



**Cancer Epidemiology Services
Public Health Services Branch
New Jersey Department of Health and Senior Services**

**Probability of Developing Cancer for Selected Age Groups by Sex,
2004-2006 (New Jersey and U.S.)**

Technical Notes

The following table presents the probability (risk estimates) of developing invasive cancers from birth to death (all ages) and for the age intervals 0-39, 40-59 and 60-79 for New Jersey and the U.S. These estimates are based on cancers diagnosed from 2004-2006 and are presented for men and women separately for all sites combined and for fourteen common cancer subtypes. The data represent all races combined with the exception of melanoma of the skin which is presented for whites only. In addition, *in situ* cancers are not included except for bladder cancer *in situ* cases, which are included with invasive urinary bladder and all sites.

The probability of developing invasive cancers for selected age intervals were calculated using DevCan Software.¹ DevCan, developed by the National Cancer Institute (NCI), calculates the probability of developing or dying of cancer using both incidence and mortality data.^{2 3}

The New Jersey incidence and mortality data for 2004-2006 were imported into DevCan to create a New Jersey database for calculating the probability of developing cancer. New Jersey cancer incidence data for first primary cancers were acquired from the December 2009 analytic file of the New Jersey State Cancer Registry. New Jersey cancer mortality data were obtained from the NCI's, Surveillance, Epidemiology, and End Results (SEER) Program website. With the exception of the two additional criteria used for this analysis (year of diagnosis 2004-2006 and first primary cancers only), the data specifications for New Jersey incidence and mortality data used for this analysis were the same as the specifications in our recent report *Cancer Incidence and Mortality in New Jersey, 2002-2006*.⁴ The U.S. DevCan database was downloaded from the SEER Program.⁵ (<http://seer.cancer.gov>)

How to Read the Table

The probability of developing invasive cancer from birth to death, also known as lifetime risk, among New Jersey residents is about 50% for men and 44% for women, both of which round off to 1 in 2. The probability of developing invasive colorectal cancer between the ages 40-59, among New Jersey residents is 0.96% for men and 0.76% for women, which round off to 1 in 104 men and 1 in 131 women.

These estimates reflect the average experience of people in New Jersey and do not take into account individual behaviors and risk factors. For example, the estimate of 1 man in 12 developing lung cancer in a lifetime underestimates the risk of smokers and overestimates the risk for nonsmokers.^{2 3}

For additional information contact New Jersey Department of Health and Senior Services', Cancer Epidemiology Services. The program can be reached at 609-588-3500 or by email (Cancer@doh.state.nj.us).

Probability of Developing Invasive Cancers for Selected Age Intervals by Sex, 2004-2006 (New Jersey and U.S.) *

	Sex	New Jersey								U.S.							
		Birth to Death		0-39		40-59		60-79		Birth to Death		0-39		40-59		60-79	
		%	1 in	%	1 in	%	1 in	%	1 in	%	1 in	%	1 in	%	1 in	%	1 in
All Sites **	Male	49.72	2	1.62	62	9.37	11	36.85	3	44.05	2	1.43	70	8.42	12	32.83	3
	Female	43.61	2	2.43	41	10.18	10	25.23	4	37.63	3	2.10	48	8.97	11	21.84	5
Oral Cavity and Pharynx	Male	1.35	74	0.04	2519	0.43	232	0.80	124	1.40	71	0.04	2500	0.44	227	0.85	118
	Female	0.68	148	0.03	3108	0.14	708	0.38	266	0.66	152	0.03	3333	0.14	714	0.35	286
Colon and Rectum	Male	6.24	16	0.08	1184	0.96	104	3.98	25	5.39	19	0.08	1250	0.91	110	3.51	28
	Female	5.78	17	0.09	1096	0.76	131	2.96	34	5.03	20	0.08	1250	0.72	139	2.69	37
Lung and Bronchus	Male	8.10	12	0.03	2964	1.00	100	5.85	17	7.73	13	0.03	3333	0.95	105	5.74	17
	Female	6.84	15	0.04	2730	0.92	109	4.51	22	6.31	16	0.03	3333	0.79	127	4.26	23
Melanoma of the Skin (White)	Male	2.71	37	0.16	616	0.60	166	1.58	63	2.67	37	0.16	625	0.64	156	1.57	64
	Female	1.96	51	0.28	353	0.57	176	0.85	118	1.79	56	0.28	357	0.55	182	0.75	133
Breast	Female	12.40	8	0.55	181	3.91	26	6.66	15	12.08	8	0.49	204	3.76	27	6.65	15
Cervix Uteri	Female	0.79	127	0.15	664	0.33	303	0.26	377	0.69	145	0.15	667	0.27	370	0.23	435
Corpus and Uterus, NOS	Female	3.21	31	0.06	1545	0.88	113	1.97	51	2.53	40	0.07	1429	0.73	137	1.49	67
Ovary	Female	1.55	65	0.09	1123	0.41	241	0.78	129	1.40	71	0.07	1429	0.36	278	0.74	135
Prostate	Male	17.67	6	0.02	6637	2.82	36	14.46	7	15.90	6	0.01	10000	2.44	41	13.06	8
Urinary Bladder ***	Male	4.96	20	0.03	3741	0.52	194	3.32	30	3.81	26	0.02	5000	0.39	256	2.52	40
	Female	1.61	62	0.01	8293	0.17	580	0.92	108	1.19	84	0.01	10000	0.12	833	0.68	147
Brain and Other Nervous System	Male	0.79	127	0.13	752	0.17	584	0.43	235	0.67	149	0.12	833	0.16	625	0.35	286
	Female	0.61	163	0.11	907	0.12	803	0.27	368	0.54	185	0.10	1000	0.11	909	0.25	400
Thyroid	Male	0.57	176	0.10	1003	0.21	484	0.26	384	0.44	227	0.07	1429	0.16	625	0.22	455
	Female	1.68	60	0.46	218	0.66	152	0.53	188	1.25	80	0.33	303	0.50	200	0.40	250
Non-Hodgkin Lymphoma	Male	2.51	40	0.17	605	0.50	202	1.44	69	2.28	44	0.13	769	0.44	227	1.36	74
	Female	2.06	48	0.11	929	0.34	294	1.13	89	1.92	52	0.09	1111	0.32	313	1.06	94
Leukemia	Male	1.69	59	0.19	539	0.26	381	0.92	108	1.51	66	0.17	588	0.21	476	0.84	119
	Female	1.22	82	0.12	821	0.16	628	0.59	168	1.08	93	0.13	769	0.14	714	0.51	196

* For those free of cancer at beginning of age interval. Based on New Jersey and U.S. invasive cancer cases diagnosed during 2004-2006

** All Sites exclude basal and squamous cell skin cancers and *in situ* cancers except urinary bladder.

*** Includes invasive and *in situ* cancer cases.

References

1. DevCan: Probability of Developing or Dying of Cancer Software, Version 6.4.1. Statistical Research and Applications Branch, National Cancer Institute, 2009. [URL. <http://srab.cancer.gov/devcan>, accessed March 5, 2010]
 2. Fay, M.P., Pfeiffer, R., Cronin, K.A., Le, C. and Feuer, E.J. (2003) "Age-conditional probabilities of developing cancer" *Statistics in Medicine*, 22(11): 1837-1848.
 3. Fay, M.P. (2003) "Estimating Age-conditional probability of developing cancer using a Piecewise Mid-Age Group Joinpoint Model for the Rates". Statistical Research and Applications Branch, National Cancer Institute, Technical Report #2003-03-A.
 4. Niu, X., Burger, S., et al Cancer Incidence and Mortality in New Jersey 2002 - 2006. New Jersey Department of Health and Senior Services, February 2009. [URL. <http://www.state.nj.us/health/ces/documents/report02-06.pdf>, accessed March 9, 2010]
 5. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) DevCan database: "SEER 17 Incidence and Mortality, 2000-2006, with Kaposi Sarcoma and Mesothelioma". National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2009, based on the November 2008 submission. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
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