

APPENDIX

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UDON THANI
CANCER
REGISTRY

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Registration area

The Udon Thani Cancer Registry covers the population of Udon Thani province in the northeastern region of Thailand, covering an area of about 11 943 km.². It locates 564 km. to the northeast of Bangkok. The estimated population at the year 1999 was 1 364 920. About 95% of the population are Buddhists, the remainders are mainly Christians and Moslems.

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 Muang district which is the center of the province. The Udon Thani Provincial Hospital and Prajaksilapakom Military Hospital are the other two large hospitals 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 Khon Kaen University Hospital.

Registry structure and methods

Udonthani Cancer Registry was established in 1999 at the Udon Thani Regional Cancer Center, and is funded by Thai National Cancer Institute. It provides treatment facilities, training and education for health personnel in the upper northeastern part of Thailand. The registry unit has one part time expert consultant (Dr. Hutchu Sriplung), a part time doctor, 2 part time nurses and 2 computer statisticians and 2 full time clerks.

The data for the registry actively collect data on cancer cases from two large hospitals (Udon Thani Provincial Hospital and Prajaksilapakom Military Hospital), one cancer center (Udon Thani Regional Cancer Center) and passively collect cases from community hospitals, private hospital in Udon Thani the province, and also from the Khon Kaen University Hospital 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 form is checked for duplication with computer software developed by a computer statistician of Udon Thani Cancer Registry for Thai names before entering into the database programme, CanReg 4.

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.

Notes on data

Since it is a new registry with high rate of DCO cases. The incidence rates of some topographic sites such as liver cancer may be higher than usual due to accumulation of prevalent cases.

Use of the data

The registry has provided annual reports of cancer incidence by site, gender, and district in Udon Thani for the years 1998-2000. The Udon Thani Provincial Health Office uses the data to develop strategic plan for cancer prevention and control in vicinity of Udon Thani province.

Figure 1 Population pyramid, Udon Thani, 1999

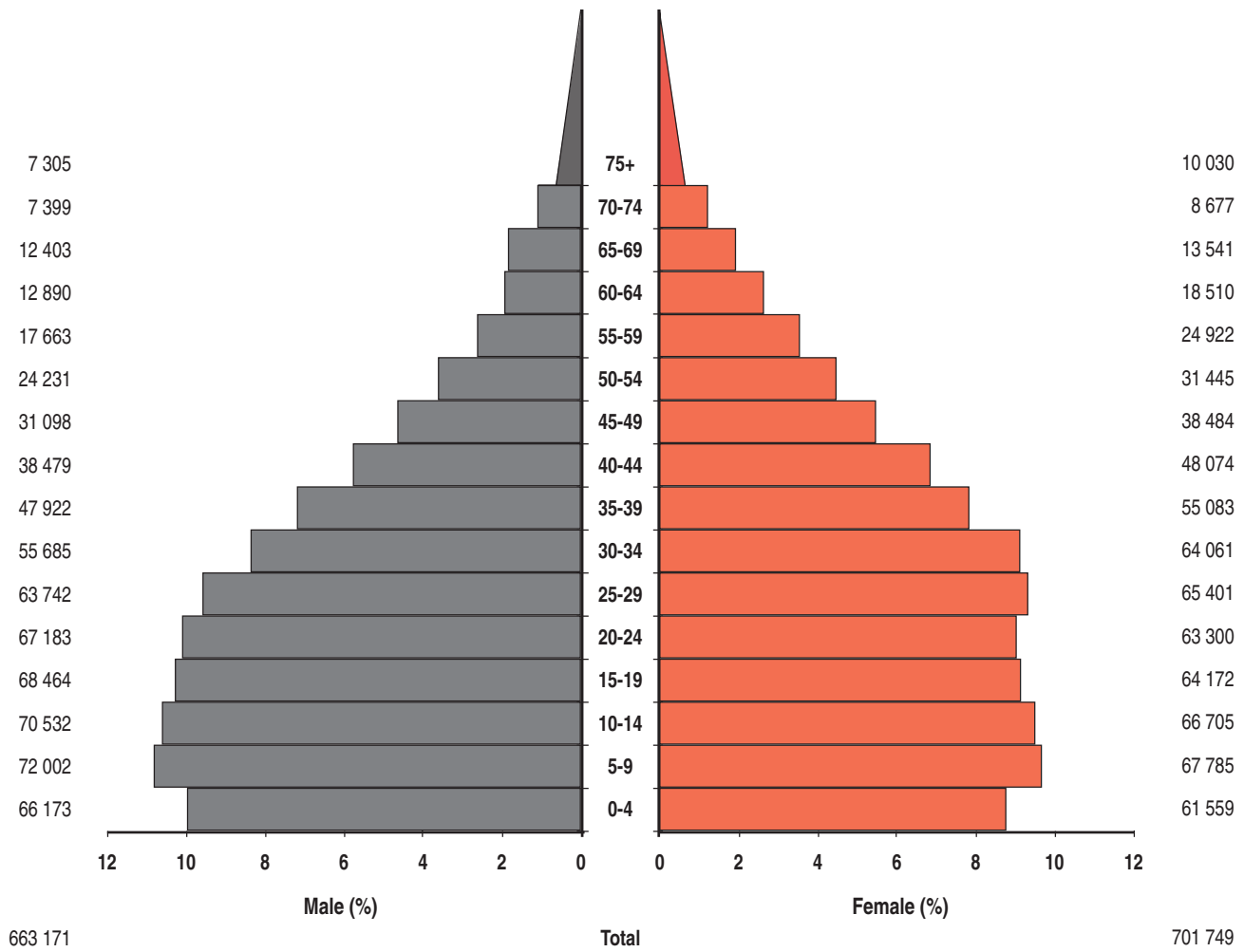


Table 1 Annual incidence, Udon Thani, 1998-2000

	Male						Female						ICD-10
	No.	Freq.	Crude	ASR	Cum. rates		No.	Freq.	Crude	ASR	Cum. rates		
	cases	(%)	rate	world	0-64	0-74	cases	(%)	rate	world	0-64	0-74	
		(per 100,000)	(per 100,000)	(percent)	(percent)			(per 100,000)	(per 100,000)	(percent)	(percent)		
Lip	3	0.1	0.2	0.3	0.01	0.05	22	0.8	1.0	1.4	0.08	0.20	C00
Tongue	8	0.2	0.4	0.6	0.04	0.06	7	0.2	0.3	0.4	0.02	0.05	C01-02
Salivary gland	6	0.2	0.3	0.4	0.02	0.07	5	0.2	0.2	0.3	0.02	0.03	C07-C08
Mouth	18	0.5	0.9	1.5	0.11	0.15	29	1.0	1.4	1.8	0.12	0.24	C03-C06
Oropharynx	6	0.2	0.3	0.4	0.04	0.04	4	0.1	0.2	0.2	0.01	0.03	C09-C10
Nasopharynx	46	1.4	2.3	3.2	0.26	0.37	32	1.1	1.5	1.6	0.14	0.14	C11
Hypopharynx	4	0.1	0.2	0.3	0.01	0.04	3	0.1	0.1	0.1	0.01	0.01	C12-C13
Pharynx unspecified	3	0.1	0.2	0.2	0.00	0.03	3	0.1	0.1	0.1	0.01	0.01	C14
Esophagus	16	0.5	0.8	1.3	0.09	0.17	6	0.2	0.3	0.3	0.01	0.04	C15
Stomach	59	1.8	3.0	4.3	0.27	0.57	40	1.4	1.9	2.2	0.14	0.28	C16
Small intestine	1	0.0	0.1	0.0	0.00	0.00	0	0.0	0.0	0.0	0.00	0.00	C17
Colon	135	4.1	6.8	9.5	0.63	1.18	119	4.2	5.7	6.8	0.40	0.82	C18
Rectum	33	1.0	1.7	2.4	0.15	0.29	29	1.0	1.4	1.7	0.11	0.21	C19-21
Liver and bile duct	1480	45.0	74.4	113.4	8.38	13.99	812	28.8	38.6	49.8	3.37	6.35	C22,C24
Gallbladder	17	0.5	0.9	1.2	0.08	0.14	24	0.9	1.1	1.6	0.08	0.22	C23
Pancreas	11	0.3	0.6	0.7	0.05	0.07	17	0.6	0.8	1.0	0.08	0.11	C25
Nose, sinuses etc.	12	0.4	0.6	0.9	0.06	0.12	8	0.3	0.4	0.5	0.02	0.04	C30-C31
Larynx	28	0.9	1.4	2.3	0.14	0.35	1	0.0	0.0	0.1	0.00	0.00	C32
Bronchus, lung	370	11.2	18.6	26.3	1.90	3.22	149	5.3	7.1	8.3	0.60	0.93	C33-C34
Other thoracic organs	5	0.2	0.3	0.2	0.01	0.01	0	0.0	0.0	0.0	0.00	0.00	C37-C38
Bone	44	1.3	2.2	3.0	0.18	0.32	18	0.6	0.9	1.0	0.06	0.12	C40-C41
Connective tissue	23	0.7	1.2	1.4	0.11	0.15	17	0.6	0.8	0.9	0.08	0.08	C47,C49
Melanoma of skin	4	0.1	0.2	0.3	0.03	0.04	3	0.1	0.1	0.1	0.01	0.01	C43
Other skin	20	0.6	1.0	1.4	0.12	0.17	37	1.3	1.8	2.2	0.13	0.24	C44
Breast	3	0.1	0.2	0.3	0.02	0.02	257	9.1	12.2	13.0	1.09	1.35	C50
Uterus unspecified							37	1.3	1.8	1.8	0.15	0.17	C55
Cervix uteri							374	13.3	17.8	19.5	1.52	2.16	C53
Placenta							2	0.1	0.1	0.1	0.01	0.01	C58
Corpus uteri							36	1.3	1.7	2.0	0.15	0.22	C54
Ovary							89	3.2	4.2	4.5	0.35	0.45	C56
Other female genital							13	0.5	0.6	0.8	0.04	0.10	C51,C52,C57
Prostate	42	1.3	2.1	3.8	0.16	0.48							C61
Testis	10	0.3	0.5	0.6	0.05	0.05							C62
Penis	24	0.7	1.2	1.9	0.14	0.25							C60
Bladder	54	1.6	2.7	4.3	0.21	0.51	20	0.7	1.0	1.4	0.03	0.17	C67
Kidney etc.	17	0.5	0.9	1.3	0.10	0.17	9	0.3	0.4	0.5	0.03	0.07	C64-C66:C68
Eye	2	0.1	0.1	0.1	0.01	0.01	1	0	0.0	0.1	0.01	0.01	C69
Brain, nervous system	62	1.9	3.1	3.8	0.35	0.40	39	1.4	1.9	1.9	0.13	0.17	C70-C72
Thyroid	8	0.2	0.4	0.6	0.05	0.07	39	1.4	1.9	1.8	0.15	0.17	C73
Other endocrine	8	0.2	0.4	0.4	0.02	0.04	4	0.1	0.2	0.2	0.01	0.01	C74-C75
Hodgkin disease	5	0.2	0.3	0.3	0.01	0.02	0	0	0.0	0.0	0.00	0.00	C81
Non-Hodgkin lymphoma	46	1.4	2.3	3.3	0.22	0.35	34	1.2	1.6	1.9	0.14	0.21	C82-C85,C96
Multiple myeloma	6	0.2	0.3	0.5	0.05	0.06	8	0.3	0.4	0.5	0.04	0.07	C88,C90
Lymphoid leukemia	17	0.5	0.9	1.0	0.06	0.09	10	0.4	0.5	0.5	0.03	0.03	C91
Myeloid leukemia	27	0.8	1.4	1.5	0.08	0.15	24	0.9	1.1	1.3	0.07	0.15	C92
Leukemia unspecified	49	1.5	2.5	2.9	0.17	0.23	29	1	1.4	1.5	0.11	0.13	C95
Other and unspecified	560	17.0	28.1	39.9	3.04	4.69	405	14.4	19.2	22.8	1.77	2.68	O&U
All sites	3292	100.0	165.5	242.0	17.44	29.16	2815	100.0	133.7	158.4	11.33	18.49	ALL

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

	Male			Female			ICD-10
	Cases	%MV	%DCO	Cases	%MV	%DCO	
Oral cavity	35	68.6	5.7	63	82.5	1.6	C00-C08
Oropharynx, etc.	9	55.6	22.2	7	28.6	42.9	C09-C10;C14
Nasopharynx	46	87.0	0.0	32	75.0	0.0	C11
Hypopharynx	4	50.0	25.0	3	33.3	33.3	C12-C13
Esophagus	16	43.8	0.0	6	33.3	16.7	C15
Stomach	59	32.2	20.3	40	57.5	22.5	C16
Small intestine	1	100.0	0.0	0	0.0	0.0	C17
Colon and rectum	168	27.4	41.1	148	36.5	32.4	C18-C21
Liver and bile duct	1480	4.3	33.8	812	5.0	29.3	C22;C24
Gallbladder	17	23.5	47.1	24	28.2	29.2	C23
Pancreas	11	18.2	9.1	17	29.4	5.9	C25
Nose, sinuses etc.	12	75.0	8.3	8	87.5	0.0	C30-C31
Larynx	28	67.9	3.6	1	100.0	0.0	C32
Bronchus, lung	370	21.1	42.7	149	14.1	53.0	C33-C34
Other thoracic organs	5	20.0	0.0	0	0.0	0.0	C37-C38
Bone	44	15.9	56.8	18	27.8	66.7	C40-C41
Connective tissue	23	100.0	0.0	17	82.4	0.0	C47,C49
Skin and melanoma	24	100.0	0.0	40	80.0	5.0	C43-C44
Breast	3	66.7	0.0	257	75.9	1.6	C50
Cervix uteri				374	77.8	4.0	C53
Corpus uteri				36	80.6	0.0	C54
Uterus unspecified				37	13.5	83.8	C55
Ovary				89	69.7	1.1	C56
Other female genital				13	0.0	0.0	C51,C52,C57
Placenta				2	0.0	0.0	C58
Penis	24	79.2	0.0				C60
Prostate	42	57.1	2.4				C61
Testis	10	90.0	0.0				C62
Kidney etc.	17	64.7	0.0	20	50.0	5.0	C64-C66,C68
Bladder	54	72.2	0.0	20	50.0	5.0	C67
Eye	2	50.0	0.0	1	100.0	0.0	C69
Brain, nervous system	62	33.9	43.5	39	28.2	46.2	C70-C72
Thyroid	8	75.0	12.5	39	82.1	0.0	C73
Other endocrine	8	62.5	0.0	4	50.0	0.0	C74-C75
Hodgkin disease	5	80.0	0.0	0	0.0	0.0	C81
Non-Hodgkin lymphoma	46	64.5	0.0	34	70.4	0.0	C82-C85,C96
Multiple myeloma	6	83.3	0.0	8	100.0	0.0	C88;C90
Leukemia	93	80.6	18.3	63	73.4	23.4	C91-C95
Other and unspecified	560	16.0	63.9	405	14.9	64.3	O&U
All sites	3292	22.4	36.3	2815	38.9	26.9	ALL