Biomonitoring

Cotinine

Table B4: Cotinine in nonsmoking children ages 3 to 17 years: Median and 95th percentile concentrations in blood serum, 1988-2012

	Concentration of cotinine in serum (ng/mL)								
	1988-1991	1991-1994	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012
Median	0.25	0.21	0.11	0.06*	0.10	0.05	0.05	0.03	0.03
95th percentile	3.2	3.2	3.1	3.2	3.2	2.3	2.6	2.1	1.9

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTE: Based on children ages 3 to 17 years with serum cotinine ≤ 10 ng/mL (ages 4 to 17 years for 1988-1991 and 1991-1994).

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

Table B4a. Cotinine in nonsmoking children ages 3 to 17 years: Median concentrations in blood serum, by race/ethnicity and family income, 2009-2012

	Median concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	**All Incomes‡** *(n=4,317)*	**< Poverty Level** *(n=1,375)*	**≥ Poverty Level** *(n=2,627)*
All Races/Ethnicities *(n=4,317)*	0.03	0.09	0.02
White non-Hispanic *(n=1,142)*	0.03	NA**	0.02
Black non-Hispanic *(n=1,052)*	0.11	0.39	0.05
Mexican-American *(n=1,100)*	0.02	0.03	0.02
All Other Races/Ethnicities† *(n=1,023)*	0.03	0.05	0.02

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTE: Based on children ages 3 to 17 years with serum cotinine ≤ 10 ng/mL.

† The "All Other Races/Ethnicities" category includes all other races or ethnicities not specified, together with those individuals who report more than one race.

‡ Includes sampled individuals for whom income information is missing.

** Not available. The estimate is not reported because it has large uncertainty: the relative standard error, RSE, is 40% or greater (RSE = standard error divided by the estimate), or the RSE cannot be reliably estimated.

Table B4b. Cotinine in nonsmoking children ages 3 to 17 years: 95th percentile concentrations in blood serum, by race/ethnicity and family income, 2009-2012

	95th percentile concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	**All Incomes‡** *(n=4,317)*	**< Poverty Level** *(n=1,375)*	**≥ Poverty Level** *(n=2,627)*
All Races/Ethnicities *(n=4,317)*	2.0	3.7	1.1
White non-Hispanic *(n=1,142)*	2.3	5.5	1.2
Black non-Hispanic *(n=1,052)*	2.8	3.3	2.3
Mexican-American *(n=1,100)*	0.6	0.8*	0.4
All Other Races/Ethnicities† *(n=1,023)*	1.1	2.2*	0.6*

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTE: Based on children ages 3 to 17 years with serum cotinine ≤ 10 ng/mL.

† The "All Other Races/Ethnicities" category includes all other races or ethnicities not specified, together with those individuals who report more than one race.

‡ Includes sampled individuals for whom income information is missing.

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

Table B4c: Cotinine in nonsmoking children ages 3 to 17 years: Median and 95th percentile concentrations in blood serum, by age group, 2009-2012

	Concentration of cotinine in serum (ng/mL)				
	All ages	**Ages 3 to 5 years**	**Ages 6 to 10 years**	**Ages 11 to 15 years**	**Ages 16 to 17 years**
Median	0.03	0.04	0.03	0.02	0.03
95th percentile	2.0	2.8	2.4	1.2	2.1*

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTE: Based on children ages 3 to 17 years with serum cotinine ≤ 10 ng/mL.

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

Table B5: Cotinine in nonsmoking women ages 16 to 49 years: Median and 95th percentile concentrations in blood serum, 1988-2012

	Concentration of cotinine in serum (ng/mL)								
	1988-1991	**1991-1994**	**1999-2000**	**2001-2002**	**2003-2004**	**2005-2006**	**2007-2008**	**2009-2010**	**2011-2012**
Median	0.21	0.15	0.06	0.04	0.04	0.04	0.04	0.03	0.02
95th percentile	2.3	2.1	1.7	1.6	2.2	1.5	1.9	1.4	1.2*

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTES:

- Based on women ages 16 to 49 years with serum cotinine ≦ 10 ng/mL.
- To reflect exposures to women who are pregnant or may become pregnant, the estimates are adjusted for the probability (by age and race/ethnicity) that a woman gives birth. The intent of this adjustment is to approximate the distribution of exposure to pregnant women. Results will therefore differ from a characterization of exposure to adult women without consideration of birth rates.

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

Table B5a. Cotinine in nonsmoking women ages 16 to 49 years: Median concentrations in blood serum, by race/ethnicity and family income, 2009-2012

	Median concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	**All Incomes‡** *(n=2,672)*	**< Poverty Level** *(n=649)*	**≥ Poverty Level** *(n=1,790)*
All Races/Ethnicities *(n=2,672)*	0.02	0.04	0.02
White non-Hispanic *(n=875)*	0.02	0.03	0.02
Black non-Hispanic *(n=566)*	0.08*	0.19*	0.04
Mexican-American *(n=524)*	0.02	0.03	0.02
All Other Races/Ethnicities† *(n=707)*	0.02	0.03	0.02

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTES:

- Based on women ages 16 to 49 years with serum cotinine ≦ 10 ng/mL.
- To reflect exposures to women who are pregnant or may become pregnant, the estimates are adjusted for the probability (by age and race/ethnicity) that a woman gives birth. The intent of this adjustment is to approximate the distribution of exposure to pregnant women. Results will therefore differ from a characterization of exposure to adult women without consideration of birth rates.

† The "All Other Races/Ethnicities" category includes all other races or ethnicities not specified, together with those individuals who report more than one race.

‡ Includes sampled individuals for whom income information is missing.

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

Table B5b. Cotinine in nonsmoking women ages 16 to 49 years: 95th percentile concentrations in blood serum, by race/ethnicity and family income, 2009-2012

	95th percentile concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	**All Incomes‡** *(n=2,672)*	**< Poverty Level** *(n=649)*	**≥ Poverty Level** *(n=1,790)*
All Races/Ethnicities *(n=2,672)*	1.3	4.0	0.8
White non-Hispanic *(n=875)*	NA**	5.5*	0.8*
Black non-Hispanic *(n=566)*	4.0	4.8*	3.0
Mexican-American *(n=524)*	NA**	NA**	NA**
All Other Races/Ethnicities† *(n=707)*	0.4*	NA**	NA**

DATA: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey

NOTES:

- Based on women ages 16 to 49 years with serum cotinine ≦ 10 ng/mL.
- To reflect exposures to women who are pregnant or may become pregnant, the estimates are adjusted for the probability (by age and race/ethnicity) that a woman gives birth. The intent of this adjustment is to approximate the distribution of exposure to pregnant women. Results will therefore differ from a characterization of exposure to adult women without consideration of birth rates.

† The "All Other Races/Ethnicities" category includes all other races or ethnicities not specified, together with those individuals who report more than one race.

‡ Includes sampled individuals for whom income information is missing.

*The estimate should be interpreted with caution because the standard error of the estimate is relatively large: the relative standard error, RSE, is at least 30% but is less than 40% (RSE = standard error divided by the estimate), or the RSE may be underestimated.

** Not available. The estimate is not reported because it has large uncertainty: the relative standard error, RSE, is 40% or greater (RSE = standard error divided by the estimate), or the RSE cannot be reliably estimated.