

# Predefined SEER\*Stat Variables for Calculating the Number of Associated Cancers for Selected Risk Factors

Updated June 3, 2019

Although cancer represents many heterogeneous diseases, some cancer types share common risk factors.<sup>1</sup> For example, conclusive evidence links cancer at multiple sites with tobacco use, alcohol use, human papillomavirus (HPV) infection, excess body weight, and physical inactivity.<sup>2-6</sup> Because risk factor information is not routinely collected by cancer registries, estimates for risk factor-associated cancers often are based only on cancer type. Using these standard definitions for risk factor-associated cancers can help facilitate comparisons of cancer burden across states and communities. Keeping in mind that individual cancer cases may occur among persons who were or were not exposed to a risk factor, population-based risk factor-associated cancer rates can help identify communities with disproportionately high cancer rates, which reflect, in part, the population's exposure to cancer risk factors. These exposures can be reduced through clinical preventive services and community-based approaches, the impact of which can be monitored with cancer surveillance data.

The following tables show which International Classification of Disease for Oncology (ICD-O)-3 site codes, histology codes, and additional restrictions were used to define and code the predefined SEER\*Stat variables. Further restrictions may be made depending on the analysis. Refer to the [SEER\\*Stat tutorial on merged variables](#) for information on editing a merged variable.

## Alcohol-Associated Cancers<sup>2,7</sup>

Cancer	ICD-O-3 site codes	ICD-O-3 histology codes	Additional restrictions
Lip, oral cavity, pharynx	C00.0–14.8	8000–9049, 9056–9139, 9141–9589	
Esophagus	C15.0–15.9	8000–9049, 9056–9139, 9141–9589	
Colon and rectum	C18.0–20.9, C26.0	8000–9049, 9056–9139, 9141–9589	
Liver	C22.0	8000–9049, 9056–9139, 9141–9589	
Larynx	C32.0–32.9	8000–9049, 9056–9139, 9141–9589	
Female breast	C50.0–50.9	8000–9049, 9056–9139, 9141–9589	Restrict to females

## Human Papillomavirus-Associated Cancers<sup>3, 8-11</sup>

Cancer	ICD-O-3 site codes	ICD-O-3 histology codes	Additional restrictions
Oropharyngeal squamous cell carcinoma	C01.9, 02.4, 02.8, 05.1–05.2, 09.0–09.1, 09.8–09.9, 10.0–10.4, 10.8–10.9, 14.0, 14.2, 14.8	8050–8084, 8120–8131	Restrict to microscopically confirmed
Anal and rectal squamous cell carcinoma	C21.0–21.8, 20.9	8050–8084, 8120–8131	Restrict to microscopically confirmed
Vulvar squamous cell carcinoma	C51.0–51.9	8050–8084, 8120–8131	Restrict to females and restrict to microscopically confirmed
Vaginal squamous cell carcinoma	C52.9	8050–8084, 8120–8131	Restrict to females and restrict to microscopically confirmed
Cervical carcinoma	C53.0–53.9	8010–8671, 8940–8941	Restrict to females and restrict to microscopically confirmed
Penile squamous cell carcinoma	C60.0–60.9	8050–8084, 8120–8131	Restrict to males and restrict to microscopically confirmed

## Obesity-Associated Cancers<sup>4,5,12</sup>

Cancer	ICD-O-3 site codes	ICD-O-3 histology codes	Additional restrictions
Esophageal adenocarcinoma	C15.0–15.9	8140–8575	Restrict to microscopically confirmed
Gastric cardia	C16.0	8000–9049, 9056–9139, 9141–9589	
Colon and rectum	C18.0–20.9, C26.0	8000–9049, 9056–9139, 9141–9589	
Liver	C22.0	8000–9049, 9056–9139, 9141–9589	
Gallbladder	C23.9	8000–9049, 9056–9139, 9141–9589	
Pancreas	C25.0–25.9	8000–9049, 9056–9139, 9141–9589	
Multiple myeloma	C42.1	9732	
Postmenopausal female breast	C50.0–50.9	8000–9049, 9056–9139, 9141–9589	Restrict to females and restrict to age ≥50 years
Corpus and uterus, NOS (not otherwise specified)	C54.0–54.9, C55.9	8000–9049, 9056–9139, 9141–9589	Restrict to females
Ovary	C56.9	8000–9049, 9056–9139, 9141–9589	Restrict to females
Kidney	C64.9	8000–9049, 9056–9139, 9141–9589	
Meningioma	C70.0–70.1, 70.9	9530–9539	
Thyroid	C73.9	8000–9049, 9056–9139, 9141–9589	

## Physical Inactivity-Associated Cancers<sup>5,12</sup>

Cancer	ICD-O-3 site codes	ICD-O-3 histology codes	Additional restrictions
Colon	C18.0–18.9, C26.0	8000–9049, 9056–9139, 9141–9589	
Postmenopausal female breast	C50.0–50.9	8000–9049, 9056–9139, 9141–9589	Restrict to females and restrict to age ≥50 years
Corpus and uterus, NOS (not otherwise specified)	C54.0–54.9, C55.9	8000–9049, 9056–9139, 9141–9589	Restrict to females

## Tobacco-Associated Cancers<sup>6</sup>

Cancer	ICD-O-3 site codes	ICD-O-3 histology codes	Additional restrictions
Lip, oral cavity, pharynx	C00.0–14.8	8000–9049, 9056–9139, 9141–9589	
Esophagus	C15.0–15.9	8000–9049, 9056–9139, 9141–9589	
Stomach	C16.0–16.9	8000–9049, 9056–9139, 9141–9589	
Colon and rectum	C18.0–20.9, C26.0	8000–9049, 9056–9139, 9141–9589	
Liver	C22.0	8000–9049, 9056–9139, 9141–9589	
Pancreas	C25.0–25.9	8000–9049, 9056–9139, 9141–9589	
Larynx	C32.0–32.9	8000–9049, 9056–9139, 9141–9589	
Trachea, lung, bronchus	C33.9–34.9	8000–9049, 9056–9139, 9141–9589	
Cervix uteri	C53.0–53.9	8000–9049, 9056–9139, 9141–9589	Restrict to females
Kidney and renal pelvis	C64.9–65.9	8000–9049, 9056–9139, 9141–9589	
Urinary bladder	C67.0–67.9	8000–9049, 9056–9139, 9141–9589	
Acute myeloid leukemia		9840; 9861; 9865–9869; 9871–9874; 9895–9898; 9910–9911; 9920	

## References

1. Henley SJ, Singh SD, King J, Wilson RJ, O'Neil ME, Ryerson AB. Invasive Cancer Incidence and Survival — United States, 2013. *MMWR Morb Mortal Wkly Rep* 2017;66:69–75. DOI: <https://dx.doi.org/10.15585/mmwr.mm6603a1>
2. International Agency for Research on Cancer. IARC monographs on the evaluation of carcinogenic risks to humans: Volume 100E: Personal Habits and Indoor Combustions: Consumption of Alcoholic Beverages. Lyon, France: International Agency for Research on Cancer; 2012. Available at <https://monographs.iarc.fr/iarc-monographs-volume-100e-consumption-of-alcoholic-beverages/>.
3. International Agency for Research on Cancer. IARC monographs on the evaluation of carcinogenic risks to humans. Volume 90: Human Papillomaviruses. Lyon, France: International Agency for Research on Cancer; 2007. Available at <https://monographs.iarc.fr/iarc-monographs-on-the-evaluation-of-carcinogenic-risks-to-humans-31/>
4. Lauby-Secretan B, Scoccianti C, Loomis D, Grosse Y, Bianchini F, Straif K. Body fatness and cancer—viewpoint of the IARC Working Group. *N Engl J Med* 2016;375:794-798. <https://www.nejm.org/doi/10.1056/NEJMSr1606602>
5. World Cancer Research Fund / American Institute for Cancer Research. Diet, Nutrition, Physical Activity and Cancer: A Global Perspective. Continuous Update Project Expert Report 2018. <https://www.wcrf.org/dietandcancer/>
6. U.S. Department of Health and Human Services. The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. Available at [https://www.cdc.gov/tobacco/data\\_statistics/sgr/50th-anniversary/](https://www.cdc.gov/tobacco/data_statistics/sgr/50th-anniversary/)
7. International Agency for Research on Cancer. IARC monographs on the evaluation of carcinogenic risks to humans: Volume 96: Alcohol Consumption and Ethyl Carbamate. Lyon, France: International Agency for Research on Cancer; 2010. Available at <https://monographs.iarc.fr/iarc-monographs-on-the-evaluation-of-carcinogenic-risks-to-humans-25/>.
8. Watson M, Saraiya M, Ahmed F, Cardinez CJ, Reichman ME, Weir HK, Richards TB. Using population-based cancer registry data to assess the burden of human papillomavirus-associated cancers in the United States: overview of methods. *Cancer* 2008;113(10 Suppl):2841–2854. Available at [www.ncbi.nlm.nih.gov/pubmed/18980203](http://www.ncbi.nlm.nih.gov/pubmed/18980203).
9. Saraiya M, Unger ER, Thompson TD, Lynch CF, Hernandez BY, Lyu CW, Steinau M, Watson M, Wilkinson EJ, Hopenhayn C, Copeland G, Cozen W, Peters ES, Huang Y, Saber MS, Altekrose S, Goodman MT; HPV Typing of Cancers Workgroup. US assessment of HPV types in cancers: implications for current and 9-valent HPV vaccines. *Journal of the National Cancer Institute* 2015;107(6):djv086. Available at [www.ncbi.nlm.nih.gov/pubmed/25925419](http://www.ncbi.nlm.nih.gov/pubmed/25925419).
10. Viens LJ, Henley SJ, Watson M, Markowitz LE, Thomas CC, Thompson TD, Razzaghi H, Saraiya M, Centers for Disease Control and Prevention (CDC). Human papillomavirus–associated cancers—United States, 2008–2012. *MMWR* 2016;65(26):661–666. Available at [www.cdc.gov/mmwr/volumes/65/wr/mm6526a1.htm](http://www.cdc.gov/mmwr/volumes/65/wr/mm6526a1.htm). Centers for Disease Control and Prevention.
11. Centers for Disease Control and Prevention. How Many Cancers Are Linked with HPV Each Year? Atlanta, GA: U.S. Department of Health and Human Services. Available at [www.cdc.gov/cancer/hpv/statistics/cases.htm](http://www.cdc.gov/cancer/hpv/statistics/cases.htm).
12. Ehemann C, Henley SJ, Ballard-Barbash R, Jacobs EJ, Schymura MJ, Noone AM, Pan L, Anderson RN, Fulton JE, Kohler BA, Jemal A, Ward E, Plescia M, Ries LA, Edwards BK. Annual report to the nation on the status of cancer, 1975–2008, featuring cancers associated with excess weight and lack of sufficient physical activity. *Cancer* 2012;118:2338–2366. Available at [www.ncbi.nlm.nih.gov/pmc/articles/PMC4586174/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4586174/).