C62
Kidney etc.	6	100.0	0.0	4	100.0	0.0	C64-C66,C68
Bladder	16	43.8	0.0	0	0.0	0.0	C57
Eye	1	100.0	0.0	2	50.0	0.0	C69
Brain, nervous system	7	28.6	0.0	6	16.7	16.7	C70-C72
Thyroid	1	100.0	0.0	9	55.6	0.0	C73
Other endocrine	1	0.0	0.0	1	0.0	100.0	C74-C75
Hodgkin's disease	1	100.0	0.0	0	0.0	0.0	C81
Non-Hodgkin lymphoma	9	50.0	0.0	7	40.0	0.0	C82-C85,C96
Multiple myeloma	0	0.0	0.0	1	0.0	0.0	C88;C90
Leukemia	3	100.0	0.0	5	20.0	0.0	C91-C95
Other and unspecified	81	17.3	46.9	79	26.6	44.3	O&U
All sites	874	25.3	14.8	883	44.7	11.5	ALL