



National Cancer Institute

# **New Malignancies Among Cancer Survivors:**

**SEER Cancer Registries, 1973–2000**

U.S. DEPARTMENT  
OF HEALTH AND  
HUMAN SERVICES

National Institutes  
of Health

# New Malignancies Among Cancer Survivors: SEER Cancer Registries, 1973-2000

## Overview

A new monograph published jointly by researchers from NCI's Division of Cancer Epidemiology (DCEG) and Division of Cancer Control and Population Sciences (DCCPS) is the first publication to provide a comprehensive analysis of the risk of developing a new malignancy among U.S. cancer survivors. The report utilizes data from NCI's Surveillance, Epidemiology and End Results (SEER) Program cancer registries to evaluate the risk of subsequent malignancy among more than 2 million cancer survivors for the period 1973 to 2000, and includes data on more than 50 adult and 18 childhood cancer sites. The monograph provides a valuable resource for clinicians, health professionals, and policy makers to identify patients at elevated risk of developing a new malignancy and to illuminate opportunities for early detection and cancer prevention.

## Major findings:

- Overall, cancer survivors have a 14% higher risk of developing a subsequent cancer than would be expected in the general population.
- Tobacco smoking and excess alcohol intake appeared to account for more than 35% of the excess cancer risk.
- Children and young adults seemed especially prone to the carcinogenic effects of radiotherapy and chemotherapy.

**Table 7.1.2: Risk of Subsequent Primary Cancers after Cancer of the Breast, Females, SEER 1973-2000.**

Subsequent primary cancer	Years after first primary cancer diagnosis									
	<1 year		1-4 years		5-9 years		≥10 years		O	
Number starting interval	322,863		294,980		178,161		93,331			
Person-years in interval	256,649		925,212		658,170		536,956			
	O	O/E	O	O/E	O	O/E	O	O/E	O	O/E
<b>All subsequent cancers</b>	3,054	1.13*	12,656	1.22*	9,859	1.19*	8,931	1.15*	34,500	29,141
All excluding same site	1,788	0.94*	7,396	1.00	6,071	1.03*	5,817	1.04*	21,072	20,761
<b>Buccal cavity, pharynx</b>	49	1.00	189	1.02	171	1.18*	142	1.09	551	510
Lip	2	0.64	10	0.81	7	0.69	14	1.42	33	35
Tongue	14	1.30	43	1.05	35	1.09	29	1.00	121	113
Salivary gland	12	2.22*	36	1.74*	21	1.30	22	1.45	91	57
Mouth	13	0.78	56	0.88	62	1.24	45	0.99	176	176
Nasopharynx	2	0.96	12	1.55	7	1.21	3	0.59	24	20
Tonsil	3	0.67	12	0.73	19	1.56	13	1.29	47	43
Oropharynx	1	0.83	4	0.86	6	1.68	1	0.32	12	12
Hypopharynx	2	0.60	8	0.63	8	0.84	9	1.09	27	33
<b>Digestive system</b>	533	0.88*	2,395	1.02	1,884	0.99	1,864	1.03	6,676	6,676
Esophagus	18	1.08	68	1.05	71	1.36*	86	1.71*	243	183
Stomach	43	0.90	221	1.21*	151	1.05	158	1.20*	573	507
Small intestine	2	0.23*	33	0.98	33	1.18	38	1.36	106	98.0
Colon	284	0.94	1,265	1.07*	1,016	1.06	918	1.01	3,483	3,351.8
Rectum, rectosigmoid junction	77	0.79*	380	1.02	275	0.94	279	1.05	1,011	1,028
Rectum	55	0.86	233	0.95	180	0.94	175	0.99	643	676
Anus, anal canal	8	0.97	29	0.91	26	1.01	23	0.95	86	90.1
Liver	9	0.70	30	0.60*	23	0.55*	36	0.85	98	147.4
Gallbladder	9	0.64	34	0.64*	20	0.48*	40	1.08	103	145.8
Bile ducts, other biliary	16	1.24	50	0.98	30	0.69*	43	0.97	139	151.8
Pancreas	63	0.80	257	0.84*	221	0.88*	219	0.90	760	880.96
<b>Respiratory system</b>	281	0.82*	1,228	0.91*	1,043	0.93*	1,168	1.04	3,720	3,949.9
Nose, nasal cavity, ear	3	0.82	14	1.00	10	0.89	10	0.94	37	39.5
Larynx	12	1.03	41	0.93	23	0.67	31	1.00	107	121.0
Lung, bronchus	263	0.81*	1,171	0.91*	1,007	0.93*	1,122	1.04	3,563	3,779.4
<b>Female breast</b>	1,266	1.60*	5,260	1.74*	3,788	1.59*	3,114	1.42*	13,428	8,380.7
Female genital system	406	1.00	1,677	1.25	1,322	1.31*	1,014	1.14*	4,414	3,660

## Citation

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Monograph is available to view or print at the SEER Web site:

<http://seer.cancer.gov/publications/mpmono>.

A print copy may also be ordered at **1-800-4-CANCER**.