**eTable 1.** Classification of causes of death due to cancer were according to the International Classification of Diseases, Tenth Revision

|  |  |
| --- | --- |
| Cause | ICD 10 |
| Neoplasms | C00.0-C13.9, C15.0-C25.9, C30.0-C34.9,C37-C38.8, C40.0-C41.9, C43.0-C45.9,C47.0-C54.9, C56-C57.8, C58, C60.0-C63.8, C64-C68.8, C69.0-C75.8, C80-C85.9, C88.0-C88.9, C90.0-C96.9,D00.0-D01.3, D02.0-D02.3, D03.0-D07.2, D07.4-D07.5, D09.0, D09.2-D09.7, D10.0-D10.7, D11.0-D13.7, D14.0-D14.3, D15.0-D16.9, D22.0-D24, D26.0, D27, D28.0-D28.1, D28.7, D29.0-D29.7, D30.0-D30.7, D31.0-D36.7, D37.0-D37.5, D38.0-D38.5, D39.1-D39.2, D40.0-D40.7, D41.0-D41.7, D42.0-D44.7, D45, D46.9, 47.0-D48.9, D76.0, K31.7,K62.0-K62.1, K63.5, N60.0-N60.9,N84.0-N84.1, N87.0-N87.9 |
| Lip and oral cavity cancer | C00.0-C08.9, D00.0, D10.0-D10.5, D11.0-D11.9, D37.0 |
| Nasopharynx cancer | C11.0-C11.9, D00.0, D10.6, D37.0 |
| Other pharynx cancer | C09.0-C10.9, C12-C13.9, D10.7 |
| Esophageal cancer | C15.0-C15.9, D00.1, D13.0 |
| Stomach cancer | C16.0-C16.9, D00.2, D13.1, D37.1 |
| Colon and rectum cancer | C18.0-C21.8, D01.0-D01.3, D12.0-D12.9, D37.3-D37.5 |
| Liver cancer | C22.0-C22.9, D13.4 |
| Gallbladder and biliary tract cancer | C23-C24.9, D13.5 |
| Pancreatic cancer | C25.0-C25.9, D13.6-D13.7 |
| Larynx cancer | C32.0-C32.9, D02.0, D14.1, D38.0 |
| Tracheal, bronchus, and lung cancer | C33-C34.9, D02.1-D02.3, D14.2-D14.3, D38.1 |
| Malignant skin melanoma | C43.0-C43.9, D03.0-D03.9, D22.0-D23.9 , D48.5 |
| Non-melanoma skin cancer | C44.0-C44.9, D04.0-D04.9, D48.0-D48.1, D48.5 |
| Breast cancer | C50.0-C50.9, D05.0-D05.9, D24, D48.6, N60.0-N60.9 |
| Cervical cancer | C53.0-C53.9, D06.0-D06.9, D26.0 |
| Uterine cancer | C54.0-C54.9, D07.0-D07.2, N87.0-N87.9 |
| Ovarian cancer | C56, D27, D39.1 |
| Prostate cancer | C61, D07.5, D29.1, D40.0 |
| Testicular cancer | C62.0-C62.9, D29.2-D29.7, D40.1-D40.7 |
| Kidney cancer | C64-C65, D30.0-D30.1, D41.0-D41.1 |
| Bladder cancer | C67.0-C67.9, D09.0, D30.3, D41.4-D41.7, D48.7 |
| Brain and nervous system cancer | C70.0-C72.9 |
| Thyroid cancer | C73, D09.3, D09.7, D34, D44.0　 |
| Mesothelioma | C45.0-C45.9 |
| Hodgkin lymphoma | C81.0-C81.9 |
| Non-Hodgkin lymphoma | C82.0-C85.9, C96.0-C96.9, D76.0 |
| Multiple myeloma | C83.8, C88.0-C88.9, C90.0-C90.2 |
| Leukemia | C91.0-C95.9, D46.9 |
| Acute lymphoid leukemia | C91.0 |
| Chronic lymphoid leukemia | C91.1 |
| Acute myeloid leukemia | C92.0, C92.3-C92.7, C93.0, C94.0, C94.2, C94.4-C94.5　 |
| Chronic myeloid leukemia | C92.1 |
| Other neoplasms | C15.9, C16.9, C17.0-C17.9, C18.9, C20, C30.0-C31.9, C37-C38.8, C40.0-C41.9, C47.0-C50.0, C51.0-C52, C57.0-C57.8, C58, C60.0-C60.9, C63.0-C63.8, C66, C68.0-C68.8, C69.0-C70.0, C74.0-C75.8, C80, D07.4, D09.2, D13.2-D13.3, D14.0, D15.0-D16.9, D28.0-D28.1, D28.7, D29.0, D30.2, D30.4-D30.7, D31.0-D33.9, D35.0-D36.7, D37.2, D38.2-D38.5, D39.2, D41.2-D41.3, D42.0-D43.9, D44.1-D44.8, D45, D47.0-D48.4, D48.7-D48.9, K31.7, K62.0-K62.1, K63.5, N84.0-N84.1 |

**eTable 2.** Concentration Index in site-specific premature cancer mortality, 1999–2018

|  |  |  |  |
| --- | --- | --- | --- |
| Cancer subtype | Income (standard error) | Educational attainment (standard error) | Unemployment (standard error) |
| Low | Middle | High | Low | Middle | High | Low | Middle | High |
| Total | -0.031 (0.004) | -0.020 (0.003) | -0.054 (0.004) | -0.026 (0.003) | -0.015 (0.002) | -0.062 (0.003) | 0.035 (0.005) | 0.017 (0.004) | 0.015 (0.004) |
| Colorectal | -0.041 (0.006) | -0.025 (0.006) | -0.053 (0.006) | -0.020 (0.005) | -0.030 (0.004) | -0.074 (0.005) | 0.039 (0.007) | 0.011 (0.006) | 0.020 (0.007) |
| Liver | -0.031 (0.013) | -0.024 (0.008) | -0.046 (0.009) | -0.046 (0.008) | -0.016 (0.006) | -0.049 (0.006) | 0.057 (0.009) | 0.011 (0.009) | 0.030 (0.011) |
| Pancreatic | -0.030 (0.008) | -0.015 (0.007) | -0.042 (0.006) | -0.021 (0.006) | -0.014 (0.005) | -0.049 (0.005) | 0.037 (0.008) | 0.016 (0.007) | 0.016 (0.008) |
| Lung | -0.044 (0.006) | -0.036 (0.005) | -0.085 (0.006) | -0.050 (0.004) | -0.028 (0.003) | -0.096 (0.005) | 0.066 (0.007) | 0.023 (0.006) | 0.023 (0.007) |
| Breast | -0.042 (0.007) | -0.016 (0.006) | -0.018 (0.005) | -0.014 (0.005) | -0.003 (0.004) | -0.027 (0.004) | 0.023 (0.006) | 0.014 (0.005) | 0.016 (0.007) |

Note: We combined CDC WONDER mortality data and data on county-level income, educational attainment, and unemployment from the Small Area Income and Poverty Estimates, the American Community Survey, and County Health Rankings & Roadmaps. The low, middle and high levels of income, education and unemployment variables were categorized by the tertile of each variable.