**TITLE** Misclassification of smoking habits. An updated review of the literature

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**Supplementary File 1**

**Avoidance of overlaps**

For some studies, misclassification results are provided in several reports. Our analyses aim to include the greatest amount of data available but not include the same participants more than once, that is to say they aim to avoid double-counting. The details included in each study report vary, so some difficult decisions had to be made on which of them to include. Also, some reports give details that are useful for some of our analyses but not for others. For example, a study report may compare misclassification as measured using several different body fluids. For such a study, our analyses of misclassification categorised by the body fluid should include all these results, but our overall analyses should include just one of them. This means that some study reports can be excluded from all analyses while others are excluded only from some of them, by careful selection of the result used in each analysis. The table below concerns each study for which there is more than one study report and each report that provides multiple estimates of misclassification. It identifies those that are excluded from all analyses (as “Reports excluded”). It also identifies those study reports that should be included in only some analyses.

The study reports are listed according to the name of the study they report (or a study name based on the first author’s name) and then by the earliest study year reported. Study reports of more than one year generally report data pooled for those years. Where results for individual years are available, this is mentioned. Under “Reports included” and “Reports excluded” the source reference is given, together with details of the types of information available from that source. The smoker categories mentioned are those for which misclassification details are available; they exclude those categories reporting only the number of participants with cotinine measurements. “M, F” means that details are provided for the sexes separately. Cut point 1 is the lower cut point; cut point 2 is the higher, more conservative cut point. The Notes column gives additional information. For excluded reports it gives the reason for exclusion.

| **Study** | **Years reported** | **Reports included** | **Reports excluded** | **Notes** |
| --- | --- | --- | --- | --- |
| ABC (Aboriginal Birth Cohort) | 2005-08 | M, F[1] | Sexes combined[1] | Single sex results preferred. |
| Arnold | 1995-96 | F; African American[2] |  | Separate populations: no overlap of data. |
|  | 1995-96 | F; White[2] |  |  |
| Audrain-McGovern | 2007-09 | Non-smokers; sexes combined; 12-week follow-up[3] |  | Non-smokers: 54. |
|  | 2007-09 |  | Non-smokers; sexes combined; 24-week follow-up ([3]) | Non-smokers: 43.  Smaller sample size. |
| Birmingham II | 1986-91 | Ex and current smokers; F[4] |  | Ex-smokers: 126. Current smokers: 566. |
|  | NS |  | Ex and current smokers; F[5] | Ex-smokers: 107. Current smokers: 441.  Cites [4] as its source reference.  Smaller sample size. |
| BRHS baseline (British Regional Heart Study) | 1978-80 |  | Non-smokers; M only; age 40-59[6] | Non-smokers: 2158.  Smaller sample size. |
|  | 1978-80 | Non-smokers; M only; age 40-59[7] |  | Non-smokers: 2183. |
| BRHS follow-up (British Regional Heart Study + study of women) | 1998-2000 |  | Non-smokers; M only; age 60-79[7] | Non-smokers: 2183.  Smaller sample size. |
|  | 1998-2001 | Non-smokers; sexes combined; age 60-79[8] |  | Non-smokers: 7161. |
|  | 1998-2001 |  | Non-smokers; sexes combined; age 60-79[9] | Non-smokers: 4833.  Smaller sample size. |
| BUPA | NS | Non- and current smokers; M only[10] |  | Non-smokers: 221 Current smokers: 232  Includes colleagues in Oxford. |
|  | NS |  | Non- and current smokers; sexes combined[11] | Non-smokers: 184 Current smokers: 49  Smaller sample size. |
| CHDS (Child Health and Development Studies in California) | 1964-67 | Non- and current smokers; cut point 14 ng/ml serum[12] |  | Non-smokers: 2140. Current smokers: 1203.  Greatest sample size, Cut point nearer to our ideal value. |
|  | 1964-67 |  | Non-smokers, cut point 10 ng/ml serum[13] | Non-smokers: 2292.  Smaller sample size. |
|  | 1964-67 |  | Non- and current smokers, cut point 10 ng/ml serum[14] | Non-smokers: 1740. Current smokers: 935.  Smaller sample size. |
|  | 1964-67 |  | Non- and current smokers, cut point 10 ng/ml serum[15] | Non-smokers: 1459. Current smokers: 708.  Smaller sample size. |
| CHMS (Canadian Health Measures Survey) | 2007-09 | Non- and current smokers; sexes combined; age 12-79[16] |  | Non-smokers: 3426. Current smokers: 797. |
|  | 2007-09 |  | Non-smokers; sexes combined age 6-79[17] | Non-smokers: 4590.  Includes children (hence larger non-smoker sample size); no current-smoker results. |
| Copenhagen | 1985-86 |  | Men without CVD; never and current smokers[18] | Never-smokers: 363. Current smokers: 1710.  Smaller sample. |
|  | 1985-86 | Men with or without CVD; non and current smokers[19] |  | Non-smokers: 1405. Current smokers: 1865.  No data available separately for men with CVD that could have been used in study type analysis. |
|  | 1985-86 |  | Men; never, ex and current smokers[20] | Never smokers: 364. Ex-smokers 1112. Current smokers 1829.  Unpublished analysis. Prefer the published results.  This report was used in the earlier review[21] where it was identified as the Gyntelberg study. |
| DC\_HOPE | 2001-03 | Ex-smokers; F; cut point 2[22] |  | Ex-smokers: 305.  Ex-smoker values provide estimates for additional rate types. |
|  | 2001-03 |  | Non-smokers; F; cut point 1[23] | Non-smokers: 691.  Smaller overall sample size. Some inconsistency in the values reported. Single cut-point. |
|  | 2001-03 | Non- and current smokers; F; cut points 1 and 2[24] |  | Non-smokers: 588. Current smokers: 126. Total: 714. |
|  | 2001-03 |  | Non-smokers; F; cut point 1[25] | Non-smokers: 491.  Smaller sample size. Single cut-point. |
| de Chazeron | 2003-04 |  | Non- and current smokers; F[26] | Non-smokers: 698. Current smokers: 211.  Smaller sample size |
|  | 2003-04 | Non- and current smokers; F[27] |  | Non-smokers: 781. Current smokers: 226. |
| EHLS (Epidemiology of Hearing Loss Study) | 1998-2000 | Non-, never, ex- and current smokers; sexes combined; cut points 1 and 2[28] |  | Non-smokers: 525. Current smokers: 55. |
|  | 1998-2000 |  | Non- and current smokers; sexes combined; cut point 1 only[29] | Non-smokers: 514. Current smokers: 128.  All else being similar, this report was excluded as having results for only one cut point. |
| Fidler | 1999 |  | Non- and current smokers; sexes combined; school year 7[30] | Non-smokers: 2018. Current smokers: 23. Total: 2041. |
|  | 2000 |  | Non- and current smokers; sexes combined; school year 8[30] | Non-smokers: 1937. Current smokers: 104. Total: 2041. |
|  | 2001 |  | Non- and current smokers; sexes combined; school year 9[30] | Non-smokers: 2018. Current smokers: 23. Total: 2041. |
|  | 2002 |  | Non- and current smokers; sexes combined; school year 10[30] | Non-smokers: 1576. Current smokers: 465. Total: 2041. |
|  | 2003 | Non- and current smokers; sexes combined; school year 11 ([30]) |  | Non-smokers: 1457. Current smokers: 584. Total: 2041.  This study gathered data annually on the same set of participants.  Keep the result for the age group closest to adult age. |
| FINRISK | 1992 | Non-, never, ex- and current smokers; M, F; cut points 1 and 2; four areas of Finland including North Karelia[31] |  | Non-smokers: 4355. Never-smokers: 2508. Ex-smokers: 1847. Current smokers: 1489. |
|  | 1992 |  | Non-, never, ex- and current smokers; M, F; cut points 1 and 2; North Karelia[32] | Non-smokers: 1069. Never-smokers: 802. Ex-smokers: 267. Current smokers: 362.  Smaller sample size. |
| Fontham (controls) | 1985-88 |  | Never-smokers; F[33] | Never-smokers: 684.  Smaller sample size. |
|  | 1985-90 | Population controls; never-smokers; F[34] |  | Never-smokers: 1064 |
| Fontham (cases) | 1985-90 | Lung cancer patients; never-smokers; F[34] |  | Never-smokers: 356.  No overlap with Fontham controls. |
| George | 1996-98 | Non- and current smokers; F, early pregnancy[35] |  | Non-smokers: 725. Current smokers: 60. Total: 785. |
|  | 1996-98 |  | Non- and current smokers; F, late pregnancy ([35]) | Non-smokers: 737. Current smokers: 48. Total: 785.  No real difference between these two reports. One needs to be rejected. |
| Haddow II | 1979-83 | Non- and current smokers[36] |  | Non-smokers: 3341. Current smokers: 4722. |
|  | 1981-82 |  | Non-smokers only[37] | Non-smokers: 586.  Smaller sample size. |
| Haddow III | 1984-85 | [38] |  | No overlap in dates with study Haddow II. |
| HALS2 (Health and Lifestyle Survey 1991-1992) | 1992 | Non-smokers; sexes combined[39] |  | Non-smokers: 2649. |
|  | 1991-92 |  | Non-smokers; sexes combined[40] | Non-smokers: 1842.  Smaller sample size |
| Hegaard | 1996-98 | Non- and current smokers; F[41] |  | Non-smokers: 261. Current smokers: 359. |
|  | 1996-98 | Ex-smokers; F[42] |  | Ex-smokers: 63.  Ex-smoker values provide estimates for additional rate types. |
| Hellemons | 2001-03 | Non-, never, ex- and current smokers; sexes combined; urine; cut points 1 and 2[43] |  | Non-smokers: 472. Current smokers: 131.  Include in all analyses. |
|  | 2001-03 | Non-, never, ex- and current smokers; sexes combined; plasma; cut points 1 and 2[43] |  | Non-smokers: 472. Current smokers: 131.  Include only in analyses by body fluid tested. |
| Holiday | NS | Non- and current smokers; sexes combined; smokers considered[44] |  | Non-smokers: 343. Current smokers: 271. Total: 614. |
|  | NS | Non- and current tobacco users; sexes combined; smokers and smokeless tobacco users considered[44] |  | Non-users: 277. Current users: 337. Total: 614.  Include only in analyses by tobacco products considered. |
| HSE (Health Survey for England) | 1993 | M, F[45] |  | We have no alternative source for this year. |
|  | 1994 | Non-, never, ex- and current smokers; sexes combined[46] |  |  |
|  | 1994 and 1996 |  | Non-, never and ex-smokers; sexes combined ([47]) | Excluding this source loses some information (never-smoker / ex-smoker split in 1996) but avoids double-counting in 1994 and 1996. |
|  | 1996 – 2004 | Non- and current smokers; sexes combined; any smoking[48] |  |  |
|  | 1996 – 2004 | Non- and current smokers; sexes combined; cigarette smoking[48] |  | Include only in analyses by tobacco products considered. |
|  | 1998 - 2001 | Never-smokers; M, F; individual years[49] | Never-smokers; M, F; years combined ([49]) | Other reports for these years provide non-smoker and current-smoker values only. Never-smoker values provide estimates for additional rate types.  All the information is available in the data for individual years. Including the years-combined values would double-count. |
|  | 1999 | Non-smokers; M, F[50] |  | Include only in comparison of male and female rates. |
|  | 1999 and 2004 |  | Bangladeshi women ([51]) | Non-representative sub-sample. |
|  | 2001 | With COPD, without COPD[52] |  | Include only in study type analyses. |
|  | 2002 | Non-, never, ex- and current smokers; M, F[53] |  | Use never and ex-smoker data in all analyses.  Use non- and current smoker data in comparison of male and female rates only. |
|  | 2003 | Non-, never, ex- and current smokers; sexes combined[54] |  | Use never and ex-smoker data only. These values provide estimates for additional rate types for 2003. |
| INMA | 2003-08 |  | Non-smokers, F only, cut point 50 ng/ml urine[55] | Results presented are very similar to those in[56].  Non-smokers: 1868.  All else being very similar, this report was excluded as having a cut point further from our ideal value. |
|  | 2004-08 | Non-smokers; F only; cut point 100 ng/ml urine[57] |  | Non-smokers: 1845. |
|  | 2004-08 | Non- and current smokers; F only; cut point 50 ng/ml urine[56] |  | Non-smokers: 1845.  Current smokers: 418.  Exclude the non-smoker data as it uses a cut point further from our ideal value.  Use the current-smoker data only. |
| KNHANES (Korean NHANES) | 2008 | Non-, never, ex- and current smokers; M, F[58] |  | KNHANES IV year 2008 only.  Non-smokers: 1319 M, 2887 F.  Current smokers: 1098 M, 181 F.  Use never and ex-smoker data only. |
|  | 2008-09 |  | Non- and current smokers; M, F[59] | KNHANES IV years 2008 and 2009.  Non-smokers: 2574 M, 5281 F.  Current smokers: 2072 M, 350 F.  Smaller sample size. |
|  | 2008-09 | Never smokers only; F only; age 55+[60] |  | KNHANES IV years 2008 and 2009.  Never-smokers: 1472 F.  Include in analysis by age only. |
|  | 2008-10 | Non- and current smokers; M, F[61] |  | KNHANES IV (years 2008 and 2009) and V (2010 only).  Non-smokers: 3004 M, 5857 F.  Current smokers: 2354 M, 344 F.  This provides the greatest sample size. |
|  | 2008-10 |  | Non- and current smokers; F only[62] | KNHANES IV (years 2008 and 2009) and V (2010 only).  Only participants with spirometry measurements were considered. Non-smokers: 4313 F.  Current smokers: 271 F.  Smaller sample size. |
|  | 2008-10 |  | Non-smokers only; F only [63] | KNHANES IV (years 2008 and 2009) and V (2010 only).  Non-smokers: 5307 F.  Smaller sample size. |
|  | 2008-10 |  | Never and current smokers; M only[64] | Due to the cut point values used, relevant results are available for current smokers only. |
|  | 2010-12 | Never smokers only; F only[65] |  | KNHANES V years 2010-12.  Never-smokers: 1568 F.  Other reports for 2010 provide non-smoker and current-smoker values only. Never-smoker values provide estimates for additional rate types. |
| Lifestyle and Appetite Study | 1985 | Non- and current smokers; cut points 1 and 2; M, F[66] |  | Non-smokers: 808. Current smokers: 176. |
|  | 1985 |  | Non- and current smokers; cut points 1 and 2; sexes combined[67] | Non-smokers: 808.  Current smokers: 176.  Sexes separately preferred. |
|  | 1985 |  | Non-smokers; cut points 1 and 2; sexes combined[68] | Non-smokers: 808. Current smokers: 176.  Sexes separately preferred. |
| MFHS (Mini Finland Health Survey) | 1978-80 | Non-, never and ex-smokers; sexes combined; cut point 2 only[69] |  | Non-smokers: 5296. Never-smokers: 3852. Ex-smokers: 1444. |
|  | 1978-80 participants re-examined in 2000-01 | Non- and current smokers; sexes combined; cut point 2 only[70] |  | Non-smokers: 632. Current smokers: 152.  Smaller sample size.  Use the current-smoker data only. |
| MONICA Germany | 1984-85 | M; age 25-44[71] |  |  |
|  | 1984-85 | M; age 45-64[71] |  |  |
|  | 1984-85 |  | M; all ages[71] | No additional information in the all-ages results. |
|  | 1984-85 | F; age 25-44[71] |  |  |
|  | 1984-85 | F; age 45-64[71] |  |  |
|  | 1984-85 |  | F; all ages[71] | No additional information in the all-ages results. |
| MONICA Scotland | 1986, 1989, 1992 and 1995 | Non-, never, ex- and current smokers; M, F[72] |  | Non-smokers: 2783. Current smokers: 2123. |
|  | 1995 |  | Non-smokers; sexes combined[73] | Non-smokers: 301.  Smaller sample size. |
| NHANES (early years) | 1988-1991 |  | Data by race; sexes combined[74] | Non-smokers: 5046. Current smokers: 2136.  Smaller sample size. |
|  | 1988-1994 |  | Sexes combined[75] | Non-smokers: 11083. Current smokers: 1894.  Smaller sample size. |
|  | 1988-1994 |  | Sexes combined[76] | Non-smokers: 11421. Current smokers: 4990.  Similar sample size. Separate sexes preferred. |
|  | 1988-1994 | Non- and current smokers; age 18+; M, F[77] |  | Non-smokers: 11629. Current smokers: 3553.  Separate sexes preferred. |
|  | 1988-1994 | Non- and current smokers; adolescents aged 12-17; M, F[78] |  | Non-smokers: 1894. Current smokers: 213.  Adolescents: additional participants. |
|  | 1988-1994 |  | Non- and current smokers; sexes combined[79] | Non-smokers: 1839. Current smokers: 434.  Smaller sample size. |
|  | 1988-1994 | Never-smokers; sexes combined[80] |  | Never-smokers: 7828.  Never-smoker values provide estimates for additional rate types. |
| NHANES (later years) | 1999-2000 |  | Sexes combined[81] | Non-smokers: 2761. Current smokers: 923.  Smaller sample size than [82]. |
|  | 1999-2000 | Non- and current smokers; adolescents and adults separately; sexes combined[82] |  | Age 12-19: Non-smokers: 1430. Current smokers: 244.  Age 20+:  Non-smokers: 2688. Current smokers: 935.  Smaller sample size than the total in [83] and no data by sex but, in combination with [84], provides data for all years 1999-2012. |
|  | 1999-2002 |  | Non-smokers only; sexes combined[85] | Non-smokers: 2585.  Smaller sample size than [82]. |
|  | 1999-2002 |  | Hispanics only; non-smokers only, M, F[86] | Non-smokers: 1925.  Smaller sample size than [82]. |
|  | 1999-2004 |  | Non- and current smokers; age 18+; M, F[87] | Non-smokers: 11386. Current smokers: 5625.  Overlaps data from [82] and [84]. |
|  | 1999-2004 |  | Non- and current smokers; adolescents and adults separately; M, F[83] | Age 12-19: Non-smokers: 4623. Current smokers: 515.  Age 20+:  Non-smokers: 7561. Current smokers: 2340.  Using [82] and [84] instead of this source loses separate sex results for 1999-2000 but avoids double-counting. |
|  | 1999-2004 | Non-, never, ex- and current smokers; Age 40+; sexes combined[88] |  | Non-smokers: 5981. Never smokers: 3451 Ex-smokers: 2530 Current smokers: 1570.  Overlaps data from [82] and [84].  Use Never and Ex-smoker data only. |
|  | 1999-2004 |  | Non-smokers only; sexes combined[89] | Non-smokers: 8523.  Overlaps data from [82] and [84]. |
|  | 1999-2006 | F only; pregnant and non-pregnant separately[90] |  | Pregnant: Non-smokers: 902. Current smokers: 92.  Non-pregnant: Non-smokers: 2421. Current smokers: 782.  Use data for pregnant participants in analyses of pregnant women only. |
|  | 2001-2002 |  | Sexes combined[54] | Non-smokers: 3553. Current smokers: 1134.  Overlaps data from [84]. |
|  | 2001-2008 |  | Data in 2-year groups; sexes combined[91] | 2001-02: Non-smokers: 3240. 2001-02: Current smokers: 1446.  2003-04: Non-smokers: 3031. 2003-04: Current smokers: 1445.  2005-06: Non-smokers: 3081. 2005-06: Current smokers: 1403.  2007-08: Non-smokers: 3636. 2007-08: Current smokers: 1700.  Overlaps data from [84]. |
|  | 2001-2012 | Non- and current smokers; non-Hispanics only; data by age and race but not by year; M, F[84] |  | Total over ages, races and sexes: Non-smokers: 21768. Current smokers: 6219.  In combination with [82], provides data for all years 1999-2012. |
|  | 2003-2006 |  | Non-smokers only; black people and Mexican Americans oversampled; sexes combined[92] | Non-smokers: 6120.  Overlaps data from [84]. |
|  | 2003-2012 | Data in 2-year groups; age 20+; never-smokers only; sexes combined[93] |  | Never-smokers:  2003-04: 2238. 2005-06: 2358. 2007-08: 2801. 2009-10: 3059. 2011-12: 2818.  Never-smoker values provide estimates for additional rate types.  Exclude results for 2003-04: they overlap [88] above. |
| Ogden | NS | Non-, never, ex- and current smokers; F[94] |  | This is the formal publication of the results. |
|  | 1992 |  | Non-, never and ex-smokers; F[95] | An unpublished report. |
| Osaka Factory | 2003 | Non- and current smokers; sexes combined[96] |  | Non-smokers: 161. Current smokers: 95. |
|  | 2003 |  | Non- and current smokers; sexes combined[97] | Non-smokers: 126. Current smokers: 74.  Smaller sample size. |
| Parker | NS | Non- and current smokers; sexes combined; gas chromatography method[98] |  | Non-smokers: 134. Current smokers: 122. |
|  | NS |  | Non- and current smokers; sexes combined; test strip method[98] | Non-smokers: 134. Current smokers: 122.  Could have been included in analyses by assay method but both methods reported (gas chromatography and test strip) are categorised as ‘Chromatography’ so this one is excluded. |
| Peacock | 1982-84 | Non- and current smokers; F; booking visit[99] |  | Non-smokers: 873. Current smokers: 381. |
|  | 1982-84 |  | Non- and current smokers; F; 28 weeks[99] | Non-smokers: 772. Current smokers: 325.  Smaller sample size. |
|  | 1982-84 |  | Non- and current smokers; F; 36 weeks[99] | Non-smokers: 690. Current smokers: 300.  Smaller sample size. |
| S-Germany-I (Southern Germany I) | 1984-85 | Non-, never and ex-smokers; M, F[100] |  | First random sample |
|  | 1987-88 |  | Non-, never and ex-smokers; M, F[100] | Follow-up of first random sample.  Smaller sample size. |
| S-Germany-II (Southern Germany II) | 1989-90 | Non-, never and ex-smokers; M, F[100] |  | Second random sample |
| SEASD (Studio Epidemiologico su Ambiente e Salute nelle Donne) | 1997-98 | Non-smokers, F only, plasma, cut point 1[101] |  | Include in analysis by body fluid only. |
|  | 1997-98 | Non-smokers, F only, saliva, cut point 1[101] |  | Include in analysis by body fluid only. |
|  | 1997-98 | Non-smokers, F only, urine, cut point 1[101] |  | Greatest sample size. Include in all analyses. |
|  | 1997-98 | Non-smokers, F only, saliva, cut point 2[102] |  | Only source for cut point 2 data. Include in all analyses. |
|  | 1997-98 |  | Non-smokers, F only, urine[103] | Smaller sample size. |
|  | 1997-98 | Never-smokers, F only, urine, cut point 1[104] |  | Useful for Never smoker rates.  Never-smoker values provide estimates for additional rate types. |
| SHHS (Scottish Heart Health Study) | 1984-86 | Non-smokers; M, F; cut points 1 and 2[105] |  | Non-smokers: 1873 M, 2271 F. |
|  | 1984-86 | Never-smokers; M, F[106] |  | Other reports provide non-smoker values only. Never-smoker values provide estimates for additional rate types. |
|  | 1984-86 |  | Non-smokers; M, F[107] | Non-smokers: 1505 M, 1708 F.  Assessment used a combination of biochemical evidence of smoking (carbon monoxide, cotinine and serum thiocyanate) not just cotinine. |
|  | 1984-86 |  | Non-smokers; sexes combined[108] | Non-smokers: 5764.  Assessment used a combination of biochemical evidence of smoking (carbon monoxide, cotinine and serum thiocyanate) not just cotinine. |
|  | NS |  | Non-smokers; sexes combined[109] | Non-smokers: 3977.  Smaller sample size. |
| SHS (Scottish Health Surveys) | 1998-2010 |  | Non-smokers, sexes combined[110] | Non-smokers: 4434  Smaller sample size. |
|  | 1998-2010 | Non- and current smokers, sexes combined[111] |  | Non-smokers: 7729 Current smokers: 2767 |
| TEC (Top End Cohort) | 2007-09 | M, F[1] | Sexes combined[1] | Single sex results preferred. |
| Waggoner | 1997-2000 | Non- and current smokers; F[112] |  | Non-smokers: 163. Current smokers: 112. |
|  | 1997-2000 |  | Non- and current smokers; F[113] | Non-smokers: 163. Current smokers: 112.  No difference between these two reports. One needs to be rejected. |
| Windham | 1990-91 |  | Non-smokers; F[114] | Non-smokers: 93.  Smaller sample size. |
|  | 1990-91 | Non- and current smokers; F[115] |  | Non-smokers: 347. Current smokers: 63. |
| Windsor | A 5-year trial, 1997-2001 | Non- and ex-smokers; F[116] |  | Non-smokers: 328. Ex-smokers: 39. |
|  | A 5-year trial, years NS |  | Ex-smokers; F[117] | Ex-smokers: 324.  Smaller sample size. |
| Yeh | 2007-08 | Non- and current smokers; sexes combined; liquid chromatography-mass spectrometry method[118] |  | Non-smokers: 100. Current smokers: 201.  Spectrometry method. |
|  | 2007-08 | Non- and current smokers; sexes combined; test strip method[118] |  | Non-smokers: 100. Current smokers: 201.  Chromatography method.  Include only in analyses by assay method. |

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**TITLE** Misclassification of smoking habits. An updated review of the literature

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**Supplementary File 2**

**Study characteristics**

The table below lists all the studies included in the analyses. This consists of the studies listed as “Reports included” in Supplementary File 1 (Avoidance of overlaps) together with the individual study reports for which no overlap was identified (and so were not mentioned in Supplementary File 1).

The table gives brief details of the studies. Each study is given a study name: either the name given to the dataset by the study reports or a study name assigned by us, based on the name of the first author. This study name is used to identify the study in the detailed analyses (see Supplementary File 3). The country in which the study was carried out is also given for each study.

The rest of the columns give details for each of the sources used to provide misclassification data. The source reference is given under “Sources used” with details given in the References section below the table. The Sex value is coded as M: data for males only; F: data for females only; M+F: data provided for sexes combined only; M, F: data provided for males and females separately. The age range considered is given in as much detail as possible. Some studies reported only the mean age of participants while others (especially studies of pregnant women) gave no age details. Body fluid represents the substance tested for cotinine. Urine CCR represents cotinine-creatinine ratio measured in urine. Cut point values are given, where available, for both cut point 1 (the lower cut point) and cut point 2 (the higher, more conservative cut point). Where only one value is given this represents cut point 1 unless “cut point 2” is specified. The Notes column gives some further details; in particular, for studies with several sources, noting the individual contributions made by each of the sources. More detail of this is given in Supplementary File 1.

While this table presents all the sources of data used in analysis, it does not describe each misclassification rate value used. For example, many studies give separate results for males and females; [1] gives separate results for African American and White participants. Additionally, if misclassification in a single smoking group (such as non-smokers) is reported then only a single misclassification rate can be calculated, but if misclassification in various smoking groups (such as never-smokers, ex-smokers and current smokers) is reported then several misclassification rates can be estimated from the data. The details of each rate used in analysis, together with its source, are given in the listings sections of Supplementary File 3.

| Study | Country | Sources used | Sexes | Age range | Body fluid | Cut point values | Notes |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ABC | Australia | [2] | M, F | 16-21 | Urine | 51 ng/ml and  551 ng/ml |  |
| Agewall | Sweden | [3] | M | 54-77 | Urine | 352.11 ng/ml  (cut point 2) |  |
| Ahluwalia | USA | [4] | M+F | 18+ | Saliva | 20 ng/ml |  |
| Akiyama | Japan | [5] | M, F | 20+ | Urine CCR | 100 ng/mg |  |
| Anderson | Denmark | [6] | F | Mean age 30 | Serum | 10 ng/ml |  |
| Apseloff | USA | [7] | M+F | NS | Urine | 500 ng/ml  (cut point 2) |  |
| Arnold | USA | [1] | F | 12-45 | Urine | 100 ng/ml | African American and White populations were reported separately |
| Assaf | USA | [8] | M, F | 18-65 | Serum | M: 58 ng/ml  (cut point 2),  F: 30 ng/ml |  |
| Attebring | Sweden | [9] | M+F | 1-75 | Plasma | 20 ng/ml and  100 ng/ml |  |
| Audrain-McGovern | USA | [10] | M+F | 14-18 | Saliva | 15 ng/ml |  |
| Badger | N Ireland | [11] | M+F | Mean age 70 | Serum | 25 ng/ml |  |
| Baltar | Multinational | [12] | M+F | NS | Serum | 88.03 ng/ml  (cut point 2) |  |
| Bardy | Finland | [13] | F | Mean age 29 | Serum | 100 ng/ml  (cut point 2) |  |
| Barlow | England | [14] | F | NS | Urine | 105.6 ng/ml |  |
| Bauld | England | [15] | F | NS | Urine | 49.7 ng/ml |  |
| Benowitz III | USA | [16] | M+F | 18+ | Plasma | 14 ng/ml |  |
| Bernert | USA | [17] | M+F | 18-61 | Serum | 15 ng/ml and  100 ng/ml |  |
| Birmingham II | USA | [18] | F | Mean age 25 | Saliva | 30 ng/ml |  |
| BRHS baseline | UK | [19] | M | 40-59 | Serum | 15 ng/ml |  |
| BRHS follow-up | UK | [20] | M+F | 60-79 | Serum | 15 ng/ml |  |
| Brunet | South Africa | [21] | M+F | 18+ | Plasma | 15 ng/ml |  |
| BUPA | England | [22] | M | NS | Urine | 128 ng/ml and  512 ng/ml |  |
| Burstyn | Canada | [23] | F | 18+ | Serum | 121 ng/ml  (cut point 2) |  |
| Carey | UK | [24] | M+F | 18-73 | Saliva | 14.7 ng/ml |  |
| Ceppa | France | [25] | M+F | Mean age 57 | Urine | 20 ng/ml |  |
| CHDS | USA | [26] | F | Mean age 26.9 | Serum | 14 ng/ml |  |
| CHMS | Canada | [27] | M+F | 12-79 | Urine | 50 ng/ml |  |
| Cooley | USA | [28] | F | Mean age 65 | Urine | 50 ng/ml |  |
| Copenhagen | Denmark | [29] | M | 53-75 | Serum | 100 ng/ml  (cut point 2) |  |
| Coultas | USA | [30] | M, F | 18+ | Saliva | 10% of mean smoker value |  |
| Cummings | USA | [30] | M, F | 18-84 | Urine | 10% and 30% of mean smoker value |  |
| DC-HOPE | USA | [31] | F | 18+ | Saliva | 20 ng/ml and  100 ng/ml | Non- and current smokers. |
|  |  | [32] | F | Mean age 25 | Saliva | 100 ng/ml  (cut point 2) | Ex-smokers. |
| de Chazeron | France | [33] | F | Mean age 30 | Plasma | 21.5 ng/ml |  |
| Delfino | Canada | [34] | M+F | 20+ | Saliva | 20 ng/ml |  |
| Dell'Orco | Italy | [35] | M, F | 12-15 | Urine | 100 ng/ml |  |
| Dickinson | Australia | [36] | M+F | 18+ | Saliva | 35 ng/ml |  |
| Dolcini | USA | [37] | M+F | 12-14 | Saliva | 10 ng/ml |  |
| EHLS | USA | [38] | M+F | 53-75 | Serum | 15 ng/ml and  190 ng/ml |  |
| Ellard II | Scotland | [39] | F | Mean age 27 | Urine CCR | 100 ng/mg |  |
| Emmons | USA | [40] | M+F | Mean age 42 | Saliva | 10 ng/ml |  |
| England | USA | [41] | F | Mean age 22 | Urine | 50 ng/ml |  |
| Etter | Switzerland | [42] | M+F | Mean age 28 | Saliva | 13 ng/ml |  |
| Everett-Murphy | South Africa | [43] | F | 14+ | Urine | 100 ng/ml |  |
| Feldman | USA | [44] | M+F | Mean age 15 | Plasma | 25 ng/ml |  |
| Fendrich | USA | [45] | M+F | 18-40 | Saliva | 20 ng/ml |  |
| Fidler | England | [46] | M+F | 15-16 | Saliva | 15 ng/ml | Data for the highest school year. |
| FINRISK | Finland | [47] | M, F | 25-64 | Serum | 10 ng/ml and  50 ng/ml |  |
| Fontham | USA | [48] | F | 20-79 | Urine CCR | 100 ng/mg | Controls and cases, separately. |
| Ford | New Zealand | [49] | F | NS | Serum | 15 ng/ml and  100 ng/ml |  |
| Fritz | Austria | [50] | M+F | NS | Urine | 13 ng/ml |  |
| Gariti | USA | [51] | M+F | 19-65 | Urine | 50 ng/ml |  |
| George | Sweden | [52] | F | NS | Plasma | 15 ng/ml | Early pregnancy data. |
| Gill | South Africa | [53] | M+F | Mean age 47 | Urine CCR | 1000 ng/ml  (cut point 2) |  |
| Gilligan | Australia | [54] | F | 16+ | Urine | 250 ng/ml  (cut point 2) |  |
| Glasgow I | USA | [55] | M+F | Mean age 40 | Saliva | 25 ng/ml |  |
| Glasgow II | USA | [55] | M+F | Mean age 44 | Saliva | 25 ng/ml |  |
| Glasgow III | USA | [55] | M+F | Mean age 41 | Saliva | 25 ng/ml |  |
| Goniewicz | Multinational | [56] | M+F | Mean age 38 | Urine | 31.5 ng/ml |  |
| Griffin | England | [57] | M+F | 40-69 | Plasma | 15 ng/ml |  |
| Haddow I | USA | [58] | F | NS | Serum | 16 ng/ml and  64 ng/ml |  |
| Haddow II | USA | [59] | F | NS | Serum | 10 ng/ml |  |
| Haddow III | USA | [60] | F | NS | Serum | 10 ng/ml and  50 ng/ml |  |
| Haley | USA | [61] | M+F | Mean age 39 | Urine CCR | 100 ng/mg |  |
| HALS2 | UK | [62] | M+F | 26+ | Saliva | 15 ng/ml |  |
| Hegaard | Denmark | [63] | F | 18+ | Saliva | 13 ng/ml | Non- and current smokers. |
|  |  | [64] | F | 18+ | Saliva | 30 ng/ml | Ex-smokers. |
| Hellemons | Netherlands | [65] | M+F | Mean age 51 | Urine | 100 ng/ml and  500 ng/ml |  |
|  |  |  |  |  | Plasma | 10 ng/ml and  50 ng/ml | Used in analysis by body fluid. |
| Hennrikus | USA | [66] | M+F | 18-75 | Saliva | 15 ng/ml |  |
| Holiday | USA | [67] | M+F | 24-78 | Serum | 22.2 ng/ml |  |
| Hoseini | Iran | [68] | M+F | Mean age 32 | Urine CCR | 100 ng/ml |  |
| HSE | England | [69] | M, F | 16+ | Serum | 20 ng/ml |  |
|  |  | [70] | M+F | 16+ | Serum | 20 ng/ml |  |
|  |  | [71] | M+F | 16+ | Saliva | 11 ng/ml |  |
|  |  | [72] | M, F | NS | Saliva | 30 ng/ml |  |
|  |  | [73] | M, F | 16+ | Saliva | 15 ng/ml | Used in analysis by sex. |
|  |  | [74] | M+F | 35+ | Saliva | 30 ng/ml | Participants with COPD used in study type analysis. |
|  |  | [75] | M, F | 16-24 | Saliva | 15 ng/ml |  |
|  |  | [76] | M+F | 16+ | Saliva | 15 ng/ml | Never and ex-smoker data for 2003. |
| INMA | Spain | [77] | F | 16 | Urine | 100 ng/ml | Non-smoker data. |
|  |  | [78] | F | 16 | Urine | 50 ng/ml | Current smoker data. |
| Jarvis I | England | [79] | M+F | Mean age 56 | Plasma | 14 ng/ml |  |
| Jarvis II | England | [80] | M+F | 16-19 | Saliva | 10 ng/ml |  |
| Jedrychowski | Poland | [81] | F | 18-35 | Serum | 15 ng/ml |  |
| Jenkins | USA | [82] | M, F | 18+ | Saliva | 15 ng/ml and  100 ng/ml |  |
| Jhun | Korea | [83] | F | 18+ | Urine | 100 ng/ml |  |
| Kandel | USA | [84] | M+F | 11-16 | Saliva | 11.4 ng/ml |  |
| Kaufman | USA | [85] | F | Mean age 26 | Serum | 10 ng/ml |  |
| Kendrick | USA | [86] | F | NS | Urine CCR | 85 ng/ml |  |
| Kharrazi | USA | [87] | F | Mean age 26 | Serum | 10 ng/ml |  |
| Khuri | USA | [88] | M+F | Mean age 62 | Serum | 15 ng/ml |  |
| Kim | USA | [89] | M+F | 18+ | Saliva | 15.53 ng/ml |  |
| Klebanoff | USA | [90] | F | NS | Serum | 10 ng/ml |  |
| KNHANES | Korea | [91] | M, F | 20 | Urine | 50 ng/ml |  |
|  |  | [92] | M, F | 19 | Urine | 50 ng/ml |  |
|  |  | [93] | F | 19 | Urine | 100 ng/ml |  |
|  |  | [94] | F | 55 | Urine | 100 ng/ml | Used in analysis by age. |
| Laatikainen I | Russia | [95] | M, F | 25-64 | Serum | 20 ng/ml and  50 ng/ml |  |
| Lando | USA | [96] | M+F | 18-75 | Saliva | 15 ng/ml |  |
| Lee Anna | Hong Kong | [97] | M+F | 18+ | Urine CCR | 50 ng/ml |  |
| Lee Chung Yul | Korea | [98] | M, F | NS | Urine | 400 ng/ml  (cut point 2) |  |
| Lee II | Japan | [99] | F | 20-55 | Urine CCR | 100 ng/mg and  500 ng/mg |  |
| Lee So Ryong | Korea | [100] | M+F | 19+ | Urine | 100 ng/ml |  |
| Lerman | USA | [101] | M+F | 19-73 | Blood NOS | 15 ng/ml |  |
| Levine | Israel | [102] | M+F | 20-74 | Urine CCR | 100 ng/ml |  |
| Levy | USA | [103] | M+F | 18+ | Saliva | 15 ng/ml |  |
| Lifestyle and Appetite | UK | [104] | M, F | 16-74 | Saliva | 30 ng/ml and  100 ng/ml |  |
| Lindqvist | Sweden | [105] | F | Mean age 29 | Serum | 17.5 ng/ml and  113 ng/ml |  |
| Luepker | USA | [106] | M+F | 17-21 | Saliva | 20 ng/ml |  |
| Ma | USA | [107] | F | Mean age 26 | Saliva | 20 ng/ml |  |
| MacFarlane | England | [108] | M+F | 15-31 | Urine CCR | 1000 ng/mg  (cut point 2) |  |
| Markovic | USA | [109] | F | 14-40 | Urine | 500 ng/ml  (cut point 2) |  |
| Marshall | USA | [110] | M | 18+ | Serum | 10 ng/ml |  |
| Martinez | USA | [111] | M+F | 40-80 | Plasma | 20 ng/ml and  50 ng/ml |  |
| Martinez-Sanchez | Spain | [112] | M+F | 16+ | Saliva | 20 ng/ml |  |
| Mathews | England | [113] | F | Mean age 25 | Serum | 15 ng/ml |  |
| McNeill | England | [114] | F | 11-16 | Saliva | 14.7 ng/ml |  |
| Messeri | USA | [115] | M+F | 12-17 | Saliva | 10 ng/ml |  |
| MFHS | Finland | [116] | M+F | 50-94 | Serum | 100 ng/ml  (cut point 2) | Current smokers. |
|  |  | [117] | M+F | 30+ | Serum | 100 ng/ml  (cut point 2) | Non-, never and ex-smokers. |
| Molina | Spain | [118] | F | 17-25 | Saliva | 10 ng/ml |  |
| MONICA Germany | Germany | [119] | M, F | 25-44 and 45-64 | Serum | 15 ng/ml |  |
| MONICA Scotland | Scotland | [120] | M, F | 25-74 | Serum | 17.5 ng/ml |  |
| Mons | Germany | [121] | M+F | 36-75 | Serum | 15 ng/ml |  |
| Moore | England | [122] | F | Mean age 27 | Urine | 80 ng/ml |  |
| Morales | USA | [123] | M+F | NS | Blood | 10 ng/ml |  |
| Mullen | USA | [124] | F | 18+ | Urine | 50 ng/ml |  |
| Muramoto | USA | [125] | M+F | 14-17 | Urine | 50 ng/ml |  |
| Muranaka | Japan | [126] | M+F | Mean age 35 | Urine CCR | 46.78 ng/mg |  |
| Murray | USA and Canada | [127] | M+F | 35-60 | Saliva | 20 ng/ml |  |
| Naraghi | England | [128] | M, F | Mean age 59 | Serum | 13.7 ng/ml |  |
| Nguyen | Belgium | [129] | M+F | 18+ | Serum | 10 ng/ml |  |
| NHANES | USA | [130] | M, F | 12-17 | Serum | 11.4 ng/ml |  |
|  |  | [131] | M, F | 18+ | Serum | 15 ng/ml |  |
|  |  | [132] | M+F | 17+ | Serum | 15 ng/ml |  |
|  |  | [133] | F | 20-44 | Serum | 10.0 ng/ml | Used in analyses by pregnant/non-pregnant. |
|  |  | [134] | M+F | 12-19 and 20+ | Serum | 10 ng/ml | Non- and current smokers. |
|  |  | [135] | M, F | 12-17, 18-25 and 26+ | Serum | 10 ng/ml | Non- and current smokers. |
|  |  | [136] | M+F | 40+ | Serum | 10 ng/ml | Never and ex-smokers. |
|  |  | [137] | M+F | 20+ | Serum | 15 ng/ml | Never smokers. Overlapping years excluded. |
| Niedbala | USA | [138] | M+F | NS | Urine | 500 ng/ml  (cut point 2) |  |
| Noland | USA | [139] | M+F | 12-17 | Saliva | 25 ng/ml |  |
| Noonan | USA | [140] | M+F | Mean age 55 | Urine | 50 ng/ml |  |
| O'Connor | Canada | [141] | F | Mean age 27 | Urine | 64 ng/ml |  |
| Ogden | USA | [142] | F | 18+ | Saliva | 35 ng/ml and  106 ng/ml |  |
| Olivieri | Italy | [143] | M+F | Mean age 33 | Serum | 14 ng/ml |  |
| Osaka factory | Japan | [144] | M+F | 18-62 | Saliva | 8 ng/ml |  |
| Owen | England | [145] | F | Mean age 28 | Saliva | 14 ng/ml |  |
| Palmier | USA | [146] | M+F | 18+ | Urine | 500 ng/ml  (cut point 2) |  |
| Parker | USA | [147] | M+F | Mean age 34 | Urine | 100 ng/ml and  250 ng/ml | Gas chromatography data. |
| Parna | Estonia | [148] | F | NS | Serum | 15 ng/ml and  100 ng/ml |  |
| Peacock | England | [149] | F | 15+ | Plasma | 15 ng/ml and  75 ng/ml | Booking visit data. |
| Pell ACS | Scotland | [150] | M+F | NS | Serum | 12 ng/ml |  |
| Pell HEPS | Scotland | [150] | M+F | 16-74 | Saliva | 15 ng/ml |  |
| Perez-Stable | USA | [151] | M+F | 20-74 | Serum | 14 ng/ml and  100 ng/ml |  |
| Phillipou | Australia | [152] | M+F | Mean age 60 | Urine | 88 ng/ml |  |
| Phillips | England | [153] | M+F | 21-61 | Saliva | 25 ng/ml and  100 ng/ml |  |
| Phillips I | Sweden | [154] | M+F | 20-64 | Saliva | 25 ng/ml and  100 ng/ml |  |
| Phillips II | Italy | [155] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Phillips III | Spain | [156] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Phillips IV | Australia | [157] | M+F | 20-64 | Saliva | 25ng/ml |  |
| Phillips V | Portugal | [158] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Phillips VI | Germany | [159] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Phillips VII | Czech Republic | [160] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Phillips VIII | China | [161] | M+F | 20-64 | Saliva | 25 ng/ml |  |
| Pierce | Australia | [162] | M+F | 14+ | Saliva | 18 ng/ml and  70 ng/ml |  |
| Pojer | Australia | [163] | M+F | NS | Plasma | 22 ng/ml and  88 ng/ml |  |
| Quinn | USA | [164] | M+F | Mean age 24 | Serum | 75 ng/ml  (cut point 2) |  |
| Rebagliato | Spain | [165] | F | 16-44 | Saliva | 14 ng/ml |  |
| Riboli | Worldwide | [166] | F | 42-60 | Urine CCR | 100 ng/mg |  |
| Rodriguez | USA | [167] | M+F | 45-84 | Urine | 100 ng/ml |  |
| S-Germany-I | Germany | [168] | M, F | 25-64 | Serum | 15 ng/ml and  100 ng/ml | First random sample. |
| S-Germany-II | Germany | [168] | M, F | 25-64 | Serum | 15 ng/ml and  100 ng/ml | Second random sample. |
| Salzer | Sweden | [169] | M+F | Mean age 26 | Blood | 10 ng/ml |  |
| Sarrafzadegan | Iran | [170] | M+F | 14-18 | Plasma | 13 ng/ml |  |
| Sasaki | Japan | [171] | F | NS | Plasma | 11.48 ng/ml |  |
| Sato | Japan | [172] | M+F | Mean age 58 | Serum | 50 ng/ml  (cut point 2) |  |
| Savitz | USA | [173] | F | NS | Urine | 50 ng/ml |  |
| SEASD | Italy | [174] | F | 25-74 | Urine CCR | 100 ng/mg | Never smokers. |
|  |  | [175] | F | 13-80 | Plasma | 14 ng/ml | Used in analysis by body fluid. |
|  |  |  |  |  | Saliva | 10 ng/ml | Used in analysis by body fluid. |
|  |  |  |  |  | Urine | 150 ng/ml | Non-smokers |
|  |  | [176] | F | 13-97 | Saliva | 106 ng/ml  (cut point 2) |  |
| Seccareccia | Italy | [177] | M+F | 20-79 | Serum | 15 ng/ml |  |
| Secker-Walker | USA | [178] | F | Mean age 22 | Urine CCR | 550 ng/ml  (cut point 2) |  |
| Seersholm | Denmark | [179] | M+F | 15-69 | Plasma | 10 ng/ml |  |
| Semple | Scotland | [180] | M+F | 15-70 | Saliva | 20 ng/ml |  |
| Shaffer | USA | [181] | M+F | 17-75 | Plasma | 25 ng/ml |  |
| SHHS | Scotland | [182] | M, F | 40-59 | Serum | 20 ng/ml and  100 ng/ml | Non-smokers. |
|  |  | [183] | M, F | 40-59 | Serum | 17.5 ng/ml | Never-smokers. |
| Shipton | Scotland | [184] | F | Mean age 29 | Serum | 13.7 ng/ml |  |
| SHS | Scotland | [185] | M+F | 16+ | Saliva | 15 ng/ml |  |
| Slattery II | USA | [186] | F | 17-59 | Serum | 15 ng/ml |  |
| Smith UK | England | [187] | M+F | 19-84 | Urine | 100 ng/ml and  500 ng/ml |  |
| Smith USA | USA | [188] | F | Mean age 26 | Saliva | 10 ng/ml and  100 ng/ml |  |
| Spencer I | England | [189] | F | NS | Serum | 50 ng/ml |  |
| Spencer II | England | [190] | F | Mean age 27 | Serum | 13.7 ng.ml |  |
| Stanton | New Zealand | [191] | M+F | 18 only | Saliva | 14 ng/ml |  |
| Stick | Australia | [192] | F | NS | Serum | 25 ng/ml |  |
| Stookey | USA | [193] | M+F | NS | Saliva | 10 ng/ml |  |
| Tabara | Japan | [194] | M+F | NS | Urine | 400 ng/ml  (cut point 2) |  |
| TEC | Australia | [2] | M, F | 16-21 | Urine | 51 ng/ml and  551 ng/ml |  |
| Tikkanen | Finland | [195] | F | Mean age 31 | Serum | 15 ng/ml |  |
| Tong | Argentina and Uruguay | [196] | F | 20-29 | Saliva | 15 ng/ml |  |
| Townsend | UK | [197] | M+F | 13-17 | Saliva | 14 ng/ml |  |
| Tsutsumi | Japan | [198] | M, F | 35-55 | Urine CCR | M: 63.1 ng/mg F: 79.4 ng/mg |  |
| Twardella I | Germany | [199] | M+F | 36-75 | Serum | 15 ng/ml |  |
| Twardella II | Germany | [200] | M+F | 30-70 | Serum | 15 ng/ml and  280 ng/ml |  |
| Ulvik I | Norway | [201] | M+F | Mean age 63 | Plasma | 14 ng/ml |  |
| Ulvik II | Norway | [201] | M+F | Mean age 62 | Plasma | 14 ng/ml |  |
| Ussher | England | [202] | F | 16-50 | Saliva | 10 ng/ml |  |
| Valladolid-Lopez | Mexico | [203] | M+F | 11-17 | Urine | 50 ng/ml |  |
| van Vunakis | USA | [204] | M+F | NS | Saliva | 25 ng/ml |  |
| Vardavas | Greece | [205] | F | NS | Urine | 120 ng/ml |  |
| Vasankari | Finland | [206] | M+F | 30+ | Serum | 100 ng/ml  (cut point 2) |  |
| Vineis | Europe | [207] | M+F | 35-74 | Plasma | 10 ng/ml |  |
| Wagenknecht | USA | [208] | M+F | 18-30 | Serum | 14 ng/ml and  100 ng/ml |  |
| Waggoner | USA | [209] | F | 27-84 | Urine | 50 ng/ml |  |
| Wallner-Liebmann | Germany | [210] | M+F | NS | Serum | 15 ng/ml |  |
| Weeks | USA | [211] | M+F | Mean age 65 | Urine | 50 ng/ml |  |
| West III | Poland | [76] | M+F | 15+ | Saliva | 15 ng/ml |  |
| Wewers I | USA | [212] | M, F | Mean age 37 | Saliva | 14 ng/ml |  |
| Wewers II | USA | [213] | F | 18+ | Saliva | 14 ng/ml |  |
| Wilmink | England | [214] | M | 50-89 | Serum | 25 ng/ml |  |
| Windham | USA | [215] | F | 18-39 | Urine | 25 ng/ml |  |
| Windsor | USA | [216] | F | Mean age 23 | Saliva | 31 ng/ml |  |
| Xie I | China | [217] | M+F | 20-70 | Serum | 15 ng/ml |  |
| Xie II | China | [218] | F | Mean age 29 | Serum | 15 ng/ml |  |
| Yeh | Canada | [219] | M+F | Mean age 39 | Urine | 100 ng/ml | Liquid chromatography–mass spectrometry method. |
| Yel | Cambodia | [220] | M | NS | Saliva | 10 ng/ml |  |
| Zielinska-Danch | Poland | [221] | M+F | 19-60 | Urine | 50 ng/ml and  550 ng/ml |  |

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**TITLE** Misclassification of smoking habits. An updated review of the literature

**Authors** J.S. Hamling1, K.J. Coombs2, P.N. Lee2

**Supplementary File 3**

**Full details of all the meta-analyses and meta-regressions**

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

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Introduction

Sets of analyses are given below, one set for each misclassification rate (M1 to M11).

Below each set of analyses, listings give details of the study results selected for those analyses.

Each set of analyses gives estimates of overall misclassification rates, then rates by the levels of several factors.

The factors and their levels are described in the analyses but are given in coded form in the listings. They are as follows:

Factor description Title in listings Values

Body fluid tested Fluid 1: Urine 2: Saliva 3: Blood

Cotinine assay method Assay 1: Chromatography 2: Spectrometry 3: Immunoassay 4: Other

Study type Type 1: General pop. 2: Pregnancy 3: Diseased or CC

Age group AgeGp 1: Young 2: Not young 3: All ages 4: NS (not specified)

Awareness of validation Aware 1: Yes 2: No 3: NS

by cotinine

Time of publication Publ 1: In 1995 review 2: Before 2003 3: 2003 onwards

Study quality Quality 1: Good 2: Not good

Pregnancy Pregn 1: Not pregnant 2: Pregnant

Tobacco products Prod 1: Cigarettes 2: Any smoking 3: Any tobacco 4: NS

considered

Sex RSex F: Females only M: Males only M+F: Both sexes considered

Location Locn 1: Canada/USA 2: Europe 3: Asia 4: Other

Cotinine assay method values are defined as follows:

1: Chromatography: high performance liquid chromatography (LC), gas chromatography (GC), thin layer chromatography (TLC),

test strip methods, other colorimetric methods

2: Spectrometry: GC-MS, GC-MS/MS, TMS, TMS-MS/MS, LC-MS, LC-MS/MS (MS = mass spectrometry; T = tandem)

3: Immunoassay: radio-immunoassay, ELISA, chemiluminescent immunoassay (CIA), immunoassay not otherwise specified

4: Other: not specified or mixed methods (TLC, ELISA and CIA all used in a single study)

Age group values are defined as follows:

1: Young: upper age limit <50 or mean age <30 or a pregnancy study

2: Not young: lower age limit 30+ or mean age 60+

3: All ages: lower age limit <30 and upper age limit 50+ or lower age limit <30 and mean age 30+

4: Not specified: all other combinations

Study quality values, which depend on the definition of smoking used in the study, are defined as follows (NRT = nicotine replacement therapy):

1: Good: Smoking definition Definition of good quality

Any tobacco use: The study excluded NRT users

Any smoking: The study excluded both smokeless tobacco users and NRT users

Cigarette smoking: The study excluded pipe and cigar smokers, smokeless tobacco users and NRT users

2: Not good: all other combinations

Counts and rates relating to the rate calculations are also given in the listings:

Title in listings Meaning

RateC1 / RateC2 Misclassification rate (percentage) for Cut 1 / Cut 2

N\_Cut1 / N\_Cut2 Number of participants considered who have cotinine > Cut 1 / Cut 2

(except for current smoker analyses: cotinine < Cut 1 / Cut 2)

Weight1 / Weight2 Weight value (the denominator of the rate calculation), Cut 1 / Cut 2

Note that Cut 1 is the lower cut point; Cut 2 is the more conservative cut point.

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 23239.2275 | (208) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.4938 | 0.7311 | 0.0000 +++ | 7.4938 | 6.0524 | 8.9352 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 3366.4251 | (64) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.8061 | 0.8996 | 0.0000 +++ | 5.8061 | 4.0090 | 7.6032 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 5242798.0345 | (208) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.9563 | 0.3247 | 0.0000 +++ | 4.9563 | 4.3162 | 5.5963 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 693928.3931 | (64) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.6635 | 0.4919 | 0.0000 +++ | 3.6635 | 2.6808 | 4.6461 |

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Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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Overall misclassification rate (percentage) for the Palmier study, cut point 2 = 2.0110

By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5259602.2206 | (209) | 15160.7963 | 0.7402 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.4590 | 0.7553 | 0.0000 +++ | 4.4590 | 2.9700 | 5.9480 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 50 | Aliased |  |  | 4.4590 | 2.9700 | 5.9480 |
| Saliva | 60 | 0.3707 | 0.9718 | 0.7032 | 4.8297 | 3.6242 | 6.0352 |
| Blood | 102 | 0.6609 | 0.8732 | 0.4500 | 5.1199 | 4.2560 | 5.9838 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5195887.0608 | (206) | 49366.4122 | 0.5823 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5808 | 0.5576 | 0.0000 +++ | 4.5808 | 3.4814 | 5.6802 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 62 | Aliased |  |  | 4.5808 | 3.4814 | 5.6802 |
| Spectrometry | 56 | 0.2508 | 0.7663 | 0.7438 | 4.8316 | 3.7954 | 5.8678 |
| Immunoassay | 80 | 0.8334 | 0.8651 | 0.3365 | 5.4143 | 4.1103 | 6.7183 |
| Other | 12 | 2.0106 | 1.7529 | 0.2527 | 6.5915 | 3.3150 | 9.8679 |

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Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 4991996.9621 | (207) | 251266.4659 | 0.0062 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5274 | 0.3587 | 0.0000 +++ | 4.5274 | 3.8202 | 5.2346 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 138 | Aliased |  |  | 4.5274 | 3.8202 | 5.2346 |
| Pregnancy | 38 | 1.0242 | 0.9088 | 0.2611 | 5.5515 | 3.9052 | 7.1978 |
| Diseased or CC | 34 | 3.8167 | 1.2173 | 0.0020 ++ | 8.3441 | 6.0506 | 10.6375 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5194858.8817 | (205) | 47939.1528 | 0.5960 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.3177 | 0.6280 | 0.0000 +++ | 5.3177 | 4.0795 | 6.5559 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 78 | Aliased |  |  | 5.3177 | 4.0795 | 6.5559 |
| Not young | 21 | -0.8825 | 1.1434 | 0.4411 | 4.4352 | 2.5513 | 6.3192 |
| All ages | 81 | -0.2509 | 0.7681 | 0.7442 | 5.0668 | 4.1950 | 5.9386 |
| NS | 29 | -1.6795 | 1.3569 | 0.2172 | 3.6382 | 1.2666 | 6.0098 |

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Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Awareness of validation by cotinine

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5169744.6144 | (206) | 73053.4201 | 0.2357 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.0744 | 1.8740 | 0.0000 +++ | 8.0744 | 4.3797 | 11.7692 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 12 | Aliased |  |  | 8.0744 | 4.3797 | 11.7692 |
| No | 37 | -3.4115 | 2.0740 | 0.1015 | 4.6630 | 2.9108 | 6.4151 |
| NS | 160 | -3.1829 | 1.9072 | 0.0967 (-) | 4.8915 | 4.1935 | 5.5896 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5191977.3746 | (206) | 50820.6599 | 0.3667 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.5764 | 1.0282 | 0.0006 +++ | 3.5764 | 1.5493 | 5.6035 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 28 | Aliased |  |  | 3.5764 | 1.5493 | 5.6035 |
| Before 2003 | 81 | 1.4767 | 1.1714 | 0.2089 | 5.0531 | 3.9463 | 6.1600 |
| 2003 onwards | 100 | 1.5657 | 1.1151 | 0.1618 | 5.1422 | 4.2913 | 5.9930 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5219521.9809 | (207) | 23276.0536 | 0.3378 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.6978 | 0.8374 | 0.0000 +++ | 5.6978 | 4.0470 | 7.3487 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 23 | Aliased |  |  | 5.6978 | 4.0470 | 7.3487 |
| Not good | 186 | -0.8728 | 0.9085 | 0.3378 | 4.8250 | 4.1305 | 5.5196 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1562352.9672 | (80) | 31142.4597 | 0.2103 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.2368 | 0.6380 | 0.0000 +++ | 4.2368 | 2.9672 | 5.5065 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 43 | Aliased |  |  | 4.2368 | 2.9672 | 5.5065 |
| Pregnant | 39 | 1.2356 | 0.9785 | 0.2103 | 5.4724 | 3.9961 | 6.9487 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Tobacco products considered

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5151498.4305 | (208) | 92469.5048 | 0.1572 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.3026 | 0.4642 | 0.0000 +++ | 5.3026 | 4.3874 | 6.2178 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 77 | Aliased |  |  | 5.3026 | 4.3874 | 6.2178 |
| Any smoking | 119 | -0.7326 | 0.6217 | 0.2400 | 4.5700 | 3.7548 | 5.3853 |
| Any tobacco | 15 | 2.4280 | 1.8844 | 0.1990 | 7.7306 | 4.1300 | 11.3312 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5208245.1558 | (210) | 105544.3147 | 0.1217 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.7500 | 0.5317 | 0.0000 +++ | 4.7500 | 3.7018 | 5.7982 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 83 | Aliased |  |  | 4.7500 | 3.7018 | 5.7982 |
| M | 36 | 1.7207 | 0.9541 | 0.0728 (+) | 6.4707 | 4.9089 | 8.0326 |
| M+F | 94 | -0.0983 | 0.6977 | 0.8880 | 4.6517 | 3.7612 | 5.5421 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5204494.0148 | (205) | 38304.0197 | 0.6807 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.3805 | 0.5629 | 0.0000 +++ | 5.3805 | 4.2708 | 6.4903 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 81 | Aliased |  |  | 5.3805 | 4.2708 | 6.4903 |
| Europe | 90 | -0.7123 | 0.7252 | 0.3272 | 4.6683 | 3.7666 | 5.5699 |
| Asia | 17 | -0.7034 | 1.0785 | 0.5150 | 4.6771 | 2.8633 | 6.4910 |
| Other | 21 | 0.8045 | 1.9125 | 0.6745 | 6.1850 | 2.5812 | 9.7888 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 4940847.6942 | (197) | 301950.3403 | 0.3674 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3390 | 0.8434 | 0.0000 +++ | 4.3390 | 2.6756 | 6.0023 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 33 | Aliased |  |  | 4.3390 | 2.6756 | 6.0023 |
| Canada/USA, M | 13 | 3.2519 | 1.4620 | 0.0273 + | 7.5908 | 5.2358 | 9.9459 |
| Canada/USA, M+F | 35 | 0.9627 | 1.2769 | 0.4518 | 5.3017 | 3.4111 | 7.1922 |
| Europe, F | 35 | 0.4633 | 1.2242 | 0.7055 | 4.8023 | 3.0525 | 6.5520 |
| Europe, M | 15 | -0.1118 | 1.6118 | 0.9448 | 4.2272 | 1.5185 | 6.9358 |
| Europe, M+F | 40 | 0.3502 | 1.0200 | 0.7317 | 4.6892 | 3.5581 | 5.8203 |
| Asia, F | 7 | 1.4573 | 1.6286 | 0.3720 | 5.7963 | 3.0488 | 8.5438 |
| Asia, M | 3 | 3.6951 | 2.6815 | 0.1698 | 8.0341 | 3.0143 | 13.0539 |
| Asia, M+F | 7 | -1.7413 | 1.6158 | 0.2825 | 2.5977 | -0.1203 | 5.3157 |
| Other, F | 6 | 1.3640 | 3.2626 | 0.6763 | 5.7030 | -0.5124 | 11.9184 |
| Other, M | 3 | 10.5988 | 10.2362 | 0.3017 | 14.9378 | -5.1805 | 35.0560 |
| Other, M+F | 12 | 1.6614 | 2.4292 | 0.4948 | 6.0004 | 1.5079 | 10.4929 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Anderson\_ANDERS2009A | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 0.0000 | 0.0000 | 208.0000 |
| Yeh\_YEH2011 | M+F | LC-MS/MS method | Urine | 2 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 100.0000 |
| Windham\_WINDHA1999A | F |  | Urine | 2 | 1 | Young | NS | 2 | 2 | 1 | 1 | 1 | 0.0000 | 0.0000 | 347.0000 |
| Valladolid-Lopez\_VALLAD2015 | M+F |  | Urine | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 4 | 0.3018 | 3.0000 | 994.0000 |
| Rebagliato\_REBAGL1995 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 0.5587 | 4.0000 | 716.0000 |
| Noland\_NOLAND1988 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 3 | 1 | 0.6711 | 1.0000 | 149.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 0.7342 | 54.0000 | 7355.0000 |
| Carey\_CAREY1999 | M+F |  | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 0.7864 | 13.0000 | 1653.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.8152 | 3.0000 | 368.0000 |
| Fidler\_FIDLER2006 | M+F | yr 11 | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 0.8922 | 13.0000 | 1457.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 0.9050 | 2.0000 | 221.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 1.0169 | 3.0000 | 295.0000 |
| SEASD\_SIMONI2006-urine | F | urine | Urine | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 2 | 1.0323 | 15.0000 | 1453.0000 |
| BRHS follow-up\_JEFFER2010A | M+F | 1998-2000, men and 1999-2001, women | Blood | 2 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 1.0613 | 76.0000 | 7161.0000 |
| Delfino\_DELFIN1993 | M+F |  | Saliva | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 1.1952 | 3.0000 | 251.0000 |
| Glasgow III\_GLASGO1993 | M+F |  | Saliva | 2 | 1 | NS | No | 2 | 2 |  | 2 | 1 | 1.2500 | 1.0000 | 80.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 1.3497 | 11.0000 | 815.0000 |
| NHANES\_CARABA2004 | F | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 1.3682 | 11.0000 | 804.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 1.3889 | 1.0000 | 72.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.4222 | 19.0000 | 1336.0000 |
| Weeks\_WEEKS2011 | M+F |  | Urine | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 1.4634 | 3.0000 | 205.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 1.4688 | 12.0000 | 817.0000 |
| McNeill\_MCNEIL1987 | F |  | Saliva | 1 | 1 | Young | Yes | 2 | 2 | 1 | 1 | 2 | 1.4925 | 5.0000 | 335.0000 |
| Messeri\_MESSER2007A | M+F |  | Saliva | Other | 1 | Young | NS | 3 | 2 |  | 1 | 1 | 1.5582 | 63.0000 | 4043.0000 |
| Phillips II\_PHILLI1997 | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 1.5707 | 3.0000 | 191.0000 |
| Spencer I\_SPENCE1998 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 1.6129 | 6.0000 | 372.0000 |
| Bauld\_BAULD2012 | F |  | Urine | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 1.6168 | 20.0000 | 1237.0000 |
| Phillips VII\_PHILLI1998C | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 1.6529 | 4.0000 | 242.0000 |
| Savitz\_SAVITZ2001A | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 1.6611 | 5.0000 | 301.0000 |
| Haley\_HALEY1989 | M+F |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 1 | 1.6667 | 5.0000 | 300.0000 |
| NHANES\_LINDSA2014-adult | M+F | 1999-2000, age 20+ | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 1.7485 | 47.0000 | 2688.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.7833 | 26.0000 | 1458.0000 |
| NHANES\_CARABA2004 | M | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 1.7884 | 12.0000 | 671.0000 |
| George\_GEORGE2006 | F | early pregnancy | Blood | 1 | 2 | Young | No | 3 | Good | 2 | 2 | 2 | 1.7931 | 13.0000 | 725.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 1.8036 | 9.0000 | 499.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 1.8328 | 16.0000 | 873.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 1.8405 | 3.0000 | 163.0000 |
| Phillips IV\_PHILLI1998 | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 4 | 1.8462 | 6.0000 | 325.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 1.8692 | 8.0000 | 428.0000 |
| NHANES\_LINDSA2014-young | M+F | 1999-2000, age12-19 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 2 | 1 | 1.8881 | 27.0000 | 1430.0000 |
| Riboli\_RIBOLI1990 | F |  | Urine | 3 | 1 | 2 | NS | 1 | 2 | 1 | 3 | 4 | 1.8992 | 26.0000 | 1369.0000 |
| Haddow III\_HADDOW1988 | F |  | Blood | 3 | 2 | Young | No | 1 | 2 | 2 | 2 | 1 | 1.9231 | 29.0000 | 1508.0000 |
| Cooley\_COOLEY2007 | F |  | Urine | 1 | 3 | 2 | NS | 3 | 2 | 1 | 2 | 1 | 1.9608 | 4.0000 | 204.0000 |
| CHDS\_ENGLIS1994 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 1.9626 | 42.0000 | 2140.0000 |
| CHMS\_WONG2012 | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 1.9848 | 68.0000 | 3426.0000 |
| Kaufman\_KAUFMA2002A | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 2.0025 | 16.0000 | 799.0000 |
| Seccareccia\_SECCAR2003 | M+F |  | Blood | 3 | 1 | 3 | No | 3 | 2 |  | 1 | 2 | 2.0816 | 50.0000 | 2402.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.1108 | 8.0000 | 379.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 2.1552 | 5.0000 | 232.0000 |
| Vardavas\_VARDAV2013 | F |  | Urine | 2 | 2 | Young | NS | 3 | 2 | 2 | 3 | 2 | 2.1798 | 8.0000 | 367.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 2.1834 | 10.0000 | 458.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 2.1841 | 14.0000 | 641.0000 |
| HALS2\_BATTY2014 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 2.2273 | 59.0000 | 2649.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 2.2346 | 4.0000 | 179.0000 |
| Dell'Orco\_DELLOR1995 | M |  | Urine | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 2.2569 | 13.0000 | 576.0000 |
| Emmons\_EMMONS1996 | M+F |  | Saliva | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 2.3438 | 21.0000 | 896.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.3739 | 24.0000 | 1011.0000 |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 2.4038 | 10.0000 | 416.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 2.4155 | 20.0000 | 828.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 2.4719 | 11.0000 | 445.0000 |
| Osaka factory\_YAMAMO2005 | M+F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | Asia | 2.4845 | 4.0000 | 161.0000 |
| Lee Anna\_LEE2013TE | M+F |  | Urine | 2 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 2.5445 | 10.0000 | 393.0000 |
| Phillips VI\_PHILLI1998B | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 2.5641 | 5.0000 | 195.0000 |
| Vineis\_VINEIS2005 | M+F |  | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 2 | 2 | 2.6048 | 41.0000 | 1574.0000 |
| BRHS baseline\_JEFFER2009 | M | 1978-1980 | Blood | 2 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 2.6569 | 58.0000 | 2183.0000 |
| Jhun\_JHUN2010 | F |  | Urine | 1 | 2 | Young | No | 3 | 2 | 2 | 1 | Asia | 2.6641 | 28.0000 | 1051.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.6749 | 13.0000 | 486.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 2.6923 | 7.0000 | 260.0000 |
| Benowitz III\_BENOWI2012A | M+F |  | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 3 | 1 | 2.7273 | 3.0000 | 110.0000 |
| Dickinson\_DICKIN1988 | M+F |  | Saliva | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 4 | 2.8169 | 10.0000 | 355.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 2.8571 | 10.0000 | 350.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.8662 | 54.0000 | 1884.0000 |
| Mullen\_MULLEN1991 | F |  | Urine | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 2.9446 | 25.0000 | 849.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 2.9501 | 39.0000 | 1322.0000 |
| Feldman\_FELDMA1991 | M+F |  | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 1 | 1 | 2.9777 | 12.0000 | 403.0000 |
| SHHS\_TUNSTA1991 | F | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 | 1 | 2 | 2 | 2.9943 | 68.0000 | 2271.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 3.0136 | 6.6902 | 222.0000 |
| Sasaki\_SASAKI2011 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | Asia | 3.0221 | 134.0000 | 4434.0000 |
| Hegaard\_HEGAAR2007 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 3.0651 | 8.0000 | 261.0000 |
| NHANES\_FISHER2008 | F | 1988-1994, age 18+ | Blood | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 3.0783 | 204.0000 | 6627.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.0916 | 26.0000 | 841.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 3.1207 | 159.0000 | 5095.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 3.1996 | 232.0000 | 7251.0000 |
| Dell'Orco\_DELLOR1995 | F |  | Urine | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 3.2319 | 17.0000 | 526.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 3.3333 | 2.0000 | 60.0000 |
| INMA\_AURREK2014 | F | 2004-08 | Urine | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 3.3604 | 62.0000 | 1845.0000 |
| Levy\_LEVY2015 | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 3.3670 | 10.0000 | 297.0000 |
| Barlow\_BARLOW1987 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 3.3943 | 13.0000 | 383.0000 |
| Phillips VIII\_PHILLI1998D | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | Asia | 3.4351 | 9.0000 | 262.0000 |
| Jarvis II\_JARVIS1991 | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 3.4398 | 14.0000 | 407.0000 |
| Griffin\_GRIFFI2014 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 3.6810 | 12.0000 | 326.0000 |
| Jedrychowski\_JEDRYC2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 3.7118 | 17.0000 | 458.0000 |
| Phillips I\_PHILLI1996 | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 3.7433 | 7.0000 | 187.0000 |
| van Vunakis\_VANVUN1989 | M+F |  | Saliva | 3 | 1 | NS | NS | 1 | 2 |  | 1 | 1 | 3.7634 | 7.0000 | 186.0000 |
| Stick\_STICK1996 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 4 | 3.8674 | 7.0000 | 181.0000 |
| Jenkins\_JENKIN1999 | F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 1 | 3.8922 | 39.0000 | 1002.0000 |
| SHHS\_TUNSTA1991 | M | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 |  | 2 | 2 | 3.8975 | 73.0000 | 1873.0000 |
| Kharrazi\_KHARRA1999 | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 3.9191 | 31.0000 | 791.0000 |
| NHANES\_FISHER2008 | M | 1988-1994, age 18+ | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 4.0384 | 202.0000 | 5002.0000 |
| Etter\_ETTER2000A | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 4.1237 | 4.0000 | 97.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 4.1565 | 17.0000 | 409.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.2090 | 145.0000 | 3445.0000 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 4.2567 | 67.0000 | 1574.0000 |
| Assaf\_ASSAF2002-F | F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 1 | 4.4521 | 13.0000 | 292.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 4.4776 | 6.0000 | 134.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 4.5082 | 11.0000 | 244.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 4.5187 | 46.0000 | 1018.0000 |
| Arnold\_ARNOLD2001 | F | African American women | Urine | 3 | 2 | Young | Yes | 2 | 2 | 2 | 2 | 1 | 4.5455 | 12.0000 | 264.0000 |
| Muranaka\_MURANA1988 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | Asia | 4.5977 | 4.0000 | 87.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 4.6206 | 123.0000 | 2662.0000 |
| Martinez-Sanchez\_MARTIN2009C | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 4.6740 | 38.0000 | 813.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 4.7131 | 46.0000 | 976.0000 |
| de Chazeron\_DECHAZ2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 4.7375 | 37.0000 | 781.0000 |
| Waggoner\_WAGGON2010 | F |  | Urine | 3 | 3 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 4.9080 | 8.0000 | 163.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 4.9356 | 23.0000 | 466.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 4.9652 | 34.7064 | 699.0000 |
| SHS\_LU2014A | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 4.9683 | 384.0000 | 7729.0000 |
| HSE\_JARVIS2008-any-smoking | M+F | 1996-2004, Any smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 4.9982 | 1388.0000 | 27770.0000 |
| Haddow II\_HADDOW1988A | F |  | Blood | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 4.9985 | 167.0000 | 3341.0000 |
| Klebanoff\_KLEBAN1998 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 5.0781 | 13.0000 | 256.0000 |
| Ceppa\_CEPPA2000 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 2 | 2 | 5.0802 | 19.0000 | 374.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 5.1429 | 27.0000 | 525.0000 |
| Lee So Ryong\_LEE2014N | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 5.1776 | 223.0000 | 4307.0000 |
| Levine\_LEVINE2013 | M+F |  | Urine | 2 | 1 | 3 | Yes | 3 | 2 |  | 2 | 4 | 5.2288 | 8.0000 | 153.0000 |
| Molina\_MOLINA2010 | F |  | Saliva | 3 | 1 | Young | NS | 3 | 2 | 1 | 2 | 2 | 5.3459 | 17.0000 | 318.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 5.3586 | 133.0000 | 2482.0000 |
| Goniewicz\_GONIEW2011 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 5.3640 | 14.0000 | 261.0000 |
| Hoseini\_HOSEIN2016 | M+F |  | Urine | 3 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 5.4795 | 8.0000 | 146.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 5.5514 | 74.0000 | 1333.0000 |
| Jenkins\_JENKIN1999 | M |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 5.5785 | 27.0000 | 484.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 5.7547 | 114.0000 | 1981.0000 |
| Glasgow I\_GLASGO1993 | M+F |  | Saliva | 1 | 3 | NS | No | 2 | 2 |  | 2 | 1 | 5.8559 | 13.0000 | 222.0000 |
| Xie I\_XIE2009 | M+F |  | Blood | 1 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 6.1033 | 39.0000 | 639.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.1151 | 17.0000 | 278.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 6.1425 | 25.0000 | 407.0000 |
| Dolcini\_DOLCIN2003 | M+F | Adolescents | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 6.2185 | 111.0000 | 1785.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.3492 | 12.0000 | 189.0000 |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 6.4343 | 48.0000 | 746.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 6.4851 | 50.0000 | 771.0000 |
| Tikkanen\_TIKKAN2010 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 6.5315 | 29.0000 | 444.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 6.5678 | 310.0000 | 4720.0000 |
| Kim\_KIM2014J | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 6.5934 | 12.0000 | 182.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 6.6372 | 30.0000 | 452.0000 |
| Semple\_SEMPLE2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 6.6667 | 9.0000 | 135.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 6.6667 | 3.0000 | 45.0000 |
| Ellard II\_ELLARD1996 | F |  | Urine | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 6.7150 | 139.0000 | 2070.0000 |
| Sarrafzadegan\_SARRAF1997 | M+F |  | Blood | 1 | 1 | Young | NS | 2 | 2 |  | 2 | 4 | 6.8605 | 59.0000 | 860.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 6.9343 | 38.0000 | 548.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 6.9941 | 131.0000 | 1873.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 7.1823 | 13.0000 | 181.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 7.2034 | 34.0000 | 472.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 7.2573 | 77.0000 | 1061.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| KNHANES\_KANG2015-F | F | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | Asia | 7.5295 | 441.0000 | 5857.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 7.5829 | 64.0000 | 844.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 7.6923 | 4.0000 | 52.0000 |
| Fritz\_FRITZ2010A | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 2 | 7.9861 | 23.0000 | 288.0000 |
| Seersholm\_SEERSH1999 | M+F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 8.0586 | 22.0000 | 273.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 8.1266 | 190.0000 | 2338.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 8.1471 | 226.0000 | 2774.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 8.7131 | 195.0000 | 2238.0000 |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 8.7209 | 30.0000 | 344.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 8.8050 | 28.0000 | 318.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 9.1667 | 11.0000 | 120.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 9.3063 | 216.0000 | 2321.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 9.3074 | 43.0000 | 462.0000 |
| Kandel\_KANDEL2006 | M+F |  | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 3 | 1 | 9.4361 | 82.0000 | 869.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 9.4855 | 59.0000 | 622.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 9.5041 | 23.0000 | 242.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 9.6000 | 12.0000 | 125.0000 |
| KNHANES\_KANG2015-M | M | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 9.8535 | 296.0000 | 3004.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 10.0340 | 59.0000 | 588.0000 |
| Glasgow II\_GLASGO1993 | M+F |  | Saliva | 1 | 3 | NS | No | 2 | 2 |  | 1 | 1 | 10.6061 | 14.0000 | 132.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 10.9402 | 64.0000 | 585.0000 |
| Phillips III\_PHILLI1997A | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 10.9827 | 19.0000 | 173.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 11.0048 | 23.0000 | 209.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 11.4883 | 44.0000 | 383.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 11.5801 | 107.0000 | 924.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 11.6071 | 65.0000 | 560.0000 |
| Phillips\_PHILLI1994A | M+F |  | Saliva | 2 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 12.5382 | 41.0000 | 327.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 12.8079 | 26.0000 | 203.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 12.8834 | 42.0000 | 326.0000 |
| Fendrich\_FENDRI2005 | M+F |  | Saliva | Other | 1 | Young | No | 3 | 2 |  | 3 | 1 | 12.9310 | 45.0000 | 348.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 13.0435 | 18.0000 | 138.0000 |
| Brunet\_BRUNET2011 | M+F |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 4 | 13.5870 | 25.0000 | 184.0000 |
| Stanton\_STANTO1996 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 2 | 4 | 13.9219 | 82.0000 | 589.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 14.1862 | 326.0000 | 2298.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 14.3421 | 109.0000 | 760.0000 |
| Salzer\_SALZER2013 | M+F |  | Blood | 3 | 3 | Young | No | 3 | 2 |  | 3 | 2 | 15.0407 | 37.0000 | 246.0000 |
| Xie II\_XIE2014 | F |  | Blood | 3 | 2 | Young | NS | 3 | Good | 2 | 2 | Asia | 15.2411 | 98.0000 | 643.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 15.7334 | 19.1947 | 122.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 17.1196 | 126.0000 | 736.0000 |
| Jarvis I\_JARVIS1987A | M+F |  | Blood | 1 | 3 | NS | NS | 1 | 2 |  | 2 | 2 | 17.3554 | 21.0000 | 121.0000 |
| Phillips V\_PHILLI1998A | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 17.9167 | 43.0000 | 240.0000 |
| Arnold\_ARNOLD2001 | F | White women | Urine | 3 | 2 | Young | Yes | 2 | 2 | 2 | 2 | 1 | 20.1031 | 39.0000 | 194.0000 |
| Mathews\_MATHEW1999A | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 20.6612 | 125.0000 | 605.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 21.2620 | 155.0000 | 729.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 21.6772 | 274.0000 | 1264.0000 |
| Spencer II\_SPENCE2013 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 21.7195 | 96.0000 | 442.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 22.7926 | 111.0000 | 487.0000 |
| Windsor\_WINDSO2000 | F | Phase 1 | Saliva | Other | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 24.0854 | 79.0000 | 328.0000 |
| Holiday\_HOLIDA1995 | M+F | Non-smokers v Smokers | Blood | 3 | 3 | 3 | NS | 2 | 2 |  | 3 | 1 | 24.4898 | 84.0000 | 343.0000 |
| Bernert\_BERNER2000 | M+F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 3 | 1 | 25.0000 | 39.0000 | 156.0000 |
| Wewers II\_WEWERS2009 | F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 | 1 | 3 | 1 | 35.5556 | 16.0000 | 45.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 39.2857 | 22.0000 | 56.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 52.9412 | 36.0000 | 68.0000 |
| Audrain-McGovern\_AUDRAI2011 | M+F | 12-wk follow-up | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 59.2593 | 32.0000 | 54.0000 |
| Muramoto\_MURAMO2007 | M+F |  | Urine | 3 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 62.3188 | 43.0000 | 69.0000 |
| Marshall\_MARSHA2011A | M |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 1 | 68.0000 | 34.0000 | 50.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 70.3704 | 152.0000 | 216.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Additional results included in analysis by Sex, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_BOREHA2001 | F | 1999, by sex | Saliva | 1 | 1 | 3 | NS | 2 | 2 | 1 | 3 | 2 | 2.7397 | 109.3600 | 3991.6400 |
| HSE\_BOREHA2001 | M | 1999, by sex | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 3 | 2 | 5.8824 | 201.6800 | 3428.5600 |
| HSE\_WARDLE2003-non-curr | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 8.9438 | 105.0000 | 1174.0000 |
| HSE\_WARDLE2003-non-curr | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 10.1928 | 111.0000 | 1089.0000 |

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SEASD\_SIMONI2006-plasma | F | plasma | Blood | 1 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 2 | 0.9722 | 14.0000 | 1440.0000 |
| SEASD\_SIMONI2006-saliva | F | saliva | Saliva | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 2 | 2.4322 | 35.0000 | 1439.0000 |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 5.7203 | 27.0000 | 472.0000 |

Additional results included in analysis by Assay method, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011-strip | M+F | Test strip method | Urine | 1 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 100.0000 |

Additional results included in analysis by Study Type, cut point 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_SHAHAB2006A-with-COPD | M+F | 2001, with COPD | Saliva | 1 | 3 | 2 | NS | 3 | 2 |  | 1 | 2 | 5.7665 | 41.0000 | 711.0000 |

Additional results included in analysis by Pregnancy, cut point 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_DIETZ2011-pregnant | F | 1999-2006, pregnant | Blood | 2 | 2 | Young | NS | 3 | Good | 2 | 1 | 1 | 2.4390 | 22.0000 | 902.0000 |

Additional results included in analysis by Smoking product considered, cut point 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_JARVIS2008-cig-smoking | M+F | 1996-2004, Cigarette smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 5.1015 | 1418.0000 | 27796.0000 |
| Holiday\_HOLIDA1995 | M+F | Non-users v Tobacco users | Blood | 3 | 3 | 3 | NS | 2 | 2 |  | 3 | 1 | 6.4982 | 18.0000 | 277.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 0.0000 | 0.0000 | 72.0000 |
| SEASD\_SIMONI2007 | F | saliva, cut point 2 | Saliva | 3 | 1 | 3 | No | 3 | 2 | 1 | 2 | 2 | 0.0000 | 0.0000 | 1359.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 60.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 221.0000 |
| Haddow III\_HADDOW1988 | F |  | Blood | 3 | 2 | Young | No | 1 | 2 | 2 | 2 | 1 | 0.1326 | 2.0000 | 1508.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.3390 | 1.0000 | 295.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 0.4310 | 1.0000 | 232.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.5435 | 2.0000 | 368.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.6737 | 9.0000 | 1336.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.7545 | 11.0000 | 1458.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 0.7692 | 2.0000 | 260.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 0.8018 | 7.0000 | 873.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 1.0917 | 5.0000 | 458.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 1.1050 | 2.0000 | 181.0000 |
| SHHS\_TUNSTA1991 | F | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 | 1 | 2 | 2 | 1.3210 | 30.0000 | 2271.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 1.4514 | 50.0000 | 3445.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.5369 | 15.0000 | 976.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 1.5873 | 3.0000 | 189.0000 |
| SHHS\_TUNSTA1991 | M | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 |  | 2 | 2 | 1.6017 | 30.0000 | 1873.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 1.7143 | 6.0000 | 350.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.7682 | 18.0000 | 1018.0000 |
| Bardy\_BARDY1993 | F |  | Blood | 2 | 2 | Young | No | 2 | 2 | 2 | 2 | 2 | 1.9286 | 20.0000 | 1037.0000 |
| Copenhagen\_SUADIC1997 | M | 1985-86, with or without CVD | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 3 | 2 | 1.9929 | 28.0000 | 1405.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 2.0548 | 51.0000 | 2482.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 2.0952 | 11.0000 | 525.0000 |
| Jenkins\_JENKIN1999 | F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 1 | 2.1956 | 22.0000 | 1002.0000 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 2.2222 | 9.0000 | 405.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 2.4116 | 15.0000 | 622.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 2.4570 | 10.0000 | 407.0000 |
| Phillips I\_PHILLI1996 | M+F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 |  | 2 | 2 | 2.6738 | 5.0000 | 187.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.7763 | 52.0000 | 1873.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.7897 | 13.0000 | 466.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 3.0973 | 14.0000 | 452.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 3.3898 | 16.0000 | 472.0000 |
| Jenkins\_JENKIN1999 | M |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 3.5124 | 17.0000 | 484.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 3.6077 | 25.2178 | 699.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 3.7313 | 5.0000 | 134.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 3.9568 | 11.0000 | 278.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 4.0816 | 24.0000 | 588.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 4.8000 | 6.0000 | 125.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 4.9808 | 13.0000 | 261.0000 |
| Quinn\_QUINN1996 | M+F |  | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 1 | 5.0420 | 12.0000 | 238.0000 |
| Burstyn\_BURSTY2009 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 1 | 5.1000 | 14.5350 | 285.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 5.4870 | 40.0000 | 729.0000 |
| Phillips\_PHILLI1994A | M+F |  | Saliva | 2 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 6.7278 | 22.0000 | 327.0000 |
| Vasankari\_VASANK2011 | M+F |  | Blood | 3 | 1 | 2 | NS | 3 | 2 |  | 2 | 2 | 6.8898 | 35.0000 | 508.0000 |
| Niedbala\_NIEDBA2002 | M+F |  | Urine | 3 | 1 | NS | NS | 2 | Good |  | 3 | 1 | 6.8966 | 4.0000 | 58.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 7.2327 | 23.0000 | 318.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 7.2464 | 10.0000 | 138.0000 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 7.4962 | 397.0000 | 5296.0000 |
| Assaf\_ASSAF2002-M | M |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 8.0214 | 15.0000 | 187.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 8.0940 | 31.0000 | 383.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 9.7222 | 21.0000 | 216.0000 |
| Lee Chung Yul\_LEE2009TC | M |  | Urine | 1 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 9.8160 | 16.0000 | 163.0000 |
| Bernert\_BERNER2000 | M+F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 3 | 1 | 10.2564 | 16.0000 | 156.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 10.2848 | 130.0000 | 1264.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 10.4027 | 62.0000 | 596.0000 |
| MacFarlane\_MACFAR2001 | M+F |  | Urine | 1 | 3 | Young | NS | 2 | 2 |  | 2 | 2 | 13.4228 | 20.0000 | 149.0000 |
| Agewall\_AGEWAL2002 | M |  | Urine | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 15.2824 | 46.0000 | 301.0000 |
| Apseloff\_APSELO1994 | M+F |  | Urine | Other | 1 | NS | NS | 1 | 2 |  | 2 | 1 | 15.9574 | 45.0000 | 282.0000 |
| Lee Chung Yul\_LEE2009TC | F |  | Urine | 1 | 1 | NS | No | 3 | 2 | 1 | 2 | Asia | 16.3793 | 19.0000 | 116.0000 |
| Gill\_GILL1996 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | 4 | 20.4420 | 37.0000 | 181.0000 |
| Gilligan\_GILLIG2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 23.9130 | 22.0000 | 92.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 32.1429 | 18.0000 | 56.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 36.7647 | 25.0000 | 68.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M1: Percentage of self-reported Non-smokers whose cotinine implies Current smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| **WEIGHTED on Number of self-reported Non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 5242798.0345 | (208) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.9563 | 0.3247 | 0.0000 +++ | 4.9563 | 4.3162 | 5.5963 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 4987076.9062 | (206) | 255721.1283 | 0.0058 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5274 | 0.3594 | 0.0000 +++ | 4.5274 | 3.8188 | 5.2360 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 138 | Aliased |  |  | 4.5274 | 3.8188 | 5.2360 |
| Pregnancy | 38 | 1.0242 | 0.9106 | 0.2620 | 5.5515 | 3.9020 | 7.2011 |
| Diseased or CC | 33 | 3.9238 | 1.2426 | 0.0018 ++ | 8.4512 | 6.1060 | 10.7964 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1015.2758 | (85) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.2698 | 0.3727 | 0.0000 +++ | 3.2698 | 2.5288 | 4.0107 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 127.9149 | (21) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.1345 | 0.5262 | 0.0006 +++ | 2.1345 | 1.0403 | 3.2288 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 516275.7174 | (85) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.9953 | 0.2739 | 0.0000 +++ | 2.9953 | 2.4507 | 3.5399 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 81003.4469 | (21) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.3425 | 0.5120 | 0.0002 +++ | 2.3425 | 1.2779 | 3.4072 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 511277.7382 | (84) | 5009.4785 | 0.6640 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.5893 | 0.6061 | 0.0001 +++ | 2.5893 | 1.3840 | 3.7947 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 16 | Aliased |  |  | 2.5893 | 1.3840 | 3.7947 |
| Saliva | 22 | 0.8412 | 0.9408 | 0.3738 | 3.4305 | 1.9996 | 4.8614 |
| Blood | 49 | 0.4374 | 0.6946 | 0.5306 | 3.0267 | 2.3519 | 3.7015 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 484920.0374 | (82) | 31355.6800 | 0.1598 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.6143 | 0.5034 | 0.0000 +++ | 2.6143 | 1.6129 | 3.6157 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 35 | Aliased |  |  | 2.6143 | 1.6129 | 3.6157 |
| Spectrometry | 19 | 0.9558 | 0.6395 | 0.1389 | 3.5701 | 2.7855 | 4.3548 |
| Immunoassay | 27 | -0.5067 | 0.7742 | 0.5146 | 2.1076 | 0.9375 | 3.2777 |
| Other | 5 | 1.2562 | 1.6090 | 0.4372 | 3.8705 | 0.8303 | 6.9106 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 510300.4073 | (83) | 5975.3101 | 0.6169 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.9207 | 0.2906 | 0.0000 +++ | 2.9207 | 2.3427 | 3.4986 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 66 | Aliased |  |  | 2.9207 | 2.3427 | 3.4986 |
| Pregnancy | 2 | 1.5408 | 1.6897 | 0.3645 | 4.4615 | 1.1508 | 7.7722 |
| Diseased or CC | 18 | 0.4413 | 1.0573 | 0.6775 | 3.3619 | 1.3399 | 5.3839 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 465186.5525 | (83) | 57538.7457 | 0.0209 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.2444 | 0.8232 | 0.0000 +++ | 4.2444 | 2.6072 | 5.8817 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 9 | Aliased |  |  | 4.2444 | 2.6072 | 5.8817 |
| Not young | 17 | -1.4849 | 1.0409 | 0.1575 | 2.7595 | 1.4923 | 4.0267 |
| All ages | 41 | -0.9530 | 0.8939 | 0.2895 | 3.2915 | 2.5982 | 3.9848 |
| NS | 20 | -2.9239 | 1.0350 | 0.0059 -- | 1.3205 | 0.0726 | 2.5684 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Awareness of validation by cotinine

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 488704.5444 | (83) | 27571.1730 | 0.1025 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.8919 | 1.7840 | 0.0320 + | 3.8919 | 0.3436 | 7.4402 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 2 | Aliased |  |  | 3.8919 | 0.3436 | 7.4402 |
| No | 11 | 1.3091 | 2.0923 | 0.5333 | 5.2010 | 3.0267 | 7.3753 |
| NS | 73 | -1.0654 | 1.8061 | 0.5569 | 2.8265 | 2.2662 | 3.3868 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 504051.2393 | (83) | 12224.4781 | 0.3699 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.0528 | 0.7345 | 0.0065 ++ | 2.0528 | 0.5918 | 3.5137 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 17 | Aliased |  |  | 2.0528 | 0.5918 | 3.5137 |
| Before 2003 | 33 | 1.2291 | 0.8979 | 0.1748 | 3.2818 | 2.2546 | 4.3090 |
| 2003 onwards | 36 | 1.0296 | 0.8179 | 0.2116 | 3.0823 | 2.3670 | 3.7977 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 498406.0843 | (84) | 17869.6331 | 0.0863 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 1.5964 | 0.8503 | 0.0639 (+) | 1.5964 | -0.0946 | 3.2874 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 9 | Aliased |  |  | 1.5964 | -0.0946 | 3.2874 |
| Not good | 77 | 1.5567 | 0.8970 | 0.0863 (+) | 3.1531 | 2.5852 | 3.7209 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 235250.1862 | (29) | 3804.9651 | 0.4989 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.0914 | 0.5884 | 0.0000 +++ | 3.0914 | 1.8879 | 4.2949 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 29 | Aliased |  |  | 3.0914 | 1.8879 | 4.2949 |
| Pregnant | 2 | 1.3701 | 2.0005 | 0.4989 | 4.4615 | 0.5510 | 8.3719 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Tobacco products considered

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 424694.6230 | (83) | 91581.0944 | 0.0003 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3478 | 0.4113 | 0.0000 +++ | 4.3478 | 3.5298 | 5.1658 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 30 | Aliased |  |  | 4.3478 | 3.5298 | 5.1658 |
| Any smoking | 53 | -2.2222 | 0.5256 | 0.0001 --- | 2.1256 | 1.4746 | 2.7767 |
| Any tobacco | 3 | -1.1470 | 1.3759 | 0.4069 | 3.2008 | 0.5893 | 5.8123 |

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Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 513623.9525 | (83) | 2651.7650 | 0.8076 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.2099 | 0.4912 | 0.0000 +++ | 3.2099 | 2.2329 | 4.1869 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 31 | Aliased |  |  | 3.2099 | 2.2329 | 4.1869 |
| M | 23 | -0.0293 | 0.9473 | 0.9754 | 3.1807 | 1.5696 | 4.7917 |
| M+F | 32 | -0.3727 | 0.6133 | 0.5451 | 2.8373 | 2.1069 | 3.5676 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 461429.1813 | (82) | 54846.5361 | 0.0260 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.6356 | 0.4101 | 0.0000 +++ | 3.6356 | 2.8197 | 4.4515 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 26 | Aliased |  |  | 3.6356 | 2.8197 | 4.4515 |
| Europe | 48 | -1.4102 | 0.5730 | 0.0160 - | 2.2254 | 1.4294 | 3.0215 |
| Asia | 9 | -0.4456 | 0.8027 | 0.5804 | 3.1900 | 1.8173 | 4.5628 |
| Other | 3 | 5.3250 | 3.2020 | 0.1001 | 8.9606 | 2.6433 | 15.2779 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 344795.0437 | (74) | 171480.6737 | 0.0009 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.6220 | 1.1608 | 0.0026 ++ | 3.6220 | 1.3091 | 5.9350 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 7 | Aliased |  |  | 3.6220 | 1.3091 | 5.9350 |
| Canada/USA, M | 3 | 1.6495 | 2.9649 | 0.5796 | 5.2716 | -0.1645 | 10.7076 |
| Canada/USA, M+F | 16 | -0.0197 | 1.2272 | 0.9872 | 3.6023 | 2.8087 | 4.3959 |
| Europe, F | 18 | -1.5801 | 1.2760 | 0.2195 | 2.0419 | 0.9863 | 3.0975 |
| Europe, M | 16 | -0.9564 | 1.3966 | 0.4956 | 2.6656 | 1.1185 | 4.2128 |
| Europe, M+F | 14 | -1.4294 | 1.3336 | 0.2873 | 2.1926 | 0.8844 | 3.5008 |
| Asia, F | 5 | 2.4711 | 1.4967 | 0.1030 | 6.0931 | 4.2104 | 7.9758 |
| Asia, M | 3 | 1.5367 | 2.4433 | 0.5313 | 5.1587 | 0.8748 | 9.4427 |
| Asia, M+F | 1 | -3.4968 | 1.4768 | 0.0205 - | 0.1252 | -1.6938 | 1.9442 |
| Other, F | 1 | 7.5193 | 3.7428 | 0.0482 + | 11.1413 | 4.0513 | 18.2313 |
| Other, M | 1 | 9.2351 | 8.2408 | 0.2661 | 12.8571 | -3.3992 | 29.1135 |
| Other, M+F | 1 | -3.6220 | 6.3384 | 0.5694 | -0.0000 | -12.4160 | 12.4160 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_LEE2005TF | M | 1999 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good |  | 2 | 2 | 0.0000 | 0.0000 | 47.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 0.0000 | 0.0000 | 79.4379 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 106.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 30.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 9.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 0.0000 | 0.0000 | 81.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 120.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 207.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 0.1252 | 7.0000 | 5591.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 0.4149 | 2.0000 | 482.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 0.4438 | 3.0000 | 676.0000 |
| HSE\_LEE2005TF | F | 2001 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good | 1 | 2 | 2 | 0.4573 | 6.0000 | 1312.0000 |
| Fontham\_FONTHA1994-cases | F | Cases | Urine | 3 | 3 | 3 | NS | 1 | 2 | 1 | 3 | 1 | 0.5618 | 2.0000 | 356.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.5994 | 6.0000 | 1001.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.6119 | 7.0000 | 1144.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.6299 | 4.0000 | 635.0000 |
| SEASD\_FORAST2000 | F | urine, never-smokers | Urine | 3 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.6405 | 8.0000 | 1249.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 0.6897 | 3.0000 | 435.0000 |
| HSE\_LEE2005TF | F | 1998 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good | 1 | 2 | 2 | 0.7519 | 11.0000 | 1463.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.7557 | 3.0000 | 397.0000 |
| HSE\_LEE2005TF | M | 2000 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good |  | 2 | 2 | 0.7634 | 2.0000 | 262.0000 |
| Rodriguez\_RODRIG2010 | M+F |  | Urine | 3 | 1 | 2 | NS | 3 | 2 |  | 2 | 1 | 0.8025 | 13.0000 | 1620.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 0.8547 | 4.0000 | 468.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.8889 | 2.0000 | 225.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.9615 | 3.0000 | 312.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 1.0899 | 8.0000 | 734.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 1.2097 | 3.0000 | 248.0000 |
| HSE\_LEE2005TF | F | 2000 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good | 1 | 2 | 2 | 1.2723 | 5.0000 | 393.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 1.3043 | 60.0000 | 4600.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 1.3072 | 4.0000 | 306.0000 |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 1.3245 | 4.0000 | 302.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 1.3400 | 16.0000 | 1194.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 1.4433 | 7.0000 | 485.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 1.5789 | 3.0000 | 190.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.5957 | 21.0000 | 1316.0000 |
| HSE\_LEE2005TF | M | 2001 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good |  | 2 | 2 | 1.6251 | 15.0000 | 923.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 1.6260 | 4.0000 | 246.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.6327 | 4.0000 | 245.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.6360 | 8.0000 | 489.0000 |
| HSE\_LEE2005TF | M | 1998 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good |  | 2 | 2 | 1.6878 | 16.0000 | 948.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 1.7241 | 2.0000 | 116.0000 |
| SHHS\_TUNSTA1995 | F | 1984-1986 | Blood | 1 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 1.8421 | 28.0000 | 1520.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 1.8779 | 8.0000 | 426.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 1.8939 | 15.0000 | 792.0000 |
| Fontham\_FONTHA1994-controls | F | Controls | Urine | 3 | 1 | 3 | NS | 1 | 2 | 1 | 3 | 1 | 2.3496 | 25.0000 | 1064.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 2.5806 | 72.0000 | 2790.0000 |
| SHHS\_TUNSTA1995 | M | 1984-1986 | Blood | 1 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 2.6022 | 21.0000 | 807.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.6570 | 22.0000 | 828.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 2.6786 | 45.0000 | 1680.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 2.8571 | 6.0616 | 212.1560 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.8670 | 25.0000 | 872.0000 |
| NHANES\_VENN2007 | M+F | 1988-1994 | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 2.9254 | 229.0000 | 7828.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 3.0303 | 5.0000 | 165.0000 |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.0635 | 14.0000 | 457.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 3.1008 | 12.0000 | 387.0000 |
| KNHANES\_JUNG2015 | F | 2010-2012 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 2 | Asia | 3.1250 | 49.0000 | 1568.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 3.5000 | 19.2458 | 549.8800 |
| NHANES\_ALSHAA2015 | M+F | 2009-10 | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 3.5959 | 110.0000 | 3059.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 3.7960 | 131.0000 | 3451.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 4.0323 | 5.0000 | 124.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 4.0323 | 5.0000 | 124.0000 |
| NHANES\_ALSHAA2015 | M+F | 2011-12 | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 4.2583 | 120.0000 | 2818.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 4.3928 | 68.0000 | 1548.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 4.4020 | 53.0000 | 1204.0000 |
| NHANES\_ALSHAA2015 | M+F | 2005-06 | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 4.4953 | 106.0000 | 2358.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 4.6083 | 10.0000 | 217.0000 |
| NHANES\_ALSHAA2015 | M+F | 2007-08 | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 4.7483 | 133.0000 | 2801.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 4.8706 | 96.0000 | 1971.0000 |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 4.9180 | 3.0000 | 61.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 5.2632 | 9.0000 | 171.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 5.7692 | 18.0000 | 312.0000 |
| HSE\_LEE2005TF | F | 1999 never-smokers | Saliva | 1 | 1 | NS | NS | 3 | Good | 1 | 2 | 2 | 5.8824 | 4.0000 | 68.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 6.4897 | 22.0000 | 339.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 6.8966 | 2.0000 | 29.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 7.6923 | 22.0000 | 286.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 7.8261 | 9.0000 | 115.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 7.9812 | 85.0000 | 1065.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 8.0357 | 81.0000 | 1008.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 8.1250 | 13.0000 | 160.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 8.3544 | 231.0000 | 2765.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 9.2857 | 13.0000 | 140.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 9.6579 | 48.0000 | 497.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 10.7018 | 61.0000 | 570.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 11.1413 | 41.0000 | 368.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 12.8571 | 9.0000 | 70.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 19.7880 | 56.0000 | 283.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 3.2258 | 7.0000 | 217.0000 |

Additional results included in analysis by Age group, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| KNHANES\_KIM2013H | F | 2008-2009, age 55+ | Urine | 1 | 1 | 2 | NS | 3 | 2 | 1 | 3 | Asia | 0.8832 | 13.0000 | 1472.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 0.0000 | 0.0000 | 84.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 397.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.1748 | 2.0000 | 1144.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.1998 | 2.0000 | 1001.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 0.4065 | 1.0000 | 246.0000 |
| Rodriguez\_RODRIG2010 | M+F |  | Urine | 3 | 1 | 2 | NS | 3 | 2 |  | 2 | 1 | 0.4321 | 7.0000 | 1620.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 0.5952 | 10.0000 | 1680.0000 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 0.7874 | 2.0000 | 254.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.8180 | 4.0000 | 489.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.8621 | 1.0000 | 116.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.8889 | 2.0000 | 225.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 0.9662 | 8.0000 | 828.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 1.2920 | 5.0000 | 387.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 1.3825 | 3.0000 | 217.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 1.7544 | 3.0000 | 171.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 2.1201 | 6.0000 | 283.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 2.5000 | 13.7470 | 549.8800 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 5.1661 | 199.0000 | 3852.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 5.5679 | 25.0000 | 449.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 6.2937 | 18.0000 | 286.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 7.1429 | 5.0000 | 70.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 7.6087 | 28.0000 | 368.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M2: Percentage of self-reported Never-smokers whose cotinine implies Current smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-reported Never-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 516275.7174 | (85) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.9953 | 0.2739 | 0.0000 +++ | 2.9953 | 2.4507 | 3.5399 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 424694.6230 | (83) | 91581.0944 | 0.0003 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3478 | 0.4113 | 0.0000 +++ | 4.3478 | 3.5298 | 5.1658 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 30 | Aliased |  |  | 4.3478 | 3.5298 | 5.1658 |
| Any smoking | 53 | -2.2222 | 0.5256 | 0.0001 --- | 2.1256 | 1.4746 | 2.7767 |
| Any tobacco | 3 | -1.1470 | 1.3759 | 0.4069 | 3.2008 | 0.5893 | 5.8123 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 12658.0809 | (87) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.0942 | 1.2858 | 0.0000 +++ | 14.0942 | 11.5385 | 16.6499 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 969.5028 | (23) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.4311 | 1.3253 | 0.0000 +++ | 7.4311 | 4.6895 | 10.1726 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1948863.5785 | (87) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.9178 | 0.8512 | 0.0000 +++ | 10.9178 | 9.2259 | 12.6097 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 202745.4474 | (23) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.7871 | 1.0590 | 0.0000 +++ | 6.7871 | 4.5963 | 8.9778 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Body fluid tested

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1834760.8697 | (86) | 116493.5835 | 0.0709 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.1008 | 2.0572 | 0.0000 +++ | 12.1008 | 8.0111 | 16.1904 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 18 | Aliased |  |  | 12.1008 | 8.0111 | 16.1904 |
| Saliva | 25 | 3.4794 | 3.1376 | 0.2705 | 15.5801 | 10.8707 | 20.2895 |
| Blood | 46 | -2.2790 | 2.2776 | 0.3198 | 9.8217 | 7.8785 | 11.7650 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1719535.6583 | (84) | 229327.9201 | 0.0142 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.8261 | 1.5163 | 0.0000 +++ | 8.8261 | 5.8107 | 11.8414 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 29 | Aliased |  |  | 8.8261 | 5.8107 | 11.8414 |
| Spectrometry | 15 | 1.2975 | 2.0395 | 0.5264 | 10.1236 | 7.4113 | 12.8359 |
| Immunoassay | 32 | 2.7173 | 2.1846 | 0.2170 | 11.5434 | 8.4160 | 14.6707 |
| Other | 12 | 10.2146 | 3.1297 | 0.0016 ++ | 19.0406 | 13.5962 | 24.4851 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Study type

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1453794.0612 | (85) | 495069.5173 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.7315 | 0.9380 | 0.0000 +++ | 8.7315 | 6.8665 | 10.5966 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 53 | Aliased |  |  | 8.7315 | 6.8665 | 10.5966 |
| Pregnancy | 13 | 13.9318 | 2.6248 | 0.0000 +++ | 22.6634 | 17.7892 | 27.5375 |
| Diseased or CC | 22 | 3.2369 | 1.6916 | 0.0590 (+) | 11.9685 | 9.1696 | 14.7674 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1577819.0095 | (84) | 371044.5690 | 0.0005 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 18.8324 | 2.1126 | 0.0000 +++ | 18.8324 | 14.6314 | 23.0335 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 20 | Aliased |  |  | 18.8324 | 14.6314 | 23.0335 |
| Not young | 16 | -7.2010 | 2.5843 | 0.0066 -- | 11.6315 | 8.6713 | 14.5917 |
| All ages | 38 | -9.4592 | 2.4260 | 0.0002 --- | 9.3732 | 7.0012 | 11.7452 |
| NS | 14 | -11.6879 | 2.8634 | 0.0001 --- | 7.1445 | 3.3007 | 10.9883 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1742662.8142 | (85) | 206200.7643 | 0.0086 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 20.1787 | 3.2823 | 0.0000 +++ | 20.1787 | 13.6526 | 26.7048 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 9 | Aliased |  |  | 20.1787 | 13.6526 | 26.7048 |
| No | 13 | -6.7011 | 4.2249 | 0.1164 | 13.4775 | 8.1884 | 18.7667 |
| NS | 66 | -10.2197 | 3.3998 | 0.0035 -- | 9.9590 | 8.1973 | 11.7206 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1845718.6167 | (85) | 103144.9618 | 0.0992 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.8567 | 2.2292 | 0.0028 ++ | 6.8567 | 2.4246 | 11.2889 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 15 | Aliased |  |  | 6.8567 | 2.4246 | 11.2889 |
| Before 2003 | 39 | 3.7578 | 2.6181 | 0.1549 | 10.6145 | 7.8846 | 13.3444 |
| 2003 onwards | 34 | 5.4744 | 2.5326 | 0.0335 + | 12.3311 | 9.9411 | 14.7212 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Quality of study

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1947707.1821 | (86) | 1156.3964 | 0.8218 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.8472 | 4.2015 | 0.0060 ++ | 11.8472 | 3.4950 | 20.1995 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 4 | Aliased |  |  | 11.8472 | 3.4950 | 20.1995 |
| Not good | 84 | -0.9697 | 4.2914 | 0.8218 | 10.8775 | 9.1396 | 12.6154 |

By Pregnancy (women only)

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 555716.6440 | (31) | 354402.8538 | 0.0001 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.8526 | 2.1902 | 0.0011 ++ | 7.8526 | 3.3857 | 12.3195 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 20 | Aliased |  |  | 7.8526 | 3.3857 | 12.3195 |
| Pregnant | 13 | 14.8108 | 3.3310 | 0.0001 +++ | 22.6634 | 17.5447 | 27.7820 |

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Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Tobacco products considered

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1842147.5372 | (85) | 106716.0413 | 0.0913 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.4832 | 1.5404 | 0.0000 +++ | 12.4832 | 9.4204 | 15.5460 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 36 | Aliased |  |  | 12.4832 | 9.4204 | 15.5460 |
| Any smoking | 49 | -2.6403 | 1.8489 | 0.1569 | 9.8429 | 7.8098 | 11.8760 |
| Any tobacco | 3 | 6.0002 | 4.7870 | 0.2135 | 18.4834 | 9.4718 | 27.4950 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1827556.0637 | (85) | 121307.5148 | 0.0651 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.2556 | 1.8072 | 0.0000 +++ | 14.2556 | 10.6623 | 17.8488 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 33 | Aliased |  |  | 14.2556 | 10.6623 | 17.8488 |
| M | 19 | -6.0583 | 2.5836 | 0.0214 - | 8.1972 | 4.5262 | 11.8683 |
| M+F | 36 | -3.6049 | 2.1116 | 0.0914 (-) | 10.6506 | 8.4792 | 12.8221 |

By Location

|  |  |  |  |  |  |  |  |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1633267.7054 | (84) | 315595.8731 | 0.0019 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 15.2128 | 1.4834 | 0.0000 +++ | 15.2128 | 12.2630 | 18.1626 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 31 | Aliased |  |  | 15.2128 | 12.2630 | 18.1626 |
| Europe | 43 | -5.7122 | 1.8099 | 0.0022 -- | 9.5006 | 7.4386 | 11.5627 |
| Asia | 9 | -9.3428 | 2.8326 | 0.0014 -- | 5.8700 | 1.0712 | 10.6688 |
| Other | 5 | 2.5954 | 5.6387 | 0.6465 | 17.8082 | 6.9900 | 28.6265 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1497566.6110 | (76) | 451296.9674 | 0.0317 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 18.0975 | 3.3622 | 0.0000 +++ | 18.0975 | 11.4010 | 24.7939 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 11 | Aliased |  |  | 18.0975 | 11.4010 | 24.7939 |
| Canada/USA, M | 3 | -10.7625 | 7.7125 | 0.1669 | 7.3350 | -6.4894 | 21.1593 |
| Canada/USA, M+F | 17 | -3.1549 | 3.7752 | 0.4060 | 14.9426 | 11.5230 | 18.3622 |
| Europe, F | 15 | -6.3643 | 4.0126 | 0.1169 | 11.7332 | 7.3711 | 16.0953 |
| Europe, M | 11 | -9.8786 | 3.9675 | 0.0150 - | 8.2189 | 4.0235 | 12.4142 |
| Europe, M+F | 17 | -8.9617 | 3.6567 | 0.0166 - | 9.1357 | 6.2724 | 11.9990 |
| Asia, F | 4 | -0.7564 | 11.1895 | 0.9463 | 17.3410 | -3.9150 | 38.5971 |
| Asia, M | 4 | -9.6096 | 5.0358 | 0.0601 (-) | 8.4879 | 1.0211 | 15.9546 |
| Asia, M+F | 1 | -15.4331 | 4.7408 | 0.0017 -- | 2.6644 | -3.9923 | 9.3211 |
| Other, F | 3 | 1.7594 | 6.8231 | 0.7972 | 19.8569 | 8.0319 | 31.6819 |
| Other, M | 1 | -12.6429 | 19.2243 | 0.5127 | 5.4545 | -32.2440 | 43.1531 |
| Other, M+F | 1 | -11.1207 | 21.6692 | 0.6093 | 6.9767 | -35.6588 | 49.6123 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.5587 | 1.0000 | 179.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.6993 | 1.0000 | 143.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 2.6644 | 47.0000 | 1764.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 2.7027 | 9.0000 | 333.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.4826 | 7.0000 | 201.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 3.6199 | 8.0000 | 221.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 3.8806 | 13.0000 | 335.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 4.0816 | 4.0000 | 98.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 4.5226 | 18.0000 | 398.0000 |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 5.2632 | 6.0000 | 114.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 5.3191 | 20.0000 | 376.0000 |
| Attebring\_ATTEBR2001 | M+F |  | Blood | 1 | 3 | 3 | Yes | 2 | Good |  | 2 | 2 | 5.3254 | 9.0000 | 169.0000 |
| Yel\_YEL2005 | M |  | Saliva | 3 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 5.3571 | 12.0000 | 224.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 5.4545 | 3.0000 | 55.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 5.4795 | 4.0000 | 73.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 5.6650 | 23.0000 | 406.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 5.7471 | 10.0000 | 174.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 5.7803 | 10.0000 | 173.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 5.8099 | 33.0000 | 568.0000 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 5.9829 | 42.0000 | 702.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 6.0510 | 19.0000 | 314.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 6.3830 | 9.0000 | 141.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 6.3830 | 0.6286 | 9.8482 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 6.4881 | 172.0000 | 2651.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 6.9767 | 3.0000 | 43.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 7.1834 | 38.0000 | 529.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 7.2888 | 107.0000 | 1468.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 7.4266 | 43.0000 | 579.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 7.4766 | 8.0000 | 107.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 7.5949 | 6.0000 | 79.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 7.8507 | 61.0000 | 777.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 8.2437 | 23.0000 | 279.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 8.3333 | 3.0000 | 36.0000 |
| Tong\_TONG2015 | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 4 | 8.3900 | 37.0000 | 441.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 8.6957 | 14.0000 | 161.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 8.6957 | 2.0000 | 23.0000 |
| Ma\_MA2005 | F |  | Saliva | Other | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 8.8757 | 15.0000 | 169.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 9.4118 | 24.0000 | 255.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 9.5406 | 27.0000 | 283.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 9.7765 | 35.0000 | 358.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 10.1186 | 256.0000 | 2530.0000 |
| Murray\_MURRAY2002 | M+F |  | Saliva | 3 | 3 | 2 | No | 2 | Good |  | 2 | 1 | 10.2410 | 17.0000 | 166.0000 |
| Windsor\_WINDSO2000 | F | Phase 2 | Saliva | Other | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 10.2564 | 4.0000 | 39.0000 |
| Lerman\_LERMAN2002 | M+F |  | Blood | Other | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 10.3093 | 10.0000 | 97.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 10.3679 | 15.4606 | 149.1200 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 10.4306 | 109.0000 | 1045.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 10.6796 | 11.0000 | 103.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 10.7692 | 7.0000 | 65.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 10.8661 | 69.0000 | 635.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 10.9726 | 88.0000 | 802.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 11.1450 | 73.0000 | 655.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 11.6788 | 96.0000 | 822.0000 |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 11.7647 | 34.0000 | 289.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 12.1951 | 10.0000 | 82.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 13.1065 | 208.0000 | 1587.0000 |
| Twardella I\_TWARDE2007 | M+F |  | Blood | 3 | 1 | 2 | NS | 3 | 2 |  | 1 | 2 | 13.8462 | 9.0000 | 65.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 13.9241 | 11.0000 | 79.0000 |
| Mons\_MONS2016 | M+F |  | Blood | 3 | 1 | 2 | NS | 3 | 2 |  | 1 | 2 | 14.0625 | 9.0000 | 64.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 14.2857 | 2.0000 | 14.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 14.5425 | 89.0000 | 612.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 15.0289 | 26.0000 | 173.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 15.5914 | 29.0000 | 186.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 16.3522 | 104.0000 | 636.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 16.3934 | 20.0000 | 122.0000 |
| O'Connor\_OCONNO1992 | F |  | Urine | Other | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 16.6667 | 4.0000 | 24.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 17.0732 | 21.0000 | 123.0000 |
| Lando\_LANDO2003 | M+F |  | Saliva | 1 | 3 | 3 | Yes | 3 | Good |  | 3 | 1 | 18.0887 | 53.0000 | 293.0000 |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 18.3486 | 20.0000 | 109.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 18.4058 | 127.0000 | 690.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 18.7500 | 6.0000 | 32.0000 |
| Hennrikus\_HENNRI2005 | M+F |  | Saliva | Other | 3 | 3 | Yes | 3 | 2 |  | 1 | 1 | 19.9170 | 48.0000 | 241.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 20.0000 | 3.0000 | 15.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 20.0000 | 3.0000 | 15.0000 |
| Noonan\_NOONAN2013 | M+F |  | Urine | 1 | 3 | NS | Yes | 3 | 2 |  | 3 | 1 | 20.8333 | 15.0000 | 72.0000 |
| England\_ENGLAN2007 | F |  | Urine | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 21.5739 | 159.0000 | 737.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 22.1973 | 99.0000 | 446.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gariti\_GARITI2002A | M+F |  | Urine | 3 | 1 | 3 | Yes | 2 | 2 |  | 1 | 1 | 23.1579 | 22.0000 | 95.0000 |
| Moore\_MOORE2002 | F |  | Urine | Other | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 24.6334 | 84.0000 | 341.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 25.6131 | 94.0000 | 367.0000 |
| Birmingham II\_WINDSO1993 | F |  | Saliva | 3 | 2 | Young | Yes | 2 | 2 | 2 | 1 | 1 | 26.1905 | 33.0000 | 126.0000 |
| Kendrick\_KENDRI1995 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 34.9206 | 66.0000 | 189.0000 |
| Ussher\_USSHER2015 | F |  | Saliva | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 2 | 36.0465 | 31.0000 | 86.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 37.0370 | 30.0000 | 81.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 40.0000 | 2.0000 | 5.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 45.0980 | 19.1947 | 42.5621 |
| Ahluwalia\_AHLUWA2006 | M+F |  | Saliva | Other | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 51.0309 | 99.0000 | 194.0000 |
| Hegaard\_HEGAAR2003 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 52.3810 | 33.0000 | 63.0000 |
| Everett-Murphy\_EVERET2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 68.9320 | 71.0000 | 103.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 7.8431 | 20.0000 | 255.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.0000 | 0.0000 | 179.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.0000 | 0.0000 | 143.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 1.8182 | 1.0000 | 55.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.0896 | 7.0000 | 335.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.5907 | 15.0000 | 579.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.6465 | 14.0000 | 529.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.8662 | 9.0000 | 314.0000 |
| Attebring\_ATTEBR2001 | M+F |  | Blood | 1 | 3 | 3 | Yes | 2 | Good |  | 2 | 2 | 2.9586 | 5.0000 | 169.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 3.5842 | 10.0000 | 279.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 4.2105 | 44.0000 | 1045.0000 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 4.6358 | 7.0000 | 151.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 5.0980 | 13.0000 | 255.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 5.1122 | 41.0000 | 802.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 7.3446 | 13.0000 | 177.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 7.4766 | 8.0000 | 107.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 7.6233 | 34.0000 | 446.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 7.6923 | 11.4708 | 149.1200 |
| DC-HOPE\_ELMOHA2011A | F | Ex-smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 9.8361 | 30.0000 | 305.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 10.1266 | 8.0000 | 79.0000 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 13.7119 | 198.0000 | 1444.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 15.6250 | 5.0000 | 32.0000 |
| Secker-Walker\_SECKER1997A | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 16.1290 | 20.0000 | 124.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 20.0000 | 3.0000 | 15.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 25.1701 | 37.0000 | 147.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M3: Percentage of self-reported Ex-smokers whose cotinine implies Current smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-reported Ex-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 1948863.5785 | (87) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.9178 | 0.8512 | 0.0000 +++ | 10.9178 | 9.2259 | 12.6097 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1453794.0612 | (85) | 495069.5173 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.7315 | 0.9380 | 0.0000 +++ | 8.7315 | 6.8665 | 10.5966 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 53 | Aliased |  |  | 8.7315 | 6.8665 | 10.5966 |
| Pregnancy | 13 | 13.9318 | 2.6248 | 0.0000 +++ | 22.6634 | 17.7892 | 27.5375 |
| Diseased or CC | 22 | 3.2369 | 1.6916 | 0.0590 (+) | 11.9685 | 9.1696 | 14.7674 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 1292471.6043 | (83) | 161322.4569 | 0.0076 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.6863 | 1.3532 | 0.0000 +++ | 10.6863 | 7.9949 | 13.3777 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 53 | Aliased |  |  | 8.4840 | 6.6918 | 10.2762 |
| Pregnancy | 13 | 14.6317 | 2.5140 | 0.0000 +++ | 23.1157 | 18.4539 | 27.7775 |
| Diseased or CC | 22 | 3.8928 | 1.6451 | 0.0203 + | 12.3768 | 9.6711 | 15.0825 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 36 | Aliased |  |  | 13.1201 | 10.4873 | 15.7528 |
| Any smoking | 49 | -3.6131 | 1.5978 | 0.0264 - | 9.5070 | 7.7728 | 11.2411 |
| Any tobacco | 3 | 6.4503 | 4.0723 | 0.1170 | 19.5704 | 11.9147 | 27.2260 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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Overall percentage, cut point 1, unweighted

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 26115.1765 | (141) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.9193 | 1.1421 | 0.0000 +++ | 12.9193 | 10.6614 | 15.1772 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 21364.0634 | (43) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 25.3098 | 3.3603 | 0.0000 +++ | 25.3098 | 18.5330 | 32.0865 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 8613259.6098 | (141) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.6705 | 0.9822 | 0.0000 +++ | 9.6705 | 7.7286 | 11.6124 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1736699.5040 | (43) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 18.4792 | 1.9939 | 0.0000 +++ | 18.4792 | 14.4582 | 22.5003 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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Overall misclassification rate (percentage) for the Palmier study, cut point 2 = 53.0837

By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8371568.7821 | (140) | 252062.5027 | 0.1254 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.0047 | 2.4498 | 0.0049 ++ | 7.0047 | 2.1612 | 11.8483 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 36 | Aliased |  |  | 7.0047 | 2.1612 | 11.8483 |
| Saliva | 33 | 0.8332 | 3.0001 | 0.7816 | 7.8379 | 4.4138 | 11.2621 |
| Blood | 74 | 4.5119 | 2.7900 | 0.1081 | 11.5166 | 8.8769 | 14.1563 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8113797.3597 | (139) | 499566.8425 | 0.0396 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5014 | 1.5437 | 0.0000 +++ | 6.5014 | 3.4490 | 9.5537 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 45 | Aliased |  |  | 6.5014 | 3.4490 | 9.5537 |
| Spectrometry | 41 | 6.6237 | 2.3523 | 0.0056 ++ | 13.1251 | 9.6156 | 16.6346 |
| Immunoassay | 49 | 3.3967 | 2.3949 | 0.1583 | 9.8981 | 6.2777 | 13.5185 |
| Other | 8 | 6.4571 | 4.7323 | 0.1746 | 12.9585 | 4.1135 | 21.8036 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 7418261.5382 | (139) | 1194998.0716 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.0293 | 1.1009 | 0.0000 +++ | 8.0293 | 5.8525 | 10.2061 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 88 | Aliased |  |  | 8.0293 | 5.8525 | 10.2061 |
| Pregnancy | 28 | 0.4592 | 2.3643 | 0.8463 | 8.4885 | 4.3513 | 12.6257 |
| Diseased or CC | 26 | 13.8634 | 2.9559 | 0.0000 +++ | 21.8927 | 16.4685 | 27.3169 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 7237532.9568 | (138) | 1375726.6530 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 13.1589 | 1.6459 | 0.0000 +++ | 13.1589 | 9.9043 | 16.4134 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 59 | Aliased |  |  | 13.1589 | 9.9043 | 16.4134 |
| Not young | 12 | 7.2645 | 3.5280 | 0.0414 + | 20.4233 | 14.2529 | 26.5937 |
| All ages | 46 | -7.3651 | 2.0629 | 0.0005 --- | 5.7937 | 3.3346 | 8.2529 |
| NS | 25 | -2.1984 | 3.7369 | 0.5573 | 10.9605 | 4.3266 | 17.5944 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8547398.5106 | (139) | 65861.0992 | 0.5866 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.2275 | 4.1457 | 0.0148 + | 10.2275 | 2.0302 | 18.4247 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 11 | Aliased |  |  | 10.2275 | 2.0302 | 18.4247 |
| No | 22 | -2.9763 | 4.8609 | 0.5413 | 7.2512 | 2.2330 | 12.2694 |
| NS | 109 | -0.1365 | 4.2910 | 0.9747 | 10.0910 | 7.9024 | 12.2795 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 7531027.8317 | (139) | 1082231.7781 | 0.0001 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.8491 | 4.3150 | 0.1147 | 6.8491 | -1.6828 | 15.3809 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 6.8491 | -1.6828 | 15.3809 |
| Before 2003 | 55 | -0.8052 | 4.4990 | 0.8582 | 6.0439 | 3.5257 | 8.5620 |
| 2003 onwards | 76 | 7.6122 | 4.5416 | 0.0960 (+) | 14.4613 | 11.6604 | 17.2622 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8613107.0878 | (140) | 152.5220 | 0.9604 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.7745 | 2.3099 | 0.0000 +++ | 9.7745 | 5.2074 | 14.3416 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 21 | Aliased |  |  | 9.7745 | 5.2074 | 14.3416 |
| Not good | 121 | -0.1272 | 2.5542 | 0.9604 | 9.6473 | 7.4923 | 11.8023 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 954822.6138 | (57) | 14928.3578 | 0.3491 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.3028 | 1.5243 | 0.0000 +++ | 10.3028 | 7.2504 | 13.3553 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 30 | Aliased |  |  | 10.3028 | 7.2504 | 13.3553 |
| Pregnant | 29 | -1.8128 | 1.9203 | 0.3491 | 8.4900 | 6.1515 | 10.8286 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Tobacco products considered

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8845858.0419 | (140) | 944.8487 | 0.9926 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.9001 | 1.4627 | 0.0000 +++ | 8.9001 | 6.0081 | 11.7921 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 63 | Aliased |  |  | 8.9001 | 6.0081 | 11.7921 |
| Any smoking | 71 | 0.1753 | 1.9304 | 0.9278 | 9.0754 | 6.5847 | 11.5662 |
| Any tobacco | 9 | -0.2695 | 4.6546 | 0.9539 | 8.6306 | -0.1059 | 17.3671 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8513232.8093 | (141) | 109271.3515 | 0.4069 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.2947 | 1.7377 | 0.0000 +++ | 9.2947 | 5.8593 | 12.7302 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 59 | Aliased |  |  | 9.2947 | 5.8593 | 12.7302 |
| M | 24 | -2.0943 | 2.9240 | 0.4750 | 7.2004 | 2.5513 | 11.8495 |
| M+F | 61 | 1.4674 | 2.1961 | 0.5051 | 10.7621 | 8.1072 | 13.4170 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8478241.5503 | (138) | 135018.0595 | 0.5343 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.6878 | 1.6016 | 0.0000 +++ | 9.6878 | 6.5208 | 12.8548 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 53 | Aliased |  |  | 9.6878 | 6.5208 | 12.8548 |
| Europe | 56 | -0.1773 | 2.1356 | 0.9339 | 9.5104 | 6.7170 | 12.3039 |
| Asia | 15 | -2.1256 | 3.5998 | 0.5558 | 7.5622 | 1.1873 | 13.9371 |
| Other | 18 | 6.3422 | 5.0579 | 0.2120 | 16.0300 | 6.5432 | 25.5167 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8152437.6292 | (130) | 460821.9806 | 0.7665 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.8591 | 2.4173 | 0.0001 +++ | 9.8591 | 5.0765 | 14.6416 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 21 | Aliased |  |  | 9.8591 | 5.0765 | 14.6416 |
| Canada/USA, M | 8 | 1.0088 | 4.6897 | 0.8300 | 10.8679 | 2.9170 | 18.8188 |
| Canada/USA, M+F | 24 | -0.8590 | 3.5441 | 0.8089 | 9.0000 | 3.8723 | 14.1278 |
| Europe, F | 26 | -2.2550 | 3.8276 | 0.5568 | 7.6041 | 1.7325 | 13.4756 |
| Europe, M | 8 | -2.7141 | 5.0309 | 0.5905 | 7.1450 | -1.5843 | 15.8742 |
| Europe, M+F | 22 | 0.6881 | 2.9851 | 0.8181 | 10.5472 | 7.0820 | 14.0124 |
| Asia, F | 6 | 2.0296 | 7.6629 | 0.7915 | 11.8887 | -2.4979 | 26.2753 |
| Asia, M | 4 | -7.1058 | 5.2114 | 0.1751 | 2.7532 | -6.3811 | 11.8876 |
| Asia, M+F | 5 | 2.7601 | 6.4043 | 0.6672 | 12.6192 | 0.8858 | 24.3526 |
| Other, F | 5 | 0.3902 | 13.3999 | 0.9768 | 10.2493 | -15.8270 | 36.3256 |
| Other, M | 3 | -7.5454 | 12.9249 | 0.5604 | 2.3136 | -22.8067 | 27.4340 |
| Other, M+F | 10 | 10.0385 | 6.2064 | 0.1082 | 19.8975 | 8.5880 | 31.2071 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 55.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 0.0000 | 0.0000 | 16.0000 |
| Windham\_WINDHA1999A | F |  | Urine | 2 | 1 | Young | NS | 2 | 2 | 1 | 1 | 1 | 0.0000 | 0.0000 | 63.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 30.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 0.0000 | 0.0000 | 111.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 0.4000 | 1.0000 | 250.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 0.7634 | 1.0000 | 131.0000 |
| Fritz\_FRITZ2010A | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 2 | 0.8333 | 1.0000 | 120.0000 |
| Noonan\_NOONAN2013 | M+F |  | Urine | 1 | 3 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.8421 | 4.0000 | 475.0000 |
| Murray\_MURRAY2002 | M+F |  | Saliva | 3 | 3 | 2 | No | 2 | Good |  | 2 | 1 | 0.9181 | 13.0000 | 1416.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 0.9259 | 0.4659 | 50.3164 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 1.0526 | 1.0000 | 95.0000 |
| Hegaard\_HEGAAR2007 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 1.1142 | 0.9410 | 84.4581 |
| Muranaka\_MURANA1988 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | Asia | 1.3423 | 2.0000 | 149.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 1.6856 | 46.0000 | 2729.0000 |
| van Vunakis\_VANVUN1989 | M+F |  | Saliva | 3 | 1 | NS | NS | 1 | 2 |  | 1 | 1 | 1.7094 | 2.0000 | 117.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 2.0057 | 7.0000 | 349.0000 |
| KNHANES\_KANG2015-M | M | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 2.0391 | 48.0000 | 2354.0000 |
| Ellard II\_ELLARD1996 | F |  | Urine | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 2.0661 | 20.0000 | 968.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 2.0833 | 1.0000 | 48.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 2.1277 | 1.0000 | 47.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 2.1390 | 1.8643 | 87.1550 |
| Barlow\_BARLOW1987 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 2.3438 | 3.0000 | 128.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 2.3529 | 2.0000 | 85.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.6549 | 0.5475 | 20.6207 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.7957 | 13.0000 | 465.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 2.8021 | 16.0000 | 571.0000 |
| Gariti\_GARITI2002A | M+F |  | Urine | 3 | 1 | 3 | Yes | 2 | 2 |  | 1 | 1 | 2.8846 | 3.0000 | 104.0000 |
| Osaka factory\_YAMAMO2005 | M+F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | Asia | 3.1579 | 3.0000 | 95.0000 |
| KNHANES\_KANG2015-F | F | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | Asia | 3.1977 | 11.0000 | 344.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 3.2520 | 24.0000 | 738.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 3.3149 | 48.0000 | 1448.0000 |
| SHS\_LU2014A | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.3972 | 94.0000 | 2767.0000 |
| Stick\_STICK1996 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 4 | 3.5088 | 2.0000 | 57.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 3.6322 | 32.0000 | 881.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 3.6649 | 7.0000 | 191.0000 |
| Goniewicz\_GONIEW2011 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 3.7234 | 14.0000 | 376.0000 |
| Yel\_YEL2005 | M |  | Saliva | 3 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 3.8462 | 1.0000 | 26.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hoseini\_HOSEIN2016 | M+F |  | Urine | 3 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 3.9474 | 3.0000 | 76.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 4.1667 | 10.6739 | 256.1727 |
| INMA\_AURREK2013 | F | 2004-08 | Urine | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 4.3062 | 18.0000 | 418.0000 |
| Bauld\_BAULD2012 | F |  | Urine | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 4.3137 | 11.0000 | 255.0000 |
| Jarvis I\_JARVIS1987A | M+F |  | Blood | 1 | 3 | NS | NS | 1 | 2 |  | 2 | 2 | 4.4444 | 4.0000 | 90.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 4.6154 | 6.0000 | 130.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 4.7945 | 7.0000 | 146.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 5.0682 | 78.0000 | 1539.0000 |
| Stanton\_STANTO1996 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 2 | 4 | 5.0909 | 14.0000 | 275.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 5.2632 | 2.0000 | 38.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 5.2632 | 1.0000 | 19.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 5.2941 | 9.0000 | 170.0000 |
| Mathews\_MATHEW1999A | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 5.8333 | 14.0000 | 240.0000 |
| HSE\_JARVIS2008-any-smoking | M+F | 1996-2004, Any smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 5.9032 | 582.0000 | 9859.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 6.2893 | 30.0000 | 477.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 6.3094 | 93.0000 | 1474.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 6.4655 | 13.4728 | 208.3800 |
| Martinez-Sanchez\_MARTIN2009C | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 6.6282 | 23.0000 | 347.0000 |
| CHDS\_ENGLIS1994 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 6.6500 | 80.0000 | 1203.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 6.8536 | 22.0000 | 321.0000 |
| Haddow II\_HADDOW1988A | F |  | Blood | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 7.0097 | 331.0000 | 4722.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 7.2706 | 61.0000 | 839.0000 |
| CHMS\_WONG2012 | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 7.2773 | 58.0000 | 797.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 7.4013 | 45.0000 | 608.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 7.5353 | 96.0000 | 1274.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 7.8125 | 5.0000 | 64.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 8.0292 | 11.0000 | 137.0000 |
| Waggoner\_WAGGON2010 | F |  | Urine | 3 | 3 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 8.0357 | 9.0000 | 112.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 8.3195 | 100.0000 | 1202.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 8.4615 | 11.0000 | 130.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 8.5890 | 14.0000 | 163.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 8.8710 | 11.0000 | 124.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 9.0452 | 21.0754 | 233.0000 |
| Semple\_SEMPLE2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 9.1463 | 15.0000 | 164.0000 |
| NHANES\_LINDSA2014-adult | M+F | 1999-2000, age 20+ | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 9.1979 | 86.0000 | 935.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 9.3484 | 33.0000 | 353.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 9.4118 | 8.0000 | 85.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 9.4139 | 106.0000 | 1126.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 9.5174 | 71.0000 | 746.0000 |
| Seersholm\_SEERSH1999 | M+F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 9.8101 | 31.0000 | 316.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 9.8361 | 12.0000 | 122.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 10.2564 | 8.0000 | 78.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 10.4348 | 10.1835 | 97.5917 |
| Anderson\_ANDERS2009A | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 10.8108 | 4.0000 | 37.0000 |
| Yeh\_YEH2011 | M+F | LC-MS/MS method | Urine | 2 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 10.9453 | 3.9159 | 35.7773 |
| Kim\_KIM2014J | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 11.2150 | 12.0000 | 107.0000 |
| Assaf\_ASSAF2002-F | F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 1 | 11.3208 | 18.0000 | 159.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 11.5385 | 42.6955 | 370.0273 |
| George\_GEORGE2006 | F | early pregnancy | Blood | 1 | 2 | Young | No | 3 | Good | 2 | 2 | 2 | 11.6667 | 7.0000 | 60.0000 |
| Tikkanen\_TIKKAN2010 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 11.8812 | 12.0000 | 101.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 12.0658 | 9.6450 | 79.9366 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 12.0879 | 55.0000 | 455.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 12.1053 | 46.0000 | 380.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 12.2093 | 21.0000 | 172.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 12.5000 | 3.0000 | 24.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 12.6984 | 16.0000 | 126.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 12.9117 | 98.0000 | 759.0000 |
| Klebanoff\_KLEBAN1998 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 13.0208 | 25.0000 | 192.0000 |
| Etter\_ETTER2000A | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 13.0631 | 4.5987 | 35.2039 |
| Molina\_MOLINA2010 | F |  | Saliva | 3 | 1 | Young | NS | 3 | 2 | 1 | 2 | 2 | 13.1579 | 15.0000 | 114.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 13.4831 | 12.0000 | 89.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 13.6752 | 16.0000 | 117.0000 |
| Fendrich\_FENDRI2005 | M+F |  | Saliva | Other | 1 | Young | No | 3 | 2 |  | 3 | 1 | 13.8298 | 26.0000 | 188.0000 |
| Birmingham II\_WINDSO1993 | F |  | Saliva | 3 | 2 | Young | Yes | 2 | 2 | 2 | 1 | 1 | 13.9576 | 79.0000 | 566.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 14.9254 | 10.0000 | 67.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 15.3285 | 42.0000 | 274.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 15.3846 | 12.0000 | 78.0000 |
| Brunet\_BRUNET2011 | M+F |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 4 | 15.4167 | 37.0000 | 240.0000 |
| Spencer I\_SPENCE1998 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 15.4545 | 17.0000 | 110.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 15.7480 | 60.0000 | 381.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 16.2528 | 72.0000 | 443.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 16.5354 | 63.0000 | 381.0000 |
| de Chazeron\_DECHAZ2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 16.8142 | 38.0000 | 226.0000 |
| Sasaki\_SASAKI2011 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | Asia | 17.1470 | 119.0000 | 694.0000 |
| NHANES\_CARABA2004 | M | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 17.5926 | 19.0000 | 108.0000 |
| Spencer II\_SPENCE2013 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 17.7746 | 24.8096 | 139.5789 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dickinson\_DICKIN1988 | M+F |  | Saliva | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 4 | 18.3333 | 22.0000 | 120.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 20.0000 | 7.0000 | 35.0000 |
| Kharrazi\_KHARRA1999 | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 20.3704 | 22.0000 | 108.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 20.6897 | 24.0000 | 116.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 21.7391 | 15.0000 | 69.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 22.2222 | 2.0000 | 9.0000 |
| Noland\_NOLAND1988 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 3 | 1 | 24.5283 | 39.0000 | 159.0000 |
| NHANES\_LINDSA2014-young | M+F | 1999-2000, age12-19 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 2 | 1 | 27.0492 | 66.0000 | 244.0000 |
| Lee Anna\_LEE2013TE | M+F |  | Urine | 2 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 28.5714 | 20.0000 | 70.0000 |
| Ceppa\_CEPPA2000 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 2 | 2 | 29.0323 | 18.0000 | 62.0000 |
| Dolcini\_DOLCIN2003 | M+F | Adolescents | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 29.1667 | 28.0000 | 96.0000 |
| Salzer\_SALZER2013 | M+F |  | Blood | 3 | 3 | Young | No | 3 | 2 |  | 3 | 2 | 29.5302 | 44.0000 | 149.0000 |
| McNeill\_MCNEIL1987 | F |  | Saliva | 1 | 1 | Young | Yes | 2 | 2 | 1 | 1 | 2 | 30.6358 | 53.0000 | 173.0000 |
| Jhun\_JHUN2010 | F |  | Urine | 1 | 2 | Young | No | 3 | 2 | 2 | 1 | Asia | 33.3333 | 2.0000 | 6.0000 |
| Messeri\_MESSER2007A | M+F |  | Saliva | Other | 1 | Young | NS | 3 | 2 |  | 1 | 1 | 34.0426 | 272.0000 | 799.0000 |
| NHANES\_CARABA2004 | F | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 36.1905 | 38.0000 | 105.0000 |
| Levine\_LEVINE2013 | M+F |  | Urine | 2 | 1 | 3 | Yes | 3 | 2 |  | 2 | 4 | 36.2637 | 33.0000 | 91.0000 |
| Xie I\_XIE2009 | M+F |  | Blood | 1 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 37.4532 | 100.0000 | 267.0000 |
| Kandel\_KANDEL2006 | M+F |  | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 3 | 1 | 39.3548 | 61.0000 | 155.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 40.0000 | 6.0000 | 15.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 42.8135 | 280.0000 | 654.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 46.4286 | 78.0000 | 168.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 46.5116 | 20.0000 | 43.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 47.4576 | 28.0000 | 59.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 49.5495 | 110.0000 | 222.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 50.2334 | 861.0000 | 1714.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 52.0000 | 13.0000 | 25.0000 |
| Valladolid-Lopez\_VALLAD2015 | M+F |  | Urine | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 4 | 84.4106 | 222.0000 | 263.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Additional results included in analysis by Sex, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_WARDLE2003-non-curr | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 9.1097 | 44.0000 | 483.0000 |
| HSE\_WARDLE2003-non-curr | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 13.5906 | 81.0000 | 596.0000 |

Additional results included in analysis by Body fluid tested, cut point 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 0.7634 | 1.0000 | 131.0000 |

Additional results included in analysis by Assay method, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011-strip | M+F | Test strip method | Urine | 1 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 7.9602 | 2.8479 | 35.7773 |

Additional results included in analysis by Pregnancy, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_DIETZ2011-pregnant | F | 1999-2006, pregnant | Blood | 2 | 2 | Young | NS | 3 | Good | 2 | 1 | 1 | 8.6957 | 8.0000 | 92.0000 |

Additional results included in analysis by Smoking product considered, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_JARVIS2008-cig-smoking | M+F | 1996-2004, Cigarette smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 4.2953 | 398.0000 | 9266.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 0.0000 | 0.0000 | 111.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 3.0534 | 4.0000 | 131.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 3.1579 | 3.0000 | 95.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 3.6000 | 9.0000 | 250.0000 |
| Gilligan\_GILLIG2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 6.0870 | 7.0000 | 115.0000 |
| Niedbala\_NIEDBA2002 | M+F |  | Urine | 3 | 1 | NS | NS | 2 | Good |  | 3 | 1 | 6.8750 | 1.1000 | 16.0000 |
| Agewall\_AGEWAL2002 | M |  | Urine | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 7.5000 | 6.0000 | 80.0000 |
| Secker-Walker\_SECKER1997A | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 8.0605 | 32.0000 | 397.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 8.3333 | 21.3477 | 256.1727 |
| Assaf\_ASSAF2002-M | M |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 10.2740 | 15.0000 | 146.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 10.7832 | 95.0000 | 881.0000 |
| Copenhagen\_SUADIC1997 | M | 1985-86, with or without CVD | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 3 | 2 | 11.2064 | 209.0000 | 1865.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 11.2299 | 9.7875 | 87.1550 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 12.1739 | 14.0000 | 115.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 12.5000 | 8.0000 | 64.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 14.6154 | 19.0000 | 130.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 14.6382 | 89.0000 | 608.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 15.0442 | 3.1022 | 20.6207 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 15.7143 | 11.0000 | 70.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 16.3934 | 20.0000 | 122.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 16.5829 | 38.6382 | 233.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 17.3077 | 64.0432 | 370.0273 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 18.6969 | 66.0000 | 353.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 19.3966 | 40.4185 | 208.3800 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 19.4030 | 13.0000 | 67.0000 |
| Lee Chung Yul\_LEE2009TC | M |  | Urine | 1 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 20.0000 | 6.0000 | 30.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 20.4380 | 28.0000 | 137.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 22.2222 | 2.0000 | 9.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 22.7979 | 44.0000 | 193.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 22.9370 | 353.0000 | 1539.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 26.6304 | 49.0000 | 184.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 26.9231 | 21.0000 | 78.0000 |
| Gill\_GILL1996 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | 4 | 33.3333 | 14.0000 | 42.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 34.1176 | 29.0000 | 85.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 38.0577 | 145.0000 | 381.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 38.0952 | 48.0000 | 126.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 49.2754 | 34.0000 | 69.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 50.9091 | 28.0000 | 55.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Results included in overall analyses, cut point 2

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Burstyn\_BURSTY2009 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 1 | 52.6000 | 20.8761 | 39.6883 |
| Bardy\_BARDY1993 | F |  | Blood | 2 | 2 | Young | No | 2 | 2 | 2 | 2 | 2 | 58.1921 | 103.0000 | 177.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 62.9213 | 56.0000 | 89.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 71.5517 | 83.0000 | 116.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 80.0000 | 12.0000 | 15.0000 |
| Lee Chung Yul\_LEE2009TC | F |  | Urine | 1 | 1 | NS | No | 3 | 2 | 1 | 2 | Asia | 100.0000 | 3.0000 | 3.0000 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 8613259.6098 | (141) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.6705 | 0.9822 | 0.0000 +++ | 9.6705 | 7.7286 | 11.6124 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 7237532.9568 | (138) | 1375726.6530 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 13.1589 | 1.6459 | 0.0000 +++ | 13.1589 | 9.9043 | 16.4134 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 59 | Aliased |  |  | 13.1589 | 9.9043 | 16.4134 |
| Not young | 12 | 7.2645 | 3.5280 | 0.0414 + | 20.4233 | 14.2529 | 26.5937 |
| All ages | 46 | -7.3651 | 2.0629 | 0.0005 --- | 5.7937 | 3.3346 | 8.2529 |
| NS | 25 | -2.1984 | 3.7369 | 0.5573 | 10.9605 | 4.3266 | 17.5944 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 5988310.2450 | (136) | 1249222.7117 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 20.8197 | 2.4795 | 0.0000 +++ | 20.8197 | 15.9162 | 25.7232 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 59 | Aliased |  |  | 19.9529 | 15.8643 | 24.0415 |
| Not young | 12 | -11.2680 | 4.8595 | 0.0219 - | 8.6849 | 0.8435 | 16.5263 |
| All ages | 46 | -15.3818 | 2.7277 | 0.0000 --- | 4.5711 | 1.9323 | 7.2099 |
| NS | 25 | -14.7546 | 4.1661 | 0.0005 --- | 5.1983 | -1.2806 | 11.6772 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 88 | Aliased |  |  | 10.5373 | 8.3183 | 12.7563 |
| Pregnancy | 28 | -12.3312 | 3.1241 | 0.0001 --- | -1.7939 | -7.0971 | 3.5093 |
| Diseased or CC | 26 | 13.4577 | 3.8744 | 0.0007 +++ | 23.9950 | 16.9232 | 31.0669 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 4** |  | 5324328.5355 | (134) | 663981.7095 | 0.0004 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.6980 | 3.8927 | 0.0014 ++ | 12.6980 | 4.9987 | 20.3974 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 59 | Aliased |  |  | 20.1354 | 16.0294 | 24.2414 |
| Not young | 12 | -10.7006 | 4.7972 | 0.0274 - | 9.4348 | 1.8740 | 16.9957 |
| All ages | 46 | -15.7164 | 2.7701 | 0.0000 --- | 4.4190 | 1.8394 | 6.9987 |
| NS | 25 | -15.4555 | 3.9950 | 0.0002 --- | 4.6799 | -1.4881 | 10.8479 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 88 | Aliased |  |  | 10.7447 | 8.6047 | 12.8848 |
| Pregnancy | 28 | -12.1718 | 3.1966 | 0.0002 --- | -1.4271 | -6.8488 | 3.9946 |
| Diseased or CC | 26 | 11.3314 | 3.7433 | 0.0030 ++ | 22.0762 | 15.1828 | 28.9695 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 1.1589 | -6.6000 | 8.9178 |
| Before 2003 | 55 | 6.4154 | 4.1656 | 0.1259 | 7.5743 | 5.3302 | 9.8184 |
| 2003 onwards | 76 | 12.0223 | 4.0590 | 0.0036 ++ | 13.1811 | 10.7178 | 15.6445 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 5** |  | 5042770.7494 | (133) | 281557.7861 | 0.0073 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.5524 | 3.8832 | 0.0075 ++ | 10.5524 | 2.8712 | 18.2336 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 59 | Aliased |  |  | 20.9862 | 16.9277 | 25.0447 |
| Not young | 12 | -11.0294 | 4.6877 | 0.0201 - | 9.9568 | 2.5607 | 17.3528 |
| All ages | 46 | -16.8643 | 2.7386 | 0.0000 --- | 4.1219 | 1.5926 | 6.6512 |
| NS | 25 | -18.2821 | 4.0380 | 0.0000 --- | 2.7041 | -3.4899 | 8.8980 |

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Rate M4: Percentage of self-reported Current smokers whose cotinine implies Non-smoking

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-reported Current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 88 | Aliased |  |  | 11.2121 | 9.0941 | 13.3302 |
| Pregnancy | 28 | -14.2379 | 3.2133 | 0.0000 --- | -3.0257 | -8.4479 | 2.3965 |
| Diseased or CC | 26 | 10.7097 | 3.6638 | 0.0041 ++ | 21.9219 | 15.1867 | 28.6571 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 2.8660 | -4.8144 | 10.5464 |
| Before 2003 | 55 | 3.8682 | 4.1752 | 0.3559 | 6.7343 | 4.4587 | 9.0098 |
| 2003 onwards | 76 | 11.1704 | 3.9773 | 0.0057 ++ | 14.0364 | 11.5511 | 16.5217 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 21 | Aliased |  |  | 4.4996 | 0.4460 | 8.5531 |
| Not good | 121 | 6.3222 | 2.3200 | 0.0073 ++ | 10.8218 | 9.0778 | 12.5658 |

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Rate M5: Percentage of True current smokers who report being Non-smokers

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 45885.6497 | (135) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 19.4850 | 1.5809 | 0.0000 +++ | 19.4850 | 16.3584 | 22.6117 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 18618.0316 | (42) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 19.5793 | 3.2108 | 0.0000 +++ | 19.5793 | 13.0997 | 26.0588 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 10062702.0533 | (135) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.5039 | 1.0833 | 0.0000 +++ | 14.5039 | 12.3614 | 16.6464 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1849168.0292 | (42) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.4187 | 2.2320 | 0.0000 +++ | 10.4187 | 5.9143 | 14.9231 |

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Rate M5: Percentage of True current smokers who report being Non-smokers

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Overall misclassification rate (percentage) for the Palmier study, cut point 2 = 19.3146

By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 10047587.2524 | (134) | 16251.0419 | 0.8974 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.9772 | 2.7725 | 0.0000 +++ | 14.9772 | 9.4935 | 20.4609 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 33 | Aliased |  |  | 14.9772 | 9.4935 | 20.4609 |
| Saliva | 30 | -1.2332 | 3.4082 | 0.7181 | 13.7440 | 9.8232 | 17.6648 |
| Blood | 74 | -0.1774 | 3.1367 | 0.9550 | 14.7998 | 11.8981 | 17.7015 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9732162.5487 | (133) | 337463.0653 | 0.2078 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.2346 | 1.6921 | 0.0000 +++ | 12.2346 | 8.8876 | 15.5816 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 44 | Aliased |  |  | 12.2346 | 8.8876 | 15.5816 |
| Spectrometry | 41 | 5.4448 | 2.5701 | 0.0360 + | 17.6794 | 13.8529 | 21.5058 |
| Immunoassay | 44 | 1.7387 | 2.7579 | 0.5295 | 13.9733 | 9.6654 | 18.2813 |
| Other | 8 | 3.4692 | 5.2113 | 0.5067 | 15.7039 | 5.9542 | 25.4535 |

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Rate M5: Percentage of True current smokers who report being Non-smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9553820.0817 | (133) | 508881.9716 | 0.0317 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 13.8889 | 1.2378 | 0.0000 +++ | 13.8889 | 11.4404 | 16.3373 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 86 | Aliased |  |  | 13.8889 | 11.4404 | 16.3373 |
| Pregnancy | 26 | -0.9504 | 2.7609 | 0.7312 | 12.9385 | 8.0569 | 17.8201 |
| Diseased or CC | 24 | 10.3876 | 4.0464 | 0.0114 + | 24.2765 | 16.6562 | 31.8968 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9770093.7486 | (132) | 292608.3047 | 0.2714 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.9970 | 1.9876 | 0.0000 +++ | 14.9970 | 11.0651 | 18.9289 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 57 | Aliased |  |  | 14.9970 | 11.0651 | 18.9289 |
| Not young | 11 | 7.5654 | 4.8817 | 0.1236 | 22.5624 | 13.7422 | 31.3827 |
| All ages | 45 | -1.2935 | 2.4406 | 0.5970 | 13.7035 | 10.9019 | 16.5051 |
| NS | 23 | -2.8263 | 4.6633 | 0.5455 | 12.1708 | 3.8257 | 20.5158 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9981540.4986 | (133) | 81161.5547 | 0.5836 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 18.3552 | 5.3349 | 0.0008 +++ | 18.3552 | 7.8024 | 28.9079 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 8 | Aliased |  |  | 18.3552 | 7.8024 | 28.9079 |
| No | 20 | -6.0435 | 6.1093 | 0.3243 | 12.3117 | 6.4234 | 18.2000 |
| NS | 108 | -3.6907 | 5.4675 | 0.5008 | 14.6644 | 12.2974 | 17.0314 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8681176.9574 | (133) | 1381525.0959 | 0.0001 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.0750 | 4.6534 | 0.0322 + | 10.0750 | 0.8704 | 19.2796 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 10.0750 | 0.8704 | 19.2796 |
| Before 2003 | 52 | 0.3606 | 4.8624 | 0.9410 | 10.4356 | 7.6460 | 13.2251 |
| 2003 onwards | 73 | 9.7342 | 4.9002 | 0.0490 + | 19.8092 | 16.7719 | 22.8464 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9946953.3952 | (134) | 115748.6581 | 0.2139 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 17.4691 | 2.6090 | 0.0000 +++ | 17.4691 | 12.3086 | 22.6295 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 20 | Aliased |  |  | 17.4691 | 12.3086 | 22.6295 |
| Not good | 116 | -3.5797 | 2.8667 | 0.2139 | 13.8893 | 11.5400 | 16.2387 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5236404.9407 | (55) | 172667.8405 | 0.1836 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 19.0192 | 3.4530 | 0.0000 +++ | 19.0192 | 12.0993 | 25.9391 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 30 | Aliased |  |  | 19.0192 | 12.0993 | 25.9391 |
| Pregnant | 27 | -6.0111 | 4.4636 | 0.1836 | 13.0081 | 7.3397 | 18.6765 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

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By Tobacco products considered

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9834202.6919 | (134) | 233065.5060 | 0.2082 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 16.4611 | 1.5264 | 0.0000 +++ | 16.4611 | 13.4421 | 19.4801 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 61 | Aliased |  |  | 16.4611 | 13.4421 | 19.4801 |
| Any smoking | 68 | -3.6174 | 2.0471 | 0.0795 (-) | 12.8437 | 10.1455 | 15.5418 |
| Any tobacco | 8 | -3.2008 | 5.2858 | 0.5458 | 13.2603 | 3.2509 | 23.2697 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

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By Sex

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 10057406.6173 | (135) | 26360.8887 | 0.8380 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 15.4402 | 1.9110 | 0.0000 +++ | 15.4402 | 11.6606 | 19.2198 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 57 | Aliased |  |  | 15.4402 | 11.6606 | 19.2198 |
| M | 23 | -0.7604 | 3.1529 | 0.8098 | 14.6798 | 9.7200 | 19.6396 |
| M+F | 58 | -1.4464 | 2.4389 | 0.5541 | 13.9937 | 10.9967 | 16.9908 |

By Location

|  |  |  |  |  |  |  |  |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 10032271.3671 | (132) | 30430.6862 | 0.9400 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.5031 | 1.8412 | 0.0000 +++ | 14.5031 | 10.8610 | 18.1453 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 49 | Aliased |  |  | 14.5031 | 10.8610 | 18.1453 |
| Europe | 55 | -0.3974 | 2.4016 | 0.8688 | 14.1057 | 11.0555 | 17.1560 |
| Asia | 14 | 1.9741 | 3.8809 | 0.6118 | 16.4773 | 9.7192 | 23.2353 |
| Other | 18 | -0.0391 | 5.6917 | 0.9945 | 14.4640 | 3.8103 | 25.1178 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8077924.2512 | (124) | 1984777.8021 | 0.0030 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.1315 | 2.5244 | 0.0001 +++ | 10.1315 | 5.1348 | 15.1282 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 20 | Aliased |  |  | 10.1315 | 5.1348 | 15.1282 |
| Canada/USA, M | 8 | 13.1789 | 4.5615 | 0.0046 ++ | 23.3104 | 15.7901 | 30.8307 |
| Canada/USA, M+F | 21 | 5.0148 | 3.8536 | 0.1956 | 15.1463 | 9.3830 | 20.9095 |
| Europe, F | 25 | 6.5828 | 3.8928 | 0.0934 (+) | 16.7143 | 10.8489 | 22.5798 |
| Europe, M | 8 | -3.0202 | 5.1577 | 0.5592 | 7.1113 | -1.7915 | 16.0140 |
| Europe, M+F | 22 | 4.1229 | 3.0704 | 0.1818 | 14.2544 | 10.7950 | 17.7139 |
| Asia, F | 6 | 28.2529 | 6.6920 | 0.0000 +++ | 38.3844 | 26.1170 | 50.6519 |
| Asia, M | 3 | -0.2491 | 5.2032 | 0.9619 | 9.8824 | 0.8767 | 18.8882 |
| Asia, M+F | 5 | -3.4808 | 6.7383 | 0.6064 | 6.6507 | -5.7156 | 19.0170 |
| Other, F | 5 | 16.5653 | 12.3999 | 0.1840 | 26.6968 | 2.6667 | 50.7270 |
| Other, M | 3 | -1.4777 | 12.7660 | 0.9080 | 8.6538 | -16.1159 | 33.4236 |
| Other, M+F | 10 | 2.6360 | 6.5832 | 0.6895 | 12.7675 | 0.7329 | 24.8020 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Anderson\_ANDERS2009A | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 0.0000 | 0.0000 | 33.0000 |
| Yeh\_YEH2011 | M+F | LC-MS/MS method | Urine | 2 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 31.8614 |
| Windham\_WINDHA1999A | F |  | Urine | 2 | 1 | Young | NS | 2 | 2 | 1 | 1 | 1 | 0.0000 | 0.0000 | 63.0000 |
| Noland\_NOLAND1988 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 3 | 1 | 0.8264 | 1.0000 | 121.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 1.0157 | 2.0000 | 196.9072 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 2.1108 | 8.0000 | 379.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 2.4017 | 11.0000 | 458.0000 |
| Muranaka\_MURANA1988 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | Asia | 2.6490 | 4.0000 | 151.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.7957 | 13.0000 | 465.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 2.9644 | 10.0000 | 337.3318 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.1161 | 11.0000 | 353.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 3.2520 | 24.0000 | 738.0000 |
| CHDS\_ENGLIS1994 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 3.6052 | 42.0000 | 1165.0000 |
| Haddow II\_HADDOW1988A | F |  | Blood | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 3.6639 | 167.0000 | 4558.0000 |
| Goniewicz\_GONIEW2011 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 3.7234 | 14.0000 | 376.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 3.9139 | 10.0000 | 255.4989 |
| McNeill\_MCNEIL1987 | F |  | Saliva | 1 | 1 | Young | Yes | 2 | 2 | 1 | 1 | 2 | 4.0000 | 5.0000 | 125.0000 |
| Osaka factory\_YAMAMO2005 | M+F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | Asia | 4.1667 | 4.0000 | 96.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 4.4750 | 26.0000 | 581.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 4.5977 | 4.0000 | 87.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 4.5977 | 12.0000 | 261.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 4.6713 | 54.0000 | 1156.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 4.7478 | 16.0000 | 337.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 5.0955 | 8.0000 | 157.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 5.1724 | 6.0000 | 116.0000 |
| NHANES\_LINDSA2014-adult | M+F | 1999-2000, age 20+ | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 5.2455 | 47.0000 | 896.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 5.6911 | 14.0000 | 246.0000 |
| Semple\_SEMPLE2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 5.6962 | 9.0000 | 158.0000 |
| van Vunakis\_VANVUN1989 | M+F |  | Saliva | 3 | 1 | NS | NS | 1 | 2 |  | 1 | 1 | 5.7377 | 7.0000 | 122.0000 |
| Spencer I\_SPENCE1998 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 6.0606 | 6.0000 | 99.0000 |
| Valladolid-Lopez\_VALLAD2015 | M+F |  | Urine | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 4 | 6.8182 | 3.0000 | 44.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 7.0707 | 7.0000 | 99.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 7.1098 | 6.6902 | 94.0985 |
| Seersholm\_SEERSH1999 | M+F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 7.1661 | 22.0000 | 307.0000 |
| Waggoner\_WAGGON2010 | F |  | Urine | 3 | 3 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 7.2072 | 8.0000 | 111.0000 |
| Klebanoff\_KLEBAN1998 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 7.2222 | 13.0000 | 180.0000 |
| Bauld\_BAULD2012 | F |  | Urine | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 7.5758 | 20.0000 | 264.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 7.6923 | 3.0000 | 39.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 7.8125 | 5.0000 | 64.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 7.9588 | 232.0000 | 2915.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 8.0000 | 4.0000 | 50.0000 |
| CHMS\_WONG2012 | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 8.4263 | 68.0000 | 807.0000 |
| Assaf\_ASSAF2002-F | F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 1 | 8.4416 | 13.0000 | 154.0000 |
| Hegaard\_HEGAAR2007 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 8.7415 | 8.0000 | 91.5171 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 8.8710 | 11.0000 | 124.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 9.0286 | 145.0000 | 1606.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 9.1603 | 12.0000 | 131.0000 |
| Dickinson\_DICKIN1988 | M+F |  | Saliva | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 4 | 9.2593 | 10.0000 | 108.0000 |
| Barlow\_BARLOW1987 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 9.4203 | 13.0000 | 138.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 9.5506 | 17.0000 | 178.0000 |
| Hoseini\_HOSEIN2016 | M+F |  | Urine | 3 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 9.8765 | 8.0000 | 81.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 10.0000 | 1.0000 | 10.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 10.2151 | 38.0000 | 372.0000 |
| Martinez-Sanchez\_MARTIN2009C | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 10.4972 | 38.0000 | 362.0000 |
| Messeri\_MESSER2007A | M+F |  | Saliva | Other | 1 | Young | NS | 3 | 2 |  | 1 | 1 | 10.6780 | 63.0000 | 590.0000 |
| Brunet\_BRUNET2011 | M+F |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 4 | 10.9649 | 25.0000 | 228.0000 |
| Kim\_KIM2014J | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 11.2150 | 12.0000 | 107.0000 |
| Stick\_STICK1996 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 4 | 11.2903 | 7.0000 | 62.0000 |
| KNHANES\_KANG2015-M | M | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 11.3759 | 296.0000 | 2602.0000 |
| Etter\_ETTER2000A | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 11.5590 | 4.0000 | 34.6052 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 11.7890 | 114.0000 | 967.0000 |
| NHANES\_CARABA2004 | M | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 11.8812 | 12.0000 | 101.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 11.8923 | 159.0000 | 1337.0000 |
| Levine\_LEVINE2013 | M+F |  | Urine | 2 | 1 | 3 | Yes | 3 | 2 |  | 2 | 4 | 12.1212 | 8.0000 | 66.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 12.2257 | 195.0000 | 1595.0000 |
| SHS\_LU2014A | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 12.5613 | 384.0000 | 3057.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 12.5731 | 43.0000 | 342.0000 |
| Ellard II\_ELLARD1996 | F |  | Urine | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 12.7875 | 139.0000 | 1087.0000 |
| HSE\_JARVIS2008-any-smoking | M+F | 1996-2004, Any smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 13.0145 | 1388.0000 | 10665.0000 |
| NHANES\_LINDSA2014-young | M+F | 1999-2000, age12-19 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 2 | 1 | 13.1707 | 27.0000 | 205.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 13.2261 | 13.0000 | 98.2908 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 13.3673 | 131.0000 | 980.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 14.0722 | 34.7064 | 246.6310 |
| NHANES\_CARABA2004 | F | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 14.1026 | 11.0000 | 78.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 14.1975 | 23.0000 | 162.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 14.2857 | 3.0000 | 21.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 14.5823 | 12.0000 | 82.2916 |
| Molina\_MOLINA2010 | F |  | Saliva | 3 | 1 | Young | NS | 3 | 2 | 1 | 2 | 2 | 14.6552 | 17.0000 | 116.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 15.0685 | 22.0000 | 146.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 15.5673 | 59.0000 | 379.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 16.0714 | 9.0000 | 56.0000 |
| Fritz\_FRITZ2010A | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 2 | 16.1972 | 23.0000 | 142.0000 |
| de Chazeron\_DECHAZ2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 16.4444 | 37.0000 | 225.0000 |
| Lee Anna\_LEE2013TE | M+F |  | Urine | 2 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 16.6667 | 10.0000 | 60.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 16.7539 | 64.0000 | 382.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 18.3323 | 310.0000 | 1691.0000 |
| Sasaki\_SASAKI2011 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | Asia | 18.8999 | 134.0000 | 709.0000 |
| Xie I\_XIE2009 | M+F |  | Blood | 1 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 18.9320 | 39.0000 | 206.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 19.1092 | 133.0000 | 696.0000 |
| Jarvis I\_JARVIS1987A | M+F |  | Blood | 1 | 3 | NS | NS | 1 | 2 |  | 2 | 2 | 19.6262 | 21.0000 | 107.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 19.6281 | 190.0000 | 968.0000 |
| George\_GEORGE2006 | F | early pregnancy | Blood | 1 | 2 | Young | No | 3 | Good | 2 | 2 | 2 | 19.6970 | 13.0000 | 66.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 20.7317 | 34.0000 | 164.0000 |
| Fendrich\_FENDRI2005 | M+F |  | Saliva | Other | 1 | Young | No | 3 | 2 |  | 3 | 1 | 21.7391 | 45.0000 | 207.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 22.2222 | 36.0000 | 162.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 22.2222 | 2.0000 | 9.0000 |
| Stanton\_STANTO1996 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 2 | 4 | 23.9067 | 82.0000 | 343.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 23.9544 | 126.0000 | 526.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 24.2199 | 326.0000 | 1346.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 24.5098 | 25.0000 | 102.0000 |
| Tikkanen\_TIKKAN2010 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 24.5763 | 29.0000 | 118.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 24.6294 | 216.0000 | 877.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 24.7485 | 123.0000 | 497.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 25.0832 | 226.0000 | 901.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 25.8278 | 39.0000 | 151.0000 |
| Salzer\_SALZER2013 | M+F |  | Blood | 3 | 3 | Young | No | 3 | 2 |  | 3 | 2 | 26.0563 | 37.0000 | 142.0000 |
| Kharrazi\_KHARRA1999 | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 26.4957 | 31.0000 | 117.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 27.8002 | 19.1947 | 69.0452 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 28.0374 | 30.0000 | 107.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 28.5714 | 28.0000 | 98.0000 |
| Ceppa\_CEPPA2000 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 2 | 2 | 30.1587 | 19.0000 | 63.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 32.9268 | 27.0000 | 82.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 34.9112 | 59.0000 | 169.0000 |
| Mathews\_MATHEW1999A | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 35.6125 | 125.0000 | 351.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 37.2014 | 109.0000 | 293.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 38.8889 | 42.0000 | 108.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 39.1566 | 65.0000 | 166.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 40.7407 | 11.0000 | 27.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 42.3664 | 111.0000 | 262.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 43.5644 | 44.0000 | 101.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 45.1220 | 74.0000 | 164.0000 |
| Spencer II\_SPENCE2013 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 45.5474 | 96.0000 | 210.7694 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 46.4286 | 26.0000 | 56.0000 |
| Kandel\_KANDEL2006 | M+F |  | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 3 | 1 | 46.5909 | 82.0000 | 176.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 47.2773 | 18.0000 | 38.0732 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 52.2727 | 23.0000 | 44.0000 |
| KNHANES\_KANG2015-F | F | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | Asia | 56.9767 | 441.0000 | 774.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 57.7947 | 152.0000 | 263.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 61.7284 | 50.0000 | 81.0000 |
| Dolcini\_DOLCIN2003 | M+F | Adolescents | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 62.0112 | 111.0000 | 179.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 62.2490 | 155.0000 | 249.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 62.5000 | 20.0000 | 32.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 69.5652 | 64.0000 | 92.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 82.3077 | 107.0000 | 130.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 83.5366 | 274.0000 | 328.0000 |
| Jhun\_JHUN2010 | F |  | Urine | 1 | 2 | Young | No | 3 | 2 | 2 | 1 | Asia | 87.5000 | 28.0000 | 32.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Additional results included in analysis by Sex, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_WARDLE2003-non-curr | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 16.9355 | 105.0000 | 620.0000 |
| HSE\_WARDLE2003-non-curr | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 20.1818 | 111.0000 | 550.0000 |

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 17.1975 | 27.0000 | 157.0000 |

Additional results included in analysis by Assay method, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011-strip | M+F | Test strip method | Urine | 1 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 32.9294 |

Additional results included in analysis by Pregnancy, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_DIETZ2011-pregnant | F | 1999-2006, pregnant | Blood | 2 | 2 | Young | NS | 3 | Good | 2 | 1 | 1 | 20.7547 | 22.0000 | 106.0000 |

Additional results included in analysis by Smoking product considered, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_JARVIS2008-cig-smoking | M+F | 1996-2004, Cigarette smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 13.7857 | 1418.0000 | 10286.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 0.0000 | 0.0000 | 3.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 7.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 167.9615 |
| Copenhagen\_SUADIC1997 | M | 1985-86, with or without CVD | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 3 | 2 | 1.6627 | 28.0000 | 1684.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 1.7544 | 1.0000 | 57.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 1.9232 | 6.0000 | 311.9841 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 2.0849 | 5.0000 | 239.8250 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 2.4291 | 6.0000 | 247.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 2.5199 | 2.0000 | 79.3676 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 2.8807 | 7.0000 | 243.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.0453 | 50.0000 | 1236.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 4.6729 | 5.0000 | 107.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 4.9669 | 15.0000 | 302.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 5.7143 | 2.0000 | 35.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 6.2053 | 52.0000 | 838.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 8.7838 | 13.0000 | 148.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 8.9474 | 51.0000 | 570.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 9.8214 | 11.0000 | 112.0000 |
| Assaf\_ASSAF2002-M | M |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 10.2740 | 15.0000 | 146.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 11.1888 | 16.0000 | 143.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 11.4846 | 25.2178 | 219.5796 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 13.9535 | 18.0000 | 129.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 15.9091 | 21.0000 | 132.0000 |
| Gilligan\_GILLIG2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 16.9231 | 22.0000 | 130.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 18.0556 | 13.0000 | 72.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 18.6567 | 25.0000 | 134.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 20.0000 | 14.0000 | 70.0000 |
| Niedbala\_NIEDBA2002 | M+F |  | Urine | 3 | 1 | NS | NS | 2 | Good |  | 3 | 1 | 21.1640 | 4.0000 | 18.9000 |
| Bardy\_BARDY1993 | F |  | Blood | 2 | 2 | Young | No | 2 | 2 | 2 | 2 | 2 | 21.2766 | 20.0000 | 94.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 23.2558 | 10.0000 | 43.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 23.5294 | 24.0000 | 102.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 28.7500 | 23.0000 | 80.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 28.9474 | 11.0000 | 38.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 29.3839 | 62.0000 | 211.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 30.3030 | 40.0000 | 132.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 36.3392 | 10.0000 | 27.5185 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 36.4706 | 31.0000 | 85.0000 |
| Agewall\_AGEWAL2002 | M |  | Urine | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 38.3333 | 46.0000 | 120.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Results included in overall analyses, cut point 2

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lee Chung Yul\_LEE2009TC | M |  | Urine | 1 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 40.0000 | 16.0000 | 40.0000 |
| Burstyn\_BURSTY2009 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 1 | 43.5868 | 14.5350 | 33.3473 |
| Gill\_GILL1996 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | 4 | 56.9231 | 37.0000 | 65.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 78.7879 | 130.0000 | 165.0000 |
| Lee Chung Yul\_LEE2009TC | F |  | Urine | 1 | 1 | NS | No | 3 | 2 | 1 | 2 | Asia | 100.0000 | 19.0000 | 19.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M5: Percentage of True current smokers who report being Non-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 10062702.0533 | (135) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.5039 | 1.0833 | 0.0000 +++ | 14.5039 | 12.3614 | 16.6464 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 8681176.9574 | (133) | 1381525.0959 | 0.0001 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.0750 | 4.6534 | 0.0322 + | 10.0750 | 0.8704 | 19.2796 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 10.0750 | 0.8704 | 19.2796 |
| Before 2003 | 52 | 0.3606 | 4.8624 | 0.9410 | 10.4356 | 7.6460 | 13.2251 |
| 2003 onwards | 73 | 9.7342 | 4.9002 | 0.0490 + | 19.8092 | 16.7719 | 22.8464 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 7130814.0663 | (122) | 1550362.8912 | 0.0095 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.1433 | 5.4177 | 0.2590 | 6.1433 | -4.5820 | 16.8687 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 9.8219 | 0.2869 | 19.3570 |
| Before 2003 | 52 | 0.9587 | 5.1018 | 0.8513 | 10.7806 | 7.9474 | 13.6138 |
| 2003 onwards | 73 | 9.6057 | 5.0527 | 0.0597 (+) | 19.4277 | 16.3411 | 22.5143 |

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Rate M5: Percentage of True current smokers who report being Non-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 20 | Aliased |  |  | 10.8253 | 6.0651 | 15.5855 |
| Canada/USA, M | 8 | 8.2166 | 4.5005 | 0.0703 (+) | 19.0420 | 11.6132 | 26.4707 |
| Canada/USA, M+F | 21 | 4.2467 | 3.8553 | 0.2728 | 15.0720 | 9.2360 | 20.9080 |
| Europe, F | 25 | 6.7330 | 3.6895 | 0.0705 (+) | 17.5584 | 11.9528 | 23.1639 |
| Europe, M | 8 | 0.0115 | 4.9433 | 0.9981 | 10.8368 | 2.1962 | 19.4774 |
| Europe, M+F | 22 | 4.2894 | 2.9103 | 0.1431 | 15.1148 | 11.7629 | 18.4666 |
| Asia, F | 6 | 23.6136 | 6.4646 | 0.0004 +++ | 34.4389 | 22.6362 | 46.2416 |
| Asia, M | 3 | -4.3691 | 5.0375 | 0.3875 | 6.4562 | -2.2405 | 15.1528 |
| Asia, M+F | 5 | -8.3161 | 6.4994 | 0.2032 | 2.5093 | -9.3826 | 14.4012 |
| Other, F | 5 | 16.2299 | 11.7461 | 0.1696 | 27.0552 | 4.2826 | 49.8278 |
| Other, M | 3 | -1.6700 | 12.0927 | 0.8904 | 9.1553 | -14.3189 | 32.6295 |
| Other, M+F | 10 | 2.0295 | 6.3844 | 0.7511 | 12.8549 | 1.2182 | 24.4915 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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Overall percentage, cut point 1, unweighted

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 9120.4571 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.2625 | 1.8545 | 0.0000 +++ | 8.2625 | 4.5394 | 11.9855 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1155.4713 | (12) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.2012 | 2.7216 | 0.0213 + | 7.2012 | 1.2714 | 13.1309 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1934895.1325 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.7018 | 1.2438 | 0.0000 +++ | 5.7018 | 3.2048 | 8.1988 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 125996.9726 | (12) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3427 | 1.9042 | 0.0416 + | 4.3427 | 0.1937 | 8.4917 |

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Rate M6: Percentage of True current smokers who report being Never smokers

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By Body fluid tested

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1773182.6886 | (50) | 161953.5425 | 0.1125 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.2629 | 3.1647 | 0.0051 ++ | 9.2629 | 2.9065 | 15.6194 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 9 | Aliased |  |  | 9.2629 | 2.9065 | 15.6194 |
| Saliva | 10 | 1.6574 | 4.7644 | 0.7294 | 10.9203 | 3.7667 | 18.0739 |
| Blood | 34 | -5.0545 | 3.4566 | 0.1499 | 4.2084 | 1.4157 | 7.0011 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1910122.7095 | (48) | 24772.4230 | 0.8907 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.0652 | 2.1649 | 0.0235 + | 5.0652 | 0.7123 | 9.4182 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 19 | Aliased |  |  | 5.0652 | 0.7123 | 9.4182 |
| Spectrometry | 13 | 1.9038 | 3.0386 | 0.5339 | 6.9690 | 2.6819 | 11.2562 |
| Immunoassay | 18 | 0.2243 | 3.4737 | 0.9488 | 5.2895 | -0.1724 | 10.7515 |
| Other | 2 | -1.1987 | 5.0759 | 0.8143 | 3.8665 | -5.3644 | 13.0974 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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By Study type

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1923182.2995 | (49) | 11712.8330 | 0.8618 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.6623 | 1.4135 | 0.0002 +++ | 5.6623 | 2.8218 | 8.5028 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 35 | Aliased |  |  | 5.6623 | 2.8218 | 8.5028 |
| Pregnancy | 2 | 2.9764 | 6.0205 | 0.6232 | 8.6387 | -3.1217 | 20.3992 |
| Diseased or CC | 15 | -0.6543 | 3.5368 | 0.8540 | 5.0080 | -1.5072 | 11.5233 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1915560.2952 | (48) | 19334.8373 | 0.9217 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.4780 | 2.9324 | 0.0140 + | 7.4780 | 1.5821 | 13.3739 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 8 | Aliased |  |  | 7.4780 | 1.5821 | 13.3739 |
| Not young | 12 | -2.0885 | 3.9620 | 0.6005 | 5.3895 | 0.0326 | 10.7465 |
| All ages | 21 | -2.0943 | 3.4676 | 0.5487 | 5.3837 | 1.6625 | 9.1048 |
| NS | 11 | -2.8421 | 4.8876 | 0.5636 | 4.6359 | -3.2262 | 12.4980 |

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Rate M6: Percentage of True current smokers who report being Never smokers

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By Awareness of validation by cotinine

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1856168.3742 | (49) | 78726.7584 | 0.3614 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.2633 | 4.8734 | 0.3859 | 4.2633 | -5.5301 | 14.0567 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 1 | Aliased |  |  | 4.2633 | -5.5301 | 14.0567 |
| No | 10 | 7.1260 | 6.4132 | 0.2719 | 11.3893 | 3.0117 | 19.7670 |
| NS | 41 | 0.9516 | 5.0572 | 0.8515 | 5.2149 | 2.4996 | 7.9302 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1920434.2514 | (49) | 14460.8811 | 0.8321 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.3530 | 4.3860 | 0.2281 | 5.3530 | -3.4609 | 14.1669 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 5 | Aliased |  |  | 5.3530 | -3.4609 | 14.1669 |
| Before 2003 | 28 | -0.2711 | 4.7066 | 0.9543 | 5.0819 | 1.6508 | 8.5130 |
| 2003 onwards | 19 | 1.3491 | 4.8550 | 0.7823 | 6.7021 | 2.5182 | 10.8859 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1932343.1716 | (50) | 2551.9609 | 0.7983 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.4832 | 4.9055 | 0.3652 | 4.4832 | -5.3698 | 14.3362 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 1 | Aliased |  |  | 4.4832 | -5.3698 | 14.3362 |
| Not good | 51 | 1.3040 | 5.0745 | 0.7983 | 5.7872 | 3.1789 | 8.3954 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1387081.6738 | (15) | 16853.5344 | 0.6755 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.9709 | 4.7206 | 0.0150 + | 12.9709 | 2.9091 | 23.0327 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 15 | Aliased |  |  | 12.9709 | 2.9091 | 23.0327 |
| Pregnant | 2 | -4.3322 | 10.1477 | 0.6755 | 8.6387 | -10.5077 | 27.7852 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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By Tobacco products considered

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1854090.6370 | (49) | 80804.4955 | 0.3516 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.8157 | 1.9069 | 0.0002 +++ | 7.8157 | 3.9837 | 11.6478 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 22 | Aliased |  |  | 7.8157 | 3.9837 | 11.6478 |
| Any smoking | 29 | -3.6873 | 2.5803 | 0.1593 | 4.1284 | 0.6352 | 7.6215 |
| Any tobacco | 1 | -3.5524 | 5.2306 | 0.5002 | 4.2633 | -5.5246 | 14.0513 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1662575.1918 | (49) | 272319.9407 | 0.0243 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.0334 | 2.5312 | 0.0000 +++ | 12.0334 | 6.9467 | 17.1201 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 17 | Aliased |  |  | 12.0334 | 6.9467 | 17.1201 |
| M | 12 | -8.5196 | 3.5341 | 0.0197 - | 3.5138 | -1.4425 | 8.4701 |
| M+F | 23 | -7.8939 | 2.9821 | 0.0109 - | 4.1395 | 0.9712 | 7.3078 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1829542.2831 | (48) | 105352.8495 | 0.4377 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.6050 | 2.3566 | 0.0073 ++ | 6.6050 | 1.8667 | 11.3434 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 14 | Aliased |  |  | 6.6050 | 1.8667 | 11.3434 |
| Europe | 27 | -2.4838 | 2.8852 | 0.3936 | 4.1212 | 0.7746 | 7.4679 |
| Asia | 8 | 2.7610 | 4.0543 | 0.4991 | 9.3661 | 2.7328 | 15.9993 |
| Other | 3 | 5.8638 | 10.0302 | 0.5615 | 12.4688 | -7.1337 | 32.0714 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 744299.7516 | (40) | 1190595.3809 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 16.9977 | 6.1272 | 0.0084 ++ | 16.9977 | 4.6141 | 29.3813 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 3 | Aliased |  |  | 16.9977 | 4.6141 | 29.3813 |
| Canada/USA, M | 1 | -10.5649 | 9.5891 | 0.2771 | 6.4327 | -8.4750 | 21.3405 |
| Canada/USA, M+F | 10 | -11.2377 | 6.3743 | 0.0855 (-) | 5.7599 | 2.2083 | 9.3116 |
| Europe, F | 9 | -11.0593 | 6.4877 | 0.0960 (-) | 5.9384 | 1.6286 | 10.2482 |
| Europe, M | 7 | -13.5057 | 6.5798 | 0.0467 - | 3.4920 | -1.3545 | 8.3384 |
| Europe, M+F | 11 | -13.7162 | 6.3590 | 0.0371 - | 3.2815 | -0.1566 | 6.7196 |
| Asia, F | 4 | 27.3186 | 8.2582 | 0.0020 ++ | 44.3163 | 33.1263 | 55.5064 |
| Asia, M | 3 | -14.0075 | 6.9457 | 0.0505 (-) | 2.9902 | -3.6209 | 9.6014 |
| Asia, M+F | 1 | -16.3921 | 7.3239 | 0.0308 - | 0.6055 | -7.5031 | 8.7142 |
| Other, F | 1 | 23.5964 | 14.8921 | 0.1210 | 40.5941 | 13.1616 | 68.0266 |
| Other, M | 1 | -13.5494 | 10.4325 | 0.2015 | 3.4483 | -13.6167 | 20.5133 |
| Other, M+F | 1 | -16.9977 | 22.6861 | 0.4581 | 0.0000 | -44.1463 | 44.1463 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 379.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 56.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 39.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 44.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 21.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 0.0000 | 0.0000 | 50.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 0.0000 | 0.0000 | 69.0452 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 0.4367 | 2.0000 | 458.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 0.5164 | 3.0000 | 581.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.5420 | 4.0000 | 738.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 0.6055 | 7.0000 | 1156.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.6452 | 3.0000 | 465.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 0.8065 | 3.0000 | 372.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 0.9122 | 8.0000 | 877.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.1331 | 4.0000 | 353.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 1.6260 | 4.0000 | 246.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 1.6854 | 3.0000 | 178.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 1.7065 | 5.0000 | 293.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.0583 | 60.0000 | 2915.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.2449 | 22.0000 | 980.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 2.2901 | 3.0000 | 131.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 2.2989 | 2.0000 | 87.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.5478 | 4.0000 | 157.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 3.2193 | 16.0000 | 497.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.3937 | 15.0000 | 442.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 3.4483 | 9.0000 | 261.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 4.0201 | 48.0000 | 1194.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 4.0323 | 5.0000 | 124.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 4.2633 | 68.0000 | 1595.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.4832 | 72.0000 | 1606.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 4.8780 | 4.0000 | 82.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 5.4809 | 53.0000 | 967.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.0760 | 5.0000 | 82.2916 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 6.0976 | 10.0000 | 164.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 6.4327 | 22.0000 | 342.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 6.4418 | 6.0616 | 94.0985 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 6.4655 | 45.0000 | 696.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 6.8984 | 131.0000 | 1899.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 7.8035 | 19.2458 | 246.6310 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 8.0247 | 13.0000 | 162.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 9.9174 | 96.0000 | 968.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 12.0370 | 13.0000 | 108.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 12.5000 | 7.0000 | 56.0000 |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 13.7097 | 85.0000 | 620.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 13.8462 | 18.0000 | 130.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 14.7273 | 81.0000 | 550.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 22.4490 | 22.0000 | 98.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 22.4900 | 56.0000 | 249.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 33.3333 | 9.0000 | 27.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 40.5941 | 41.0000 | 101.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 54.2254 | 231.0000 | 426.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 66.3043 | 61.0000 | 92.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

Additional results included in analysis by Body fluid tested, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 4.4586 | 7.0000 | 157.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 0.0000 | 0.0000 | 72.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 0.9547 | 8.0000 | 838.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 1.7544 | 10.0000 | 570.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 2.0243 | 5.0000 | 247.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 2.0979 | 3.0000 | 143.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 2.6316 | 1.0000 | 38.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 2.6786 | 3.0000 | 112.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 3.3784 | 5.0000 | 148.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 4.5455 | 6.0000 | 132.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 6.2606 | 13.7470 | 219.5796 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 11.8483 | 25.0000 | 211.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 22.5000 | 18.0000 | 80.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 32.9412 | 28.0000 | 85.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M6: Percentage of True current smokers who report being Never smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 1934895.1325 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.7018 | 1.2438 | 0.0000 +++ | 5.7018 | 3.2048 | 8.1988 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 744299.7516 | (40) | 1190595.3809 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 16.9977 | 6.1272 | 0.0084 ++ | 16.9977 | 4.6141 | 29.3813 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 3 | Aliased |  |  | 16.9977 | 4.6141 | 29.3813 |
| Canada/USA, M | 1 | -10.5649 | 9.5891 | 0.2771 | 6.4327 | -8.4750 | 21.3405 |
| Canada/USA, M+F | 10 | -11.2377 | 6.3743 | 0.0855 (-) | 5.7599 | 2.2083 | 9.3116 |
| Europe, F | 9 | -11.0593 | 6.4877 | 0.0960 (-) | 5.9384 | 1.6286 | 10.2482 |
| Europe, M | 7 | -13.5057 | 6.5798 | 0.0467 - | 3.4920 | -1.3545 | 8.3384 |
| Europe, M+F | 11 | -13.7162 | 6.3590 | 0.0371 - | 3.2815 | -0.1566 | 6.7196 |
| Asia, F | 4 | 27.3186 | 8.2582 | 0.0020 ++ | 44.3163 | 33.1263 | 55.5064 |
| Asia, M | 3 | -14.0075 | 6.9457 | 0.0505 (-) | 2.9902 | -3.6209 | 9.6014 |
| Asia, M+F | 1 | -16.3921 | 7.3239 | 0.0308 - | 0.6055 | -7.5031 | 8.7142 |
| Other, F | 1 | 23.5964 | 14.8921 | 0.1210 | 40.5941 | 13.1616 | 68.0266 |
| Other, M | 1 | -13.5494 | 10.4325 | 0.2015 | 3.4483 | -13.6167 | 20.5133 |
| Other, M+F | 1 | -16.9977 | 22.6861 | 0.4581 | 0.0000 | -44.1463 | 44.1463 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 8853.5252 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.4220 | 1.8271 | 0.0000 +++ | 11.4220 | 7.7538 | 15.0901 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 863.5885 | (12) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.5504 | 2.3528 | 0.0007 +++ | 10.5504 | 5.4240 | 15.6768 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1730367.9153 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.9312 | 1.1762 | 0.0000 +++ | 8.9312 | 6.5698 | 11.2925 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 106641.5701 | (12) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.8903 | 1.7519 | 0.0007 +++ | 7.8903 | 4.0733 | 11.7074 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Body fluid tested

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1621066.4069 | (50) | 111563.2964 | 0.1894 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.2810 | 3.0259 | 0.0871 (+) | 5.2810 | -0.7967 | 11.3587 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 9 | Aliased |  |  | 5.2810 | -0.7967 | 11.3587 |
| Saliva | 10 | 0.1302 | 4.5555 | 0.9773 | 5.4112 | -1.4287 | 12.2511 |
| Blood | 34 | 4.9238 | 3.3051 | 0.1426 | 10.2048 | 7.5346 | 12.8750 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1599850.7714 | (48) | 130517.1438 | 0.2835 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.8398 | 1.9813 | 0.0049 ++ | 5.8398 | 1.8561 | 9.8235 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 19 | Aliased |  |  | 5.8398 | 1.8561 | 9.8235 |
| Spectrometry | 13 | 4.6480 | 2.7809 | 0.1011 | 10.4878 | 6.5643 | 14.4113 |
| Immunoassay | 18 | 4.2751 | 3.1790 | 0.1850 | 10.1149 | 5.1163 | 15.1136 |
| Other | 2 | 6.3954 | 4.6454 | 0.1750 | 12.2352 | 3.7872 | 20.6831 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1048581.2871 | (49) | 681786.6282 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5530 | 1.0437 | 0.0000 +++ | 6.5530 | 4.4556 | 8.6505 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 35 | Aliased |  |  | 6.5530 | 4.4556 | 8.6505 |
| Pregnancy | 2 | 2.8710 | 4.4455 | 0.5214 | 9.4241 | 0.7402 | 18.1080 |
| Diseased or CC | 15 | 14.7378 | 2.6116 | 0.0000 +++ | 21.2908 | 16.4800 | 26.1017 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1280982.0024 | (48) | 449385.9129 | 0.0022 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.3787 | 2.3980 | 0.0295 + | 5.3787 | 0.5572 | 10.2001 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 8 | Aliased |  |  | 5.3787 | 0.5572 | 10.2001 |
| Not young | 12 | 11.0568 | 3.2399 | 0.0013 ++ | 16.4354 | 12.0548 | 20.8161 |
| All ages | 21 | 1.0883 | 2.8356 | 0.7028 | 6.4670 | 3.4239 | 9.5100 |
| NS | 11 | 4.7053 | 3.9969 | 0.2449 | 10.0839 | 3.6546 | 16.5132 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Awareness of validation by cotinine

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1681725.6093 | (49) | 48642.3060 | 0.4973 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.9624 | 4.6387 | 0.0924 (+) | 7.9624 | -1.3595 | 17.2843 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 1 | Aliased |  |  | 7.9624 | -1.3595 | 17.2843 |
| No | 10 | 5.4555 | 6.1044 | 0.3759 | 13.4179 | 5.4436 | 21.3922 |
| NS | 41 | 0.5719 | 4.8137 | 0.9059 | 8.5343 | 5.9498 | 11.1188 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1502501.6547 | (49) | 227866.2606 | 0.0314 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.4483 | 3.8795 | 0.2571 | 4.4483 | -3.3478 | 12.2443 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 5 | Aliased |  |  | 4.4483 | -3.3478 | 12.2443 |
| Before 2003 | 28 | 2.5482 | 4.1631 | 0.5433 | 6.9965 | 3.9616 | 10.0313 |
| 2003 onwards | 19 | 8.3697 | 4.2944 | 0.0570 (+) | 12.8180 | 9.1173 | 16.5186 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1697312.7587 | (50) | 33055.1566 | 0.3285 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5455 | 4.5975 | 0.3276 | 4.5455 | -4.6889 | 13.7798 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 1 | Aliased |  |  | 4.5455 | -4.6889 | 13.7798 |
| Not good | 51 | 4.6930 | 4.7559 | 0.3285 | 9.2385 | 6.7940 | 11.6830 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 54172.0062 | (15) | 15898.8716 | 0.0532 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.2164 | 0.9329 | 0.0001 +++ | 5.2164 | 3.2279 | 7.2048 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 15 | Aliased |  |  | 5.2164 | 3.2279 | 7.2048 |
| Pregnant | 2 | 4.2077 | 2.0054 | 0.0532 (+) | 9.4241 | 5.6403 | 13.2079 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Tobacco products considered

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1679518.2206 | (49) | 50849.6947 | 0.4815 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.3908 | 1.8149 | 0.0002 +++ | 7.3908 | 3.7436 | 11.0380 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 22 | Aliased |  |  | 7.3908 | 3.7436 | 11.0380 |
| Any smoking | 29 | 2.9437 | 2.4558 | 0.2364 | 10.3345 | 7.0099 | 13.6591 |
| Any tobacco | 1 | 0.5716 | 4.9783 | 0.9091 | 7.9624 | -1.3534 | 17.2781 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1580975.4374 | (49) | 149392.4778 | 0.1095 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.1269 | 2.4683 | 0.0165 + | 6.1269 | 1.1666 | 11.0873 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 17 | Aliased |  |  | 6.1269 | 1.1666 | 11.0873 |
| M | 12 | 0.0760 | 3.4463 | 0.9825 | 6.2029 | 1.3698 | 11.0361 |
| M+F | 23 | 5.0069 | 2.9080 | 0.0914 (+) | 11.1339 | 8.0443 | 14.2234 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1625191.3805 | (48) | 105176.5347 | 0.3854 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.3402 | 2.2211 | 0.0000 +++ | 11.3402 | 6.8743 | 15.8061 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 14 | Aliased |  |  | 11.3402 | 6.8743 | 15.8061 |
| Europe | 27 | -2.4799 | 2.7193 | 0.3663 | 8.8603 | 5.7061 | 12.0145 |
| Asia | 8 | -6.0860 | 3.8212 | 0.1178 | 5.2541 | -0.9977 | 11.5060 |
| Other | 3 | -9.0958 | 9.4534 | 0.3408 | 2.2444 | -16.2310 | 20.7198 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1504168.3333 | (40) | 226199.5820 | 0.8589 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5317 | 8.7104 | 0.6057 | 4.5317 | -13.0727 | 22.1361 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 3 | Aliased |  |  | 4.5317 | -13.0727 | 22.1361 |
| Canada/USA, M | 1 | 1.6086 | 13.6318 | 0.9067 | 6.1404 | -15.0524 | 27.3331 |
| Canada/USA, M+F | 10 | 7.6636 | 9.0616 | 0.4027 | 12.1954 | 7.1463 | 17.2444 |
| Europe, F | 9 | 2.0421 | 9.2229 | 0.8259 | 6.5738 | 0.4470 | 12.7006 |
| Europe, M | 7 | 2.1123 | 9.3537 | 0.8225 | 6.6440 | -0.2456 | 13.5336 |
| Europe, M+F | 11 | 6.8991 | 9.0399 | 0.4498 | 11.4308 | 6.5432 | 16.3184 |
| Asia, F | 4 | 0.4106 | 11.7398 | 0.9723 | 4.9423 | -10.9653 | 20.8500 |
| Asia, M | 3 | 1.6212 | 9.8740 | 0.8704 | 6.1530 | -3.2454 | 15.5513 |
| Asia, M+F | 1 | -0.4660 | 10.4116 | 0.9645 | 4.0657 | -7.4614 | 15.5929 |
| Other, F | 1 | -1.5614 | 21.1705 | 0.9416 | 2.9703 | -36.0275 | 41.9681 |
| Other, M | 1 | -3.3823 | 14.8307 | 0.8208 | 1.1494 | -23.1100 | 25.4088 |
| Other, M+F | 1 | 3.1606 | 32.2503 | 0.9224 | 7.6923 | -55.0656 | 70.4502 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 0.6680 | 0.6286 | 94.0985 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 1.1494 | 3.0000 | 261.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 1.9651 | 9.0000 | 458.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.9830 | 7.0000 | 353.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 2.1108 | 8.0000 | 379.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.1505 | 10.0000 | 465.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 2.2989 | 2.0000 | 87.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.5478 | 4.0000 | 157.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.7100 | 20.0000 | 738.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 2.9703 | 3.0000 | 101.0000 |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 3.2258 | 20.0000 | 620.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 3.2609 | 3.0000 | 92.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 3.5714 | 2.0000 | 56.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.9587 | 23.0000 | 581.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 4.0650 | 10.0000 | 246.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 4.0657 | 47.0000 | 1156.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 4.0724 | 18.0000 | 442.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.5455 | 73.0000 | 1606.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 4.6948 | 20.0000 | 426.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 4.8387 | 6.0000 | 124.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 5.4545 | 30.0000 | 550.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 5.9005 | 172.0000 | 2915.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 6.1224 | 6.0000 | 98.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 6.1404 | 21.0000 | 342.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 6.1728 | 10.0000 | 162.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 6.2687 | 15.4606 | 246.6310 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 6.3082 | 61.0000 | 967.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 6.8702 | 9.0000 | 131.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 7.4074 | 2.0000 | 27.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 7.6923 | 3.0000 | 39.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 7.8652 | 14.0000 | 178.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 7.9624 | 127.0000 | 1595.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 8.0000 | 4.0000 | 50.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 8.0402 | 96.0000 | 1194.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 8.5063 | 7.0000 | 82.2916 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 9.4086 | 35.0000 | 372.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 9.7107 | 94.0000 | 968.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 11.1224 | 109.0000 | 980.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

Results included in all analyses, cut point 1

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 12.6437 | 88.0000 | 696.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 13.4808 | 256.0000 | 1899.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 14.2857 | 3.0000 | 21.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 14.6341 | 24.0000 | 164.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 21.5292 | 107.0000 | 497.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 23.7172 | 208.0000 | 877.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 25.0000 | 11.0000 | 44.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 26.8519 | 29.0000 | 108.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 27.8002 | 19.1947 | 69.0452 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 28.0488 | 23.0000 | 82.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 35.4949 | 104.0000 | 293.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 39.7590 | 99.0000 | 249.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 46.4286 | 26.0000 | 56.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 68.4615 | 89.0000 | 130.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

Additional results included in analysis by Body fluid tested, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 12.7389 | 20.0000 | 157.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 0.4049 | 1.0000 | 247.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 3.5294 | 3.0000 | 85.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 5.2240 | 11.4708 | 219.5796 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 5.2506 | 44.0000 | 838.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 5.4054 | 8.0000 | 148.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 6.2500 | 5.0000 | 80.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 7.1429 | 8.0000 | 112.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 7.1930 | 41.0000 | 570.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 9.0909 | 13.0000 | 143.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 17.5355 | 37.0000 | 211.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 18.0556 | 13.0000 | 72.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 25.7576 | 34.0000 | 132.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 26.3158 | 10.0000 | 38.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M7: Percentage of True current smokers who report being Ex-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of True current smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 1730367.9153 | (51) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.9312 | 1.1762 | 0.0000 +++ | 8.9312 | 6.5698 | 11.2925 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1048581.2871 | (49) | 681786.6282 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5530 | 1.0437 | 0.0000 +++ | 6.5530 | 4.4556 | 8.6505 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 35 | Aliased |  |  | 6.5530 | 4.4556 | 8.6505 |
| Pregnancy | 2 | 2.8710 | 4.4455 | 0.5214 | 9.4241 | 0.7402 | 18.1080 |
| Diseased or CC | 15 | 14.7378 | 2.6116 | 0.0000 +++ | 21.2908 | 16.4800 | 26.1017 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 47854.6766 | (184) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 16.6102 | 1.1857 | 0.0000 +++ | 16.6102 | 14.2709 | 18.9495 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 15689.3731 | (59) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.4270 | 2.1052 | 0.0000 +++ | 14.4270 | 10.2144 | 18.6395 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 11703606.4168 | (184) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.5865 | 0.8048 | 0.0000 +++ | 11.5865 | 9.9986 | 13.1743 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 2181144.7400 | (59) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.9200 | 1.3666 | 0.0000 +++ | 7.9200 | 5.1855 | 10.6546 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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Overall misclassification rate (percentage) for the Palmier study, cut point 2 = 10.0969

By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11525955.9486 | (183) | 182426.0295 | 0.2377 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.9356 | 2.2222 | 0.0000 +++ | 14.9356 | 10.5511 | 19.3200 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 44 | Aliased |  |  | 14.9356 | 10.5511 | 19.3200 |
| Saliva | 46 | -4.4914 | 2.6638 | 0.0935 (-) | 10.4442 | 7.5459 | 13.3425 |
| Blood | 96 | -3.4999 | 2.4606 | 0.1566 | 11.4357 | 9.3510 | 13.5203 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11319029.9168 | (182) | 389377.7102 | 0.1035 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.2789 | 1.2597 | 0.0000 +++ | 9.2789 | 6.7935 | 11.7644 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 58 | Aliased |  |  | 9.2789 | 6.7935 | 11.7644 |
| Spectrometry | 51 | 4.2838 | 1.8843 | 0.0242 + | 13.5627 | 10.7976 | 16.3278 |
| Immunoassay | 65 | 2.8817 | 2.0604 | 0.1636 | 12.1606 | 8.9434 | 15.3778 |
| Other | 12 | 5.8239 | 4.1460 | 0.1618 | 15.1029 | 7.3090 | 22.8968 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11671891.4384 | (183) | 33225.5237 | 0.7710 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.2337 | 0.9361 | 0.0000 +++ | 11.2337 | 9.3868 | 13.0807 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 121 | Aliased |  |  | 11.2337 | 9.3868 | 13.0807 |
| Pregnancy | 32 | 1.4037 | 2.3364 | 0.5487 | 12.6374 | 8.4138 | 16.8609 |
| Diseased or CC | 33 | 1.2120 | 2.4951 | 0.6277 | 12.4457 | 7.8824 | 17.0090 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11283401.5821 | (181) | 420204.8346 | 0.0844 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 13.2728 | 1.6088 | 0.0000 +++ | 13.2728 | 10.0982 | 16.4474 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 71 | Aliased |  |  | 13.2728 | 10.0982 | 16.4474 |
| Not young | 18 | -3.2443 | 2.8237 | 0.2521 | 10.0285 | 5.4497 | 14.6073 |
| All ages | 68 | -1.0521 | 1.9444 | 0.5891 | 12.2207 | 10.0660 | 14.3755 |
| NS | 28 | -7.1152 | 2.9428 | 0.0166 - | 6.1576 | 1.2954 | 11.0199 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11220731.8744 | (182) | 482874.5424 | 0.0216 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 16.3559 | 4.1805 | 0.0001 +++ | 16.3559 | 8.1073 | 24.6045 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 12 | Aliased |  |  | 16.3559 | 8.1073 | 24.6045 |
| No | 28 | -9.0917 | 4.5582 | 0.0476 - | 7.2642 | 3.6793 | 10.8492 |
| NS | 145 | -3.9287 | 4.2764 | 0.3595 | 12.4272 | 10.6501 | 14.2043 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 10710865.9396 | (182) | 992740.4772 | 0.0003 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5926 | 2.2764 | 0.0042 ++ | 6.5926 | 2.1009 | 11.0842 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 23 | Aliased |  |  | 6.5926 | 2.1009 | 11.0842 |
| Before 2003 | 69 | 2.7335 | 2.5695 | 0.2888 | 9.3260 | 6.9744 | 11.6776 |
| 2003 onwards | 93 | 8.3046 | 2.5452 | 0.0013 ++ | 14.8972 | 12.6511 | 17.1432 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11461387.4469 | (183) | 242218.9699 | 0.0507 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 15.7149 | 2.2461 | 0.0000 +++ | 15.7149 | 11.2833 | 20.1464 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 22 | Aliased |  |  | 15.7149 | 11.2833 | 20.1464 |
| Not good | 163 | -4.7258 | 2.4031 | 0.0507 (-) | 10.9890 | 9.3032 | 12.6748 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 5741374.7559 | (72) | 7184.6530 | 0.7649 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 13.6945 | 2.3415 | 0.0000 +++ | 13.6945 | 9.0267 | 18.3622 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 41 | Aliased |  |  | 13.6945 | 9.0267 | 18.3622 |
| Pregnant | 33 | -1.0030 | 3.3414 | 0.7649 | 12.6915 | 7.9395 | 17.4434 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Tobacco products considered

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11332716.1014 | (184) | 414068.1975 | 0.0368 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 14.0760 | 1.1945 | 0.0000 +++ | 14.0760 | 11.7193 | 16.4327 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 75 | Aliased |  |  | 14.0760 | 11.7193 | 16.4327 |
| Any smoking | 99 | -4.0298 | 1.5573 | 0.0104 - | 10.0463 | 8.0750 | 12.0176 |
| Any tobacco | 13 | -1.7472 | 3.9356 | 0.6576 | 12.3288 | 4.9303 | 19.7274 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11691712.0490 | (186) | 85167.6866 | 0.5092 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 12.8947 | 1.4298 | 0.0000 +++ | 12.8947 | 10.0740 | 15.7154 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 75 | Aliased |  |  | 12.8947 | 10.0740 | 15.7154 |
| M | 36 | -2.3628 | 2.1526 | 0.2738 | 10.5318 | 7.3573 | 13.7064 |
| M+F | 78 | -1.6493 | 1.8323 | 0.3692 | 11.2454 | 8.9848 | 13.5059 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 11476647.4037 | (181) | 226959.0131 | 0.3138 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.5938 | 1.3142 | 0.0000 +++ | 11.5938 | 9.0007 | 14.1869 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 75 | Aliased |  |  | 11.5938 | 9.0007 | 14.1869 |
| Europe | 77 | -0.8282 | 1.7263 | 0.6320 | 10.7656 | 8.5567 | 12.9745 |
| Asia | 15 | 4.9221 | 3.1317 | 0.1178 | 16.5159 | 10.9068 | 22.1249 |
| Other | 18 | 0.8400 | 4.7464 | 0.8597 | 12.4338 | 3.4342 | 21.4333 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 9760073.4575 | (173) | 1943532.9593 | 0.0007 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.2504 | 1.9663 | 0.0000 +++ | 10.2504 | 6.3692 | 14.1315 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 31 | Aliased |  |  | 10.2504 | 6.3692 | 14.1315 |
| Canada/USA, M | 13 | 7.3963 | 3.3651 | 0.0293 + | 17.6466 | 12.2565 | 23.0368 |
| Canada/USA, M+F | 31 | -0.4555 | 2.7824 | 0.8701 | 9.7948 | 5.9091 | 13.6805 |
| Europe, F | 31 | 2.6096 | 2.9578 | 0.3789 | 12.8600 | 8.4986 | 17.2214 |
| Europe, M | 15 | -4.9731 | 3.0272 | 0.1022 | 5.2773 | 0.7342 | 9.8204 |
| Europe, M+F | 31 | 1.7214 | 2.4194 | 0.4777 | 11.9718 | 9.1894 | 14.7541 |
| Asia, F | 6 | 25.1878 | 5.8803 | 0.0000 +++ | 35.4382 | 24.4997 | 46.3767 |
| Asia, M | 3 | -0.6130 | 4.6205 | 0.8946 | 9.6374 | 1.3844 | 17.8905 |
| Asia, M+F | 6 | 1.7511 | 4.9131 | 0.7220 | 12.0014 | 3.1144 | 20.8885 |
| Other, F | 5 | 14.3843 | 11.0293 | 0.1939 | 24.6347 | 3.2134 | 46.0559 |
| Other, M | 3 | -1.7798 | 11.6881 | 0.8791 | 8.4706 | -14.2709 | 31.2121 |
| Other, M+F | 10 | 0.2433 | 5.4935 | 0.9647 | 10.4936 | 0.3689 | 20.6184 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011 | M+F | LC-MS/MS method | Urine | 2 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 35.7773 |
| Anderson\_ANDERS2009A | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 0.0000 | 0.0000 | 37.0000 |
| Windham\_WINDHA1999A | F |  | Urine | 2 | 1 | Young | NS | 2 | 2 | 1 | 1 | 1 | 0.0000 | 0.0000 | 63.0000 |
| Glasgow III\_GLASGO1993 | M+F |  | Saliva | 2 | 1 | NS | No | 2 | 2 |  | 2 | 1 | 0.0982 | 1.0000 | 1018.0000 |
| Glasgow I\_GLASGO1993 | M+F |  | Saliva | 1 | 3 | NS | No | 2 | 2 |  | 2 | 1 | 0.5204 | 13.0000 | 2498.0000 |
| Noland\_NOLAND1988 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 3 | 1 | 0.6250 | 1.0000 | 160.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 0.9507 | 2.0000 | 210.3800 |
| Valladolid-Lopez\_VALLAD2015 | M+F |  | Urine | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 4 | 1.1278 | 3.0000 | 266.0000 |
| Glasgow II\_GLASGO1993 | M+F |  | Saliva | 1 | 3 | NS | No | 2 | 2 |  | 1 | 1 | 1.3986 | 14.0000 | 1001.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 1.7738 | 8.0000 | 451.0000 |
| Benowitz III\_BENOWI2012A | M+F |  | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 3 | 1 | 1.8072 | 3.0000 | 166.0000 |
| Fidler\_FIDLER2006 | M+F | yr 11 | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 2.1776 | 13.0000 | 597.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 2.2541 | 11.0000 | 488.0000 |
| BRHS baseline\_JEFFER2009 | M | 1978-1980 | Blood | 2 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 2.3098 | 58.0000 | 2511.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 2.5210 | 3.0000 | 119.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 2.5641 | 3.0000 | 117.0000 |
| Muranaka\_MURANA1988 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | Asia | 2.6144 | 4.0000 | 153.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 2.6314 | 10.0000 | 380.0273 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.7197 | 13.0000 | 478.0000 |
| McNeill\_MCNEIL1987 | F |  | Saliva | 1 | 1 | Young | Yes | 2 | 2 | 1 | 1 | 2 | 2.8090 | 5.0000 | 178.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.0556 | 11.0000 | 360.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 3.1496 | 24.0000 | 762.0000 |
| CHDS\_ENGLIS1994 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 3.3735 | 42.0000 | 1245.0000 |
| Haddow II\_HADDOW1988A | F |  | Blood | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 3.4158 | 167.0000 | 4889.0000 |
| Goniewicz\_GONIEW2011 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 3.5897 | 14.0000 | 390.0000 |
| SHHS\_TUNSTA1991 | M | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 |  | 2 | 2 | 3.6264 | 73.0000 | 2013.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 3.7570 | 10.0000 | 266.1727 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 4.0302 | 16.0000 | 397.0000 |
| Osaka factory\_YAMAMO2005 | M+F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | Asia | 4.0404 | 4.0000 | 99.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 4.2506 | 19.0000 | 447.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 4.2994 | 54.0000 | 1256.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 4.3551 | 26.0000 | 597.0000 |
| Jarvis II\_JARVIS1991 | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 4.3750 | 14.0000 | 320.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 4.4944 | 4.0000 | 89.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 4.5802 | 12.0000 | 262.0000 |
| SHHS\_TUNSTA1991 | F | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 | 1 | 2 | 2 | 4.6768 | 68.0000 | 1454.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 4.6784 | 8.0000 | 171.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 4.6875 | 6.0000 | 128.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in all analyses, cut point 1

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_LINDSA2014-adult | M+F | 1999-2000, age 20+ | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 4.7862 | 47.0000 | 982.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 4.8611 | 14.0000 | 288.0000 |
| Seccareccia\_SECCAR2003 | M+F |  | Blood | 3 | 1 | 3 | No | 3 | 2 |  | 1 | 2 | 4.8685 | 50.0000 | 1027.0000 |
| HALS2\_BATTY2014 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 5.1709 | 59.0000 | 1141.0000 |
| Spencer I\_SPENCE1998 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 5.1724 | 6.0000 | 116.0000 |
| Semple\_SEMPLE2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 5.2023 | 9.0000 | 173.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 5.2934 | 46.0000 | 869.0000 |
| van Vunakis\_VANVUN1989 | M+F |  | Saliva | 3 | 1 | NS | NS | 1 | 2 |  | 1 | 1 | 5.6452 | 7.0000 | 124.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 5.6911 | 7.0000 | 123.0000 |
| Wewers II\_WEWERS2009 | F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 | 1 | 3 | 1 | 5.8608 | 16.0000 | 273.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 6.0465 | 26.0000 | 430.0000 |
| Emmons\_EMMONS1996 | M+F |  | Saliva | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 6.1404 | 21.0000 | 342.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 6.2363 | 114.0000 | 1828.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 6.2500 | 1.0000 | 16.0000 |
| Klebanoff\_KLEBAN1998 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 6.3415 | 13.0000 | 205.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 6.4155 | 6.6902 | 104.2820 |
| Seersholm\_SEERSH1999 | M+F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 6.5089 | 22.0000 | 338.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 6.6667 | 46.0000 | 690.0000 |
| Waggoner\_WAGGON2010 | F |  | Urine | 3 | 3 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 6.6667 | 8.0000 | 120.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 7.1904 | 54.0000 | 751.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 7.2464 | 5.0000 | 69.0000 |
| Bauld\_BAULD2012 | F |  | Urine | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 7.2727 | 20.0000 | 275.0000 |
| Messeri\_MESSER2007A | M+F |  | Saliva | Other | 1 | Young | NS | 3 | 2 |  | 1 | 1 | 7.3086 | 63.0000 | 862.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 7.3171 | 3.0000 | 41.0000 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 7.3304 | 67.0000 | 914.0000 |
| Assaf\_ASSAF2002-F | F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 1 | 7.5581 | 13.0000 | 172.0000 |
| Dickinson\_DICKIN1988 | M+F |  | Saliva | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 4 | 7.6923 | 10.0000 | 130.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 7.8352 | 232.0000 | 2961.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 7.8431 | 4.0000 | 51.0000 |
| CHMS\_WONG2012 | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 7.8613 | 68.0000 | 865.0000 |
| Levine\_LEVINE2013 | M+F |  | Urine | 2 | 1 | 3 | Yes | 3 | 2 |  | 2 | 4 | 8.0808 | 8.0000 | 99.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 8.1481 | 11.0000 | 135.0000 |
| Kaufman\_KAUFMA2002A | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 8.2474 | 16.0000 | 194.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 8.4507 | 12.0000 | 142.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 8.6105 | 145.0000 | 1684.0000 |
| Hegaard\_HEGAAR2007 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 8.6526 | 8.0000 | 92.4581 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 9.0909 | 17.0000 | 187.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 9.0909 | 38.0000 | 418.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Barlow\_BARLOW1987 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 9.2199 | 13.0000 | 141.0000 |
| Brunet\_BRUNET2011 | M+F |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 4 | 9.4340 | 25.0000 | 265.0000 |
| NHANES\_CARABA2004 | F | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 9.4828 | 11.0000 | 116.0000 |
| Hoseini\_HOSEIN2016 | M+F |  | Urine | 3 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 9.5238 | 8.0000 | 84.0000 |
| Audrain-McGovern\_AUDRAI2011 | M+F | 12-wk follow-up | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 9.5808 | 32.0000 | 334.0000 |
| Martinez-Sanchez\_MARTIN2009C | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 9.8701 | 38.0000 | 385.0000 |
| NHANES\_LINDSA2014-young | M+F | 1999-2000, age12-19 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 2 | 1 | 9.9631 | 27.0000 | 271.0000 |
| NHANES\_CARABA2004 | M | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 10.0000 | 12.0000 | 120.0000 |
| Kim\_KIM2014J | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 10.0840 | 12.0000 | 119.0000 |
| NHANES\_FISHER2008 | M | 1988-1994, age 18+ | Blood | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | 1 | 10.1559 | 202.0000 | 1989.0000 |
| Etter\_ETTER2000A | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 10.2031 | 4.0000 | 39.2039 |
| NHANES\_FISHER2008 | F | 1988-1994, age 18+ | Blood | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 10.3553 | 204.0000 | 1970.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 10.3634 | 77.0000 | 743.0000 |
| Marshall\_MARSHA2011A | M |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 1 | 10.5860 | 34.0000 | 321.1795 |
| Stick\_STICK1996 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 4 | 10.9375 | 7.0000 | 64.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 11.0956 | 159.0000 | 1433.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 11.1111 | 23.0000 | 207.0000 |
| KNHANES\_KANG2015-M | M | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 11.1698 | 296.0000 | 2650.0000 |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 11.7647 | 10.0000 | 85.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 11.8132 | 43.0000 | 364.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 11.8685 | 195.0000 | 1643.0000 |
| SHS\_LU2014A | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 12.1866 | 384.0000 | 3151.0000 |
| HSE\_JARVIS2008-any-smoking | M+F | 1996-2004, Any smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 12.3411 | 1388.0000 | 11247.0000 |
| Lee Anna\_LEE2013TE | M+F |  | Urine | 2 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 12.5000 | 10.0000 | 80.0000 |
| Ellard II\_ELLARD1996 | F |  | Urine | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 12.5565 | 139.0000 | 1107.0000 |
| Xie I\_XIE2009 | M+F |  | Blood | 1 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 12.7451 | 39.0000 | 306.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 12.8788 | 17.0000 | 132.0000 |
| INMA\_AURREK2014 | F | 2004-08 | Urine | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 12.9167 | 62.0000 | 480.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 12.9447 | 131.0000 | 1012.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 12.9644 | 34.7064 | 267.7064 |
| Molina\_MOLINA2010 | F |  | Saliva | 3 | 1 | Young | NS | 3 | 2 | 1 | 2 | 2 | 12.9771 | 17.0000 | 131.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 12.9799 | 13.0000 | 100.1550 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 13.0525 | 12.0000 | 91.9366 |
| BRHS follow-up\_JEFFER2010A | M+F | 1998-2000, men and 1999-2001, women | Blood | 2 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 13.0584 | 76.0000 | 582.0000 |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 13.4454 | 48.0000 | 357.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 13.6095 | 23.0000 | 169.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 13.6364 | 3.0000 | 22.0000 |
| de Chazeron\_DECHAZ2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 14.0684 | 37.0000 | 263.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 14.3204 | 59.0000 | 412.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 14.3820 | 64.0000 | 445.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 14.4737 | 22.0000 | 152.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 14.9425 | 39.0000 | 261.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 15.7895 | 9.0000 | 57.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 15.8301 | 123.0000 | 777.0000 |
| Fritz\_FRITZ2010A | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 2 | 16.0839 | 23.0000 | 143.0000 |
| Sasaki\_SASAKI2011 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | Asia | 16.1836 | 134.0000 | 828.0000 |
| Cooley\_COOLEY2007 | F |  | Urine | 1 | 3 | 2 | NS | 3 | 2 | 1 | 2 | 1 | 16.6667 | 4.0000 | 24.0000 |
| Mullen\_MULLEN1991 | F |  | Urine | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 16.7785 | 25.0000 | 149.0000 |
| Dell'Orco\_DELLOR1995 | M |  | Urine | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 17.1053 | 13.0000 | 76.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 17.3767 | 310.0000 | 1784.0000 |
| George\_GEORGE2006 | F | early pregnancy | Blood | 1 | 2 | Young | No | 3 | Good | 2 | 2 | 2 | 17.8082 | 13.0000 | 73.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 17.9487 | 133.0000 | 741.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 18.1818 | 2.0000 | 11.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 18.4645 | 190.0000 | 1029.0000 |
| Muramoto\_MURAMO2007 | M+F |  | Urine | 3 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 18.6957 | 43.0000 | 230.0000 |
| Jarvis I\_JARVIS1987A | M+F |  | Blood | 1 | 3 | NS | NS | 1 | 2 |  | 2 | 2 | 18.9189 | 21.0000 | 111.0000 |
| Fendrich\_FENDRI2005 | M+F |  | Saliva | Other | 1 | Young | No | 3 | 2 |  | 3 | 1 | 19.3133 | 45.0000 | 233.0000 |
| Salzer\_SALZER2013 | M+F |  | Blood | 3 | 3 | Young | No | 3 | 2 |  | 3 | 2 | 19.8925 | 37.0000 | 186.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 20.6061 | 34.0000 | 165.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 20.8092 | 36.0000 | 173.0000 |
| Griffin\_GRIFFI2014 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 21.0526 | 12.0000 | 57.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 21.6867 | 126.0000 | 581.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 21.9298 | 25.0000 | 114.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 22.1538 | 216.0000 | 975.0000 |
| Kharrazi\_KHARRA1999 | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 22.3022 | 31.0000 | 139.0000 |
| Tikkanen\_TIKKAN2010 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 22.3077 | 29.0000 | 130.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 22.4518 | 326.0000 | 1452.0000 |
| Stanton\_STANTO1996 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 2 | 4 | 22.9692 | 82.0000 | 357.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 23.2510 | 226.0000 | 972.0000 |
| Ceppa\_CEPPA2000 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 2 | 2 | 23.4568 | 19.0000 | 81.0000 |
| Holiday\_HOLIDA1995 | M+F | Non-smokers v Smokers | Blood | 3 | 3 | 3 | NS | 2 | 2 |  | 3 | 1 | 23.6620 | 84.0000 | 355.0000 |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 23.8095 | 30.0000 | 126.0000 |
| Lee So Ryong\_LEE2014N | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 25.0844 | 223.0000 | 889.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 26.0870 | 30.0000 | 115.0000 |
| Arnold\_ARNOLD2001 | F | White women | Urine | 3 | 2 | Young | Yes | 2 | 2 | 2 | 2 | 1 | 26.3514 | 39.0000 | 148.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 26.4151 | 28.0000 | 106.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arnold\_ARNOLD2001 | F | African American women | Urine | 3 | 2 | Young | Yes | 2 | 2 | 2 | 2 | 1 | 27.2727 | 12.0000 | 44.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 27.6139 | 19.1947 | 69.5111 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 30.5785 | 74.0000 | 242.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 31.8919 | 59.0000 | 185.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 32.9268 | 27.0000 | 82.0000 |
| Dell'Orco\_DELLOR1995 | F |  | Urine | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 33.3333 | 17.0000 | 51.0000 |
| Mathews\_MATHEW1999A | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 34.2466 | 125.0000 | 365.0000 |
| Kandel\_KANDEL2006 | M+F |  | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 3 | 1 | 34.5992 | 82.0000 | 237.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 35.0000 | 42.0000 | 120.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 35.7143 | 65.0000 | 182.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 36.3333 | 109.0000 | 300.0000 |
| Jenkins\_JENKIN1999 | M |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 39.1304 | 27.0000 | 69.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 39.2226 | 111.0000 | 283.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 39.6396 | 44.0000 | 111.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 40.7407 | 11.0000 | 27.0000 |
| Spencer II\_SPENCE2013 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 40.7507 | 96.0000 | 235.5789 |
| Jenkins\_JENKIN1999 | F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 1 | 42.3913 | 39.0000 | 92.0000 |
| Bernert\_BERNER2000 | M+F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 3 | 1 | 43.3333 | 39.0000 | 90.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 44.4444 | 20.0000 | 45.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 45.8716 | 50.0000 | 109.0000 |
| Windsor\_WINDSO2000 | F | Phase 1 | Saliva | Other | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 45.9302 | 79.0000 | 172.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 46.4286 | 26.0000 | 56.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 46.6071 | 18.0000 | 38.6207 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 48.9362 | 23.0000 | 47.0000 |
| Dolcini\_DOLCIN2003 | M+F | Adolescents | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 53.6232 | 111.0000 | 207.0000 |
| KNHANES\_KANG2015-F | F | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | Asia | 56.1783 | 441.0000 | 785.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 57.7947 | 152.0000 | 263.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 62.0000 | 155.0000 | 250.0000 |
| Feldman\_FELDMA1991 | M+F |  | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 1 | 1 | 63.1579 | 12.0000 | 19.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 64.6465 | 64.0000 | 99.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 71.3333 | 107.0000 | 150.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 79.8834 | 274.0000 | 343.0000 |
| Jhun\_JHUN2010 | F |  | Urine | 1 | 2 | Young | No | 3 | 2 | 2 | 1 | Asia | 82.3529 | 28.0000 | 34.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Additional results included in analysis by Sex, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_BOREHA2001 | F | 1999, by sex | Saliva | 1 | 1 | 3 | NS | 2 | 2 | 1 | 3 | 2 | 6.8966 | 109.3600 | 1585.7200 |
| HSE\_BOREHA2001 | M | 1999, by sex | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 3 | 2 | 11.1111 | 201.6800 | 1815.1200 |
| HSE\_WARDLE2003-non-curr | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 14.9786 | 105.0000 | 701.0000 |
| HSE\_WARDLE2003-non-curr | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 18.6869 | 111.0000 | 594.0000 |

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 17.0886 | 27.0000 | 158.0000 |

Additional results included in analysis by Assay method, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011-strip | M+F | Test strip method | Urine | 1 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 0.0000 | 0.0000 | 35.7773 |

Additional results included in analysis by Study Type, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_SHAHAB2006A-with-COPD | M+F | 2001, with COPD | Saliva | 1 | 3 | 2 | NS | 3 | 2 |  | 1 | 2 | 9.6927 | 41.0000 | 423.0000 |

Additional results included in analysis by Pregnancy, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_DIETZ2011-pregnant | F | 1999-2006, pregnant | Blood | 2 | 2 | Young | NS | 3 | Good | 2 | 1 | 1 | 19.2982 | 22.0000 | 114.0000 |

Additional results included in analysis by Smoking product considered, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Holiday\_HOLIDA1995 | M+F | Non-users v Tobacco users | Blood | 3 | 3 | 3 | NS | 2 | 2 |  | 3 | 1 | 5.0704 | 18.0000 | 355.0000 |
| HSE\_JARVIS2008-cig-smoking | M+F | 1996-2004, Cigarette smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 13.2722 | 1418.0000 | 10684.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 0.0000 | 0.0000 | 15.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 9.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 208.3800 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.8547 | 1.0000 | 117.0000 |
| Copenhagen\_SUADIC1997 | M | 1985-86, with or without CVD | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 3 | 2 | 1.4791 | 28.0000 | 1893.0000 |
| SHHS\_TUNSTA1991 | M | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 |  | 2 | 2 | 1.5228 | 30.0000 | 1970.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 1.5385 | 1.0000 | 65.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 1.5956 | 6.0000 | 376.0273 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 1.6949 | 2.0000 | 118.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 1.7241 | 2.0000 | 116.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.7900 | 15.0000 | 838.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 1.8041 | 7.0000 | 388.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 1.9144 | 5.0000 | 261.1727 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 1.9438 | 9.0000 | 463.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.0595 | 9.0000 | 437.0000 |
| SHHS\_TUNSTA1991 | F | 1984-1986 | Blood | 1 | 1 | 2 | NS | 1 | 2 | 1 | 2 | 2 | 2.1186 | 30.0000 | 1416.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 2.2433 | 2.0000 | 89.1550 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 2.3438 | 6.0000 | 256.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.6506 | 11.0000 | 415.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.7190 | 18.0000 | 662.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 3.1466 | 50.0000 | 1589.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 3.6172 | 3.0000 | 82.9366 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 3.9370 | 5.0000 | 127.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 4.0761 | 15.0000 | 368.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 5.5734 | 52.0000 | 933.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 6.5990 | 13.0000 | 197.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 7.7390 | 51.0000 | 659.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 8.7302 | 11.0000 | 126.0000 |
| Assaf\_ASSAF2002-M | M |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 9.3168 | 15.0000 | 161.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 9.7661 | 25.2178 | 258.2178 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 10.1010 | 10.0000 | 99.0000 |
| Bardy\_BARDY1993 | F |  | Blood | 2 | 2 | Young | No | 2 | 2 | 2 | 2 | 2 | 10.1523 | 20.0000 | 197.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 10.8844 | 16.0000 | 147.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 12.1622 | 18.0000 | 148.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 14.1414 | 14.0000 | 99.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 15.4321 | 25.0000 | 162.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 15.6627 | 13.0000 | 83.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 15.9091 | 21.0000 | 132.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Results included in overall analyses, cut point 2

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Quinn\_QUINN1996 | M+F |  | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 1 | 16.0000 | 12.0000 | 75.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 16.0000 | 24.0000 | 150.0000 |
| Gilligan\_GILLIG2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 16.0584 | 22.0000 | 137.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 16.6667 | 11.0000 | 66.0000 |
| Vasankari\_VASANK2011 | M+F |  | Blood | 3 | 1 | 2 | NS | 3 | 2 |  | 2 | 2 | 18.5185 | 35.0000 | 189.0000 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 19.3848 | 397.0000 | 2048.0000 |
| Niedbala\_NIEDBA2002 | M+F |  | Urine | 3 | 1 | NS | NS | 2 | Good |  | 3 | 1 | 20.0000 | 4.0000 | 20.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 22.7723 | 23.0000 | 101.0000 |
| Bernert\_BERNER2000 | M+F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 3 | 1 | 23.8806 | 16.0000 | 67.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 24.3137 | 62.0000 | 255.0000 |
| MacFarlane\_MACFAR2001 | M+F |  | Urine | 1 | 3 | Young | NS | 2 | 2 |  | 2 | 2 | 24.3902 | 20.0000 | 82.0000 |
| Burstyn\_BURSTY2009 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 1 | 26.8058 | 14.5350 | 54.2233 |
| Jenkins\_JENKIN1999 | M |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | 1 | 28.8136 | 17.0000 | 59.0000 |
| Jenkins\_JENKIN1999 | F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 | 1 | 2 | 1 | 29.3333 | 22.0000 | 75.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 29.6296 | 40.0000 | 135.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 31.6327 | 31.0000 | 98.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 32.6577 | 10.0000 | 30.6207 |
| Lee Chung Yul\_LEE2009TC | M |  | Urine | 1 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 34.7826 | 16.0000 | 46.0000 |
| Agewall\_AGEWAL2002 | M |  | Urine | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 36.5079 | 46.0000 | 126.0000 |
| Gill\_GILL1996 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | 4 | 46.8354 | 37.0000 | 79.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 65.3266 | 130.0000 | 199.0000 |
| Lee Chung Yul\_LEE2009TC | F |  | Urine | 1 | 1 | NS | No | 3 | 2 | 1 | 2 | Asia | 86.3636 | 19.0000 | 22.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 11703606.4168 | (184) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.5865 | 0.8048 | 0.0000 +++ | 11.5865 | 9.9986 | 13.1743 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 10710865.9396 | (182) | 992740.4772 | 0.0003 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5926 | 2.2764 | 0.0042 ++ | 6.5926 | 2.1009 | 11.0842 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 23 | Aliased |  |  | 6.5926 | 2.1009 | 11.0842 |
| Before 2003 | 69 | 2.7335 | 2.5695 | 0.2888 | 9.3260 | 6.9744 | 11.6776 |
| 2003 onwards | 93 | 8.3046 | 2.5452 | 0.0013 ++ | 14.8972 | 12.6511 | 17.1432 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 9274214.0452 | (171) | 1436651.8944 | 0.0083 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.5545 | 3.1579 | 0.0394 + | 6.5545 | 0.3209 | 12.7881 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 23 | Aliased |  |  | 7.9360 | 3.1574 | 12.7147 |
| Before 2003 | 69 | 1.7923 | 2.7081 | 0.5090 | 9.7284 | 7.3853 | 12.0714 |
| 2003 onwards | 93 | 6.2582 | 2.7702 | 0.0251 + | 14.1942 | 11.9175 | 16.4709 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M8: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Non-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 31 | Aliased |  |  | 10.2049 | 6.3744 | 14.0355 |
| Canada/USA, M | 13 | 5.2565 | 3.3971 | 0.1236 | 15.4614 | 9.9742 | 20.9486 |
| Canada/USA, M+F | 31 | 0.1824 | 2.7421 | 0.9470 | 10.3874 | 6.5563 | 14.2185 |
| Europe, F | 31 | 3.7776 | 2.9625 | 0.2040 | 13.9826 | 9.6162 | 18.3489 |
| Europe, M | 15 | -3.3414 | 3.1476 | 0.2899 | 6.8636 | 2.0980 | 11.6291 |
| Europe, M+F | 31 | 1.5814 | 2.3739 | 0.5062 | 11.7864 | 8.9928 | 14.5799 |
| Asia, F | 6 | 23.1909 | 5.8195 | 0.0001 +++ | 33.3958 | 22.5782 | 44.2134 |
| Asia, M | 3 | -2.3767 | 4.5733 | 0.6039 | 7.8282 | -0.3519 | 16.0082 |
| Asia, M+F | 6 | -0.5657 | 4.8889 | 0.9080 | 9.6392 | 0.7850 | 18.4934 |
| Other, F | 5 | 14.5257 | 10.8150 | 0.1810 | 24.7306 | 3.7138 | 45.7475 |
| Other, M | 3 | -1.5890 | 11.4610 | 0.8899 | 8.6159 | -13.6955 | 30.9273 |
| Other, M+F | 10 | 0.3005 | 5.4225 | 0.9559 | 10.5054 | 0.5453 | 20.4654 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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Overall percentage, cut point 1, unweighted

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 8584.8073 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.6862 | 1.4146 | 0.0000 +++ | 6.6862 | 3.8610 | 9.5114 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 990.4820 | (20) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.4305 | 1.5357 | 0.0092 ++ | 4.4305 | 1.2271 | 7.6338 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1939401.1318 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.6379 | 0.9534 | 0.0000 +++ | 4.6379 | 2.7338 | 6.5420 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 211175.6753 | (20) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.0159 | 1.1205 | 0.0019 ++ | 4.0159 | 1.6786 | 6.3532 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Body fluid tested

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1768251.6522 | (64) | 171156.2490 | 0.0520 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.4178 | 2.6468 | 0.0023 ++ | 8.4178 | 3.1304 | 13.7053 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 11 | Aliased |  |  | 8.4178 | 3.1304 | 13.7053 |
| Saliva | 14 | 0.6608 | 3.7803 | 0.8618 | 9.0786 | 3.6866 | 14.4707 |
| Blood | 42 | -5.0390 | 2.8460 | 0.0814 (-) | 3.3789 | 1.2890 | 5.4688 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1906303.5797 | (62) | 33097.5521 | 0.7829 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.2416 | 1.6117 | 0.0107 + | 4.2416 | 1.0198 | 7.4633 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 25 | Aliased |  |  | 4.2416 | 1.0198 | 7.4633 |
| Spectrometry | 13 | 1.8682 | 2.3827 | 0.4360 | 6.1098 | 2.6018 | 9.6177 |
| Immunoassay | 23 | -0.6258 | 2.4815 | 0.8017 | 3.6158 | -0.1561 | 7.3876 |
| Other | 5 | -0.1013 | 3.9481 | 0.9796 | 4.1403 | -3.0643 | 11.3448 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1914308.5653 | (63) | 25092.5665 | 0.6635 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.7671 | 1.0873 | 0.0000 +++ | 4.7671 | 2.5943 | 6.9398 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 47 | Aliased |  |  | 4.7671 | 2.5943 | 6.9398 |
| Pregnancy | 2 | 3.3744 | 5.1157 | 0.5119 | 8.1414 | -1.8479 | 18.1308 |
| Diseased or CC | 17 | -1.4134 | 2.5157 | 0.5762 | 3.3537 | -1.1798 | 7.8871 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1906665.3218 | (62) | 32735.8100 | 0.7858 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.8523 | 2.4500 | 0.0069 ++ | 6.8523 | 1.9548 | 11.7498 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 9 | Aliased |  |  | 6.8523 | 1.9548 | 11.7498 |
| Not young | 13 | -2.4130 | 3.2348 | 0.4585 | 4.4393 | 0.2170 | 8.6615 |
| All ages | 32 | -2.5287 | 2.7944 | 0.3690 | 4.3236 | 1.6373 | 7.0099 |
| NS | 12 | -3.4382 | 3.7605 | 0.3641 | 3.4140 | -2.2887 | 9.1168 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Awareness of validation by cotinine

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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1892680.2862 | (63) | 46720.8456 | 0.4639 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.1667 | 4.1696 | 0.3215 | 4.1667 | -4.1656 | 12.4990 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 2 | Aliased |  |  | 4.1667 | -4.1656 | 12.4990 |
| No | 11 | 4.1863 | 5.2133 | 0.4250 | 8.3530 | 2.0994 | 14.6066 |
| NS | 53 | 0.0936 | 4.2962 | 0.9827 | 4.2603 | 2.1914 | 6.3292 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1914441.3222 | (63) | 24959.8096 | 0.6650 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.9863 | 2.1088 | 0.1617 | 2.9863 | -1.2278 | 7.2004 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 15 | Aliased |  |  | 2.9863 | -1.2278 | 7.2004 |
| Before 2003 | 30 | 1.8728 | 2.5664 | 0.4683 | 4.8591 | 1.9363 | 7.7819 |
| 2003 onwards | 21 | 2.3425 | 2.6506 | 0.3802 | 5.3288 | 2.1199 | 8.5377 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Quality of study

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1939168.0916 | (64) | 233.0402 | 0.9304 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.2755 | 4.2418 | 0.3173 | 4.2755 | -4.1984 | 12.7494 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 1 | Aliased |  |  | 4.2755 | -4.1984 | 12.7494 |
| Not good | 65 | 0.3819 | 4.3550 | 0.9304 | 4.6575 | 2.6869 | 6.6281 |

By Pregnancy (women only)

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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1479870.2107 | (20) | 1103.0251 | 0.9040 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.1806 | 3.4040 | 0.0139 + | 9.1806 | 2.0799 | 16.2813 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 20 | Aliased |  |  | 9.1806 | 2.0799 | 16.2813 |
| Pregnant | 2 | -1.0391 | 8.5110 | 0.9040 | 8.1414 | -8.1304 | 24.4133 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Tobacco products considered

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1805361.4774 | (63) | 134039.6544 | 0.1048 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.4062 | 1.5911 | 0.0000 +++ | 7.4062 | 4.2266 | 10.5859 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 25 | Aliased |  |  | 7.4062 | 4.2266 | 10.5859 |
| Any smoking | 40 | -4.3048 | 1.9936 | 0.0346 - | 3.1015 | 0.7011 | 5.5018 |
| Any tobacco | 1 | -3.2675 | 4.4692 | 0.4674 | 4.1388 | -4.2069 | 12.4845 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Sex

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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1746619.7027 | (63) | 192781.4291 | 0.0370 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.0144 | 1.9097 | 0.0000 +++ | 9.0144 | 5.1981 | 12.8307 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 22 | Aliased |  |  | 9.0144 | 5.1981 | 12.8307 |
| M | 18 | -6.1929 | 2.6128 | 0.0209 - | 2.8214 | -0.7420 | 6.3848 |
| M+F | 26 | -5.4328 | 2.3080 | 0.0217 - | 3.5816 | 0.9915 | 6.1717 |

By Location

|  |  |  |  |  |  |  |  |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1784162.2396 | (62) | 155238.8922 | 0.1568 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.2002 | 1.9314 | 0.0021 ++ | 6.2002 | 2.3394 | 10.0609 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 18 | Aliased |  |  | 6.2002 | 2.3394 | 10.0609 |
| Europe | 37 | -3.0330 | 2.2580 | 0.1841 | 3.1672 | 0.8288 | 5.5057 |
| Asia | 8 | 2.7445 | 3.4026 | 0.4230 | 8.9446 | 3.3449 | 14.5444 |
| Other | 3 | 5.8771 | 8.5580 | 0.4948 | 12.0773 | -4.5885 | 28.7431 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

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By Location x Sex

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 760672.0745 | (54) | 1178729.0573 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.4013 | 4.0432 | 0.0067 ++ | 11.4013 | 3.2952 | 19.5074 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 5 | Aliased |  |  | 11.4013 | 3.2952 | 19.5074 |
| Canada/USA, M | 3 | -6.0355 | 6.2652 | 0.3397 | 5.3659 | -4.2293 | 14.9610 |
| Canada/USA, M+F | 10 | -5.8374 | 4.3134 | 0.1816 | 5.5639 | 2.5511 | 8.5768 |
| Europe, F | 12 | -6.7900 | 4.3235 | 0.1221 | 4.6113 | 1.5411 | 7.6815 |
| Europe, M | 11 | -8.8902 | 4.3214 | 0.0445 - | 2.5112 | -0.5473 | 5.5696 |
| Europe, M+F | 14 | -8.7586 | 4.2330 | 0.0433 - | 2.6427 | 0.1300 | 5.1554 |
| Asia, F | 4 | 31.8463 | 6.2445 | 0.0000 +++ | 43.2476 | 33.7066 | 52.7886 |
| Asia, M | 3 | -8.4947 | 4.9215 | 0.0901 (-) | 2.9067 | -2.7192 | 8.5325 |
| Asia, M+F | 1 | -10.8440 | 5.2500 | 0.0437 - | 0.5573 | -6.1569 | 7.2715 |
| Other, F | 1 | 25.5356 | 11.9688 | 0.0374 + | 36.9369 | 14.3515 | 59.5224 |
| Other, M | 1 | -7.9662 | 8.3733 | 0.3457 | 3.4351 | -11.2656 | 18.1359 |
| Other, M+F | 1 | -11.4013 | 18.9716 | 0.5504 | 0.0000 | -37.1620 | 37.1620 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 451.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 22.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 0.0000 | 0.0000 | 51.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 0.0000 | 0.0000 | 69.5111 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 56.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 0.0000 | 0.0000 | 41.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 47.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.3452 | 3.0000 | 869.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 0.4098 | 2.0000 | 488.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 0.5025 | 3.0000 | 597.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.5249 | 4.0000 | 762.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 0.5573 | 7.0000 | 1256.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 0.6276 | 3.0000 | 478.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 0.7177 | 3.0000 | 418.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 0.8205 | 8.0000 | 975.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 1.0767 | 8.0000 | 743.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.1111 | 4.0000 | 360.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.1594 | 8.0000 | 690.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.3423 | 6.0000 | 447.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 1.3889 | 4.0000 | 288.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 1.6043 | 3.0000 | 187.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.6279 | 7.0000 | 430.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 1.6667 | 5.0000 | 300.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 1.6807 | 2.0000 | 119.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 1.7094 | 2.0000 | 117.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.0263 | 60.0000 | 2961.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 2.0592 | 16.0000 | 777.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 2.1127 | 3.0000 | 142.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.1739 | 22.0000 | 1012.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 2.2472 | 2.0000 | 89.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.3392 | 4.0000 | 171.0000 |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 2.3810 | 3.0000 | 126.0000 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.7352 | 25.0000 | 914.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.7963 | 21.0000 | 751.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 2.8993 | 53.0000 | 1828.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.2895 | 15.0000 | 456.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 3.4351 | 9.0000 | 262.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 3.7037 | 5.0000 | 135.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.9216 | 14.0000 | 357.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 3.9604 | 48.0000 | 1212.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 4.1388 | 68.0000 | 1643.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.2755 | 72.0000 | 1684.0000 |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 4.7059 | 4.0000 | 85.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 4.8780 | 4.0000 | 82.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 5.4385 | 5.0000 | 91.9366 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 5.7971 | 12.0000 | 207.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 5.8127 | 6.0616 | 104.2820 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 6.0440 | 22.0000 | 364.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 6.0606 | 10.0000 | 165.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 6.0729 | 45.0000 | 741.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 6.6939 | 131.0000 | 1957.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.8182 | 9.0000 | 132.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 7.1891 | 19.2458 | 267.7064 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 7.6923 | 13.0000 | 169.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 9.3294 | 96.0000 | 1029.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 10.8333 | 13.0000 | 120.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 12.0000 | 18.0000 | 150.0000 |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 12.1255 | 85.0000 | 701.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 12.2807 | 7.0000 | 57.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 13.6364 | 81.0000 | 594.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 20.7547 | 22.0000 | 106.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 22.4000 | 56.0000 | 250.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 33.3333 | 9.0000 | 27.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 36.9369 | 41.0000 | 111.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 53.4722 | 231.0000 | 432.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 61.6162 | 61.0000 | 99.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Additional results included in analysis by Body fluid tested, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 4.4304 | 7.0000 | 158.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.0000 | 0.0000 | 838.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 0.0000 | 0.0000 | 83.0000 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 0.4320 | 2.0000 | 463.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.4577 | 2.0000 | 437.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 0.4819 | 2.0000 | 415.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 0.6042 | 4.0000 | 662.0000 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.8547 | 1.0000 | 117.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 0.8574 | 8.0000 | 933.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 1.5152 | 1.0000 | 66.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 1.5175 | 10.0000 | 659.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 1.7241 | 2.0000 | 116.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 1.9531 | 5.0000 | 256.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 2.0408 | 3.0000 | 147.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 2.3810 | 3.0000 | 126.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.5381 | 5.0000 | 197.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 4.4444 | 6.0000 | 135.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 5.3238 | 13.7470 | 258.2178 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 9.7168 | 199.0000 | 2048.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 9.8039 | 25.0000 | 255.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 17.8218 | 18.0000 | 101.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 28.5714 | 28.0000 | 98.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 1939401.1318 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.6379 | 0.9534 | 0.0000 +++ | 4.6379 | 2.7338 | 6.5420 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 760672.0745 | (54) | 1178729.0573 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 11.4013 | 4.0432 | 0.0067 ++ | 11.4013 | 3.2952 | 19.5074 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 5 | Aliased |  |  | 11.4013 | 3.2952 | 19.5074 |
| Canada/USA, M | 3 | -6.0355 | 6.2652 | 0.3397 | 5.3659 | -4.2293 | 14.9610 |
| Canada/USA, M+F | 10 | -5.8374 | 4.3134 | 0.1816 | 5.5639 | 2.5511 | 8.5768 |
| Europe, F | 12 | -6.7900 | 4.3235 | 0.1221 | 4.6113 | 1.5411 | 7.6815 |
| Europe, M | 11 | -8.8902 | 4.3214 | 0.0445 - | 2.5112 | -0.5473 | 5.5696 |
| Europe, M+F | 14 | -8.7586 | 4.2330 | 0.0433 - | 2.6427 | 0.1300 | 5.1554 |
| Asia, F | 4 | 31.8463 | 6.2445 | 0.0000 +++ | 43.2476 | 33.7066 | 52.7886 |
| Asia, M | 3 | -8.4947 | 4.9215 | 0.0901 (-) | 2.9067 | -2.7192 | 8.5325 |
| Asia, M+F | 1 | -10.8440 | 5.2500 | 0.0437 - | 0.5573 | -6.1569 | 7.2715 |
| Other, F | 1 | 25.5356 | 11.9688 | 0.0374 + | 36.9369 | 14.3515 | 59.5224 |
| Other, M | 1 | -7.9662 | 8.3733 | 0.3457 | 3.4351 | -11.2656 | 18.1359 |
| Other, M+F | 1 | -11.4013 | 18.9716 | 0.5504 | 0.0000 | -37.1620 | 37.1620 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 632975.6058 | (52) | 127696.4687 | 0.0084 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.4645 | 3.8307 | 0.0086 ++ | 10.4645 | 2.7776 | 18.1515 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M9: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Never-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 5 | Aliased |  |  | 13.6125 | 5.9346 | 21.2905 |
| Canada/USA, M | 3 | -6.4015 | 5.8312 | 0.2773 | 7.2110 | -1.7899 | 16.2118 |
| Canada/USA, M+F | 10 | -7.9095 | 4.0607 | 0.0568 (-) | 5.7030 | 2.8787 | 8.5274 |
| Europe, F | 12 | -8.6181 | 4.0626 | 0.0387 - | 4.9944 | 2.1271 | 7.8617 |
| Europe, M | 11 | -9.6535 | 4.0273 | 0.0202 - | 3.9590 | 0.9731 | 6.9449 |
| Europe, M+F | 14 | -12.5482 | 4.1134 | 0.0036 -- | 1.0643 | -1.4711 | 3.5997 |
| Asia, F | 4 | 30.9569 | 5.8473 | 0.0000 +++ | 44.5694 | 35.6134 | 53.5255 |
| Asia, M | 3 | -9.7591 | 4.6829 | 0.0421 - | 3.8534 | -1.5985 | 9.3052 |
| Asia, M+F | 1 | -16.0216 | 5.1365 | 0.0030 -- | -2.4091 | -8.9530 | 4.1348 |
| Other, F | 1 | 24.2711 | 11.1709 | 0.0344 + | 37.8837 | 16.8147 | 58.9526 |
| Other, M | 1 | -9.2307 | 7.8477 | 0.2449 | 4.3818 | -9.3806 | 18.1443 |
| Other, M+F | 1 | -12.6658 | 17.6640 | 0.4766 | 0.9467 | -33.6627 | 35.5561 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 15 | Aliased |  |  | 1.4899 | -1.4364 | 4.4162 |
| Before 2003 | 30 | 2.2012 | 1.7402 | 0.2115 | 3.6911 | 1.7372 | 5.6451 |
| 2003 onwards | 21 | 6.1144 | 1.9742 | 0.0031 ++ | 7.6043 | 5.3040 | 9.9046 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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Overall percentage, cut point 1, unweighted

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 8238.4333 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 9.7126 | 1.3858 | 0.0000 +++ | 9.7126 | 6.9450 | 12.4802 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 845.3888 | (20) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 6.3048 | 1.4187 | 0.0002 +++ | 6.3048 | 3.3453 | 9.2642 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 1686672.9226 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.7240 | 0.8891 | 0.0000 +++ | 7.7240 | 5.9483 | 9.4997 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 178433.6784 | (20) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.6892 | 1.0300 | 0.0000 +++ | 5.6892 | 3.5407 | 7.8376 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1621782.3377 | (64) | 68718.9121 | 0.2650 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.7921 | 2.5348 | 0.0632 (+) | 4.7921 | -0.2717 | 9.8559 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 11 | Aliased |  |  | 4.7921 | -0.2717 | 9.8559 |
| Saliva | 14 | 0.7526 | 3.6203 | 0.8360 | 5.5447 | 0.3808 | 10.7087 |
| Blood | 42 | 3.7482 | 2.7256 | 0.1739 | 8.5403 | 6.5388 | 10.5418 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1594029.5616 | (62) | 92643.3610 | 0.3168 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.7095 | 1.4738 | 0.0003 +++ | 5.7095 | 2.7635 | 8.6556 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 25 | Aliased |  |  | 5.7095 | 2.7635 | 8.6556 |
| Spectrometry | 13 | 3.4852 | 2.1788 | 0.1148 | 9.1947 | 5.9869 | 12.4025 |
| Immunoassay | 23 | 2.2280 | 2.2692 | 0.3300 | 7.9375 | 4.4884 | 11.3866 |
| Other | 5 | 5.1058 | 3.6103 | 0.1623 | 10.8154 | 4.2273 | 17.4035 |

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Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1286126.4507 | (63) | 400546.4719 | 0.0002 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.9770 | 0.8912 | 0.0000 +++ | 5.9770 | 4.1960 | 7.7579 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 47 | Aliased |  |  | 5.9770 | 4.1960 | 7.7579 |
| Pregnancy | 2 | 2.9046 | 4.1932 | 0.4910 | 8.8816 | 0.6937 | 17.0695 |
| Diseased or CC | 17 | 9.1145 | 2.0620 | 0.0000 +++ | 15.0915 | 11.3755 | 18.8074 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1330172.0069 | (62) | 356500.9157 | 0.0020 \*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.9895 | 2.0464 | 0.0176 + | 4.9895 | 0.8989 | 9.0802 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 9 | Aliased |  |  | 4.9895 | 0.8989 | 9.0802 |
| Not young | 13 | 8.8071 | 2.7019 | 0.0018 ++ | 13.7966 | 10.2700 | 17.3232 |
| All ages | 32 | 0.8621 | 2.3340 | 0.7131 | 5.8517 | 3.6079 | 8.0954 |
| NS | 12 | 3.8021 | 3.1410 | 0.2307 | 8.7917 | 4.0284 | 13.5549 |

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Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1630646.1759 | (63) | 56026.7467 | 0.3450 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.6968 | 3.8702 | 0.0511 (+) | 7.6968 | -0.0373 | 15.4308 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 2 | Aliased |  |  | 7.6968 | -0.0373 | 15.4308 |
| No | 11 | 4.0860 | 4.8390 | 0.4016 | 11.7828 | 5.9782 | 17.5874 |
| NS | 53 | -0.4153 | 3.9878 | 0.9174 | 7.2814 | 5.3611 | 9.2018 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1494764.0040 | (63) | 191908.9186 | 0.0223 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3849 | 1.8634 | 0.0217 + | 4.3849 | 0.6612 | 8.1086 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 15 | Aliased |  |  | 4.3849 | 0.6612 | 8.1086 |
| Before 2003 | 30 | 2.4693 | 2.2677 | 0.2803 | 6.8542 | 4.2716 | 9.4368 |
| 2003 onwards | 21 | 6.3236 | 2.3421 | 0.0089 ++ | 10.7085 | 7.8731 | 13.5440 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1666284.6157 | (64) | 20388.3068 | 0.3795 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.3349 | 3.9320 | 0.2744 | 4.3349 | -3.5202 | 12.1900 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 1 | Aliased |  |  | 4.3349 | -3.5202 | 12.1900 |
| Not good | 65 | 3.5724 | 4.0369 | 0.3795 | 7.9073 | 6.0806 | 9.7340 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 54467.1007 | (20) | 18764.3887 | 0.0162 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.5956 | 0.6531 | 0.0000 +++ | 4.5956 | 3.2333 | 5.9578 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 20 | Aliased |  |  | 4.5956 | 3.2333 | 5.9578 |
| Pregnant | 2 | 4.2860 | 1.6328 | 0.0162 + | 8.8816 | 5.7599 | 12.0033 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Tobacco products considered

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1677762.8085 | (63) | 8910.1141 | 0.8463 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.0156 | 1.5339 | 0.0000 +++ | 7.0156 | 3.9504 | 10.0808 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 25 | Aliased |  |  | 7.0156 | 3.9504 | 10.0808 |
| Any smoking | 40 | 1.1117 | 1.9219 | 0.5650 | 8.1273 | 5.8133 | 10.4412 |
| Any tobacco | 1 | 0.7142 | 4.3083 | 0.8689 | 7.7298 | -0.3156 | 15.7751 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Sex

|  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1532762.6917 | (63) | 153910.2309 | 0.0491 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.2812 | 1.7890 | 0.0044 ++ | 5.2812 | 1.7062 | 8.8562 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 22 | Aliased |  |  | 5.2812 | 1.7062 | 8.8562 |
| M | 18 | 0.5108 | 2.4476 | 0.8354 | 5.7919 | 2.4538 | 9.1301 |
| M+F | 26 | 4.5888 | 2.1621 | 0.0377 + | 9.8700 | 7.4436 | 12.2964 |

By Location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1590287.9507 | (62) | 96384.9719 | 0.2985 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 10.3609 | 1.8234 | 0.0000 +++ | 10.3609 | 6.7159 | 14.0059 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 18 | Aliased |  |  | 10.3609 | 6.7159 | 14.0059 |
| Europe | 37 | -3.0231 | 2.1318 | 0.1612 | 7.3378 | 5.1301 | 9.5456 |
| Asia | 8 | -5.3432 | 3.2124 | 0.1013 | 5.0177 | -0.2691 | 10.3045 |
| Other | 3 | -8.1870 | 8.0797 | 0.3149 | 2.1739 | -13.5604 | 17.9082 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

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By Location x Sex

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1451349.0092 | (54) | 235323.9134 | 0.6432 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.9991 | 5.5848 | 0.4770 | 3.9991 | -7.1978 | 15.1960 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 5 | Aliased |  |  | 3.9991 | -7.1978 | 15.1960 |
| Canada/USA, M | 3 | 0.8789 | 8.6540 | 0.9195 | 4.8780 | -8.3757 | 18.1318 |
| Canada/USA, M+F | 10 | 7.7812 | 5.9581 | 0.1971 | 11.7803 | 7.6187 | 15.9419 |
| Europe, F | 12 | 1.5611 | 5.9720 | 0.7948 | 5.5602 | 1.3194 | 9.8010 |
| Europe, M | 11 | 2.0310 | 5.9691 | 0.7350 | 6.0301 | 1.8054 | 10.2547 |
| Europe, M+F | 14 | 5.4121 | 5.8470 | 0.3588 | 9.4112 | 5.9404 | 12.8820 |
| Asia, F | 4 | 0.8240 | 8.6256 | 0.9242 | 4.8232 | -8.3558 | 18.0022 |
| Asia, M | 3 | 1.9819 | 6.7981 | 0.7718 | 5.9810 | -1.7899 | 13.7519 |
| Asia, M+F | 1 | -0.2571 | 7.2518 | 0.9719 | 3.7420 | -5.5323 | 13.0164 |
| Other, F | 1 | -1.2964 | 16.5325 | 0.9378 | 2.7027 | -28.4945 | 33.8999 |
| Other, M | 1 | -2.8541 | 11.5661 | 0.8060 | 1.1450 | -19.1611 | 21.4512 |
| Other, M+F | 1 | 3.3180 | 26.2054 | 0.8997 | 7.3171 | -44.0146 | 58.6488 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 0.6028 | 0.6286 | 104.2820 |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.8403 | 1.0000 | 119.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.8547 | 1.0000 | 117.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 1.1450 | 3.0000 | 262.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 1.7738 | 8.0000 | 451.0000 |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 1.8443 | 9.0000 | 488.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.9444 | 7.0000 | 360.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.0921 | 10.0000 | 478.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 2.2472 | 2.0000 | 89.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 2.3392 | 4.0000 | 171.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.6247 | 20.0000 | 762.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 2.7027 | 3.0000 | 111.0000 |
| HSE\_WARDLE2003-never-ex | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 2.8531 | 20.0000 | 701.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.9083 | 13.0000 | 447.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 3.0303 | 3.0000 | 99.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 3.3370 | 61.0000 | 1828.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 3.4722 | 10.0000 | 288.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 3.5088 | 2.0000 | 57.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 3.7420 | 47.0000 | 1256.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 3.8526 | 23.0000 | 597.0000 |
| HSE\_WEST2007 | M+F | 2003 | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.9474 | 18.0000 | 456.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 4.3349 | 73.0000 | 1684.0000 |
| HSE\_OPCS1995A | F | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 4.3941 | 33.0000 | 751.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 4.4186 | 19.0000 | 430.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 4.4444 | 6.0000 | 135.0000 |
| HSE\_OPCS1995A | M | 1993 | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 4.5952 | 42.0000 | 914.0000 |
| KNHANES\_JUNGCH2012 | F | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 1 | Asia | 4.6296 | 20.0000 | 432.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 4.9482 | 43.0000 | 869.0000 |
| HSE\_WARDLE2003-never-ex | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 5.0505 | 30.0000 | 594.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 5.3140 | 11.0000 | 207.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 5.5072 | 38.0000 | 690.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 5.6604 | 6.0000 | 106.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 5.7692 | 21.0000 | 364.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 5.7752 | 15.4606 | 267.7064 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 5.8088 | 172.0000 | 2961.0000 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 5.9172 | 10.0000 | 169.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.0606 | 8.0000 | 132.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 6.3380 | 9.0000 | 142.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Townsend\_TOWNSE1991A | M+F | All ages | Saliva | Other | 1 | Young | Yes | 2 | 2 |  | 1 | 2 | 7.0588 | 6.0000 | 85.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 7.3171 | 3.0000 | 41.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 7.4074 | 2.0000 | 27.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 7.4866 | 14.0000 | 187.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 7.6139 | 7.0000 | 91.9366 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 7.7298 | 127.0000 | 1643.0000 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 7.8431 | 4.0000 | 51.0000 |
| KNHANES\_JUNGCH2012 | M | 2008 | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 1 | Asia | 7.9208 | 96.0000 | 1212.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 8.3732 | 35.0000 | 418.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 9.1351 | 94.0000 | 1029.0000 |
| Pell ACS\_PELL2008A | M+F | ACS | Blood | 1 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 9.2867 | 69.0000 | 743.0000 |
| Pell HEPS\_PELL2008A | M+F | HEPS | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 9.5238 | 34.0000 | 357.0000 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 10.7708 | 109.0000 | 1012.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 11.8758 | 88.0000 | 741.0000 |
| NHANES\_AGARWA2009 | M+F | 1999-2004 | Blood | 2 | 1 | 2 | NS | 3 | 2 |  | 1 | 1 | 13.0812 | 256.0000 | 1957.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 13.6364 | 3.0000 | 22.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 13.7709 | 107.0000 | 777.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 14.5455 | 24.0000 | 165.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 21.3333 | 208.0000 | 975.0000 |
| Wilmink\_WILMIN1999 | M |  | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 21.4286 | 27.0000 | 126.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 23.4043 | 11.0000 | 47.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 24.1667 | 29.0000 | 120.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 27.6139 | 19.1947 | 69.5111 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 28.0488 | 23.0000 | 82.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 34.6667 | 104.0000 | 300.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 39.6000 | 99.0000 | 250.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 46.4286 | 26.0000 | 56.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 59.3333 | 89.0000 | 150.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 12.6582 | 20.0000 | 158.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cummings\_WELLS1998C | M |  | Urine | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 1 | 0.0000 | 0.0000 | 117.0000 |
| Cummings\_WELLS1998C | F |  | Urine | 1 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 1 | 0.0000 | 0.0000 | 116.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 0.3906 | 1.0000 | 256.0000 |
| Baltar\_BALTAR2011 | M+F |  | Blood | 2 | 3 | NS | No | 3 | 2 |  | 2 | 4 | 1.5119 | 7.0000 | 463.0000 |
| S-Germany-II\_HELLER1993 | F | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 1.6018 | 7.0000 | 437.0000 |
| S-Germany-I\_HELLER1993 | M | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 1.7900 | 15.0000 | 838.0000 |
| S-Germany-II\_HELLER1993 | M | second random sample in 1989/90 | Blood | 3 | 1 | 3 | NS | 1 | 2 |  | 2 | 2 | 2.1148 | 14.0000 | 662.0000 |
| S-Germany-I\_HELLER1993 | F | first random sample in 1984/85 | Blood | 3 | 1 | 3 | NS | 1 | 2 | 1 | 2 | 2 | 2.1687 | 9.0000 | 415.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 3.0612 | 3.0000 | 98.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 4.0609 | 8.0000 | 197.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 4.4423 | 11.4708 | 258.2178 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 4.7160 | 44.0000 | 933.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 4.9505 | 5.0000 | 101.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 6.2215 | 41.0000 | 659.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 6.3492 | 8.0000 | 126.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 8.8435 | 13.0000 | 147.0000 |
| MFHS\_KORPIL2004 | M+F |  | Blood | 3 | 1 | 2 | No | 3 | 2 |  | 2 | 2 | 9.6680 | 198.0000 | 2048.0000 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 14.5098 | 37.0000 | 255.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 15.1515 | 10.0000 | 66.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 15.6627 | 13.0000 | 83.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 25.1852 | 34.0000 | 135.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M10: Percentage of self-reported Current smokers (plus Misclassified non-smokers) who report being Ex-smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of self-rep Current smokers (plus Misclass non-smokers), cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 1686672.9226 | (65) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.7240 | 0.8891 | 0.0000 +++ | 7.7240 | 5.9483 | 9.4997 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 1286126.4507 | (63) | 400546.4719 | 0.0002 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.9770 | 0.8912 | 0.0000 +++ | 5.9770 | 4.1960 | 7.7579 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 47 | Aliased |  |  | 5.9770 | 4.1960 | 7.7579 |
| Pregnancy | 2 | 2.9046 | 4.1932 | 0.4910 | 8.8816 | 0.6937 | 17.0695 |
| Diseased or CC | 17 | 9.1145 | 2.0620 | 0.0000 +++ | 15.0915 | 11.3755 | 18.8074 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

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Overall percentage, cut point 1, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 3627.2905 | (136) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.7000 | 0.4412 | 0.0000 +++ | 4.7000 | 3.8274 | 5.5726 |

Overall percentage, cut point 2, unweighted

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 2662.9004 | (42) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 8.5685 | 1.2143 | 0.0000 +++ | 8.5685 | 6.1180 | 11.0190 |

Overall percentage, cut point 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 3727988.7515 | (136) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.6486 | 0.4075 | 0.0000 +++ | 3.6486 | 2.8427 | 4.4545 |

Overall percentage, cut point 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 2** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 2** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Model 1** |  | 578854.3168 | (42) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 7.6717 | 0.7570 | 0.0000 +++ | 7.6717 | 6.1441 | 9.1993 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

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Overall misclassification rate (percentage) for the Palmier study, cut point 2 = 8.8426

By Body fluid tested

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3564001.6325 | (135) | 169202.9166 | 0.0437 \* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.1861 | 0.9139 | 0.0181 + | 2.1861 | 0.3785 | 3.9937 |
|  |  |  |  |  |  |  |  |
| **Body fluid tested** |  |  |  |  |  |  |  |
| Urine | 34 | Aliased |  |  | 2.1861 | 0.3785 | 3.9937 |
| Saliva | 30 | 0.7537 | 1.1676 | 0.5197 | 2.9398 | 1.5025 | 4.3770 |
| Blood | 74 | 2.4172 | 1.0723 | 0.0258 + | 4.6033 | 3.4941 | 5.7126 |

By cotinine assay method used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3611459.0036 | (134) | 116609.2508 | 0.2333 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.6039 | 0.6647 | 0.0001 +++ | 2.6039 | 1.2892 | 3.9186 |
|  |  |  |  |  |  |  |  |
| **Cotinine assay method** |  |  |  |  |  |  |  |
| Chromatography | 44 | Aliased |  |  | 2.6039 | 1.2892 | 3.9186 |
| Spectrometry | 41 | 1.3961 | 0.9408 | 0.1402 | 4.0001 | 2.6832 | 5.3170 |
| Immunoassay | 45 | 1.9381 | 1.0927 | 0.0784 (+) | 4.5421 | 2.8266 | 6.2575 |
| Other | 8 | 2.4027 | 2.0029 | 0.2324 | 5.0066 | 1.2696 | 8.7436 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

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By Study type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 2962418.0030 | (134) | 765570.7485 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.8714 | 0.4240 | 0.0000 +++ | 2.8714 | 2.0328 | 3.7099 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 86 | Aliased |  |  | 2.8714 | 2.0328 | 3.7099 |
| Pregnancy | 27 | 0.6044 | 0.9918 | 0.5433 | 3.4757 | 1.7023 | 5.2492 |
| Diseased or CC | 24 | 7.6580 | 1.3022 | 0.0000 +++ | 10.5293 | 8.0941 | 12.9646 |

By Age group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3027224.2183 | (133) | 700764.5331 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.6908 | 0.6577 | 0.0000 +++ | 4.6908 | 3.3899 | 5.9917 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 58 | Aliased |  |  | 4.6908 | 3.3899 | 5.9917 |
| Not young | 11 | 5.6695 | 1.6130 | 0.0006 +++ | 10.3603 | 7.4469 | 13.2737 |
| All ages | 45 | -2.4396 | 0.8329 | 0.0040 -- | 2.2512 | 1.2403 | 3.2622 |
| NS | 23 | -1.2790 | 1.4029 | 0.3636 | 3.4118 | 0.9607 | 5.8630 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

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By Awareness of validation by cotinine

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3698276.0625 | (134) | 29712.6889 | 0.5850 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.6545 | 2.1422 | 0.0316 + | 4.6545 | 0.4173 | 8.8916 |
|  |  |  |  |  |  |  |  |
| **Aware of checking by cotinine?** |  |  |  |  |  |  |  |
| Yes | 8 | Aliased |  |  | 4.6545 | 0.4173 | 8.8916 |
| No | 20 | 0.1907 | 2.5614 | 0.9408 | 4.8452 | 2.0679 | 7.6224 |
| NS | 109 | -1.1631 | 2.1862 | 0.5956 | 3.4914 | 2.6287 | 4.3541 |

By Time of publication

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3661573.7868 | (134) | 66414.9646 | 0.2999 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.2220 | 2.1018 | 0.1276 | 3.2220 | -0.9351 | 7.3792 |
|  |  |  |  |  |  |  |  |
| **Time of publication** |  |  |  |  |  |  |  |
| In 1995 review | 11 | Aliased |  |  | 3.2220 | -0.9351 | 7.3792 |
| Before 2003 | 52 | -0.3152 | 2.1978 | 0.8862 | 2.9068 | 1.6359 | 4.1777 |
| 2003 onwards | 74 | 0.9846 | 2.1708 | 0.6509 | 4.2066 | 3.1328 | 5.2805 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

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By Quality of study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3720864.1303 | (135) | 7124.6211 | 0.6120 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.2433 | 0.8958 | 0.0004 +++ | 3.2433 | 1.4716 | 5.0149 |
|  |  |  |  |  |  |  |  |
| **Study quality** |  |  |  |  |  |  |  |
| Good | 20 | Aliased |  |  | 3.2433 | 1.4716 | 5.0149 |
| Not good | 117 | 0.5118 | 1.0066 | 0.6120 | 3.7551 | 2.8469 | 4.6632 |

By Pregnancy (women only)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 421073.6149 | (56) | 8182.3311 | 0.3014 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.6346 | 0.5164 | 0.0000 +++ | 2.6346 | 1.6000 | 3.6692 |
|  |  |  |  |  |  |  |  |
| **Pregnancy** |  |  |  |  |  |  |  |
| Not pregnant | 30 | Aliased |  |  | 2.6346 | 1.6000 | 3.6692 |
| Pregnant | 28 | 0.7606 | 0.7291 | 0.3014 | 3.3952 | 2.3642 | 4.4262 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

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By Tobacco products considered

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3777738.7167 | (135) | 57956.2297 | 0.3578 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.8848 | 0.5630 | 0.0000 +++ | 2.8848 | 1.7712 | 3.9984 |
|  |  |  |  |  |  |  |  |
| **Tobacco products considered** |  |  |  |  |  |  |  |
| Cigarettes | 61 | Aliased |  |  | 2.8848 | 1.7712 | 3.9984 |
| Any smoking | 69 | 0.7534 | 0.7745 | 0.3324 | 3.6382 | 2.5863 | 4.6901 |
| Any tobacco | 8 | 3.0312 | 2.5161 | 0.2304 | 5.9159 | 1.0659 | 10.7660 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

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By Sex

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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3715590.9916 | (136) | 25967.5627 | 0.6228 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.1307 | 0.6933 | 0.0000 +++ | 3.1307 | 1.7596 | 4.5018 |
|  |  |  |  |  |  |  |  |
| **CARD3: RSex** |  |  |  |  |  |  |  |
| F | 58 | Aliased |  |  | 3.1307 | 1.7596 | 4.5018 |
| M | 23 | 0.7038 | 1.3472 | 0.6022 | 3.8345 | 1.5502 | 6.1189 |
| M+F | 58 | 0.8537 | 0.8857 | 0.3368 | 3.9844 | 2.8944 | 5.0744 |

By Location

|  |  |  |  |  |  |  |  |
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| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3529902.1513 | (133) | 198086.6002 | 0.0633 (\*) |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.9300 | 0.6853 | 0.0000 +++ | 3.9300 | 2.5746 | 5.2855 |
|  |  |  |  |  |  |  |  |
| **Location** |  |  |  |  |  |  |  |
| Canada/USA | 49 | Aliased |  |  | 3.9300 | 2.5746 | 5.2855 |
| Europe | 56 | -0.2382 | 0.8968 | 0.7910 | 3.6919 | 2.5475 | 4.8362 |
| Asia | 14 | -2.0839 | 1.2523 | 0.0985 (-) | 1.8462 | -0.2271 | 3.9195 |
| Other | 18 | 4.4696 | 2.3833 | 0.0629 (+) | 8.3996 | 3.8845 | 12.9147 |

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By Location x Sex

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|  |  |  |  |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 3435608.4765 | (125) | 292380.2749 | 0.4798 |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 4.4017 | 1.1116 | 0.0001 +++ | 4.4017 | 2.2016 | 6.6017 |
|  |  |  |  |  |  |  |  |
| **Location x Sex** |  |  |  |  |  |  |  |
| Canada/USA, F | 20 | Aliased |  |  | 4.4017 | 2.2016 | 6.6017 |
| Canada/USA, M | 8 | -0.5115 | 1.9415 | 0.7926 | 3.8901 | 0.7397 | 7.0405 |
| Canada/USA, M+F | 21 | -0.9009 | 1.5520 | 0.5627 | 3.5008 | 1.3571 | 5.6445 |
| Europe, F | 26 | -1.7737 | 1.6030 | 0.2707 | 2.6280 | 0.3419 | 4.9140 |
| Europe, M | 8 | 0.4418 | 2.6494 | 0.8678 | 4.8434 | 0.0836 | 9.6033 |
| Europe, M+F | 22 | -0.4049 | 1.3210 | 0.7597 | 3.9967 | 2.5840 | 5.4094 |
| Asia, F | 6 | -3.2036 | 1.8897 | 0.0925 (-) | 1.1981 | -1.8266 | 4.2227 |
| Asia, M | 3 | -2.2038 | 2.9642 | 0.4586 | 2.1978 | -3.2409 | 7.6365 |
| Asia, M+F | 5 | -1.8299 | 2.0922 | 0.3834 | 2.5717 | -0.9363 | 6.0798 |
| Other, F | 5 | -0.9598 | 5.1772 | 0.8532 | 3.4419 | -6.5659 | 13.4497 |
| Other, M | 3 | -0.1960 | 11.3873 | 0.9863 | 4.2056 | -18.2247 | 26.6359 |
| Other, M+F | 10 | 5.6346 | 2.9085 | 0.0550 (+) | 10.0362 | 4.7167 | 15.3557 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in all analyses, cut point 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 498.0000 |
| Morales\_MORALE2013 | M+F |  | Blood | 3 | 3 | NS | No | 3 | 2 |  | 1 | 1 | 0.0000 | 0.0000 | 177.0000 |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 0.0000 | 0.0000 | 64.0000 |
| Windham\_WINDHA1999A | F |  | Urine | 2 | 1 | Young | NS | 2 | 2 | 1 | 1 | 1 | 0.0000 | 0.0000 | 347.0000 |
| Akiyama\_AKIYAM1994 | F |  | Urine | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | Asia | 0.0000 | 0.0000 | 109.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 0.1739 | 1.0000 | 575.0000 |
| Jhun\_JHUN2010 | F |  | Urine | 1 | 2 | Young | No | 3 | 2 | 2 | 1 | Asia | 0.1951 | 2.0000 | 1025.0000 |
| KNHANES\_KANG2015-F | F | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 | 1 | 1 | Asia | 0.2027 | 11.0000 | 5427.0000 |
| Tsutsumi\_TSUTSU2002A-F | F |  | Urine | 1 | 1 | 2 | NS | 2 | 2 | 1 | 1 | Asia | 0.2037 | 1.0000 | 491.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 0.2278 | 1.0000 | 439.0000 |
| Hegaard\_HEGAAR2007 | F |  | Saliva | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 0.3706 | 0.9410 | 253.9410 |
| Fritz\_FRITZ2010A | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 2 | 0.3759 | 1.0000 | 266.0000 |
| Stookey\_STOOKE1987 | M+F |  | Saliva | 1 | 1 | NS | NS | 2 | 2 |  | 2 | 1 | 0.4511 | 0.4659 | 103.2712 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 0.4541 | 0.5475 | 120.5475 |
| Naraghi\_NARAGH2011 | F |  | Blood | 3 | 3 | NS | NS | 3 | 2 | 1 | 2 | 2 | 0.5682 | 1.0000 | 176.0000 |
| HSE\_OPCS1996A | M+F | 1994 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 0.6511 | 46.0000 | 7065.0000 |
| Barlow\_BARLOW1987 | F |  | Urine | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 0.8043 | 3.0000 | 373.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 0.8772 | 1.0000 | 114.0000 |
| Bauld\_BAULD2012 | F |  | Urine | 1 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 0.8958 | 11.0000 | 1228.0000 |
| George\_GEORGE2006 | F | early pregnancy | Blood | 1 | 2 | Young | No | 3 | Good | 2 | 2 | 2 | 0.9736 | 7.0000 | 719.0000 |
| INMA\_AURREK2013 | F | 2004-08 | Urine | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 1.0152 | 18.0000 | 1773.0000 |
| Ellard II\_ELLARD1996 | F |  | Urine | 1 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 1.0251 | 20.0000 | 1951.0000 |
| Khuri\_KHURI2001 | M+F |  | Blood | Other | 3 | 2 | NS | 2 | 2 |  | 2 | 1 | 1.0638 | 7.0000 | 658.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 1.0975 | 1.8643 | 169.8643 |
| van Vunakis\_VANVUN1989 | M+F |  | Saliva | 3 | 1 | NS | NS | 1 | 2 |  | 1 | 1 | 1.1050 | 2.0000 | 181.0000 |
| Stick\_STICK1996 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 4 | 1.1364 | 2.0000 | 176.0000 |
| Phillipou\_PHILLI1994C | M+F |  | Urine | 3 | 3 | NS | No | 2 | 2 |  | 2 | 4 | 1.2346 | 2.0000 | 162.0000 |
| SHS\_LU2014A | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 1.2636 | 94.0000 | 7439.0000 |
| Wewers I\_WEWERS1995 | F |  | Saliva | 1 | 1 | NS | No | 2 | 2 | 1 | 1 | 1 | 1.3258 | 7.0000 | 528.0000 |
| MONICA Germany\_HELLER1998-older | F | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 | 1 | 2 | 2 | 1.3480 | 11.0000 | 816.0000 |
| Tabara\_TABARA2013 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | Asia | 1.3512 | 100.0000 | 7401.0000 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 1.4925 | 15.0000 | 1005.0000 |
| NHANES\_CARABA2016-young | F | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 1.5834 | 13.0000 | 821.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.5873 | 7.0000 | 441.0000 |
| Nguyen\_NGUYEN2007 | M+F |  | Blood | 1 | 3 | 3 | No | 3 | 2 |  | 2 | 2 | 1.5873 | 3.0000 | 189.0000 |
| Dolcini\_DOLCIN2003 | M+F | Adolescents | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 1 | 1 | 1.6451 | 28.0000 | 1702.0000 |
| CHMS\_WONG2012 | M+F |  | Urine | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 1.6979 | 58.0000 | 3416.0000 |
| KNHANES\_KANG2015-M | M | 2008-2009 | Urine | 2 | 1 | 3 | NS | 3 | 2 |  | 1 | Asia | 1.7417 | 48.0000 | 2756.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 1.8038 | 32.0000 | 1774.0000 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 1.8605 | 8.0000 | 430.0000 |
| Osaka factory\_YAMAMO2005 | M+F |  | Saliva | 3 | 1 | 3 | NS | 3 | 2 |  | 2 | Asia | 1.8750 | 3.0000 | 160.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 1.8797 | 45.0000 | 2394.0000 |
| Anderson\_ANDERS2009A | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 1.8868 | 4.0000 | 212.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 1.9078 | 96.0000 | 5032.0000 |
| MONICA Scotland\_CHEN2002D | M | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.9254 | 16.0000 | 831.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH white, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 2.0653 | 93.0000 | 4503.0000 |
| Hoseini\_HOSEIN2016 | M+F |  | Urine | 3 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 2.1277 | 3.0000 | 141.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 2.1552 | 5.0000 | 232.0000 |
| HSE\_JARVIS2008-any-smoking | M+F | 1996-2004, Any smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.1584 | 582.0000 | 26964.0000 |
| Owen\_OWEN2001 | F |  | Saliva | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 2.2444 | 9.0000 | 401.0000 |
| Shaffer\_SHAFFE2000 | M+F |  | Blood | Other | 1 | 3 | Yes | 2 | 2 |  | 3 | 1 | 2.2956 | 48.0000 | 2091.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 2.3091 | 78.0000 | 3378.0000 |
| Naraghi\_NARAGH2011 | M |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 2.3256 | 1.0000 | 43.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 2.3271 | 10.6739 | 458.6739 |
| Muranaka\_MURANA1988 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | Asia | 2.3529 | 2.0000 | 85.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 3 and 4 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.3739 | 24.0000 | 1011.0000 |
| Twardella II\_TWARDE2004 | M+F |  | Blood | 3 | 3 | 2 | No | 3 | 2 |  | 1 | 2 | 2.3895 | 20.0000 | 837.0000 |
| MONICA Scotland\_CHEN2002D | F | Surveys 1 and 2 | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 2 | 2.6749 | 13.0000 | 486.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 2.6846 | 8.0000 | 298.0000 |
| Stanton\_STANTO1996 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 2 | 4 | 2.6871 | 14.0000 | 521.0000 |
| Sasaki\_SASAKI2011 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | Asia | 2.6929 | 119.0000 | 4419.0000 |
| NHANES\_CARABA2016-adult | F | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good | 1 | 1 | 1 | 2.7110 | 71.0000 | 2619.0000 |
| Shipton\_SHIPTO2009 | F | N adjusted | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 2.7614 | 61.0000 | 2209.0000 |
| NHANES\_CARABA2004 | M | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 2.8024 | 19.0000 | 678.0000 |
| Tikkanen\_TIKKAN2010 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 2.8103 | 12.0000 | 427.0000 |
| Kharrazi\_KHARRA1999 | F |  | Blood | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 2.8133 | 22.0000 | 782.0000 |
| Mathews\_MATHEW1999A | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 2.8340 | 14.0000 | 494.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 2.8653 | 10.0000 | 349.0000 |
| Martinez-Sanchez\_MARTIN2009C | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 2.8822 | 23.0000 | 798.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 2.9358 | 16.0000 | 545.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 3.0457 | 12.0000 | 394.0000 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 3.0750 | 21.0754 | 685.3690 |
| West III\_WEST2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 3.0973 | 7.0000 | 226.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 3.1311 | 16.0000 | 511.0000 |
| NHANES\_LINDSA2014-adult | M+F | 1999-2000, age 20+ | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 3.1536 | 86.0000 | 2727.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 3.3333 | 2.0000 | 60.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tsutsumi\_TSUTSU2002A-M | M |  | Urine | 1 | 1 | 2 | NS | 2 | 2 |  | 1 | Asia | 3.5971 | 30.0000 | 834.0000 |
| Slattery II\_SLATTE1989A | F |  | Blood | 3 | 3 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 3.6364 | 14.0000 | 385.0000 |
| CHDS\_ENGLIS1994 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 1 | 3.6731 | 80.0000 | 2178.0000 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH black, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 3.7383 | 28.0000 | 749.0000 |
| Yeh\_YEH2011 | M+F | LC-MS/MS method | Urine | 2 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 3.7684 | 3.9159 | 103.9159 |
| Jarvis I\_JARVIS1987A | M+F |  | Blood | 1 | 3 | NS | NS | 1 | 2 |  | 2 | 2 | 3.8462 | 4.0000 | 104.0000 |
| Akiyama\_AKIYAM1994 | M |  | Urine | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | Asia | 4.0000 | 2.0000 | 50.0000 |
| Badger\_BADGER2009 | M+F |  | Blood | 3 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 4.0541 | 12.0000 | 296.0000 |
| Spencer I\_SPENCE1998 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 2 | 4.4386 | 17.0000 | 383.0000 |
| Ulvik II\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 4.4485 | 98.0000 | 2203.0000 |
| NHANES\_LINDSA2014-young | M+F | 1999-2000, age12-19 | Blood | 2 | 1 | Young | NS | 3 | Good |  | 2 | 1 | 4.4929 | 66.0000 | 1469.0000 |
| Olivieri\_OLIVIE2002 | M+F |  | Blood | 3 | 1 | NS | NS | 2 | 2 |  | 2 | 2 | 4.5082 | 11.0000 | 244.0000 |
| Luepker\_LUEPKE1989 | M+F | home IV | Saliva | 1 | 1 | Young | NS | 1 | 2 |  | 1 | 1 | 4.5161 | 10.1835 | 225.4933 |
| NHANES\_CARABA2004 | F | 1988-1994, age 12-17 | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 4.5728 | 38.0000 | 831.0000 |
| Etter\_ETTER2000A | M+F |  | Saliva | 1 | 1 | Young | NS | 2 | 2 |  | 1 | 2 | 4.7119 | 4.5987 | 97.5987 |
| Molina\_MOLINA2010 | F |  | Saliva | 3 | 1 | Young | NS | 3 | 2 | 1 | 2 | 2 | 4.7468 | 15.0000 | 316.0000 |
| Ceppa\_CEPPA2000 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 2 | 2 | 4.8257 | 18.0000 | 373.0000 |
| de Chazeron\_DECHAZ2008 | F |  | Blood | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 4.8593 | 38.0000 | 782.0000 |
| Lee Anna\_LEE2013TE | M+F |  | Urine | 2 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 4.9628 | 20.0000 | 403.0000 |
| Wewers I\_WEWERS1995 | M |  | Saliva | 1 | 1 | NS | No | 2 | 2 |  | 1 | 1 | 4.9887 | 22.0000 | 441.0000 |
| NHANES\_CARABA2016-adult | M | 2001-2012, NH black, 26+yrs | Blood | 2 | 1 | 3 | NS | 3 | Good |  | 1 | 1 | 5.1011 | 106.0000 | 2078.0000 |
| Perez-Stable\_PEREZS1992 | M+F |  | Blood | 1 | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 5.1676 | 9.6450 | 186.6450 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH black, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 5.2897 | 21.0000 | 397.0000 |
| Goniewicz\_GONIEW2011 | M+F |  | Urine | 2 | 1 | NS | NS | 3 | 2 |  | 2 | 4 | 5.3640 | 14.0000 | 261.0000 |
| Waggoner\_WAGGON2010 | F |  | Urine | 3 | 3 | 3 | NS | 3 | 2 | 1 | 1 | 1 | 5.4878 | 9.0000 | 164.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 5.5369 | 33.0000 | 596.0000 |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 5.7954 | 13.4728 | 232.4728 |
| NHANES\_CARABA2016-young | M | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 5.8340 | 78.0000 | 1337.0000 |
| Dickinson\_DICKIN1988 | M+F |  | Saliva | 1 | 1 | 3 | NS | 1 | 2 |  | 2 | 4 | 5.9946 | 22.0000 | 367.0000 |
| Assaf\_ASSAF2002-F | F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 | 1 | 1 | 1 | 6.0606 | 18.0000 | 297.0000 |
| MONICA Germany\_HELLER1998-young | F | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 | 1 | 2 | 2 | 6.2780 | 42.0000 | 669.0000 |
| Messeri\_MESSER2007A | M+F |  | Saliva | Other | 1 | Young | NS | 3 | 2 |  | 1 | 1 | 6.3970 | 272.0000 | 4252.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 6.5431 | 60.0000 | 917.0000 |
| Kim\_KIM2014J | M+F |  | Saliva | 2 | 1 | 3 | NS | 3 | Good |  | 2 | 1 | 6.5934 | 12.0000 | 182.0000 |
| Spencer II\_SPENCE2013 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 2 | 6.6906 | 24.8096 | 370.8096 |
| Kandel\_KANDEL2006 | M+F |  | Saliva | 3 | 1 | Young | Yes | 3 | 2 |  | 3 | 1 | 7.1934 | 61.0000 | 848.0000 |
| NHANES\_CARABA2016-young-adult | F | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 7.4733 | 63.0000 | 843.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 7.7922 | 6.0000 | 77.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in all analyses, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_CARABA2016-young | F | 2001-2012, NH white, 12-17yrs | Blood | 2 | 1 | Young | NS | 3 | Good | 1 | 1 | 1 | 7.8966 | 110.0000 | 1393.0000 |
| Fendrich\_FENDRI2005 | M+F |  | Saliva | Other | 1 | Young | No | 3 | 2 |  | 3 | 1 | 7.9027 | 26.0000 | 329.0000 |
| NHANES\_CARABA2016-young-adult | M | 2001-2012, NH white, 18-25yrs | Blood | 2 | 1 | Young | NS | 3 | Good |  | 1 | 1 | 8.2707 | 55.0000 | 665.0000 |
| MONICA Germany\_HELLER1998-older | M | 45-64 | Blood | 3 | 1 | 2 | NS | 2 | 2 |  | 2 | 2 | 8.2734 | 46.0000 | 556.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 8.5714 | 12.0000 | 140.0000 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 8.6643 | 24.0000 | 277.0000 |
| Klebanoff\_KLEBAN1998 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 9.3284 | 25.0000 | 268.0000 |
| Haddow II\_HADDOW1988A | F |  | Blood | 3 | 2 | Young | No | 2 | 2 | 2 | 2 | 1 | 9.4437 | 331.0000 | 3505.0000 |
| Wallner-Liebmann\_WALLNE2013 | M+F |  | Blood | 3 | 3 | NS | NS | 3 | 2 |  | 2 | 2 | 9.9326 | 280.0000 | 2819.0000 |
| Semple\_SEMPLE2007 | M+F |  | Saliva | 1 | 1 | 3 | NS | 3 | 2 |  | 2 | 2 | 10.6383 | 15.0000 | 141.0000 |
| Seersholm\_SEERSH1999 | M+F |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 10.9929 | 31.0000 | 282.0000 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 11.1565 | 42.6955 | 382.6955 |
| McNeill\_MCNEIL1987 | F |  | Saliva | 1 | 1 | Young | Yes | 2 | 2 | 1 | 1 | 2 | 13.8381 | 53.0000 | 383.0000 |
| Xie I\_XIE2009 | M+F |  | Blood | 1 | 3 | 3 | NS | 3 | 2 |  | 1 | Asia | 14.2857 | 100.0000 | 700.0000 |
| MONICA Germany\_HELLER1998-young | M | 25-44 | Blood | 3 | 1 | Young | NS | 2 | 2 |  | 2 | 2 | 14.6341 | 72.0000 | 492.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 15.0000 | 6.0000 | 40.0000 |
| Salzer\_SALZER2013 | M+F |  | Blood | 3 | 3 | Young | No | 3 | 2 |  | 3 | 2 | 17.3913 | 44.0000 | 253.0000 |
| Valladolid-Lopez\_VALLAD2015 | M+F |  | Urine | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 4 | 18.3017 | 222.0000 | 1213.0000 |
| Levine\_LEVINE2013 | M+F |  | Urine | 2 | 1 | 3 | Yes | 3 | 2 |  | 2 | 4 | 18.5393 | 33.0000 | 178.0000 |
| Brunet\_BRUNET2011 | M+F |  | Blood | 3 | 3 | 3 | NS | 3 | 2 |  | 1 | 4 | 18.8776 | 37.0000 | 196.0000 |
| Noland\_NOLAND1988 | M+F |  | Saliva | 3 | 1 | Young | Yes | 2 | 2 |  | 3 | 1 | 20.8556 | 39.0000 | 187.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 25.5814 | 11.0000 | 43.0000 |
| Ulvik I\_ULVIK2010 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 2 | 2 | 31.5616 | 861.0000 | 2728.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

Additional results included in analysis by Sex, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_WARDLE2003-non-curr | M | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 |  | 1 | 2 | 4.3053 | 44.0000 | 1022.0000 |
| HSE\_WARDLE2003-non-curr | F | 2002, by sex | Saliva | 1 | 1 | Young | NS | 3 | 2 | 1 | 1 | 2 | 7.0435 | 81.0000 | 1150.0000 |

Additional results included in analysis by Body fluid tested, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hellemons\_HELLEM2015 | M+F | plasma | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 0.2242 | 1.0000 | 446.0000 |

Additional results included in analysis by Assay method, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yeh\_YEH2011-strip | M+F | Test strip method | Urine | 1 | 1 | NS | Yes | 3 | 2 |  | 3 | 1 | 2.7691 | 2.8479 | 102.8479 |

Additional results included in analysis by Pregnancy, cut point 1

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| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NHANES\_DIETZ2011-pregnant | F | 1999-2006, pregnant | Blood | 2 | 2 | Young | NS | 3 | Good | 2 | 1 | 1 | 0.9009 | 8.0000 | 888.0000 |

Additional results included in analysis by Smoking product considered, cut point 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC1** | **N\_Cut1** | **Weight1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HSE\_JARVIS2008-cig-smoking | M+F | 1996-2004, Cigarette smoking at nurse visit | Saliva | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 2 | 1.4864 | 398.0000 | 26776.0000 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in overall analyses, cut point 2

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Zielinska-Danch\_ZIELIN2007 | M+F |  | Urine | 1 | 1 | 3 | NS | 3 | 2 |  | 1 | 2 | 0.0000 | 0.0000 | 195.0000 |
| Martinez\_MARTIN2004 | M+F |  | Blood | 1 | 3 | 2 | NS | 3 | 2 |  | 2 | 1 | 0.4335 | 3.0000 | 692.0000 |
| Hellemons\_HELLEM2015 | M+F | urine | Blood | 3 | 3 | NS | No | 3 | 2 |  | 2 | 2 | 0.8696 | 4.0000 | 460.0000 |
| Niedbala\_NIEDBA2002 | M+F |  | Urine | 3 | 1 | NS | NS | 2 | Good |  | 3 | 1 | 1.9964 | 1.1000 | 55.1000 |
| Agewall\_AGEWAL2002 | M |  | Urine | 3 | 3 | 2 | NS | 2 | 2 |  | 2 | 2 | 2.2989 | 6.0000 | 261.0000 |
| Smith UK\_SMITH1998C | M+F |  | Urine | 1 | 3 | 3 | NS | 2 | 2 |  | 2 | 2 | 2.3663 | 3.1022 | 131.1022 |
| Parna\_PARNA2005 | F |  | Blood | 3 | 2 | Young | NS | 3 | 2 | 2 | 2 | 2 | 2.9110 | 34.0000 | 1168.0000 |
| Lee Chung Yul\_LEE2009TC | F |  | Urine | 1 | 1 | NS | No | 3 | 2 | 1 | 2 | Asia | 3.0000 | 3.0000 | 100.0000 |
| TEC\_PEARCE2014 | M | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 3.2258 | 2.0000 | 62.0000 |
| Haddow I\_HADDOW1986 | F |  | Blood | 3 | 1 | NS | NS | 1 | 2 | 1 | 1 | 1 | 3.3473 | 8.0000 | 239.0000 |
| FINRISK\_VARTIA2002 | F |  | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 2 | 3.5317 | 89.0000 | 2520.0000 |
| Laatikainen I\_LAATIK1999 | F | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 | 1 | 2 | 4 | 3.5616 | 13.0000 | 365.0000 |
| Lee Chung Yul\_LEE2009TC | M |  | Urine | 1 | 1 | NS | No | 3 | 2 |  | 2 | Asia | 3.9216 | 6.0000 | 153.0000 |
| Sato\_SATO2003A | M+F |  | Blood | 1 | 3 | NS | NS | 3 | 2 |  | 1 | Asia | 4.2471 | 11.0000 | 259.0000 |
| Lifestyle and Appetite\_LEE1986B | F |  | Saliva | 1 | 1 | 3 | No | 2 | 2 | 1 | 3 | 2 | 4.5004 | 21.3477 | 474.3477 |
| FINRISK\_VARTIA2002 | M |  | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 2 | 4.9582 | 95.0000 | 1916.0000 |
| Coultas\_WELLS1998C | M |  | Saliva | Other | 1 | 3 | NS | 1 | 2 |  | 1 | 1 | 4.9822 | 14.0000 | 281.0000 |
| EHLS\_NONDAH2004 | M+F |  | Blood | 2 | 3 | 2 | NS | 3 | 2 |  | 1 | 1 | 5.1661 | 28.0000 | 542.0000 |
| Pojer\_POJER1984 | M+F |  | Blood | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 4 | 5.1844 | 9.7875 | 188.7875 |
| Ogden\_OGDEN1997 | F |  | Saliva | 3 | 1 | 3 | No | 2 | 2 | 1 | 1 | 1 | 5.4235 | 38.6382 | 712.4204 |
| Ford\_FORD1997 | F |  | Blood | 3 | 2 | Young | NS | 2 | 2 | 2 | 2 | 4 | 6.2099 | 29.0000 | 467.0000 |
| Lee II\_LEE1995B | F |  | Urine | 3 | 1 | 3 | No | 1 | 2 | 1 | 2 | Asia | 6.6456 | 21.0000 | 316.0000 |
| Laatikainen I\_LAATIK1999 | M | Pitkäranta | Blood | 2 | 1 | 3 | NS | 2 | 2 |  | 2 | 4 | 7.0313 | 9.0000 | 128.0000 |
| Burstyn\_BURSTY2009 | F |  | Blood | 3 | 2 | Young | No | 3 | 2 | 2 | 2 | 1 | 7.1655 | 20.8761 | 291.3411 |
| Markovic\_MARKOV2000 | F |  | Urine | 2 | 2 | Young | NS | 2 | 2 | 2 | 1 | 1 | 7.6125 | 44.0000 | 578.0000 |
| DC-HOPE\_ELMOHA2009 | F | Non, current smokers | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 1 | 1 | 7.8431 | 48.0000 | 612.0000 |
| Assaf\_ASSAF2002-M | M |  | Blood | 1 | 1 | 3 | NS | 2 | 2 |  | 1 | 1 | 8.0214 | 15.0000 | 187.0000 |
| Gill\_GILL1996 | M+F |  | Urine | 1 | 3 | NS | NS | 2 | 2 |  | 1 | 4 | 8.8608 | 14.0000 | 158.0000 |
| Gilligan\_GILLIG2010 | F |  | Urine | 3 | 2 | Young | Yes | 3 | 2 | 2 | 2 | 4 | 9.0909 | 7.0000 | 77.0000 |
| Bardy\_BARDY1993 | F |  | Blood | 2 | 2 | Young | No | 2 | 2 | 2 | 2 | 2 | 9.1964 | 103.0000 | 1120.0000 |
| Wagenknecht\_WAGENK1992 | M+F |  | Blood | 3 | 1 | Young | NS | 1 | Good |  | 1 | 1 | 9.4184 | 353.0000 | 3748.0000 |
| Coultas\_WELLS1998C | F |  | Saliva | Other | 1 | 3 | NS | 1 | 2 | 1 | 1 | 1 | 9.7610 | 49.0000 | 502.0000 |
| Pierce\_PIERCE1987 | M+F |  | Saliva | 1 | 1 | 3 | No | 1 | 2 |  | 2 | 4 | 9.8068 | 66.0000 | 673.0000 |
| Lindqvist\_LINDQV2002 | F |  | Blood | 1 | 2 | Young | No | 2 | 2 | 2 | 1 | 2 | 12.3620 | 56.0000 | 453.0000 |
| Copenhagen\_SUADIC1997 | M | 1985-86, with or without CVD | Blood | 3 | 3 | 2 | NS | 2 | 2 |  | 3 | 2 | 13.1778 | 209.0000 | 1586.0000 |
| Parker\_PARKER2002 | M+F | GC method | Urine | 1 | 1 | NS | NS | 2 | 2 |  | 1 | 1 | 13.4228 | 20.0000 | 149.0000 |
| TEC\_PEARCE2014 | F | Non-indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 14.2857 | 12.0000 | 84.0000 |
| Peacock\_PEACOC1998 | F | booking visit | Blood | 1 | 2 | Young | NS | 2 | 2 | 2 | 1 | 2 | 14.3422 | 145.0000 | 1011.0000 |

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Rate M11: Percentage of True non-smokers who report being Current smokers

Results included in overall analyses, cut point 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Id** | **RSex** | **Select** | **Fluid** | **Assay** | **Type** | **AgeGp** | **Aware?** | **Publ** | **Quality** | **Pregn** | **Prod** | **Locn** | **RateC2** | **N\_Cut2** | **Weight2** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BUPA\_WALD1984 | M |  | Urine | 3 | 1 | NS | NS | 1 | 2 |  | 2 | 2 | 15.4612 | 40.4185 | 261.4185 |
| Lifestyle and Appetite\_LEE1986B | M |  | Saliva | 1 | 1 | 3 | No | 2 | 2 |  | 3 | 2 | 15.6952 | 64.0432 | 408.0432 |
| Smith USA\_SMITH2014B | F |  | Saliva | 2 | 2 | Young | NS | 3 | 2 | 2 | 2 | 1 | 24.3402 | 83.0000 | 341.0000 |
| ABC\_PEARCE2014 | M | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 |  | 2 | 4 | 33.3333 | 19.0000 | 57.0000 |
| ABC\_PEARCE2014 | F | Indigenous | Urine | Other | 1 | Young | NS | 3 | 2 | 1 | 2 | 4 | 39.4366 | 28.0000 | 71.0000 |

Meta-analysis of Misclassification of smoking habit, 19-OCT-18 15:10:45

Rate M11: Percentage of True non-smokers who report being Current smokers

Multivariate analysis

Variables selected according to significance (no variables forced in)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEIGHTED on Number of True non-smokers, cut point 1** |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** |  |  |  |  |
| **Misclassification rate, cut point 1** |  |  |  |  |  |  |  |
| **Model 1** |  | 3727988.7515 | (136) |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 3.6486 | 0.4075 | 0.0000 +++ | 3.6486 | 2.8427 | 4.4545 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 2** |  | 2962418.0030 | (134) | 765570.7485 | 0.0000 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 2.8714 | 0.4240 | 0.0000 +++ | 2.8714 | 2.0328 | 3.7099 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 86 | Aliased |  |  | 2.8714 | 2.0328 | 3.7099 |
| Pregnancy | 27 | 0.6044 | 0.9918 | 0.5433 | 3.4757 | 1.7023 | 5.2492 |
| Diseased or CC | 24 | 7.6580 | 1.3022 | 0.0000 +++ | 10.5293 | 8.0941 | 12.9646 |
|  |  |  |  |  |  |  |  |
|  |  | **Deviance** | **(DF)** | **Drop Dev** | **P** |  |  |
| **Model 3** |  | 2586156.7948 | (131) | 376261.2081 | 0.0005 \*\*\* |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Estimate** | **S.E.** | **P** | **LSMean** | **95%CIl** | **95%CIu** |
| **Constant** |  | 5.9509 | 0.8865 | 0.0000 +++ | 5.9509 | 4.1970 | 7.7047 |
|  |  |  |  |  |  |  |  |
| **Study type** |  |  |  |  |  |  |  |
| General pop. | 86 | Aliased |  |  | 3.4499 | 2.6040 | 4.2957 |
| Pregnancy | 27 | -2.4751 | 1.2263 | 0.0456 - | 0.9747 | -1.1752 | 3.1246 |
| Diseased or CC | 24 | 6.9162 | 1.6286 | 0.0000 +++ | 10.3661 | 7.3285 | 13.4037 |
|  |  |  |  |  |  |  |  |
| **Age group** |  |  |  |  |  |  |  |
| Young | 58 | Aliased |  |  | 6.1496 | 4.6396 | 7.6596 |
| Not young | 11 | -0.7290 | 2.0228 | 0.7191 | 5.4206 | 1.9633 | 8.8779 |
| All ages | 45 | -3.8709 | 1.0064 | 0.0002 --- | 2.2787 | 1.2327 | 3.3247 |
| NS | 23 | -4.5818 | 1.5276 | 0.0032 -- | 1.5677 | -0.8434 | 3.9789 |

**TITLE** Misclassification of smoking habits. An updated review of the literature

**Authors** J.S. Hamling1, K.J. Coombs2, P.N. Lee2

**Supplementary File 4**

**Summary of meta-analyses by level of each factor**

TABLE S1 Misclassification rates by body fluid

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | Urine | |  | Saliva | |  | Blood | |  |  |
| Rate | | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | | 50 | 4.5 (3.0 to 5.9) |  | 60 | 4.8 (3.6 to 6.0) |  | 102 | 5.1 (4.3 to 6.0) |  | 0.740 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | | 16 | 2.6 (1.4 to 3.8) |  | 22 | 3.4 (2.0 to 4.9) |  | 49 | 3.0 (2.4 to 3.7) |  | 0.664 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | | 18 | 12.1 (8.0 to 16.2) |  | 25 | 15.6 (10.9 to 20.3) |  | 46 | 9.8 (7.9 to 11.8) |  | 0.071 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | | 36 | 7.0 (2.2 to 11.8) |  | 33 | 7.8 (4.4 to 11.3) |  | 74 | 11.5 (8.9 to 14.2) |  | 0.125 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | | 33 | 14.98 (9.5 to 20.5) |  | 30 | 13.7 (9.8 to 17.7) |  | 74 | 14.8 (11.9 to 17.7) |  | 0.897 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | | 9 | 9.3 (2.9 to 15.6) |  | 10 | 10.9 (3.8 to 18.1) |  | 34 | 4.2 (1.4 to 7.0) |  | 0.113 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | | 9 | 5.3 (−0.8 to 11.4) |  | 10 | 5.4 (−1.4 to 12.3) |  | 34 | 10.2 (7.5 to 12.9) |  | 0.189 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | | 44 | 14.9 (10.6 to 19.3) |  | 46 | 10.4 (7.5 to 13.3) |  | 96 | 11.4 (9.4 to 13.5) |  | 0.238 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | | 11 | 8.4 (3.1 to 13.7) |  | 14 | 9.1 (3.7 to 14.5) |  | 42 | 3.4 (1.3 to 5.5) |  | 0.052 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | | 11 | 4.8 (−0.3 to 9.9) |  | 14 | 5.5 (0.4 to 10.7) |  | 42 | 8.5 (6.5 to 10.5) |  | 0.265 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | | 34 | 2.2 (0.4 to 4.0) |  | 30 | 2.9 (1.5 to 4.4) |  | 74 | 4.6 (3.5 to 5.7) |  | 0.044 |
|  |  | |  |  |  |  |  |  |  |  |  |  |

TABLE S2 Misclassification rates by assay method

|  |  | Chromatography | |  | Spectrometry | |  | Immunoassay | |  | Other | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 62 | 4.6 (3.5 to 5.7) |  | 56 | 4.8 (3.7 to 5.9) |  | 80 | 5.4 (4.1 to 6.7) |  | 12 | 6.6 (3.3 to 9.9) |  | 0.582 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 35 | 2.6 (1.6 to 3.6) |  | 19 | 3.6 (2.8 to 4.4) |  | 27 | 2.1 (0.9 to 3.3) |  | 5 | 3.9 (0.8 to 6.9) |  | 0.160 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 29 | 8.8 (5.8 to 11.8) |  | 15 | 10.1 (7.4 to 12.8) |  | 32 | 11.5 (8.4 to 14.7) |  | 12 | 19.0 (13.6 to 24.5) |  | 0.014 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 45 | 6.5 (3.4 to 9.6) |  | 41 | 13.1 (9.6 to 16.6) |  | 49 | 9.9 (6.3 to 13.5) |  | 8 | 13.0 (4.1 to 21.8) |  | 0.040 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 44 | 12.2 (8.9 to 15.6) |  | 41 | 17.7 (13.9 to 21.5) |  | 44 | 14.0 (9.7 to 18.3) |  | 8 | 15.7 (6.0 to 25.5) |  | 0.208 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 19 | 5.1 (0.7 to 9.4) |  | 13 | 7.0 (2.7 to 11.3) |  | 18 | 5.3 (−0.2 to 10.8) |  | 2 | 3.9 (−5.4 to 13.1) |  | 0.891 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 19 | 5.8 (1.9 to 9.8) |  | 13 | 10.5 (6.6 to 14.4) |  | 18 | 10.0 (5.1 to 15.1) |  | 2 | 12.2 (3.8 to 20.7) |  | 0.284 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 58 | 9.3 (6.8 to 11.8) |  | 51 | 13.6 (10.8 to 16.3) |  | 65 | 12.2 (8.9 to 15.4) |  | 12 | 15.1 (7.3 to 22.9) |  | 0.104 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 25 | 4.2 (1.0 to 7.5) |  | 13 | 6.1 (2.6 to 9.6) |  | 23 | 3.6 (−0.2 to 7.4) |  | 5 | 4.1 (−3.1 to 11.3) |  | 0.783 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 25 | 5.7 (2.8 to 8.7) |  | 13 | 9.2 (6.0 to 12.4) |  | 23 | 7.9 (4.5 to 11.4) |  | 5 | 10.8 (4.2 to 17.4) |  | 0.317 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 44 | 2.6 (1.3 to 3.9) |  | 41 | 4.0 (2.7 to 5.3) |  | 45 | 4.5 (2.8 to 6.3) |  | 8 | 5.0 (1.3 to 8.7) |  | 0.233 |

TABLE S3 Misclassification rates by study type

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | General population | |  | Pregnancy | |  | Diseased or Case control | |  |  |
| Rate | | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | | 138 | 4.5 (3.8 to 5.2) |  | 38 | 5.6 (3.9 to 7.2) |  | 34 | 8.3 (6.1 to 10.6) |  | 0.006 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | | 66 | 2.9 (2.3 to 3.5) |  | 2 | 4.5 (1.2 to 7.8) |  | 18 | 3.4 (1.3 to 5.4) |  | 0.617 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | | 53 | 8.7 (6.9 to 10.6) |  | 13 | 22.7 (17.8 to 27.5) |  | 22 | 12.0 (9.2 to 14.8) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | | 88 | 8.0 (5.9 to 10.2) |  | 28 | 8.5 (4.4 to 12.6) |  | 26 | 21.9 (16.5 to 27.3) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | | 86 | 13.9 (11.4 to 16.3) |  | 26 | 12.9 (8.1 to 17.8) |  | 24 | 24.3 (16.7 to 31.9) |  | 0.032 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | | 35 | 5.7 (2.8 to 8.5) |  | 2 | 8.6 (−3.1 to 20.4) |  | 15 | 5.0 (−1.5 to 11.5) |  | 0.862 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | | 35 | 6.6 (4.5 to 8.7) |  | 2 | 9.4 (0.7 to 18.1) |  | 15 | 21.3 (16.5 to 26.1) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | | 121 | 11.2 (9.4 to 13.1) |  | 32 | 12.6 (8.4 to 16.9) |  | 33 | 12.4 (7.9 to 17.0) |  | 0.771 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | | 47 | 4.8 (2.6 to 6.9) |  | 2 | 8.1 (−1.8 to 18.1) |  | 17 | 3.4 (−1.2 to 7.9) |  | 0.664 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | | 47 | 6.0 (4.2 to 7.8) |  | 2 | 8.9 (0.7 to 17.1) |  | 17 | 15.1 (11.4 to 18.8) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | | 86 | 2.9 (2.0 to 3.7) |  | 27 | 3.5 (1.7 to 5.2) |  | 24 | 10.5 (8.1 to 13.0) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |

TABLE S4 Misclassification rates by age group

|  |  | Young | |  | Not young | |  | All ages | |  | Not stated | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 78 | 5.3 (4.1 to 6.6) |  | 21 | 4.4 (2.6 to 6.3) |  | 81 | 5.1 (4.2 to 5.9) |  | 29 | 3.6 (1.3 to 6.0) |  | 0.596 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 9 | 4.2 (2.6 to 5.9) |  | 17 | 2.8 (1.5 to 4.0) |  | 41 | 3.3 (2.6 to 4.0) |  | 20 | 1.3 (0.1 to 2.6) |  | 0.021 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 20 | 18.8 (14.6 to 23.0) |  | 16 | 11.6 (8.7 to 14.6) |  | 38 | 9.4 (7.0 to 11.7) |  | 14 | 7.1 (3.3 to 11.0) |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 59 | 13.2 (9.9 to 16.4) |  | 12 | 20.4 (14.3 to 26.6) |  | 46 | 5.8 (3.3 to 8.3) |  | 25 | 11.0 (4.3 to 17.6) |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 57 | 15.0 (11.1 to 18.9) |  | 11 | 22.6 (13.7 to 31.4) |  | 45 | 13.7 (10.9 to 16.5) |  | 23 | 12.2 (3.8 to 20.5) |  | 0.271 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 8 | 7.5 (1.6 to 13.4) |  | 12 | 5.4 (0.0 to 10.7) |  | 21 | 5.4 (1.7 to 9.1) |  | 11 | 4.6 (−3.2 to 12.5) |  | 0.922 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 8 | 5.4 (0.6 to 10.2) |  | 12 | 16.4 (12.1 to 20.8) |  | 21 | 6.5 (3.4 to 9.5) |  | 11 | 10.1 (3.7 to 16.5) |  | 0.002 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 71 | 13.3 (10.1 to 16.4) |  | 18 | 10.0 (5.4 to 14.6) |  | 68 | 12.2 (10.1 to 14.4) |  | 28 | 6.2 (1.3 to 11.0) |  | 0.084 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 9 | 6.9 (2.0 to 11.7) |  | 13 | 4.4 (0.2 to 8.7) |  | 32 | 4.3 (1.6 to 7.0) |  | 12 | 3.4 (−2.3 to 9.1) |  | 0.786 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 9 | 5.0 (0.9 to 9.1) |  | 13 | 13.8 (10.3 to 17.3) |  | 32 | 5.9 (3.6 to 8.1) |  | 12 | 8.8 (4.0 to 13.6) |  | 0.002 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 58 | 4.7 (3.4 to 6.0) |  | 11 | 10.4 (7.4 to 13.3) |  | 45 | 2.3 (1.2 to 3.3) |  | 23 | 3.4 (1.0 to 5.9) |  | <0.001 |

TABLE S5 Misclassification rates by awareness that self-report would be validated by cotinine

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | Yes | |  | No | |  | Not specified | |  |  |
| Rate | | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | | 12 | 8.1 (4.4 to 11.8) |  | 37 | 4.7 (2.9 to 6.4) |  | 160 | 4.9 (4.2 to 5.6) |  | 0.236 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | | 2 | 3.9 (0.3 to 7.4) |  | 11 | 5.2 (3.0 to 7.4) |  | 73 | 2.8 (2.3 to 3.4) |  | 0.103 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | | 9 | 20.2 (13.7 to 26.7) |  | 13 | 13.5 (8.2 to 18.8) |  | 66 | 10.0 (8.2 to 11.7) |  | 0.009 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | | 11 | 10.2 (2.0 to 18.4) |  | 22 | 7.3 (2.2 to 12.3) |  | 109 | 10.1 (7.9 to 12.3) |  | 0.587 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | | 8 | 18.4 (7.8 to 28.9) |  | 20 | 12.3 (6.4 to 18.2) |  | 108 | 14.7 (12.3 to 17.0) |  | 0.584 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | | 1 | 4.3 (−5.5 to 14.1) |  | 10 | 11.4 (3.0 to 19.8) |  | 41 | 5.2 (2.5 to 7.9) |  | 0.361 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | | 1 | 8.0 (−1.4 to 17.3) |  | 10 | 13.4 (5.4 to 21.4) |  | 41 | 8.5 (5.9 to 11.1) |  | 0.497 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | | 12 | 16.4 (8.1 to 24.6) |  | 28 | 7.3 (3.7 to 10.8) |  | 145 | 12.4 (10.7 to 14.2) |  | 0.022 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | | 2 | 4.2 (−4.2 to 12.5) |  | 11 | 8.4 (2.1 to 14.6) |  | 53 | 4.3 (2.2 to 6.3) |  | 0.464 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | | 2 | 7.7 (0.0 to 15.4) |  | 11 | 11.8 (6.0 to 17.6) |  | 53 | 7.3 (5.4 to 9.2) |  | 0.345 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | | 8 | 4.7 (0.4 to 8.9) |  | 20 | 4.8 (2.1 to 7.6) |  | 109 | 3.5 (2.6 to 4.4) |  | 0.585 |
|  |  | |  |  |  |  |  |  |  |  |  |  |

TABLE S6 Misclassification rates by time of publication

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | Studies considered in the 1995 review | |  | Studies reported before 2003 | |  | Studies reported later | |  |  |
| Rate | | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | | 28 | 3.6 (1.5 to 5.6) |  | 81 | 5.1 (3.9 to 6.2) |  | 100 | 5.1 (4.3 to 6.0) |  | 0.367 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | | 17 | 2.1 (0.6 to 3.5) |  | 33 | 3.3 (2.3 to 4.3) |  | 36 | 3.1 (2.4 to 3.8) |  | 0.370 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | | 15 | 6.9 (2.4 to 11.3) |  | 39 | 10.6 (7.9 to 13.3) |  | 34 | 12.3 (9.9 to 14.7) |  | 0.099 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | | 11 | 6.8 (−1.7 to 15.4) |  | 55 | 6.0 (3.5 to 8.6) |  | 76 | 14.5 (11.7 to 17.3) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | | 11 | 10.1 (0.9 to 19.3) |  | 52 | 10.4 (7.6 to 13.2) |  | 73 | 19.8 (16.8 to 22.8) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | | 5 | 5.4 (−3.5 to 14.2) |  | 28 | 5.1 (1.7 to 8.5) |  | 19 | 6.7 (2.5 to 10.9) |  | 0.832 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | | 5 | 4.4 (−3.3 to 12.2) |  | 28 | 7.0 (4.0 to 10.0) |  | 19 | 12.8 (9.1 to 16.5) |  | 0.031 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | | 23 | 6.6 (2.1 to 11.1) |  | 69 | 9.3 (7.0 to 11.7) |  | 93 | 14.9 (12.7 to 17.1) |  | <0.001 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | | 15 | 3.0 (−1.2 to 7.2) |  | 30 | 4.9 (1.9 to 7.8) |  | 21 | 5.3 (2.1 to 8.5) |  | 0.665 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | | 15 | 4.4 (0.7 to 8.1) |  | 30 | 6.9 (4.3 to 9.4) |  | 21 | 10.7 (7.9 to 13.5) |  | 0.022 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | | 11 | 3.2 (−0.9 to 7.4) |  | 52 | 2.9 (1.6 to 4.2) |  | 74 | 4.2 (3.1 to 5.3) |  | 0.300 |
|  |  | |  |  |  |  |  |  |  |  |  |  |

TABLE S7 Misclassification rates by study quality

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Good | |  | Not good | |  |  |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 23 | 5.7 (4.0 to 7.3) |  | 186 | 4.8 (4.1 to 5.5) |  | 0.338 |
|  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 9 | 1.6 (−0.1 to 3.3) |  | 77 | 3.2 (2.6 to 3.7) |  | 0.086 |
|  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 4 | 11.8 (3.5 to 20.2) |  | 84 | 10.9 (9.1 to 12.6) |  | 0.822 |
|  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 21 | 9.8 (5.2 to 14.3) |  | 121 | 9.6 (7.5 to 11.8) |  | 0.960 |
|  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 20 | 17.5 (12.3 to 22.6) |  | 116 | 13.9 (11.5 to 16.2) |  | 0.214 |
|  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 1 | 4.5 (−5.4 to 14.3) |  | 51 | 5.8 (3.2 to 8.4) |  | 0.798 |
|  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 1 | 4.5 (−4.7 to 13.8) |  | 51 | 9.2 (6.8 to 11.7) |  | 0.329 |
|  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 22 | 15.7 (11.3 to 20.1) |  | 163 | 11.0 (9.3 to 12.7) |  | 0.051 |
|  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 1 | 4.3 (−4.2 to 12.7) |  | 65 | 4.7 (2.7 to 6.6) |  | 0.930 |
|  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 1 | 4.3 (−3.5 to 12.2) |  | 65 | 7.9 (6.1 to 9.7) |  | 0.380 |
|  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 20 | 3.2 (1.5 to 5.0) |  | 117 | 3.8 (2.8 to 4.7) |  | 0.612 |
|  |  |  |  |  |  |  |  |  |

TABLE S8 Misclassification rates in women by pregnancy

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Not pregnant | |  | Pregnant | |  |  |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 43 | 4.2 (3.0 to 5.5) |  | 39 | 5.5 (4.0 to 6.9) |  | 0.210 |
|  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 29 | 3.1 (1.9 to 4.3) |  | 2 | 4.5 (0.6 to 8.4) |  | 0.499 |
|  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 20 | 7.9 (3.4 to 12.3) |  | 13 | 22.7 (17.5 to 27.8) |  | <0.001 |
|  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 30 | 10.3 (7.3 to 13.4) |  | 29 | 8.5 (6.2 to 10.8) |  | 0.349 |
|  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 30 | 19.0 (12.1 to 25.9) |  | 27 | 13.0 (7.3 to 18.7) |  | 0.184 |
|  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 15 | 13.0 (2.9 to 23.0) |  | 2 | 8.6 (−10.5 to 27.8) |  | 0.676 |
|  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 15 | 5.2 (3.2 to 7.2) |  | 2 | 9.4 (5.6 to 13.2) |  | 0.053 |
|  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 41 | 13.7 (9.0 to 18.4) |  | 33 | 12.7 (7.9 to 17.4) |  | 0.765 |
|  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 20 | 9.2 (2.1 to 16.3) |  | 2 | 8.1 (−8.1 to 24.4) |  | 0.904 |
|  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 20 | 4.6 (3.2 to 6.0) |  | 2 | 8.9 (5.8 to 12.0) |  | 0.016 |
|  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 30 | 2.6 (1.6 to 3.7) |  | 28 | 3.4 (2.4 to 4.4) |  | 0.301 |
|  |  |  |  |  |  |  |  |  |

TABLE S9 Misclassification rates by tobacco products considered

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Cigarettes | |  | Any smoking | |  | Any tobacco | |  |  |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | True current smokers as % of reported non-smokers | 77 | 5.3 (4.4 to 6.2) |  | 119 | 4.6 (3.8 to 5.4) |  | 15 | 7.7 (4.1 to 11.3) |  | 0.157 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | True current smokers as % of reported never smokers | 30 | 4.3 (3.5 to 5.2) |  | 53 | 2.1 (1.5 to 2.8) |  | 3 | 3.2 (0.6 to 5.8) |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | True current smokers as % of reported ex-smokers | 36 | 12.5 (9.4 to 15.5) |  | 49 | 9.8 (7.8 to 11.9) |  | 3 | 18.5 (9.5 to 27.5) |  | 0.091 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | True non-smokers as % of reported current smokers | 63 | 8.9 (6.0 to 11.8) |  | 71 | 9.1 (6.6 to 11.6) |  | 9 | 8.6 (−0.1 to 17.4) |  | 0.993 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | Reported non-smokers as % of true current smokers | 61 | 16.5 (13.4 to 19.5) |  | 68 | 12.8 (10.1 to 15.5) |  | 8 | 13.3 (3.3 to 23.3) |  | 0.208 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | Reported never smokers as % of true current smokers | 22 | 7.8 (4.0 to 11.6) |  | 29 | 4.1 (0.6 to 7.6) |  | 1 | 4.3 (−5.5 to 14.1) |  | 0.352 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | Reported ex-smokers as % of true current smokers | 22 | 7.4 (3.7 to 11.0) |  | 29 | 10.3 (7.0 to 13.7) |  | 1 | 8.0 (−1.4 to 17.3) |  | 0.482 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | Reported non-smokers as % of reported current smokers (plus misclassified non-smokers) | 75 | 14.1 (11.7 to 16.4) |  | 99 | 10.0 (8.1 to 12.0) |  | 13 | 12.3 (4.9 to 19.7) |  | 0.037 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | Reported never smokers as % of reported current smokers (plus misclassified non-smokers) | 25 | 7.4 (4.2 to 10.6) |  | 40 | 3.1 (0.7 to 5.5) |  | 1 | 4.1 (−4.2 to 12.5) |  | 0.105 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | Reported ex-smokers as % of reported current smokers (plus misclassified non-smokers) | 25 | 7.0 (4.0 to 10.1) |  | 40 | 8.1 (5.8 to 10.4) |  | 1 | 7.7 (−0.3 to 15.8) |  | 0.846 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | Reported current smokers as % of true non-smokers | 61 | 2.9 (1.8 to 4.0) |  | 69 | 3.6 (2.6 to 4.7) |  | 8 | 5.9 (1.1 to 10.8) |  | 0.358 |
|  |  |  |  |  |  |  |  |  |  |  |  |

TABLE S10 Misclassification rates by sex

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | Females | |  | Males | |  | Combined | |  |  |
| Rate | | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | | 83 | 4.8 (3.7 to 5.8) |  | 36 | 6.5 (4.9 to 8.0) |  | 94 | 4.7 (3.8 to 5.5) |  | 0.122 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | | 31 | 3.2 (2.2 to 4.2) |  | 23 | 3.2 (1.6 to 4.8) |  | 32 | 2.8 (2.1 to 3.6) |  | 0.808 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | | 33 | 14.3 (10.7 to 17.8) |  | 19 | 8.2 (4.5 to 11.9) |  | 36 | 10.7 (8.5 to 12.8) |  | 0.065 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | | 59 | 9.3 (5.9 to 12.7) |  | 24 | 7.2 (2.6 to 11.8) |  | 61 | 10.8 (8.1 to 13.4) |  | 0.407 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | | 57 | 15.4 (11.7 to 19.2) |  | 23 | 14.7 (9.7 to 19.6) |  | 58 | 14.0 (11.0 to 17.0) |  | 0.838 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | | 17 | 12.0 (6.9 to 17.1) |  | 12 | 3.5 (−1.4 to 8.5) |  | 23 | 4.1 (1.0 to 7.3) |  | 0.024 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | | 17 | 6.1 (1.2 to 11.1) |  | 12 | 6.2 (1.4 to 11.0) |  | 23 | 11.1 (8.0 to 14.2) |  | 0.110 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | | 75 | 12.9 (10.1 to 15.7) |  | 36 | 10.5 (7.4 to 13.7) |  | 78 | 11.2 (9.0 to 13.5) |  | 0.509 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | | 22 | 9.0 (5.2 to 12.8) |  | 18 | 2.8 (−0.7 to 6.4) |  | 26 | 3.6 (1.0 to 6.2) |  | 0.037 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | | 22 | 5.3 (1.7 to 8.9) |  | 18 | 5.8 (2.5 to 9.1) |  | 26 | 9.9 (7.4 to 12.3) |  | 0.049 |
|  |  | |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | | 58 | 3.1 (1.8 to 4.5) |  | 23 | 3.8 (1.6 to 6.1) |  | 58 | 4.0 (2.9 to 5.1) |  | 0.623 |
|  |  | |  |  |  |  |  |  |  |  |  |  |

TABLE S11 Misclassification rates by location

|  |  | Canada/USA | |  | Europe | |  | Asia | |  | Other | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rate | | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | N | Rate (95% CI) |  | Het p |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 81 | 5.4 (4.3 to 6.5) |  | 90 | 4.7 (3.8 to 5.6) |  | 17 | 4.7 (2.9 to 6.5) |  | 21 | 6.2 (2.6 to 9.8) |  | 0.681 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 26 | 3.6 (2.8 to 4.5) |  | 48 | 2.2 (1.4 to 3.0) |  | 9 | 3.2 (1.8 to 4.6) |  | 3 | 9.0 (2.6 to 15.3) |  | 0.026 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 31 | 15.2 (12.3 to 18.2) |  | 43 | 9.5 (7.4 to 11.6) |  | 9 | 5.9 (1.1 to 10.7) |  | 5 | 17.8 (7.0 to 28.6) |  | 0.002 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 53 | 9.7 (6.5 to 12.9) |  | 56 | 9.5 (6.7 to 12.3) |  | 15 | 7.6 (1.2 to 13.9) |  | 18 | 16.0 (6.5 to 25.5) |  | 0.534 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 49 | 14.5 (10.9 to 18.1) |  | 55 | 14.1 (11.1 to 17.2) |  | 14 | 16.5 (9.7 to 23.2) |  | 18 | 14.5 (3.8 to 25.1) |  | 0.940 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 14 | 6.6 (1.9 to 11.3) |  | 27 | 4.1 (0.8 to 7.5) |  | 8 | 9.4 (2.7 to 16.0) |  | 3 | 12.5 (−7.1 to 32.1) |  | 0.438 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 14 | 11.3 (6.9 to 15.8) |  | 27 | 8.9 (5.7 to 12.0) |  | 8 | 5.3 (−1.0 to 11.5) |  | 3 | 2.2 (−16.2 to 20.7) |  | 0.385 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 75 | 11.6 (9.0 to 14.2) |  | 77 | 10.8 (8.6 to 13.0) |  | 15 | 16.5 (10.9 to 22.1) |  | 18 | 12.4 (3.4 to 21.4) |  | 0.314 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 18 | 6.2 (2.3 to 10.1) |  | 37 | 3.2 (0.8 to 5.5) |  | 8 | 8.9 (3.3 to 14.5) |  | 3 | 12.1 (−4.6 to 28.7) |  | 0.157 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 18 | 10.4 (6.7 to 14.0) |  | 37 | 7.3 (5.1 to 9.5) |  | 8 | 5.0 (−0.3 to 10.3) |  | 3 | 2.2 (−13.6 to 17.9) |  | 0.299 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 49 | 3.9 (2.6 to 5.3) |  | 56 | 3.7 (2.5 to 4.8) |  | 14 | 1.8 (−0.2 to 3.9) |  | 18 | 8.4 (3.9 to 13.0) |  | 0.063 |

TABLE S12 Misclassification rates by the interaction of location and sex

|  |  | Canada/USA | | | | | | | |  | Europe | | | | | | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Females | |  | Males | |  | Both sexes | |  | Females | |  | Males | |  | Both sexes | |  |
| Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 33 | 4.34 |  | 13 | 7.59 |  | 35 | 5.30 |  | 35 | 4.80 |  | 15 | 4.23 |  | 40 | 4.69 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 7 | 3.62 |  | 3 | 5.27 |  | 16 | 3.60 |  | 18 | 2.04 |  | 16 | 2.67 |  | 14 | 2.19 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 11 | 18.10 |  | 3 | 7.34 |  | 17 | 14.94 |  | 15 | 11.73 |  | 11 | 8.22 |  | 17 | 9.14 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 21 | 9.86 |  | 8 | 10.87 |  | 24 | 9.00 |  | 26 | 7.60 |  | 8 | 7.15 |  | 22 | 10.55 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 20 | 10.13 |  | 8 | 23.31 |  | 21 | 15.15 |  | 25 | 16.71 |  | 8 | 7.11 |  | 22 | 14.25 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 3 | 17.00 |  | 1 | 6.43 |  | 10 | 5.76 |  | 9 | 5.94 |  | 7 | 3.49 |  | 11 | 3.28 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 3 | 4.53 |  | 1 | 6.14 |  | 10 | 12.20 |  | 9 | 6.57 |  | 7 | 6.64 |  | 11 | 11.43 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 31 | 10.25 |  | 13 | 17.65 |  | 31 | 9.79 |  | 31 | 12.86 |  | 15 | 5.28 |  | 31 | 11.97 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 5 | 11.40 |  | 3 | 5.37 |  | 10 | 5.56 |  | 12 | 4.61 |  | 11 | 2.51 |  | 14 | 2.64 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 5 | 4.00 |  | 3 | 4.88 |  | 10 | 11.78 |  | 12 | 5.56 |  | 11 | 6.03 |  | 14 | 9.41 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 20 | 4.40 |  | 8 | 3.89 |  | 21 | 3.50 |  | 26 | 2.63 |  | 8 | 4.84 |  | 22 | 4.00 |  |

TABLE S12 Misclassification rates by the interaction of sex and location (continued)

|  |  | Asia | | | | | | | |  | Other | | | | | | | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Females | |  | Males | |  | Both sexes | |  | Females | |  | Males | |  | Both sexes | |  |  |
| Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | N | Rate |  | Het p |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | % of self-reported non-smokers whose cotinine implies current smoking | 7 | 5.80 |  | 3 | 8.03 |  | 7 | 2.60 |  | 6 | 5.70 |  | 3 | 14.94 |  | 12 | 6.00 |  | 0.367 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | % of self-reported never-smokers whose cotinine implies current smoking | 5 | 6.09 |  | 3 | 5.16 |  | 1 | 0.13 |  | 1 | 11.14 |  | 1 | 12.86 |  | 1 | 0.00 |  | 0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | % of self-reported ex-smokers whose cotinine implies current smoking | 4 | 17.34 |  | 4 | 8.49 |  | 1 | 2.66 |  | 3 | 19.86 |  | 1 | 5.45 |  | 1 | 6.98 |  | 0.032 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | % of self-reported current smokers whose cotinine implies non-smoking | 6 | 11.89 |  | 4 | 2.75 |  | 5 | 12.62 |  | 5 | 10.25 |  | 3 | 2.31 |  | 10 | 19.90 |  | 0.767 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M5 | % of true current smokers who report being non-smokers | 6 | 38.38 |  | 3 | 9.88 |  | 5 | 6.65 |  | 5 | 26.70 |  | 3 | 8.65 |  | 10 | 12.77 |  | 0.003 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M6 | % of true current smokers who report being never smokers | 4 | 44.32 |  | 3 | 2.99 |  | 1 | 0.61 |  | 1 | 40.59 |  | 1 | 3.45 |  | 1 | 0.00 |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M7 | % of true current smokers who report being ex-smokers | 4 | 4.94 |  | 3 | 6.15 |  | 1 | 4.07 |  | 1 | 2.97 |  | 1 | 1.15 |  | 1 | 7.69 |  | 0.859 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M8 | % of self-reported current smokers (plus misclassified non-smokers) who report being non-smokers | 6 | 35.44 |  | 3 | 9.64 |  | 6 | 12.00 |  | 5 | 24.63 |  | 3 | 8.47 |  | 10 | 10.49 |  | 0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M9 | % of self-reported current smokers (plus misclassified non-smokers) who report being never-smokers | 4 | 43.25 |  | 3 | 2.91 |  | 1 | 0.56 |  | 1 | 36.94 |  | 1 | 3.44 |  | 1 | 0.00 |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M10 | % of self-reported current smokers (plus misclassified non-smokers) who report being ex-smokers | 4 | 4.82 |  | 3 | 5.98 |  | 1 | 3.74 |  | 1 | 2.70 |  | 1 | 1.15 |  | 1 | 7.32 |  | 0.643 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M11 | % of true non-smokers who report being current smokers | 6 | 1.20 |  | 3 | 2.20 |  | 5 | 2.57 |  | 5 | 3.44 |  | 3 | 4.21 |  | 10 | 10.04 |  | 0.480 |