

Serum Cotinine in Non-smokers (2011 - 2018)

CAS Number 486-56-6

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the non-smoking[^] U.S. population from the National Health and Nutrition Examination Survey.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	11-12	*	.020 (.018-.023)	.059 (.049-.072)	.356 (.263-.500)	1.30 (.882-1.60)	6108
Total population	13-14	*	.017 (<LOD-.021)	.057 (.042-.082)	.388 (.246-.605)	1.53 (1.06-1.90)	6561
Total population	15-16	*	.017 (.015-.020)	.055 (.045-.073)	.319 (.240-.408)	1.12 (.745-1.60)	6381
Total population	17-18	*	.016 (<LOD-.018)	.052 (.041-.068)	.305 (.208-.427)	.965 (.662-1.40)	5846
Age 3-11 years	11-12	.058 (.045-.074)	.031 (.024-.045)	.172 (.100-.313)	1.02 (.627-1.94)	2.49 (1.56-3.36)	1348
Age 3-11 years	13-14	.048 (.036-.065)	.021 (.015-.039)	.128 (.081-.239)	.962 (.471-1.70)	2.15 (1.44-3.33)	1445
Age 3-11 years	15-16	.046 (.038-.056)	.027 (.021-.038)	.107 (.085-.152)	.563 (.320-.987)	1.37 (.902-1.97)	1388
Age 3-11 years	17-18	.052 (.043-.062)	.025 (.020-.031)	.156 (.101-.263)	.926 (.617-1.35)	2.34 (1.37-3.59)	1136
Age 12-19 years	11-12	.049 (.040-.061)	.025 (.020-.037)	.147 (.083-.235)	.711 (.520-1.06)	1.47 (1.05-2.29)	990
Age 12-19 years	13-14	*	.023 (.016-.033)	.129 (.067-.246)	1.14 (.579-2.19)	2.87 (1.90-4.51)	1129
Age 12-19 years	15-16	.045 (.039-.050)	.022 (.019-.027)	.098 (.073-.131)	.798 (.486-1.24)	2.13 (1.60-2.88)	1032
Age 12-19 years	17-18	.043 (.035-.053)	.022 (.018-.030)	.100 (.073-.153)	.634 (.369-1.06)	1.60 (1.06-2.38)	924
Age 20+ years	11-12	*	.019 (.016-.020)	.047 (.040-.053)	.210 (.176-.263)	.835 (.566-1.38)	3770
Age 20+ years	13-14	*	.016 (<LOD-.019)	.047 (.037-.061)	.244 (.149-.380)	.861 (.605-1.64)	3987
Age 20+ years	15-16	*	.015 (<LOD-.018)	.045 (.037-.056)	.235 (.170-.300)	.750 (.556-1.15)	3961
Age 20+ years	17-18	*	.015 (<LOD-.017)	.040 (.032-.052)	.199 (.135-.301)	.663 (.376-1.02)	3786
Male	11-12	.041 (.037-.045)	.023 (.020-.026)	.076 (.065-.095)	.530 (.397-.715)	1.76 (1.35-2.42)	2903
Male	13-14	*	.018 (.016-.024)	.068 (.049-.095)	.491 (.341-.743)	1.84 (1.35-2.41)	3063
Male	15-16	*	.019 (.016-.021)	.059 (.045-.082)	.385 (.299-.533)	1.72 (1.25-2.10)	2960
Male	17-18	*	.017 (.016-.020)	.064 (.041-.092)	.380 (.242-.592)	1.01 (.670-1.72)	2684
Female	11-12	*	.019 (.016-.021)	.048 (.040-.059)	.244 (.189-.314)	.819 (.572-1.31)	3205
Female	13-14	*	.016 (<LOD-.020)	.049 (.036-.075)	.309 (.182-.482)	1.15 (.722-1.71)	3498
Female	15-16	*	.015 (<LOD-.019)	.052 (.041-.066)	.254 (.180-.339)	.790 (.516-1.26)	3421
Female	17-18	*	.015 (<LOD-.017)	.046 (.037-.056)	.238 (.160-.342)	.944 (.525-1.30)	3162
Mexican American	11-12	.033 (.027-.042)	.021 (.016-.027)	.055 (.040-.081)	.230 (.106-.386)	.668 (.349-2.07)	886
Mexican American	13-14	*	.016 (<LOD-.019)	.045 (.034-.056)	.144 (.104-.316)	.550 (.362-1.24)	1261
Mexican American	15-16	*	.015 (<LOD-.021)	.045 (.033-.059)	.188 (.144-.308)	.919 (.478-1.58)	1368
Mexican American	17-18	*	<LOD	.031 (.023-.042)	.171 (.085-.348)	.585 (.310-1.21)	979
Non-Hispanic Black	11-12	.076 (.054-.107)	.045 (.032-.071)	.259 (.127-.513)	1.10 (.678-2.02)	2.86 (1.46-4.20)	1576
Non-Hispanic Black	13-14	.086 (.070-.106)	.052 (.041-.073)	.296 (.236-.394)	1.70 (1.26-2.16)	3.17 (2.50-3.97)	1297
Non-Hispanic Black	15-16	.072 (.057-.093)	.043 (.031-.060)	.247 (.141-.411)	1.35 (.870-1.83)	2.70 (1.82-3.93)	1230
Non-Hispanic Black	17-18	.073 (.059-.091)	.046 (.032-.066)	.238 (.171-.336)	1.30 (.965-1.69)	3.04 (2.51-3.68)	1206
Non-Hispanic White	11-12	*	.017 (<LOD-.020)	.048 (.039-.061)	.277 (.207-.363)	1.10 (.627-1.50)	1841
Non-Hispanic White	13-14	*	<LOD	.044 (.029-.075)	.287 (.137-.602)	1.09 (.687-1.84)	2309
Non-Hispanic White	15-16	*	.015 (<LOD-.019)	.048 (.036-.068)	.254 (.162-.324)	.742 (.516-1.11)	1860
Non-Hispanic White	17-18	*	<LOD	.042 (.032-.061)	.232 (.159-.344)	.810 (.427-1.34)	1853
All Hispanic	11-12	.033 (.028-.040)	.021 (.017-.026)	.054 (.041-.074)	.233 (.123-.387)	.834 (.377-2.37)	1587
All Hispanic	13-14	*	.017 (.015-.020)	.048 (.038-.060)	.239 (.140-.378)	.905 (.486-1.78)	1926
All Hispanic	15-16	*	.015 (<LOD-.020)	.046 (.035-.058)	.211 (.147-.304)	1.09 (.581-1.66)	2270
All Hispanic	17-18	*	<LOD	.036 (.028-.047)	.165 (.099-.284)	.621 (.309-.876)	1571
Non-Hispanic Asian	11-12	.030 (.026-.035)	.023 (.020-.027)	.046 (.037-.058)	.123 (.083-.201)	.308 (.201-.594)	878
Non-Hispanic Asian	13-14	.030 (.026-.036)	.021 (.017-.025)	.052 (.041-.063)	.140 (.091-.250)	.475 (.244-.841)	766
Non-Hispanic Asian	15-16	.026 (.022-.031)	.020 (.017-.022)	.039 (.031-.051)	.092 (.055-.213)	.213 (.100-.777)	741
Non-Hispanic Asian	17-18	.028 (.026-.031)	.021 (.018-.025)	.043 (.038-.051)	.121 (.083-.183)	.297 (.199-.386)	849

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, 15-16, and 17-18 are 0.015, 0.015, 0.015, and 0.015 respectively.

<LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

[^] Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.