

(Table-1) Transition of the number of new-onset patients by site

ICD /year	2013	2014	2015	2016	2017	2018	2019	2020	ratio%
(C00-C14) lip, oral cavity and pharynx									
number	17,506	17,994	18,483	18,972	19,462	19,953	20,444	20,936	1.99
index	100	102.79	105.58	108.37	111.17	113.98	116.78	119.59	
(C15-C26) digestive organs									
number	393,147	395,377	397,606	399,835	402,062	404,292	406,521	408,750	1.03
index	100	100.57	101.13	101.70	102.27	102.84	103.41	103.98	
(C30-C39) respiratory and intrathoracic organs									
number	119,510	122,352	125,192	128,035	130,877	133,719	136,561	139,403	1.60
index	100	102.38	104.75	107.13	109.51	111.89	114.27	116.64	
(C40-C41) bone and articular cartilage									
number	868	834	800	766	732	698	661	625	0.10
index	100	96.08	92.18	88.24	84.31	80.38	76.15	72.00	
(C43-C44) connective and soft tissue									
number	2,628	2,759	2,867	2,975	3,083	3,191	3,300	3,408	0.41
index	100	105.02	109.10	113.18	117.26	121.34	125.42	129.50	
(C45-C49) skin and subcutaneous tissue									
number	7,500	7,800	8,080	8,356	8,632	8,909	9,187	9,465	0.86
index	100	103.65	107.32	110.98	114.65	118.33	122.02	125.71	
(C50) breast									
(C51-C58) female genital organs									
number	54,147	55,148	56,148	57,150	58,152	59,155	60,157	61,163	6.16
index	100	101.85	103.70	105.55	107.40	109.25	111.10	112.96	
(C60-C63) male genital organs									
number	76,485	80,088	83,693	87,296	90,900	94,503	98,107	101,710	8.70
index	100	104.71	109.42	114.13	118.85	123.56	128.27	132.98	
(C64-C68) urinary tract									
number	74,627	77,044	79,463	81,886	84,308	86,734	89,160	91,586	8.49
index	100	103.24	106.48	109.73	112.97	116.22	119.47	122.71	
(C69-C72) eye, brain and other parts of central nervous system									
number	4,793	4,905	5,017	5,129	5,241	5,353	5,465	5,577	1.55
index	100	102.34	104.67	107.01	109.34	111.67	114.00	116.33	
(C73-C75) thyroid and other endocrine glands									
number	4,699	4,793	4,887	4,981	5,076	5,170	5,264	5,358	0.53
index	100	102.00	103.98	105.96	107.94	109.92	111.90	113.88	
(C76-C80) ill-defined, secondary and unspecified sites									
number	2,040	1,800	1,560	1,320	1,080	840	600	360	2.07
index	100	88.73	76.47	64.22	52.94	41.66	29.39	17.16	
(C81-C96) lymphoid, haematopoietic and related tissue									
number	6,200	6,785	7,370	7,955	8,540	9,125	9,710	10,295	5.50
index	100	109.44	118.87	128.30	137.73	147.16	156.59	166.02	
(C97) independent (primary) multiple sites									
number	3	1,266	1,258	1,251	1,243	1,235	1,227	1,219	0.14
index	100	99.45	98.82	98.27	97.64	97.01	96.39	95.76	
(C00-C97) Malignant neoplasm (Total)									
number	878,992	894,911	910,829	926,756	942,681	958,615	974,547	990,485	100
index	100	101.81	103.62	105.43	107.25	109.06	110.87	112.68	

✧ Index is the increase rate (basal year is 2013)(%).

✧ The ratio is calculated based on the total number of malignant neoplasm patients. (%)

✧ For concrete content of each site (ICD), see Appendix to table-1.

(Table-2) Transition of the number of total surviving patients by sites

ICD/ year	2013	2014	2015	2016	2017	2018	2019	2020
(C00-C14) lip, oral cavity and pharynx	73,367	75,439	77,514	79,593	81,675	83,761	85,850	87,942
(C15-C26) digestive organs	1,514,471	1,514,471	1,514,471	1,514,471	1,514,471	1,514,471	1,514,471	1,514,471
(C30-C39) respiratory and intrathoracic organs	3,401	3,401	3,401	3,401	3,401	3,401	3,401	3,401
(C40-C41) bronchus and lung	3,401	3,401	3,401	3,401	3,401	3,401	3,401	3,401
(C43-C44) melanoma and skin	15,246	15,731	16,217	16,704	17,192	17,681	18,171	18,661
(C45-C49) mesothelial and soft tissue	31,555	32,718	33,885	35,054	36,226	37,400	38,577	39,757
(C50) breast								
(C51-C58) female genital organs	236,406	245,878	250,000	250,000	250,000	250,000	250,000	250,000
(C60-C63) male genital organs	34,067	36,502	39,247	42,000	44,750	47,500	50,250	53,000
(C64-C68) urinary and bladder	33,311	33,311	33,311	33,311	33,311	33,311	33,311	33,311
(C69-C72) eye, ear, nose and lips of central nervous system	20,088	20,564	21,040	21,517	21,994	22,472	22,950	23,429
(C73-C75) thyroid and other endocrine glands	19,694	20,095	20,497	20,899	21,300	21,703	22,105	22,508
(C76-C80) ill-defined, secondary and unspecified sites	76,800	77,333	78,373	79,412	80,449	81,485	82,520	83,553
(C81-C96) sites presumed to be primary of type not related to any of the above	1,182,300	1,182,300	1,182,300	1,182,300	1,182,300	1,182,300	1,182,300	1,182,300
(C97) independent multiple sites	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336
(C00-C97) Multiple sites	3,683,000	3,751,836	3,819,918	3,888,021	3,956,100	4,024,276	4,092,416	4,160,578

01. Esophagus Cancer

1 Summary

5-year survival rate

36.2% (as of 2001)

The number of new-onset patients

19,314 (as of 2013)

The number of total surviving patients

56,900 (as of 2013)

The number of new-onset (newly diagnosed) patients of esophagus cancer is 19,314 and the number of total surviving patients is 56,900 in 2013 (estimated by our company). The company estimates that new-onset patients will be 20,819 and total surviving patients will be 61,333 in 2020, an increase of 7.8 % compared to the 2013

figures. The number of patients is increasing only slightly, which shows a gradual increase.

Esophagus cancer is hard to detect at early stages because it has few characteristic clinical episodes. It has a tendency to make relatively rapid progress, because the proportion of squamous cell cancer is high in esophagus cancer while adenoma carcinoma is common in gastric or colorectal cancers. These have made low proportion of early stages in esophagus cancer. Among other gastroenterological cancers, especially esophagus cancer develops in the elderly and there are many multiple cancers with surrounding organs i.e., stomach or head and neck cancers. Due to these factors, the treatment of esophagus cancer is considered to be difficult, and therefore, the outcome (5-year survival rate) remains low at 36.2% (affirmed in 2001).

Although surgery is mostly the standard therapy for esophagus cancer as is the case in other gastroenterological cancers, the surgical rate is not always high. According to the guidelines for esophagus cancer, treatments such as chemotherapy or radiation therapy are indicated based on patient's clinical conditions or stages. Endoscopic therapy is indicated for stage 0, surgical operations are standard for stage I-III (curative stage III), and chemotherapy or radiation therapy are suited for stage III (non-curative)-IV.

Surgical rate is estimated to be around 45% although it depends on some data. 5-year survival rate of surgical cases is 44.8%, indicating the difficulties of surgery.

On the other hand, since esophagus cancer is sensitive to radiation therapy or chemotherapy, these therapies are highly indicated depending on patient's clinical

(Table-4) Treatment by stage in esophagus cancer ¹³⁾

stage	Endoscopic		Chemo and/or Radio		Palliative Surgery	Surgery (Esophagectomy)	Surgery	Total
	No. of patients	%	No. of patients	%	No. of patients	No. of patients	%	
0	84	81.6	4	3.9	1	14	14.6	103
I	292	31.6	149	16.1	11	473	52.3	925
IIA	2	0.4	125	23.4	19	388	76.2	534
IIB	2	0.5	78	21.2	7	281	78.3	368
III	21	1.8	450	38.5	38	654	59.2	1,168
IV	0	0.0	79	73.1	2	27	26.9	108
IVa	6	3.9	70	45.8	1	76	50.3	153
IVb	10	3.8	196	74.5	4	53	21.7	263
unknown	32	16.8	109	57.1	6	44	26.2	191
Total	449	11.8	1,260	33.1	89	2,010	55.1	3,808

(Table-5) Surgery rate of esophagus cancer ¹⁴⁾

Total number	No. of surgical cases	surgery rate
4,043	1,576	39.0%

(Table-7) 5-year survival rates by stage in resected cases of esophagus cancer (Registration survey) ¹³⁾

	stage0	stageI	stageII	stageIII	stageIVA	stageIVB	Total
No. of patients	89	256	373	535	169	26	1,448
%	6.1	17.7	25.8	36.9	11.7	1.8	100
5YSR(%)	77.8	74.4	49.5	30.7	14.8	11.5	

(Table-8) 5-year survival rates by stage in resected cases of esophagus cancer (Association of Clinical Cancer Centers) ¹⁴⁾

	stageI	stageII	stageIII	stageIV	unknown	Total
No. of patients	315	448	484	242	87	1,576
%	20.0	28.4	30.7	15.4	5.5	100
5YSR(%)	73.8	48.5	28.5	19.8	—	

**(Table-13) Transition of the number of esophagus cancer patients
(our estimates)**

year	number of deaths in Vital Statistics (Original) ¹⁾	A estimated deaths in Vital Statistics (least squares) ²⁾	B new-onset patients(based on 2001)	C total surviving patients(based on 2001) ³⁾	D total surviving patients (definite integration) (based on 2001)
2001	10,677	10,697	16,735	49,301	43,963
2002	10,739	10,835	16,950	49,934	44,528
2003	11,048	10,972	17,165	50,568	45,092
2004	11,172	11,110	17,380	51,201	45,657
2005	11,182	11,247	17,595	51,834	46,222
2006	11,345	11,385	17,810	52,467	46,787
2007	11,669	11,522	18,025	53,100	47,352
2008	11,746	11,659	18,240	53,733	47,917
2009	11,713	11,797	18,455	54,366	48,482
2010	11,934	11,934	18,670	55,000	49,047
2011	12,155	12,071	18,885	55,633	49,612
2012	12,376	12,208	19,100	56,266	50,177
2013	12,597	12,345	19,315	56,900	50,742
2014	12,818	12,482	19,529	57,533	51,307
2015	13,039	12,619	19,744	58,167	51,872
2016	13,260	12,756	19,959	58,800	52,437
2017	13,481	12,893	20,174	59,433	52,992
2018	13,702	13,030	20,389	60,066	53,547
2019	13,923	13,167	20,604	60,700	54,102
2020	14,144	13,304	20,819	61,333	54,657

1)The number of deaths is the figures in Vital Statistics.

2)The number of deaths every year was estimated by the method of least squares ($y=a \chi +b$) using the figures of 2001- 2010 years.

3)Based on the number of esophagus cancer patients in 2001 computed by our company, the number of patients in every year was calculated corresponding to the increase/decrease rate of Vital Statistics. The number of new-onset patients was calculated in the same way.