**Supplementary Tables**

Supplementary Tables include the smoking rate in Taiwanese population (Tables S1A, S1B, S1C), the numbers of cancer survivors (Tables S2A, S2B), the numbers of cancer-free ever-smokers in population and in the Taiwan Biobank (Table S3A, S3B, S3C), the numbers of lung cancer patients in the TCR and TCRLF (S4A), the estimated age-specific number of ever-smoking lung cancer patients (Table S4B), the 6-year lung cancer incidence rates among ever-smokers (Table S4C), the characteristics of the studied data sources (Table S5A) and of the corresponding sub-cohort with enough information for applying simplified eligibility criteria (Table S5B) or PLCOm2012 model (Table S5C), the age distribution of the Taiwan Biobank and Taiwanese population (Table S6).

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Table S1A. Age-specific female smoking rate in Taiwan for the year 2010, locally averaged, based on the ASBS.

| **Age** | **Number of** | **Sample size** | **Smoking rate (%)** | **95% CI** |
| --- | --- | --- | --- | --- |
| **Ever-smokers** |
| 19 | 61 | 1348 | 4.53 | (3.48,5.78) |
| 20 | 58 | 1286 | 4.51 | (3.44,5.79) |
| 21 | 64 | 1114 | 5.75 | (4.45,7.28) |
| 22 | 60 | 944 | 6.36 | (4.89,8.11) |
| 23 | 79 | 962 | 8.21 | (6.56,10.13) |
| 24 | 85 | 953 | 8.92 | (7.19,10.91) |
| 25 | 95 | 959 | 9.91 | (8.09,11.97) |
| 26 | 95 | 968 | 9.81 | (8.01,11.86) |
| 27 | 86 | 1039 | 8.28 | (6.67,10.12) |
| 28 | 95 | 1176 | 8.08 | (6.59,9.79) |
| 29 | 105 | 1300 | 8.08 | (6.65,9.69) |
| 30 | 138 | 1388 | 9.94 | (8.42,11.64) |
| 31 | 139 | 1419 | 9.80 | (8.3,11.46) |
| 32 | 145 | 1495 | 9.70 | (8.25,11.31) |
| 33 | 156 | 1566 | 9.96 | (8.52,11.55) |
| 34 | 157 | 1655 | 9.49 | (8.12,11.00) |
| 35 | 152 | 1670 | 9.10 | (7.77,10.58) |
| 36 | 125 | 1674 | 7.47 | (6.25,8.83) |
| 37 | 136 | 1789 | 7.60 | (6.42,8.93) |
| 38 | 152 | 1888 | 8.05 | (6.86,9.37) |
| 39 | 162 | 2043 | 7.93 | (6.79,9.19) |
| 40 | 144 | 2004 | 7.19 | (6.09,8.41) |
| 41 | 136 | 1988 | 6.84 | (5.77,8.04) |
| 42 | 114 | 1945 | 5.86 | (4.86,7.00) |
| 43 | 108 | 1906 | 5.67 | (4.67,6.80) |
| 44 | 109 | 1870 | 5.83 | (4.81,6.99) |
| 45 | 113 | 1773 | 6.37 | (5.28,7.61) |
| 46 | 106 | 1702 | 6.23 | (5.13,7.48) |
| 47 | 90 | 1703 | 5.28 | (4.27,6.46) |
| 48 | 77 | 1691 | 4.55 | (3.61,5.66) |
| 49 | 78 | 1762 | 4.43 | (3.52,5.49) |
| 50 | 64 | 1662 | 3.85 | (2.98,4.89) |
| 51 | 51 | 1579 | 3.23 | (2.41,4.23) |
| 52 | 37 | 1459 | 2.54 | (1.79,3.48) |
| 53 | 47 | 1366 | 3.44 | (2.54,4.55) |
| 54 | 45 | 1347 | 3.34 | (2.45,4.45) |
| 55 | 57 | 1306 | 4.36 | (3.32,5.62) |
| 56 | 40 | 1275 | 3.14 | (2.25,4.25) |
| 57 | 61 | 1286 | 4.74 | (3.65,6.05) |
| 58 | 54 | 1253 | 4.31 | (3.25,5.59) |
| 59 | 49 | 1299 | 3.77 | (2.80,4.96) |
| 60 | 30 | 1139 | 2.63 | (1.78,3.74) |
| 61 | 26 | 1029 | 2.53 | (1.66,3.68) |
| 62 | 23 | 861 | 2.67 | (1.70,3.98) |
| 63 | 21 | 766 | 2.74 | (1.71,4.16) |
| 64 | 11 | 643 | 1.71 | (0.86,3.04) |
| 65 | 12 | 587 | 2.04 | (1.06,3.54) |
| 66 | 15 | 566 | 2.65 | (1.49,4.33) |
| 67 | 17 | 584 | 2.91 | (1.71,4.62) |
| 68 | 18 | 576 | 3.13 | (1.86,4.89) |
| 69 | 15 | 581 | 2.58 | (1.45,4.22) |
| 70 | 16 | 519 | 3.08 | (1.77,4.96) |
| 71 | 14 | 511 | 2.74 | (1.51,4.55) |
| 72 | 14 | 463 | 3.02 | (1.66,5.02) |
| 73 | 16 | 459 | 3.49 | (2.01,5.60) |
| 74 | 13 | 414 | 3.14 | (1.68,5.31) |
| 75 | 12 | 419 | 2.86 | (1.49,4.95) |
| 76 | 8 | 386 | 2.07 | (0.90,4.04) |
| 77 | 8 | 352 | 2.27 | (0.99,4.43) |
| 78 | 5 | 305 | 1.64 | (0.53,3.78) |
| 79 | 5 | 324 | 1.54 | (0.50,3.56) |
| 80 | 8 | 308 | 2.60 | (1.13,5.05) |

Table S1B. Age-specific male smoking rate in Taiwan for the year 2010, locally averaged, based on the ASBS.

| **Age** | **Number of** | **Sample size** | **Smoking rate (%)** | **95% CI** |
| --- | --- | --- | --- | --- |
| **Ever-smokers** |
| 19 | 281 | 1559 | 18.02 | (16.15,20.02) |
| 20 | 335 | 1458 | 22.98 | (20.84,25.22) |
| 21 | 373 | 1187 | 31.42 | (28.79,34.15) |
| 22 | 371 | 1014 | 36.59 | (33.62,39.64) |
| 23 | 346 | 899 | 38.49 | (35.29,41.76) |
| 24 | 356 | 883 | 40.32 | (37.06,43.64) |
| 25 | 385 | 922 | 41.76 | (38.55,45.02) |
| 26 | 438 | 1016 | 43.11 | (40.04,46.22) |
| 27 | 467 | 1026 | 45.52 | (42.44,48.62) |
| 28 | 539 | 1075 | 50.14 | (47.11,53.17) |
| 29 | 588 | 1101 | 53.41 | (50.41,56.39) |
| 30 | 654 | 1176 | 55.61 | (52.72,58.48) |
| 31 | 612 | 1162 | 52.67 | (49.75,55.57) |
| 32 | 645 | 1213 | 53.17 | (50.32,56.01) |
| 33 | 655 | 1242 | 52.74 | (49.92,55.55) |
| 34 | 716 | 1305 | 54.87 | (52.12,57.59) |
| 35 | 718 | 1286 | 55.83 | (53.07,58.57) |
| 36 | 719 | 1251 | 57.47 | (54.68,60.23) |
| 37 | 732 | 1274 | 57.46 | (54.69,60.19) |
| 38 | 786 | 1332 | 59.01 | (56.31,61.67) |
| 39 | 841 | 1450 | 58.00 | (55.41,60.56) |
| 40 | 892 | 1535 | 58.11 | (55.60,60.59) |
| 41 | 925 | 1576 | 58.69 | (56.22,61.14) |
| 42 | 952 | 1608 | 59.20 | (56.76,61.62) |
| 43 | 977 | 1590 | 61.45 | (59.00,63.85) |
| 44 | 993 | 1615 | 61.49 | (59.06,63.87) |
| 45 | 991 | 1567 | 63.24 | (60.80,65.63) |
| 46 | 985 | 1570 | 62.74 | (60.29,65.14) |
| 47 | 980 | 1570 | 62.42 | (59.97,64.82) |
| 48 | 985 | 1597 | 61.68 | (59.24,64.07) |
| 49 | 977 | 1589 | 61.49 | (59.04,63.89) |
| 50 | 939 | 1518 | 61.86 | (59.36,64.31) |
| 51 | 871 | 1405 | 61.99 | (59.40,64.54) |
| 52 | 811 | 1317 | 61.58 | (58.89,64.22) |
| 53 | 757 | 1297 | 58.37 | (55.63,61.07) |
| 54 | 729 | 1292 | 56.42 | (53.67,59.15) |
| 55 | 700 | 1274 | 54.95 | (52.17,57.70) |
| 56 | 673 | 1207 | 55.76 | (52.90,58.59) |
| 57 | 647 | 1186 | 54.55 | (51.67,57.42) |
| 58 | 617 | 1159 | 53.24 | (50.32,56.14) |
| 59 | 608 | 1164 | 52.23 | (49.32,55.14) |
| 60 | 582 | 1080 | 53.89 | (50.86,56.89) |
| 61 | 513 | 964 | 53.22 | (50.01,56.40) |
| 62 | 443 | 859 | 51.57 | (48.17,54.96) |
| 63 | 376 | 773 | 48.64 | (45.06,52.23) |
| 64 | 341 | 713 | 47.83 | (44.11,51.57) |
| 65 | 305 | 639 | 47.73 | (43.80,51.69) |
| 66 | 324 | 646 | 50.15 | (46.23,54.08) |
| 67 | 320 | 636 | 50.31 | (46.36,54.27) |
| 68 | 317 | 639 | 49.61 | (45.66,53.56) |
| 69 | 298 | 640 | 46.56 | (42.64,50.51) |
| 70 | 333 | 649 | 51.31 | (47.39,55.22) |
| 71 | 353 | 665 | 53.08 | (49.21,56.93) |
| 72 | 341 | 616 | 55.36 | (51.33,59.33) |
| 73 | 282 | 559 | 50.45 | (46.22,54.67) |
| 74 | 243 | 517 | 47.00 | (42.63,51.41) |
| 75 | 229 | 481 | 47.61 | (43.07,52.18) |
| 76 | 235 | 481 | 48.86 | (44.30,53.42) |
| 77 | 234 | 437 | 53.55 | (48.75,58.30) |
| 78 | 224 | 431 | 51.97 | (47.14,56.78) |
| 79 | 218 | 422 | 51.66 | (46.78,56.52) |
| 80 | 210 | 402 | 52.24 | (47.23,57.21) |

Table S1C. Age-specific smoking rates in Taiwan for the year 2010, locally averaged, based on the ASBS.

| **Age** | **Number of****Ever-smokers** | **Sample size** | **Smoking rate (%)** | **95% CI** |
| --- | --- | --- | --- | --- |
| 19 | 380 | 2907 | 13.07 | (11.87,14.35) |
| 20 | 441 | 2744 | 16.07 | (14.72,17.50) |
| 21 | 497 | 2301 | 21.60 | (19.93,23.34) |
| 22 | 490 | 1958 | 25.03 | (23.12,27.01) |
| 23 | 483 | 1861 | 25.95 | (23.97,28.01) |
| 24 | 493 | 1836 | 26.85 | (24.84,28.94) |
| 25 | 524 | 1881 | 27.86 | (25.84,29.94) |
| 26 | 572 | 1984 | 28.83 | (26.85,30.88) |
| 27 | 593 | 2065 | 28.72 | (26.77,30.72) |
| 28 | 683 | 2251 | 30.34 | (28.45,32.29) |
| 29 | 745 | 2401 | 31.03 | (29.18,32.92) |
| 30 | 842 | 2564 | 32.84 | (31.02,34.70) |
| 31 | 796 | 2581 | 30.84 | (29.06,32.66) |
| 32 | 853 | 2708 | 31.50 | (29.75,33.29) |
| 33 | 886 | 2808 | 31.55 | (29.84,33.31) |
| 34 | 962 | 2960 | 32.50 | (30.81,34.22) |
| 35 | 947 | 2956 | 32.04 | (30.36,33.75) |
| 36 | 922 | 2925 | 31.52 | (29.84,33.24) |
| 37 | 954 | 3063 | 31.15 | (29.51,32.82) |
| 38 | 1041 | 3220 | 32.33 | (30.72,33.98) |
| 39 | 1106 | 3493 | 31.66 | (30.12,33.24) |
| 40 | 1134 | 3539 | 32.04 | (30.51,33.61) |
| 41 | 1143 | 3564 | 32.07 | (30.54,33.63) |
| 42 | 1153 | 3553 | 32.45 | (30.91,34.02) |
| 43 | 1154 | 3496 | 33.01 | (31.45,34.60) |
| 44 | 1171 | 3485 | 33.60 | (32.03,35.20) |
| 45 | 1151 | 3340 | 34.46 | (32.85,36.10) |
| 46 | 1135 | 3272 | 34.69 | (33.06,36.35) |
| 47 | 1106 | 3273 | 33.79 | (32.17,35.44) |
| 48 | 1108 | 3288 | 33.70 | (32.08,35.34) |
| 49 | 1091 | 3351 | 32.56 | (30.97,34.17) |
| 50 | 1021 | 3180 | 32.11 | (30.49,33.76) |
| 51 | 921 | 2984 | 30.86 | (29.21,32.56) |
| 52 | 815 | 2776 | 29.36 | (27.67,31.09) |
| 53 | 770 | 2663 | 28.91 | (27.20,30.68) |
| 54 | 719 | 2639 | 27.25 | (25.55,28.99) |
| 55 | 711 | 2580 | 27.56 | (25.84,29.33) |
| 56 | 658 | 2482 | 26.51 | (24.78,28.30) |
| 57 | 660 | 2472 | 26.70 | (24.96,28.49) |
| 58 | 629 | 2412 | 26.08 | (24.34,27.88) |
| 59 | 626 | 2463 | 25.42 | (23.71,27.19) |
| 60 | 583 | 2219 | 26.27 | (24.45,28.16) |
| 61 | 506 | 1993 | 25.39 | (23.49,27.36) |
| 62 | 441 | 1720 | 25.64 | (23.59,27.77) |
| 63 | 382 | 1539 | 24.82 | (22.68,27.06) |
| 64 | 348 | 1356 | 25.66 | (23.36,28.08) |
| 65 | 302 | 1226 | 24.63 | (22.24,27.15) |
| 66 | 303 | 1212 | 25.00 | (22.58,27.54) |
| 67 | 298 | 1220 | 24.43 | (22.04,26.94) |
| 68 | 311 | 1215 | 25.60 | (23.16,28.15) |
| 69 | 310 | 1221 | 25.39 | (22.97,27.93) |
| 70 | 347 | 1168 | 29.71 | (27.10,32.42) |
| 71 | 354 | 1176 | 30.10 | (27.49,32.81) |
| 72 | 341 | 1079 | 31.60 | (28.84,34.47) |
| 73 | 287 | 1018 | 28.19 | (25.45,31.07) |
| 74 | 249 | 931 | 26.75 | (23.93,29.71) |
| 75 | 243 | 900 | 27.00 | (24.12,30.03) |
| 76 | 248 | 867 | 28.60 | (25.62,31.74) |
| 77 | 247 | 789 | 31.31 | (28.08,34.67) |
| 78 | 231 | 736 | 31.39 | (28.05,34.88) |
| 79 | 226 | 746 | 30.29 | (27.01,33.73) |
| 80 | 219 | 710 | 30.85 | (27.46,34.39) |

Table S2A. Age- and sex-specific number of cancer survivors at the end of 2010 Taiwan; for age between 50 and 74.

|  |  |
| --- | --- |
| **YEAR** | **2010** |
| **Age\SEX** | **Male** | **Female** |
| **50** | 3596 | 6240 |
| **51** | 3889 | 6657 |
| **52** | 3969 | 6675 |
| **53** | 4202 | 6821 |
| **54** | 4588 | 7466 |
| **55** | 4776 | 7600 |
| **56** | 4857 | 7509 |
| **57** | 4929 | 7538 |
| **58** | 5229 | 7555 |
| **59** | 5676 | 8061 |
| **60** | 5198 | 7031 |
| **61** | 5120 | 6709 |
| **62** | 4799 | 6136 |
| **63** | 4541 | 5646 |
| **64** | 3929 | 4527 |
| **65** | 3620 | 4332 |
| **66** | 4424 | 5166 |
| **67** | 4847 | 5499 |
| **68** | 4978 | 5635 |
| **69** | 5297 | 5686 |
| **70** | 5326 | 5926 |
| **71** | 5266 | 5553 |
| **72** | 5172 | 5500 |
| **73** | 5201 | 5312 |
| **74** | 5150 | 5039 |

Table S2B. Age- and sex-specific number of cancer survivors at the end of 2010 Taiwan by year of diagnosis for the period from 1979 to 1988.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Age** | **SEX\diag\_y** | **1979** | **1980** | **1981** | **1982** | **1983** | **1984** | **1985** | **1986** | **1987** | **1988** |
| **50** | **Male** | 0 | <5 | <5 | <5 | 6 | 5 | 8 | 12 | 16 | 18 |
|  | **Female** | <5 | 0 | <5 | <5 | 10 | 12 | 22 | 22 | 38 | 34 |
| **51** | **Male** | <5 | 0 | <5 | <5 | 5 | 8 | 8 | 18 | 23 | 27 |
|  | **Female** | <5 | <5 | <5 | 0 | 7 | 12 | 14 | 20 | 37 | 32 |
| **52** | **Male** | <5 | 0 | <5 | 0 | <5 | 6 | 8 | 13 | 21 | 22 |
|  | **Female** | <5 | <5 | <5 | 5 | <5 | 8 | 26 | 24 | 39 | 29 |
| **53** | **Male** | <5 | <5 | <5 | <5 | <5 | 8 | 7 | 18 | 18 | 29 |
|  | **Female** | <5 | <5 | <5 | <5 | 9 | 10 | 18 | 30 | 47 | 42 |
| **54** | **Male** | <5 | 0 | <5 | <5 | <5 | 6 | 11 | 13 | 34 | 23 |
|  | **Female** | <5 | <5 | <5 | <5 | 15 | 20 | 34 | 30 | 42 | 52 |
| **55** | **Male** | 0 | <5 | <5 | 0 | 8 | 9 | 15 | 19 | 25 | 28 |
|  | **Female** | <5 | <5 | <5 | <5 | 20 | 23 | 29 | 46 | 36 | 53 |
| **56** | **Male** | 0 | <5 | 0 | <5 | 14 | 8 | 24 | 17 | 25 | 24 |
|  | **Female** | <5 | <5 | <5 | <5 | 8 | 23 | 19 | 27 | 59 | 72 |
| **57** | **Male** | 0 | <5 | 0 | <5 | 7 | 6 | 11 | 14 | 36 | 21 |
|  | **Female** | <5 | <5 | <5 | 5 | 19 | 26 | 22 | 35 | 61 | 72 |
| **58** | **Male** | 0 | <5 | <5 | <5 | 9 | 10 | 14 | 20 | 30 | 34 |
|  | **Female** | <5 | 5 | <5 | <5 | 17 | 25 | 37 | 42 | 55 | 64 |
| **59** | **Male** | 0 | 0 | <5 | <5 | 10 | 12 | 13 | 15 | 26 | 33 |
|  | **Female** | 5 | <5 | 9 | <5 | 16 | 29 | 27 | 60 | 85 | 90 |
| **60** | **Male** | 0 | <5 | 0 | <5 | 14 | 11 | 12 | 19 | 22 | 31 |
|  | **Female** | 5 | <5 | <5 | <5 | 19 | 26 | 34 | 49 | 65 | 85 |
| **61** | **Male** | <5 | <5 | <5 | <5 | 11 | 10 | 14 | 23 | 34 | 39 |
|  | **Female** | <5 | <5 | <5 | 10 | 24 | 19 | 51 | 49 | 85 | 57 |
| **62** | **Male** | 0 | 0 | <5 | <5 | 14 | 9 | 16 | 15 | 26 | 44 |
|  | **Female** | <5 | <5 | <5 | 6 | 16 | 33 | 40 | 48 | 60 | 65 |
| **63** | **Male** | 0 | <5 | <5 | <5 | 6 | 8 | 12 | 18 | 31 | 36 |
|  | **Female** | <5 | <5 | <5 | 5 | 23 | 24 | 43 | 48 | 70 | 77 |
| **64** | **Male** | <5 | <5 | <5 | <5 | 6 | 6 | 9 | 16 | 27 | 26 |
|  | **Female** | <5 | <5 | <5 | 9 | 18 | 26 | 35 | 35 | 51 | 64 |
| **65** | **Male** | 0 | 0 | <5 | <5 | <5 | 11 | 15 | 26 | 21 | 21 |
|  | **Female** | <5 | <5 | <5 | 6 | 15 | 23 | 38 | 43 | 56 | 61 |
| **66** | **Male** | 0 | 0 | <5 | <5 | 10 | 8 | 16 | 23 | 23 | 31 |
|  | **Female** | <5 | <5 | <5 | 8 | 25 | 29 | 44 | 59 | 72 | 88 |
| **67** | **Male** | <5 | <5 | 0 | <5 | 7 | 14 | 24 | 29 | 29 | 27 |
|  | **Female** | 6 | 0 | <5 | 7 | 18 | 33 | 39 | 51 | 90 | 84 |
| **68** | **Male** | <5 | <5 | <5 | <5 | 11 | 11 | 25 | 30 | 40 | 37 |
|  | **Female** | <5 | <5 | <5 | 5 | 25 | 43 | 48 | 57 | 78 | 88 |
| **69** | **Male** | <5 | <5 | <5 | 0 | <5 | 6 | 20 | 28 | 30 | 58 |
|  | **Female** | <5 | 7 | 9 | 6 | 29 | 32 | 60 | 54 | 97 | 93 |
| **70** | **Male** | <5 | <5 | <5 | 0 | 10 | 10 | 20 | 27 | 44 | 37 |
|  | **Female** | <5 | 7 | <5 | 7 | 34 | 42 | 77 | 81 | 94 | 99 |
| **71** | **Male** | <5 | 0 | <5 | <5 | 7 | 11 | 14 | 34 | 46 | 49 |
|  | **Female** | 5 | 10 | 8 | <5 | 32 | 41 | 64 | 84 | 81 | 109 |
| **72** | **Male** | 0 | <5 | <5 | 0 | 8 | 18 | 21 | 20 | 47 | 46 |
|  | **Female** | <5 | 10 | <5 | 10 | 49 | 28 | 54 | 57 | 88 | 78 |
| **73** | **Male** | <5 | <5 | 0 | <5 | 9 | 7 | 23 | 14 | 54 | 40 |
|  | **Female** | <5 | <5 | 8 | 8 | 41 | 40 | 60 | 61 | 100 | 97 |
| **74** | **Male** | <5 | 0 | <5 | <5 | 5 | 7 | 31 | 29 | 42 | 53 |

Table S3A. (Female) Age-specific number of female individuals, cancer survivors, cancer-free individuals, age-specific female smoking rate, and age-specific female cancer-free ever-smokers at the end of 2010; age-specific number of females in Taiwan Biobank having all information for applying the PLCO model 2012.

| **Age** | **Population** | **Survivor** | **Cancer-free** | **Smoke rate (%)** | **Ever-smokers** | **TWB risk** |
| --- | --- | --- | --- | --- | --- | --- |
| 44 | 190784 | 3904 | 186880 | 5.83 | 10893 | 155 |
| 45 | 188348 | 4231 | 184117 | 6.37 | 11734 | 138 |
| 46 | 190900 | 4651 | 186249 | 6.23 | 11600 | 131 |
| 47 | 194368 | 5249 | 189119 | 5.28 | 9995 | 140 |
| 48 | 190900 | 5484 | 185416 | 4.55 | 8443 | 114 |
| 49 | 187886 | 5879 | 182007 | 4.43 | 8057 | 115 |
| 50 | 185981 | 6240 | 179741 | 3.85 | 6921 | 112 |
| 51 | 185084 | 6657 | 178427 | 3.23 | 5763 | 124 |
| 52 | 179136 | 6675 | 172461 | 2.54 | 4374 | 123 |
| 53 | 170631 | 6821 | 163810 | 3.44 | 5636 | 86 |
| 54 | 175851 | 7466 | 168385 | 3.34 | 5625 | 99 |
| 55 | 171332 | 7600 | 163732 | 4.36 | 7146 | 112 |
| 56 | 162920 | 7509 | 155411 | 3.14 | 4876 | 96 |
| 57 | 156563 | 7538 | 149025 | 4.74 | 7069 | 90 |
| 58 | 152858 | 7555 | 145303 | 4.31 | 6262 | 59 |
| 59 | 155182 | 8061 | 147121 | 3.77 | 5550 | 69 |
| 60 | 130264 | 7031 | 123233 | 2.63 | 3246 | 66 |
| 61 | 120973 | 6709 | 114264 | 2.53 | 2887 | 55 |
| 62 | 106103 | 6136 | 99967 | 2.67 | 2670 | 55 |
| 63 | 93377 | 5646 | 87731 | 2.74 | 2405 | 43 |
| 64 | 75824 | 4527 | 71297 | 1.71 | 1220 | 36 |
| 65 | 68236 | 4332 | 63904 | 2.04 | 1306 | 29 |
| 66 | 79161 | 5166 | 73995 | 2.65 | 1961 | 30 |
| 67 | 80247 | 5499 | 74748 | 2.91 | 2176 | 15 |
| 68 | 78830 | 5635 | 73195 | 3.13 | 2287 | 15 |
| 69 | 78823 | 5686 | 73137 | 2.58 | 1888 | 12 |
| 70 | 78303 | 5926 | 72377 | 3.08 | 2231 | 8 |
| 71 | 74490 | 5553 | 68937 | 2.74 | 1889 | 3 |
| 72 | 68740 | 5500 | 63240 | 3.02 | 1912 | 0 |
| 73 | 66869 | 5312 | 61557 | 3.49 | 2146 | 1 |
| 74 | 61714 | 5039 | 56675 | 3.14 | 1780 | 0 |
| 75 | 60120 | 5107 | 55013 | 2.86 | 1576 | 0 |
| 76 | 56185 | 4878 | 51307 | 2.07 | 1063 | 0 |
| 77 | 51427 | 4571 | 46856 | 2.27 | 1065 | 0 |
| 78 | 48446 | 4200 | 44246 | 1.64 | 725 | 0 |
| 79 | 46417 | 4287 | 42130 | 1.54 | 650 | 0 |
| 80 | 42588 | 4016 | 38572 | 2.60 | 1002 | 0 |

Table S3B. (Male) Age-specific number of male individuals, cancer survivors, cancer-free individuals, age-specific male smoking rate, and age-specific male cancer-free ever-smokers at the end of 2010; age-specific number of males in Taiwan Biobank having all information for applying the PLCO model 2012.

| **Age** | **Population** | **Survivor** | **Cancer-free** | **Smoke rate (%)** | **Ever-smokers** | **TWB risk** |
| --- | --- | --- | --- | --- | --- | --- |
| 44 | 191013 | 2272 | 188741 | 61.49 | 116049 | 430 |
| 45 | 188454 | 2406 | 186048 | 63.24 | 117660 | 464 |
| 46 | 191808 | 2633 | 189175 | 62.74 | 118686 | 507 |
| 47 | 193752 | 2955 | 190797 | 62.42 | 119096 | 499 |
| 48 | 190798 | 3193 | 187605 | 61.68 | 115711 | 492 |
| 49 | 187654 | 3335 | 184319 | 61.49 | 113329 | 524 |
| 50 | 185584 | 3596 | 181988 | 61.86 | 112574 | 501 |
| 51 | 182741 | 3889 | 178852 | 61.99 | 110876 | 531 |
| 52 | 176380 | 3969 | 172411 | 61.58 | 106170 | 556 |
| 53 | 166808 | 4202 | 162606 | 58.37 | 94906 | 519 |
| 54 | 172196 | 4588 | 167608 | 56.42 | 94571 | 540 |
| 55 | 168095 | 4776 | 163319 | 54.95 | 89736 | 645 |
| 56 | 157787 | 4857 | 152930 | 55.76 | 85271 | 617 |
| 57 | 151382 | 4929 | 146453 | 54.55 | 79895 | 617 |
| 58 | 147801 | 5229 | 142572 | 53.24 | 75899 | 643 |
| 59 | 148609 | 5676 | 142933 | 52.23 | 74659 | 627 |
| 60 | 125211 | 5198 | 120013 | 53.89 | 64674 | 617 |
| 61 | 115261 | 5120 | 110141 | 53.22 | 58612 | 601 |
| 62 | 101141 | 4799 | 96342 | 51.57 | 49685 | 592 |
| 63 | 88151 | 4541 | 83610 | 48.64 | 40669 | 573 |
| 64 | 70976 | 3929 | 67047 | 47.83 | 32066 | 529 |
| 65 | 62897 | 3620 | 59277 | 47.73 | 28293 | 555 |
| 66 | 73166 | 4424 | 68742 | 50.15 | 34477 | 498 |
| 67 | 73703 | 4847 | 68856 | 50.31 | 34645 | 474 |
| 68 | 71039 | 4978 | 66061 | 49.61 | 32772 | 380 |
| 69 | 70748 | 5297 | 65451 | 46.56 | 30476 | 307 |
| 70 | 68609 | 5326 | 63283 | 51.31 | 32470 | 186 |
| 71 | 63804 | 5266 | 58538 | 53.08 | 31074 | 76 |
| 72 | 58478 | 5172 | 53306 | 55.36 | 29509 | 43 |
| 73 | 56073 | 5201 | 50872 | 50.45 | 25664 | 40 |
| 74 | 51806 | 5150 | 46656 | 47.00 | 21929 | 11 |
| 75 | 50094 | 5174 | 44920 | 47.61 | 21386 | 6 |
| 76 | 47637 | 5243 | 42394 | 48.86 | 20712 | 2 |
| 77 | 45433 | 5311 | 40122 | 53.55 | 21484 | 0 |
| 78 | 45488 | 5413 | 40075 | 51.97 | 20828 | 0 |
| 79 | 45962 | 5650 | 40312 | 51.66 | 20825 | 0 |
| 80 | 45597 | 5897 | 39700 | 52.24 | 20739 | 0 |

Table S3C. Age-specific number of individuals, cancer survivors, cancer-free individuals, and cancer-free ever-smokers at the end of 2010; age-specific number of participants in Taiwan Biobank having all information for applying the PLCO model 2012.

| **Age** | **Population** | **Survivor** | **Cancer-free** | **Ever-smokers** | **TWB risk** |
| --- | --- | --- | --- | --- | --- |
| 44 | 381797 | 6176 | 375621 | 126942 | 585 |
| 45 | 376802 | 6637 | 370165 | 129394 | 602 |
| 46 | 382708 | 7284 | 375424 | 130286 | 638 |
| 47 | 388120 | 8204 | 379916 | 129091 | 639 |
| 48 | 381698 | 8677 | 373021 | 124154 | 606 |
| 49 | 375540 | 9214 | 366326 | 121386 | 639 |
| 50 | 371565 | 9836 | 361729 | 119495 | 613 |
| 51 | 367825 | 10546 | 357279 | 116639 | 655 |
| 52 | 355516 | 10644 | 344872 | 110544 | 679 |
| 53 | 337439 | 11023 | 326416 | 100542 | 605 |
| 54 | 348047 | 12054 | 335993 | 100196 | 639 |
| 55 | 339427 | 12376 | 327051 | 96882 | 757 |
| 56 | 320707 | 12366 | 308341 | 90147 | 713 |
| 57 | 307945 | 12467 | 295478 | 86964 | 707 |
| 58 | 300659 | 12784 | 287875 | 82161 | 702 |
| 59 | 303791 | 13737 | 290054 | 80209 | 696 |
| 60 | 255475 | 12229 | 243246 | 67920 | 683 |
| 61 | 236234 | 11829 | 224405 | 61499 | 656 |
| 62 | 207244 | 10935 | 196309 | 52355 | 647 |
| 63 | 181528 | 10187 | 171341 | 43074 | 616 |
| 64 | 146800 | 8456 | 138344 | 33286 | 565 |
| 65 | 131133 | 7952 | 123181 | 29599 | 584 |
| 66 | 152327 | 9590 | 142737 | 36438 | 528 |
| 67 | 153950 | 10346 | 143604 | 36821 | 489 |
| 68 | 149869 | 10613 | 139256 | 35059 | 395 |
| 69 | 149571 | 10983 | 138588 | 32364 | 319 |
| 70 | 146912 | 11252 | 135660 | 34701 | 194 |
| 71 | 138294 | 10819 | 127475 | 32963 | 79 |
| 72 | 127218 | 10672 | 116546 | 31421 | 43 |
| 73 | 122942 | 10513 | 112429 | 27810 | 41 |
| 74 | 113520 | 10189 | 103331 | 23709 | 11 |
| 75 | 110214 | 10281 | 99933 | 22962 | 6 |
| 76 | 103822 | 10121 | 93701 | 21775 | 2 |
| 77 | 96860 | 9882 | 86978 | 22549 | 0 |
| 78 | 93934 | 9613 | 84321 | 21553 | 0 |
| 79 | 92379 | 9937 | 82442 | 21475 | 0 |
| 80 | 88185 | 9913 | 78272 | 21741 | 0 |

Table S4A Number of lung cancer patients in the TCR, TCRLF, having known smoking status (ever-smoker or never-smoker), having a known number of pack-years smoked and a known number of years since smoking quitting.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **TCR** | **TCRLF** | **Smoking status known** | **Pack-year and quit time known** |
| 2011 | 9878 | 9274 | 7981 | 3137 |
| 2012 | 10354 | 9873 | 8489 | 3186 |
| 2013 | 10409 | 10016 | 8656 | 3214 |
| 2014 | 10964 | 10615 | 9166 | 3296 |
| 2015 | 11376 | 11111 | 9638 | 3427 |
| 2016 | 11516 | 11233 | 9916 | 3428 |
| Sum | 64497 | 62122 | 53846 | 19688 |

Table S4B. Estimated age-specific number of ever-smoking lung cancer patients for each year between 2011 and 2016 and for the 6-year period 2011—2016.

|  | All |
| --- | --- |
| Age | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2011-2016 |
| 44 | 24.93 | 36.00 | 25.14 | 32.17 | 26.22 | 19.26 | 236.56 |
| 45 | 25.59 | 31.45 | 32.82 | 29.74 | 24.89 | 29.01 | 267.91 |
| 46 | 33.04 | 35.03 | 34.88 | 29.75 | 23.10 | 42.46 | 310.08 |
| 47 | 31.95 | 46.34 | 36.29 | 36.70 | 37.01 | 41.98 | 309.28 |
| 48 | 44.68 | 39.97 | 38.76 | 48.93 | 34.77 | 55.41 | 408.53 |
| 49 | 35.54 | 54.35 | 54.55 | 64.98 | 57.93 | 73.83 | 412.37 |
| 50 | 57.24 | 60.67 | 62.85 | 57.57 | 64.19 | 64.13 | 456.53 |
| 51 | 55.66 | 67.11 | 75.46 | 72.85 | 56.30 | 62.77 | 485.90 |
| 52 | 56.02 | 72.77 | 74.35 | 73.28 | 79.87 | 68.94 | 507.47 |
| 53 | 69.19 | 79.68 | 62.46 | 69.34 | 77.30 | 93.93 | 509.17 |
| 54 | 50.98 | 60.62 | 70.80 | 96.17 | 109.11 | 90.12 | 514.87 |
| 55 | 77.47 | 71.78 | 87.51 | 99.34 | 96.93 | 79.38 | 641.38 |
| 56 | 77.54 | 75.17 | 87.34 | 85.97 | 95.15 | 101.91 | 639.46 |
| 57 | 97.53 | 91.62 | 104.00 | 96.20 | 99.70 | 106.48 | 693.14 |
| 58 | 95.74 | 101.41 | 104.73 | 130.05 | 100.47 | 106.17 | 735.03 |
| 59 | 102.25 | 109.66 | 120.80 | 108.39 | 126.91 | 108.09 | 783.54 |
| 60 | 118.67 | 132.36 | 132.64 | 103.13 | 119.06 | 127.78 | 806.67 |
| 61 | 98.11 | 138.59 | 121.94 | 135.25 | 130.25 | 138.13 | 758.52 |
| 62 | 105.14 | 94.64 | 130.04 | 123.29 | 113.42 | 140.03 | 801.21 |
| 63 | 102.06 | 114.41 | 143.52 | 128.61 | 153.63 | 148.33 | 723.26 |
| 64 | 94.90 | 111.58 | 128.52 | 138.67 | 141.94 | 150.08 | 633.58 |
| 65 | 103.09 | 102.43 | 116.44 | 143.59 | 139.48 | 148.83 | 627.16 |
| 66 | 80.04 | 93.36 | 89.32 | 123.82 | 167.33 | 144.11 | 556.30 |
| 67 | 119.19 | 102.26 | 91.82 | 120.51 | 133.84 | 142.22 | 730.36 |
| 68 | 107.46 | 104.78 | 81.86 | 97.48 | 126.59 | 135.51 | 784.81 |
| 69 | 130.30 | 114.25 | 110.82 | 100.75 | 117.19 | 99.84 | 813.80 |
| 70 | 141.07 | 142.70 | 141.31 | 143.80 | 87.94 | 124.22 | 842.19 |
| 71 | 140.33 | 126.00 | 139.63 | 142.69 | 136.04 | 103.45 | 828.21 |
| 72 | 156.89 | 138.36 | 124.37 | 122.22 | 138.59 | 115.74 | 869.08 |
| 73 | 160.41 | 144.68 | 133.55 | 134.47 | 134.36 | 140.50 | 826.58 |
| 74 | 150.80 | 144.50 | 146.05 | 128.53 | 164.08 | 144.59 | 805.32 |
| 75 | 125.68 | 136.36 | 136.60 | 142.71 | 147.70 | 152.21 | 718.56 |
| 76 | 159.29 | 134.93 | 128.18 | 128.94 | 156.41 | 139.75 | 796.68 |
| 77 | 126.45 | 131.17 | 118.06 | 126.71 | 120.79 | 122.35 | 735.36 |
| 78 | 140.56 | 146.37 | 139.92 | 115.05 | 153.28 | 135.32 | 691.77 |
| 79 | 155.03 | 141.57 | 115.94 | 139.30 | 121.18 | 110.00 | 712.80 |
| 80 | 140.10 | 119.69 | 122.47 | 120.84 | 119.91 | 103.66 | 737.56 |
| 81 | 170.77 | 121.84 | 131.79 | 106.83 | 105.11 | 107.08 | 713.93 |
| 82 | 134.29 | 129.11 | 137.35 | 118.18 | 92.55 | 120.66 | 572.71 |
| 83 | 121.49 | 105.36 | 119.98 | 112.80 | 107.69 | 87.78 | 547.14 |
| 84 | 104.50 | 126.60 | 96.50 | 120.90 | 141.14 | 80.42 |  |
| 85 | 99.80 | 91.58 | 85.71 | 97.31 | 101.16 | 84.32 |  |
| 86 | 89.61 | 81.01 | 96.05 | 82.74 | 71.64 | 72.00 |  |
| 87 | 76.74 | 56.73 | 65.25 | 67.50 | 76.53 | 67.60 |  |
| 88 | 47.75 | 52.13 | 53.78 | 52.95 | 67.22 | 54.08 |  |

Table S4C. Age-specific 6-year lung cancer incidence rates for ever-smokers at the end of 2010 Taiwan.

| **Age** | **Ever-smokers** | **2011-2016** | **Incidence (%)** |
| --- | --- | --- | --- |
| 44 | 126942 | 236.56 | 0.19 |
| 45 | 129394 | 267.91 | 0.21 |
| 46 | 130286 | 310.08 | 0.24 |
| 47 | 129091 | 309.28 | 0.24 |
| 48 | 124154 | 408.53 | 0.33 |
| 49 | 121386 | 412.37 | 0.34 |
| 50 | 119495 | 456.53 | 0.38 |
| 51 | 116639 | 485.90 | 0.42 |
| 52 | 110544 | 507.47 | 0.46 |
| 53 | 100542 | 509.17 | 0.51 |
| 54 | 100196 | 514.87 | 0.51 |
| 55 | 96882 | 641.38 | 0.66 |
| 56 | 90147 | 639.46 | 0.71 |
| 57 | 86964 | 693.14 | 0.80 |
| 58 | 82161 | 735.03 | 0.89 |
| 59 | 80209 | 783.54 | 0.98 |
| 60 | 67920 | 806.67 | 1.19 |
| 61 | 61499 | 758.52 | 1.23 |
| 62 | 52355 | 801.21 | 1.53 |
| 63 | 43074 | 723.26 | 1.68 |
| 64 | 33286 | 633.58 | 1.90 |
| 65 | 29599 | 627.16 | 2.12 |
| 66 | 36438 | 556.30 | 1.53 |
| 67 | 36821 | 730.36 | 1.98 |
| 68 | 35059 | 784.81 | 2.24 |
| 69 | 32364 | 813.80 | 2.51 |
| 70 | 34701 | 842.19 | 2.43 |
| 71 | 32963 | 828.21 | 2.51 |
| 72 | 31421 | 869.08 | 2.77 |
| 73 | 27810 | 826.58 | 2.97 |
| 74 | 23709 | 805.32 | 3.40 |
| 75 | 22962 | 718.56 | 3.13 |
| 76 | 21775 | 796.68 | 3.66 |
| 77 | 22549 | 735.36 | 3.26 |
| 78 | 21553 | 691.77 | 3.21 |
| 79 | 21475 | 712.80 | 3.32 |
| 80 | 21741 | 737.56 | 3.39 |

Table S5A. Characteristics of demography and smoking status of participants in the Taiwan Biobank, GELAC study, LCPG study, and TCRLF dataset.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Taiwan Biobank(controls) | GELAC(controls) | GELAC(cases) | LCPG(cases) | TCRLF |
| Study sizea | 121654 | 2939 | 4159 | 463 | 62122 |
| Total numberb | 121593 (100) | 2939 (100) | 4036 (100) | 463 (100) | 53846 (100) |
| Age | 　 |  |  |  |  |
|  <30 | 0 (0) | 90 (3.06) | 22 (0.55) | 0 (0) | 109 (0.20) |
|  30 – <50 | 54109 (44.50) | 590 (20.07) | 756 (18.73) | 62 (13.39) | 4795 (8.91) |
|  50 – <55 | 16462 (13.54) | 395 (13.44) | 492 (12.19) | 55 (11.88) | 4512 (8.38) |
|  55 – <60 | 18846 (15.50) | 405 (13.78) | 536 (13.28) | 60 (12.96) | 6231 (11.57) |
|  60 – <65 | 17546 (14.43) | 339 (11.53) | 530 (13.13) | 86 (18.57) | 7839 (14.56) |
|  65 – <70 | 12566 (10.33) | 446 (15.18) | 565 (14.00) | 65 (14.04) | 6734 (12.51) |
|  70 – <75 | 2025 (1.67) | 364 (12.39) | 564 (13.97) | 53 (11.45) | 7264 (13.49) |
|  75 – ≤80 | 39 (0.03) | 239 (8.13) | 424 (10.51) | 51 (11.02) | 8037 (14.93) |
|  >80 | 0 (0) | 71 (2.42) | 147 (3.64) | 31 (6.70) | 8325 (15.46) |
| Gender | 　 |  |  |  |  |
|  Female | 77891 (64.06) | 1455 (49.51) | 2310 (57.23) | 256 (55.29) | 23066 (42.84) |
|  Male | 43702 (35.94) | 1484 (50.49) | 1726 (42.77) | 207 (44.71) | 30780 (57.16) |
| Smoking status | 　 |  |  |  |  |
|  Ever-smokersc | 24420 (20.08) | 793 (26.98) | 1480 (36.67) | 166 (35.85) | 24014 (44.60) |
|  Female | 4498 (18.42) | 50 (6.31) | 146 (9.86) | 23 (13.86) | 1723 (7.17) |
|  Male | 19922 (81.58) | 743 (93.69) | 1334 (90.14) | 143 (86.14) | 22291 (92.83) |
|  Never-smokers | 97173 (79.92) | 2146 (73.02) | 2556 (63.33) | 297 (64.15) | 29832 (55.40) |
|  Female | 73393 (75.53) | 1405 (65.47) | 2164 (84.66) | 233 (78.45) | 21343 (71.54) |
|  Male | 23780 (24.47) | 741 (34.53) | 392 (15.34) | 64 (21.55) | 8489 (28.46) |

1. The Taiwan Biobank dataset includes only data granted to us before November 2020. The number of lung cancer patients included in the Taiwan Cancer Registry for 2011–2016 was 64497; among them, 62122 had a long form available.
2. These are the total numbers of participants in each study for whom age, gender, and smoking status were available. Given a column, numbers in parentheses are percentages relative to the total number.
3. Among these ever-smokers, only 23356 in the Taiwan Biobank, 734 in the GELAC study controls, 1390 in the GELAC study cases, 155 in the LCPG study cases, and 19688 in the TCRLF dataset had information on the number of pack-years smoked and number of years since quitting; Table 1B was prepared on the basis of this data.

Table S5B. Characteristics of ever-smokers with enough information to decide if they met simplified eligibility criteria.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Taiwan Biobank(controls) | GELAC(controls) | GEALC(cases) | LCPG(cases) | TCRLF |
| Total numbersa | 23356 (100) | 734 (100) | 1390 (100) | 155 (100) | 19688 (100) |
| Age | 　 |  |  |  |  |
|  <30 | 0 (0) | 10 (1.36) | 5 (0.36) | 0 (0) | 23 (0.12) |
|  30 – <50 | 10653 (45.61) | 197 (26.84) | 227 (16.33) | 26 (16.77) | 1682 (8.54) |
|  50 – <55 | 3205 (13.72) | 89 (12.13) | 132 (9.50) | 21 (13.55) | 1658 (8.42) |
|  55 – <60 | 3595 (15.39) | 92 (12.53) | 152 (10.94) | 21 (13.55) | 2309 (11.73) |
|  60 – <65 | 3192 (13.67) | 72 (9.81) | 159 (11.44) | 29 (18.71) | 2841 (14.43) |
|  65 – <70 | 2332 (9.98) | 93 (12.67) | 199 (14.32) | 16 (10.32) | 2551 (12.96) |
|  70 – <75 | 371 (1.59) | 90 (12.26) | 239 (17.19) | 17 (10.97) | 2822 (14.33) |
|  75 – ≤80 | 8 (0.03) | 71 (9.67) | 210 (15.11) | 13 (8.39) | 3012 (15.30) |
|  >80 | 0 (0) | 20 (2.72) | 67 (4.82) | 12 (7.74) | 2790 (14.17) |
| Gender | 　 |  |  |  |  |
|  Female | 4171 (17.86) | 46 (6.27) | 130 (9.35) | 22 (14.19) | 1362 (6.92) |
|  Male | 19185 (82.14) | 688 (93.73) | 1260 (90.65) | 133 (85.81) | 18326 (93.08) |
| USPSTF21 |  |  |  |  |  |
|  Negative | 19268 (82.50) | 457 (62.26) | 533 (38.35) | 69 (44.52) | 7128 (36.20) |
|  Positive | 4088 (17.50) | 277 (37.74) | 857 (61.65) | 86 (55.48) | 12560 (63.80) |
| USPSTF13 | 　 |  |  |  |  |
|  Negative | 21238 (90.93) | 555 (75.61) | 697 (50.14) | 95 (61.29) | 9642 (48.97) |
|  Positive | 2118 (9.07) | 179 (24.39) | 693 (49.86) | 60 (38.71) | 10046 (51.03) |
| NELSONb |  |  |  |  |  |
|  Negative | 19442 (83.24) | 499 (67.98) | 723 (52.01) | 77 (49.68) | 10662 (54.15) |
|  Positive | 3914 (16.76) | 235 (32.02) | 667 (47.99) | 78 (50.32) | 9026 (45.85) |
| 50-75-40-10c | 　 |  |  |  |  |
|  Negative | 22014 (94.25) | 624 (85.01) | 891 (64.10) | 109 (70.32) | 12613 (64.06) |
|  Positive | 1342 (5.75) | 110 (14.99) | 499 (35.90) | 46 (29.68) | 7075 (35.94) |

1. Given a column, numbers in the parentheses are percentages relative to the total number. Among these total numbers, 23127 in the Taiwan Biobank, 379 in the GELAC study controls, 1119 in the GELAC study cases, and 124 in the LCPG study had information on every variable in the PLCOM2012 model to estimate their risks.
2. One satisfied the NELSON screening criteria if he/she was between ages 50 and 74, had smoked at least 10 cigarettes per day for at least 30 years or 15 cigarettes per day for at least 25 years, and had smoked within the past 10 years.
3. One satisfied the 50-75-40-10 screening criteria if he/she was between ages 50 and 75, had smoked at least 40 pack-years, and had smoked within the past 10 years.

Table S5C. Characteristics of ever-smokers with enough information for applying the PLCOM2012 model.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Taiwan Biobank(controls) | GELAC(controls) | GEALC(cases) | LCPG(cases) |
| Total numbersa | 23127 (100) | 379 (100) | 1119 (100) | 124 (100) |
| Age | 　 |  |  |  |
|  <30 | 0 (0) | 8 (2.11) | 3 (0.27) | 0 (0) |
|  30 – <50 | 10552 (45.63) | 126 (33.25) | 208 (18.59) | 23 (18.55) |
|  50 – <55 | 3179 (13.75) | 47 (12.40) | 118 (10.55) | 20 (16.13) |
|  55 – <60 | 3564 (15.41) | 30 (7.92) | 137 (12.24) | 18 (14.52) |
|  60 – <65 | 3156 (13.65) | 40 (10.55) | 140 (12.51) | 23 (18.55) |
|  65 – <70 | 2302 (9.95) | 46 (12.14) | 163 (14.57) | 12 (9.68) |
|  70 – <75 | 366 (1.58) | 42 (11.08) | 170 (15.19) | 13 (10.48) |
|  75 – ≤80 | 8 (0.03) | 33 (8.71) | 139 (12.42) | 11 (8.87) |
|  >80 | 0 (0) | 7 (1.85) | 41 (3.66) | 4 (3.23) |
| Body-mass index | 25.37 (3.82) | 24.65 (3.15) | 23.93 (3.58) | 24.66 (3.96) |
| Educationb | 　 |  |  |  |
|  Level 1 | 2751 (11.90) | 115 (30.34) | 694 (62.02) | 49 (39.52) |
|  Level 2 | 8093 (34.99) | 113 (29.82) | 252 (22.52) | 47 (37.90) |
|  Level 3 | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
|  Level 4 | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
|  Level 5 | 10525 (45.51) | 135 (35.62) | 157 (14.03) | 26 (20.97) |
|  Level 6 | 1758 (7.60) | 16 (4.22) | 16 (1.43) | 2 (1.61) |
| Gender | 　 |  |  |  |
|  Female | 4118 (17.81) | 25 (6.60) | 108 (9.65) | 17 (13.71) |
|  Male | 19009 (82.19) | 354 (93.40) | 1011 (90.35) | 107 (86.29) |
| COPDc | 　 |  |  |  |
|  No | 22720 (98.24) | 371 (97.89) | 1071 (95.71) | 115 (92.74) |
|  Yes | 407 (1.76) | 8 (2.11) | 48 (4.29) | 9 (7.26) |
| Family historyd | 　 |  |  |  |
|  No | 21587 (93.34) | 350 (92.35) | 969 (86.60) | 106 (85.48) |
|  Yes | 1540 (6.66) | 29 (7.65) | 150 (13.40) | 18 (14.52) |
| Duration of smoking | 19.05 (12.99) | 26.82 (13.48) | 35.95 (14.57) | 32.56 (13.03) |
| Smoking intensitye | 15.71 (13.02) | 17.78 (12.54) | 24.60 (14.67) | 23.67 (14.61) |
| Smoking status | 　 |  |  |  |
|  Current | 10787 (46.64) | 191 (50.40) | 466 (41.64) | 39 (31.45) |
|  Former | 12340 (53.36) | 188 (49.60) | 653 (58.36) | 85 (68.55) |
| Smoking quit time | 7.41 (10.42) | 6.86 (10.34) | 4.59 (9.10) | 6.31 (10.10) |

1. Given a column, numbers in the parentheses are percentages relative to the total numbers except for continuous variables. The numbers in the parentheses after continuous variables are their standard deviations.
2. Level 1 = Less than high-school graduate. Level 2 = High-school graduate. Level 3 = Some training after high school. Level 4 = Some college. Level 5 = College graduate. Level 6 = Postgraduate or professional degree.
3. Chronic obstructive pulmonary disease.
4. Lung cancer history among parents and siblings.
5. Number of pack-years smoked.

Table S6. Age distribution of Taiwan Biobank at baseline and that of Taiwan Population at the end of 2010.

|  |  |  |
| --- | --- | --- |
|  | **Taiwan biobank baseline samples: 122,070a** | **Taiwan Population ages 30—70****at the end of 2010 (12,852,091)** |
|  | **N** | **%** | **N** | **%** |
| 30≤Age<35 | 12656 | 10.3678  | 2029110 | 15.7882  |
| 35≤Age<40 | 14932 | 12.2323  | 1791704 | 13.9410  |
| 40≤Age<45 | 14656 | 12.0062  | 1862445 | 14.4914  |
| 45≤Age<50 | 14621 | 11.9776  | 1904868 | 14.8215  |
| 50≤Age<55 | 17368 | 14.2279  | 1780392 | 13.8529  |
| 55≤Age<60 | 19161 | 15.6967  | 1572529 | 12.2356  |
| 60≤Age<65 | 16961 | 13.8945  | 1027281 | 7.9931  |
| 65≤Age≤70 | 11715 | 9.5970  | 883762 | 6.8764  |

1. Provided to us before Nov. 2020; one of them had birth year missing.