**Supplementary Table 1:** Summary of invasive lung cancers diagnosed between 2004 and 2013 in the US±, by histology group, with stratification by microscopically versus non-microscopically determined.

|  |  |  |  |
| --- | --- | --- | --- |
| **Histology Coding Scheme** | **Total** | **Micro-confirmed only** | **Difference** |
|  | **(All cases)** | **(all vs. micro-conf)** |
| Small cell (8002-8005, 8041-8045) | 260,650 | 256,549 | 4,101 |
| Non-small cell (8046) | 242,431 | 233,268 | 9,163 |
| Squamous (8052, 8070-8076, 8078, 8083-8084, 8094, 8120, 8123) | 405,479 | 402,483 | 2,996 |
| Adeno (8050, 8140-8141, 8144, 8201, 8250-8255, 8260, 8290, 8310, 8320, 8323, 8333, 8470, 8480, 8481, 8490, 8507, 8550, 8570, 8572, 8574, 8576) | 680,427 | 673,810 | 6,617 |
| Large cell (8012-8014, 8021, 8082) | 47,189 | 46,876 | 313 |
| Carcinoma, NOS (8000, 8001, 8010, 8020, 8230) | 211,637 | 56,596 | 155,041 |
| Other specified types (8022, 8030, 8031-8033, 8200, 8240, 8241, 8244-8246, 8249,8430, 8560, 8562, 8575) | 78,210 | 77,797 | 413 |
| Sarcoma (8800-8805, 8810, 8811, 8815, 8830, 8890, 8900, 8940, 9040, 9041, 9043, 9120, 9133, 9220, 9231, 9473, 9540) | 2,668 | 2,631 | 37 |
| Other includes melanomas (8720, 8963, 8972, 8973, 8980, 8982, 9100, 9260, 9364) | 1,266 | 1,257 | 9 |
| Metastasis of another primary site (8500 excluded from analysis) | ~ | ~ | ~ |
| **Total** | **1,929,957** | **1,751,267** | **178,690** |

Source: http://seer.cancer.gov/csr/1975\_2013/browse\_csr.php?sectionSEL=15&pageSEL=sect\_15\_table.28.html

Cases diagnosed by death certificate only or autopsy-only are excluded from all analyses.

± Data are from population-based registries that participate in the National Program of Cancer Registries and/or the Surveillance, Epidemiology, and End Results and meet high-quality data criteria. Nevada was excluded because it did not meet USCS publication criteria, and Minnesota and Kansas were excluded due to missing county data. These registries cover 96.5% of the US population 2004-2013.

~ Statistic could not be calculated due to case count in one or more years <16.

**Supplementary Table 2:** Age-adjusted invasive lung cancer incidence ratesa and annual percent change (APC) stratified by additional histology typeb, sex, race and county designationc, 2004 ̶ 2013d

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Male** | **APC** | **Rate Ratio** | **Female** | **APC** | **Rate Ratio** |
|  | **Rate (95% CI)** | **Rate (95% CI)** |
| **Carcinoma , NOS** |  |  |  |  |  |  |
| **Metropolitan** | 2.4 (2.4,2.4) | -6.0\* | Ref | 1.5 (1.5,1.5) | -5.4\* | Ref |
| NH White | 2.3 (2.3,2.4) | -5.9\* | Ref | 1.5 (1.5,1.6) | -5.3\* | Ref |
| NH Black | 3.3 (3.2,3.4) | -6.3\* | 1.42^ | 1.6 (1.5,1.7) | -5.3\* | 1.04 |
| Hispanic | 2.2 (2.1,2.3) | -6.2\* | 0.93^ | 1.1 (1.0,1.1) | -5.4\* | 0.69^ |
| **Adjacent Metropolitan** | 2.6 (2.5,2.7) | -4.8\* | 1.09^ | 1.4 (1.3,1.5) | -4.6\* | 0.93^ |
| NH White | 2.5 (2.5,2.6) | -5.2\* | Ref | 1.4 (1.4,1.5) | -4.9\* | Ref |
| NH Black | 3.5 (3.2,3.9) | -3.8 | 1.39^ | 1.2 (1.0,1.4) | -0.8 | 0.84^ |
| Hispanic | 2.4 (1.9,2.9) | 0.7 | 0.93 | 1.1 (0.8,1.4) | -0.7 | 0.76^ |
| **Non-Adjacent Metropolitan** | 2.2 (2.1,2.4) | -5.3\* | 0.93^ | 1.3 (1.3,1.4) | -4.6\* | 0.88^ |
| NH White | 2.2 (2.1,2.3) | -5.8\* | Ref | 1.3 (1.3,1.4) | -4.8\* | Ref |
| NH Black | 3.2 (2.7,3.9) | -2.3 | 1.46^ | 1.1 (0.9,1.5) | -8.4 | 0.84 |
| Hispanic | 2.0 (1.4,2.6) | -0.4 | 0.88 | 1.3 (0.9,1.7) | 8.5 | 0.93 |
| **NSCLC** |  |  |  |  |  |  |
| **Metropolitan** | 9.6 (9.6,9.7) | -14.2\* | Ref | 6.0 (6.0,6.1) | -13.7\* | Ref |
| NH White | 9.6 (9.6,9.7) | -14.2\* | Ref | 6.4 (6.3,6.4) | -13.6\* | Ref |
| NH Black | 13.0 (12.8,13.2) | -14.4\* | 1.35^ | 6.6 (6.4,6.7) | -13.2\* | 1.03^ |
| Hispanic | 5.4 (5.2,5.5) | -13.1\* | 0.56^ | 2.6 (2.5,2.7) | -13.7\* | 0.41^ |
| **Adjacent Metropolitan** | 11.2 (11.1,11.4) | -13.0\* | 1.17^ | 6.4 (6.3,6.5) | -11.8\* | 1.06^ |
| NH White | 11.2 (11.0,11.3) | -13.1\* | Ref | 6.6 (6.5,6.7) | -11.8\* | Ref |
| NH Black | 14.5 (13.7,15.2) | -12.1\* | 1.30^ | 5.1 (4.8,5.5) | -9.9\* | 0.78^ |
| Hispanic | 5.5 (4.8,6.3) | -11.2\* | 0.50^ | 3.2 (2.7,3.7) | -13.3\* | 0.49^ |
| **Non-Adjacent Metropolitan** | 11.1 (10.9,11.3) | -13.4\* | 1.16^ | 6.4 (6.3,6.6) | -12.0\* | 1.06^ |
| NH White | 11.2 (10.9,11.4) | -13.4\* | Ref | 6.6 (6.4,6.8) | -12.2\* | Ref |
| NH Black | 14.2 (13.0,15.5) | -12.3\* | 1.28^ | 5.6 (5.0,6.3) | -9.4\* | 0.85^ |
| Hispanic | 5.3 (4.5,6.3) | -14.2\* | 0.48^ | 2.7 (2.2,3.3) | -6.9\* | 0.41^ |
| **Other specified** |  |  |  |  |  |  |
| **Metropolitan** | 2.7 (2.6,2.7) | 1.7\* | Ref | 2.6 (2.6,2.7) | 2.5\* | Ref |
| NH White | 2.8 (2.7,2.8) | 1.8\* | Ref | 2.9 (2.9,2.9) | 2.8\* | Ref |
| NH Black | 2.7 (2.6,2.8) | 2.0 | 0.96 | 2.0 (1.9,2.1) | 2.5 | 0.69^ |
| Hispanic | 1.8 (1.7,1.9) | 0.7 | 0.64^ | 1.5 (1.5,1.6) | 1.8 | 0.53^ |
| **Adjacent Metropolitan** | 2.8 (2.7,2.8) | 1.7 | 1.04^ | 2.4 (2.4,2.5) | 3.3\* | 0.93^ |
| NH White | 2.8 (2.7,2.9) | 2.0\* | Ref | 2.5 (2.5,2.6) | 3.4\* | Ref |
| NH Black | 2.4 (2.2,2.8) | -1.7 | 0.86^ | 1.8 (1.5,2.0) | 1.8 | 0.69^ |
| Hispanic | 1.5 (1.2,1.9) | -2.3 | 0.54^ | 1.2 (1.0,1.6) | -1.5 | 0.49^ |
| **Non-Adjacent Metropolitan** | 2.4 (2.3,2.5) | 0.9 | 0.90^ | 2.2 (2.1,2.3) | 1.5 | 0.85^ |
| NH White | 2.5 (2.3,2.6) | 0.8 | Ref | 2.3 (2.2,2.4) | 1.5 | Ref |
| NH Black | 2.5 (2.0,3.0) | 2.0 | 1.00 | 1.5 (1.2,1.9) | 3.8 | 0.66^ |
| Hispanic | 0.9 (0.6,1.3) | ~ | 0.37^ | 1.0 (0.7,1.4) | -2.0 | 0.43^ |

Abbreviation: NH = non-Hispanic, APC = annual percent change; CI = confidence interval, Ref = referent group

Cases diagnosed by death certificate only or autopsy-only are excluded from all analyses.

a Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard; Confidence intervals (Tiwari mod) are 95% for rates and ratios.

b Lung cancer histology groups were defined using International Classification of Diseases for Oncology version 3 (ICD-0-3); see supplementary table 1.

c Counties were categorized by Rural-Urban Continuum Codes (RUCC) into urban (RUCC 1-3), adjacent urban (RUCC 4, 6, 8), and non-adjacent rural (RUCC 5, 7, 9).

d Data are from population-based registries that participate in the National Program of Cancer Registries and/or the Surveillance, Epidemiology, and End Results and meet high-quality data criteria. Nevada was excluded because it did not meet USCS publication criteria, and Minnesota and Kansas were excluded due to missing county data. These registries cover 96.5% of the US population 2004-2013.

\*The APC is significantly different from zero (p<0.05).

^ The rate ratio indicates that the rate is significantly different than the rate for NH White (p<0.05).

~ Statistic could not be calculated due to case count in one or more years <16.

 The preference is to not illustrate these rates. Small numbers and wide confidence intervals indicate unstable rates.

 Note, we are omitting Sarcoma, melanomas and metastasis