

Chapter 5

New Malignancies Following Cancer of the Colon, Rectum, and Anus

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Synopsis

The risk of subsequent primary cancer was evaluated in more than 260,000 men and women diagnosed with cancer of the colon, rectum, or anus between 1973 and 2000. The overall risk of subsequent cancers was increased among survivors of both colon cancer (O/E=1.07, O=20,847, EAR=13 per 10,000 person-years) and anal cancer (O/E=1.24, O=509, EAR=36), but not among those with rectal cancer (O/E=1.00, O=8,117). Shared lifestyle and environmental risk factors—such as diet, obesity, and physical inactivity—possibly contributed to the increased risks of other digestive tract cancers seen after colon and rectal cancer. In addition, genetic factors likely influenced the elevated risks of new tumors among younger colorectal cancer patients (ages <40 years). In particular, the constellation of subsequent tumors—including cancers of the stomach, small intestine, colon, rectum, bile ducts, uterine corpus, ovary, renal pelvis/ureter, and brain—was suggestive of hereditary nonpolyposis colon cancer, familial adenomatous polyposis, or Turcot syndrome. The excess of lung cancer occurring after rectal cancer may be related to an effect of cigarette smoking on both tumors. Long-term survivors of rectal cancer initially treated with radiation had increased risks of cancers of the uterine corpus and urinary bladder, suggesting a carcinogenic effect of treatment. Patients with anal cancer had elevated risks for cancers of the buccal cavity and pharynx (tongue and tonsil), lung, vulva, and vagina, as well as for Kaposi sarcoma. These associations pointed to underlying risk factors, including infection with human papillomaviruses and the human immunodeficiency virus (HIV).

Colon Cancer

Colon cancer is the fourth most frequent cancer in both men and women in the U.S., and colon and rectal cancers combined account for 10% of all cancer deaths (Jemal et al, 2005). The incidence of colon cancer is higher among American men than women, and the overall 5-year relative survival rate for the most recent time period is 63.0% (Ries et al, 2004). The primary treatment for the vast majority of colon cancers is surgical (or endoscopic) exci-

sion. In those with stage III disease, risk of recurrence is high and adjuvant chemotherapy is recommended (NIH Consensus Conference, 1990).

The 20-fold international variation in incidence and mortality rates for colon cancer and the rapid rise in incidence among persons migrating from low- to high-incidence areas indicate the importance of lifestyle and environmental determinants (Potter, 1999; Giovannucci, 2002; Martinez, 2005). A growing body of evidence points to the role of energy balance, with obesity and physical inactivity shown as risk factors for colon cancer in most studies. In addition to caloric intake, several studies have reported elevated risks associated with the high consumption of red and processed meat, and with low intake of vegetables and fruits. An inverse association between dietary fiber intake and colon cancer risk has been reported, but the evidence to date is not conclusive. High alcohol consumption, particularly in the presence of a diet low in micronutrients such as folate, and cigarette smoking early in life have been associated with modest elevations of colorectal cancer risk in several recent studies (Giovannucci, 2001; Cho et al, 2004; Corrao et al, 2004). An excess of colon cancer has been noted among persons with chronic inflammatory bowel disease, including ulcerative colitis and Crohn's disease (Ekbom et al, 1990a,b). Use of nonsteroidal anti-inflammatory drugs, postmenopausal hormone replacement therapy, and calcium and vitamin D intake are considered to be protective for colon cancer.

Approximately 10% to 20% of colon cancers are associated with familial occurrences involving a first-degree relative (Burt, 2000). Some of the familial cases are attributable to hereditary syndromes such as familial adenomatous polyposis (FAP), which is due to germline mutations of the APC gene, and hereditary nonpolyposis colon cancer (HNPCC), which is caused by inherited mutations in mismatch repair genes (Burt et al, 1995; Marra and Boland, 1995; Peltomaki and Vasen, 1997; Lynch and de la Chapelle, 1999). Both syndromes are characterized by early onset of multiple colorectal cancers, but account for only a small percentage (3%) of these malignancies (Burt, 2000).

Results and Discussion

Overall, 179,370 patients who survived 2 months or longer after a diagnosis of colon cancer were reported to

Abbreviations: O=observed number of subsequent (2nd, 3rd, etc.) primary cancers; O/E=ratio of observed to expected cancers; CI=confidence interval; PYR=person-years at risk; EAR=excess absolute risk (excess cancers per 10,000 person-years, calculated as [(O-E)/PYR] × 10,000).

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the SEER Program during 1973-2000. There was an overall 7% increased risk of developing a subsequent primary cancer (O/E=1.07, O=20,847, 95% CI=1.05-1.08, EAR=13 per 10,000 person-years), but risk diminished to levels prevailing in the general population when subsequent cancers of the colon, rectum, and anus were excluded (O/E=0.98). In an analysis adjusted for the competing risk of death, the cumulative incidence of all second cancers combined was 15.2% at 25 years (95% CI=15.0%-15.5%), with a 3.2% incidence of second colorectal cancers (Figure 5.1). The relative and excess absolute risks of developing a new malignancy varied inversely with age at diagnosis of colon cancer, with O/E ratios of 3.19, 1.27, and 1.07 and EARs of 55, 32, and 15 observed for ages younger than 40 years, 40-59 years, and 60-69 years, respectively (Figure 5.2). This decreasing trend in relative and excess absolute risks with increasing age remained evident when subsequent cancers of the colon, rectum, and anus were excluded. No excess was observed among patients diagnosed with colon cancer at ages older than 70 years. The relative risk of all new cancers combined was slightly higher in females and in blacks. Risks were increased by about 10% in the first 5 years after initial diagnosis, and then decreased to near normal levels for later follow-up intervals. The risks of subsequent malignancies were significantly increased for cancers of the tongue, oropharynx, stomach, small intestine, colon, rectum, anus, bile ducts, uterine corpus, kidney, and ureter. In contrast, deficits in risk were seen for cancers of the lip, larynx, lung, liver, and gallbladder, as well as for chronic lymphocytic leukemia. In earlier SEER surveys of colorectal cancer, there were reciprocally increased risks associated with cancers of the small intestine, female breast, colon, and rectum (Neugut et al, 1991; Neugut and Santos, 1993; Shureiqi et al, 2001). Other registry-based studies of colon cancer have reported elevations in risk for second cancers of the larynx, breast, uterine corpus, ovary, prostate, bladder, and kidney (Hoar et al, 1985; Lynge et al, 1985; Levi et al, 1993; McCredie et al, 1997; Evans et al, 2002).

Most excesses of new malignancies after colon cancer occurred in the digestive tract and may be related to shared lifestyle factors, including diet, obesity, and physical inactivity (Giovannucci, 2002). The effect of these risk factors on hormonal metabolism, along with genetic susceptibility (Potter, 1999; Kaaks and Lukanova, 2002; Brinton et al, 2004), may explain the elevated risk of uterine corpus cancer seen among younger (ages <60 years) women diagnosed with colon cancer, as well as the reciprocal increased risk of colon cancer among younger women with uterine corpus cancer. Obesity may also have contributed to the elevated risk of cancer of the kidney parenchyma after colon cancer (Calle et al, 2003). However, the excesses were limited to the first 5 years of follow-up with no reciprocal increase in risk of colon cancer observed after cancer of the kidney parenchyma, suggesting that medical surveillance may have played a role.

Consistent with previous studies (Hoar et al, 1985; Lynge et al, 1985; Teppo et al, 1985; Enblad et al, 1990;

Figure 5.1: Cumulative incidence of developing a second cancer among patients with cancer of the colon, both sexes, SEER 1973-2000.

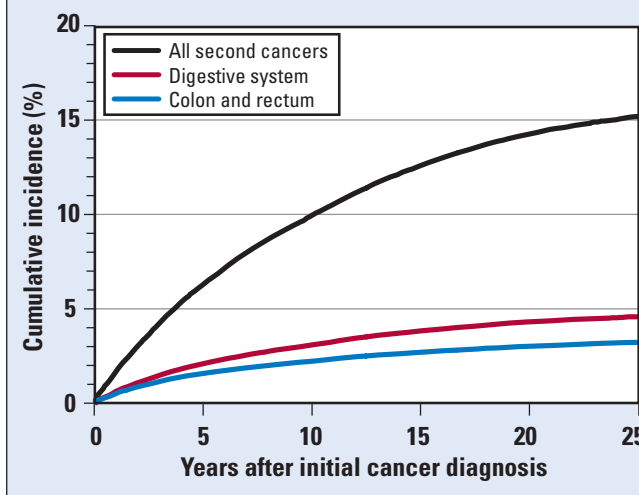
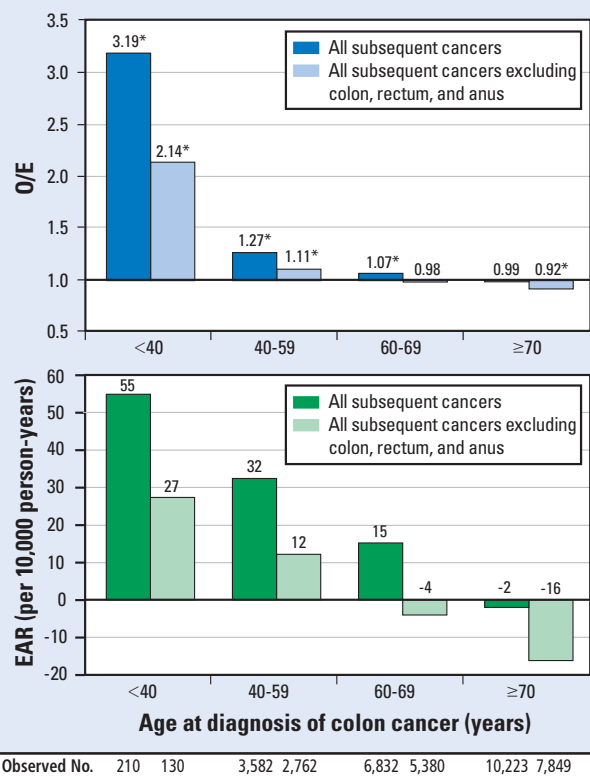


Figure 5.2: Observed-to-expected ratio (O/E) and excess absolute risk (EAR) of subsequent primary cancers after cancer of the colon, both sexes, SEER 1973-2000.



*P <0.05.

Note: EAR = Excess number of subsequent cancers per 10,000 person-years.

McCredie et al, 1997; Evans et al, 2002), we found either deficits in risk or no excesses for most smoking- and alcohol-related cancers (lip, mouth, esophagus, larynx, and lung), although risks for subsequent cancers of the tongue and oropharynx were increased. While recent studies have suggested that cigarette smoking and alcohol use are risk factors for colorectal cancer (Giovannucci,

2001; Corrao et al, 2004; Wei et al, 2004), the association with smoking appears only after an induction period of at least 35 years.

The heritable syndrome HNPCC predisposes not only to multicentric cancers of the colon and rectum, but also to early-onset cancers of the small intestine, stomach, bile ducts, uterine corpus, ovary, renal pelvis/ureter, and brain (Watson and Lynch, 1993). Similarly, the extra-colonic tumors associated with the FAP syndrome include the stomach and small intestine (duodenal and periampullary) in addition to thyroid and brain tumors (Burt, 2000). These syndromes or variants, such as Turcotte syndrome (colon polyps and brain tumors), may be implicated in the notably high risks for subsequent tumors of diverse sites among younger patients (ages <40 years) with colon cancer, although excess risks were also seen to a limited extent among older persons. The role of genetic susceptibility suggesting HNPCC is also evident in the reciprocally increased risks for colon cancer following cancers of the uterine corpus, ovary, and renal pelvis/ureter diagnosed at young ages.

Cancers of the Rectum and Rectosigmoid Junction

Rectal cancer, including tumors of the rectosigmoid junction, accounts for 3% of cancers in the U.S. (Jemal et al, 2005), with a higher incidence among men than women. The overall 5-year relative survival rate is 64.2% (Ries et al, 2004). Surgery alone is the primary treatment for localized-stage disease, with the addition of radiotherapy and chemotherapy for more advanced stages (NIH Consensus Conference, 1990).

The risk factors for rectal cancer are similar to those for colon cancer, although the evidence generally is less clear-cut (Mao et al, 2003; Slatery et al, 2003; Wei et al, 2004; Martinez, 2005). Some studies have suggested that cigarette smoking and alcohol consumption may play a greater role in rectal cancer risk (Potter, 1999; Giovannucci, 2001).

Results and Discussion

The overall risk of subsequent primary cancers was not increased among the 77,436 persons who survived 2 months or longer following a diagnosis of rectal cancer, including cancers of the rectosigmoid junction (O/E=1.00, O=8,117, 95% CI=0.98-1.02). A significant deficit in overall risk was seen after excluding subsequent cancers of the colon, rectum, and anus (O/E=0.94, 95% CI=0.92-0.97). The cumulative incidence of all second cancers combined was 14.4% at 25 years (95% CI=14.1%-14.8%), with new malignancies of the colon and rectum accounting for 2.7% of the cancer incidence. Increased relative risks of subsequent cancer were confined to women (O/E=1.07) and blacks (O/E=1.17). Individuals diagnosed with rectal cancer at ages younger than 50 years had a 51% increase in risk of subsequent cancer, but risk dropped to lower levels at older ages. An 8% elevation in risk of subsequent cancers was found in the first year after diagnosis,

but no excess was seen in subsequent time intervals. Observed risks were significantly increased over those expected for subsequent cancers of the small intestine, colon, anus, lung, vagina, and kidney. In contrast, significantly reduced risks were observed for cancers of the tongue, liver, pancreas, ovary, and prostate, as well as chronic lymphocytic leukemia. Several registry-based surveys have noted that patients with rectal cancer have generally lower risks of second cancers than patients with an initial colon cancer, although increased risks have been reported for new malignancies of the colon, uterine corpus, and prostate (Hoar, 1985; Lynge et al, 1985; McCredie et al, 1997).

Digestive system malignancies accounted for 27% of subsequent primary cancers following rectal cancer, with significantly increased risks for cancers of the small intestine and colon, which are likely due to shared risk factors (McCredie et al, 1997). The elevated risk for lung cancer after rectal cancer may be related to the effects of cigarette smoking on both tumors. Among rectal cancer patients diagnosed at younger ages (<50 years), elevated risks were observed for subsequent cancers of the small intestine, colon, bile ducts, and uterine corpus; this pattern resembles the spectrum of tumors associated with colon cancer and with genetic susceptibility syndromes such as HNPCC (Watson and Lynch, 1993).

Rectal cancer patients receiving radiation as part of their initial course of therapy had high doses delivered to the pelvic area. Therefore, it is not surprising that excess risks of uterine corpus and urinary bladder cancers among long-term survivors were confined to irradiated patients. This finding is consistent with earlier studies on radiation-related excesses of bladder and endometrial cancers among women receiving pelvic radiotherapy for cancers of the cervix or ovary (Boice et al, 1988; Travis et al, 1996). Although the vagina also received high radiation doses, the increases in risk of vaginal malignancies following rectal cancer were seen in all therapy groups. As with initial colon cancer, there was an increased risk of cancer of the kidney parenchyma after rectal cancer. The elevated risk was most pronounced in the first year of follow-up and then gradually declined over time to normal levels, suggesting the role of heightened medical surveillance.

Cancers of the Anus, Anal Canal, and Anorectum

Anal cancer constitutes only 0.3% of all malignancies diagnosed in the U.S. and an estimated 0.1% of all cancer deaths (Jemal et al, 2005). The overall 5-year relative survival rate is 67.5% (Ries et al, 2004). Squamous cell carcinoma is the predominant histologic type. Current treatment for anal cancer includes surgical resection and either radiation, chemotherapy, or both (Ryan et al, 2000).

The major causal factor for anal cancer is human papillomavirus (HPV) infection. The risk is greatest for HPV types 16 and 18—the predominant causes of tumors along the anogenital tract, including cancers of the cervix,

vagina, vulva, penis, and the anal canal (Schiffman and Kjaer, 2003). The risk of anal cancer is increased among individuals with impaired cellular immunity (caused by HIV infection or organ transplantation), high-risk sexual behaviors, or a history of other HPV-related cancers (Fairley et al, 1994; Birkeland et al, 1995; Frisch, 2002; Palefsky and Holly, 2003).

Results and Discussion

The overall risk of developing a new primary cancer among 4,905 patients who survived 2 months or more after anal cancer was significantly increased by 24% (O/E=1.24, O=509, 95% CI=1.13-1.35, EAR=36). The estimated cumulative incidence of a second cancer was 16.6% at 25 years (95% CI=15.0%-18.4%). Relative risks of subsequent cancers were similar among men (O/E=1.27) and women (O/E=1.21), although men had substantially higher excess absolute risks (EAR=50) than women (EAR=28). The risk of new cancers decreased with increasing age at anal cancer diagnosis, with a 5-fold increase in risk of new cancers observed for patients diagnosed at ages younger than 40 years and a 2.5-fold increase in risk for those younger than 50 years. Excess risks were also observed among those diagnosed at ages 50 to 69 years; risks then diminished to lower levels at older ages. Significantly increased risks were observed for subsequent cancers of the buccal cavity and pharynx (tongue, tonsil), lung, vagina, vulva, and anus, as well as for Kaposi sarcoma, while lower-than-expected risks were apparent for prostate cancer. An earlier SEER survey of patients with *in situ* and invasive anal cancer reported excesses of second cancers of the lung and prostate (Rabkin et al, 1992), and a Danish study noted increased risks of new malignancies of the lung, bladder, breast, vulva/vagina, and small intestine (Frisch et al, 1994).

In the current survey, 5- to 8-fold increased risks of subsequent cancers of the tongue, tonsil, and anogenital tract were observed, consistent with previous studies suggesting a carcinogenic effect of HPV infection at these sites (Frisch and Biggar, 1999; Gillison et al, 2000; Schiffman and Kjaer, 2003). As noted previously (Frisch et al, 1994; Schiffman and Kjaer, 2003), women with anal cancer experienced significant increases in the risk of vulvar and vaginal cancers, which share a causal relationship to HPV. In particular, the basaloid/warty form of squamous cell vulvar cancer has been associated with HPV infection, especially in younger, sexually active women (Trimble et al, 1996). The available evidence suggests that cancers of the vagina, vulva, and anus arise as a multicentric field effect due to HPV infection (Brinton et al, 2004). However, as shown in an earlier SEER survey (Rabkin et al, 1992), there was no overall increase in cervical cancer risk following anal cancer (O/E=0.69, O=2), whereas a 3-fold excess of anal cancer was seen after cervical cancer (O/E=3.24, O=19).

Excesses were also observed for several subsequent cancers that are associated with HIV infection. A 13-fold increased risk of Kaposi sarcoma was found among men

but not among women, and a 5-fold increase of non-Hodgkin lymphoma (NHL) was seen in persons diagnosed with anal cancer at ages younger than 50 years. It is well established that HIV-infected individuals are prone to anogenital cancers (Ferenczy et al, 2003; Palefsky and Holly, 2003), caused by HIV-related immunosuppression that predisposes to the carcinogenic effects of the sexually transmitted HPV. The role of HIV infection is apparent also from the increased risk of anal cancer seen among men diagnosed before age 50 years with Kaposi sarcoma or NHL.

In addition, we observed 2- to 3-fold significantly increased risks for subsequent cancers of the lung and buccal cavity, which may be due to the high frequency of smoking in patients with HIV infection. Cigarette smoking may also be a cofactor with HPV infection in the development of anal cancer, reminiscent of the combined effect of smoking and HPV infection in the etiology of cervical cancer (Daling et al, 1992, 1996; Giulian et al, 2002; Castellsague and Munoz, 2003).

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Table 5.1.1: Characteristics of patients with an initial cancer of the colon, both sexes, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
Number of patients with 1st primary cancer						
Total	85,768	100.0	93,602	100.0	179,370	100.0
Initial treatment						
Any radiation	3,528	4.1	3,185	3.4	6,713	3.7
With surgery	3,052	3.6	2,783	3.0	5,835	3.3
Without surgery	476	0.6	402	0.4	878	0.5
No radiation	82,240	95.9	90,417	96.6	172,657	96.3
With surgery	76,137	88.8	83,069	88.7	159,206	88.8
Without surgery	6,103	7.1	7,348	7.9	13,451	7.5
Race						
White	73,673	85.9	80,765	86.3	154,438	86.1
Black	6,641	7.7	8,089	8.6	14,730	8.2
Other	5,222	6.1	4,519	4.8	9,741	5.4
Unknown	232	0.3	229	0.2	461	0.3
Age at 1st primary cancer diagnosis, years						
< 30	376	0.4	401	0.4	777	0.4
30–49	6,019	7.0	5,858	6.3	11,877	6.6
50–69	38,302	44.7	33,258	35.5	71,560	39.9
70–79	27,170	31.7	29,746	31.8	56,916	31.7
≥ 80	13,901	16.2	24,339	26.0	38,240	21.3
Number of patients with one or more primary cancers						
One primary cancer only	75,213	87.7	85,597	91.4	160,810	89.7
1st and 2nd cancers	9,361	10.9	7,171	7.7	16,532	9.2
1st, 2nd, and 3rd cancers	1,072	1.2	738	0.8	1,810	1.0
1st, 2nd, 3rd, and additional cancers	122	0.1	96	0.1	218	0.1
Other statistics						
Median age at 1st cancer diagnosis	69.4	—	72.6	—	70.9	—
Median year of 1st cancer diagnosis	1988.0	—	1987.6	—	1987.8	—
Median person-years at risk	3.2	—	3.2	—	3.2	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	94.6	—	94.7	—	94.6
1st, 2nd, and additional cancers	—	93.9	—	94.2	—	94.0
1st cancer only	—	4.9	—	4.9	—	4.9

*Percent histologically confirmed among patients who developed a subsequent primary cancer.

Colon Both Sexes

Table 5.1.2: Risk of subsequent primary cancers after cancer of the colon, both sexes, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis													
	<1 year		1-4 years		5-9 years		≥10 years		Total					
	Number starting interval	Person-years in interval	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR		
All subsequent cancers	179,370	129,484	2,522	1.09*	8,266	1.11*	5,487	1.02	4,572	1.03	20,847	19,563.96	1.07*	13.07
All excluding same site			1,844	0.94*	6,190	0.99	4,431	0.98	3,656	0.97	16,121	16,523.81	0.98*	-4.10
Buccal cavity, pharynx	50	0.89	171	0.99	126	1.08	83	0.93	430	435.20	0.99	-0.05		
Lip	3	0.32*	19	0.67	18	0.95	6	0.42*	46	70.98	0.65*	-0.25		
Tongue	15	1.39	36	1.08	33	1.45*	22	1.26	106	84.49	1.25*	0.22		
Salivary gland	10	1.96	17	1.03	9	0.74	7	0.67	43	44.24	0.97	-0.01		
Mouth	9	0.59	49	1.04	32	1.02	21	0.86	111	118.03	0.94	-0.07		
Nasopharynx	1	0.47	4	0.62	4	0.96	1	0.32	10	15.79	0.63	-0.06		
Tonsil	4	0.83	12	0.83	7	0.76	9	1.38	32	34.90	0.92	-0.03		
Oropharynx	2	1.35	7	1.54	5	1.68	5	2.27	19	11.20	1.70*	0.08		
Hypopharynx	6	1.10	22	1.33	12	1.13	8	1.07	48	40.11	1.20	0.08		
Digestive system	868	1.54*	2,782	1.55*	1,548	1.19*	1,370	1.28*	6,568	4,726.44	1.39*	18.76		
Esophagus	23	0.94	81	1.05	61	1.12	46	1.02	211	200.97	1.05	0.10		
Stomach	55	0.93	207	1.12	154	1.18*	140	1.34*	556	478.38	1.16*	0.79		
Small intestine	33	4.76*	89	3.96*	43	2.56*	45	3.02*	210	61.05	3.44*	1.52		
Colon	519	1.98*	1,529	1.81*	857	1.38*	725	1.40*	3,630	2,247.46	1.62*	14.08		
Rectum, rectosigmoid junction	152	1.62*	518	1.76*	187	0.91	178	1.11	1,035	753.17	1.37*	2.87		
Anus, anal canal	7	1.49	29	1.94*	12	1.11	13	1.43	61	39.52	1.54*	0.22		
Liver	9	0.53	39	0.72*	20	0.51*	31	0.91	99	144.86	0.68*	-0.47		
Gallbladder	8	0.89	12	0.43*	12	0.60	11	0.70	43	72.76	0.59*	-0.30		
Bile ducts, other biliary	10	0.83	46	1.16	46	1.52*	38	1.38	140	109.58	1.28*	0.31		
Pancreas	49	0.72*	220	1.02	148	0.94	133	1.01	550	573.04	0.96	-0.23		
Respiratory system	276	0.73*	1,149	0.96	854	1.01	588	0.85*	2,867	3,113.40	0.92*	-2.51		
Nose, nasal cavity, ear	3	0.88	14	1.31	9	1.18	3	0.48	29	27.96	1.04	0.01		
Larynx	17	0.72	60	0.83	43	0.90	31	0.90	151	178.32	0.85*	-0.28		
Lung, bronchus	255	0.73*	1,074	0.97	801	1.01	552	0.85*	2,682	2,899.22	0.93*	-2.21		
Female breast	218	0.88	826	1.06	580	1.02	494	1.00	2,118	2,087.78	1.01	0.58		
Female genital system	132	1.16	422	1.21*	251	1.04	215	1.07	1,020	905.34	1.13*	2.18		
Cervix uteri	16	1.25	36	0.97	30	1.29	11	0.64	93	90.19	1.03	0.05		
Corpus uteri	62	1.09	220	1.27*	135	1.14	121	1.25*	538	445.45	1.21*	1.76		
Ovary	47	1.42*	138	1.34*	64	0.87	56	0.89	305	273.33	1.12	0.60		
Vagina	2	0.97	5	0.77	3	0.65	8	2.06	18	17.02	1.06	0.02		
Vulva	4	0.65	17	0.85	15	0.98	14	1.00	50	55.26	0.90	-0.10		
Male genital system	453	1.07	1,409	1.00	1,023	0.98	837	0.99	3,722	3,718.79	1.00	0.07		
Prostate	448	1.07	1,403	1.01	1,012	0.98	826	0.98	3,689	3,687.31	1.00	0.04		
Testis	0	0.00	1	0.30	1	0.54	1	0.91	3	7.45	0.40	-0.10		
Urinary system	223	1.23*	623	1.06	407	0.95	367	1.02	1,620	1,553.50	1.04	0.68		
Urinary bladder	124	0.97	412	0.99	287	0.95	241	0.95	1,064	1,100.52	0.97	-0.37		
Kidney parenchyma	85	2.05*	161	1.21*	88	0.91	90	1.11	424	351.94	1.20*	0.73		
Renal pelvis, other urinary	14	1.15	50	1.29	32	1.16	36	1.60*	132	101.04	1.31*	0.32		
Ureter	4	0.98	23	1.78*	11	1.20	17	2.33*	55	33.43	1.65*	0.22		
Bone, joints	0	0.00	6	1.02	2	0.50	4	1.25	12	15.00	0.80	-0.03		
Soft tissue including heart	13	1.48	25	0.89	24	1.17	12	0.67	74	75.32	0.98	-0.01		
Kaposi sarcoma	1	0.43	8	1.09	4	0.78	4	1.01	17	18.71	0.91	-0.02		
Melanoma of skin	56	1.33*	146	1.05	74	0.70*	92	0.97	368	381.24	0.97	-0.13		
Eye, orbit	3	0.93	11	1.09	6	0.86	5	0.89	25	25.84	0.97	-0.01		
Brain, central nervous system	18	0.85	56	0.84	45	0.96	33	0.87	152	172.49	0.88	-0.21		
Thyroid	19	1.78*	33	1.01	29	1.31	16	0.90	97	83.34	1.16	0.14		
Lymphatic, hematopoietic	150	0.85	499	0.88*	414	0.99	352	0.99	1,415	1,516.58	0.93*	-1.03		
Hodgkin lymphoma	7	1.37	15	0.98	6	0.60	5	0.66	33	37.92	0.87	-0.05		
Non-Hodgkin lymphoma	66	0.88	220	0.89	181	0.98	168	1.03	635	667.80	0.95	-0.33		
Myeloma	27	0.87	81	0.81	78	1.07	57	0.92	243	265.29	0.92	-0.23		
Leukemia	50	0.78	183	0.89	149	0.99	122	0.97	504	545.57	0.92	-0.42		
Acute lymphocytic	2	1.21	3	0.57	8	2.11	1	0.33	14	13.73	1.02	0.00		
Chronic lymphocytic	13	0.51*	55	0.67*	48	0.81	39	0.80	155	216.12	0.72*	-0.62		
Acute non-lymphocytic	25	1.17	70	1.01	52	1.03	44	1.02	191	184.49	1.04	0.07		
Chronic myeloid	8	0.92	31	1.11	20	0.98	22	1.26	81	74.45	1.09	0.07		

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 525,390 PYR and for male cancers on 456,404 PYR.

Table 5.1.3: Risk of subsequent primary cancers after cancer of the colon, both sexes, long-term follow-up, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<10 years		10-14 years		15-19 years		≥20 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	16,275	1.08*	2,919	1.03	1,263	1.03	390	0.94	20,847	19,563.96	1.07*	13.07
All excluding same site	12,465	0.98*	2,356	0.99	1,010	0.98	290	0.83*	16,121	16,523.81	0.98*	-4.10
Buccal cavity, pharynx	347	1.00	53	0.92	22	0.93	8	1.02	430	435.20	0.99	-0.05
Lip	40	0.70*	5	0.54	1	0.27	0	0.00	46	70.98	0.65*	-0.25
Tongue	84	1.25*	14	1.24	5	1.07	3	1.92	106	84.49	1.25*	0.22
Salivary gland	36	1.07	5	0.77	1	0.35	1	0.96	43	44.24	0.97	-0.01
Mouth	90	0.96	14	0.90	5	0.76	2	0.92	111	118.03	0.94	-0.07
Nasopharynx	9	0.71	1	0.50	0	0.00	0	0.00	10	15.79	0.63	-0.06
Tonsil	23	0.81	6	1.40	2	1.19	1	1.89	32	34.90	0.92	-0.03
Oropharynx	14	1.56	1	0.70	4	6.92*	0	0.00	19	11.20	1.70*	0.08
Hypopharynx	40	1.23	7	1.41	1	0.52	0	0.00	48	40.11	1.20	0.08
Digestive system	5,198	1.42*	862	1.27*	373	1.28*	135	1.33*	6,568	4,726.44	1.39*	18.76
Esophagus	165	1.06	32	1.12	12	0.98	2	0.47	211	200.97	1.05	0.10
Stomach	416	1.11*	79	1.19	47	1.67*	14	1.46	556	478.38	1.16*	0.79
Small intestine	165	3.57*	25	2.71*	14	3.37*	6	4.01*	210	61.05	3.44*	1.52
Colon	2,905	1.68*	447	1.37*	194	1.37*	84	1.71*	3,630	2,247.46	1.62*	14.08
Rectum, rectosigmoid junction	857	1.44*	109	1.06	53	1.24	16	1.11	1,035	753.17	1.37*	2.87
Anus, anal canal	48	1.58*	7	1.23	6	2.38	0	0.00	61	39.52	1.54*	0.22
Liver	68	0.61*	22	1.04	7	0.74	2	0.59	99	144.86	0.68*	-0.47
Gallbladder	32	0.56*	7	0.70	3	0.70	1	0.69	43	72.76	0.59*	-0.30
Bile ducts, other biliary	102	1.24*	28	1.65*	7	0.90	3	1.05	140	109.58	1.28*	0.31
Pancreas	417	0.95	100	1.21	26	0.72	7	0.55	550	573.04	0.96	-0.23
Respiratory system	2,279	0.94*	375	0.86*	157	0.83*	56	0.87	2,867	3,113.40	0.92*	-2.51
Nose, nasal cavity, ear	26	1.20	2	0.51	1	0.58	0	0.00	29	27.96	1.04	0.01
Larynx	120	0.83*	22	0.97	6	0.67	3	1.06	151	178.32	0.85*	-0.28
Lung, bronchus	2,130	0.95*	349	0.85*	150	0.85*	53	0.87	2,682	2,899.22	0.93*	-2.21
Female breast	1,624	1.02	308	1.00	135	0.99	51	1.04	2,118	2,087.78	1.01	0.58
Female genital system	805	1.14*	144	1.15	61	1.10	10	0.51*	1,020	905.34	1.13*	2.18
Cervix uteri	82	1.12	5	0.45	4	0.88	2	1.34	93	90.19	1.03	0.05
Corpus uteri	417	1.20*	77	1.27*	41	1.54*	3	0.32*	538	445.45	1.21*	1.76
Ovary	249	1.18*	42	1.07	12	0.68	2	0.32	305	273.33	1.12	0.60
Vagina	10	0.76	8	3.29*	0	0.00	0	0.00	18	17.02	1.06	0.02
Vulva	36	0.87	9	1.06	4	1.01	1	0.69	50	55.26	0.90	-0.10
Male genital system	2,885	1.01	558	1.02	230	0.99	49	0.72*	3,722	3,718.79	1.00	0.07
Prostate	2,863	1.01	550	1.01	227	0.99	49	0.72*	3,689	3,687.31	1.00	0.04
Testis	2	0.32	1	1.32	0	0.00	0	0.00	3	7.45	0.40	-0.10
Urinary system	1,253	1.05	239	1.06	98	1.00	30	0.88	1,620	1,553.50	1.04	0.68
Urinary bladder	823	0.97	158	0.98	64	0.92	19	0.79	1,064	1,100.52	0.97	-0.37
Kidney parenchyma	334	1.23*	60	1.17	22	0.99	8	1.03	424	351.94	1.20*	0.73
Renal pelvis, other urinary	96	1.22	21	1.48	12	1.97*	3	1.40	132	101.04	1.31*	0.32
Ureter	38	1.45*	8	1.72	6	3.07*	3	4.46	55	33.43	1.65*	0.22
Bone, joints	8	0.68	1	0.50	1	1.13	2	6.53	12	15.00	0.80	-0.03
Soft tissue including heart	62	1.08	6	0.54	6	1.20	0	0.00	74	75.32	0.98	-0.01
Kaposi sarcoma	13	0.88	3	1.16	1	0.95	0	0.00	17	18.71	0.91	-0.02
Melanoma of skin	276	0.96	59	1.01	29	1.09	4	0.41	368	381.24	0.97	-0.13
Eye, orbit	20	0.99	2	0.56	3	1.96	0	0.00	25	25.84	0.97	-0.01
Brain, central nervous system	119	0.88	22	0.91	8	0.78	3	0.85	152	172.49	0.88	-0.21
Thyroid	81	1.24	9	0.80	6	1.24	1	0.59	97	83.34	1.16	0.14
Lymphatic, hematopoietic	1,063	0.92*	220	0.98	101	1.02	31	0.89	1,415	1,516.58	0.93*	-1.03
Hodgkin lymphoma	28	0.92	2	0.41	2	0.99	1	1.53	33	37.92	0.87	-0.05
Non-Hodgkin lymphoma	467	0.92	106	1.05	48	1.06	14	0.86	635	667.80	0.95	-0.33
Myeloma	186	0.91	39	1.01	12	0.71	6	1.02	243	265.29	0.92	-0.23
Leukemia	382	0.91	73	0.92	39	1.14	10	0.84	504	545.57	0.92	-0.42
Acute lymphocytic	13	1.21	1	0.51	0	0.00	0	0.00	14	13.73	1.02	0.00
Chronic lymphocytic	116	0.69*	27	0.87	7	0.53	5	1.13	155	216.12	0.72*	-0.62
Acute non-lymphocytic	147	1.04	28	1.04	15	1.26	1	0.23	191	184.49	1.04	0.07
Chronic myeloid	59	1.03	6	0.55	13	2.72*	3	1.81	81	74.45	1.09	0.07

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 525,390 PYR and for male cancers on 456,404 PYR.

Table 5.1.4: Risk of subsequent primary cancers after cancer of the colon, females, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	1,019	1.08*	3,533	1.18*	2,316	1.05*	2,086	1.08*	8,954	8,073.34	1.11*	16.76
All excluding same site	736	0.95	2,500	1.02	1,779	0.99	1,566	0.99	6,581	6,611.03	1.00	-0.57
Buccal cavity, pharynx	16	0.97	50	0.97	37	1.00	28	0.90	131	136.47	0.96	-0.10
Lip	0	0.00	6	1.46	3	0.96	2	0.71	11	11.36	0.97	-0.01
Tongue	7	1.96	12	1.07	12	1.48	6	0.88	37	29.78	1.24	0.14
Salivary gland	4	2.16	7	1.19	4	0.93	3	0.79	18	15.84	1.14	0.04
Mouth	1	0.17*	17	0.92	15	1.13	11	0.96	44	49.22	0.89	-0.10
Nasopharynx	0	0.00	2	1.03	0	0.00	1	0.93	3	4.96	0.60	-0.04
Tonsil	1	0.76	2	0.51	1	0.38	1	0.52	5	9.78	0.51	-0.09
Oropharynx	1	2.59	1	0.83	0	0.00	1	1.53	3	3.06	0.98	0.00
Hypopharynx	2	1.94	2	0.63	2	0.95	2	1.24	8	7.91	1.01	0.00
Digestive system	371	1.47*	1,318	1.63*	721	1.20*	728	1.39*	3,138	2,184.51	1.44*	18.15
Esophagus	10	1.55	25	1.22	12	0.79	18	1.34	65	55.53	1.17	0.18
Stomach	20	0.94	76	1.13	48	0.99	59	1.43*	203	178.38	1.14	0.47
Small intestine	15	4.89*	51	5.14*	20	2.62*	20	2.77*	106	27.85	3.81*	1.49
Colon	227	1.77*	781	1.89*	446	1.44*	415	1.53*	1,869	1,121.34	1.67*	14.23
Rectum, rectosigmoid junction	51	1.33	237	1.96*	82	0.95	93	1.31*	463	316.37	1.46*	2.79
Rectum	36	1.43*	154	1.94*	60	1.06	74	1.55*	324	209.01	1.55*	2.19
Anus, anal canal	5	1.75	15	1.65	9	1.34	12	2.03*	41	24.59	1.67*	0.31
Liver	3	0.59	9	0.55	5	0.41*	8	0.70	25	45.16	0.55*	-0.38
Gallbladder	3	0.49	8	0.42*	7	0.52	11	1.01	29	49.62	0.58*	-0.39
Bile ducts, other biliary	6	1.09	9	0.50*	20	1.42	17	1.28	52	50.77	1.02	0.02
Pancreas	29	0.88	103	0.98	66	0.83	69	0.98	267	288.56	0.93	-0.41
Respiratory system	89	0.79*	392	1.07	299	1.09	231	0.91	1,011	1,004.39	1.01	0.13
Nose, nasal cavity, ear	1	0.76	5	1.19	3	0.96	2	0.72	11	11.46	0.96	-0.01
Larynx	1	0.29	8	0.75	8	1.08	3	0.49	20	27.69	0.72	-0.15
Lung, bronchus	87	0.81*	379	1.09	288	1.10	225	0.93	979	962.60	1.02	0.31
Female breast	218	0.88	826	1.06	580	1.02	494	1.00	2,118	2,087.78	1.01	0.58
Female genital system	132	1.16	422	1.21*	251	1.04	215	1.07	1,020	905.34	1.13*	2.18
Cervix uteri	16	1.25	36	0.97	30	1.29	11	0.64	93	90.19	1.03	0.05
Corpus uteri	62	1.09	220	1.27*	135	1.14	121	1.25*	538	445.45	1.21*	1.76
Ovary	47	1.42*	138	1.34*	64	0.87	56	0.89	305	273.33	1.12	0.60
Vagina	2	0.97	5	0.77	3	0.65	8	2.06	18	17.02	1.06	0.02
Vulva	4	0.65	17	0.85	15	0.98	14	1.00	50	55.26	0.90	-0.10
Urinary system	54	1.13	161	1.05	121	1.05	103	1.00	439	419.04	1.05	0.38
Urinary bladder	25	0.85	90	0.95	75	1.05	64	1.00	254	259.35	0.98	-0.10
Kidney parenchyma	25	1.79*	55	1.22	31	0.92	31	1.01	142	123.55	1.15	0.35
Renal pelvis, other urinary	4	0.95	16	1.19	15	1.52	8	0.93	43	36.14	1.19	0.13
Ureter	0	0.00	7	1.64	4	1.28	2	0.75	13	11.39	1.14	0.03
Bone, joints	0	0.00	4	1.52	1	0.54	3	1.93	8	6.87	1.16	0.02
Soft tissue including heart	6	1.61	8	0.67	12	1.36	4	0.50	30	32.42	0.93	-0.05
Kaposi sarcoma	0	0.00	1	0.62	2	1.54	0	0.00	3	4.53	0.66	-0.03
Melanoma of skin	18	1.18	48	0.98	28	0.76	37	1.07	131	136.14	0.96	-0.10
Eye, orbit	2	1.46	4	0.95	2	0.68	3	1.19	11	11.06	0.99	0.00
Brain, central nervous system	8	0.90	28	1.00	27	1.35	15	0.87	78	74.08	1.05	0.07
Thyroid	11	1.65	19	0.94	22	1.59	9	0.78	61	52.40	1.16	0.16
Lymphatic, hematopoietic	75	0.98	216	0.88	180	0.97	176	1.06	647	672.61	0.96	-0.49
Hodgkin lymphoma	2	0.96	7	1.11	4	0.93	2	0.57	15	16.17	0.93	-0.02
Non-Hodgkin lymphoma	35	1.01	106	0.94	85	0.99	83	1.05	309	312.96	0.99	-0.08
Myeloma	12	0.87	33	0.75	40	1.23	27	0.94	112	118.85	0.94	-0.13
Leukemia	26	1.01	70	0.85	51	0.83	64	1.17	211	224.63	0.94	-0.26
Acute lymphocytic	1	1.48	1	0.46	2	1.23	1	0.70	5	5.89	0.85	-0.02
Chronic lymphocytic	7	0.69	18	0.56*	18	0.75	21	1.00	64	87.42	0.73*	-0.45
Acute non-lymphocytic	15	1.70	31	1.09	17	0.80	28	1.46	91	77.65	1.17	0.25
Chronic myeloid	3	0.85	11	0.97	7	0.83	10	1.32	31	30.87	1.00	0.00

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

Table 5.1.5: Risk of subsequent primary cancers after cancer of the colon, males, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	1,503	1.10*	4,733	1.07*	3,171	1.00	2,486	0.98	11,893	11,490.62	1.04*	8.82
All excluding same site	1,108	0.94*	3,690	0.97*	2,652	0.97	2,090	0.95*	9,540	9,912.78	0.96*	-8.17
Buccal cavity, pharynx	34	0.85	121	0.99	89	1.12	55	0.95	299	298.73	1.00	0.01
Lip	3	0.37	13	0.53*	15	0.94	4	0.35*	35	59.63	0.59*	-0.54
Tongue	8	1.10	24	1.08	21	1.44	16	1.50	69	54.70	1.26	0.31
Salivary gland	6	1.84	10	0.94	5	0.64	4	0.60	25	28.40	0.88	-0.07
Mouth	8	0.85	32	1.13	17	0.94	10	0.78	67	68.80	0.97	-0.04
Nasopharynx	1	0.67	2	0.44	4	1.41	0	0.00	7	10.83	0.65	-0.08
Tonsil	3	0.86	10	0.95	6	0.91	8	1.75	27	25.11	1.08	0.04
Oropharynx	1	0.91	6	1.80	5	2.32	4	2.57	16	8.14	1.97*	0.17
Hypopharynx	4	0.91	20	1.49	10	1.17	6	1.02	40	32.19	1.24	0.17
Digestive system	497	1.61*	1,464	1.48*	827	1.19*	642	1.17*	3,430	2,541.93	1.35*	19.46
Esophagus	13	0.73	56	0.99	49	1.24	28	0.89	146	145.44	1.00	0.01
Stomach	35	0.93	131	1.11	106	1.30*	81	1.29*	353	300.00	1.18*	1.16
Small intestine	18	4.66*	38	3.03*	23	2.52*	25	3.26*	104	33.20	3.13*	1.55
Colon	292	2.17*	748	1.72*	411	1.32*	310	1.25*	1,761	1,126.12	1.56*	13.91
Rectum, rectosigmoid junction	101	1.82*	281	1.61*	105	0.89	85	0.96	572	436.80	1.31*	2.96
Anus, anal canal	2	1.09	14	2.40*	3	0.74	1	0.31	20	14.92	1.34	0.11
Liver	6	0.51	30	0.79	15	0.55*	23	1.02	74	99.69	0.74*	-0.56
Gallbladder	5	1.75	4	0.44	5	0.79	0	0.00*	14	23.13	0.61	-0.20
Bile ducts, other biliary	4	0.61	37	1.71*	26	1.59*	21	1.46	88	58.81	1.50*	0.64
Pancreas	20	0.57*	117	1.05	82	1.06	64	1.05	283	284.48	0.99	-0.03
Respiratory system	187	0.71*	757	0.91*	555	0.97	357	0.82*	1,856	2,109.01	0.88*	-5.54
Nose, nasal cavity, ear	2	0.97	9	1.39	6	1.34	1	0.29	18	16.50	1.09	0.03
Larynx	16	0.79	52	0.84	35	0.87	28	0.98	131	150.63	0.87	-0.43
Lung, bronchus	168	0.70*	695	0.91*	513	0.97	327	0.81*	1,703	1,936.62	0.88*	-5.12
Male breast	3	1.17	3	0.37	3	0.52	8	1.67	17	21.31	0.80	-0.09
Male genital system	453	1.07	1,409	1.00	1,023	0.98	837	0.99	3,722	3,718.79	1.00	0.07
Prostate	448	1.07	1,403	1.01	1,012	0.98	826	0.98	3,689	3,687.31	1.00	0.04
Testis	0	0.00	1	0.30	1	0.54	1	0.91	3	7.45	0.40	-0.10
Urinary system	169	1.26*	462	1.07	286	0.92	264	1.03	1,181	1,134.46	1.04	1.02
Urinary bladder	99	1.01	322	1.01	212	0.91	177	0.93	810	841.17	0.96	-0.68
Kidney parenchyma	60	2.19*	106	1.20	57	0.91	59	1.17	282	228.40	1.23*	1.17
Renal pelvis, other urinary	10	1.25	34	1.34	17	0.96	28	2.02*	89	64.90	1.37*	0.53
Ureter	4	1.47	16	1.84*	7	1.16	15	3.24*	42	22.04	1.91*	0.44
Bone, joints	0	0.00	2	0.61	1	0.46	1	0.61	4	8.13	0.49	-0.09
Soft tissue including heart	7	1.38	17	1.05	12	1.03	8	0.81	44	42.90	1.03	0.02
Kaposi sarcoma	1	0.54	7	1.23	2	0.53	4	1.42	14	14.18	0.99	0.00
Melanoma of skin	38	1.41	98	1.09	46	0.68*	55	0.91	237	245.10	0.97	-0.18
Eye, orbit	1	0.54	7	1.20	4	1.00	2	0.65	14	14.79	0.95	-0.02
Brain, central nervous system	10	0.81	28	0.72	18	0.68	18	0.87	74	98.41	0.75*	-0.53
Thyroid	8	2.00	14	1.12	7	0.85	7	1.12	36	30.95	1.16	0.11
Lymphatic, hematopoietic	75	0.76*	283	0.88*	234	1.01	176	0.92	768	843.97	0.91*	-1.66
Hodgkin lymphoma	5	1.65	8	0.89	2	0.35	3	0.74	18	21.74	0.83	-0.08
Non-Hodgkin lymphoma	31	0.77	114	0.86	96	0.98	85	1.02	326	354.84	0.92	-0.63
Myeloma	15	0.87	48	0.86	38	0.95	30	0.91	131	146.44	0.89	-0.34
Leukemia	24	0.62*	113	0.91	98	1.11	58	0.82	293	320.94	0.91	-0.61
Acute lymphocytic	1	1.02	2	0.64	6	2.77*	0	0.00	9	7.83	1.15	0.03
Chronic lymphocytic	6	0.38*	37	0.74	30	0.85	18	0.65	91	128.70	0.71*	-0.83
Acute non-lymphocytic	10	0.79	39	0.96	35	1.19	16	0.67	100	106.85	0.94	-0.15
Chronic myeloid	5	0.97	20	1.20	13	1.09	12	1.22	50	43.59	1.15	0.14

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

Colon Both Sexes, <40 Years of Age

Table 5.1.6: Risk of subsequent primary cancers after cancer of the colon, both sexes, <40 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	Number starting interval	Person-years in interval	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
	3,722	2,769	3,009	8,521	1,634	6,610	1,070	8,190	3,722	26,090		
All subsequent cancers	14	4.78*	52	4.58*	43	3.17*	101	2.66*	210	65.78	3.19*	55.28
All excluding same site	9	3.24*	31	2.90*	27	2.14*	63	1.82*	130	60.73	2.14*	26.55
Buccal cavity, pharynx	1	13.29	1	3.10	0	0.00	1	0.83	3	2.04	1.47	0.37
Lip	1	107.84*	0	0.00	0	0.00	0	0.00	1	0.17	5.80	0.32
Tongue	0	0.00	1	14.45	0	0.00	0	0.00	1	0.47	2.12	0.20
Salivary gland	0	0.00	0	0.00	0	0.00	1	9.23	1	0.23	4.38	0.30
Mouth	0	0.00	0	0.00	0	0.00	0	0.00	0	0.47	0.00	-0.18
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.18	0.00	-0.07
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.28	0.00	-0.11
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.02
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	0.00	-0.05
Digestive system	5	19.48*	26	23.25*	20	12.67*	49	8.89*	100	8.46	11.82*	35.08
Esophagus	0	0.00	0	0.00	0	0.00	1	2.83	1	0.50	2.01	0.19
Stomach	0	0.00	0	0.00	0	0.00	4	8.09*	4	0.85	4.73*	1.21
Small intestine	0	0.00	4	104.90*	1	19.99	2	13.80*	7	0.24	28.95*	2.59
Colon	4	40.04*	15	35.89*	12	21.20*	29	14.08*	60	3.14	19.08*	21.79
Rectum, rectosigmoid junction	1	21.73	6	29.38*	4	12.96*	8	7.14*	19	1.68	11.31*	6.64
Anus, anal canal	0	0.00	0	0.00	0	0.00	1	7.95	1	0.22	4.50	0.30
Liver	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	0.00	-0.19
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.03
Bile ducts, other biliary	0	0.00	0	0.00	2	63.15*	3	26.74*	5	0.17	29.10*	1.85
Pancreas	0	0.00	1	9.57	1	6.10	1	1.56	3	0.93	3.23	0.79
Respiratory system	2	13.64*	2	2.73	2	1.67	5	1.00	11	7.06	1.56	1.51
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.12	0.00	-0.05
Larynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.63	0.00	-0.24
Lung, bronchus	2	16.41*	2	3.21	2	1.91	5	1.12	11	6.26	1.76	1.82
Female breast	0	0.00	0	0.00	0	0.00*	14	1.54	14	16.32	0.86	-1.69
Female genital system	3	8.43*	10	7.74*	8	5.62*	12	3.61*	33	6.39	5.16*	19.40
Cervix uteri	0	0.00	2	3.33	0	0.00	0	0.00	2	2.00	1.00	0.00
Corpus uteri	1	16.31	2	7.50	8	20.62*	7	4.98*	18	2.12	8.49*	11.58
Ovary	2	21.78*	5	14.37*	0	0.00	4	3.89*	11	1.89	5.81*	6.64
Vagina	0	0.00	1	81.83*	0	0.00	1	31.35	2	0.06	32.75*	1.41
Vulva	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.14
Male genital system	0	0.00	1	2.12	2	4.07	4	1.02	7	5.05	1.39	1.58
Prostate	0	0.00	0	0.00	2	9.54*	4	1.08	6	3.96	1.52	1.65
Testis	0	0.00	1	2.45	0	0.00	0	0.00	1	1.03	0.98	-0.02
Urinary system	0	0.00	2	4.48	3	4.76	5	2.26	10	3.39	2.95*	2.53
Urinary bladder	0	0.00	1	4.64	2	6.57	2	1.70	5	1.75	2.86	1.25
Kidney parenchyma	0	0.00	0	0.00	1	3.31	1	1.05	2	1.52	1.32	0.19
Renal pelvis, other urinary	0	0.00	1	58.13	0	0.00	2	23.18*	3	0.13	22.82*	1.10
Ureter	0	0.00	0	0.00	0	0.00	1	47.32	1	0.03	34.76	0.37
Bone, joints	0	0.00	1	19.60	0	0.00	0	0.00	1	0.17	5.81	0.32
Soft tissue including heart	0	0.00	1	7.18	0	0.00	0	0.00	1	0.54	1.86	0.18
Kaposi sarcoma	0	0.00	0	0.00	0	0.00	0	0.00	0	1.28	0.00	-0.49
Melanoma of skin	1	3.48	0	0.00	2	1.95	1	0.52	4	4.24	0.94	-0.09
Eye, orbit	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.05
Brain, central nervous system	0	0.00	1	3.00	2	6.36	2	3.34	5	1.34	3.72*	1.40
Thyroid	1	5.48	1	1.69	1	1.93	1	1.23	4	2.11	1.90	0.73
Lymphatic, hematopoietic	1	2.65	3	2.28	3	2.28	6	2.05	13	5.93	2.19*	2.71
Hodgkin lymphoma	0	0.00	1	3.53	1	5.02	0	0.00	2	0.81	2.48	0.46
Non-Hodgkin lymphoma	1	5.70	0	0.00	1	1.42	4	2.55	6	3.11	1.93	1.11
Myeloma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.54	0.00	-0.21
Leukemia	0	0.00	2	6.42	1	3.14	2	2.63	5	1.48	3.38*	1.35
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.05
Chronic lymphocytic	0	0.00	0	0.00	1	18.57	0	0.00	1	0.33	3.00	0.26
Acute non-lymphocytic	0	0.00	2	14.93*	0	0.00	2	7.52	4	0.57	7.03*	1.32
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	0.00	-0.11

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 13,716 PYR and for male cancers on 12,375 PYR.

Table 5.1.7: Risk of subsequent primary cancers after cancer of the colon, both sexes, 40-59 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	278	1.75*	990	1.58*	899	1.26*	1,415	1.08*	3,582	2,816.13	1.27*	32.33
All excluding same site	183	1.30*	693	1.24*	728	1.15*	1,158	1.00	2,762	2,483.41	1.11*	11.76
Buccal cavity, pharynx	6	0.92	26	1.09	30	1.32	28	0.93	90	83.31	1.08	0.28
Lip	1	1.62	3	1.33	3	1.31	1	0.28	8	8.74	0.92	-0.03
Tongue	2	1.45	4	0.78	12	2.47*	10	1.55	28	17.77	1.58*	0.43
Salivary gland	0	0.00	2	1.29	2	1.27	2	0.74	6	6.23	0.96	-0.01
Mouth	1	0.56	9	1.38	5	0.83	8	1.02	23	22.21	1.04	0.03
Nasopharynx	0	0.00	0	0.00	2	1.83	0	0.00	2	4.04	0.50	-0.09
Tonsil	1	1.20	2	0.68	1	0.38	4	1.34	8	9.36	0.86	-0.06
Oropharynx	1	5.07	2	2.64	2	2.66	0	0.00	5	2.64	1.89	0.10
Hypopharynx	0	0.00	3	1.15	2	0.77	1	0.31	6	9.15	0.66	-0.13
Digestive system	118	4.09*	385	3.30*	245	1.82*	391	1.51*	1,139	538.41	2.12*	25.36
Esophagus	2	0.96	6	0.73	14	1.58	13	0.89	35	33.70	1.04	0.05
Stomach	6	2.03	22	1.88*	21	1.64*	37	1.55*	86	51.24	1.68*	1.47
Small intestine	6	10.80*	18	8.53*	9	3.95*	18	4.14*	51	9.29	5.49*	1.76
Colon	72	6.49*	205	4.45*	130	2.34*	189	1.66*	596	226.79	2.63*	15.59
Rectum, rectosigmoid junction	23	3.95*	88	3.75*	40	1.54*	63	1.43*	214	99.24	2.16*	4.85
Anus, anal canal	0	0.00	4	2.37	1	0.58	5	1.76	10	6.70	1.49	0.14
Liver	1	0.79	3	0.60	5	0.88	14	1.32	23	22.61	1.02	0.02
Gallbladder	0	0.00	1	0.78	1	0.65	1	0.31	3	6.41	0.47	-0.14
Bile ducts, other biliary	0	0.00	4	1.90	4	1.59	12	2.07*	20	10.93	1.83*	0.38
Pancreas	8	2.31	31	2.23*	19	1.17	35	1.09	93	65.71	1.42*	1.15
Respiratory system	26	0.89	138	1.16	163	1.20*	200	0.84*	527	522.14	1.01	0.21
Nose, nasal cavity, ear	0	0.00	2	1.77	1	0.89	2	1.14	5	4.30	1.16	0.03
Larynx	1	0.36	11	1.03	10	0.93	8	0.56	30	38.56	0.78	-0.36
Lung, bronchus	25	0.96	124	1.16	151	1.22*	189	0.85*	489	478.07	1.02	0.46
Female breast	25	0.91	102	1.03	107	1.10	159	1.00	393	382.40	1.03	0.90
Female genital system	35	2.67*	85	1.81*	67	1.51*	79	1.19	266	170.75	1.56*	8.06
Cervix uteri	6	2.73	3	0.43	8	1.50	8	1.36	25	20.31	1.23	0.40
Corpus uteri	12	1.80	48	1.96*	40	1.69*	44	1.24	144	90.52	1.59*	4.52
Ovary	16	4.43*	31	2.37*	16	1.26	19	0.95	82	49.31	1.66*	2.76
Vagina	0	0.00	0	0.00	1	1.93	3	3.26	4	2.05	1.95	0.16
Vulva	0	0.00	0	0.00	0	0.00	3	1.14	3	5.30	0.57	-0.19
Male genital system	23	1.49	86	1.10	129	1.05	284	1.02	522	495.24	1.05	2.26
Prostate	23	1.55	85	1.12	128	1.05	281	1.01	517	489.46	1.06	2.32
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	2.76	0.00	-0.23
Urinary system	14	1.32	73	1.70*	60	1.19	97	0.99	244	201.80	1.21*	1.78
Urinary bladder	4	0.65	37	1.43*	36	1.14	55	0.85	132	128.41	1.03	0.15
Kidney parenchyma	10	2.59*	29	1.94*	18	1.12	24	0.88	81	62.14	1.30*	0.80
Renal pelvis, other urinary	0	0.00	7	3.07*	6	2.17	18	3.18*	31	11.25	2.76*	0.83
Ureter	0	0.00	5	7.76*	2	2.32	11	6.01*	18	3.48	5.17*	0.61
Bone, joints	0	0.00	0	0.00	1	1.48	2	2.00	3	2.62	1.14	0.02
Soft tissue including heart	2	2.46	2	0.70	6	2.17	3	0.63	13	11.20	1.16	0.08
Kaposi sarcoma	0	0.00	0	0.00	0	0.00	0	0.00	0	3.56	0.00	-0.15
Melanoma of skin	8	1.47	24	1.23	18	0.96	27	0.90	77	73.80	1.04	0.14
Eye, orbit	0	0.00	0	0.00	1	0.93	0	0.00	1	4.18	0.24	-0.13
Brain, central nervous system	0	0.00	11	1.26	6	0.71	14	1.08	31	32.59	0.95	-0.07
Thyroid	8	3.99*	8	1.21	4	0.72	6	0.86	26	21.19	1.23	0.20
Lymphatic, hematopoietic	11	0.96	41	0.93	51	1.06	98	1.05	201	196.70	1.02	0.18
Hodgkin lymphoma	2	2.88	2	0.89	0	0.00	1	0.41	5	7.28	0.69	-0.10
Non-Hodgkin lymphoma	4	0.72	27	1.27	29	1.25	52	1.16	112	94.77	1.18	0.73
Myeloma	3	1.69	4	0.56	13	1.56	18	1.09	38	33.76	1.13	0.18
Leukemia	2	0.59	8	0.60	9	0.60	27	0.92	46	60.89	0.76	-0.63
Acute lymphocytic	0	0.00	0	0.00	2	3.74	1	1.23	3	2.03	1.47	0.04
Chronic lymphocytic	1	0.77	3	0.56	3	0.48	13	1.11	20	24.61	0.81	-0.19
Acute non-lymphocytic	0	0.00	3	0.70	1	0.21	3	0.29*	7	20.59	0.34*	-0.57
Chronic myeloid	1	1.92	2	1.05	3	1.49	9	2.32*	15	8.33	1.80*	0.28

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 118,241 PYR and for male cancers on 118,616 PYR.

Colon Both Sexes, 60-69 Years of Age

Table 5.1.8: Risk of subsequent primary cancers after cancer of the colon, both sexes, 60-69 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	654	1.19*	2,374	1.15*	1,941	1.02	1,863	1.00	6,832	6,370.41	1.07*	15.13
All excluding same site	473	0.99	1,812	1.01	1,584	0.96	1,511	0.96	5,380	5,487.80	0.98	-3.53
Buccal cavity, pharynx	15	0.89	53	0.94	45	1.05	35	1.00	148	151.28	0.98	-0.11
Lip	1	0.45	5	0.64	5	0.78	2	0.34	13	22.43	0.58*	-0.31
Tongue	5	1.47	14	1.23	10	1.16	7	1.02	36	30.27	1.19	0.19
Salivary gland	1	0.89	3	0.72	1	0.27	3	0.73	8	13.10	0.61	-0.17
Mouth	2	0.45	13	0.88	11	0.99	7	0.73	33	39.95	0.83	-0.23
Nasopharynx	1	1.38	1	0.43	2	1.25	1	0.91	5	5.75	0.87	-0.02
Tonsil	3	1.73	7	1.27	5	1.35	5	2.10	20	13.32	1.50	0.22
Oropharynx	1	1.82	3	1.70	2	1.62	4	4.61*	10	4.42	2.26*	0.18
Hypopharynx	1	0.50	6	0.91	6	1.28	4	1.35	17	16.27	1.04	0.02
Digestive system	229	2.01*	773	1.80*	532	1.31*	528	1.19*	2,062	1,391.23	1.48*	21.98
Esophagus	9	1.30	31	1.26	28	1.36	21	1.13	89	70.67	1.26*	0.60
Stomach	13	1.13	50	1.16	57	1.43*	56	1.30	176	137.29	1.28*	1.27
Small intestine	9	5.60*	35	5.71*	14	2.40*	17	2.76*	75	19.74	3.80*	1.81
Colon	133	2.75*	400	2.14*	305	1.66*	292	1.36*	1,130	633.25	1.78*	16.28
Rectum, rectosigmoid junction	45	2.07*	152	1.92*	49	0.71*	56	0.84	302	237.00	1.27*	2.13
Anus, anal canal	3	2.61	10	2.39*	3	0.83	4	1.17	20	12.36	1.62	0.25
Liver	4	0.95	12	0.76	6	0.41*	9	0.62	31	49.07	0.63*	-0.59
Gallbladder	1	0.70	1	0.18	2	0.37	6	0.96	10	18.65	0.54*	-0.28
Bile ducts, other biliary	4	1.90	17	2.05*	16	1.88*	7	0.62	44	30.25	1.45*	0.45
Pancreas	7	0.50	62	1.18	49	0.99	56	1.03	174	170.04	1.02	0.13
Respiratory system	84	0.77*	368	0.93	322	0.94	245	0.82*	1,019	1,146.97	0.89*	-4.19
Nose, nasal cavity, ear	1	1.20	2	0.70	5	2.06	0	0.00	8	8.70	0.92	-0.02
Larynx	7	0.83	26	0.93	17	0.83	17	1.20	67	70.79	0.95	-0.12
Lung, bronchus	76	0.76*	340	0.93	300	0.94	227	0.81*	943	1,064.83	0.89*	-3.99
Female breast	45	0.78	206	1.02	194	1.08	167	0.91	612	623.96	0.98	-0.81
Female genital system	32	1.07	115	1.16	72	0.91	76	1.02	295	282.77	1.04	0.82
Cervix uteri	2	0.61	9	0.90	8	1.17	1	0.17*	20	25.84	0.77	-0.39
Corpus uteri	16	0.95	61	1.11	39	0.91	43	1.17	159	151.35	1.05	0.51
Ovary	13	1.62	40	1.45*	20	0.85	25	1.07	98	82.48	1.19	1.04
Vagina	0	0.00	1	0.76	0	0.00	1	0.69	2	4.36	0.46	-0.16
Vulva	1	1.18	3	0.91	4	1.14	4	0.80	12	12.67	0.95	-0.05
Male genital system	109	1.05	435	1.00	421	0.97	371	0.98	1,336	1,355.02	0.99	-1.21
Prostate	107	1.04	434	1.00	419	0.97	366	0.97	1,326	1,345.50	0.99	-1.25
Testis	0	0.00	0	0.00	1	2.06	1	3.11	2	1.91	1.05	0.01
Urinary system	63	1.52*	177	1.12	140	0.94	167	1.08	547	503.30	1.09	1.43
Urinary bladder	35	1.27	113	1.06	93	0.90	110	0.99	351	348.87	1.01	0.07
Kidney parenchyma	25	2.23*	51	1.24	36	0.99	45	1.33	157	122.36	1.28*	1.14
Renal pelvis, other urinary	3	1.14	13	1.28	11	1.15	12	1.23	39	32.07	1.22	0.23
Ureter	0	0.00	6	1.75	2	0.62	5	1.55	13	10.77	1.21	0.07
Bone, joints	0	0.00	0	0.00	1	0.71	1	0.80	2	4.81	0.42	-0.09
Soft tissue including heart	3	1.58	10	1.43	12	1.87	5	0.69	30	22.58	1.33	0.24
Kaposi sarcoma	0	0.00	2	1.90	1	1.01	4	3.03	7	3.66	1.91	0.11
Melanoma of skin	17	1.56	45	1.12	26	0.72	48	1.28	136	124.64	1.09	0.37
Eye, orbit	1	1.21	5	1.69	3	1.21	4	1.74	13	8.58	1.52	0.14
Brain, central nervous system	6	0.98	21	0.97	14	0.77	13	0.82	54	61.59	0.88	-0.25
Thyroid	4	1.35	10	1.01	9	1.19	7	1.13	30	26.60	1.13	0.11
Lymphatic, hematopoietic	37	1.00	127	0.90	115	0.85	144	0.97	423	462.37	0.91	-1.29
Hodgkin lymphoma	3	2.31	4	0.92	3	0.87	3	0.99	13	12.17	1.07	0.03
Non-Hodgkin lymphoma	18	1.09	57	0.90	48	0.77	66	0.96	189	210.36	0.90	-0.70
Myeloma	7	1.04	19	0.74	22	0.90	23	0.87	71	83.20	0.85	-0.40
Leukemia	9	0.73	47	0.99	42	0.92	52	1.02	150	156.65	0.96	-0.22
Acute lymphocytic	1	2.89	0	0.00	3	2.68	0	0.00	4	3.84	1.04	0.01
Chronic lymphocytic	2	0.38	8	0.40*	8	0.43*	19	0.96	37	63.71	0.58*	-0.88
Acute non-lymphocytic	5	1.25	23	1.46	19	1.19	20	1.10	67	53.95	1.24	0.43
Chronic myeloid	0	0.00	10	1.64	7	1.18	6	0.85	23	20.71	1.11	0.08

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 148,569 PYR and for male cancers on 156,607 PYR.

Table 5.1.9: Risk of subsequent primary cancers after cancer of the colon, both sexes, ≥70 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	1,576	0.98	4,850	1.03	2,604	0.95*	1,193	0.96	10,223	10,311.64	0.99	-2.14
All excluding same site	1,179	0.89*	3,654	0.94*	2,092	0.93*	924	0.91*	7,849	8,491.87	0.92*	-15.54
Buccal cavity, pharynx	28	0.85	91	0.98	51	1.01	19	0.85	189	198.58	0.95	-0.23
Lip	0	0.00*	11	0.60	10	0.98	3	0.67	24	39.63	0.61*	-0.38
Tongue	8	1.33	17	1.00	11	1.21	5	1.27	41	35.97	1.14	0.12
Salivary gland	9	2.53*	12	1.11	6	0.88	1	0.28	28	24.69	1.13	0.08
Mouth	6	0.67	27	1.05	16	1.13	6	0.91	55	55.41	0.99	-0.01
Nasopharynx	0	0.00	3	1.07	0	0.00	0	0.00	3	5.82	0.52	-0.07
Tonsil	0	0.00	3	0.50	1	0.36	0	0.00	4	11.94	0.33*	-0.19
Oropharynx	0	0.00	2	1.00	1	1.02	1	2.72	4	4.09	0.98	0.00
Hypopharynx	5	1.82	13	1.77	4	1.20	3	2.64	25	14.55	1.72*	0.25
Digestive system	516	1.23*	1,598	1.28*	751	0.99	402	1.10	3,267	2,788.33	1.17*	11.57
Esophagus	12	0.78	44	0.99	19	0.76	11	0.97	86	96.10	0.89	-0.24
Stomach	36	0.81	135	1.03	76	0.98	43	1.17	290	289.00	1.00	0.02
Small intestine	18	3.78*	32	2.25*	19	2.21*	8	1.89	77	31.78	2.42*	1.09
Colon	310	1.53*	909	1.48*	410	1.08	215	1.15	1,844	1,384.27	1.33*	11.11
Rectum, rectosigmoid junction	83	1.25	272	1.42*	94	0.86	51	1.05	500	415.26	1.20*	2.05
Anus, anal canal	4	1.30	15	1.66	8	1.48	3	1.11	30	20.24	1.48	0.24
Liver	4	0.35*	24	0.71	9	0.47*	8	0.94	45	72.68	0.62*	-0.67
Gallbladder	7	0.97	10	0.47*	9	0.70	4	0.65	30	47.61	0.63*	-0.43
Bile ducts, other biliary	6	0.64	25	0.86	24	1.25	16	1.54	71	68.23	1.04	0.07
Pancreas	34	0.67*	126	0.84	79	0.87	41	0.91	280	336.36	0.83*	-1.36
Respiratory system	164	0.69*	641	0.94	367	1.00	138	0.93	1,310	1,437.24	0.91*	-3.08
Nose, nasal cavity, ear	2	0.89	10	1.49	3	0.75	1	0.53	16	14.85	1.08	0.03
Larynx	9	0.72	23	0.68	16	0.99	6	1.05	54	68.34	0.79	-0.35
Lung, bronchus	152	0.68*	608	0.95	348	1.01	131	0.93	1,239	1,350.07	0.92*	-2.68
Female breast	148	0.92	518	1.09	279	0.97	154	1.09	1,099	1,065.10	1.03	1.38
Female genital system	62	0.88	212	1.05	104	0.89	48	0.85	426	445.44	0.96	-0.79
Cervix uteri	8	1.12	22	1.13	14	1.33	2	0.41	46	42.04	1.09	0.16
Corpus uteri	33	0.98	109	1.16	48	0.94	27	1.18	217	201.46	1.08	0.63
Ovary	16	0.75	62	0.99	28	0.75	8	0.43*	114	139.65	0.82*	-1.05
Vagina	2	1.29	3	0.65	2	0.70	3	2.04	10	10.54	0.95	-0.02
Vulva	3	0.60	14	0.91	11	1.05	7	1.13	35	37.09	0.94	-0.09
Male genital system	321	1.06	887	1.00	471	0.97	178	0.96	1,857	1,863.48	1.00	-0.38
Prostate	318	1.06	884	1.00	463	0.97	175	0.95	1,840	1,848.39	1.00	-0.50
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	1.76	0.00	-0.10
Urinary system	146	1.13	371	0.96	204	0.90	98	0.94	819	845.01	0.97	-0.63
Urinary bladder	85	0.90	261	0.93	156	0.93	74	0.95	576	621.49	0.93	-1.10
Kidney parenchyma	50	1.91*	81	1.05	33	0.76	20	1.04	184	165.93	1.11	0.44
Renal pelvis, other urinary	11	1.22	29	1.10	15	0.99	4	0.58	59	57.59	1.02	0.03
Ureter	4	1.32	12	1.35	7	1.39	0	0.00	23	19.15	1.20	0.09
Bone, joints	0	0.00	5	1.46	0	0.00	1	1.13	6	7.40	0.81	-0.03
Soft tissue including heart	8	1.33	12	0.66	6	0.54	4	0.71	30	41.00	0.73	-0.27
Kaposi sarcoma	1	0.73	6	1.38	3	1.04	0	0.00	10	10.22	0.98	-0.01
Melanoma of skin	30	1.17	77	0.98	28	0.57*	16	0.63	151	178.56	0.85*	-0.67
Eye, orbit	2	0.96	6	1.00	2	0.59	1	0.66	11	12.95	0.85	-0.05
Brain, central nervous system	12	0.96	23	0.64*	23	1.16	4	0.48	62	76.97	0.81	-0.36
Thyroid	6	1.09	14	0.89	15	1.77	2	0.53	37	33.45	1.11	0.09
Lymphatic, hematopoietic	101	0.80*	328	0.86*	245	1.06	104	0.93	778	851.57	0.91*	-1.78
Hodgkin lymphoma	2	0.67	8	0.95	2	0.45	1	0.55	13	17.67	0.74	-0.11
Non-Hodgkin lymphoma	43	0.81	136	0.85	103	1.05	46	0.96	328	359.57	0.91	-0.76
Myeloma	17	0.75	58	0.87	43	1.08	16	0.87	134	147.79	0.91	-0.33
Leukemia	39	0.80	126	0.87	97	1.09	41	0.93	303	326.55	0.93	-0.57
Acute lymphocytic	1	0.87	3	0.87	3	1.42	0	0.00	7	7.72	0.91	-0.02
Chronic lymphocytic	10	0.52*	44	0.77	36	1.05	7	0.41*	97	127.46	0.76*	-0.74
Acute non-lymphocytic	20	1.23	42	0.86	32	1.08	19	1.32	113	109.38	1.03	0.09
Chronic myeloid	7	1.07	19	0.96	10	0.81	7	1.11	43	45.11	0.95	-0.05

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 244,864 PYR and for male cancers on 168,807 PYR.

Rectum Both Sexes

Table 5.2.1: Characteristics of patients with an initial cancer of the rectum or rectosigmoid junction, both sexes, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
Number of patients with 1st primary cancer						
Total	43,403	100.0	34,033	100.0	77,436	100.0
Initial treatment						
Any radiation	13,276	30.6	8,624	25.3	21,900	28.3
With surgery	10,997	25.3	7,008	20.6	18,005	23.3
Without surgery	2,279	5.3	1,616	4.7	3,895	5.0
No radiation	30,127	69.4	25,409	74.7	55,536	71.7
With surgery	27,151	62.6	22,398	65.8	49,549	64.0
Without surgery	2,976	6.9	3,011	8.8	5,987	7.7
Race						
White	37,509	86.4	29,649	87.1	67,158	86.7
Black	2,523	5.8	2,379	7.0	4,902	6.3
Other	3,245	7.5	1,907	5.6	5,152	6.7
Unknown	126	0.3	98	0.3	224	0.3
Age at 1st primary cancer diagnosis, years						
< 30	178	0.4	149	0.4	327	0.4
30–49	3,603	8.3	2,858	8.4	6,461	8.3
50–69	22,288	51.4	14,209	41.8	36,497	47.1
70–79	12,213	28.1	9,841	28.9	22,054	28.5
≥ 80	5,121	11.8	6,976	20.5	12,097	15.6
Number of patients with one or more primary cancers						
One primary cancer only	38,819	89.4	31,306	92.0	70,125	90.6
1st and 2nd cancers	4,120	9.5	2,461	7.2	6,581	8.5
1st, 2nd, and 3rd cancers	428	1.0	236	0.7	664	0.9
1st, 2nd, 3rd, and additional cancers	36	0.1	30	0.1	66	0.1
Other statistics						
Median age at 1st cancer diagnosis	67.1	—	69.8	—	68.2	—
Median year of 1st cancer diagnosis	1987.5	—	1987.2	—	1987.4	—
Median person-years at risk	3.1	—	3.3	—	3.2	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	94.8	—	94.7	—	94.7
1st, 2nd, and additional cancers	—	94.2	—	94.0	—	94.1
1st cancer only	—	4.9	—	4.9	—	4.9

*Percent histologically confirmed among patients who developed a subsequent primary cancer.

Table 5.2.2: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	1,042	1.08*	3,019	0.99	2,194	1.01	1,862	0.96	8,117	8,133.64	1.00	-0.40
All excluding same site	815	0.99	2,355	0.90*	1,834	1.00	1,527	0.92*	6,531	6,923.21	0.94*	-9.34
Buccal cavity, pharynx	23	0.89	75	0.96	39	0.78	31	0.77	168	193.74	0.87	-0.61
Lip	4	0.93	13	1.01	4	0.48	8	1.21	29	32.11	0.90	-0.07
Tongue	4	0.81	10	0.66	6	0.61	5	0.64	25	37.63	0.66*	-0.30
Salivary gland	0	0.00	9	1.32	4	0.82	3	0.66	16	18.39	0.87	-0.06
Mouth	6	0.88	17	0.83	11	0.84	12	1.14	46	50.94	0.90	-0.12
Nasopharynx	2	1.90	4	1.29	3	1.59	0	0.00	9	7.49	1.20	0.04
Tonsil	2	0.87	8	1.18	3	0.72	2	0.66	15	16.25	0.92	-0.03
Oropharynx	1	1.44	2	0.95	0	0.00	0	0.00	3	5.15	0.58	-0.05
Hypopharynx	1	0.38	9	1.14	7	1.44	1	0.28	18	18.91	0.95	-0.02
Digestive system	308	1.35*	883	1.24*	519	1.04	498	1.11*	2,208	1,891.93	1.17*	7.53
Esophagus	12	1.13	29	0.88	20	0.88	12	0.60	73	86.35	0.85	-0.32
Stomach	27	1.10	59	0.79	49	0.97	56	1.27	191	194.20	0.98	-0.08
Small intestine	8	2.82*	29	3.19*	9	1.37	16	2.56*	62	24.76	2.50*	0.89
Colon	177	1.71*	527	1.61*	297	1.27*	301	1.41*	1,302	879.86	1.48*	10.05
Rectum, rectosigmoid junction	44	1.11	122	0.99	57	0.69*	32	0.46*	255	314.84	0.81*	-1.42
Anus, anal canal	6	3.19*	15	2.52*	6	1.44	2	0.54	29	15.72	1.84*	0.32
Liver	3	0.41	9	0.38*	11	0.67	7	0.46*	30	62.64	0.48*	-0.78
Gallbladder	4	1.19	6	0.58	8	1.13	3	0.48	21	27.01	0.78	-0.14
Bile ducts, other biliary	3	0.63	19	1.24	16	1.40	18	1.56	56	43.12	1.30	0.31
Pancreas	21	0.77	61	0.72*	44	0.74*	44	0.81	170	225.73	0.75*	-1.33
Respiratory system	135	0.81*	534	1.02	452	1.25*	318	1.02	1,439	1,361.78	1.06*	1.84
Nose, nasal cavity, ear	0	0.00	3	0.67	7	2.28	5	1.85	15	11.73	1.28	0.08
Larynx	11	0.97	38	1.10	26	1.20	11	0.67	86	83.89	1.03	0.05
Lung, bronchus	123	0.80*	493	1.02	417	1.25*	301	1.03	1,334	1,262.74	1.06*	1.70
Female breast	104	1.18	281	1.00	201	1.01	167	0.89	753	755.75	1.00	-0.14
Female genital system	25	0.60*	110	0.86	114	1.33*	71	0.93	320	331.18	0.97	-0.58
Cervix uteri	6	1.27	11	0.81	10	1.22	3	0.48	30	32.71	0.92	-0.14
Corpus uteri	11	0.52*	55	0.85	69	1.59*	42	1.11	177	167.10	1.06	0.51
Ovary	5	0.42*	32	0.86	22	0.84	17	0.71	76	99.13	0.77*	-1.19
Vagina	2	2.89	4	1.87	8	5.36*	3	2.15	17	5.72	2.97*	0.58
Vulva	0	0.00	5	0.77	3	0.62	4	0.80	12	18.35	0.65	-0.33
Male genital system	217	1.14	472	0.75*	380	0.82*	357	0.87*	1,426	1,692.72	0.84*	-11.81
Prostate	214	1.13	465	0.75*	376	0.82*	352	0.86*	1,407	1,677.97	0.84*	-12.00
Testis	0	0.00	1	0.56	1	1.11	0	0.00	2	3.88	0.52	-0.08
Urinary system	122	1.55*	300	1.20*	181	1.02	158	0.98	761	668.09	1.14*	2.21
Urinary bladder	65	1.17	208	1.18*	125	0.99	117	1.01	515	473.61	1.09	0.99
Kidney parenchyma	49	2.71*	74	1.29*	44	1.09	30	0.83	197	152.02	1.30*	1.07
Renal pelvis, other urinary	8	1.54	18	1.11	12	1.07	11	1.11	49	42.46	1.15	0.16
Ureter	2	1.15	5	0.91	6	1.59	4	1.22	17	14.27	1.19	0.07
Bone, joints	1	1.21	0	0.00	2	1.22	4	2.89	7	6.37	1.10	0.01
Soft tissue including heart	4	1.09	8	0.69	8	0.99	7	0.92	27	30.92	0.87	-0.09
Kaposi sarcoma	2	1.88	4	1.26	3	1.50	0	0.00	9	7.87	1.14	0.03
Melanoma of skin	22	1.18	65	1.07	45	1.02	45	1.06	177	166.17	1.07	0.26
Eye, orbit	2	1.43	2	0.46	2	0.69	3	1.21	9	11.12	0.81	-0.05
Brain, central nervous system	6	0.64	23	0.79	18	0.91	17	1.00	64	75.34	0.85	-0.27
Thyroid	5	1.08	15	1.06	8	0.88	10	1.32	38	35.45	1.07	0.06
Lymphatic, hematopoietic	55	0.76*	207	0.90	170	1.04	122	0.80*	554	617.43	0.90*	-1.51
Hodgkin lymphoma	1	0.44	6	0.89	5	1.20	2	0.60	14	16.50	0.85	-0.06
Non-Hodgkin lymphoma	26	0.84	94	0.94	87	1.19	65	0.93	272	274.33	0.99	-0.06
Myeloma	11	0.88	36	0.91	23	0.82	27	1.05	97	105.66	0.92	-0.21
Leukemia	17	0.65	71	0.86	55	0.94	28	0.52*	171	220.95	0.77*	-1.19
Acute lymphocytic	0	0.00	2	0.92	0	0.00	1	0.78	3	5.66	0.53	-0.06
Chronic lymphocytic	4	0.38*	16	0.48*	24	1.03	10	0.48*	54	88.02	0.61*	-0.81
Acute non-lymphocytic	8	0.91	34	1.23	21	1.06	9	0.49*	72	74.81	0.96	-0.07
Chronic myeloid	2	0.57	8	0.72	6	0.76	6	0.81	22	29.91	0.74	-0.19

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 194,197 PYR and for male cancers on 225,744 PYR.

Rectum

Both Sexes, Long-term Follow-up

Table 5.2.3: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, long-term follow-up SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<10 years		10-14 years		15-19 years		≥20 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
Number starting interval	77,436		15,055		7,108		2,744		77,436			
Person-years in interval	334,591		53,684		23,321		8,346		419,941			
All subsequent cancers	6,255	1.01	1,179	0.99	480	0.88*	203	1.02	8,117	8,133.64	1.00	-0.40
All excluding same site	5,004	0.95*	982	0.96	393	0.84*	152	0.90	6,531	6,923.21	0.94*	-9.34
Buccal cavity, pharynx	137	0.89	24	0.95	5	0.46	2	0.52	168	193.74	0.87	-0.61
Lip	21	0.82	7	1.68	0	0.00	1	1.60	29	32.11	0.90	-0.07
Tongue	20	0.67	2	0.40	3	1.40	0	0.00	25	37.63	0.66*	-0.30
Salivary gland	13	0.94	3	1.09	0	0.00	0	0.00	16	18.39	0.87	-0.06
Mouth	34	0.84	9	1.36	2	0.69	1	0.97	46	50.94	0.90	-0.12
Nasopharynx	9	1.49	0	0.00	0	0.00	0	0.00	9	7.49	1.20	0.04
Tonsil	13	0.98	2	1.02	0	0.00	0	0.00	15	16.25	0.92	-0.03
Oropharynx	3	0.73	0	0.00	0	0.00	0	0.00	3	5.15	0.58	-0.05
Hypopharynx	17	1.11	1	0.43	0	0.00	0	0.00	18	18.91	0.95	-0.02
Digestive system	1,710	1.19*	296	1.08	134	1.06	68	1.42*	2,208	1,891.93	1.17*	7.53
Esophagus	61	0.92	6	0.49	5	0.90	1	0.48	73	86.35	0.85	-0.32
Stomach	135	0.90	31	1.14	18	1.46	7	1.50	191	194.20	0.98	-0.08
Small intestine	46	2.49*	11	2.91*	4	2.23	1	1.45	62	24.76	2.50*	0.89
Colon	1,001	1.50*	172	1.32*	79	1.30*	50	2.18*	1,302	879.86	1.48*	10.05
Rectum, rectosigmoid junction	223	0.91	24	0.55*	7	0.37*	1	0.14*	255	314.84	0.81*	-1.42
Anus, anal canal	27	2.25*	1	0.44	1	0.94	0	0.00	29	15.72	1.84*	0.32
Liver	23	0.49*	4	0.43	2	0.46	1	0.59	30	62.64	0.48*	-0.78
Gallbladder	18	0.87	2	0.52	1	0.57	0	0.00	21	27.01	0.78	-0.14
Bile ducts, other biliary	38	1.20	11	1.62	6	1.76	1	0.73	56	43.12	1.30	0.31
Pancreas	126	0.74*	30	0.91	9	0.58	5	0.85	170	225.73	0.75*	-1.33
Respiratory system	1,121	1.07*	219	1.13	72	0.83	27	0.86	1,439	1,361.78	1.06*	1.84
Nose, nasal cavity, ear	10	1.11	4	2.42	1	1.31	0	0.00	15	11.73	1.28	0.08
Larynx	75	1.11	7	0.66	3	0.69	1	0.70	86	83.89	1.03	0.05
Lung, bronchus	1,033	1.06	208	1.15*	67	0.82	26	0.88	1,334	1,262.74	1.06*	1.70
Female breast	586	1.03	114	1.00	38	0.71*	15	0.75	753	755.75	1.00	-0.14
Female genital system	249	0.98	44	0.94	21	0.96	6	0.76	320	331.18	0.97	-0.58
Cervix uteri	27	1.02	2	0.50	0	0.00	1	1.77	30	32.71	0.92	-0.14
Corpus uteri	135	1.04	25	1.08	13	1.22	4	1.04	177	167.10	1.06	0.51
Ovary	59	0.79	12	0.82	4	0.58	1	0.40	76	99.13	0.77*	-1.19
Vagina	14	3.23*	2	2.37	1	2.49	0	0.00	17	5.72	2.97*	0.58
Vulva	8	0.60	1	0.34	3	2.02	0	0.00	12	18.35	0.65	-0.33
Male genital system	1,069	0.83*	228	0.88	88	0.76*	41	1.10	1,426	1,692.72	0.84*	-11.81
Prostate	1,055	0.83*	226	0.88	85	0.74*	41	1.11	1,407	1,677.97	0.84*	-12.00
Testis	2	0.60	0	0.00	0	0.00	0	0.00	2	3.88	0.52	-0.08
Urinary system	603	1.19*	92	0.93	49	1.08	17	0.98	761	668.09	1.14*	2.21
Urinary bladder	398	1.11*	69	0.98	36	1.10	12	0.96	515	473.61	1.09	0.99
Kidney parenchyma	167	1.44*	15	0.68	11	1.08	4	1.07	197	152.02	1.30*	1.07
Renal pelvis, other urinary	38	1.17	8	1.32	2	0.72	1	0.95	49	42.46	1.15	0.16
Ureter	13	1.18	3	1.48	0	0.00	1	2.98	17	14.27	1.19	0.07
Bone, joints	3	0.60	3	3.53	1	2.55	0	0.00	7	6.37	1.10	0.01
Soft tissue including heart	20	0.86	6	1.31	1	0.46	0	0.00	27	30.92	0.87	-0.09
Kaposi sarcoma	9	1.44	0	0.00	0	0.00	0	0.00	9	7.87	1.14	0.03
Melanoma of skin	132	1.07	29	1.14	9	0.73	7	1.43	177	166.17	1.07	0.26
Eye, orbit	6	0.70	3	1.95	0	0.00	0	0.00	9	11.12	0.81	-0.05
Brain, central nervous system	47	0.80	12	1.14	5	1.07	0	0.00	64	75.34	0.85	-0.27
Thyroid	28	1.00	6	1.27	3	1.43	1	1.33	38	35.45	1.07	0.06
Lymphatic, hematopoietic	432	0.93	69	0.75*	39	0.90	14	0.84	554	617.43	0.90*	-1.51
Hodgkin lymphoma	12	0.91	1	0.47	1	1.10	0	0.00	14	16.50	0.85	-0.06
Non-Hodgkin lymphoma	207	1.01	35	0.83	19	0.94	11	1.40	272	274.33	0.99	-0.06
Myeloma	70	0.88	16	1.02	9	1.23	2	0.73	97	105.66	0.92	-0.21
Leukemia	143	0.85	17	0.52*	10	0.66	1	0.17*	171	220.95	0.77*	-1.19
Acute lymphocytic	2	0.46	1	1.22	0	0.00	0	0.00	3	5.66	0.53	-0.06
Chronic lymphocytic	44	0.66*	8	0.62	2	0.34	0	0.00	54	88.02	0.61*	-0.81
Acute non-lymphocytic	63	1.12	4	0.36*	4	0.76	1	0.49	72	74.81	0.96	-0.07
Chronic myeloid	16	0.71	2	0.45	4	1.91	0	0.00	22	29.91	0.74	-0.19

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 194,197 PYR and for male cancers on 225,744 PYR.

Table 5.2.4: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, females, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	355	1.08	1,086	1.05	845	1.13*	739	1.03	3,025	2,833.07	1.07*	9.88
All excluding same site	256	0.94	818	0.95	683	1.10*	582	0.98	2,339	2,344.68	1.00	-0.29
Buccal cavity, pharynx	2	0.34	14	0.76	7	0.54	9	0.76	32	49.03	0.65*	-0.88
Lip	1	2.35	1	0.74	0	0.00	2	1.95	4	3.81	1.05	0.01
Tongue	0	0.00	3	0.75	2	0.70	1	0.38	6	10.75	0.56	-0.24
Salivary gland	0	0.00	3	1.48	2	1.39	0	0.00	5	5.52	0.91	-0.03
Mouth	1	0.48	2	0.31	1	0.22	5	1.17	9	17.43	0.52*	-0.43
Nasopharynx	0	0.00	1	1.37	1	2.05	0	0.00	2	1.89	1.06	0.01
Tonsil	0	0.00	2	1.32	0	0.00	1	1.29	3	3.77	0.79	-0.04
Oropharynx	0	0.00	1	2.23	0	0.00	0	0.00	1	1.15	0.87	-0.01
Hypopharynx	0	0.00	1	0.83	1	1.25	0	0.00	2	3.03	0.66	-0.05
Digestive system	123	1.46*	339	1.28*	217	1.13	238	1.27*	917	728.56	1.26*	9.70
Esophagus	2	0.92	6	0.88	2	0.40	7	1.44	17	18.82	0.90	-0.09
Stomach	5	0.71	14	0.65	16	1.05	17	1.18	52	58.28	0.89	-0.32
Small intestine	2	1.93	14	4.18*	5	1.98	9	3.41*	30	9.54	3.14*	1.05
Colon	79	1.86*	203	1.51*	136	1.39*	144	1.49*	562	370.97	1.51*	9.84
Rectum, rectosigmoid junction	20	1.52	57	1.39*	23	0.81	11	0.42*	111	108.76	1.02	0.12
Rectum	17	1.97*	49	1.83*	19	1.01	9	0.51*	94	71.59	1.31*	1.15
Anus, anal canal	0	0.00	8	2.53*	3	1.31	2	0.91	13	8.65	1.50	0.22
Liver	0	0.00	0	0.00*	3	0.74	4	0.95	7	15.42	0.45*	-0.43
Gallbladder	2	0.97	5	0.80	6	1.38	2	0.51	15	16.62	0.90	-0.08
Bile ducts, other biliary	2	1.11	6	1.04	5	1.13	9	1.89	22	16.75	1.31	0.27
Pancreas	11	1.02	23	0.67	18	0.71	30	1.19	82	95.77	0.86	-0.71
Respiratory system	34	0.86	152	1.17	138	1.41*	112	1.14	436	365.68	1.19*	3.62
Nose, nasal cavity, ear	0	0.00	1	0.69	2	1.91	3	2.92	6	3.97	1.51	0.10
Larynx	1	0.78	4	0.99	3	1.08	1	0.42	9	10.47	0.86	-0.08
Lung, bronchus	32	0.85	147	1.18	132	1.41*	108	1.14	419	350.29	1.20*	3.54
Female breast	104	1.18	281	1.00	201	1.01	167	0.89	753	755.75	1.00	-0.14
Female genital system	25	0.60*	110	0.86	114	1.33*	71	0.93	320	331.18	0.97	-0.58
Cervix uteri	6	1.27	11	0.81	10	1.22	3	0.48	30	32.71	0.92	-0.14
Corpus uteri	11	0.52*	55	0.85	69	1.59*	42	1.11	177	167.10	1.06	0.51
Ovary	5	0.42*	32	0.86	22	0.84	17	0.71	76	99.13	0.77*	-1.19
Vagina	2	2.89	4	1.87	8	5.36*	3	2.15	17	5.72	2.97*	0.58
Vulva	0	0.00	5	0.77	3	0.62	4	0.80	12	18.35	0.65	-0.33
Urinary system	24	1.48	74	1.43*	37	0.97	35	0.92	170	143.90	1.18*	1.34
Urinary bladder	9	0.91	47	1.49*	26	1.12	21	0.90	103	87.76	1.17	0.78
Kidney parenchyma	13	2.68*	20	1.28	9	0.77	11	0.95	53	43.78	1.21	0.47
Renal pelvis, other urinary	2	1.40	7	1.55	2	0.61	3	0.95	14	12.35	1.13	0.08
Ureter	0	0.00	1	0.70	0	0.00	0	0.00	1	3.90	0.26	-0.15
Bone, joints	0	0.00	0	0.00	2	3.16	1	1.71	3	2.45	1.23	0.03
Soft tissue including heart	0	0.00	2	0.49	2	0.68	2	0.68	6	11.18	0.54	-0.27
Kaposi sarcoma	0	0.00	2	4.17	1	2.68	0	0.00	3	1.38	2.17	0.08
Melanoma of skin	8	1.44	11	0.61	17	1.30	14	1.07	50	49.70	1.01	0.02
Eye, orbit	2	4.05	1	0.66	1	0.97	1	1.05	5	4.00	1.25	0.05
Brain, central nervous system	4	1.25	9	0.88	10	1.38	9	1.35	32	27.29	1.17	0.24
Thyroid	1	0.39	8	1.02	5	0.97	6	1.34	20	20.00	1.00	0.00
Lymphatic, hematopoietic	26	1.01	69	0.84	71	1.17	56	0.92	222	230.06	0.96	-0.42
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	5.87	0.00*	-0.30
Non-Hodgkin lymphoma	13	1.09	40	1.04	39	1.34	31	1.04	123	109.15	1.13	0.71
Myeloma	5	1.09	9	0.62	13	1.23	13	1.26	40	39.93	1.00	0.00
Leukemia	8	0.93	20	0.74	19	0.96	12	0.61	59	75.10	0.79	-0.83
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	2.02	0.00	-0.10
Chronic lymphocytic	2	0.59	4	0.38*	7	0.90	4	0.53	17	29.31	0.58*	-0.63
Acute non-lymphocytic	4	1.35	11	1.17	6	0.87	5	0.72	26	26.18	0.99	-0.01
Chronic myeloid	1	0.85	2	0.54	4	1.48	3	1.12	10	10.26	0.98	-0.01

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

**Rectum
Males**

Table 5.2.5: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, males, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
Number starting interval	43,403		35,191		15,977		7,849		43,403			
Person-years in interval	32,210		94,292		56,746		42,496		225,744			
All subsequent cancers	687	1.08	1,933	0.95*	1,349	0.95	1,123	0.92*	5,092	5,300.57	0.96*	-9.24
All excluding same site	559	1.02	1,537	0.88*	1,151	0.94*	945	0.89*	4,192	4,578.53	0.92*	-17.12
Buccal cavity, pharynx	21	1.06	61	1.03	32	0.86	22	0.78	136	144.71	0.94	-0.39
Lip	3	0.77	12	1.04	4	0.55	6	1.08	25	28.29	0.88	-0.15
Tongue	4	1.09	7	0.63	4	0.58	4	0.76	19	26.87	0.71	-0.35
Salivary gland	0	0.00	6	1.25	2	0.59	3	0.95	11	12.87	0.85	-0.08
Mouth	5	1.06	15	1.07	10	1.17	7	1.11	37	33.51	1.10	0.15
Nasopharynx	2	2.46	3	1.26	2	1.43	0	0.00	7	5.60	1.25	0.06
Tonsil	2	1.12	6	1.13	3	0.95	1	0.45	12	12.48	0.96	-0.02
Oropharynx	1	1.80	1	0.60	0	0.00	0	0.00	2	4.00	0.50	-0.09
Hypopharynx	1	0.45	8	1.20	6	1.48	1	0.34	16	15.87	1.01	0.01
Digestive system	185	1.29*	544	1.21*	302	0.98	260	0.99	1,291	1,163.38	1.11*	5.65
Esophagus	10	1.18	23	0.88	18	1.02	5	0.33*	56	67.53	0.83	-0.51
Stomach	22	1.26	45	0.84	33	0.93	39	1.31	139	135.92	1.02	0.14
Small intestine	6	3.33*	15	2.61*	4	0.99	7	1.93	32	15.22	2.10*	0.74
Colon	98	1.60*	324	1.67*	161	1.18*	157	1.33*	740	508.89	1.45*	10.24
Rectum, rectosigmoid junction	24	0.90	65	0.79	34	0.63*	21	0.48*	144	206.08	0.70*	-2.75
Anus, anal canal	6	6.72*	7	2.52*	3	1.61	0	0.00	16	7.07	2.26*	0.40
Liver	3	0.53	9	0.50*	8	0.64	3	0.27*	23	47.22	0.49*	-1.07
Gallbladder	2	1.54	1	0.25	2	0.73	1	0.43	6	10.39	0.58	-0.19
Bile ducts, other biliary	1	0.34	13	1.36	11	1.57	9	1.32	34	26.37	1.29	0.34
Pancreas	10	0.61	38	0.75	26	0.76	14	0.48*	88	129.96	0.68*	-1.86
Respiratory system	101	0.80*	382	0.97	314	1.20*	206	0.97	1,003	996.09	1.01	0.31
Nose, nasal cavity, ear	0	0.00	2	0.65	5	2.47	2	1.19	9	7.77	1.16	0.05
Larynx	10	0.99	34	1.12	23	1.21	10	0.71	77	73.42	1.05	0.16
Lung, bronchus	91	0.79*	346	0.96	285	1.18*	193	0.98	915	912.45	1.00	0.11
Male breast	2	1.68	1	0.27	6	2.33	4	1.77	13	9.74	1.34	0.14
Male genital system	217	1.14	472	0.75*	380	0.82*	357	0.87*	1,426	1,692.72	0.84*	-11.81
Prostate	214	1.13	465	0.75*	376	0.82*	352	0.86*	1,407	1,677.97	0.84*	-12.00
Testis	0	0.00	1	0.56	1	1.11	0	0.00	2	3.88	0.52	-0.08
Urinary system	98	1.57*	226	1.14	144	1.03	123	1.00	591	524.19	1.13*	2.96
Urinary bladder	56	1.23	161	1.11	99	0.96	96	1.04	412	385.84	1.07	1.16
Kidney parenchyma	36	2.73*	54	1.29	35	1.22	19	0.78	144	108.24	1.33*	1.58
Renal pelvis, other urinary	6	1.60	11	0.94	10	1.26	8	1.19	35	30.11	1.16	0.22
Ureter	2	1.55	4	0.99	6	2.18	4	1.76	16	10.36	1.54	0.25
Bone, joints	1	1.91	0	0.00	0	0.00	3	3.74	4	3.92	1.02	0.00
Soft tissue including heart	4	1.67	6	0.80	6	1.16	5	1.06	21	19.74	1.06	0.06
Kaposi sarcoma	2	2.18	2	0.74	2	1.23	0	0.00	6	6.49	0.93	-0.02
Melanoma of skin	14	1.07	54	1.26	28	0.90	31	1.05	127	116.47	1.09	0.47
Eye, orbit	0	0.00	1	0.36	1	0.53	2	1.30	4	7.12	0.56	-0.14
Brain, central nervous system	2	0.32	14	0.73	8	0.64	8	0.78	32	48.05	0.67*	-0.71
Thyroid	4	1.92	7	1.11	3	0.76	4	1.29	18	15.45	1.16	0.11
Lymphatic, hematopoietic	29	0.63*	138	0.94	99	0.96	66	0.72*	332	387.37	0.86*	-2.45
Hodgkin lymphoma	1	0.65	6	1.35	5	1.88	2	1.00	14	10.62	1.32	0.15
Non-Hodgkin lymphoma	13	0.68	54	0.88	48	1.09	34	0.84	149	165.18	0.90	-0.72
Myeloma	6	0.76	27	1.08	10	0.57	14	0.90	57	65.72	0.87	-0.39
Leukemia	9	0.51*	51	0.92	36	0.93	16	0.47*	112	145.84	0.77*	-1.50
Acute lymphocytic	0	0.00	2	1.39	0	0.00	1	1.30	3	3.64	0.82	-0.03
Chronic lymphocytic	2	0.28	12	0.53*	17	1.09	6	0.45*	37	58.71	0.63*	-0.96
Acute non-lymphocytic	4	0.69	23	1.25	15	1.16	4	0.35*	46	48.63	0.95	-0.12
Chronic myeloid	1	0.42	6	0.81	2	0.39	3	0.64	12	19.65	0.61	-0.34

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

Table 5.2.6: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, <50 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	32	2.43*	101	1.98*	76	1.44*	148	1.24*	357	236.36	1.51*	28.40
All excluding same site	24	1.99*	72	1.55*	64	1.34*	111	1.04	271	212.54	1.28*	13.76
Buccal cavity, pharynx	2	3.78	0	0.00	1	0.50	1	0.29	4	8.02	0.50	-0.95
Lip	1	19.30	0	0.00	0	0.00	0	0.00	1	0.72	1.38	0.07
Tongue	0	0.00	0	0.00	1	2.21	0	0.00	1	1.79	0.56	-0.19
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.65	0.00	-0.15
Mouth	1	7.86	0	0.00	0	0.00	0	0.00	1	2.01	0.50	-0.24
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.58	0.00	-0.14
Tonsil	0	0.00	0	0.00	0	0.00	1	2.49	1	1.04	0.96	-0.01
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	0.00	-0.05
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	0.00	-0.18
Digestive system	8	4.28*	39	5.03*	18	2.06*	52	2.46*	117	39.54	2.96*	18.23
Esophagus	0	0.00	2	3.99	0	0.00	0	0.00	2	2.55	0.78	-0.13
Stomach	0	0.00	0	0.00	2	2.32	4	2.07	6	3.84	1.56	0.51
Small intestine	0	0.00	5	25.82*	2	10.00*	1	2.45	8	0.85	9.39*	1.68
Colon	7	10.53*	16	5.68*	9	2.73*	37	4.31*	69	15.35	4.50*	12.63
Rectum, rectosigmoid junction	1	2.68	10	6.34*	3	1.67	0	0.00*	14	7.78	1.80	1.46
Anus, anal canal	0	0.00	3	17.48*	0	0.00	0	0.00	3	0.68	4.40	0.55
Liver	0	0.00	0	0.00	0	0.00	2	1.84	2	2.14	0.94	-0.03
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	0.00	-0.10
Bile ducts, other biliary	0	0.00	0	0.00	1	5.96	3	6.61*	4	0.80	4.98*	0.75
Pancreas	0	0.00	3	3.43	0	0.00	5	1.98	8	4.61	1.74	0.80
Respiratory system	6	3.72*	14	1.99*	13	1.55	19	0.91	52	37.91	1.37*	3.32
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.41	0.00	-0.10
Larynx	1	6.04	0	0.00	1	1.28	0	0.00	2	3.18	0.63	-0.28
Lung, bronchus	5	3.55*	14	2.26*	12	1.60	19	0.99	50	34.19	1.46*	3.72
Female breast	4	1.28	16	1.39	3	0.28*	13	0.74	36	42.93	0.84	-3.46
Female genital system	1	0.81	7	1.52	8	1.88	9	1.26	25	17.24	1.45	3.88
Cervix uteri	0	0.00	0	0.00	1	1.24	1	1.17	2	3.20	0.62	-0.60
Corpus uteri	1	2.40	3	1.67	7	3.65*	6	1.61	17	7.84	2.17*	4.57
Ovary	0	0.00	4	2.86	0	0.00	0	0.00	4	5.20	0.77	-0.60
Vagina	0	0.00	0	0.00	0	0.00	1	12.38	1	0.17	5.75	0.41
Vulva	0	0.00	0	0.00	0	0.00	0	0.00	0	0.49	0.00	-0.25
Male genital system	0	0.00	5	1.64	7	1.39	20	0.90	32	30.81	1.04	0.53
Prostate	0	0.00	4	1.62	5	1.06	19	0.87	28	29.44	0.95	-0.64
Testis	0	0.00	0	0.00	1	4.05	0	0.00	1	1.10	0.91	-0.05
Urinary system	6	8.08*	8	2.60*	8	2.33*	8	0.95	30	15.65	1.92*	3.38
Urinary bladder	1	2.62	2	1.23	5	2.62	7	1.36	15	9.04	1.66	1.40
Kidney parenchyma	5	15.16*	4	3.02	3	2.17	1	0.35	13	5.88	2.21*	1.68
Renal pelvis, other urinary	0	0.00	2	15.52*	0	0.00	0	0.00	2	0.72	2.79	0.30
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.05
Bone, joints	0	0.00	0	0.00	0	0.00	1	8.31	1	0.34	2.95	0.16
Soft tissue including heart	0	0.00	1	2.65	1	3.23	3	6.01*	5	1.30	3.86*	0.87
Kaposi sarcoma	0	0.00	0	0.00	1	3.04	0	0.00	1	1.40	0.71	-0.09
Melanoma of skin	2	2.39	6	2.08	1	0.42	9	2.41*	18	9.84	1.83*	1.92
Eye, orbit	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	0.00	-0.10
Brain, central nervous system	0	0.00	0	0.00	1	1.15	1	0.71	2	3.57	0.56	-0.37
Thyroid	0	0.00	0	0.00	3	3.22	2	1.79	5	3.72	1.34	0.30
Lymphatic, hematopoietic	3	2.49	5	1.13	6	1.46	9	1.09	23	18.00	1.28	1.18
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	1.19	0.00	-0.28
Non-Hodgkin lymphoma	1	1.57	3	1.29	5	2.34	3	0.71	12	9.30	1.29	0.64
Myeloma	2	18.11*	1	2.10	0	0.00	5	3.79*	8	2.46	3.26*	1.30
Leukemia	0	0.00	1	0.85	1	0.88	1	0.41	3	5.06	0.59	-0.48
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.06
Chronic lymphocytic	0	0.00	0	0.00	1	2.53	0	0.00	1	1.75	0.57	-0.18
Acute non-lymphocytic	0	0.00	1	2.38	0	0.00	0	0.00	1	1.75	0.57	-0.18
Chronic myeloid	0	0.00	0	0.00	0	0.00	1	2.94	1	0.80	1.24	0.05

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 20,021 PYR and for male cancers on 22,464 PYR.

Rectum

Both Sexes, 50-69 Years of Age

Table 5.2.7: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, 50-69 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
Number starting interval	36,497		31,013		16,247		9,429		36,497			
Person-years in interval	27,882		88,631		62,341		58,379		237,233			
All subsequent cancers	437	1.24*	1,358	1.03	1,229	1.02	1,338	0.95	4,362	4,280.51	1.02	3.44
All excluding same site	343	1.12*	1,086	0.94*	1,057	1.01	1,110	0.92*	3,596	3,712.21	0.97	-4.90
Buccal cavity, pharynx	11	0.90	39	0.95	26	0.85	20	0.69	96	113.13	0.85	-0.72
Lip	0	0.00	5	0.90	3	0.68	3	0.65	11	16.15	0.68	-0.22
Tongue	3	1.21	7	0.84	3	0.48	3	0.52	16	22.90	0.70	-0.29
Salivary gland	0	0.00	5	1.77	1	0.41	3	0.98	9	9.10	0.99	0.00
Mouth	3	0.93	9	0.84	8	1.01	9	1.19	29	29.46	0.98	-0.02
Nasopharynx	1	1.70	1	0.54	3	2.38	0	0.00	5	4.75	1.05	0.01
Tonsil	1	0.76	5	1.18	2	0.70	1	0.44	9	10.69	0.84	-0.07
Oropharynx	1	2.57	2	1.56	0	0.00	0	0.00	3	3.39	0.89	-0.02
Hypopharynx	0	0.00	4	0.83	6	1.74	1	0.36	11	12.46	0.88	-0.06
Digestive system	134	1.85*	360	1.33*	261	1.05	345	1.11	1,100	902.38	1.22*	8.33
Esophagus	5	1.09	15	0.92	11	0.81	8	0.54	39	49.16	0.79	-0.43
Stomach	14	1.85*	19	0.69	27	1.10	42	1.40*	102	90.02	1.13	0.51
Small intestine	5	4.75*	14	3.53*	4	1.10	10	2.23*	33	13.13	2.51*	0.84
Colon	70	2.36*	218	1.91*	138	1.26*	205	1.41*	631	398.89	1.58*	9.78
Rectum, rectosigmoid junction	21	1.46	47	0.90	31	0.69*	22	0.44*	121	160.98	0.75*	-1.69
Anus, anal canal	3	3.96	7	2.55*	3	1.29	1	0.39	14	8.43	1.66	0.23
Liver	2	0.69	6	0.56	9	0.94	5	0.44	22	34.41	0.64*	-0.52
Gallbladder	2	2.43	0	0.00	1	0.32	3	0.73	6	11.20	0.54	-0.22
Bile ducts, other biliary	2	1.49	9	1.73	10	1.95	10	1.30	31	19.38	1.60*	0.49
Pancreas	8	0.92	24	0.74	26	0.88	32	0.85	90	108.40	0.83	-0.78
Respiratory system	74	1.04	293	1.12	298	1.33*	252	1.05	917	794.55	1.15*	5.16
Nose, nasal cavity, ear	0	0.00	0	0.00	5	3.04	5	2.62	10	6.14	1.63	0.16
Larynx	7	1.17	22	1.09	16	1.07	11	0.86	56	53.88	1.04	0.09
Lung, bronchus	67	1.04	271	1.14*	277	1.34*	235	1.05	850	732.68	1.16*	4.95
Female breast	40	1.16	126	1.02	111	1.02	117	0.90	394	397.35	0.99	-0.33
Female genital system	9	0.50*	53	0.87	80	1.62*	49	0.92	191	181.25	1.05	0.96
Cervix uteri	3	1.43	3	0.46	7	1.56	1	0.25	14	17.17	0.82	-0.31
Corpus uteri	3	0.30*	30	0.89	46	1.71*	29	1.05	108	98.22	1.10	0.96
Ovary	3	0.63	17	1.01	17	1.18	12	0.73	49	52.51	0.93	-0.34
Vagina	0	0.00	2	2.75	7	10.48*	2	2.23	11	2.50	4.41*	0.84
Vulva	0	0.00	1	0.55	2	1.07	4	1.32	7	7.20	0.97	-0.02
Male genital system	76	1.18	189	0.70*	217	0.79*	259	0.82*	741	926.61	0.80*	-13.70
Prostate	73	1.14	187	0.70*	216	0.79*	256	0.81*	732	919.15	0.80*	-13.82
Testis	0	0.00	1	1.12	0	0.00	0	0.00	1	2.03	0.49	-0.08
Urinary system	47	1.71*	142	1.37*	88	0.92	115	0.99	392	343.85	1.14*	2.03
Urinary bladder	22	1.21	90	1.29*	58	0.88	85	1.03	255	236.00	1.08	0.80
Kidney parenchyma	24	3.10*	46	1.64*	23	0.95	20	0.75	113	86.79	1.30*	1.10
Renal pelvis, other urinary	1	0.60	6	0.94	7	1.19	10	1.41	24	21.05	1.14	0.12
Ureter	0	0.00	2	0.94	4	2.00	4	1.68	10	7.07	1.41	0.12
Bone, joints	0	0.00	0	0.00	2	2.10	3	3.08	5	3.45	1.45	0.07
Soft tissue including heart	2	1.50	2	0.42	2	0.48	4	0.76	10	15.51	0.64	-0.23
Kaposi sarcoma	0	0.00	0	0.00	1	1.37	0	0.00	1	2.94	0.34	-0.08
Melanoma of skin	7	0.85	26	0.88	24	0.95	29	0.96	86	93.21	0.92	-0.30
Eye, orbit	2	3.47	0	0.00	1	0.60	3	1.67	6	6.08	0.99	0.00
Brain, central nervous system	3	0.69	14	0.93	8	0.66	13	1.02	38	44.25	0.86	-0.26
Thyroid	3	1.33	10	1.34	4	0.72	4	0.76	21	20.49	1.02	0.02
Lymphatic, hematopoietic	23	0.95	83	0.92	80	0.95	87	0.81*	273	306.34	0.89	-1.41
Hodgkin lymphoma	1	1.02	3	0.93	3	1.25	2	0.84	9	8.98	1.00	0.00
Non-Hodgkin lymphoma	12	1.09	40	0.96	34	0.88	49	0.98	135	141.54	0.95	-0.28
Myeloma	5	1.20	14	0.89	15	1.03	14	0.76	48	52.90	0.91	-0.21
Leukemia	5	0.63	26	0.86	28	0.99	22	0.61*	81	102.93	0.79*	-0.92
Acute lymphocytic	0	0.00	1	1.15	0	0.00	1	1.18	2	2.72	0.74	-0.03
Chronic lymphocytic	1	0.30	6	0.47	15	1.28	7	0.49	29	42.10	0.69*	-0.55
Acute non-lymphocytic	3	1.17	12	1.20	8	0.83	7	0.54	30	35.10	0.85	-0.22
Chronic myeloid	0	0.00	5	1.28	4	1.10	5	1.01	14	13.57	1.03	0.02

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 101,793 PYR and for male cancers on 135,440 PYR.

Table 5.2.8: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, ≥70 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	573	0.95	1,560	0.92*	889	0.98	376	0.90*	3,398	3,616.77	0.94*	-15.60
All excluding same site	448	0.89*	1,197	0.85*	713	0.95	306	0.90	2,664	2,998.46	0.89*	-23.85
Buccal cavity, pharynx	10	0.77	36	1.04	12	0.69	10	1.31	68	72.59	0.94	-0.33
Lip	3	1.13	8	1.11	1	0.27	5	3.02	17	15.24	1.12	0.13
Tongue	1	0.43	3	0.48	2	0.65	2	1.54	8	12.94	0.62	-0.35
Salivary gland	0	0.00	4	1.04	3	1.33	0	0.00	7	8.65	0.81	-0.12
Mouth	2	0.59	8	0.87	3	0.64	3	1.40	16	19.47	0.82	-0.25
Nasopharynx	1	2.43	3	2.83	0	0.00	0	0.00	4	2.15	1.86	0.13
Tonsil	1	1.11	3	1.31	1	1.00	0	0.00	5	4.53	1.10	0.03
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	1.54	0.00	-0.11
Hypopharynx	1	0.88	5	1.72	1	0.82	0	0.00	7	5.69	1.23	0.09
Digestive system	166	1.08	484	1.11*	240	0.99	101	0.85	991	950.01	1.04	2.92
Esophagus	7	1.18	12	0.74	9	1.05	4	1.03	32	34.64	0.92	-0.19
Stomach	13	0.78	40	0.86	20	0.79	10	0.82	83	100.34	0.83	-1.24
Small intestine	3	1.73	10	2.03	3	1.09	5	3.67*	21	10.78	1.95*	0.73
Colon	100	1.36*	293	1.39*	150	1.24*	59	0.98	602	465.63	1.29*	9.73
Rectum, rectosigmoid junction	22	0.88	65	0.94	23	0.64*	10	0.62	120	146.07	0.82*	-1.86
Anus, anal canal	3	2.78	5	1.65	3	1.80	1	1.19	12	6.61	1.81	0.38
Liver	1	0.23	3	0.24*	2	0.31	0	0.00	6	26.10	0.23*	-1.43
Gallbladder	2	0.79	6	0.85	7	1.79	0	0.00	15	15.38	0.98	-0.03
Bile ducts, other biliary	1	0.29	10	1.00	5	0.81	5	1.48	21	22.94	0.92	-0.14
Pancreas	13	0.71	34	0.66*	18	0.63*	7	0.49	72	112.72	0.64*	-2.90
Respiratory system	55	0.59*	227	0.89	141	1.10	47	0.91	470	529.32	0.89*	-4.23
Nose, nasal cavity, ear	0	0.00	3	1.26	2	1.51	0	0.00	5	5.18	0.97	-0.01
Larynx	3	0.58	16	1.18	9	1.49	0	0.00	28	26.83	1.04	0.08
Lung, bronchus	51	0.58*	208	0.87*	128	1.06	47	0.97	434	495.87	0.88*	-4.41
Female breast	60	1.18	139	0.96	87	1.09	37	0.92	323	315.47	1.02	1.04
Female genital system	15	0.67	50	0.81	26	0.80	13	0.81	104	132.69	0.78*	-3.96
Cervix uteri	3	1.33	8	1.37	2	0.70	1	0.74	14	12.34	1.13	0.23
Corpus uteri	7	0.65	22	0.75	16	1.10	7	1.08	52	61.03	0.85	-1.25
Ovary	2	0.30	11	0.58	5	0.48	5	0.94	23	41.42	0.56*	-2.54
Vagina	2	4.17	2	1.45	1	1.28	0	0.00	5	3.05	1.64	0.27
Vulva	0	0.00	4	0.88	1	0.35	0	0.00	5	10.66	0.47	-0.78
Male genital system	141	1.12	278	0.78*	156	0.86	78	1.08	653	735.29	0.89*	-12.13
Prostate	141	1.13	274	0.78*	155	0.86	77	1.08	647	729.38	0.89*	-12.14
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.74	0.00	-0.11
Urinary system	69	1.37*	150	1.05	85	1.08	35	0.96	339	308.60	1.10	2.17
Urinary bladder	42	1.14	116	1.10	62	1.06	25	0.90	245	228.56	1.07	1.17
Kidney parenchyma	20	2.00*	24	0.86	18	1.22	9	1.38	71	59.35	1.20	0.83
Renal pelvis, other urinary	7	2.01	10	1.03	5	0.97	1	0.42	23	20.69	1.11	0.16
Ureter	2	1.69	3	0.91	2	1.15	0	0.00	7	6.99	1.00	0.00
Bone, joints	1	2.21	0	0.00	0	0.00	0	0.00	1	2.59	0.39	-0.11
Soft tissue including heart	2	0.90	5	0.79	5	1.37	0	0.00	12	14.11	0.85	-0.15
Kaposi sarcoma	2	3.89	4	2.63	1	1.06	0	0.00	7	3.52	1.99	0.25
Melanoma of skin	13	1.35	33	1.17	20	1.21	7	0.81	73	63.12	1.16	0.70
Eye, orbit	0	0.00	2	0.92	1	0.88	0	0.00	3	4.62	0.65	-0.12
Brain, central nervous system	3	0.63	9	0.68	9	1.34	3	1.06	24	27.52	0.87	-0.25
Thyroid	2	1.01	5	0.93	1	0.37	4	3.40	12	11.24	1.07	0.05
Lymphatic, hematopoietic	29	0.62*	119	0.89	84	1.11	26	0.70	258	293.09	0.88*	-2.50
Hodgkin lymphoma	0	0.00	3	0.98	2	1.33	0	0.00	5	6.33	0.79	-0.10
Non-Hodgkin lymphoma	13	0.67	51	0.91	48	1.49*	13	0.83	125	123.50	1.01	0.11
Myeloma	4	0.49	21	0.90	8	0.62	8	1.33	41	50.30	0.82	-0.66
Leukemia	12	0.67	44	0.86	26	0.90	5	0.34*	87	112.96	0.77*	-1.85
Acute lymphocytic	0	0.00	1	0.82	0	0.00	0	0.00	1	2.67	0.37	-0.12
Chronic lymphocytic	3	0.42	10	0.50*	8	0.71	3	0.53	24	44.18	0.54*	-1.44
Acute non-lymphocytic	5	0.82	21	1.21	13	1.33	2	0.42	41	37.96	1.08	0.22
Chronic myeloid	2	0.83	3	0.43	2	0.49	0	0.00	7	15.53	0.45*	-0.61

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 72,383 PYR and for male cancers on 67,840 PYR.

Rectum Both Sexes, Radiotherapy

Table 5.2.9: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, with initial radiotherapy, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	Number starting interval	Person-years in interval	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
	21,900	16,267										
			17,470	42,329	6,403	21,167	2,650	11,782	21,900	91,545		
All subsequent cancers	268	1.05	658	0.91*	471	1.14*	283	1.11	1,680	1,644.35	1.02	3.89
All excluding same site	214	0.97	522	0.84*	412	1.16*	233	1.06	1,381	1,420.85	0.97	-4.35
Buccal cavity, pharynx	9	1.30	25	1.35	8	0.83	6	1.10	48	40.56	1.18	0.81
Lip	1	0.95	6	2.17	1	0.69	3	3.61	11	6.09	1.81	0.54
Tongue	2	1.44	4	1.07	3	1.54	0	0.00	9	8.20	1.10	0.09
Salivary gland	0	0.00	4	2.50	1	1.08	0	0.00	5	3.68	1.36	0.14
Mouth	2	1.12	4	0.85	1	0.41	2	1.44	9	10.36	0.87	-0.15
Nasopharynx	0	0.00	1	1.27	1	2.58	0	0.00	2	1.69	1.18	0.03
Tonsil	1	1.51	1	0.57	0	0.00	1	2.18	3	3.73	0.80	-0.08
Oropharynx	1	5.01	0	0.00	0	0.00	0	0.00	1	1.16	0.87	-0.02
Hypopharynx	0	0.00	4	2.05	1	1.02	0	0.00	5	4.19	1.19	0.09
Digestive system	84	1.50*	179	1.16	100	1.13	70	1.26	433	354.50	1.22*	8.57
Esophagus	3	1.02	7	0.86	5	1.09	2	0.72	17	18.49	0.92	-0.16
Stomach	8	1.37	14	0.89	14	1.60	11	2.02*	47	35.80	1.31	1.22
Small intestine	7	8.98*	7	3.14*	1	0.77	0	0.00	15	5.14	2.92*	1.08
Colon	44	1.76*	115	1.66*	53	1.32	47	1.84*	259	159.88	1.62*	10.83
Rectum, rectosigmoid junction	7	0.70	15	0.56*	5	0.34*	2	0.23*	29	60.47	0.48*	-3.44
Anus, anal canal	3	5.96*	6	4.32*	1	1.28	1	2.07	11	3.16	3.48*	0.86
Liver	1	0.49	0	0.00*	3	0.88	1	0.46	5	13.50	0.37*	-0.93
Gallbladder	1	1.38	0	0.00	2	1.84	0	0.00	3	4.43	0.68	-0.16
Bile ducts, other biliary	0	0.00	5	1.48	4	1.93	2	1.39	11	8.08	1.36	0.32
Pancreas	9	1.35	10	0.55	10	0.95	4	0.60	33	42.18	0.78	-1.00
Respiratory system	34	0.74	163	1.28*	110	1.55*	63	1.47*	370	287.75	1.29*	8.98
Nose, nasal cavity, ear	0	0.00	2	1.93	1	1.74	1	2.82	4	2.35	1.71	0.18
Larynx	1	0.31	12	1.39	9	2.04	2	0.83	24	18.66	1.29	0.58
Lung, bronchus	33	0.78	149	1.26*	100	1.52*	60	1.49*	342	266.08	1.29*	8.29
Female breast	17	0.77	50	0.82	38	1.09	15	0.67	120	140.12	0.86	-5.43
Female genital system	3	0.30*	18	0.68	38	2.62*	21	2.34*	80	59.68	1.34*	5.48
Cervix uteri	1	0.90	1	0.37	1	0.75	0	0.00	3	5.89	0.51	-0.78
Corpus uteri	1	0.20	13	0.96	27	3.63*	13	2.85*	54	30.64	1.76*	6.31
Ovary	0	0.00	1	0.13*	7	1.57	4	1.43	12	17.99	0.67	-1.62
Vagina	1	6.67	2	5.02	1	4.40	2	13.68*	6	0.92	6.51*	1.37
Vulva	0	0.00	0	0.00	2	2.73	1	1.95	3	2.89	1.04	0.03
Male genital system	47	0.84	60	0.36*	62	0.63*	39	0.65*	208	378.08	0.55*	-31.21
Prostate	45	0.81	57	0.35*	61	0.63*	37	0.63*	200	374.76	0.53*	-32.07
Testis	0	0.00	1	1.81	1	4.57	0	0.00	2	1.09	1.83	0.17
Urinary system	44	2.10*	82	1.39*	50	1.46*	36	1.67*	212	135.87	1.56*	8.32
Urinary bladder	21	1.45	59	1.44*	38	1.58*	32	2.10*	150	94.69	1.58*	6.04
Kidney parenchyma	21	4.07*	20	1.37	9	1.09	0	0.00*	50	33.11	1.51*	1.85
Renal pelvis, other urinary	2	1.56	3	0.85	3	1.49	4	3.19	12	8.07	1.49	0.43
Ureter	1	2.34	2	1.69	2	2.98	0	0.00	5	2.69	1.86	0.25
Bone, joints	0	0.00	0	0.00	1	3.18	0	0.00	1	1.31	0.76	-0.03
Soft tissue including heart	1	1.02	2	0.74	3	1.92	3	3.00	9	6.26	1.44	0.30
Kaposi sarcoma	0	0.00	2	2.31	1	2.50	0	0.00	3	1.81	1.66	0.13
Melanoma of skin	7	1.23	15	0.91	8	0.84	5	0.82	35	37.88	0.92	-0.31
Eye, orbit	0	0.00	0	0.00	0	0.00	1	3.03	1	2.25	0.44	-0.14
Brain, central nervous system	1	0.38	2	0.28	4	1.02	2	0.86	9	16.08	0.56	-0.77
Thyroid	2	1.49	1	0.28	4	2.14	2	1.85	9	7.91	1.14	0.12
Lymphatic, hematopoietic	16	0.85	51	0.97	30	0.98	12	0.61	109	121.87	0.89	-1.41
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	3.44	0.00	-0.38
Non-Hodgkin lymphoma	6	0.71	26	1.08	19	1.34	5	0.54	56	56.02	1.00	0.00
Myeloma	5	1.56	11	1.22	3	0.57	4	1.21	23	20.72	1.11	0.25
Leukemia	5	0.77	14	0.77	8	0.77	3	0.45	30	41.69	0.72	-1.28
Acute lymphocytic	0	0.00	1	1.99	0	0.00	0	0.00	1	1.12	0.89	-0.01
Chronic lymphocytic	2	0.76	1	0.14*	2	0.48	2	0.78	7	16.62	0.42*	-1.05
Acute non-lymphocytic	2	0.91	9	1.47	5	1.39	1	0.43	17	14.28	1.19	0.30
Chronic myeloid	0	0.00	2	0.82	1	0.71	0	0.00	3	5.64	0.53	-0.29

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 37,049 PYR and for male cancers on 54,496 PYR.

Table 5.2.10: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, without initial radiotherapy, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	774	1.09*	2,361	1.01	1,723	0.98	1,579	0.94*	6,437	6,489.29	0.99	-1.59
All excluding same site	601	1.00	1,833	0.92*	1,422	0.96	1,294	0.90*	5,150	5,502.37	0.94*	-10.73
Buccal cavity, pharynx	14	0.75	50	0.84	31	0.77	25	0.72	120	153.18	0.78*	-1.01
Lip	3	0.92	7	0.69	3	0.44	5	0.87	18	26.02	0.69	-0.24
Tongue	2	0.56	6	0.53	3	0.38	5	0.74	16	29.43	0.54*	-0.41
Salivary gland	0	0.00	5	0.96	3	0.76	3	0.76	11	14.71	0.75	-0.11
Mouth	4	0.80	13	0.82	10	0.94	10	1.09	37	40.59	0.91	-0.11
Nasopharynx	2	2.67	3	1.29	2	1.33	0	0.00	7	5.80	1.21	0.04
Tonsil	1	0.62	7	1.38	3	0.91	1	0.39	12	12.53	0.96	-0.02
Oropharynx	0	0.00	2	1.27	0	0.00	0	0.00	2	4.00	0.50	-0.06
Hypopharynx	1	0.53	5	0.84	6	1.54	1	0.33	13	14.72	0.88	-0.05
Digestive system	224	1.30*	704	1.26*	419	1.02	428	1.09	1,775	1,537.43	1.15*	7.23
Esophagus	9	1.17	22	0.88	15	0.83	10	0.58	56	67.86	0.83	-0.36
Stomach	19	1.02	45	0.76	35	0.84	45	1.16	144	158.39	0.91	-0.44
Small intestine	1	0.49	22	3.20*	8	1.52	16	2.95*	47	19.62	2.40*	0.83
Colon	133	1.69*	412	1.59*	244	1.26*	254	1.35*	1,043	719.98	1.45*	9.84
Rectum, rectosigmoid junction	37	1.24	107	1.12	52	0.77	30	0.49*	226	254.38	0.89	-0.86
Anus, anal canal	3	2.17	9	1.98	5	1.48	1	0.31	18	12.56	1.43	0.17
Liver	2	0.37	9	0.51*	8	0.61	6	0.46*	25	49.15	0.51*	-0.74
Gallbladder	3	1.14	6	0.72	6	1.00	3	0.54	18	22.58	0.80	-0.14
Bile ducts, other biliary	3	0.84	14	1.17	12	1.28	16	1.58	45	35.04	1.28	0.30
Pancreas	12	0.59	51	0.77	34	0.69*	40	0.84	137	183.55	0.75*	-1.42
Respiratory system	101	0.84	371	0.94	342	1.18*	255	0.95	1,069	1,074.03	1.00	-0.15
Nose, nasal cavity, ear	0	0.00	1	0.29	6	2.40	4	1.70	11	9.39	1.17	0.05
Larynx	10	1.23	26	1.01	17	0.98	9	0.64	62	65.23	0.95	-0.10
Lung, bronchus	90	0.81*	344	0.94	317	1.18*	241	0.96	992	996.66	1.00	-0.14
Female breast	87	1.31*	231	1.06	163	0.99	152	0.92	633	615.63	1.03	1.11
Female genital system	22	0.70	92	0.91	76	1.06	50	0.74*	240	271.50	0.88	-2.00
Cervix uteri	5	1.38	10	0.92	9	1.32	3	0.54	27	26.82	1.01	0.01
Corpus uteri	10	0.62	42	0.82	42	1.17	29	0.87	123	136.46	0.90	-0.86
Ovary	5	0.56	31	1.06	15	0.69	13	0.61	64	81.14	0.79	-1.09
Vagina	1	1.84	2	1.15	7	5.53*	1	0.80	11	4.80	2.29*	0.39
Vulva	0	0.00	5	0.94	1	0.24	3	0.67	9	15.46	0.58	-0.41
Male genital system	170	1.26*	412	0.89*	318	0.87*	318	0.91	1,218	1,314.64	0.93*	-5.64
Prostate	169	1.26*	408	0.89*	315	0.87*	315	0.90	1,207	1,303.22	0.93*	-5.62
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	2.78	0.00	-0.16
Urinary system	78	1.35*	218	1.14	131	0.91	122	0.87	549	532.22	1.03	0.51
Urinary bladder	44	1.08	149	1.10	87	0.85	85	0.85	365	378.92	0.96	-0.42
Kidney parenchyma	28	2.17*	54	1.26	35	1.09	30	0.97	147	118.92	1.24*	0.86
Renal pelvis, other urinary	6	1.54	15	1.18	9	0.98	7	0.81	37	34.39	1.08	0.08
Ureter	1	0.76	3	0.70	4	1.28	4	1.40	12	11.57	1.04	0.01
Bone, joints	1	1.65	0	0.00	1	0.75	4	3.34	6	5.06	1.19	0.03
Soft tissue including heart	3	1.11	6	0.68	5	0.76	4	0.60	18	24.66	0.73	-0.20
Kaposi sarcoma	2	2.77	2	0.87	2	1.25	0	0.00	6	6.05	0.99	0.00
Melanoma of skin	15	1.16	50	1.13	37	1.07	40	1.10	142	128.29	1.11	0.42
Eye, orbit	2	1.93	2	0.60	2	0.85	2	0.93	8	8.87	0.90	-0.03
Brain, central nervous system	5	0.74	21	0.95	14	0.88	15	1.03	55	59.25	0.93	-0.13
Thyroid	3	0.91	14	1.33	4	0.55	8	1.23	29	27.55	1.05	0.04
Lymphatic, hematopoietic	39	0.73	156	0.89	140	1.05	110	0.83*	445	495.57	0.90*	-1.54
Hodgkin lymphoma	1	0.60	6	1.17	5	1.48	2	0.70	14	13.06	1.07	0.03
Non-Hodgkin lymphoma	20	0.89	68	0.90	68	1.15	60	0.99	216	218.31	0.99	-0.07
Myeloma	6	0.65	25	0.82	20	0.88	23	1.02	74	84.94	0.87	-0.33
Leukemia	12	0.61	57	0.88	47	0.98	25	0.53*	141	179.25	0.79*	-1.16
Acute lymphocytic	0	0.00	1	0.60	0	0.00	1	0.89	2	4.54	0.44	-0.08
Chronic lymphocytic	2	0.25*	15	0.58*	22	1.14	8	0.44*	47	71.40	0.66*	-0.74
Acute non-lymphocytic	6	0.91	25	1.16	16	0.99	8	0.50*	55	60.52	0.91	-0.17
Chronic myeloid	2	0.75	6	0.69	5	0.77	6	0.93	19	24.26	0.78	-0.16

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 157,148 PYR and for male cancers on 171,248 PYR.

Rectum

Both Sexes, Long-term Follow-up, Radiotherapy

Table 5.2.11: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, long-term follow-up, with initial radiotherapy, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<10 years		10-14 years		15-19 years		≥20 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
Number starting interval	21,900		2,650		950		239		21,900			
Person-years in interval	79,763		8,511		2,697		573		91,545			
All subsequent cancers	1,397	1.01	207	1.15	57	0.93	19	1.41	1,680	1,644.35	1.02	3.89
All excluding same site	1,148	0.96	172	1.10	47	0.89	14	1.21	1,381	1,420.85	0.97	-4.35
Buccal cavity, pharynx	42	1.20	5	1.28	0	0.00	1	3.65	48	40.56	1.18	0.81
Lip	8	1.52	2	3.39	0	0.00	1	23.24	11	6.09	1.81	0.54
Tongue	9	1.27	0	0.00	0	0.00	0	0.00	9	8.20	1.10	0.09
Salivary gland	5	1.62	0	0.00	0	0.00	0	0.00	5	3.68	1.36	0.14
Mouth	7	0.78	2	2.00	0	0.00	0	0.00	9	10.36	0.87	-0.15
Nasopharynx	2	1.36	0	0.00	0	0.00	0	0.00	2	1.69	1.18	0.03
Tonsil	2	0.61	1	2.99	0	0.00	0	0.00	3	3.73	0.80	-0.08
Oropharynx	1	0.99	0	0.00	0	0.00	0	0.00	1	1.16	0.87	-0.02
Hypopharynx	5	1.36	0	0.00	0	0.00	0	0.00	5	4.19	1.19	0.09
Digestive system	363	1.21*	48	1.23	15	1.12	7	2.30	433	354.50	1.22*	8.57
Esophagus	15	0.96	0	0.00	2	2.98	0	0.00	17	18.49	0.92	-0.16
Stomach	36	1.19	6	1.56	3	2.29	2	6.61	47	35.80	1.31	1.22
Small intestine	15	3.48*	0	0.00	0	0.00	0	0.00	15	5.14	2.92*	1.08
Colon	212	1.58*	32	1.78*	10	1.61	5	3.55*	259	159.88	1.62*	10.83
Rectum, rectosigmoid junction	27	0.52*	2	0.32	0	0.00	0	0.00	29	60.47	0.48*	-3.44
Anus, anal canal	10	3.74*	1	2.91	0	0.00	0	0.00	11	3.16	3.48*	0.86
Liver	4	0.35*	1	0.65	0	0.00	0	0.00	5	13.50	0.37*	-0.93
Gallbladder	3	0.80	0	0.00	0	0.00	0	0.00	3	4.43	0.68	-0.16
Bile ducts, other biliary	9	1.35	2	2.03	0	0.00	0	0.00	11	8.08	1.36	0.32
Pancreas	29	0.82	4	0.85	0	0.00	0	0.00	33	42.18	0.78	-1.00
Respiratory system	307	1.25*	50	1.64*	10	0.98	3	1.33	370	287.75	1.29*	8.98
Nose, nasal cavity, ear	3	1.51	1	4.01	0	0.00	0	0.00	4	2.35	1.71	0.18
Larynx	22	1.35	2	1.15	0	0.00	0	0.00	24	18.66	1.29	0.58
Lung, bronchus	282	1.25*	47	1.65*	10	1.05	3	1.41	342	266.08	1.29*	8.29
Female breast	105	0.89	14	0.88	1	0.19	0	0.00	120	140.12	0.86	-5.43
Female genital system	59	1.16	15	2.32*	4	1.94	2	4.39	80	59.68	1.34*	5.48
Cervix uteri	3	0.58	0	0.00	0	0.00	0	0.00	3	5.89	0.51	-0.78
Corpus uteri	41	1.57*	9	2.74*	2	1.92	2	8.65	54	30.64	1.76*	6.31
Ovary	8	0.53	4	1.99	0	0.00	0	0.00	12	17.99	0.67	-1.62
Vagina	4	5.16*	1	9.58	1	29.45	0	0.00	6	0.92	6.51*	1.37
Vulva	2	0.84	0	0.00	1	7.99	0	0.00	3	2.89	1.04	0.03
Male genital system	169	0.53*	29	0.68*	7	0.49	3	1.02	208	378.08	0.55*	-31.21
Prostate	163	0.52*	28	0.67*	6	0.42*	3	1.03	200	374.76	0.53*	-32.07
Testis	2	1.99	0	0.00	0	0.00	0	0.00	2	1.09	1.83	0.17
Urinary system	176	1.54*	24	1.60*	10	1.89	2	1.65	212	135.87	1.56*	8.32
Urinary bladder	118	1.49*	20	1.89*	10	2.65*	2	2.29	150	94.69	1.58*	6.04
Kidney parenchyma	50	1.78*	0	0.00	0	0.00	0	0.00	50	33.11	1.51*	1.85
Renal pelvis, other urinary	8	1.17	4	4.57*	0	0.00	0	0.00	12	8.07	1.49	0.43
Ureter	5	2.19	0	0.00	0	0.00	0	0.00	5	2.69	1.86	0.25
Bone, joints	1	0.89	0	0.00	0	0.00	0	0.00	1	1.31	0.76	-0.03
Soft tissue including heart	6	1.14	2	2.87	1	4.07	0	0.00	9	6.26	1.44	0.30
Kaposi sarcoma	3	1.87	0	0.00	0	0.00	0	0.00	3	1.81	1.66	0.13
Melanoma of skin	30	0.94	5	1.18	0	0.00	0	0.00	35	37.88	0.92	-0.31
Eye, orbit	0	0.00	1	4.30	0	0.00	0	0.00	1	2.25	0.44	-0.14
Brain, central nervous system	7	0.51	2	1.21	0	0.00	0	0.00	9	16.08	0.56	-0.77
Thyroid	7	1.03	1	1.28	1	4.00	0	0.00	9	7.91	1.14	0.12
Lymphatic, hematopoietic	97	0.95	7	0.51	4	0.84	1	0.92	109	121.87	0.89	-1.41
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	3.44	0.00	-0.38
Non-Hodgkin lymphoma	51	1.09	3	0.47	1	0.44	1	1.92	56	56.02	1.00	0.00
Myeloma	19	1.09	3	1.29	1	1.26	0	0.00	23	20.72	1.11	0.25
Leukemia	27	0.77	1	0.22	2	1.24	0	0.00	30	41.69	0.72	-1.28
Acute lymphocytic	1	1.04	0	0.00	0	0.00	0	0.00	1	1.12	0.89	-0.01
Chronic lymphocytic	5	0.36*	1	0.55	1	1.62	0	0.00	7	16.62	0.42*	-1.05
Acute non-lymphocytic	16	1.34	0	0.00	1	1.72	0	0.00	17	14.28	1.19	0.30
Chronic myeloid	3	0.63	0	0.00	0	0.00	0	0.00	3	5.64	0.53	-0.29

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 37,049 PYR and for male cancers on 54,496 PYR.

Rectum
Both Sexes, Long-term Follow-up, No Radiotherapy

Table 5.2.12: Risk of subsequent primary cancers after cancer of the rectum or rectosigmoid junction, both sexes, long-term follow-up, without initial radiotherapy, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<10 years		10-14 years		15-19 years		≥20 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	4,858	1.01	972	0.96	423	0.87*	184	0.99	6,437	6,489.29	0.99	-1.59
All excluding same site	3,856	0.95*	810	0.94	346	0.84*	138	0.88	5,150	5,502.37	0.94*	-10.73
Buccal cavity, pharynx	95	0.80*	19	0.89	5	0.52	1	0.28	120	153.18	0.78*	-1.01
Lip	13	0.64	5	1.40	0	0.00	0	0.00	18	26.02	0.69	-0.24
Tongue	11	0.49*	2	0.48	3	1.60	0	0.00	16	29.43	0.54*	-0.41
Salivary gland	8	0.74	3	1.29	0	0.00	0	0.00	11	14.71	0.75	-0.11
Mouth	27	0.86	7	1.24	2	0.78	1	1.04	37	40.59	0.91	-0.11
Nasopharynx	7	1.53	0	0.00	0	0.00	0	0.00	7	5.80	1.21	0.04
Tonsil	11	1.10	1	0.61	0	0.00	0	0.00	12	12.53	0.96	-0.02
Oropharynx	2	0.64	0	0.00	0	0.00	0	0.00	2	4.00	0.50	-0.06
Hypopharynx	12	1.03	1	0.51	0	0.00	0	0.00	13	14.72	0.88	-0.05
Digestive system	1,347	1.18*	248	1.05	119	1.05	61	1.36*	1,775	1,537.43	1.15*	7.23
Esophagus	46	0.91	6	0.58	3	0.61	1	0.52	56	67.86	0.83	-0.36
Stomach	99	0.83	25	1.07	15	1.36	5	1.15	144	158.39	0.91	-0.44
Small intestine	31	2.18*	11	3.44*	4	2.51	1	1.55	47	19.62	2.40*	0.83
Colon	789	1.48*	140	1.24*	69	1.27	45	2.09*	1,043	719.98	1.45*	9.84
Rectum, rectosigmoid junction	196	1.01	22	0.59*	7	0.41*	1	0.15*	226	254.38	0.89	-0.86
Anus, anal canal	17	1.83*	0	0.00	1	1.05	0	0.00	18	12.56	1.43	0.17
Liver	19	0.53*	3	0.39	2	0.52	1	0.63	25	49.15	0.51*	-0.74
Gallbladder	15	0.88	2	0.60	1	0.63	0	0.00	18	22.58	0.80	-0.14
Bile ducts, other biliary	29	1.16	9	1.55	6	1.97	1	0.78	45	35.04	1.28	0.30
Pancreas	97	0.71*	26	0.92	9	0.65	5	0.91	137	183.55	0.75*	-1.42
Respiratory system	814	1.01	169	1.04	62	0.81	24	0.82	1,069	1,074.03	1.00	-0.15
Nose, nasal cavity, ear	7	1.00	3	2.14	1	1.48	0	0.00	11	9.39	1.17	0.05
Larynx	53	1.03	5	0.56	3	0.80	1	0.76	62	65.23	0.95	-0.10
Lung, bronchus	751	1.01	161	1.06	57	0.79	23	0.83	992	996.66	1.00	-0.14
Female breast	481	1.07	100	1.02	37	0.76	15	0.80	633	615.63	1.03	1.11
Female genital system	190	0.93	29	0.72	17	0.86	4	0.54	240	271.50	0.88	-2.00
Cervix uteri	24	1.13	2	0.58	0	0.00	1	1.88	27	26.82	1.01	0.01
Corpus uteri	94	0.91	16	0.80	11	1.14	2	0.55	123	136.46	0.90	-0.86
Ovary	51	0.85	8	0.64	4	0.64	1	0.42	64	81.14	0.79	-1.09
Vagina	10	2.81*	1	1.35	0	0.00	0	0.00	11	4.80	2.29*	0.39
Vulva	6	0.55	1	0.39	2	1.47	0	0.00	9	15.46	0.58	-0.41
Male genital system	900	0.93*	199	0.92	81	0.80*	38	1.11	1,218	1,314.64	0.93*	-5.64
Prostate	892	0.93*	198	0.93	79	0.79*	38	1.12	1,207	1,303.22	0.93*	-5.62
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	2.78	0.00	-0.16
Urinary system	427	1.09	68	0.81	39	0.97	15	0.93	549	532.22	1.03	0.51
Urinary bladder	280	1.00	49	0.82	26	0.90	10	0.86	365	378.92	0.96	-0.42
Kidney parenchyma	117	1.33*	15	0.81	11	1.23	4	1.15	147	118.92	1.24*	0.86
Renal pelvis, other urinary	30	1.16	4	0.77	2	0.81	1	1.01	37	34.39	1.08	0.08
Ureter	8	0.92	3	1.73	0	0.00	1	3.19	12	11.57	1.04	0.01
Bone, joints	2	0.52	3	4.18	1	2.88	0	0.00	6	5.06	1.19	0.03
Soft tissue including heart	14	0.78	4	1.03	0	0.00	0	0.00	18	24.66	0.73	-0.20
Kaposi sarcoma	6	1.30	0	0.00	0	0.00	0	0.00	6	6.05	0.99	0.00
Melanoma of skin	102	1.11	24	1.13	9	0.84	7	1.54	142	128.29	1.11	0.42
Eye, orbit	6	0.89	2	1.53	0	0.00	0	0.00	8	8.87	0.90	-0.03
Brain, central nervous system	40	0.90	10	1.13	5	1.21	0	0.00	55	59.25	0.93	-0.13
Thyroid	21	1.00	5	1.27	2	1.08	1	1.43	29	27.55	1.05	0.04
Lymphatic, hematopoietic	335	0.92	62	0.79	35	0.90	13	0.84	445	495.57	0.90*	-1.54
Hodgkin lymphoma	12	1.18	1	0.56	1	1.24	0	0.00	14	13.06	1.07	0.03
Non-Hodgkin lymphoma	156	0.99	32	0.90	18	1.01	10	1.36	216	218.31	0.99	-0.07
Myeloma	51	0.82	13	0.97	8	1.22	2	0.78	74	84.94	0.87	-0.33
Leukemia	116	0.88	16	0.57*	8	0.59	1	0.19	141	179.25	0.79*	-1.16
Acute lymphocytic	1	0.29	1	1.43	0	0.00	0	0.00	2	4.54	0.44	-0.08
Chronic lymphocytic	39	0.73	7	0.63	1	0.19	0	0.00	47	71.40	0.66*	-0.74
Acute non-lymphocytic	47	1.06	4	0.42	3	0.64	1	0.52	55	60.52	0.91	-0.17
Chronic myeloid	13	0.73	2	0.52	4	2.14	0	0.00	19	24.26	0.78	-0.16

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 157,148 PYR and for male cancers on 171,248 PYR.

Anus Both Sexes

Table 5.3.1: Characteristics of patients with an initial cancer of the anus or anal canal, both sexes, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
Number of patients with 1st primary cancer						
Total	1,948	100.0	2,957	100.0	4,905	100.0
Initial treatment						
Any radiation	1,191	61.1	1,921	65.0	3,112	63.4
With surgery	609	31.3	924	31.2	1,533	31.3
Without surgery	582	29.9	997	33.7	1,579	32.2
No radiation	757	38.9	1,036	35.0	1,793	36.6
With surgery	652	33.5	892	30.2	1,544	31.5
Without surgery	105	5.4	144	4.9	249	5.1
Race						
White	1,635	83.9	2,587	87.5	4,222	86.1
Black	231	11.9	269	9.1	500	10.2
Other	71	3.6	96	3.2	167	3.4
Unknown	11	0.6	5	0.2	16	0.3
Age at 1st primary cancer diagnosis, years						
< 30	23	1.2	11	0.4	34	0.7
30–49	484	24.8	444	15.0	928	18.9
50–69	950	48.8	1,307	44.2	2,257	46.0
70–79	341	17.5	722	24.4	1,063	21.7
≥ 80	150	7.7	473	16.0	623	12.7
Number of patients with one or more primary cancers						
One primary cancer only	1,741	89.4	2,696	91.2	4,437	90.5
1st and 2nd cancers	190	9.8	239	8.1	429	8.7
1st, 2nd, and 3rd cancers	15	0.8	22	0.7	37	0.8
1st, 2nd, 3rd, and additional cancers	2	0.1	0	0.0	2	0.0
Other statistics						
Median age at 1st cancer diagnosis	60.3	—	66.7	—	64.0	—
Median year of 1st cancer diagnosis	1990.5	—	1989.4	—	1989.9	—
Median person-years at risk	2.9	—	3.6	—	3.3	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	94.2	—	95.0	—	94.7
1st, 2nd, and additional cancers	—	91.8	—	94.6	—	93.4
1st cancer only	—	5.8	—	5.0	—	5.3

*Percent histologically confirmed among patients who developed a subsequent primary cancer.

Table 5.3.2: Risk of subsequent primary cancers after cancer of the anus or anal canal, both sexes, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	61	1.26	172	1.12	159	1.46*	117	1.16	509	411.75	1.24*	35.96
All excluding same site	60	1.24	171	1.12	157	1.44*	115	1.15	503	410.75	1.22*	34.11
Buccal cavity, pharynx	3	2.50	14	3.80*	3	1.22	4	1.95	24	9.40	2.55*	5.40
Lip	0	0.00	1	2.12	0	0.00	0	0.00	1	1.21	0.83	-0.08
Tongue	0	0.00	7	9.19*	1	1.96	1	2.33	9	1.95	4.62*	2.61
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.88	0.00	-0.33
Mouth	1	2.93	2	1.90	0	0.00	2	3.39	5	2.69	1.86	0.85
Nasopharynx	0	0.00	1	7.25	0	0.00	0	0.00	1	0.34	2.94	0.24
Tonsil	2	17.22*	2	5.68	2	8.86	1	5.78	7	0.87	8.08*	2.27
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	0.00	-0.10
Hypopharynx	0	0.00	1	2.89	0	0.00	0	0.00	1	0.86	1.16	0.05
Digestive system	13	1.17	30	0.86	37	1.50*	25	1.09	105	93.55	1.12	4.23
Esophagus	0	0.00	2	1.33	5	4.80*	1	1.05	8	3.98	2.01	1.49
Stomach	1	0.94	4	1.23	6	2.70	0	0.00	11	8.53	1.29	0.91
Small intestine	0	0.00	1	2.05	0	0.00	2	5.82	3	1.34	2.24	0.61
Colon	7	1.35	13	0.79	18	1.53	11	1.00	49	44.37	1.10	1.71
Rectum, rectosigmoid junction	3	1.60	6	1.03	1	0.25	3	0.85	13	15.24	0.85	-0.83
Anus, anal canal	1	8.26	1	2.65	2	7.57	2	8.31	6	1.00	5.98*	1.85
Liver	0	0.00	0	0.00	0	0.00	2	2.92	2	2.74	0.73	-0.27
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	1.53	0.00	-0.57
Bile ducts, other biliary	1	4.28	2	2.67	2	3.64	0	0.00	5	2.09	2.39	1.08
Pancreas	0	0.00	1	0.23	3	0.97	4	1.37	8	11.72	0.68	-1.37
Respiratory system	14	1.81	51	2.07*	42	2.39*	32	1.99*	139	66.05	2.10*	26.98
Nose, nasal cavity, ear	0	0.00	0	0.00	1	6.48	0	0.00	1	0.59	1.70	0.15
Larynx	0	0.00	2	1.37	4	4.11*	2	2.55	8	3.69	2.17	1.59
Lung, bronchus	14	1.95*	49	2.14*	37	2.25*	30	1.99*	130	61.61	2.11*	25.29
Female breast	8	1.06	13	0.53*	20	1.16	14	0.89	55	64.92	0.85	-5.75
Female genital system	3	0.87	8	0.73	14	1.88*	12	1.86	37	28.29	1.31	5.05
Cervix uteri	0	0.00	2	1.66	0	0.00	0	0.00	2	2.88	0.69	-0.51
Corpus uteri	1	0.57	1	0.18*	8	2.10	4	1.23	14	14.43	0.97	-0.25
Ovary	1	1.00	1	0.31	1	0.45	5	2.50	8	8.45	0.95	-0.26
Vagina	0	0.00	0	0.00	1	8.26	2	18.14*	3	0.46	6.55*	1.47
Vulva	1	6.26	4	7.78*	3	8.01*	1	2.68	9	1.42	6.33*	4.39
Male genital system	7	1.08	11	0.54*	12	0.80	10	0.69	40	56.40	0.71*	-16.75
Prostate	7	1.10	10	0.49*	12	0.81	10	0.70	39	55.78	0.70*	-17.13
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.28
Urinary system	3	0.89	12	1.12	12	1.57	4	0.56	31	28.88	1.07	0.78
Urinary bladder	3	1.33	9	1.26	8	1.57	2	0.41	22	19.31	1.14	0.99
Kidney parenchyma	0	0.00	2	0.70	4	1.97	1	0.53	7	7.66	0.91	-0.24
Renal pelvis, other urinary	0	0.00	1	1.39	0	0.00	1	2.17	2	1.91	1.05	0.03
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.62	0.00	-0.23
Bone, joints	0	0.00	0	0.00	1	10.96	0	0.00	1	0.35	2.83	0.24
Soft tissue including heart	0	0.00	1	1.66	0	0.00	1	2.55	2	1.61	1.24	0.14
Kaposi sarcoma	2	25.53*	3	14.24*	0	0.00	0	0.00	5	0.50	10.07*	1.67
Melanoma of skin	1	0.96	6	1.80	4	1.72	3	1.36	14	8.90	1.57	1.89
Eye, orbit	0	0.00	0	0.00	1	6.59	0	0.00	1	0.58	1.71	0.15
Brain, central nervous system	1	1.99	0	0.00	2	1.83	1	1.05	4	4.14	0.97	-0.05
Thyroid	0	0.00	0	0.00	1	1.60	1	1.93	2	2.44	0.82	-0.16
Lymphatic, hematopoietic	5	1.36	14	1.20	6	0.72	7	0.89	32	31.56	1.01	0.16
Hodgkin lymphoma	0	0.00	1	2.66	0	0.00	0	0.00	1	0.93	1.08	0.03
Non-Hodgkin lymphoma	4	2.41	9	1.68	3	0.77	4	1.07	20	14.65	1.37	1.98
Myeloma	0	0.00	0	0.00	3	2.07	0	0.00	3	5.44	0.55	-0.90
Leukemia	1	0.80	4	1.02	0	0.00	3	1.15	8	10.54	0.76	-0.94
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.29	0.00	-0.11
Chronic lymphocytic	0	0.00	1	0.64	0	0.00	1	0.97	2	4.20	0.48	-0.81
Acute non-lymphocytic	0	0.00	2	1.51	0	0.00	0	0.00	2	3.60	0.56	-0.59
Chronic myeloid	1	5.86	1	1.88	0	0.00	0	0.00	2	1.43	1.40	0.21

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 17,250 PYR and for male cancers on 9,792 PYR.

Table 5.3.3: Risk of subsequent primary cancers after cancer of the anus or anal canal, females, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	Number starting interval	Person-years in interval	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
	2,957	2,240	2,483 6,918		1,231 4,441		624 3,651		2,957 17,250			
All subsequent cancers	24	0.89	91	1.05	96	1.54*	72	1.24	283	234.22	1.21*	28.28
All excluding same site	24	0.90	91	1.05	95	1.53*	72	1.24	282	233.49	1.21*	28.12
Buccal cavity, pharynx	1	2.06	4	2.56	1	0.92	1	1.04	7	4.10	1.71	1.68
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.29	0.00	-0.17
Tongue	0	0.00	3	8.70*	1	4.15	0	0.00	4	0.91	4.42*	1.79
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	0.00	-0.26
Mouth	1	5.91	1	1.84	0	0.00	0	0.00	2	1.44	1.39	0.33
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.09
Tonsil	0	0.00	0	0.00	0	0.00	1	14.31	1	0.34	2.92	0.38
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	0.00	-0.06
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.16
Digestive system	4	0.62	16	0.78	22	1.47	15	1.05	57	56.25	1.01	0.43
Esophagus	0	0.00	1	1.75	2	4.81	0	0.00	3	1.56	1.93	0.84
Stomach	1	1.94	2	1.24	5	4.41*	0	0.00	8	4.33	1.85	2.13
Small intestine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	0.00	-0.46
Colon	2	0.62	10	0.97	11	1.46	9	1.24	32	28.40	1.13	2.09
Rectum, rectosigmoid junction	1	0.99	1	0.31	0	0.00	2	0.98	4	8.52	0.47	-2.62
Rectum	1	1.52	0	0.00	0	0.00	2	1.47	3	5.60	0.54	-1.51
Anus, anal canal	0	0.00	0	0.00	1	5.15	0	0.00	1	0.73	1.37	0.16
Liver	0	0.00	0	0.00	0	0.00	1	3.07	1	1.21	0.83	-0.12
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	1.23	0.00	-0.71
Bile ducts, other biliary	0	0.00	1	2.23	1	2.96	0	0.00	2	1.28	1.57	0.42
Pancreas	0	0.00	1	0.37	2	1.00	3	1.54	6	7.48	0.80	-0.86
Respiratory system	6	1.76	28	2.44*	23	2.66*	18	2.15*	75	31.87	2.35*	25.00
Nose, nasal cavity, ear	0	0.00	0	0.00	1	11.67	0	0.00	1	0.32	3.10	0.39
Larynx	0	0.00	1	2.72	1	3.85	1	4.57	3	0.96	3.13	1.18
Lung, bronchus	6	1.84	27	2.47*	21	2.54*	17	2.12*	71	30.51	2.33*	23.47
Female breast	8	1.06	13	0.53*	20	1.16	14	0.89	55	64.92	0.85	-5.75
Female genital system	3	0.87	8	0.73	14	1.88*	12	1.86	37	28.29	1.31	5.05
Cervix uteri	0	0.00	2	1.66	0	0.00	0	0.00	2	2.88	0.69	-0.51
Corpus uteri	1	0.57	1	0.18*	8	2.10	4	1.23	14	14.43	0.97	-0.25
Ovary	1	1.00	1	0.31	1	0.45	5	2.50	8	8.45	0.95	-0.26
Vagina	0	0.00	0	0.00	1	8.26	2	18.14*	3	0.46	6.55*	1.47
Vulva	1	6.26	4	7.78*	3	8.01*	1	2.68	9	1.42	6.33*	4.39
Urinary system	1	0.78	8	1.90	2	0.65	3	1.00	14	11.60	1.21	1.39
Urinary bladder	1	1.30	7	2.80*	1	0.54	2	1.11	11	6.91	1.59	2.37
Kidney parenchyma	0	0.00	0	0.00	1	1.00	1	1.03	2	3.73	0.54	-1.00
Renal pelvis, other urinary	0	0.00	1	2.83	0	0.00	0	0.00	1	0.96	1.04	0.02
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	0.00	-0.17
Bone, joints	0	0.00	0	0.00	1	18.63	0	0.00	1	0.21	4.87	0.46
Soft tissue including heart	0	0.00	1	2.94	0	0.00	0	0.00	1	0.92	1.08	0.04
Kaposi sarcoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	0.00	-0.06
Melanoma of skin	0	0.00	2	1.21	4	3.45	3	2.74	9	4.41	2.04	2.66
Eye, orbit	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	0.00	-0.19
Brain, central nervous system	1	3.67	0	0.00	1	1.60	0	0.00	2	2.35	0.85	-0.20
Thyroid	0	0.00	0	0.00	1	2.14	0	0.00	1	1.82	0.55	-0.48
Lymphatic, hematopoietic	0	0.00	7	1.04	4	0.81	5	1.05	16	18.47	0.87	-1.43
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	0.00	-0.29
Non-Hodgkin lymphoma	0	0.00	6	1.87	2	0.84	4	1.70	12	8.91	1.35	1.79
Myeloma	0	0.00	0	0.00	2	2.29	0	0.00	2	3.24	0.62	-0.72
Leukemia	0	0.00	1	0.47	0	0.00	1	0.67	2	5.82	0.34	-2.21
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.16	0.00	-0.09
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	2.27	0.00	-1.31
Acute non-lymphocytic	0	0.00	1	1.34	0	0.00	0	0.00	1	2.05	0.49	-0.61
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	0.00	-0.46

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

Table 5.3.4: Risk of subsequent primary cancers after cancer of the anus or anal canal, males, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	37	1.71*	81	1.21	63	1.35*	45	1.06	226	177.53	1.27*	49.51
All excluding same site	36	1.67*	80	1.20	62	1.33*	43	1.02	221	177.25	1.25*	44.68
Buccal cavity, pharynx	2	2.80	10	4.70*	2	1.46	3	2.77	17	5.30	3.21*	11.95
Lip	0	0.00	1	2.73	0	0.00	0	0.00	1	0.91	1.09	0.09
Tongue	0	0.00	4	9.60*	0	0.00	1	4.61	5	1.04	4.80*	4.04
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.43	0.00	-0.44
Mouth	0	0.00	1	1.97	0	0.00	2	8.13	3	1.25	2.40	1.79
Nasopharynx	0	0.00	1	12.66	0	0.00	0	0.00	1	0.19	5.31	0.83
Tonsil	2	27.57*	2	9.34*	2	14.87*	0	0.00	6	0.52	11.44*	5.59
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.16	0.00	-0.16
Hypopharynx	0	0.00	1	4.18	0	0.00	0	0.00	1	0.59	1.69	0.42
Digestive system	9	1.92	14	0.98	15	1.53	10	1.17	48	37.30	1.29	10.92
Esophagus	0	0.00	1	1.08	3	4.80	1	1.78	5	2.42	2.06	2.63
Stomach	0	0.00	2	1.22	1	0.92	0	0.00	3	4.20	0.71	-1.23
Small intestine	0	0.00	1	4.92	0	0.00	2	15.38*	3	0.54	5.57*	2.51
Colon	5	2.55	3	0.50	7	1.66	2	0.53	17	15.97	1.06	1.05
Rectum, rectosigmoid junction	2	2.32	5	1.91	1	0.57	1	0.67	9	6.73	1.34	2.32
Anus, anal canal	1	27.47	1	9.45	1	14.32	2	32.78*	5	0.27	18.31*	4.83
Liver	0	0.00	0	0.00	0	0.00	1	2.78	1	1.53	0.65	-0.54
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	0.00	-0.31
Bile ducts, other biliary	1	10.40	1	3.34	1	4.72	0	0.00	3	0.81	3.70	2.23
Pancreas	0	0.00	0	0.00	1	0.90	1	1.03	2	4.24	0.47	-2.29
Respiratory system	8	1.85	23	1.74*	19	2.12*	14	1.82	64	34.17	1.87*	30.46
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	0.00	-0.27
Larynx	0	0.00	1	0.92	3	4.21	1	1.77	5	2.73	1.83	2.32
Lung, bronchus	8	2.05	22	1.84*	16	1.96*	13	1.84	59	31.09	1.90*	28.50
Male breast	1	24.05	0	0.00	0	0.00	0	0.00	1	0.34	2.97	0.68
Male genital system	7	1.08	11	0.54*	12	0.80	10	0.69	40	56.40	0.71*	-16.75
Prostate	7	1.10	10	0.49*	12	0.81	10	0.70	39	55.78	0.70*	-17.13
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.28
Urinary system	2	0.96	4	0.62	10	2.20*	1	0.24	17	17.28	0.98	-0.29
Urinary bladder	2	1.35	2	0.43	7	2.14	0	0.00	11	12.41	0.89	-1.43
Kidney parenchyma	0	0.00	2	1.34	3	2.91	0	0.00	5	3.93	1.27	1.09
Renal pelvis, other urinary	0	0.00	0	0.00	0	0.00	1	4.60	1	0.95	1.05	0.05
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.32	0.00	-0.33
Bone, joints	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.15
Soft tissue including heart	0	0.00	0	0.00	0	0.00	1	6.29	1	0.69	1.46	0.32
Kaposi sarcoma	2	29.58*	3	17.03*	0	0.00	0	0.00	5	0.40	12.53*	4.70
Melanoma of skin	1	1.88	4	2.39	0	0.00	0	0.00	5	4.48	1.11	0.53
Eye, orbit	0	0.00	0	0.00	1	15.33	0	0.00	1	0.25	3.97	0.76
Brain, central nervous system	0	0.00	0	0.00	1	2.14	1	2.57	2	1.79	1.12	0.21
Thyroid	0	0.00	0	0.00	0	0.00	1	7.90	1	0.62	1.62	0.39
Lymphatic, hematopoietic	5	3.10	7	1.41	2	0.58	2	0.64	16	13.09	1.22	2.98
Hodgkin lymphoma	0	0.00	1	5.56	0	0.00	0	0.00	1	0.43	2.33	0.58
Non-Hodgkin lymphoma	4	5.77*	3	1.39	1	0.67	0	0.00	8	5.73	1.40	2.31
Myeloma	0	0.00	0	0.00	1	1.74	0	0.00	1	2.20	0.45	-1.23
Leukemia	1	1.71	3	1.67	0	0.00	2	1.80	6	4.72	1.27	1.30
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.13
Chronic lymphocytic	0	0.00	1	1.37	0	0.00	1	2.22	2	1.93	1.04	0.07
Acute non-lymphocytic	0	0.00	1	1.72	0	0.00	0	0.00	1	1.55	0.65	-0.56
Chronic myeloid	1	12.61	1	4.16	0	0.00	0	0.00	2	0.64	3.14	1.39

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000.

Anus

Both Sexes, <50 Years of Age

Table 5.3.5: Risk of subsequent primary cancers after cancer of the anus or anal canal, both sexes, <50 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	5	2.71	22	3.19*	21	3.29*	24	1.76*	72	28.76	2.50*	78.40
All excluding same site	4	2.18	21	3.05*	20	3.15*	22	1.62*	67	28.67	2.34*	69.50
Buccal cavity, pharynx	0	0.00	2	8.26	1	4.26	0	0.00	3	0.92	3.26	3.77
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	0.00	-0.13
Tongue	0	0.00	2	35.87*	1	18.41	0	0.00	3	0.21	14.16*	5.06
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.14
Mouth	0	0.00	0	0.00	0	0.00	0	0.00	0	0.24	0.00	-0.43
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.08
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.23
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	0.00	-0.05
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.16
Digestive system	1	4.29	2	2.14	2	2.02	6	2.59	11	4.47	2.46*	11.83
Esophagus	0	0.00	0	0.00	0	0.00	0	0.00	0	0.31	0.00	-0.56
Stomach	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	0.00	-0.73
Small intestine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	0.00	-0.19
Colon	0	0.00	0	0.00	1	2.64	3	3.12	4	1.77	2.26	4.04
Rectum, rectosigmoid junction	0	0.00	1	5.35	0	0.00	1	2.34	2	0.86	2.33	2.07
Anus, anal canal	1	128.76*	1	38.05	1	45.85	2	53.85*	5	0.09	53.77*	8.90
Liver	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.36
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.09
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.16
Pancreas	0	0.00	0	0.00	0	0.00	0	0.00	0	0.54	0.00	-0.97
Respiratory system	0	0.00	8	9.53*	8	8.17*	5	2.09	21	4.41	4.77*	30.09
Nose, nasal cavity, ear	0	0.00	0	0.00	1	88.11*	0	0.00	1	0.05	21.32	1.73
Larynx	0	0.00	0	0.00	2	22.40*	2	11.67*	4	0.36	11.12*	6.60
Lung, bronchus	0	0.00	8	10.77*	5	5.71*	3	1.36	16	3.99	4.01*	21.78
Female breast	0	0.00	2	1.08	4	2.77	5	2.13	11	6.14	1.79	17.19
Female genital system	0	0.00	1	1.42	2	3.55	3	3.16	6	2.41	2.49	12.71
Cervix uteri	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	0.00	-1.58
Corpus uteri	0	0.00	0	0.00	2	7.93	0	0.00	2	1.08	1.85	3.25
Ovary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.74	0.00	-2.61
Vagina	0	0.00	0	0.00	0	0.00	2	193.88*	2	0.02	82.87*	6.99
Vulva	0	0.00	1	47.04	0	0.00	1	33.21	2	0.07	27.13*	6.82
Male genital system	0	0.00	0	0.00	1	1.97	0	0.00	1	3.18	0.31	-8.12
Prostate	0	0.00	0	0.00	1	2.15	0	0.00	1	2.99	0.33	-7.41
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.16	0.00	-0.61
Urinary system	0	0.00	0	0.00	1	2.64	2	2.25	3	1.72	1.75	2.33
Urinary bladder	0	0.00	0	0.00	1	4.91	1	1.89	2	0.96	2.09	1.89
Kidney parenchyma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.68	0.00	-1.23
Renal pelvis, other urinary	0	0.00	0	0.00	0	0.00	1	23.29	1	0.08	12.93	1.67
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.02	0.00	-0.04
Bone, joints	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.08
Soft tissue including heart	0	0.00	0	0.00	0	0.00	0	0.00	0	0.16	0.00	-0.29
Kaposi sarcoma	2	47.69*	3	28.80*	0	0.00	0	0.00	5	0.23	21.68*	8.65
Melanoma of skin	0	0.00	1	2.48	0	0.00	2	4.66	3	1.25	2.40	3.17
Eye, orbit	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.09
Brain, central nervous system	0	0.00	0	0.00	0	0.00	0	0.00	0	0.43	0.00	-0.78
Thyroid	0	0.00	0	0.00	1	8.67	0	0.00	1	0.48	2.06	0.93
Lymphatic, hematopoietic	2	11.79*	3	5.18*	1	2.02	1	1.06	7	2.19	3.20*	8.73
Hodgkin lymphoma	0	0.00	1	16.42	0	0.00	0	0.00	1	0.16	6.34	1.53
Non-Hodgkin lymphoma	2	21.74*	2	6.45	1	3.86	1	2.10	6	1.14	5.27*	8.82
Myeloma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	0.00	-0.55
Leukemia	0	0.00	0	0.00	0	0.00	0	0.00	0	0.59	0.00	-1.07
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	0.00	-0.06
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.36
Acute non-lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.37
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	0.00	-0.18

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 2,826 PYR and for male cancers on 2,689 PYR.

Table 5.3.6: Risk of subsequent primary cancers after cancer of the anus or anal canal, both sexes, 50-69 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
All subsequent cancers	29	1.45	88	1.19	100	1.51*	81	1.12	298	232.04	1.28*	44.63
All excluding same site	29	1.45	88	1.20	99	1.50*	81	1.12	297	231.48	1.28*	44.34
Buccal cavity, pharynx	2	3.23	9	4.32*	2	1.26	4	2.81	17	5.71	2.98*	7.64
Lip	0	0.00	1	4.39	0	0.00	0	0.00	1	0.67	1.49	0.22
Tongue	0	0.00	3	6.83*	0	0.00	1	3.40	4	1.20	3.33	1.89
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.48	0.00	-0.32
Mouth	0	0.00	1	1.72	0	0.00	2	4.90	3	1.61	1.87	0.94
Nasopharynx	0	0.00	1	12.32	0	0.00	0	0.00	1	0.21	4.70	0.53
Tonsil	2	28.32*	2	8.84	2	12.81*	1	8.74	7	0.57	12.34*	4.35
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	0.00	-0.12
Hypopharynx	0	0.00	1	4.44	0	0.00	0	0.00	1	0.59	1.71	0.28
Digestive system	7	1.81	16	1.11	23	1.71*	15	0.93	61	47.91	1.27	8.86
Esophagus	0	0.00	2	2.50	4	6.03*	1	1.48	7	2.37	2.95*	3.13
Stomach	1	2.83	2	1.54	5	4.28*	0	0.00	8	4.21	1.90	2.57
Small intestine	0	0.00	1	4.35	0	0.00	2	8.18	3	0.75	4.03	1.53
Colon	4	2.44	6	0.95	10	1.63	6	0.77	26	21.86	1.19	2.80
Rectum, rectosigmoid junction	2	2.69	2	0.74	0	0.00	1	0.40	5	8.35	0.60	-2.27
Anus, anal canal	0	0.00	0	0.00	1	6.30	0	0.00	1	0.56	1.78	0.30
Liver	0	0.00	0	0.00	0	0.00	2	4.00	2	1.53	1.31	0.32
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.71	0.00	-0.48
Bile ducts, other biliary	0	0.00	2	7.33	1	3.65	0	0.00	3	1.00	2.99	1.35
Pancreas	0	0.00	1	0.55	2	1.18	3	1.45	6	6.04	0.99	-0.03
Respiratory system	6	1.62	30	2.22*	28	2.36*	26	2.16*	90	41.06	2.19*	33.12
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.32	0.00	-0.22
Larynx	0	0.00	0	0.00	1	1.42	0	0.00	1	2.48	0.40	-1.00
Lung, bronchus	6	1.77	30	2.42*	27	2.45*	26	2.29*	89	38.16	2.33*	34.40
Female breast	3	0.91	7	0.59	11	1.07	8	0.72	29	36.56	0.79	-8.04
Female genital system	3	1.84	5	0.87	6	1.29	6	1.31	20	16.57	1.21	3.65
Cervix uteri	0	0.00	1	1.63	0	0.00	0	0.00	1	1.59	0.63	-0.63
Corpus uteri	1	1.11	1	0.32	2	0.79	2	0.84	6	8.98	0.67	-3.16
Ovary	1	2.24	0	0.00	1	0.74	4	2.84	6	4.80	1.25	1.27
Vagina	0	0.00	0	0.00	1	15.94	0	0.00	1	0.23	4.42	0.82
Vulva	1	22.69	3	17.29*	1	5.79	0	0.00	5	0.64	7.86*	4.64
Male genital system	3	1.12	4	0.39*	9	0.89	10	0.92	26	34.07	0.76	-15.04
Prostate	3	1.13	4	0.39*	9	0.90	10	0.92	26	33.79	0.77	-14.51
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.17
Urinary system	2	1.49	4	0.80	7	1.53	1	0.19	14	16.12	0.87	-1.43
Urinary bladder	2	2.37	3	0.95	3	1.00	1	0.28	9	10.54	0.85	-1.04
Kidney parenchyma	0	0.00	1	0.67	4	3.10	0	0.00	5	4.55	1.10	0.30
Renal pelvis, other urinary	0	0.00	0	0.00	0	0.00	0	0.00	0	1.03	0.00	-0.69
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	0.00	-0.22
Bone, joints	0	0.00	0	0.00	1	18.34	0	0.00	1	0.19	5.15	0.55
Soft tissue including heart	0	0.00	0	0.00	0	0.00	1	3.71	1	0.85	1.18	0.10
Kaposi sarcoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	0.00	-0.09
Melanoma of skin	0	0.00	2	1.19	3	2.14	1	0.67	6	5.06	1.19	0.64
Eye, orbit	0	0.00	0	0.00	1	10.53	0	0.00	1	0.34	2.95	0.45
Brain, central nervous system	1	4.11	0	0.00	1	1.42	1	1.46	3	2.48	1.21	0.35
Thyroid	0	0.00	0	0.00	0	0.00	1	2.97	1	1.37	0.73	-0.25
Lymphatic, hematopoietic	1	0.74	6	1.19	5	1.06	4	0.72	16	16.70	0.96	-0.47
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	0.00	-0.34
Non-Hodgkin lymphoma	1	1.56	4	1.68	2	0.89	2	0.75	9	7.93	1.13	0.72
Myeloma	0	0.00	0	0.00	3	3.62	0	0.00	3	2.93	1.02	0.05
Leukemia	0	0.00	2	1.25	0	0.00	2	1.10	4	5.33	0.75	-0.90
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.10
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	1	1.39	1	2.19	0.46	-0.81
Acute non-lymphocytic	0	0.00	1	1.88	0	0.00	0	0.00	1	1.82	0.55	-0.56
Chronic myeloid	0	0.00	1	4.77	0	0.00	0	0.00	1	0.70	1.42	0.20

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 9,409 PYR and for male cancers on 5,369 PYR.

Anus

Both Sexes, ≥70 Years of Age

Table 5.3.7: Risk of subsequent primary cancers after cancer of the anus or anal canal, both sexes, ≥70 years of age, SEER 1973-2000.

Subsequent primary cancer	Years after first primary cancer diagnosis											
	<1 year		1-4 years		5-9 years		≥10 years		Total			
	Number starting interval	Person-years in interval	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
	1,686	1,221										
			1,312	3,293	518	1,589	179	646	1,686	6,749		
All subsequent cancers	27	1.02	62	0.85	38	1.04	12	0.82	139	150.95	0.92	-17.71
All excluding same site	27	1.02	62	0.85	38	1.04	12	0.82	139	150.60	0.92	-17.19
Buccal cavity, pharynx	1	1.94	3	2.20	0	0.00	0	0.00	4	2.76	1.45	1.83
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.46	0.00	-0.69
Tongue	0	0.00	2	7.51	0	0.00	0	0.00	2	0.54	3.73	2.17
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	0.00	-0.49
Mouth	1	6.56	1	2.45	0	0.00	0	0.00	2	0.84	2.37	1.72
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.12
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	0.00	-0.25
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	0.00	-0.09
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.28
Digestive system	5	0.71	12	0.62	12	1.17	4	0.90	33	41.17	0.80	-12.11
Esophagus	0	0.00	0	0.00	1	3.27	0	0.00	1	1.30	0.77	-0.45
Stomach	0	0.00	2	1.07	1	1.04	0	0.00	3	3.92	0.77	-1.36
Small intestine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.49	0.00	-0.72
Colon	3	0.87	7	0.72	7	1.33	2	0.86	19	20.73	0.92	-2.57
Rectum, rectosigmoid junction	1	0.92	3	1.02	1	0.69	1	1.74	6	6.03	0.99	-0.05
Anus, anal canal	0	0.00	0	0.00	0	0.00	0	0.00	0	0.35	0.00	-0.51
Liver	0	0.00	0	0.00	0	0.00	0	0.00	0	1.01	0.00	-1.50
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.77	0.00	-1.14
Bile ducts, other biliary	1	6.32	0	0.00	1	3.87	0	0.00	2	1.00	2.00	1.48
Pancreas	0	0.00	0	0.00	1	0.78	1	1.77	2	5.14	0.39	-4.65
Respiratory system	8	2.09	13	1.26	6	1.25	1	0.61	28	20.59	1.36	10.99
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.22	0.00	-0.32
Larynx	0	0.00	2	4.51	1	5.57	0	0.00	3	0.85	3.52	3.18
Lung, bronchus	8	2.22	11	1.13	5	1.10	1	0.64	25	19.46	1.28	8.20
Female breast	5	1.33	4	0.38*	5	0.91	1	0.43	15	22.21	0.68	-14.38
Female genital system	0	0.00	2	0.44	6	2.68	3	3.27	11	9.32	1.18	3.35
Cervix uteri	0	0.00	1	2.42	0	0.00	0	0.00	1	0.84	1.19	0.31
Corpus uteri	0	0.00	0	0.00	4	3.91*	2	5.27	6	4.37	1.37	3.25
Ovary	0	0.00	1	0.72	0	0.00	1	3.27	2	2.91	0.69	-1.81
Vagina	0	0.00	0	0.00	0	0.00	0	0.00	0	0.21	0.00	-0.41
Vulva	0	0.00	0	0.00	2	10.78*	0	0.00	2	0.71	2.81	2.57
Male genital system	4	1.08	7	0.72	2	0.46	0	0.00	13	19.14	0.68	-35.45
Prostate	4	1.09	6	0.62	2	0.46	0	0.00	12	19.00	0.63	-40.36
Testis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.02	0.00	-0.10
Urinary system	1	0.51	8	1.49	4	1.50	1	0.93	14	11.05	1.27	4.37
Urinary bladder	1	0.73	6	1.59	4	2.11	0	0.00	11	7.82	1.41	4.72
Kidney parenchyma	0	0.00	1	0.84	0	0.00	1	4.53	2	2.42	0.83	-0.63
Renal pelvis, other urinary	0	0.00	1	2.55	0	0.00	0	0.00	1	0.81	1.24	0.28
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.40
Bone, joints	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	0.00	-0.17
Soft tissue including heart	0	0.00	1	3.55	0	0.00	0	0.00	1	0.60	1.67	0.59
Kaposi sarcoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.19
Melanoma of skin	1	2.30	3	2.42	1	1.59	0	0.00	5	2.59	1.93	3.57
Eye, orbit	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.29
Brain, central nervous system	0	0.00	0	0.00	1	3.50	0	0.00	1	1.22	0.82	-0.33
Thyroid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.58	0.00	-0.86
Lymphatic, hematopoietic	2	0.93	5	0.83	0	0.00	2	1.49	9	12.67	0.71	-5.44
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	0.00	-0.40
Non-Hodgkin lymphoma	1	1.08	3	1.12	0	0.00	1	1.71	5	5.58	0.90	-0.85
Myeloma	0	0.00	0	0.00	0	0.00	0	0.00	0	2.21	0.00	-3.27
Leukemia	1	1.28	2	0.92	0	0.00	1	1.94	4	4.62	0.87	-0.92
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	0.00	-0.16
Chronic lymphocytic	0	0.00	1	1.17	0	0.00	0	0.00	1	1.80	0.55	-1.19
Acute non-lymphocytic	0	0.00	1	1.34	0	0.00	0	0.00	1	1.57	0.64	-0.85
Chronic myeloid	1	9.59	0	0.00	0	0.00	0	0.00	1	0.63	1.58	0.54

*P < 0.05. Notes: See Appendices for definitions of cancer sites and "all excluding same site." Abbreviations: O = observed number of subsequent (2nd, 3rd, etc.) primary cancers; E = expected number of subsequent primary cancers; O/E = ratio of observed to expected cancers; PYR = person-years at risk; EAR = excess absolute risk per 10,000 person-years = [(O-E)/PYR] × 10,000. EAR for female cancers is based on 5,016 PYR and for male cancers on 1,733 PYR.