Supplemental Online Content

Qiao EM, Guram K, Kotha NV, et al. Association between primary care use prior to cancer diagnosis and subsequent cancer mortality in the Veterans Affairs health system. *JAMA Netw Open*. 2022:5(11):e2242048.
doi:10.1001/jamanetworkopen.2022.42048

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This supplemental material has been provided by the authors to give readers additional information about their work.
For primary care utilization, Current Procedural Terminology (CPT) codes ‘99201’, ‘99202’, ‘99203’, ‘99204’, ‘99205’, ‘99211’, ‘99212’, ‘99213’, ‘99214’, ‘99215’, ‘99381’, ‘99382’, ‘99383’, ‘99384’, ‘99385’, ‘99386’, ‘99387’, ‘99391’, ‘99392’, ‘99393’, ‘99394’, ‘99395’, ‘99396’, ‘99397’, ‘99401’, ‘99402’, ‘99403’, ‘99404’, ‘99408’, and ‘99409’ were used.
eFigure. Study Cohort

Veterans ≥ 40 years with cancer diagnosed between 2004-2017 (n = 564,665)

The following patients were excluded:
- VA not primary care (n = 184,342)
- Incomplete clinical staging (n = 119,830)
- Incomplete cause of death/survival follow-up (n = 13,078)

Final study cohort (n = 249,435)
**Supplementary Table 1. Full Model Outputs of Logistic Regression and Fine-Gray Competing Risk Regression for Entire Cohort**

| Characteristic           | Endpoint OR/SHR [95%CI] | Metastatic disease at diagnosis (OR) | Cancer-specific mortality (SHR) |
|--------------------------|-------------------------|-------------------------------------|-------------------------------|
|                          |                         | **OR**                              | **SHR**                       |
| **PCP visits**           |                         |                                     |                               |
| None (0 visits)          | 1.00                    | 1.00                                | 1.00                          |
| Some (1-4 visits)        | 0.74 [0.71-0.76]        | 0.88 [0.86-0.89]                    |                               |
| Annual (5 visits)        | 0.61 [0.59-0.63]        | 0.79 [0.77-0.81]                    |                               |
| **Age at Diagnosis**     | 1.01 [1.01-1.01]        | 1.02 [1.01-1.02]                    |                               |
| **Race**                 |                         |                                     |                               |
| White                    | 1.00                    | 1.00                                | 1.00                          |
| Black                    | 1.07 [1.04-1.10]        | 1.05 [1.03-1.07]                    |                               |
| Other                    | 1.02 [0.95-1.09]        | 1.01 [0.97-1.06]                    |                               |
| **Ethnicity**            |                         |                                     |                               |
| Hispanic                 | 0.95 [0.86-1.04]        | 0.97 [0.92-1.04]                    |                               |
| Non-Hispanic/Other       | 1.00                    | 1.00                                |                               |
| **Gender**               |                         |                                     |                               |
| Male                     | 1.00                    | 1.00                                | 1.00                          |
| Female                   | 0.87 [0.80-0.95]        | 0.79 [0.74-0.83]                    |                               |
| **Cancer Subtype**       |                         |                                     |                               |
| Prostate                 | 1.00                    | 1.00                                | 1.00                          |
| Bladder                  | 1.49 [1.37-1.61]        | 4.86 [4.65-5.10]                    |                               |
| Breast                   | 1.29 [1.09-1.53]        | 2.92 [2.62-3.26]                    |                               |
| Colorectal               | 4.44 [4.26-4.64]        | 4.25 [4.09-4.40]                    |                               |
| Esophageal               | 12.26 [11.55-13.01]     | 19.31 [18.59-20.05]                 |                               |
| Gastric                  | 11.50 [10.67-12.39]     | 11.12 [10.53-11.74]                 |                               |
| Head and Neck            | 0.96 [0.89-1.04]        | 4.70 [4.52-4.88]                    |                               |
| Kidney                   | 3.39 [3.20-3.59]        | 3.56 [3.39-3.74]                    |                               |
| Liver                    | 3.20 [3.00-3.39]        | 14.60 [14.11-15.11]                 |                               |
| Lung                     | 12.64 [12.21-13.09]     | 18.28 [17.78-18.80]                 |                               |
| Melanoma                 | 1.34 [1.23-1.46]        | 2.63 [2.48-2.80]                    |                               |
| Pancreas                 | 23.89 [22.56-25.30]     | 33.75 [32.56-34.98]                 |                               |
| **Year of Diagnosis**    |                         |                                     |                               |
| 2004-2008                | 1.00                    | 1.00                                | 1.00                          |
|                        | 2009-2012 | 2013-2017 |
|------------------------|-----------|-----------|
|                        | 0.98 [0.97-0.96] | 0.77 [0.66-1.24] |
|                        | 0.84 [0.82-0.87] | 0.46 [0.35-0.65] |
| Charlson Score         |           |           |
| 0                      | 1.00      | 1.00      |
| 1                      | 0.91 [0.89-0.95] | 0.97 [0.95-0.996] |
| 2+                     | 1.02 [0.98-1.05] | 1.10 [1.08-1.12] |
| Employment             |           |           |
| Employed               | 1.00      | 1.00      |
| Other/Not Employed     | 0.94 [0.90-0.96] | 0.97 [0.95-0.99] |
| Marital Status         |           |           |
| Married                | 1.00      | 1.00      |
| Other/Not Married      | 1.18 [1.16-1.22] | 1.13 [1.11-1.14] |
| % Bachelors Education |           |           |
| Top 50%                | 1.00 [0.98-1.02] | 0.98 [0.96-0.99] |
| Bottom 50%             | 1.00      | 1.00      |
| Median Income          |           |           |
| Top 50%                | 0.98 [0.98-1.03] | 0.97 [0.95-0.99] |
| Bottom 50%             | 1.00      | 1.00      |

CSM = cancer-specific mortality. OR = odds ratio. SHR = subdistribution hazard ratio. CI = confidence interval. PCP = primary care physician.
**eTable 2. Full Model Outputs of Logistic Regression for Entire Cohort and Annual Primary Care Visits as Endpoint**

| Characteristic         | Odds ratio [95% confidence interval] |
|------------------------|--------------------------------------|
| Age at Diagnosis       | 1.05 [1.05-1.05]                     |
| Race                   |                                      |
| White                  | 1.00                                 |
| Black                  | 1.12 [1.10-1.15]                     |
| Other                  | 0.82 [0.78-0.87]                     |
| Ethnicity              |                                      |
| Hispanic               | 1.09 [1.02-1.16]                     |
| Non-Hispanic           | 1.00                                 |
| Gender                 |                                      |
| Male                   | 1.00                                 |
| Female                 | 1.50 [1.40-1.61]                     |
| Cancer Subtype         |                                      |
| Prostate               | 1.00                                 |
| Bladder                | 1.06 [1.01-1.11]                     |
| Breast                 | 1.25 [1.14-1.37]                     |
| Colorectal             | 0.86 [0.84-0.89]                     |
| Esophageal             | 1.12 [1.06-1.18]                     |
| Gastric                | 1.20 [1.11-1.28]                     |
| Head and Neck          | 1.06 [1.02-1.09]                     |
| Kidney                 | 1.30 [1.25-1.34]                     |
| Liver                  | 1.36 [1.31-1.41]                     |
| Lung                   | 1.19 [1.16-1.21]                     |
| Melanoma               | 1.11 [1.06-1.16]                     |
| Pancreas               | 1.25 [1.19-1.31]                     |
| Year of Diagnosis      |                                      |
| 2004-2008              | 1.00                                 |
| 2009-2012              | 1.19 [1.17-1.21]                     |
| 2013-2017              | 1.40 [1.38-1.44]                     |
| Charlson Score         |                                      |
| 0                      | 1.00                                 |
| 1                      | 1.42 [1.38-1.46]                     |
| 2+                     | 1.48 [1.45-1.51]                     |
| Employment             |                                      |
| Employed               | 1.00                                 |
| Other/Not Employed     | 1.18 [1.14-1.20]                     |
| Marital Status         |                                      |
| Married                | 1.00                                 |
| Other/Not Married      | 0.90 [0.88-0.91]                     |
| % Bachelors Education  |                                      |
| Top 50%                | 1.02 [1.00-1.04]                     |
| Bottom 50% | 1.00 |
|-----------|------|
| Median Income | 0.94 [0.92-0.95] |
| Top 50% | 0.94 [0.92-0.95] |
| Bottom 50% | 1.00 |
### eTable 3. ORs and 95% CIs for Multivariable Logistic Regressions With Metastatic Disease at Diagnosis.

| Subtype        | OR\textsubscript{some}, 95% [CI] | \(P\)  | OR\textsubscript{annual}, 95% [CI] | \(P\)  |
|----------------|----------------------------------|-------|----------------------------------|-------|
| Prostate       | 0.43 [0.40-0.47]                 | <0.001| 0.32 [0.30-0.35]                 | <0.001|
| Lung           | 0.86 [0.81-0.93]                 | <0.001| 0.75 [0.70-0.80]                 | <0.001|
| Melanoma       | 0.43 [0.35-0.53]                 | <0.001| 0.36 [0.29-0.45]                 | <0.001|
| Colorectal     | 0.89 [0.82-0.97]                 | 0.012 | 0.79 [0.72-0.87]                 | <0.001|
| Bladder        | 0.65 [0.52-0.81]                 | <0.001| 0.55 [0.43-0.69]                 | <0.001|
| Gastric        | 0.77 [0.60-0.98]                 | 0.031 | 0.64 [0.50-0.82]                 | <0.001|
| Kidney         | 0.76 [0.64-0.89]                 | <0.001| 0.61 [0.52-0.73]                 | <0.001|
| Esophagus      | 0.85 [0.72-1.00]                 | 0.055 | 0.69 [0.58-0.83]                 | <0.001|
| Head and Neck  | 0.83 [0.69-1.01]                 | 0.061 | 0.63 [0.51-0.77]                 | <0.001|
| Pancreas       | 1.00 [0.84-1.20]                 | 0.974 | 0.87 [0.73-1.04]                 | 0.121 |
| Liver          | 0.68 [0.75-1.06]                 | 0.243 | 0.70 [0.58-0.84]                 | <0.001|
| Breast         | 0.78 [0.44-1.06]                 | 0.088 | 0.55 [0.35-0.86]                 | 0.009 |

Each odds ratio (OR) represents separate multivariable logistic regression for each distinct tumor subtype.
### eTable 4. Comparison of Included vs. Excluded Patients

| Variable                  | Included (n=245,425) | Excluded (n=279,881) |
|---------------------------|----------------------|----------------------|
| **Age, mean (SD), years** | 65.8 (9.3)           | 68.0 (9.8)           |
| **Gender**                |                      |                      |
| Male                      | 239,560 (97.6%)      | 274,208 (98.0%)      |
| Female                    | 5,865 (2.4%)         | 5,673 (2.0%)         |
| **Race**                  |                      |                      |
| Black                     | 51,468 (22.0%)       | 55,766 (19.9%)       |
| White                     | 186,716 (76.1%)      | 215,173 (76.9%)      |
| Other Race\(^a\)         | 7,241 (2.9%)         | 8,942 (3.2%)         |
| **Ethnicity**             |                      |                      |
| Hispanic or Other\(^b\)  | 3,938 (1.6%)         | 3,642 (1.3%)         |
| Non-Hispanic              | 241,476 (98.4%)      | 276,239 (98.4%)      |
| **Year Diagnosed**        |                      |                      |
| 2004-2008                 | 95,101 (38.8%)       | 67,619 (39.8%)       |
| 2009-2012                 | 76,045 (31.0%)       | 62,311 (36.6%)       |
| 2013-2017                 | 74,188 (30.2%)       | 40,148 (23.6%)       |
| **Cancer Subtype**        |                      |                      |
| Prostate                  | 93,456 (38.1%)       | 102,716 (36.7%)      |
| Lung                      | 48,102 (19.6%)       | 58,435 (20.9%)       |
| Melanoma                  | 9,612 (3.9%)         | 11,477 (4.1%)        |
| Colorectal                | 23,819 (9.7%)        | 31,345 (11.2%)       |
| Bladder                   | 9,626 (3.9%)         | 13,306 (4.8%)        |
| Gastric                   | 3,471 (1.4%)         | 5,471 (2.0%)         |
| Kidney                    | 12,348 (5.0%)        | 12,033 (4.3%)        |
| Esophagus                 | 6,037 (2.5%)         | 7,582 (2.7%)         |
| Head and Neck             | 17,559 (7.2%)        | 18,591 (6.6%)        |
| Pancreas                  | 6,530 (2.7%)         | 6,603 (2.4%)         |
| Liver                     | 11,526 (4.7%)        | 9,069 (3.2%)         |
| Breast                    | 3,339 (1.4%)         | 3,253 (1.2%)         |
| **Employment**            |                      |                      |
| Employed                  | 45,746 (18.7%)       | 37,556 (13.4%)       |
| Not Employed              | 199,455 (81.3%)      | 242,325 (86.6%)      |
| **Marital Status**        |                      |                      |
| Married                   | 111,842 (45.6%)      | 139,273 (49.8%)      |
| Single/Other              | 133,570 (54.4%)      | 140,608 (50.2%)      |
| **Income, mean (SD), per $1,000** | 50.1 (18.8) | 49.5 (19.1) |
| **Education, mean (SD), college degree % per zip code** | 15.6 (7.7) | 15.2 (7.6) |

Excluded patients were limited to those with complete, non-missing demographic data as below.

\(^a\)Race other category includes American Indian, Aleutian, Eskimo, Chinese, Japanese, Filipino, Hawaiian, Korean, Vietnamese, Laotian, Hmong, Cambodian, Thai, Asian Indian, Pakistani, Micronesian, Chamorro, Guamanian, Polynesian, Tahitian, Samoan, Tongan, Melanesian, Fiji Islander, New Guinean, Other Asian, Pacific Islander, not listed, and unknown

\(^b\)Ethnicity other category includes unknown, not listed, or Spanish surname only