

2001 Annual Report of the Korea Central Cancer Registry: Based on Registered Data from 134 Hospitals

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Purpose: To estimate the number of cancer cases during 2001, in Korea, through a nationwide hospital based cancer registration by the Korea Central Cancer Registry (KCCR).

Materials and Methods: One hundred and thirty four hospitals participated in the KCCR program in 2001. Cancer cases were coded and classified according to the International Classification of Diseases for Oncology 2nd edition (ICD-O-2). The software program "IARC Check" was used to evaluate the quality of the registered cancer cases. Of the 111,816 malignancies registered, 10,106 (9.0%) duplicated malignancies were excluded. Among the remaining 95,542 malignancies, 3,598 (3.8%) cases with carcinoma in situ (Morphology code/2) were separated. Finally, 91,944 malignancies were analyzed.

Results: Of the total 91,944 malignancies, 51,753 (56.3%) cases were males and 40,191 (43.7%) were females.

More than one third of cases were from the elderly (65 years old and more). The six leading primary cancer sites, in the order of their relative frequency, were stomach (24.1%), followed by the lung (16.0%), the liver (16.0%), the colorectum (10.5%), the bladder (3.4%), and the prostate (2.8%) among males. In females, the breast (16.1%) was the common cancer site, followed by the stomach (15.3%), the colorectum (10.5%), the cervix uteri (10.1%), the thyroid gland (8.3%) and the lung (6.6%).

Conclusion: With the continued increase in cancer cases, the total number of registered cancer cases in Korea continues to rapidly increase. (*Cancer Research and Treatment 2004;36:19-30*)

Key Words: Cancer registry, Annual report

INTRODUCTION

The Korea Central Cancer Registry (KCCR) was started as an ambitious project of the Ministry of Health and Welfare in 1980 (1). In the beginning, 47 nationwide resident-training general hospitals participated in this program. The number of participating hospitals and registered malignancies increased year by year, and 134 hospitals submitted their data diskettes in 2001.

In 1996, the International Classification of Diseases for Oncology 2nd edition (ICD-O-2) was translated into Korean and distributed to all the participating hospitals. Topography and Morphology codes of the ICD-O-2 have been used since the 16th annual report of the KCCR.

The aim of this paper is to provide a summary of the 22nd annual report of the KCCR, which was published in February 2003 (1). It contains the relative frequencies of various cancers in the Republic of Korea, derived from the nationwide database of the hospital-based cancer registry program from January 1,

to December 31, 2001.

MATERIALS AND METHODS

One hundred and thirty four hospitals participated in the KCCR in 2001. All cancer registry data, submitted from the participating hospitals on diskettes during the year, were reviewed and sorted by qualified cancer registrars in the National cancer Center. After correction of erroneous coding of topography and morphology, cancer cases were classified according to the ICD-O-2. To avoid duplication, the computer compared the personal identification number of all subjects. The software program "IARC Check" which was freely distributed by International Association of Cancer Registry (IACR), was used to evaluate the quality of registered cancer cases. The pathologists working at the hospitals where the cases were diagnosed, reviewed the cases with errors shown from "IARC Check" program. Much emphasis was placed on the basis of diagnosis during this selection procedure. Cases diagnosed by histological examination were preferentially chosen.

Of 111,816 malignancies registered, 10,106 (9.0%) duplicated malignancies were excluded. Among the remaining 95,542 malignancies, 3,598 (3.8%) cases with carcinoma in situ (Morphology code/2) were separated. Finally, 91,944 malignancies were analyzed.

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This study was supported by The National Cancer Center Grant 0110010.

RESULTS

1) Marginal frequency of malignant neoplasm and carcinoma in situ by age, sex, and topography

Of the total 91,944 registered malignancies 51,753 (56.3%) cases were males and 40,191 (43.7%) were females. The proportion of cancer cases among children (age 0~14) and among the elderly (65 and more) were 1.1 and 34.4%, respectively (Table 1).

The most common 10 primary sites among males were stomach (24.1%), lung (16.0%), liver (16.0%), colorectum (10.5%), bladder (3.4%), prostate (2.8%), esophagus (2.7%), hematopoietic & reticuloendothelial systems (2.7%), pancreas (2.3%), and kidney (2.0%). Among females, they were the breast (16.1%), stomach (15.3%), colorectum (10.5%), cervix uteri (10.1%), thyroid (8.3%), lung (6.6%), liver (6.5%), ovary (3.8%), hematopoietic & reticuloendothelial systems (2.7%), and pancreas (2.1%) (Fig. 1).

The most common cancer among children (0~14 years old) was in the hematopoietic & reticuloendothelial systems, with 36.3% of boys and 34.1% of girls. For the age group 15~34, stomach cancer was the most common cancer among males (17.9%) and thyroid cancer among females (22.5%). For the males in the older age groups, the stomach was leading site

of cancer, at 26.1% and 22.6% among 35~64 year olds and those 65 and over, respectively. However, among the females aged 35~64, breast cancer was the most common cancer (22.1%), with stomach cancer being the most common among those 65 and over (20.1%) (Table 2).

Table 3 shows the number of carcinoma in situ cases by gender. 41.6% of registered uterine cervix cases were carcinomas in situ. However, only 6.8% of registered female breast cancer cases were diagnosed as carcinomas in situ.

2) Distribution of the six major cancers by topographic and morphologic type

Table 4 shows the primary sites and morphologic types of the six major cancers by gender.

More than one third of stomach cancer (C16) occurred in the antrum part of the stomach (34.1% in males and 32.7% in females, respectively), and half of these were adenocarcinomas (52.4% in males and 49.0% in females). For bronchus and lung cancers (C34), the major primary site was the upper lobe (31.6% in males and 26.3% in females), with squamous cell carcinomas (39.4%) the major morphologic type in males, but adenocarcinomas (40.0%) in females. In males, hepatocellular carcinomas accounted for 76.2% of the liver and intrahepatic bile ducts cancers (C22); however, in females this was 63.7%. For breast cancer, 35.6% of female breast cancer (C50) occurred in the upper outer part of the breast, with 82.6% being

Table 1. Frequency of new cancer cases by gender and age in 2001, Korea

Age group	Male		Female		Total	
	N	%	N	%	N	%
0	75	0.1	53	0.1	128	0.1
1~4	237	0.5	172	0.4	409	0.4
5~9	189	0.4	123	0.3	312	0.3
10~14	160	0.3	127	0.3	287	0.3
15~19	256	0.5	246	0.6	502	0.5
20~24	298	0.6	468	1.2	766	0.8
25~29	500	1.0	977	2.4	1,477	1.6
30~34	869	1.7	1,778	4.4	2,647	2.9
35~39	1,546	3.0	2,801	7.0	4,347	4.7
40~44	2,825	5.5	4,151	10.3	6,976	7.6
45~49	3,962	7.7	4,207	10.5	8,169	8.9
50~54	5,233	10.1	3,954	9.8	9,187	10.0
55~59	7,101	13.7	4,263	10.6	11,364	12.4
60~64	9,071	17.5	4,696	11.7	13,767	15.0
65~69	8,167	15.8	4,521	11.2	12,688	13.8
70~74	5,774	11.2	3,663	9.1	9,437	10.3
75~79	3,583	6.9	2,453	6.1	6,036	6.6
80~84	1,438	2.8	1,044	2.6	2,482	2.7
85+	469	0.9	494	1.2	963	1.0
All	51,753	100.0	40,191	100.0	91,944	100.0

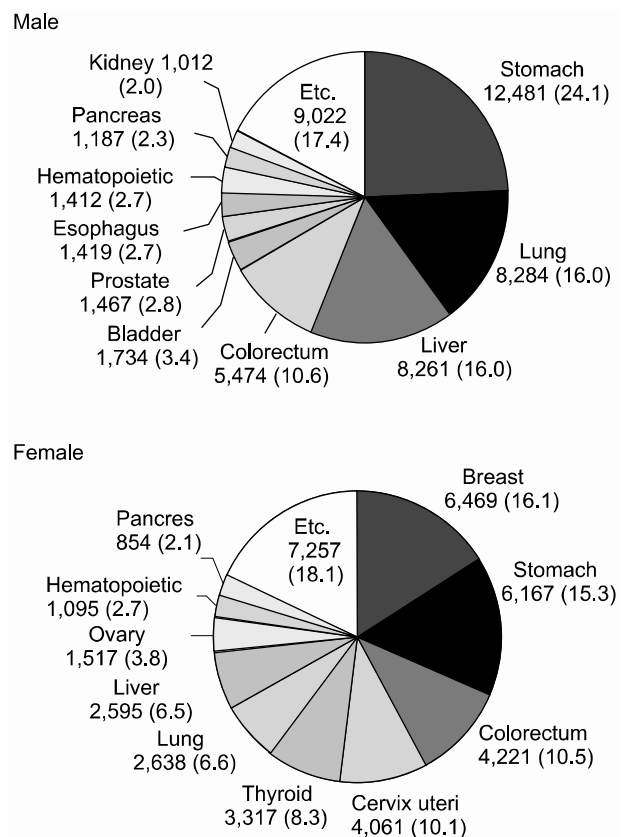


Fig. 1. New cancer cases and proportion of cancer cases by major primary site and gender.

Table 2. Frequency of major cancer cases by gender and age in 2001, Korea

Age group	Rank	Male		Female	
		Site	N (%)	Site	N (%)
0~14	1	Hematopoietic	240 (36.3)	Hematopoietic	162 (34.1)
	2	Brain	105 (15.9)	Brain	78 (16.4)
	3	Adrenal gland	42 (6.4)	Adrenal gland	25 (5.3)
	4	Bone and Joints and articular cartilage of limbs	30 (4.5)	Ovary	24 (5.1)
	5	Testis	29 (4.4)	Bone and Joints and articular cartilage of limbs	21 (4.4)
	6	Lymph nodes	29 (4.4)	Eye and adnexa	21 (4.4)
	7	Connective, subcutaneous and other soft tissues	28 (4.2)	Thyroid gland	19 (4.0)
	8	Eye and adnexa	27 (4.1)	Kidney	18 (3.8)
	9	Kidney	24 (3.6)	Connective, subcutaneous and other soft tissues	16 (3.4)
	10	Liver and intrahepatic bile ducts	16 (2.4)	Lymph nodes	16 (3.4)
	etc		91 (13.8)		75 (15.8)
	Subtotal		675		731
15~34	1	Stomach	344 (17.9)	Thyroid gland	780 (22.5)
	2	Hematopoietic	266 (13.8)	Breast	611 (17.6)
	3	Liver and intrahepatic bile ducts	154 (8.0)	Stomach	375 (10.8)
	4	Colorectum	132 (6.9)	Cervix uteri	342 (9.9)
	5	Brain	130 (6.8)	Ovary	309 (8.9)
	6	Lymph nodes	123 (6.4)	Hematopoietic	203 (5.9)
	7	Thyroid gland	112 (5.8)	Colorectum	125 (3.6)
	8	Testis	68 (3.5)	Brain	87 (2.5)
	9	Bone and Joints and articular cartilage of limbs	63 (3.3)	Lymph nodes	66 (1.9)
	10	Bronchus and lung	56 (2.9)	Corpus uteri	53 (1.5)
	etc		475 (24.7)		518 (14.9)
	Subtotal		1,836		3,521
35~64	1	Stomach	7,747 (26.1)	Breast	5,311 (22.1)
	2	Liver and intrahepatic bile ducts	6,073 (20.4)	Stomach	3,346 (13.9)
	3	Bronchus and lung	3,839 (12.9)	Cervix uteri	2,987 (12.4)
	4	Colorectum	3,265 (11.0)	Colorectum	2,188 (9.1)
	5	Bladder	844 (2.8)	Thyroid gland	2,161 (9.0)
	6	Esophagus	762 (2.6)	Liver and intrahepatic bile ducts	1,450 (6.0)
	7	Kidney	697 (2.3)	Bronchus and lung	1,214 (5.0)
	8	Pancreas	656 (2.2)	Ovary	939 (3.9)
	9	Hematopoietic	622 (2.1)	Corpus uteri	565 (2.4)
	10	Larynx	538 (1.8)	Hematopoietic	461 (1.9)
	etc		4,695 (15.8)		3,450 (14.3)
	Subtotal		30,752		25,994

Table 2. Continued

Age group	Rank	Male		Female	
		Site	N (%)	Site	N (%)
65+	1	Stomach	4,388 (22.6)	Stomach	2,442 (20.1)
	2	Bronchus and lung	4,385 (22.6)	Colorectum	1,903 (15.6)
	3	Colorectum	2,074 (10.7)	Bronchus and lung	1,372 (11.3)
	4	Liver and intrahepatic bile ducts	2,018 (10.4)	Liver and intrahepatic bile ducts	1,095 (9.0)
	5	Prostate gland	1,079 (5.6)	Cervix uteri	731 (6.0)
	6	Bladder	857 (4.4)	Breast	547 (4.5)
	7	Esophagus	657 (3.4)	Pancreas	510 (4.2)
	8	Pancreas	517 (2.7)	Thyroid gland	357 (2.9)
	9	Other and unspecified parts of biliary tract	436 (2.2)	Gallbladder	339 (2.8)
	10	Larynx	382 (2.0)	Other and unspecified parts of biliary tract	323 (2.7)
etc		2,638 (13.6)		2,556 (21.0)	
Subtotal			22,135		13,599

Table 3. Frequency of primary in-situ cases in 2001, Korea

Rank	Male				Female	
	Primary site	Malignant	in-situ (n=122)	Primary site	Malignant	in-situ (n=3,476)
		N (%)	N (%)		N (%)	N (%)
1	Skin	648 (96.9)	33 (1.8)	Cervix	4,061 (58.4)	2,898 (41.6)
2	Bladder	1,734 (99.2)	29 (3.1)	Breast	6,469 (93.2)	473 (6.8)
3	Colon	2,657 (99.5)	25 (3.7)	Skin	613 (95.8)	27 (4.2)
4	Stomach	12,481 (99.9)	24 (0.8)	Colon	2,139 (99.4)	12 (0.6)
5	Larynx	923 (98.9)	20 (0.2)	Vagina	49 (80.3)	12 (19.7)
etc.		33,310 (99.9)	64 (0.2)		26,860 (99.8)	54 (0.2)

infiltrating duct carcinomas. The most common site of colon cancer (C18) was the sigmoid colon (39.8% in males and 35.7% in females, respectively) and the most frequent morphologic type was adenocarcinomas (60.0% in males and 60.1% in females). Only 11.2% of male and 11.1% of female rectal cancers occurred in the rectosigmoid junction. As with other cancers, adenocarcinomas were the major morphologic type of rectal cancer (62.5% in males and 60.6% in females).

Appendix 2 shows the distribution of cancer cases by ICD-10 for easy comparison of the cancer death statistics.

DISCUSSION

Information on the incidence and mortality of cancers, and their changing trends, is an essential component in the planning and monitoring of programs for cancer prevention, early detection and treatment (2).

The Korea Central Cancer Registry (KCCR) was started as an ambitious project of the Ministry of Health and Welfare

Table 4. Frequency of topography and morphology in major cancer sites

Topography	Male		Female				
	Cases (%)	Morphology	Cases (%)	Topography	Cases (%)	Morphology	Cases (%)
Stomach (C16)							
Gastric antrum	4,258 (34.1)	Adenocarcinoma	6,539 (52.4)	Gastric antrum	2,015 (32.7)	Adenocarcinoma	3,020 (49.0)
Body	2,900 (23.2)	Tubular adeno ca.	3,041 (24.4)	Body	1,623 (26.3)	Signet ring cell ca.	1,315 (21.3)
Overlapping lesion	1,698 (13.6)	Signet ring cell ca.	1,599 (12.8)	Overlapping lesion	838 (13.6)	Tubular adeno ca.	1,079 (17.5)
Cardia, NOS	483 (3.9)	Mucinous adeno ca.	187 (1.5)	Cardia, NOS	170 (2.8)	Mucinous adeno ca.	98 (1.6)
Lesser curvature	394 (3.2)	Papillary adeno ca.	95 (0.8)	Lesser curvature	164 (2.7)	Leiomyosarcoma	73 (1.2)
	2,748 (22.0)		1,020 (8.2)		1,357 (22.0)		582 (9.4)
Bronchus and lung (C34)							
Upper lobe	2,617 (31.6)	Squamous cell ca.	3,266 (39.4)	Upper lobe	693 (26.3)	Adenocarcinoma	1,056 (40.0)
Lower lobe	1,773 (21.4)	Adenocarcinoma	1,838 (22.2)	Lower lobe	592 (22.4)	Squamous cell ca.	349 (13.2)
Main bronchus	375 (4.5)	Small cell ca.	1,201 (14.5)	Middle lobe	137 (5.2)	Small cell ca.	245 (9.3)
Middle lobe	312 (3.8)	Bronchiolo-alveolar adeno ca.	68 (0.8)	Main bronchus	73 (2.8)	Bronchiolo-alveolar adeno ca.	104 (3.9)
Overlapping lesion	241 (2.9)	Carcinoid tumor	59 (0.7)	Overlapping lesion	71 (2.7)	Acinar cell ca.	41 (1.6)
Lung, NOS	2,966 (35.8)		1,852 (22.4)	Lung, NOS	1,072 (40.6)		843 (32.0)
Liver and intrahepatic bile ducts (C22)							
Liver	7,062 (85.5)	Hepatocellular ca.	6,293 (76.2)	Liver	1,905 (73.4)	Hepatocellular ca.	1,654 (63.7)
Intrahepatic bile duct	1,199 (14.5)	Cholangiocarcinoma	418 (5.1)	Intrahepatic bile duct	690 (26.6)	Cholangiocarcinoma	213 (8.2)
		Adenocarcinoma	173 (2.1)			Adenocarcinoma	92 (3.5)
		Combined hepatocellular ca and cholangio ca.	27 (0.3)			Hepatoblastoma	10 (0.4)
		Tubular adeno ca./ Hepatoblastoma	10 (0.1)			Combined hepatocellular ca and cholangio ca./ Tubular adeno ca.	8 (0.3)
			1,330 (16.1)				610 (23.5)

Table 4. Continued

		Male		Female			
Topography	Cases (%)	Morphology	Cases (%)	Topography	Cases (%)	Morphology	Cases (%)
Breast (C50)							
				Upper outer	2,300 (35.6)	Infiltrating duct ca.	5,346 (82.6)
				Overlapping lesion	839 (13.0)	Lobular ca.	221 (3.4)
				Upper inner	752 (11.6)	Mucinous adeno ca.	144 (2.2)
				Lower outer	371 (5.7)	Medullary ca.	116 (1.8)
				Central portion	329 (5.1)	Papillary ca.	80 (1.2)
					1,878 (29.0)		562 (8.7)
Rectum (C19-C20)							
Rectum, NOS	2,501 (88.8)	Adenocarcinoma	1,762 (62.5)	Rectum, NOS	1,850 (88.9)	Adenocarcinoma	1,261 (60.6)
Rectosigmoid junction	316 (11.2)	Tubular adeno ca.	677 (24.0)	Rectosigmoid junction	232 (11.1)	Tubular adeno ca.	478 (23.0)
		Mucinous adeno ca.	73 (2.6)			Mucinous adeno ca.	66 (3.2)
		Carcinoid tumor	48 (1.7)			Papillary adeno ca.	48 (2.3)
		Papillary adeno ca.	48 (1.7)			Carcinoid tumor	28 (1.3)
			209 (7.4)				201 (9.7)
Colon (C18)							
Sigmoid colon	1,057 (60.0)	Adenocarcinoma	1,593 (35.7)	Sigmoid colon	763 (39.8)	Adenocarcinoma	1,286 (60.1)
Ascending colon	494 (18.6)	Tubular adeno ca.	559 (21.0)	Ascending colon	517 (24.2)	Tubular adeno ca.	431 (20.1)
Transverse colon	206 (7.8)	Mucinous adeno ca	163 (6.1)	Transverse colon	162 (7.6)	Mucinous adeno ca.	149 (7.0)
Descending colon	152 (5.7)	Papillary adeno ca.	67 (2.5)	Cecum	136 (6.4)	Papillary adeno ca.	40 (1.9)
Cecum	126 (4.7)	Malig. Lymphoma, large cell, diffuse	26 (1.0)	Descending colon	101 (4.7)	Malig. Lymphoma, large cell, diffuse	15 (0.7)
	622 (23.4)		249 (9.4)		460 (21.5)		218 (10.2)

in 1980. In the beginning, 47 nationwide resident-training general hospitals participated in this program. The number of participating hospitals and registered malignancies has increased year-by-year, with 134 hospitals submitting their data diskettes in 2001 (1). The number of cancer cases in the KCCR for 2000 was assumed to be more than 90% precise for cancer cases, with the comparison of the estimated cancer incidence cases (3), using national mortality data, and the incidence data from four frontier regional cancer registries, including Kangwha, Seoul, Busan and Daegu, in the Cancer Incidence in Five Continents (4).

The KCCR database is especially useful for showing the trend of cancer occurrence in Korea, as information on the changing trend of cancer incidence over time is an essential component in the planning and monitoring of programs for cancer prevention, early detection and treatment. Major cancers, including stomach, lung, liver, breast and colorectum, but with the exception of uterine cervix cancer, were increasing (data not shown). For uterine cervix cancer, the proportion of carcinoma in-situ cases increased among the registered cases, meaning significant uterine cervix cancers were detected at an early stage.

Currently, KCCR, being a nationwide hospital-based cancer registry, is supporting technically and financially 9 population-based regional registries; Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon, Ulsan, Jeju-do and Goyang-si in 2003.

The KCCR database continues to hold the most important position until a nationwide, population-based data acquisition program can be constructed on the basis of international standards.

One area for caution in the interpretation of the KCCR data

is that the numbers outlined in this report do not represent persons, but cases that have been reported. The patients who had cancers at several sites have been treated as multiple primary patients, and have been reported according to the cancer site.

ACKNOWLEDGEMENTS

We would like to sincerely thank the participation of the medical record administrators in the KCCR-affiliated hospitals [Appendix 1] who enthusiastically participated in the KCCR by registering new cancer cases. We would also like to thank Ji-Young Kim, M.R.A., Su-Jin Kim, M.S., Hye-Jin Kim, M.R.A., Kwang-Suk Park, M.R.A., and Ji-Young Oh, M.R.A. for their devoted efforts to mining and clearing the KCCR data set.

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Appendix 1. List of the Hospitals participating in the 2001 KCCR program

Ajou University Hospital
Andong General Hospital
Andong Presbyterian Hospital
Ansan Hando General Hospital
Asan Medical Center
Bag Ae Hospital
Benedict Hospital
Bupyeong Serim Hospital
Busan Veterans Hospital
Carollo Hospital
Catholic GEN Hospital
Changwon Fatima Hospital
Changwon General Hospital
ChonBuk National University Hospital
Chongju St. Mary's Hospital
Chonnam University Hospital
Choon Hae Hospital
Chosun University Hospital
Chung-Ang University Hospital
ChungAng University Medical Center
Chungbuk National University Hospital
Chungnam National University Hospital
College of Medicine, Pochon CHA university CHA General Hospital
Dae Dong hospital
Dae Jeon Veterans Hospital
Dae Rim St. Mary's Hospital
Daegu Medical Center
Daewoo Hospital
DanKook University Hospital
Dong Kang General Hospital
Dong Rae Bong Seng Hospital
Dong-A University Hospital
Donggeui Medical Center
Dongguk University Kyong Ju Hospital
Dong-In Hospital
Dong-Kuk University Po-Hang Hospital
Dongsan Medical Center
Ewha Womans University Mokdong Hospital
Ewha Womans University Tongdaemun Hospital
Gachon Medical School Gil Medical Center
Gangneung Asan Hospital
Gangneung Medical Center
Gyeongsang University Hospital
Hae Dong Hospital
Halla General hospital
Hallym Sacred Heart Hospital

Appendix 1. Continued

Hallym University Hang Gang Sacred Heart Hospital
 Hallym University Medical Center ChunCheon Sacred Heart Hospital
 Hangdong University Sunlin Presbyterian Hospital
 Hanil Hospital
 Hanyang University Hospital
 Hanyang University Kuri Hospital
 Holy Hamily Hospital
 Il Sin Christian Hospital
 In Je University, Pusan Paik hospital
 Incheon Christian Hospital
 Inha University Hospital
 Inha University Medical Center Inha Hospital
 Inje Univ. Ilsan Paik Hospital
 Inje University Sanggye Paik Hospital
 Inje University, Seoul Paik Hospital
 kang Dong Sacred Heart Hospital
 Kangbuk Samsung Hospital
 kangnam General Hospital Public Corporation
 KangNam Sacred Heart Hospital Hallym University
 Keimyung University Medical Center
 Kon Kuk University Medical Center Seoul Hospital
 Konyang University Hospital
 Korea Cancer Center Hospital
 Korea University Ansan Hospital
 Korea University College of Medicine, Guro Hospital
 Korea University Hospital
 Korea Veterans Hospital
 Kosin University Gospel Hospital
 Kwak's Hospital
 Kwang Ju Christian Hospital
 Kwang Ju Veterans Hospital
 Kwang Myung Sung Ae General Hospital
 Kwanghye General Hospital
 Kyung Hee Medical Center
 Kyungpook National University Hospital
 Local Public Corp. Inchun Medical Center
 Local Public Corporation Chung Cheong Nam-do Hong Sung Medical Center
 Maryknoll General Hospital
 Masan Samsung Hospital
 Mokpo Catholic Hospital
 Moonhwa Hospital
 Nam Kwang Hospital
 National Cancer Center
 National Health Insurance Corporation Ilsan Hospital
 National Medical Center
 National Police Hospital
 Pochon Cha Univ. Kumicha medical center
 Pohang St. Mary's Hospital

Appendix 1. Continued

Presbyterian Medical Center
Pundang Je-Saeng Hospital
Pusan Adventist Hospital
Pusan Medical Center
Pusan National University Hospital
Samsun Hospital
Samsung Medical center
Sansung Cheil Hospital & Women's Health Care Center
Sejong General Hospital
Seo San Medical Center
Seoul Adventist Hospital
Seoul Municipal Boramae Hospital
Seoul National University Hospital
Seoul Red Cross Hospital
Severance Hospital Yonsei University Medical College
Shin Chun Hospital
Soonchunhyang GuMi Hospital
Soonchunhyang University Cheonan Hospital
Soonchunyang Univ. Hospital
St. Mary's hospital, The Catholic University of Korea
St. Francisco General Hospital
St. Paul's Hospital
Sun General Hospital
Sung Ae Hospital
Taeback Choongang General Hospital
Taegu Catholic University Hospital
Taegu Fatima Hospital
The Catholic University of Korea Kangnam St. Mary's Hospital
The Catholic University of Korea Taejon St. Mary's Hospital
The Catholic University of Korea, Our Lady of mercy Hospital
The Catholic University of Korea, St. Vincent's Hospital
Uijongbu St. Mary's Hospital The Catholic University of Korea
Ulsan University Hospital
Wallace Memorial Baptist Hospital
WonJu Christian Hospital, Won Ju Cloegee of Medicine, Yonsei University
WonKwang University Hospital
Yeungnam University Medical Center
Yeungnam University Youngchun Hospital
Yonsei Medical center, Yong-Dong Severance Hospital
Young Dong Hospital

Appendix 2. Marginal frequency of malignant cases by sexgender and ICD-10 grouping in 2001

Site (code)	Male		Female	
	n	%	n	%
Lip (C00)	17	0.0	11	0.0
Tongue (C01~02)	209	0.4	79	0.2
Mouth (C03~06)	242	0.5	99	0.2
Salivary glands (C07~08)	136	0.3	107	0.3
Tonsil (C09)	109	0.2	15	0.0
Other oropharynx (C10)	46	0.1	6	0.0
Nasopharynx (C11)	218	0.4	81	0.2
Hypopharynx (C12~13)	239	0.5	14	0.0
Pharynx unspecified (C14)	27	0.1	3	0.0
Oesophagus (C15)	1416	2.7	120	0.3
Stomach (C16)	12,356	23.9	6,050	15.1
Small intestine (C17)	204	0.4	140	0.3
Colon (C18)	2,620	5.1	2,112	5.3
Rectum (C19~20)	2,814	5.4	2,073	5.2
Anus (C21)	59	0.1	62	0.2
Liver (C22)	8,259	16.0	2,596	6.5
Gallbladder etc.(C23~24)	1,361	2.6	1,241	3.1
Pancreas (C25)	1,187	2.3	854	2.1
Nose, sinuses etc.(C30~31)	148	0.3	81	0.2
Larynx (C32)	920	1.8	71	0.2
TrecheaTrachea, bronchus and lung (C33~34)	8,292	16.0	2,632	6.5
Other thoracic organs (C37~38)	157	0.3	89	0.2
Bone (C40~41)	218	0.4	191	0.5
Melanoma of skin (C43)	112	0.2	111	0.3
Other skin (C44)	509	1.0	493	1.2
Mesothelioma (C45)	27	0.1	11	0.0
Kaposi sarcoma (C46)	7	0.0	6	0.0
Connective and soft tissue (C47~49)	294	0.6	251	0.6
Breast (C50)	36	0.1	6,459	16.1
Vulva (C51)	-	-	67	0.2
Vagina (C52)	-	-	48	0.1
Cervix uteri (C53)	-	-	4,054	10.1
Corpus uteri (C54)	-	-	739	1.8
Uterus unspecified (C55)	-	-	61	0.2
Ovary (C56)	-	-	1,520	3.8
Other female genital organs (C57)	-	-	34	0.1
Placenta (C58)	0	0.0	69	0.2
Penis (C60)	44	0.1	-	-
Prostate (C61)	1,466	2.8	-	-
Testis (C62)	133	0.3	-	-
Other male genital organs (C63)	28	0.1	-	-
Kidney (C64)	1,011	2.0	465	1.2
Renal pelvis (C65)	128	0.2	29	0.1
Ureter (C66)	117	0.2	62	0.2
Bladder (C67)	1,730	3.3	415	1.0

Appendix 2. Continued

Site (code)	Male		Female	
	n	%	n	%
Other urinary organs (C68)	21	0.0	24	0.1
Eye (C69)	51	0.1	40	0.1
Brain, nervous system (C70~72)	609	1.2	489	1.2
Thyroid (C73)	551	1.1	3,305	8.2
Adrenal gland (C74)	71	0.1	48	0.1
Other endocrine (C75)	46	0.1	20	0.0
Hodgkin disease (C81)	92	0.2	42	0.1
Non-Hodgkin lymphoma (C82~85, C96)	1,185	2.3	793	2.0
Immunoproliferative diseases (C88)	9	0.0	0	0.0
Multiple myeloma (C90)	267	0.5	202	0.5
Lymphoid leukaemia (C91)	290	0.6	194	0.5
Myeloid leukaemia (C92~94)	645	1.2	555	1.4
Leukaemia unspecified (C95)	39	0.1	39	0.1
Other and unspecified (C26, C39, C48, C76, C80, C97)	981	1.9	819	2.0