

# Chapter 8

## New Malignancies Following Cancer of the Cervix Uteri, Vagina, and Vulva

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### Synopsis

Subsequent primary cancer risk was evaluated in 37,757 women diagnosed with cancers of the cervix uteri, vagina, or vulva between 1973 and 2000. The overall risk of new malignancies was significantly increased among survivors of cervical cancer (O/E=1.32,<sup>1</sup> O=2,451, EAR=24 per 10,000 person-years) and vulvar cancer (O/E=1.12,<sup>1</sup> O=540, EAR=16) but not vaginal cancer (O/E=1.06,<sup>1</sup> O=109, EAR=7). Cancers of the lung and bronchus accounted for 24% of all new malignancies after cervical cancer, resulting in a 2.6-fold significant risk, likely due to cigarette smoking, which has been related to both of these malignancies. In addition, smoking and possibly human papillomavirus (HPV) infection may have contributed to the increased risks for certain cancers of the buccal cavity and pharynx after cervical and vulvar cancer and to the elevated risk for cancer of the esophagus after vaginal cancer. The excess of anal and vaginal cancer after cervical and vulvar cancer, as well as the excess of vulvar cancer following vaginal and cervical cancer, suggests a shared etiology involving HPV infection. Consistent with previous studies, radiotherapy for cervical cancer appeared to contribute to the increased risk among long-term survivors for subsequent primary cancers of the stomach, rectum, urinary bladder, and bone and joints.

### Cervical Cancer

Cervical cancer ranks as the 12th most common cancer among women in the U.S., constituting 1.6% of incident cancers and 1.3% of cancer deaths among females (Jemal et al, 2005). The median age at diagnosis of cervical cancer is 47 years, and it is the fourth most common cancer among women under 40 years of age. Squamous cell carcinomas accounted for 74% of cervical cancers in the current analyses, and adenocarcinoma and other histologies for the remaining 26% of cervical cancers. Patients with an initial *in situ* cervical cancer were excluded from the current analyses. Slightly more than half of cervical cancer patients received initial radiotherapy, either alone or

in combination with surgery. Surgery alone, usually involving removal of the uterus, fallopian tubes, and ovaries, accounted for the majority of other treatments. The relative survival rate was 72.9% at 5 years and 67.2% at 10 years. White females had better survival rates than black females.

Oncogenic types of human papillomavirus (HPV) account for 95% or more of all cervical cancer (Walboomers et al, 1999; Munoz et al, 2003). Risk factors associated with the progression of HPV infection to high-grade cervical disease and cancer include cigarette smoking (Hildesheim et al, 2001; Plummer et al, 2003), multiparity and long-term oral contraceptive use (Hildesheim et al, 2001), and impaired host immunity (Tsukui et al, 1996; Hildesheim and Wang, 2002).

### Results and Discussion

Overall, we observed a significant 32% increase in subsequent primary cancers excluding cancer of the cervix uteri among the 30,563 women who survived 2 or more months following cervical cancer (O/E=1.32, O=2,451, 95% CI=1.26-1.37, EAR=24 per 10,000 person-years). The cumulative incidence of developing any second cancer after cervical cancer, adjusted for the competing causes of death due to other causes, was 13.2% at 25 years (95% CI=12.5%-13.8%). Risk remained elevated over all time periods and did not vary substantially by histology of cervical cancer (O/E=1.34 for squamous cell carcinoma and O/E=1.23 for adenocarcinoma). The relative risk of subsequent cancer was somewhat higher among younger women, with 30% to 35% increases in risk seen among women diagnosed under age 70 years and 20% excesses among those ages 70 years and older at diagnosis. Women who received radiotherapy had higher risks for a new malignancy than women who did not receive radiotherapy (O/E=1.46, EAR=44 versus O/E=1.13, EAR=8). Risks also varied by racial group, with higher risks observed for black compared with white females (O/E=1.53, EAR=40 versus O/E=1.27, EAR=21). Significantly increased risks were noted for cancers of the following sites: buccal cavity and pharynx, especially the tonsil, mouth, and hypopharynx; digestive system, including the stomach, colon, rectum, anus, and pancreas; respiratory system, including the larynx, lung, and bronchus; vulva and vagina; and urinary bladder and

<sup>1</sup>Observed-to-expected ratios of subsequent primary cancers following cancers of the cervix, vagina, and vulva exclude new cancers of the cervix, vagina, and vulva, respectively.

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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**Table 8.A:** Ratio of observed to expected number of subsequent primary cancers related to tobacco or human papillomavirus (HPV) following cancer of the cervix uteri, vagina, or vulva.

Subsequent primary cancer site	First cancer site					
	Cervix uteri		Vagina		Vulva	
Tobacco-related cancer sites	O	O/E	O	O/E	O	O/E
Buccal cavity, pharynx	65	1.91 *	0	0.00	21	2.52 *
Esophagus	19	1.60	4	5.54 *	6	1.87
Pancreas	67	1.31 *	2	0.57	17	1.05
Larynx	28	3.17 *	1	2.42	6	3.42 *
Lung, bronchus	593	2.57 *	17	1.35	87	1.50 *
Cervix uteri	†	†	4	2.52	9	1.52
Urinary bladder	116	2.55 *	7	2.30	6	0.40 *
Kidney parenchyma	33	1.11	1	0.62	5	0.67
<b>Total</b>	<b>921</b>	<b>2.23 *</b>	<b>36</b>	<b>1.43</b>	<b>157</b>	<b>1.36 *</b>
<b>HPV-related cancer sites</b>						
Tonsil	13	3.92 *	0	0.00	1	1.59
Oropharynx	1	1.17	0	0.00	0	0.00
Esophagus	19	1.60	4	5.54 *	6	1.87
Anus, anal canal	19	3.24 *	1	3.18	12	8.04 *
Cervix uteri	†	†	4	2.52	9	1.52
Vagina	63	16.87 *	†	†	6	6.12 *
Vulva	51	5.12 *	5	8.06 *	†	†
<b>Total</b>	<b>166</b>	<b>4.66 *</b>	<b>14</b>	<b>4.08 *</b>	<b>34</b>	<b>2.74 *</b>

Abbreviations: O=observed number of subsequent (2nd, 3rd, etc.) primary cancers; O/E=ratio of observed to expected cancers.

\*P <0.05.

†Risks for cancers of the same site as the first cancer were excluded from the analysis.

ureter. Significant deficits were seen for cancers of the breast and corpus uteri and melanoma of the skin. Our findings are consistent with previous large-scale studies of cervical cancer reporting increased risks for a similar array of subsequent primary cancers (Boice et al, 1988; Kleinerman et al, 1995; Hemminki et al, 2000).

Tobacco-related cancers accounted for the majority of excess subsequent cancers occurring after cervical cancer. Cancers of the lung and bronchus (O/E=2.57) constituted 24% of all subsequent malignancies, consistent with previous studies (Frisch and Melbye, 1995; Kleinerman et al, 1995). We also observed increased risks for cancers of the buccal cavity and pharynx (O/E=1.91), notably of the tonsil and hypopharynx, which have also been linked to tobacco smoking. The 2-fold risk for cancers of the lung and bronchus, and of the buccal cavity and pharynx, remained relatively constant across all age groups and time periods. Smoking may also have contributed to the excess risk for urinary bladder cancer, although radiotherapy probably contributed to the late-occurring cases among survivors of 10 years or more (Boice et al, 1988). We estimated that tobacco increased the risk of these subsequent cancers about 2-fold (Table 8.A), and the

effect was more pronounced following squamous cell carcinoma compared with adenocarcinoma of the cervix uteri (O/E=2.36 versus O/E=1.49), consistent with other studies (Berrington de Gonzalez et al, 2004).

Similar to cervical cancer, cancers of the vagina, vulva, and anus have a causal relation to HPV (Melbye and Sprogel, 1991; Rabkin et al, 1992; Hemminki et al, 2000; Daling et al, 2002, 2004). Thus, risks for these cancers were elevated following cervical cancer in all age and treatment groups, although radiotherapy probably contributed to the excess of vaginal cancer (Boice et al, 1988; Kleinerman et al, 1995). In our study, the risks for vaginal cancer, but not for vulvar cancer, increased with time since radiotherapy for cervical cancer, reaching 24-fold among those surviving 10 or more years after cervical cancer. The occurrence of squamous cell cancer of the vagina within 5 years of cervical cancer, however, may reflect recurrent cancer of the cervix uteri rather than a new primary cancer (Zaino et al, 2002).

It seems likely that HPV infection plays a role in certain cancers of the buccal cavity and pharynx, especially cancers of the tonsil and oropharynx (Herrero, 2003; Herrero et al, 2003). In our series, a significant

4-fold risk for subsequent tonsillar cancer was noted, and the risk was slightly higher for women under age 50 years. Overall, there was close to a 5-fold significant excess risk of all subsequent genital and extragenital cancers likely to be HPV-related (Table 8.A).

High-dose radiotherapy for cervical cancer has been linked to cancers arising in a variety of subsequent primary cancer sites, including the stomach, rectum, bone, vagina, vulva, ovary, and urinary bladder (Boice et al, 1988). In our study, risks for each of these cancers, except bone and ovary, were significantly increased among those surviving 10 years or more who had received radiotherapy, consistent with previous large-scale studies following radiotherapy for cervical cancer (Boice et al, 1988; Kleinerman et al, 1995). Increased medical surveillance or possibly misclassification may have contributed to the early excesses of some cancers, such as cancers of the vagina and urinary bladder. The risk of stomach cancer was significantly increased following radiotherapy (O/E=2.19) but not other treatments (O/E=0.93). We also noted a significantly increased risk of rectal cancer following radiotherapy (O/E=1.68), with a significant 3-fold risk among those surviving 10 years or more. Colon cancer was significantly increased among survivors of 10 years or more following radiotherapy (O/E=1.43) but not other treatments (O/E=0.98). This finding contrasts with earlier studies reporting no increased risk of colon cancer following radiotherapy for cervical cancer (Boice et al, 1988; Kleinerman et al, 1995), although colon cancer was noted to be excessive following radiotherapy for benign gynecologic disease (Inskip et al, 1990). Peutz-Jeghers syndrome is a rare hereditary disorder that predisposes to intestinal tumors and cervical adenocarcinoma and should be considered when these tumor types are noted, especially in younger women (Hemminki, 1999).

Subsequent primary cancer of the urinary bladder has been attributed to high-dose radiotherapy and to cigarette smoking in previous surveys of cervical cancer (Boice et al, 1988; Kleinerman et al, 1995). An overall 3-fold risk for urinary bladder cancer was seen in the radiotherapy group, with that risk reaching 7-fold among 20-year survivors. Among women who did not receive radiotherapy for cervical cancer, urinary bladder cancer was significantly increased (O/E=1.87), due at least partly to cigarette smoking, although heightened surveillance may have played a role.

Bone sarcomas have been linked to high-dose radiotherapy (Boice et al, 1988). In our study, the risk of subsequent bone and joint cancers was significantly increased (O/E=3.96) after radiotherapy, based on 4 cases, 3 of which had tumors arising in the pelvic bones.

Radiotherapy also has been linked to ovarian cancer in previous studies of women irradiated for benign menstrual conditions (Inskip et al, 1990) and in long-term survivors of cervical cancer (Boice et al, 1988). Our study revealed an overall nonsignificant increase in subsequent ovarian cancer that was limited to irradiated women

(O/E=1.30). A slight deficit of ovarian cancer (O/E=0.89) among nonirradiated women was probably related to surgical removal of the ovaries at the time of cervical cancer treatment.

Various forms of leukemia, with the exception of chronic lymphocytic leukemia, have been associated with moderate doses of radiation for cervical cancer (Boice et al, 1987), primarily within 10 years of radiotherapy. In our series, a significant 2-fold risk for acute non-lymphocytic leukemia was noted during the first 10 years after radiotherapy, as compared with a nonsignificant 12% excess risk among nonirradiated women.

Our study revealed significant deficits for subsequent melanoma of the skin (O/E=0.69), and cancers of the breast (O/E=0.77) and corpus uteri (O/E=0.57), following cervical cancer. It seems likely that some of the deficit of breast cancer was related to ovarian ablation by radiotherapy (Boice et al, 1989), whereas the deficit of corpus uteri cancer may have resulted from surgical removal of the uterus.

## Vaginal Cancer

Cancer of the vagina is an uncommon tumor, constituting 0.3% of incident cancers and 0.3% of cancer deaths among U.S. women (Jemal et al, 2005). It occurs primarily in older women (median age, 69 years). Radiotherapy is the main treatment (65%), and the 5-year relative survival rate is 43.8%. Women undergoing surgery for vaginal cancer often have their ovaries and uterus removed as well.

Similar to cervical cancer, vaginal cancer has been linked to HPV infection and cigarette smoking (Daling et al, 2002). Additional risk factors include low socioeconomic status, history of genital warts or inflammation, and previous abnormal pap smears (Daling et al, 2002). A rare form of vaginal cancer (clear cell carcinoma) in young women has been traced to *in utero* exposure to diethylstilbestrol, used from the 1950s through the 1970s to prevent miscarriage (Herbst et al, 1986).

## Results and Discussion

Among the 1,623 women with vaginal cancer surviving 2 or more months, the risk of all subsequent primary cancers, excluding new cancers of the vagina, was close to expectation (O/E=1.06, O=109, 95% CI=0.87-1.28, EAR=7). The cumulative incidence of a second cancer was 9.1% at 20 years after vaginal cancer diagnosis (95% CI=7.4%-10.9%). Based on small numbers, significantly increased risks were seen for cancers of the vulva, esophagus, and ureter. One prior survey of second cancers following vaginal cancer that used the SEER database revealed increased risks for tobacco-related cancers, primarily cancers of the lung and esophagus (Sturgeon et al, 1996).

HPV has been linked mainly to a subtype of vulvar cancer, especially in young women (Trimble et al, 1996; Hildesheim et al, 1997), and probably contributed to the elevated risk of subsequent vulvar cancer. However,

the risk of vulvar cancer was also elevated in older women whose tumors are less likely to be associated with HPV. HPV also may have contributed to the excess of esophageal cancer, because a causal relation has been suggested in some but not all studies (Gillison and Shah, 2003). While the overall risk for subsequent HPV-related cancers following vaginal cancer was significantly increased (O/E=4.08), it was based on only 14 cancers, 5 of which were vulvar cancer (Table 8.A).

Tobacco may have contributed to the increased risk of subsequent esophageal, ureter, and possibly vulvar cancers, although no significant excess of lung cancer was seen. For esophageal cancer, other important risk factors (alcohol intake, dietary deficiency, low socioeconomic status) may have played a role. Overall, the risk for tobacco-related cancers following vaginal cancer was only slightly increased (O/E=1.43) (Table 8.A).

In previous surveys, an excess of urinary bladder cancer was linked to high-dose pelvic irradiation, as well as tobacco smoking (Boice et al, 1988). In our study, the risk of urinary bladder cancer was significantly increased among 10-year survivors (O/E=5.04) based on 4 cases, with higher risks among women who had received radiotherapy (O/E=6.15).

## Vulvar Cancer

Cancer of the vulva is another uncommon cancer in women, accounting for 0.6% of incident cancers and 0.3% of cancer deaths (Jemal et al, 2005). Patients tend to be older at diagnosis (median age, 71 years). Most are treated with surgery (88%), which ranges from local excision of the tumor and surrounding tissue to radical vulvectomy, including resection of pelvic lymph nodes. Few patients (16%) receive radiotherapy. The 5-year relative survival rate is somewhat lower for black women compared with white women (65.3% versus 77.1%).

HPV is a risk factor for the basaloid/warty form of squamous cell vulvar cancer, particularly among younger women (Trimble et al, 1996; Hildesheim et al, 1997); however, the more common keratinizing tumor types may not be HPV-related (Trimble et al, 1996; Sturgeon and Sherman, 2000). Because basaloid/warty tumors of the vulva typically occur at a younger age than the more common keratinizing tumors, age is often used as a proxy to distinguish HPV-related and -unrelated tumors. Other risk factors may include cigarette smoking and impaired immune mechanisms (Brinton et al, 1990; Trimble et al, 1996; Madeleine et al, 1997; Sturgeon and Sherman, 2000).

## Results and Discussion

Among 5,571 women with vulvar cancer, we observed a significant increase of 12% in the risk of all subsequent primary cancers excluding the vulva (O/E=1.12, O=540, 95% CI=1.03-1.22, EAR=16). The cumulative incidence of second cancer reached 15.4% (95% CI=14.0%-16.8%) within 25 years of vulvar cancer diagnosis. The excess

risk was confined to women diagnosed younger than age 55 years (O/E=1.75, 95% CI=1.46-2.09, EAR=45) and included cancers of the anus and anal canal, vulva, vagina, buccal cavity and pharynx, larynx, lung and bronchus, and brain and central nervous system. Significant excess risks for some of these cancers (anus, lung and bronchus, vulva, and vagina) were also noted for older women. In an earlier SEER analysis of vulvar cancer, significantly increased risks were reported for cancers of the lung and bronchus, anus, brain and central nervous system, and melanoma of the skin, as well as non-Hodgkin lymphoma (Sturgeon et al, 1996).

Our survey revealed 31 newly detected vulvar cancers, with a significant 7-fold risk among 10-year survivors. The tendency for multiple tumors of the vulva was detected in both younger (O/E=18.93, O=6) and older women (O/E=8.53, O=25). While some subsequent vulvar cancers could have been influenced by increased medical surveillance, especially in older women, they could have arisen from persistent HPV infection and untreated vulvar intraepithelial neoplasia.

There is evidence that cancers of the vagina, vulva, and anus tend to arise as multiple foci in a field cancerization process triggered by HPV infection and possibly immunologic defects (Brinton et al, 2005). Although HPV appears to be related to basaloid/warty vulvar cancer, arising at younger ages, the risk of subsequent vaginal cancer was significantly increased for both younger (O/E=17.20) and older women (O/E=4.63), based on small numbers of cases. The risk for anal and anal canal cancer also was increased in both younger (O/E=22.02, O=5) and older women (O/E=5.53, O=7), suggesting the possible role of HPV and other factors, such as impaired immunity (Williams et al, 1994). Reciprocal significant increases of vulvar cancer were seen after vaginal and anal cancer. It is interesting that the risk of cervical cancer, which is strongly associated with HPV, was not significantly elevated among younger or older vulvar cancer patients, possibly due to effective screening. The overall risk for all HPV-related cancers (including genital, anal, and some buccal cavity, pharyngeal, and esophageal cancers) was significantly increased after vulvar cancer for all age groups combined (O/E=2.74) (Table 8.A), with the risk being higher for younger compared with older women (O/E=4.00 versus O/E=2.38).

Cigarette smoking, a likely cofactor for vulvar cancer (Trimble et al, 1996; Madeleine et al, 1997), probably accounts for the significantly elevated risks for subsequent lung and bronchus cancer in both age groups in our study, and may have contributed to some of the excess risk of buccal cavity and pharyngeal cancer in younger women. The risk for all tobacco-related subsequent primary cancers was significantly increased after vulvar cancer (O/E=1.36, O=157) (Table 8.A), with a significantly higher risk for younger compared with older women (O/E=2.70 versus O/E=1.13).

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## Cervix Uteri Females

**Table 8.1.1:** Characteristics of patients with an initial cancer of the cervix uteri, females, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
<b>Number of patients with 1st primary cancer</b>						
<b>Total</b>	—	—	30,563	100.0	30,563	100.0
<b>Initial treatment</b>						
Any radiation	—	—	16,404	53.7	16,404	53.7
With surgery	—	—	4,980	16.3	4,980	16.3
Without surgery	—	—	11,424	37.4	11,424	37.4
No radiation	—	—	14,159	46.3	14,159	46.3
With surgery	—	—	12,039	39.4	12,039	39.4
Without surgery	—	—	2,120	6.9	2,120	6.9
<b>Race</b>						
White	—	—	23,175	75.8	23,175	75.8
Black	—	—	4,626	15.1	4,626	15.1
Other	—	—	2,525	8.3	2,525	8.3
Unknown	—	—	237	0.8	237	0.8
<b>Age at 1st primary cancer diagnosis, years</b>						
< 30	—	—	2,694	8.8	2,694	8.8
30–49	—	—	13,411	43.9	13,411	43.9
50–69	—	—	9,922	32.5	9,922	32.5
70–79	—	—	2,930	9.6	2,930	9.6
≥ 80	—	—	1,606	5.3	1,606	5.3
<b>Number of patients with one or more primary cancers</b>						
One primary cancer only	—	—	28,309	92.6	28,309	92.6
1st and 2nd cancers	—	—	2,060	6.7	2,060	6.7
1st, 2nd, and 3rd cancers	—	—	174	0.6	174	0.6
1st, 2nd, 3rd, and additional cancers	—	—	20	0.1	20	0.1
<b>Other statistics</b>						
Median age at 1st cancer diagnosis	—	—	48.6	—	48.6	—
Median year of 1st cancer diagnosis	—	—	1986.5	—	1986.5	—
Median person-years at risk	—	—	5.5	—	5.5	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	—	—	95.3	—	95.3
1st, 2nd, and additional cancers	—	—	—	94.8	—	94.8
1st cancer only	—	—	—	4.1	—	4.1

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

**Table 8.1.2:** Risk of subsequent primary cancers after cancer of the cervix uteri, 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
<b>All subsequent cancers</b>	255	1.74*	674	1.32*	639	1.32*	906	1.19*	2,474	1,905.05	1.30*	23.12
All excluding same site	249	1.76*	671	1.35*	635	1.34*	896	1.20*	2,451	1,862.45	1.32*	23.92
<b>Buccal cavity, pharynx</b>	7	2.53*	23	2.40*	11	1.25	24	1.86*	65	34.05	1.91*	1.26
Lip	0	0.00	0	0.00	0	0.00	2	2.68	2	1.83	1.09	0.01
Tongue	0	0.00	3	1.44	2	1.02	5	1.71	10	7.57	1.32	0.10
Salivary gland	3	9.21*	2	1.77	0	0.00	0	0.00	5	3.97	1.26	0.04
Mouth	2	2.21	8	2.56*	1	0.35	9	2.12	20	11.14	1.80*	0.36
Nasopharynx	0	0.00	1	1.80	1	2.11	1	1.58	3	1.82	1.65	0.05
Tonsil	1	3.53	6	6.17*	3	3.43	3	2.53	13	3.32	3.92*	0.39
Oropharynx	0	0.00	0	0.00	0	0.00	1	3.11	1	0.86	1.17	0.01
Hypopharynx	1	5.09	3	4.33	3	4.79	1	1.14	8	2.39	3.35*	0.23
<b>Digestive system</b>	41	1.34	140	1.34*	124	1.27*	217	1.40*	522	387.71	1.35*	5.46
Esophagus	3	3.20	6	1.88	2	0.67	8	1.69	19	11.87	1.60	0.29
Stomach	7	2.51*	18	1.96*	10	1.22	21	1.71*	56	32.45	1.73*	0.96
Small intestine	3	6.75*	1	0.64	4	2.58	4	1.47	12	6.29	1.91	0.23
Colon	15	1.02	59	1.18	56	1.19	93	1.24*	223	186.67	1.19*	1.48
Rectum, rectosigmoid junction	2	0.40	24	1.40	16	1.01	44	1.85*	86	61.80	1.39*	0.98
Rectum	1	0.31	16	1.43	11	1.07	31	1.97*	59	40.43	1.46*	0.75
Anus, anal canal	0	0.00	4	2.61	5	3.32*	10	4.17*	19	5.86	3.24*	0.53
Liver	2	2.79	2	0.80	2	0.83	3	0.72	9	9.81	0.92	-0.03
Gallbladder	2	2.85	3	1.29	4	1.87	5	1.60	14	8.29	1.69	0.23
Bile ducts, other biliary	0	0.00	2	0.97	1	0.50	2	0.56	5	8.26	0.61	-0.13
Pancreas	6	1.52	21	1.56	19	1.48	21	1.01	67	51.05	1.31*	0.65
<b>Respiratory system</b>	45	2.73*	212	3.53*	166	2.74*	202	1.90*	625	243.25	2.57*	15.51
Nose, nasal cavity, ear	0	0.00	1	1.43	0	0.00	1	0.99	2	2.57	0.78	-0.02
Larynx	4	5.90*	6	2.50	8	3.51*	10	2.88*	28	8.83	3.17*	0.78
Lung, bronchus	41	2.63*	203	3.58*	158	2.75*	191	1.88*	593	231.17	2.57*	14.70
<b>Female breast</b>	44	0.99	121	0.76*	143	0.93	150	0.63*	458	595.18	0.77*	-5.58
<b>Female genital system</b>	60	2.71*	62	0.82	73	1.09	111	1.15	306	261.13	1.17*	1.82
Cervix uteri	6	1.38	3	0.21*	4	0.35*	10	0.79	23	42.60	0.54*	-0.80
Corpus uteri	18	1.76*	10	0.29*	17	0.54*	25	0.53*	70	123.42	0.57*	-2.17
Ovary	23	3.84*	18	0.86	13	0.67	30	1.03	84	75.74	1.11	0.34
Vagina	7	22.37*	15	14.16*	16	16.80*	25	17.74*	63	3.73	16.87*	2.41
Vulva	2	2.61	14	5.31*	20	8.00*	15	3.69*	51	9.96	5.12*	1.67
<b>Urinary system</b>	19	3.17*	41	1.96*	36	1.77*	75	2.19*	171	81.56	2.10*	3.63
Urinary bladder	11	3.23*	33	2.80*	23	2.03*	49	2.58*	116	45.46	2.55*	2.87
Kidney parenchyma	6	2.87*	3	0.40	8	1.08	16	1.25	33	29.80	1.11	0.13
Renal pelvis, other urinary	2	4.02	5	2.95	5	3.14*	10	3.97*	22	6.30	3.49*	0.64
Ureter	0	0.00	2	4.10	1	2.14	8	10.88*	11	1.83	6.00*	0.37
<b>Bone, joints</b>	0	0.00	0	0.00	3	5.68*	2	2.77	5	2.03	2.46	0.12
<b>Soft tissue including heart</b>	0	0.00	1	0.43	5	2.36	4	1.24	10	8.33	1.20	0.07
<b>Kaposi sarcoma</b>	1	21.29	0	0.00	1	6.65	0	0.00	2	0.59	3.38	0.06
<b>Melanoma of skin</b>	3	0.84	6	0.46*	8	0.65	15	0.85	32	46.54	0.69*	-0.59
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	2.59	0.00	-0.11
<b>Brain, central nervous system</b>	1	0.61	4	0.69	4	0.75	6	0.77	15	20.55	0.73	-0.23
<b>Thyroid</b>	8	3.20*	9	1.02	3	0.40	6	0.63	26	28.36	0.92	-0.10
<b>Lymphatic, hematopoietic</b>	20	1.95*	34	0.95	35	1.03	57	1.03	146	135.42	1.08	0.43
Hodgkin lymphoma	1	1.62	2	0.98	0	0.00	2	1.09	5	6.07	0.82	-0.04
Non-Hodgkin lymphoma	7	1.53	16	0.98	20	1.23	38	1.39	81	64.58	1.25	0.67
Myeloma	1	0.54	4	0.62	7	1.15	6	0.60	18	24.37	0.74	-0.26
Leukemia	11	3.44*	12	1.10	8	0.78	11	0.69	42	40.40	1.04	0.07
Acute lymphocytic	1	7.91	0	0.00	0	0.00	1	1.74	2	1.55	1.29	0.02
Chronic lymphocytic	3	2.70	1	0.26	2	0.55	6	1.03	12	14.32	0.84	-0.09
Acute non-lymphocytic	4	3.39	8	1.97	3	0.80	3	0.50	18	14.99	1.20	0.12
Chronic myeloid	0	0.00	1	0.60	1	0.65	1	0.43	3	6.03	0.50	-0.12

\*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.

## Cervix Uteri Females, Long-term Follow-up

**Table 8.1.3:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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
<b>All subsequent cancers</b>	1,568	1.37*	443	1.20*	285	1.15*	178	1.22*	2,474	1,905.05	1.30*	23.12
All excluding same site	1,555	1.40*	439	1.21*	281	1.15*	176	1.22*	2,451	1,862.45	1.32*	23.92
<b>Buccal cavity, pharynx</b>	41	1.94*	15	2.35*	7	1.69	2	0.85	65	34.05	1.91*	1.26
Lip	0	0.00	1	2.84	1	4.09	0	0.00	2	1.83	1.09	0.01
Tongue	5	1.08	2	1.39	3	3.16	0	0.00	10	7.57	1.32	0.10
Salivary gland	5	2.03	0	0.00	0	0.00	0	0.00	5	3.97	1.26	0.04
Mouth	11	1.60	6	2.86*	2	1.47	1	1.28	20	11.14	1.80*	0.36
Nasopharynx	2	1.68	0	0.00	1	5.04	0	0.00	3	1.82	1.65	0.05
Tonsil	10	4.70*	3	4.90	0	0.00	0	0.00	13	3.32	3.92*	0.39
Oropharynx	0	0.00	1	6.20	0	0.00	0	0.00	1	0.86	1.17	0.01
Hypopharynx	7	4.62*	0	0.00	0	0.00	1	6.59	8	2.39	3.35*	0.23
<b>Digestive system</b>	305	1.31*	103	1.39*	75	1.49*	39	1.29	522	387.71	1.35*	5.46
Esophagus	11	1.54	6	2.64	2	1.30	0	0.00	19	11.87	1.60	0.29
Stomach	35	1.73*	12	2.00*	6	1.52	3	1.30	56	32.45	1.73*	0.96
Small intestine	8	2.24	1	0.80	1	1.11	2	3.48	12	6.29	1.91	0.23
Colon	130	1.16	42	1.17	31	1.27	20	1.37	223	186.67	1.19*	1.48
Rectum, rectosigmoid junction	42	1.10	17	1.46	20	2.63*	7	1.56	86	61.80	1.39*	0.98
Rectum	28	1.13	12	1.58	16	3.17*	3	0.98	59	40.43	1.46*	0.75
Anus, anal canal	9	2.60*	6	5.21*	3	3.79	1	2.20	19	5.86	3.24*	0.53
Liver	6	1.07	2	1.06	1	0.72	0	0.00	9	9.81	0.92	-0.03
Gallbladder	9	1.74	1	0.65	3	2.97	1	1.74	14	8.29	1.69	0.23
Bile ducts, other biliary	3	0.64	1	0.62	1	0.83	0	0.00	5	8.26	0.61	-0.13
Pancreas	46	1.52*	12	1.22	5	0.73	4	0.96	67	51.05	1.31*	0.65
<b>Respiratory system</b>	423	3.09*	105	2.14*	67	1.90*	30	1.37	625	243.25	2.57*	15.51
Nose, nasal cavity, ear	1	0.64	0	0.00	1	3.10	0	0.00	2	2.57	0.78	-0.02
Larynx	18	3.36*	4	2.32	4	3.57	2	3.16	28	8.83	3.17*	0.78
Lung, bronchus	402	3.10*	101	2.16*	62	1.84*	28	1.33	593	231.17	2.57*	14.70
<b>Female breast</b>	308	0.86*	69	0.59*	51	0.66*	30	0.68*	458	595.18	0.77*	-5.58
<b>Female genital system</b>	195	1.18*	55	1.15	33	1.06	23	1.32	306	261.13	1.17*	1.82
Cervix uteri	13	0.43*	4	0.57	4	1.04	2	1.14	23	42.60	0.54*	-0.80
Corpus uteri	45	0.59*	14	0.61	5	0.33*	6	0.67	70	123.42	0.57*	-2.17
Ovary	54	1.16	15	1.04	12	1.27	3	0.57	84	75.74	1.11	0.34
Vagina	38	16.34*	10	14.29*	10	22.16*	5	19.33*	63	3.73	16.87*	2.41
Vulva	36	6.10*	10	5.17*	1	0.75	4	5.05*	51	9.96	5.12*	1.67
<b>Urinary system</b>	96	2.03*	35	2.18*	13	1.15	27	3.88*	171	81.56	2.10*	3.63
Urinary bladder	67	2.53*	22	2.48*	9	1.44	18	4.68*	116	45.46	2.55*	2.87
Kidney parenchyma	17	1.00	9	1.51	3	0.70	4	1.54	33	29.80	1.11	0.13
Renal pelvis, other urinary	12	3.17*	4	3.35	1	1.22	5	9.90*	22	6.30	3.49*	0.64
Ureter	3	2.73	4	11.44*	0	0.00	4	27.31*	11	1.83	6.00*	0.37
<b>Bone, joints</b>	3	2.30	1	2.74	1	4.39	0	0.00	5	2.03	2.46	0.12
<b>Soft tissue including heart</b>	6	1.18	3	1.92	1	0.95	0	0.00	10	8.33	1.20	0.07
<b>Kaposi sarcoma</b>	2	5.62	0	0.00	0	0.00	0	0.00	2	0.59	3.38	0.06
<b>Melanoma of skin</b>	17	0.59*	8	0.91	3	0.53	4	1.23	32	46.54	0.69*	-0.59
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	2.59	0.00	-0.11
<b>Brain, central nervous system</b>	9	0.71	3	0.77	1	0.40	2	1.43	15	20.55	0.73	-0.23
<b>Thyroid</b>	20	1.06	6	1.20	0	0.00	0	0.00	26	28.36	0.92	-0.10
<b>Lymphatic, hematopoietic</b>	89	1.11	25	0.95	22	1.21	10	0.92	146	135.42	1.08	0.43
Hodgkin lymphoma	3	0.71	1	1.03	1	1.76	0	0.00	5	6.07	0.82	-0.04
Non-Hodgkin lymphoma	43	1.16	17	1.32	16	1.77*	5	0.90	81	64.58	1.25	0.67
Myeloma	12	0.84	1	0.21	4	1.21	1	0.51	18	24.37	0.74	-0.26
Leukemia	31	1.27	6	0.77	1	0.19	4	1.30	42	40.40	1.04	0.07
Acute lymphocytic	1	1.03	1	3.38	0	0.00	0	0.00	2	1.55	1.29	0.02
Chronic lymphocytic	6	0.71	2	0.71	1	0.52	3	2.75	12	14.32	0.84	-0.09
Acute non-lymphocytic	15	1.66	2	0.70	0	0.00	1	0.84	18	14.99	1.20	0.12
Chronic myeloid	2	0.54	1	0.87	0	0.00	0	0.00	3	6.03	0.50	-0.12

\*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 8.1.4:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, <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
<b>All subsequent cancers</b>	67	2.52*	167	1.44*	193	1.36*	382	1.14*	809	619.62	1.31*	12.54
All excluding same site	61	2.47*	166	1.53*	189	1.40*	376	1.15*	792	595.92	1.33*	12.98
<b>Buccal cavity, pharynx</b>	3	6.64*	8	4.00*	2	0.79	10	1.70	23	10.88	2.11*	0.80
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.43	0.00	-0.03
Tongue	0	0.00	1	2.41	0	0.00	3	2.15	4	2.47	1.62	0.10
Salivary gland	1	10.42	0	0.00	0	0.00	0	0.00	1	1.59	0.63	-0.04
Mouth	0	0.00	2	3.79	0	0.00	4	2.27	6	3.13	1.92	0.19
Nasopharynx	0	0.00	1	5.30	0	0.00	1	2.91	2	0.77	2.60	0.08
Tonsil	1	21.81	2	9.48*	1	3.45	1	1.53	5	1.20	4.16*	0.25
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.02
Hypopharynx	1	42.92	2	17.50*	1	6.17	1	2.33	5	0.73	6.86*	0.28
<b>Digestive system</b>	5	2.23	13	1.23	20	1.33	81	1.73*	119	74.62	1.59*	2.94
Esophagus	0	0.00	2	6.14	0	0.00	5	2.96	7	2.59	2.70*	0.29
Stomach	0	0.00	2	2.03	4	3.25	3	0.90	9	5.76	1.56	0.21
Small intestine	2	28.89*	0	0.00	2	4.97	1	0.90	5	1.89	2.65	0.21
Colon	2	2.09	4	0.89	7	1.09	27	1.29	40	32.78	1.22	0.48
Rectum, rectosigmoid junction	0	0.00	1	0.47	2	0.66	21	2.45*	24	14.18	1.69*	0.65
Rectum	0	0.00	1	0.70	1	0.50	16	2.81*	18	9.42	1.91*	0.57
Anus, anal canal	0	0.00	2	6.21	0	0.00	6	5.44*	8	1.94	4.13*	0.40
Liver	0	0.00	0	0.00	0	0.00	1	0.70	1	2.26	0.44	-0.08
Gallbladder	0	0.00	0	0.00	2	7.41	3	3.40	5	1.36	3.67*	0.24
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	1.49	0.00	-0.10
Pancreas	0	0.00	2	1.87	3	1.82	12	2.04*	17	8.81	1.93*	0.54
<b>Respiratory system</b>	6	3.70*	59	7.27*	45	3.55*	75	1.72*	185	66.06	2.80*	7.87
Nose, nasal cavity, ear	0	0.00	1	6.62	0	0.00	1	2.46	2	0.77	2.59	0.08
Larynx	0	0.00	1	2.16	4	5.96*	7	3.85*	12	3.05	3.94*	0.59
Lung, bronchus	6	4.06*	56	7.52*	41	3.48*	67	1.62*	170	62.02	2.74*	7.15
<b>Female breast</b>	13	1.19	41	0.85	58	0.99	81	0.64*	193	244.44	0.79*	-3.41
<b>Female genital system</b>	25	5.11*	18	0.87	32	1.37	56	1.14	131	98.08	1.34*	2.18
Cervix uteri	6	3.11*	1	0.14*	4	0.62	6	0.73	17	23.70	0.72	-0.44
Corpus uteri	4	3.05	1	0.16*	9	1.05	16	0.69	30	39.42	0.76	-0.62
Ovary	12	8.72*	10	1.68	8	1.14	16	1.08	46	29.20	1.58*	1.11
Vagina	2	46.32*	6	32.33*	5	21.85*	8	14.90*	21	0.99	21.11*	1.32
Vulva	0	0.00	0	0.00	6	8.95*	7	4.68*	13	2.89	4.50*	0.67
<b>Urinary system</b>	1	1.72	12	4.36*	10	2.56*	29	2.34*	52	19.62	2.65*	2.14
Urinary bladder	0	0.00	8	6.81*	5	2.88	15	2.52*	28	9.11	3.07*	1.25
Kidney parenchyma	1	3.19	2	1.39	3	1.52	8	1.40	14	9.44	1.48	0.30
Renal pelvis, other urinary	0	0.00	2	14.74*	2	9.88*	6	8.60*	10	1.06	9.40*	0.59
Ureter	0	0.00	2	94.62*	0	0.00	5	28.44*	7	0.24	29.31*	0.45
<b>Bone, joints</b>	0	0.00	0	0.00	1	4.16	1	2.57	2	0.95	2.11	0.07
<b>Soft tissue including heart</b>	0	0.00	0	0.00	2	2.52	1	0.65	3	3.30	0.91	-0.02
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.01
<b>Melanoma of skin</b>	2	1.19	3	0.44	6	0.88	8	0.74	19	26.06	0.73	-0.47
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.89	0.00	-0.06
<b>Brain, central nervous system</b>	0	0.00	0	0.00	0	0.00	4	1.07	4	7.96	0.50	-0.26
<b>Thyroid</b>	5	3.59*	3	0.57	1	0.20	6	0.88	15	18.39	0.82	-0.22
<b>Lymphatic, hematopoietic</b>	7	4.24*	7	1.01	7	0.86	20	0.98	41	37.14	1.10	0.26
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	3.46	0.00	-0.23
Non-Hodgkin lymphoma	3	4.14	4	1.25	1	0.25	13	1.22	21	18.63	1.13	0.16
Myeloma	0	0.00	0	0.00	2	2.06	1	0.30	3	5.07	0.59	-0.14
Leukemia	4	8.80*	3	1.57	4	1.81	6	1.11	17	9.97	1.71	0.47
Acute lymphocytic	1	22.14	0	0.00	0	0.00	1	3.46	2	0.68	2.92	0.09
Chronic lymphocytic	0	0.00	0	0.00	2	4.29	3	1.77	5	2.50	2.00	0.17
Acute non-lymphocytic	2	9.13*	3	3.41	1	1.04	1	0.47	7	4.19	1.67	0.19
Chronic myeloid	0	0.00	0	0.00	0	0.00	1	1.12	1	1.84	0.54	-0.06

\*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.

## Cervix Uteri Females, 50-69 Years of Age

**Table 8.1.5:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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
<b>All subsequent cancers</b>	121	1.77*	327	1.28*	348	1.37*	464	1.25*	1,260	947.47	1.33*	41.15
All excluding same site	121	1.82*	326	1.31*	348	1.39*	461	1.26*	1,256	932.90	1.35*	42.54
<b>Buccal cavity, pharynx</b>	4	2.67	12	2.22*	8	1.62	10	1.62	34	17.99	1.89*	2.11
Lip	0	0.00	0	0.00	0	0.00	1	2.39	1	0.92	1.08	0.01
Tongue	0	0.00	1	0.84	1	0.91	1	0.74	3	3.97	0.75	-0.13
Salivary gland	2	14.86*	0	0.00	0	0.00	0	0.00	2	1.75	1.15	0.03
Mouth	2	4.09	6	3.37*	1	0.61	4	1.86	13	6.06	2.15*	0.91
Nasopharynx	0	0.00	0	0.00	1	4.20	0	0.00	1	0.86	1.16	0.02
Tonsil	0	0.00	4	6.48*	2	3.95	1	2.01	7	1.80	3.89*	0.68
Oropharynx	0	0.00	0	0.00	0	0.00	1	6.39	1	0.50	2.00	0.07
Hypopharynx	0	0.00	1	2.16	2	4.92	0	0.00	3	1.42	2.11	0.21
<b>Digestive system</b>	22	1.74*	69	1.39*	73	1.36*	116	1.30*	280	205.23	1.36*	9.84
Esophagus	1	1.97	2	1.06	2	1.07	3	1.14	8	6.88	1.16	0.15
Stomach	4	3.97*	4	1.01	4	0.96	11	1.56	23	16.16	1.42	0.90
Small intestine	1	4.90	1	1.28	1	1.21	3	2.18	6	3.19	1.88	0.37
Colon	9	1.56	30	1.29	31	1.20	58	1.32*	128	98.76	1.30*	3.85
Rectum, rectosigmoid junction	0	0.00	13	1.48	10	1.12	19	1.47	42	32.90	1.28	1.20
Rectum	0	0.00	8	1.42	8	1.40	12	1.42	28	21.28	1.32	0.88
Anus, anal canal	0	0.00	2	2.51	4	5.01*	4	3.55	10	2.93	3.41*	0.93
Liver	1	3.27	2	1.64	1	0.74	2	0.84	6	5.26	1.14	0.10
Gallbladder	1	3.71	2	1.88	2	1.72	2	1.09	7	4.33	1.62	0.35
Bile ducts, other biliary	0	0.00	1	1.08	1	0.95	2	0.96	4	4.29	0.93	-0.04
Pancreas	5	3.04	12	1.83	13	1.78	8	0.65	38	27.88	1.36	1.33
<b>Respiratory system</b>	25	2.69*	111	3.04*	99	2.56*	115	2.01*	350	141.79	2.47*	27.41
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	1.29	0.00	-0.17
Larynx	4	9.18*	3	1.94	3	2.14	2	1.29	12	4.94	2.43*	0.93
Lung, bronchus	21	2.40*	107	3.10*	96	2.60*	113	2.05*	337	135.22	2.49*	26.57
<b>Female breast</b>	17	0.80	53	0.68*	67	0.91	65	0.65*	202	272.88	0.74*	-9.33
<b>Female genital system</b>	24	2.10*	27	0.68*	36	1.03	48	1.14	135	128.27	1.05	0.89
Cervix uteri	0	0.00	1	0.19	0	0.00*	3	0.78	4	14.57	0.27*	-1.39
Corpus uteri	9	1.45	6	0.28*	7	0.37*	7	0.32*	29	68.44	0.42*	-5.19
Ovary	7	2.35	4	0.38*	4	0.41	13	1.02	28	36.20	0.77	-1.08
Vagina	4	29.68*	8	16.00*	10	20.41*	16	22.11*	38	1.85	20.56*	4.76
Vulva	1	3.55	8	7.39*	12	10.47*	7	3.39*	28	4.57	6.12*	3.08
<b>Urinary system</b>	12	4.45*	18	1.70*	20	1.74*	42	2.24*	92	43.54	2.11*	6.38
Urinary bladder	7	4.84*	14	2.41*	13	2.03*	32	2.95*	66	24.52	2.69*	5.46
Kidney parenchyma	4	3.86*	1	0.25	5	1.20	6	0.95	16	15.48	1.03	0.07
Renal pelvis, other urinary	1	4.70	3	3.55	2	2.13	4	2.58	10	3.55	2.82*	0.85
Ureter	0	0.00	0	0.00	0	0.00	3	6.34*	3	1.05	2.85	0.26
<b>Bone, joints</b>	0	0.00	0	0.00	2	9.33*	1	3.41	3	0.80	3.74	0.29
<b>Soft tissue including heart</b>	0	0.00	1	1.02	3	3.17	2	1.40	6	3.61	1.66	0.31
<b>Kaposi sarcoma</b>	1	116.63*	0	0.00	0	0.00	0	0.00	1	0.22	4.61	0.10
<b>Melanoma of skin</b>	1	0.79	1	0.22	1	0.24	6	1.00	9	16.08	0.56	-0.93
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.29	0.00	-0.17
<b>Brain, central nervous system</b>	1	1.31	4	1.43	4	1.48	2	0.55	11	9.93	1.11	0.14
<b>Thyroid</b>	2	2.49	5	1.85	2	0.91	0	0.00	9	8.20	1.10	0.11
<b>Lymphatic, hematopoietic</b>	7	1.65	16	0.96	21	1.17	32	1.08	76	68.47	1.11	0.99
Hodgkin lymphoma	1	5.95	1	1.70	0	0.00	2	2.91	4	1.98	2.02	0.27
Non-Hodgkin lymphoma	2	0.99	7	0.88	13	1.49	20	1.38	42	33.24	1.26	1.15
Myeloma	1	1.20	2	0.61	5	1.41	5	0.88	13	13.35	0.97	-0.05
Leukemia	3	2.42	6	1.24	3	0.58	5	0.58	17	19.90	0.85	-0.38
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.61	0.00	-0.08
Chronic lymphocytic	1	2.14	1	0.53	0	0.00	3	0.89	5	7.78	0.64	-0.37
Acute non-lymphocytic	1	2.25	3	1.73	1	0.54	2	0.63	7	7.19	0.97	-0.03
Chronic myeloid	0	0.00	1	1.45	1	1.42	0	0.00	2	2.74	0.73	-0.10

\*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 8.1.6:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, ≥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
<b>All subsequent cancers</b>	67	1.31*	180	1.28*	98	1.09	60	1.07	405	337.97	1.20*	35.18
All excluding same site	67	1.33*	179	1.29*	98	1.11	59	1.06	403	333.63	1.21*	36.41
<b>Buccal cavity, pharynx</b>	0	0.00	3	1.37	1	0.74	4	4.80*	8	5.18	1.54	1.48
Lip	0	0.00	0	0.00	0	0.00	1	10.98	1	0.48	2.07	0.27
Tongue	0	0.00	1	2.12	1	3.39	1	5.49	3	1.12	2.67	0.98
Salivary gland	0	0.00	2	7.73	0	0.00	0	0.00	2	0.64	3.14	0.72
Mouth	0	0.00	0	0.00	0	0.00	1	2.98	1	1.95	0.51	-0.50
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.10
Tonsil	0	0.00	0	0.00	0	0.00	1	30.04	1	0.31	3.21	0.36
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	0.24	0.00	-0.12
<b>Digestive system</b>	14	0.89	58	1.32*	31	1.06	20	1.05	123	107.86	1.14	7.94
Esophagus	2	5.52	2	2.02	0	0.00	0	0.00	4	2.39	1.67	0.84
Stomach	3	1.94	12	2.82*	2	0.71	7	3.67*	24	10.52	2.28*	7.07
Small intestine	0	0.00	0	0.00	1	3.09	0	0.00	1	1.22	0.82	-0.11
Colon	4	0.51	25	1.12	18	1.20	8	0.80	55	55.14	1.00	-0.07
Rectum, rectosigmoid junction	2	0.87	10	1.60	4	1.02	4	1.75	20	14.73	1.36	2.77
Rectum	1	0.67	7	1.71	2	0.78	3	1.93	13	9.73	1.34	1.72
Anus, anal canal	0	0.00	0	0.00	1	3.78	0	0.00	1	1.00	1.00	0.00
Liver	1	2.95	0	0.00	1	1.63	0	0.00	2	2.29	0.87	-0.15
Gallbladder	1	2.52	1	0.91	0	0.00	0	0.00	2	2.59	0.77	-0.31
Bile ducts, other biliary	0	0.00	1	1.05	0	0.00	0	0.00	1	2.48	0.40	-0.78
Pancreas	1	0.48	7	1.21	3	0.78	1	0.38	12	14.36	0.84	-1.24
<b>Respiratory system</b>	14	2.50*	42	2.73*	22	2.40*	12	2.27*	90	35.41	2.54*	28.65
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.51	0.00	-0.27
Larynx	0	0.00	2	5.21	1	4.95	1	9.15	4	0.84	4.76*	1.66
Lung, bronchus	14	2.61*	40	2.72*	21	2.39*	11	2.17*	86	33.94	2.53*	27.33
<b>Female breast</b>	14	1.15	27	0.82	18	0.88	4	0.33*	63	77.87	0.81	-7.80
<b>Female genital system</b>	11	1.90	17	1.12	5	0.57	7	1.39	40	34.78	1.15	2.74
Cervix uteri	0	0.00	1	0.51	0	0.00	1	1.74	2	4.34	0.46	-1.23
Corpus uteri	5	1.85	3	0.43	1	0.26	2	1.00	11	15.55	0.71	-2.39
Ovary	4	2.44	4	0.91	1	0.37	1	0.62	10	10.35	0.97	-0.18
Vagina	1	7.41	1	2.67	1	4.28	1	6.72	4	0.89	4.49*	1.63
Vulva	1	2.90	6	6.17*	2	2.93	1	1.99	10	2.50	4.00*	3.94
<b>Urinary system</b>	6	2.21	11	1.46	6	1.22	4	1.24	27	18.40	1.47	4.51
Urinary bladder	4	2.33	11	2.30*	5	1.57	2	0.93	22	11.83	1.86*	5.34
Kidney parenchyma	1	1.35	0	0.00	0	0.00	2	2.50	3	4.89	0.61	-0.99
Renal pelvis, other urinary	1	3.90	0	0.00	1	2.21	0	0.00	2	1.69	1.18	0.16
Ureter	0	0.00	0	0.00	1	6.72	0	0.00	1	0.54	1.84	0.24
<b>Bone, joints</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.28	0.00	-0.15
<b>Soft tissue including heart</b>	0	0.00	0	0.00	0	0.00	1	3.79	1	1.41	0.71	-0.22
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	1	13.53	0	0.00	1	0.25	4.01	0.39
<b>Melanoma of skin</b>	0	0.00	2	1.14	1	0.85	1	1.19	4	4.40	0.91	-0.21
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.41	0.00	-0.21
<b>Brain, central nervous system</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	2.66	0.00	-1.40
<b>Thyroid</b>	1	3.35	1	1.28	0	0.00	0	0.00	2	1.78	1.13	0.12
<b>Lymphatic, hematopoietic</b>	6	1.38	11	0.90	7	0.87	5	0.95	29	29.82	0.97	-0.43
Hodgkin lymphoma	0	0.00	1	3.57	0	0.00	0	0.00	1	0.63	1.59	0.19
Non-Hodgkin lymphoma	2	1.09	5	0.96	6	1.74	5	2.27	18	12.71	1.42	2.78
Myeloma	0	0.00	2	0.80	0	0.00	0	0.00	2	5.95	0.34	-2.07
Leukemia	4	2.65	3	0.71	1	0.35	0	0.00	8	10.53	0.76	-1.33
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.13
Chronic lymphocytic	2	3.38	0	0.00	0	0.00	0	0.00	2	4.04	0.49	-1.07
Acute non-lymphocytic	1	1.94	2	1.38	1	1.02	0	0.00	4	3.61	1.11	0.20
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	1.45	0.00	-0.76

\*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.

## Cervix Uteri Females, Radiotherapy

**Table 8.1.7:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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			
	O	O/E	O	O/E	O	O/E	O	O/E	O	E	O/E	EAR
<b>All subsequent cancers</b>	151	1.55*	455	1.46*	391	1.44*	540	1.37*	1,537	1,072.72	1.43*	42.69
All excluding same site	151	1.59*	454	1.49*	391	1.47*	537	1.39*	1,533	1,052.27	1.46*	44.20
<b>Buccal cavity, pharynx</b>	6	3.20*	11	1.85	6	1.20	12	1.80	35	19.48	1.80*	1.43
Lip	0	0.00	0	0.00	0	0.00	1	2.39	1	1.10	0.91	-0.01
Tongue	0	0.00	1	0.78	2	1.80	4	2.68	7	4.29	1.63	0.25
Salivary gland	3	14.69*	1	1.57	0	0.00	0	0.00	4	2.12	1.89	0.17
Mouth	2	3.19	6	3.01*	0	0.00	4	1.77	12	6.55	1.83	0.50
Nasopharynx	0	0.00	0	0.00	1	4.03	0	0.00	1	0.98	1.02	0.00
Tonsil	1	5.15	3	4.97	2	4.09	1	1.73	7	1.86	3.76*	0.47
Oropharynx	0	0.00	0	0.00	0	0.00	1	6.05	1	0.50	2.01	0.05
Hypopharynx	0	0.00	0	0.00	1	2.74	1	2.23	2	1.39	1.44	0.06
<b>Digestive system</b>	29	1.33	98	1.41*	82	1.34*	142	1.61*	351	240.51	1.46*	10.16
Esophagus	2	3.00	4	1.90	2	1.09	5	1.90	13	7.23	1.80	0.53
Stomach	7	3.51*	16	2.58*	7	1.34	15	2.09*	45	20.57	2.19*	2.25
Small intestine	2	6.70	1	1.03	3	3.40	1	0.70	7	3.58	1.95	0.31
Colon	7	0.67	39	1.16	36	1.21	62	1.43*	144	117.04	1.23*	2.48
Rectum, rectosigmoid junction	2	0.56	14	1.24	8	0.83	33	2.53*	57	37.50	1.52*	1.79
Rectum	1	0.43	9	1.23	7	1.12	24	2.78*	41	24.46	1.68*	1.52
Anus, anal canal	0	0.00	2	2.13	1	1.19	8	6.57*	11	3.29	3.35*	0.71
Liver	1	2.02	1	0.62	2	1.38	0	0.00	4	5.90	0.68	-0.17
Gallbladder	1	1.97	1	0.63	2	1.46	2	1.10	6	5.29	1.13	0.07
Bile ducts, other biliary	0	0.00	2	1.45	1	0.79	2	0.96	5	5.14	0.97	-0.01
Pancreas	6	2.13	18	1.99*	15	1.86*	10	0.83	49	31.91	1.54*	1.57
<b>Respiratory system</b>	30	2.66*	164	4.35*	111	3.15*	127	2.26*	432	140.52	3.07*	26.80
Nose, nasal cavity, ear	0	0.00	1	2.32	0	0.00	0	0.00	1	1.49	0.67	-0.04
Larynx	2	4.34	4	2.70	2	1.57	5	2.88	13	4.95	2.63*	0.74
Lung, bronchus	28	2.63*	158	4.42*	109	3.26*	122	2.26*	417	133.71	3.12*	26.05
<b>Female breast</b>	27	0.94	73	0.80	65	0.81	57	0.50*	222	315.37	0.70*	-8.59
<b>Female genital system</b>	28	1.93*	37	0.83	45	1.25	80	1.69*	190	142.47	1.33*	4.37
Cervix uteri	0	0.00	1	0.14*	0	0.00*	3	0.56	4	20.45	0.20*	-1.51
Corpus uteri	10	1.43	8	0.37*	15	0.85	24	1.02	57	69.97	0.81	-1.19
Ovary	12	3.09*	11	0.89	8	0.77	22	1.54	53	40.87	1.30	1.12
Vagina	3	13.89*	5	7.41*	4	7.15*	18	23.62*	30	2.21	13.56*	2.55
Vulva	1	1.95	11	6.75*	15	10.45*	8	3.66*	35	5.77	6.07*	2.69
<b>Urinary system</b>	10	2.41*	29	2.15*	27	2.23*	40	2.14*	106	48.48	2.19*	5.29
Urinary bladder	7	2.92*	26	3.35*	20	2.87*	30	2.81*	83	27.78	2.99*	5.08
Kidney parenchyma	2	1.43	0	0.00*	3	0.72	5	0.76	10	16.74	0.60	-0.62
Renal pelvis, other urinary	1	2.80	3	2.63	4	3.99*	5	3.44*	13	3.95	3.29*	0.83
Ureter	0	0.00	1	2.96	1	3.31	4	9.16*	6	1.18	5.08*	0.44
<b>Bone, joints</b>	0	0.00	0	0.00	2	7.82	2	5.96	4	1.01	3.96*	0.27
<b>Soft tissue including heart</b>	0	0.00	1	0.77	3	2.71	4	2.48	8	4.44	1.80	0.33
<b>Kaposi sarcoma</b>	1	31.81	0	0.00	1	10.82	0	0.00	2	0.36	5.50	0.15
<b>Melanoma of skin</b>	1	0.52	2	0.32	2	0.37	9	1.18	14	21.12	0.66	-0.66
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.44	0.00	-0.13
<b>Brain, central nervous system</b>	0	0.00	4	1.22	2	0.71	1	0.26	7	10.96	0.64	-0.36
<b>Thyroid</b>	6	4.65*	4	1.02	3	0.99	5	1.32	18	12.02	1.50	0.55
<b>Lymphatic, hematopoietic</b>	8	1.16	19	0.86	23	1.17	35	1.17	85	78.58	1.08	0.59
Hodgkin lymphoma	0	0.00	2	2.24	0	0.00	1	1.24	3	2.68	1.12	0.03
Non-Hodgkin lymphoma	5	1.64	6	0.60	15	1.62	24	1.64*	50	36.97	1.35*	1.20
Myeloma	0	0.00	3	0.71	4	1.07	5	0.90	12	14.84	0.81	-0.26
Leukemia	3	1.37	8	1.15	4	0.66	5	0.56	20	24.08	0.83	-0.38
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.79	0.00	-0.07
Chronic lymphocytic	0	0.00	0	0.00	1	0.44	3	0.90	4	8.96	0.45	-0.46
Acute non-lymphocytic	2	2.55	7	2.80*	2	0.92	1	0.31	12	8.70	1.38	0.30
Chronic myeloid	0	0.00	0	0.00	0	0.00	1	0.79	1	3.47	0.29	-0.23

\*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 8.1.8:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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
<b>All subsequent cancers</b>	104	2.13*	219	1.09	248	1.16*	366	0.99	937	832.34	1.13*	7.62
All excluding same site	98	2.08*	217	1.12	244	1.18*	359	0.99	918	810.19	1.13*	7.85
<b>Buccal cavity, pharynx</b>	1	1.12	12	3.29*	5	1.31	12	1.93	30	14.57	2.06*	1.12
Lip	0	0.00	0	0.00	0	0.00	1	3.05	1	0.73	1.37	0.02
Tongue	0	0.00	2	2.52	0	0.00	1	0.70	3	3.27	0.92	-0.02
Salivary gland	0	0.00	1	2.04	0	0.00	0	0.00	1	1.85	0.54	-0.06
Mouth	0	0.00	2	1.77	1	0.84	5	2.52	8	4.59	1.74	0.25
Nasopharynx	0	0.00	1	4.25	0	0.00	1	3.11	2	0.84	2.37	0.08
Tonsil	0	0.00	3	8.16*	1	2.59	2	3.28	6	1.45	4.13*	0.33
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.36	0.00	-0.03
Hypopharynx	1	16.81	3	11.96*	2	7.67	0	0.00	6	1.00	6.02*	0.36
<b>Digestive system</b>	12	1.35	42	1.21	42	1.13	75	1.13	171	147.20	1.16	1.73
Esophagus	1	3.67	2	1.83	0	0.00	3	1.43	6	4.63	1.30	0.10
Stomach	0	0.00	2	0.67	3	1.00	6	1.18	11	11.88	0.93	-0.06
Small intestine	1	6.85	0	0.00	1	1.50	3	2.33	5	2.71	1.85	0.17
Colon	8	1.90	20	1.22	20	1.14	31	0.98	79	69.63	1.13	0.68
Rectum, rectosigmoid junction	0	0.00	10	1.70	8	1.28	11	1.03	29	24.30	1.19	0.34
Rectum	0	0.00	7	1.82	4	0.98	7	0.99	18	15.98	1.13	0.15
Anus, anal canal	0	0.00	2	3.38	4	6.03*	2	1.69	8	2.58	3.10*	0.39
Liver	1	4.51	1	1.13	0	0.00	3	1.63	5	3.91	1.28	0.08
Gallbladder	1	5.19	2	2.73	2	2.62	3	2.30	8	3.00	2.67*	0.36
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	3.12	0.00	-0.23
Pancreas	0	0.00	3	0.68	4	0.84	11	1.24	18	19.14	0.94	-0.08
<b>Respiratory system</b>	15	2.87*	48	2.16*	55	2.17*	75	1.50*	193	102.73	1.88*	6.57
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	1	2.12	1	1.09	0.92	-0.01
Larynx	2	9.18*	2	2.18	6	5.97*	5	2.87	15	3.88	3.86*	0.81
Lung, bronchus	13	2.64*	45	2.14*	49	2.04*	69	1.45*	176	97.46	1.81*	5.72
<b>Female breast</b>	17	1.08	48	0.72*	78	1.07	93	0.75*	236	279.81	0.84*	-3.19
<b>Female genital system</b>	32	4.20*	25	0.81	28	0.90	31	0.63*	116	118.66	0.98	-0.19
Cervix uteri	6	3.36*	2	0.29	4	0.65	7	0.97	19	22.15	0.86	-0.23
Corpus uteri	8	2.50*	2	0.15*	2	0.15*	1	0.04*	13	53.45	0.24*	-2.95
Ovary	11	5.21*	7	0.80	5	0.55	8	0.54	31	34.87	0.89	-0.28
Vagina	4	41.24*	10	26.01*	12	30.50*	7	10.81*	33	1.52	21.68*	2.29
Vulva	1	3.97	3	2.98	5	4.70*	7	3.74*	16	4.19	3.82*	0.86
<b>Urinary system</b>	9	4.89*	12	1.61	9	1.10	35	2.25*	65	33.08	1.96*	2.32
Urinary bladder	4	3.97*	7	1.75	3	0.69	19	2.29*	33	17.67	1.87*	1.12
Kidney parenchyma	4	5.79*	3	1.03	5	1.54	11	1.77	23	13.07	1.76*	0.72
Renal pelvis, other urinary	1	7.15	2	3.62	1	1.69	5	4.70*	9	2.35	3.84*	0.48
Ureter	0	0.00	1	6.64	0	0.00	4	13.39*	5	0.65	7.67*	0.32
<b>Bone, joints</b>	0	0.00	0	0.00	1	3.68	0	0.00	1	1.02	0.98	0.00
<b>Soft tissue including heart</b>	0	0.00	0	0.00	2	1.98	0	0.00	2	3.89	0.51	-0.14
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	0.00	-0.02
<b>Melanoma of skin</b>	2	1.22	4	0.58	6	0.87	6	0.60	18	25.42	0.71	-0.54
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.15	0.00	-0.08
<b>Brain, central nervous system</b>	1	1.64	0	0.00	2	0.79	5	1.27	8	9.59	0.83	-0.12
<b>Thyroid</b>	2	1.66	5	1.03	0	0.00*	1	0.17*	8	16.34	0.49*	-0.61
<b>Lymphatic, hematopoietic</b>	12	3.53*	15	1.10	12	0.84	22	0.86	61	56.85	1.07	0.30
Hodgkin lymphoma	1	3.21	0	0.00	0	0.00	1	0.98	2	3.39	0.59	-0.10
Non-Hodgkin lymphoma	2	1.31	10	1.58	5	0.72	14	1.09	31	27.61	1.12	0.25
Myeloma	1	1.84	1	0.46	3	1.27	1	0.23	6	9.52	0.63	-0.26
Leukemia	8	7.86*	4	1.00	4	0.96	6	0.84	22	16.32	1.35	0.41
Acute lymphocytic	1	19.26	0	0.00	0	0.00	1	3.40	2	0.76	2.64	0.09
Chronic lymphocytic	3	9.51*	1	0.81	1	0.75	3	1.21	8	5.37	1.49	0.19
Acute non-lymphocytic	2	5.05	1	0.64	1	0.62	2	0.73	6	6.29	0.95	-0.02
Chronic myeloid	0	0.00	1	1.54	1	1.51	0	0.00	2	2.56	0.78	-0.04

\*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.

## Cervix Uteri

### Females, Long-term Follow-up, Radiotherapy

**Table 8.1.9:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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
<b>Number starting interval</b>	16,404		4,380		2,652		1,344		16,404			
<b>Person-years in interval</b>	76,700		17,380		9,827		4,853		108,760			
<b>All subsequent cancers</b>	997	1.47*	273	1.38*	166	1.31*	101	1.46*	1,537	1,072.72	1.43*	42.69
All excluding same site	996	1.50*	273	1.40*	163	1.31*	101	1.48*	1,533	1,052.27	1.46*	44.20
<b>Buccal cavity, pharynx</b>	23	1.79*	8	2.32	2	0.95	2	1.82	35	19.48	1.80*	1.43
Lip	0	0.00	1	4.89	0	0.00	0	0.00	1	1.10	0.91	-0.01
Tongue	3	1.07	2	2.59	2	4.22	0	0.00	7	4.29	1.63	0.25
Salivary gland	4	2.92	0	0.00	0	0.00	0	0.00	4	2.12	1.89	0.17
Mouth	8	1.86	3	2.58	0	0.00	1	2.65	12	6.55	1.83	0.50
Nasopharynx	1	1.50	0	0.00	0	0.00	0	0.00	1	0.98	1.02	0.00
Tonsil	6	4.66*	1	3.18	0	0.00	0	0.00	7	1.86	3.76*	0.47
Oropharynx	0	0.00	1	11.39	0	0.00	0	0.00	1	0.50	2.01	0.05
Hypopharynx	1	1.06	0	0.00	0	0.00	1	14.59	2	1.39	1.44	0.06
<b>Digestive system</b>	209	1.37*	67	1.52*	51	1.80*	24	1.52	351	240.51	1.46*	10.16
Esophagus	8	1.74	3	2.27	2	2.38	0	0.00	13	7.23	1.80	0.53
Stomach	30	2.24*	8	2.19	4	1.76	3	2.41	45	20.57	2.19*	2.25
Small intestine	6	2.79*	0	0.00	0	0.00	1	3.59	7	3.58	1.95	0.31
Colon	82	1.11	29	1.34	21	1.51	12	1.55	144	117.04	1.23*	2.48
Rectum, rectosigmoid junction	24	0.98	13	1.93*	15	3.65*	5	2.24	57	37.50	1.52*	1.79
Rectum	17	1.07	10	2.28*	12	4.41*	2	1.32	41	24.46	1.68*	1.52
Anus, anal canal	3	1.45	4	6.55*	3	7.60*	1	4.73	11	3.29	3.35*	0.71
Liver	4	1.13	0	0.00	0	0.00	0	0.00	4	5.90	0.68	-0.17
Gallbladder	4	1.15	0	0.00	2	3.47	0	0.00	6	5.29	1.13	0.07
Bile ducts, other biliary	3	0.98	1	1.02	1	1.45	0	0.00	5	5.14	0.97	-0.01
Pancreas	39	1.96*	7	1.18	2	0.51	1	0.46	49	31.91	1.54*	1.57
<b>Respiratory system</b>	305	3.62*	74	2.71*	39	2.11*	14	1.33	432	140.52	3.07*	26.80
Nose, nasal cavity, ear	1	1.06	0	0.00	0	0.00	0	0.00	1	1.49	0.67	-0.04
Larynx	8	2.49*	1	1.11	3	5.48*	1	3.54	13	4.95	2.63*	0.74
Lung, bronchus	295	3.70*	73	2.80*	36	2.03*	13	1.29	417	133.71	3.12*	26.05
<b>Female breast</b>	165	0.82*	28	0.48*	16	0.44*	13	0.66	222	315.37	0.70*	-8.59
<b>Female genital system</b>	110	1.15	37	1.51*	27	1.80*	16	2.06*	190	142.47	1.33*	4.37
Cervix uteri	1	0.07*	0	0.00	3	1.86	0	0.00	4	20.45	0.20*	-1.51
Corpus uteri	33	0.71*	14	1.16	5	0.67	5	1.26	57	69.97	0.81	-1.19
Ovary	31	1.17	11	1.50	9	1.98	2	0.84	53	40.87	1.30	1.12
Vagina	12	8.28*	6	15.22*	8	33.19*	4	31.56*	30	2.21	13.56*	2.55
Vulva	27	7.54*	5	4.64*	1	1.40	2	5.02	35	5.77	6.07*	2.69
<b>Urinary system</b>	66	2.22*	18	1.96*	6	0.98	16	4.63*	106	48.48	2.19*	5.29
Urinary bladder	53	3.10*	13	2.49*	4	1.15	13	6.61*	83	27.78	2.99*	5.08
Kidney parenchyma	5	0.49	3	0.93	1	0.46	1	0.82	10	16.74	0.60	-0.62
Renal pelvis, other urinary	8	3.20*	2	2.78	1	2.14	2	7.55	13	3.95	3.29*	0.83
Ureter	2	2.69	2	9.20*	0	0.00	2	25.39*	6	1.18	5.08*	0.44
<b>Bone, joints</b>	2	2.96	1	5.82	1	9.41	0	0.00	4	1.01	3.96*	0.27
<b>Soft tissue including heart</b>	4	1.42	3	3.73	1	1.91	0	0.00	8	4.44	1.80	0.33
<b>Kaposi sarcoma</b>	2	8.89	0	0.00	0	0.00	0	0.00	2	0.36	5.50	0.15
<b>Melanoma of skin</b>	5	0.37*	5	1.31	2	0.82	2	1.46	14	21.12	0.66	-0.66
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.44	0.00	-0.13
<b>Brain, central nervous system</b>	6	0.84	1	0.50	0	0.00	0	0.00	7	10.96	0.64	-0.36
<b>Thyroid</b>	13	1.58	5	2.51	0	0.00	0	0.00	18	12.02	1.50	0.55
<b>Lymphatic, hematopoietic</b>	50	1.03	16	1.08	14	1.44	5	0.93	85	78.58	1.08	0.59
Hodgkin lymphoma	2	1.07	1	2.34	0	0.00	0	0.00	3	2.68	1.12	0.03
Non-Hodgkin lymphoma	26	1.16	11	1.55	9	1.88	4	1.47	50	36.97	1.35*	1.20
Myeloma	7	0.75	1	0.36	4	2.22	0	0.00	12	14.84	0.81	-0.26
Leukemia	15	0.99	3	0.67	1	0.35	1	0.64	20	24.08	0.83	-0.38
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.79	0.00	-0.07
Chronic lymphocytic	1	0.18*	1	0.59	1	0.92	1	1.78	4	8.96	0.45	-0.46
Acute non-lymphocytic	11	2.02*	1	0.63	0	0.00	0	0.00	12	8.70	1.38	0.30
Chronic myeloid	0	0.00	1	1.56	0	0.00	0	0.00	1	3.47	0.29	-0.23

\*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 8.1.10:** Risk of subsequent primary cancers after cancer of the cervix uteri, females, 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
<b>All subsequent cancers</b>	571	1.23*	170	1.00	119	0.98	77	1.00	937	832.34	1.13*	7.62
All excluding same site	559	1.25*	166	1.00	118	0.99	75	0.99	918	810.19	1.13*	7.85
<b>Buccal cavity, pharynx</b>	18	2.16*	7	2.38	5	2.45	0	0.00	30	14.57	2.06*	1.12
Lip	0	0.00	0	0.00	1	9.24	0	0.00	1	0.73	1.37	0.02
Tongue	2	1.09	0	0.00	1	2.11	0	0.00	3	3.27	0.92	-0.02
Salivary gland	1	0.91	0	0.00	0	0.00	0	0.00	1	1.85	0.54	-0.06
Mouth	3	1.15	3	3.20	2	3.08	0	0.00	8	4.59	1.74	0.25
Nasopharynx	1	1.92	0	0.00	1	9.83	0	0.00	2	0.84	2.37	0.08
Tonsil	4	4.75*	2	6.71	0	0.00	0	0.00	6	1.45	4.13*	0.33
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.36	0.00	-0.03
Hypopharynx	6	10.50*	0	0.00	0	0.00	0	0.00	6	1.00	6.02*	0.36
<b>Digestive system</b>	96	1.19	36	1.20	24	1.09	15	1.03	171	147.20	1.16	1.73
Esophagus	3	1.18	3	3.17	0	0.00	0	0.00	6	4.63	1.30	0.10
Stomach	5	0.74	4	1.70	2	1.19	0	0.00	11	11.88	0.93	-0.06
Small intestine	2	1.41	1	1.78	1	2.33	1	3.38	5	2.71	1.85	0.17
Colon	48	1.26	13	0.92	10	0.96	8	1.16	79	69.63	1.13	0.68
Rectum, rectosigmoid junction	18	1.32	4	0.81	5	1.43	2	0.89	29	24.30	1.19	0.34
Rectum	11	1.24	2	0.62	4	1.72	1	0.65	18	15.98	1.13	0.15
Anus, anal canal	6	4.30*	2	3.70	0	0.00	0	0.00	8	2.58	3.10*	0.39
Liver	2	0.97	2	2.53	1	1.61	0	0.00	5	3.91	1.28	0.08
Gallbladder	5	2.96	1	1.66	1	2.31	1	3.68	8	3.00	2.67*	0.36
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	3.12	0.00	-0.23
Pancreas	7	0.68	5	1.27	3	1.02	3	1.52	18	19.14	0.94	-0.08
<b>Respiratory system</b>	118	2.23*	31	1.42	28	1.67*	16	1.41	193	102.73	1.88*	6.57
Nose, nasal cavity, ear	0	0.00	0	0.00	1	6.57	0	0.00	1	1.09	0.92	-0.01
Larynx	10	4.67*	3	3.67	1	1.74	1	2.85	15	3.88	3.86*	0.81
Lung, bronchus	107	2.14*	28	1.35	26	1.63*	15	1.37	176	97.46	1.81*	5.72
<b>Female breast</b>	143	0.92	41	0.70*	35	0.86	17	0.69	236	279.81	0.84*	-3.19
<b>Female genital system</b>	85	1.22	18	0.77	6	0.37*	7	0.73	116	118.66	0.98	-0.19
Cervix uteri	12	0.80	4	1.01	1	0.45	2	1.93	19	22.15	0.86	-0.23
Corpus uteri	12	0.40*	0	0.00*	0	0.00*	1	0.20	13	53.45	0.24*	-2.95
Ovary	23	1.15	4	0.56	3	0.61	1	0.34	31	34.87	0.89	-0.28
Vagina	26	29.72*	4	13.10*	2	9.51*	1	7.58	33	1.52	21.68*	2.29
Vulva	9	3.88*	5	5.83*	0	0.00	2	5.09	16	4.19	3.82*	0.86
<b>Urinary system</b>	30	1.71*	17	2.47*	7	1.34	11	3.15*	65	33.08	1.96*	2.32
Urinary bladder	14	1.49	9	2.47*	5	1.81	5	2.66	33	17.67	1.87*	1.12
Kidney parenchyma	12	1.75	6	2.18	2	0.96	3	2.18	23	13.07	1.76*	0.72
Renal pelvis, other urinary	4	3.12	2	4.22	0	0.00	3	12.48*	9	2.35	3.84*	0.48
Ureter	1	2.83	2	15.13*	0	0.00	2	29.54*	5	0.65	7.67*	0.32
<b>Bone, joints</b>	1	1.59	0	0.00	0	0.00	0	0.00	1	1.02	0.98	0.00
<b>Soft tissue including heart</b>	2	0.88	0	0.00	0	0.00	0	0.00	2	3.89	0.51	-0.14
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	0.00	-0.02
<b>Melanoma of skin</b>	12	0.78	3	0.61	1	0.31	2	1.06	18	25.42	0.71	-0.54
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.15	0.00	-0.08
<b>Brain, central nervous system</b>	3	0.53	2	1.05	1	0.78	2	2.64	8	9.59	0.83	-0.12
<b>Thyroid</b>	7	0.66	1	0.33	0	0.00	0	0.00	8	16.34	0.49*	-0.61
<b>Lymphatic, hematopoietic</b>	39	1.24	9	0.78	8	0.95	5	0.92	61	56.85	1.07	0.30
Hodgkin lymphoma	1	0.42	0	0.00	1	3.19	0	0.00	2	3.39	0.59	-0.10
Non-Hodgkin lymphoma	17	1.15	6	1.05	7	1.64	1	0.35	31	27.61	1.12	0.25
Myeloma	5	0.98	0	0.00	0	0.00	1	1.03	6	9.52	0.63	-0.26
Leukemia	16	1.75	3	0.91	0	0.00	3	1.99	22	16.32	1.35	0.41
Acute lymphocytic	1	2.16	1	6.79	0	0.00	0	0.00	2	0.76	2.64	0.09
Chronic lymphocytic	5	1.73	1	0.89	0	0.00	2	3.77	8	5.37	1.49	0.19
Acute non-lymphocytic	4	1.12	1	0.80	0	0.00	1	1.71	6	6.29	0.95	-0.02
Chronic myeloid	2	1.35	0	0.00	0	0.00	0	0.00	2	2.56	0.78	-0.04

\*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 8.2.1:** Characteristics of patients with an initial cancer of the vagina, females, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
<b>Number of patients with 1st primary cancer</b>						
<b>Total</b>	—	—	1,623	100.0	1,623	100.0
<b>Initial treatment</b>						
Any radiation	—	—	1,061	65.4	1,061	65.4
With surgery	—	—	272	16.8	272	16.8
Without surgery	—	—	789	48.6	789	48.6
No radiation	—	—	562	34.6	562	34.6
With surgery	—	—	327	20.1	327	20.1
Without surgery	—	—	235	14.5	235	14.5
<b>Race</b>						
White	—	—	1,299	80.0	1,299	80.0
Black	—	—	239	14.7	239	14.7
Other	—	—	76	4.7	76	4.7
Unknown	—	—	9	0.6	9	0.6
<b>Age at 1st primary cancer diagnosis, years</b>						
< 30	—	—	81	5.0	81	5.0
30–49	—	—	218	13.4	218	13.4
50–69	—	—	589	36.3	589	36.3
70–79	—	—	385	23.7	385	23.7
≥ 80	—	—	350	21.6	350	21.6
<b>Number of patients with one or more primary cancers</b>						
One primary cancer only	—	—	1,519	93.6	1,519	93.6
1st and 2nd cancers	—	—	99	6.1	99	6.1
1st, 2nd, and 3rd cancers	—	—	5	0.3	5	0.3
1st, 2nd, 3rd, and additional cancers	—	—	0	0.0	0	0.0
<b>Other statistics</b>						
Median age at 1st cancer diagnosis	—	—	68.2	—	68.2	—
Median year of 1st cancer diagnosis	—	—	1986.6	—	1986.6	—
Median person-years at risk	—	—	2.4	—	2.4	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	—	—	98.1	—	98.1
1st, 2nd, and additional cancers	—	—	—	98.1	—	98.1
1st cancer only	—	—	—	1.0	—	1.0

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



**Table 8.2.2:** Risk of subsequent primary cancers after cancer of the vagina, 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
<b>All subsequent cancers</b>	10	0.75	40	1.09	31	1.18	28	1.05	109	103.12	1.06	6.78
All excluding same site	10	0.75	40	1.09	31	1.18	28	1.05	109	102.89	1.06	7.04
<b>Buccal cavity, pharynx</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.75	0.00	-2.02
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.12	0.00	-0.14
Tongue	0	0.00	0	0.00	0	0.00	0	0.00	0	0.38	0.00	-0.44
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.23
Mouth	0	0.00	0	0.00	0	0.00	0	0.00	0	0.62	0.00	-0.71
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	0.00	-0.08
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.17
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.05
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	0.00	-0.13
<b>Digestive system</b>	1	0.29	10	1.07	7	1.06	10	1.52	28	25.99	1.08	2.31
Esophagus	1	10.65	2	7.83	0	0.00	1	5.36	4	0.72	5.54*	3.78
Stomach	0	0.00	3	3.71	0	0.00	0	0.00	3	2.22	1.35	0.90
Small intestine	0	0.00	1	8.22	0	0.00	0	0.00	1	0.36	2.77	0.74
Colon	0	0.00	1	0.22	6	1.80	1	0.30	8	13.01	0.61	-5.78
Rectum, rectosigmoid junction	0	0.00	1	0.70	0	0.00	5	5.47*	6	3.84	1.56	2.49
Rectum	0	0.00	1	1.08	0	0.00	4	6.61*	5	2.51	1.99	2.87
Anus, anal canal	0	0.00	0	0.00	1	12.38	0	0.00	1	0.31	3.18	0.79
Liver	0	0.00	0	0.00	0	0.00	1	6.32	1	0.57	1.76	0.50
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.57	0.00	-0.66
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.56	0.00	-0.65
Pancreas	0	0.00	1	0.80	0	0.00	1	1.09	2	3.51	0.57	-1.74
<b>Respiratory system</b>	1	0.64	6	1.32	10	2.95*	1	0.27	18	13.20	1.36	5.52
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	0.00	-0.17
Larynx	1	18.93	0	0.00	0	0.00	0	0.00	1	0.41	2.42	0.68
Lung, bronchus	0	0.00	6	1.38	10	3.08*	1	0.28	17	12.61	1.35	5.05
<b>Female breast</b>	2	0.56	6	0.60	5	0.70	9	1.23	22	27.95	0.79	-6.85
<b>Female genital system</b>	3	1.76	8	1.71	5	1.60	1	0.33	17	12.53	1.36	5.15
Cervix uteri	1	4.29	1	1.62	2	5.17	0	0.00	4	1.59	2.52	2.78
Corpus uteri	1	1.20	1	0.43	2	1.31	0	0.00	4	6.12	0.65	-2.44
Ovary	0	0.00	4	3.01	0	0.00	0	0.00	4	3.66	1.09	0.40
Vagina	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	0.00	-0.26
Vulva	1	12.45	2	9.23*	1	6.28	1	6.10	5	0.62	8.06*	5.05
<b>Urinary system</b>	0	0.00	4	2.24	1	0.77	5	3.72*	10	5.07	1.97	5.68
Urinary bladder	0	0.00	3	2.78	0	0.00	4	5.04*	7	3.04	2.30	4.56
Kidney parenchyma	0	0.00	1	1.80	0	0.00	0	0.00	1	1.61	0.62	-0.70
Renal pelvis, other urinary	0	0.00	0	0.00	1	9.35	1	9.51	2	0.42	4.77	1.82
Ureter	0	0.00	0	0.00	1	31.19	1	32.31	2	0.13	15.89*	2.16
<b>Bone, joints</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	0.00	-0.11
<b>Soft tissue including heart</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	0.00	-0.49
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.06
<b>Melanoma of skin</b>	0	0.00	2	3.13	0	0.00	1	1.93	3	1.85	1.62	1.32
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	0.00	-0.16
<b>Brain, central nervous system</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.99	0.00	-1.15
<b>Thyroid</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.88	0.00	-1.02
<b>Lymphatic, hematopoietic</b>	3	2.88	2	0.70	1	0.48	1	0.46	7	8.16	0.86	-1.34
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.29
Non-Hodgkin lymphoma	1	2.17	1	0.78	1	1.04	0	0.00	3	3.72	0.81	-0.83
Myeloma	1	4.95	0	0.00	0	0.00	0	0.00	1	1.58	0.63	-0.67
Leukemia	1	2.88	1	1.07	0	0.00	1	1.50	3	2.62	1.15	0.44
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.09
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	1.01	0.00	-1.16
Acute non-lymphocytic	1	8.36	1	3.11	0	0.00	1	4.15	3	0.92	3.27	2.40
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.36	0.00	-0.42

\*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.

## Vagina

### Females, <65 Years of Age

**Table 8.2.3:** Risk of subsequent primary cancers after cancer of the vagina, females, <65 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
	693	532	585	1,664	320	1,309	215	1,581	693	5,086		
<b>All subsequent cancers</b>	3	0.96	13	1.20	10	0.98	17	1.05	43	40.25	1.07	5.40
All excluding same site	3	0.96	13	1.21	10	0.98	17	1.06	43	40.18	1.07	5.55
<b>Buccal cavity, pharynx</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.77	0.00	-1.51
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.07
Tongue	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	0.00	-0.34
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.16
Mouth	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.49
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.07
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.16
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.02	0.00	-0.04
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	0.00	-0.12
<b>Digestive system</b>	1	2.06	2	1.14	2	1.10	6	1.86	11	7.29	1.51	7.30
Esophagus	1	49.29	0	0.00	0	0.00	0	0.00	1	0.27	3.74	1.44
Stomach	0	0.00	0	0.00	0	0.00	0	0.00	0	0.52	0.00	-1.03
Small intestine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.26
Colon	0	0.00	0	0.00	2	2.34	1	0.64	3	3.45	0.87	-0.88
Rectum, rectosigmoid junction	0	0.00	1	3.06	0	0.00	4	8.02*	5	1.23	4.05*	7.41
Rectum	0	0.00	1	4.76	0	0.00	3	9.19*	4	0.80	5.01*	6.29
Anus, anal canal	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.25
Liver	0	0.00	0	0.00	0	0.00	1	11.76	1	0.18	5.63	1.62
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.29
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	0.00	-0.28
Pancreas	0	0.00	1	4.46	0	0.00	0	0.00	1	0.98	1.02	0.04
<b>Respiratory system</b>	0	0.00	1	0.69	3	1.99	1	0.40	5	5.86	0.85	-1.69
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.10
Larynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	0.00	-0.44
Lung, bronchus	0	0.00	1	0.73	3	2.10	1	0.42	5	5.56	0.90	-1.11
<b>Female breast</b>	0	0.00	2	0.55	3	0.92	5	1.03	10	12.80	0.78	-5.51
<b>Female genital system</b>	2	3.75	5	2.85	2	1.35	1	0.49	10	5.79	1.73	8.28
Cervix uteri	1	11.01	0	0.00	1	4.75	0	0.00	2	0.82	2.45	2.33
Corpus uteri	1	3.72	1	1.11	1	1.33	0	0.00	3	2.94	1.02	0.12
Ovary	0	0.00	3	6.20*	0	0.00	0	0.00	3	1.66	1.80	2.63
Vagina	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	0.00	-0.15
Vulva	0	0.00	1	22.06	0	0.00	1	12.38	2	0.18	10.90*	3.57
<b>Urinary system</b>	0	0.00	0	0.00	0	0.00	3	4.01	3	1.70	1.76	2.55
Urinary bladder	0	0.00	0	0.00	0	0.00	2	4.86	2	0.92	2.18	2.13
Kidney parenchyma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.66	0.00	-1.30
Renal pelvis, other urinary	0	0.00	0	0.00	0	0.00	1	18.06	1	0.12	8.07	1.72
Ureter	0	0.00	0	0.00	0	0.00	1	63.41	1	0.03	29.20	1.90
<b>Bone, joints</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.08
<b>Soft tissue including heart</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	0.00	-0.33
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	0.00	-0.01
<b>Melanoma of skin</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.98	0.00	-1.93
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	0.00	-0.11
<b>Brain, central nervous system</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.46	0.00	-0.90
<b>Thyroid</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.55	0.00	-1.08
<b>Lymphatic, hematopoietic</b>	0	0.00	2	2.96	0	0.00	1	0.84	3	2.74	1.09	0.50
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	0.00	-0.26
Non-Hodgkin lymphoma	0	0.00	1	3.07	0	0.00	0	0.00	1	1.34	0.74	-0.68
Myeloma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	0.00	-0.97
Leukemia	0	0.00	1	5.16	0	0.00	1	3.01	2	0.77	2.59	2.41
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	0.00	-0.07
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.28	0.00	-0.55
Acute non-lymphocytic	0	0.00	1	14.04	0	0.00	1	8.01	2	0.29	6.99	3.37
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	0.00	-0.22

\*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 8.2.4:** Risk of subsequent primary cancers after cancer of the vagina, females, ≥65 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
<b>All subsequent cancers</b>	7	0.69	27	1.04	21	1.31	11	1.04	66	62.86	1.05	8.73
All excluding same site	7	0.69	27	1.04	21	1.31	11	1.04	66	62.71	1.05	9.16
<b>Buccal cavity, pharynx</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.98	0.00	-2.73
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.24
Tongue	0	0.00	0	0.00	0	0.00	0	0.00	0	0.21	0.00	-0.59
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.12	0.00	-0.33
Mouth	0	0.00	0	0.00	0	0.00	0	0.00	0	0.37	0.00	-1.02
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	0.00	-0.09
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	0.00	-0.18
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.02	0.00	-0.06
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.15
<b>Digestive system</b>	0	0.00	8	1.06	5	1.04	4	1.19	17	18.71	0.91	-4.75
Esophagus	0	0.00	2	10.74*	0	0.00	1	12.81	3	0.45	6.61*	7.08
Stomach	0	0.00	3	4.40	0	0.00	0	0.00	3	1.69	1.77	3.64
Small intestine	0	0.00	1	11.04	0	0.00	0	0.00	1	0.23	4.36	2.14
Colon	0	0.00	1	0.26	4	1.62	0	0.00	5	9.57	0.52	-12.70
Rectum, rectosigmoid junction	0	0.00	0	0.00	0	0.00	1	2.41	1	2.60	0.38	-4.45
Rectum	0	0.00	0	0.00	0	0.00	1	3.59	1	1.71	0.58	-1.98
Anus, anal canal	0	0.00	0	0.00	1	20.76	0	0.00	1	0.19	5.32	2.26
Liver	0	0.00	0	0.00	0	0.00	0	0.00	0	0.39	0.00	-1.08
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	0.00	-1.18
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	0.00	-1.16
Pancreas	0	0.00	0	0.00	0	0.00	1	2.13	1	2.54	0.39	-4.27
<b>Respiratory system</b>	1	0.85	5	1.61	7	3.71*	0	0.00	13	7.35	1.77	15.72
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.25
Larynx	1	30.06	0	0.00	0	0.00	0	0.00	1	0.19	5.35	2.26
Lung, bronchus	0	0.00	5	1.68	7	3.86*	0	0.00	12	7.05	1.70	13.77
<b>Female breast</b>	2	0.80	4	0.63	2	0.52	4	1.65	12	15.15	0.79	-8.76
<b>Female genital system</b>	1	0.86	3	1.03	3	1.81	0	0.00	7	6.74	1.04	0.73
Cervix uteri	0	0.00	1	2.91	1	5.66	0	0.00	2	0.77	2.59	3.42
Corpus uteri	0	0.00	0	0.00	1	1.29	0	0.00	1	3.18	0.31	-6.05
Ovary	0	0.00	1	1.19	0	0.00	0	0.00	1	1.99	0.50	-2.76
Vagina	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.43
Vulva	1	14.86	1	5.84	1	8.70	0	0.00	3	0.44	6.87*	7.13
<b>Urinary system</b>	0	0.00	4	2.92	1	1.15	2	3.35	7	3.37	2.08	10.10
Urinary bladder	0	0.00	3	3.49	0	0.00	2	5.23	5	2.13	2.35	7.99
Kidney parenchyma	0	0.00	1	2.57	0	0.00	0	0.00	1	0.95	1.06	0.15
Renal pelvis, other urinary	0	0.00	0	0.00	1	13.23	0	0.00	1	0.30	3.38	1.96
Ureter	0	0.00	0	0.00	1	43.02	0	0.00	1	0.09	10.91	2.53
<b>Bone, joints</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.15
<b>Soft tissue including heart</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	0.00	-0.71
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.11
<b>Melanoma of skin</b>	0	0.00	2	5.65	0	0.00	1	6.55	3	0.87	3.44	5.92
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.22
<b>Brain, central nervous system</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.54	0.00	-1.49
<b>Thyroid</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.34	0.00	-0.93
<b>Lymphatic, hematopoietic</b>	3	3.51	0	0.00	1	0.71	0	0.00	4	5.42	0.74	-3.94
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.12	0.00	-0.32
Non-Hodgkin lymphoma	1	2.70	0	0.00	1	1.61	0	0.00	2	2.37	0.84	-1.03
Myeloma	1	5.89	0	0.00	0	0.00	0	0.00	1	1.08	0.92	-0.23
Leukemia	1	3.41	0	0.00	0	0.00	0	0.00	1	1.84	0.54	-2.35
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.12
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.72	0.00	-2.01
Acute non-lymphocytic	1	10.06	0	0.00	0	0.00	0	0.00	1	0.63	1.59	1.03
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.70

\*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 8.3.1:** Characteristics of patients with an initial cancer of the vulva, females, SEER 1973-2000.

Characteristics	Males		Females		Total	
	No.	%	No.	%	No.	%
<b>Number of patients with 1st primary cancer</b>						
<b>Total</b>	—	—	5,571	100.0	5,571	100.0
<b>Initial treatment</b>						
Any radiation	—	—	895	16.1	895	16.1
With surgery	—	—	616	11.1	616	11.1
Without surgery	—	—	279	5.0	279	5.0
No radiation	—	—	4,676	83.9	4,676	83.9
With surgery	—	—	4,297	77.1	4,297	77.1
Without surgery	—	—	379	6.8	379	6.8
<b>Race</b>						
White	—	—	4,997	89.7	4,997	89.7
Black	—	—	358	6.4	358	6.4
Other	—	—	175	3.1	175	3.1
Unknown	—	—	41	0.7	41	0.7
<b>Age at 1st primary cancer diagnosis, years</b>						
< 30	—	—	110	2.0	110	2.0
30–49	—	—	876	15.7	876	15.7
50–69	—	—	1,703	30.6	1,703	30.6
70–79	—	—	1,504	27.0	1,504	27.0
≥ 80	—	—	1,378	24.7	1,378	24.7
<b>Number of patients with one or more primary cancers</b>						
One primary cancer only	—	—	5,050	90.6	5,050	90.6
1st and 2nd cancers	—	—	472	8.5	472	8.5
1st, 2nd, and 3rd cancers	—	—	48	0.9	48	0.9
1st, 2nd, 3rd, and additional cancers	—	—	1	0.0	1	0.0
<b>Other statistics</b>						
Median age at 1st cancer diagnosis	—	—	70.7	—	70.7	—
Median year of 1st cancer diagnosis	—	—	1989.0	—	1989.0	—
Median person-years at risk	—	—	4.5	—	4.5	—
Percent histologically confirmed*						
Both 1st and 2nd cancers	—	—	—	95.2	—	95.2
1st, 2nd, and additional cancers	—	—	—	94.6	—	94.6
1st cancer only	—	—	—	4.4	—	4.4

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

**Table 8.3.2:** Risk of subsequent primary cancers after cancer of the vulva, 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
<b>All subsequent cancers</b>	54	1.02	213	1.20*	155	1.14	149	1.24*	571	485.23	1.18*	23.62
All excluding same site	54	1.03	201	1.14	142	1.06	143	1.20*	540	481.98	1.12*	15.98
<b>Buccal cavity, pharynx</b>	2	2.17	5	1.62	8	3.44*	6	3.01*	21	8.32	2.52*	3.49
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	0.00	-0.18
Tongue	1	4.96	1	1.49	4	7.78*	1	2.27	7	1.83	3.83*	1.42
Salivary gland	0	0.00	0	0.00	0	0.00	1	4.17	1	0.97	1.03	0.01
Mouth	1	3.04	3	2.75	3	3.64	2	2.81	9	2.96	3.05*	1.66
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	0.00	-0.08
Tonsil	0	0.00	1	4.17	0	0.00	0	0.00	1	0.63	1.59	0.10
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.05
Hypopharynx	0	0.00	0	0.00	1	7.11	1	8.76	2	0.50	4.00	0.41
<b>Digestive system</b>	13	0.94	45	0.99	37	1.07	37	1.23	132	124.11	1.06	2.17
Esophagus	2	5.77	3	2.59	1	1.12	0	0.00	6	3.21	1.87	0.77
Stomach	1	0.87	2	0.55	3	1.12	1	0.45	7	9.73	0.72	-0.75
Small intestine	0	0.00	1	1.74	2	4.41	0	0.00	3	1.63	1.84	0.38
Colon	6	0.85	20	0.86	22	1.24	17	1.10	65	63.62	1.02	0.38
Rectum, rectosigmoid junction	0	0.00	7	1.01	3	0.58	4	0.94	14	18.44	0.76	-1.22
Rectum	0	0.00	5	1.10	0	0.00	3	1.05	8	12.18	0.66	-1.15
Anus, anal canal	2	12.44*	4	7.40*	1	2.39	5	13.40*	12	1.49	8.04*	2.89
Liver	1	3.70	0	0.00	0	0.00	0	0.00	1	2.51	0.40	-0.41
Gallbladder	0	0.00	1	0.93	1	1.28	1	1.60	3	2.81	1.07	0.05
Bile ducts, other biliary	0	0.00	2	1.97	0	0.00	2	2.68	4	2.86	1.40	0.31
Pancreas	1	0.56	5	0.85	4	0.88	7	1.73	17	16.25	1.05	0.21
<b>Respiratory system</b>	10	1.61	36	1.68*	21	1.23	27	1.68*	94	60.75	1.55*	9.15
Nose, nasal cavity, ear	0	0.00	1	4.08	0	0.00	0	0.00	1	0.67	1.48	0.09
Larynx	1	5.31	1	1.55	2	4.07	2	4.67	6	1.75	3.42*	1.17
Lung, bronchus	9	1.52	34	1.66*	19	1.16	25	1.61*	87	58.17	1.50*	7.94
<b>Female breast</b>	8	0.56	55	1.15	28	0.76	29	0.89	120	131.08	0.92	-3.05
<b>Female genital system</b>	13	2.03*	34	1.61*	29	1.86*	24	1.82*	100	56.36	1.77*	12.02
Cervix uteri	2	2.71	5	2.12	2	1.24	0	0.00	9	5.91	1.52	0.85
Corpus uteri	4	1.27	7	0.67	7	0.91	11	1.70	29	27.76	1.04	0.34
Ovary	7	3.72*	6	0.96	5	1.05	3	0.73	21	17.03	1.23	1.09
Vagina	0	0.00	4	10.90*	0	0.00	2	8.74	6	0.98	6.12*	1.38
Vulva	0	0.00	12	10.26*	13	14.45*	6	7.32*	31	3.25	9.54*	7.64
<b>Urinary system</b>	1	0.38	6	0.68	4	0.58	5	0.81	16	24.55	0.65	-2.35
Urinary bladder	1	0.61	3	0.55	1	0.24	1	0.27	6	15.04	0.40*	-2.49
Kidney parenchyma	0	0.00	1	0.38	1	0.48	3	1.55	5	7.45	0.67	-0.67
Renal pelvis, other urinary	0	0.00	2	2.63	2	3.47	1	2.00	5	2.07	2.42	0.81
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.65	0.00	-0.18
<b>Bone, joints</b>	0	0.00	1	6.08	0	0.00	0	0.00	1	0.44	2.29	0.15
<b>Soft tissue including heart</b>	0	0.00	0	0.00	1	1.84	0	0.00	1	1.96	0.51	-0.27
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	0.00	-0.07
<b>Melanoma of skin</b>	1	1.03	8	2.42*	6	2.32	1	0.42	16	9.24	1.73	1.86
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.69	0.00	-0.19
<b>Brain, central nervous system</b>	0	0.00	4	2.34	2	1.54	0	0.00	6	4.64	1.29	0.37
<b>Thyroid</b>	0	0.00	1	0.70	0	0.00	1	1.13	2	3.77	0.53	-0.49
<b>Lymphatic, hematopoietic</b>	3	0.70	14	0.98	12	1.09	14	1.41	43	39.50	1.09	0.96
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	1	4.14	1	1.08	0.92	-0.02
Non-Hodgkin lymphoma	3	1.53	8	1.20	6	1.15	8	1.66	25	18.67	1.34	1.74
Myeloma	0	0.00	4	1.65	2	1.07	3	1.79	9	6.70	1.34	0.63
Leukemia	0	0.00	2	0.42	4	1.10	2	0.62	8	13.05	0.61	-1.39
Acute lymphocytic	0	0.00	0	0.00	1	9.96	0	0.00	1	0.36	2.76	0.18
Chronic lymphocytic	0	0.00	0	0.00	3	2.13	1	0.81	4	5.05	0.79	-0.29
Acute non-lymphocytic	0	0.00	2	1.21	0	0.00	1	0.89	3	4.53	0.66	-0.42
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	1.81	0.00	-0.50

\*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.

## Vulva Females, <55 Years of Age

**Table 8.3.3:** Risk of subsequent primary cancers after cancer of the vulva, females, <55 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
	1,306	1,031	1,182	3,853	779	3,168	507	3,480	1,306	11,532		
<b>All subsequent cancers</b>	8	2.24	33	2.07*	36	2.01*	51	1.57*	128	69.87	1.83*	50.41
All excluding same site	8	2.25	32	2.01*	33	1.85*	49	1.52*	122	69.55	1.75*	45.48
<b>Buccal cavity, pharynx</b>	1	15.32	2	6.51	3	8.45*	6	10.35*	12	1.31	9.18*	9.27
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	0.00	-0.05
Tongue	1	68.93	0	0.00	1	12.09	1	7.52	3	0.30	10.00*	2.34
Salivary gland	0	0.00	0	0.00	0	0.00	1	15.42	1	0.15	6.52	0.73
Mouth	0	0.00	1	10.79	1	9.01	2	10.97*	4	0.41	9.87*	3.12
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	0.00	-0.05
Tonsil	0	0.00	1	26.82	0	0.00	0	0.00	1	0.15	6.65	0.74
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.03
Hypopharynx	0	0.00	0	0.00	1	36.74	1	21.94	2	0.10	20.09*	1.65
<b>Digestive system</b>	1	2.69	3	1.62	3	1.25	10	1.83	17	10.10	1.68	5.99
Esophagus	0	0.00	0	0.00	1	10.19	0	0.00	1	0.38	2.62	0.54
Stomach	0	0.00	0	0.00	0	0.00	0	0.00	0	0.71	0.00	-0.61
Small intestine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.22	0.00	-0.19
Colon	0	0.00	1	1.23	2	1.85	3	1.18	6	4.60	1.30	1.21
Rectum, rectosigmoid junction	0	0.00	1	2.67	0	0.00	2	2.17	3	1.84	1.63	1.01
Rectum	0	0.00	1	4.11	0	0.00	1	1.65	2	1.20	1.66	0.69
Anus, anal canal	1	89.45*	1	19.57	0	0.00	3	28.42*	5	0.23	22.02*	4.14
Liver	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	0.00	-0.23
Gallbladder	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.17
Bile ducts, other biliary	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	0.00	-0.17
Pancreas	0	0.00	0	0.00	0	0.00	2	2.71	2	1.28	1.56	0.62
<b>Respiratory system</b>	1	3.24	7	4.33*	6	2.72	10	2.00	24	9.13	2.63*	12.90
Nose, nasal cavity, ear	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	0.00	-0.08
Larynx	0	0.00	1	11.67	1	9.44	2	10.88*	4	0.39	10.18*	3.13
Lung, bronchus	1	3.50	6	3.99*	5	2.41	8	1.68	20	8.62	2.32*	9.87
<b>Female breast</b>	2	1.36	14	2.20*	6	0.89	11	1.02	33	25.33	1.30	6.65
<b>Female genital system</b>	3	4.81	3	1.11	6	2.12	8	1.81	20	10.59	1.89*	8.16
Cervix uteri	2	12.19*	0	0.00	0	0.00	0	0.00	2	1.84	1.09	0.14
Corpus uteri	0	0.00	0	0.00	1	0.76	1	0.44	2	4.98	0.40	-2.59
Ovary	1	5.48	1	1.26	0	0.00	2	1.51	4	3.14	1.27	0.75
Vagina	0	0.00	1	38.78	0	0.00	1	18.33	2	0.12	17.20*	1.63
Vulva	0	0.00	1	13.34	3	38.51*	2	13.71*	6	0.32	18.93*	4.93
<b>Urinary system</b>	0	0.00	1	2.08	1	1.61	2	1.44	4	2.59	1.55	1.22
Urinary bladder	0	0.00	0	0.00	1	3.29	0	0.00	1	1.30	0.77	-0.26
Kidney parenchyma	0	0.00	0	0.00	0	0.00	2	3.49	2	1.13	1.77	0.76
Renal pelvis, other urinary	0	0.00	1	36.77	0	0.00	0	0.00	1	0.16	6.25	0.73
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	0.00	-0.03
<b>Bone, joints</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	0.00	-0.07
<b>Soft tissue including heart</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.32	0.00	-0.28
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	0.00	-0.01
<b>Melanoma of skin</b>	0	0.00	1	1.48	4	6.46*	0	0.00	5	2.29	2.18	2.35
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	0.00	-0.09
<b>Brain, central nervous system</b>	0	0.00	2	9.40*	2	9.21*	0	0.00	4	0.83	4.83*	2.75
<b>Thyroid</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	1.38	0.00	-1.20
<b>Lymphatic, hematopoietic</b>	0	0.00	0	0.00	2	1.90	3	1.38	5	4.34	1.15	0.58
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	0.00	-0.23
Non-Hodgkin lymphoma	0	0.00	0	0.00	1	1.87	2	1.80	3	2.20	1.37	0.70
Myeloma	0	0.00	0	0.00	1	6.12	1	2.59	2	0.69	2.89	1.13
Leukemia	0	0.00	0	0.00	0	0.00	0	0.00	0	1.18	0.00	-1.03
Acute lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	0.00	-0.05
Chronic lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.38	0.00	-0.33
Acute non-lymphocytic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.46	0.00	-0.40
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	0.00	-0.17

\*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 8.3.4:** Risk of subsequent primary cancers after cancer of the vulva, females, ≥55 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
<b>All subsequent cancers</b>	46	0.93	180	1.12	119	1.01	98	1.12	443	415.37	1.07	11.15
All excluding same site	46	0.94	169	1.06	109	0.93	94	1.08	418	412.43	1.01	2.25
<b>Buccal cavity, pharynx</b>	1	1.17	3	1.08	5	2.54	0	0.00	9	7.02	1.28	0.80
Lip	0	0.00	0	0.00	0	0.00	0	0.00	0	0.61	0.00	-0.25
Tongue	0	0.00	1	1.66	3	6.95*	0	0.00	4	1.53	2.62	1.00
Salivary gland	0	0.00	0	0.00	0	0.00	0	0.00	0	0.82	0.00	-0.33
Mouth	1	3.23	2	2.00	2	2.81	0	0.00	5	2.55	1.96	0.99
Nasopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.24	0.00	-0.10
Tonsil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.48	0.00	-0.19
Oropharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	0.00	-0.06
Hypopharynx	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	0.00	-0.16
<b>Digestive system</b>	12	0.89	42	0.96	34	1.06	27	1.10	115	114.01	1.01	0.40
Esophagus	2	5.99	3	2.76	0	0.00	0	0.00	5	2.83	1.77	0.88
Stomach	1	0.90	2	0.57	3	1.19	1	0.54	7	9.03	0.78	-0.82
Small intestine	0	0.00	1	1.89	2	5.00	0	0.00	3	1.41	2.13	0.64
Colon	6	0.87	19	0.85	20	1.20	14	1.08	59	59.02	1.00	-0.01
Rectum, rectosigmoid junction	0	0.00	6	0.92	3	0.64	2	0.60	11	16.60	0.66	-2.26
Rectum	0	0.00	4	0.93	0	0.00	2	0.89	6	10.98	0.55	-2.01
Anus, anal canal	1	6.68	3	6.13*	1	2.79	2	7.48	7	1.27	5.53*	2.31
Liver	1	3.83	0	0.00	0	0.00	0	0.00	1	2.25	0.45	-0.50
Gallbladder	0	0.00	1	0.96	1	1.36	1	1.93	3	2.62	1.14	0.15
Bile ducts, other biliary	0	0.00	2	2.04	0	0.00	2	3.17	4	2.66	1.50	0.54
Pancreas	1	0.57	5	0.88	4	0.94	5	1.51	15	14.97	1.00	0.01
<b>Respiratory system</b>	9	1.53	29	1.46	15	1.01	17	1.53	70	51.63	1.36*	7.41
Nose, nasal cavity, ear	0	0.00	1	4.44	0	0.00	0	0.00	1	0.59	1.70	0.17
Larynx	1	5.85	0	0.00	1	2.59	0	0.00	2	1.36	1.47	0.26
Lung, bronchus	8	1.42	28	1.48	14	0.98	17	1.59	67	49.54	1.35*	7.04
<b>Female breast</b>	6	0.47	41	0.99	22	0.73	18	0.83	87	105.75	0.82	-7.57
<b>Female genital system</b>	10	1.73	31	1.68*	23	1.80*	16	1.83*	80	45.77	1.75*	13.81
Cervix uteri	0	0.00	5	2.87	2	1.81	0	0.00	7	4.07	1.72	1.18
Corpus uteri	4	1.37	7	0.75	6	0.94	10	2.38*	27	22.78	1.19	1.70
Ovary	6	3.54*	5	0.91	5	1.28	1	0.36	17	13.89	1.22	1.25
Vagina	0	0.00	3	8.79*	0	0.00	1	5.74	4	0.86	4.63*	1.26
Vulva	0	0.00	11	10.05*	10	12.17*	4	5.94*	25	2.93	8.53*	8.90
<b>Urinary system</b>	1	0.39	5	0.60	3	0.48	3	0.62	12	21.96	0.55*	-4.02
Urinary bladder	1	0.62	3	0.57	0	0.00*	1	0.33	5	13.74	0.36*	-3.52
Kidney parenchyma	0	0.00	1	0.41	1	0.56	1	0.73	3	6.32	0.47	-1.34
Renal pelvis, other urinary	0	0.00	1	1.36	2	3.71	1	2.44	4	1.91	2.09	0.84
Ureter	0	0.00	0	0.00	0	0.00	0	0.00	0	0.61	0.00	-0.24
<b>Bone, joints</b>	0	0.00	1	7.10	0	0.00	0	0.00	1	0.35	2.82	0.26
<b>Soft tissue including heart</b>	0	0.00	0	0.00	1	2.16	0	0.00	1	1.65	0.61	-0.26
<b>Kaposi sarcoma</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.24	0.00	-0.10
<b>Melanoma of skin</b>	1	1.25	7	2.66*	2	1.02	1	0.64	11	6.95	1.58	1.63
<b>Eye, orbit</b>	0	0.00	0	0.00	0	0.00	0	0.00	0	0.59	0.00	-0.24
<b>Brain, central nervous system</b>	0	0.00	2	1.34	0	0.00	0	0.00	2	3.82	0.52	-0.73
<b>Thyroid</b>	0	0.00	1	1.02	0	0.00	1	2.25	2	2.39	0.84	-0.16
<b>Lymphatic, hematopoietic</b>	3	0.74	14	1.05	10	1.00	11	1.41	38	35.16	1.08	1.14
Hodgkin lymphoma	0	0.00	0	0.00	0	0.00	1	6.32	1	0.82	1.22	0.07
Non-Hodgkin lymphoma	3	1.61	8	1.29	5	1.07	6	1.61	22	16.47	1.34	2.23
Myeloma	0	0.00	4	1.73	1	0.59	2	1.55	7	6.01	1.16	0.40
Leukemia	0	0.00	2	0.44	4	1.20	2	0.76	8	11.87	0.67	-1.56
Acute lymphocytic	0	0.00	0	0.00	1	11.85	0	0.00	1	0.30	3.32	0.28
Chronic lymphocytic	0	0.00	0	0.00	3	2.27	1	0.98	4	4.67	0.86	-0.27
Acute non-lymphocytic	0	0.00	2	1.30	0	0.00	1	1.10	3	4.07	0.74	-0.43
Chronic myeloid	0	0.00	0	0.00	0	0.00	0	0.00	0	1.61	0.00	-0.65

\*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.

