Biomonitoring

Cotinine

Table B4: Cotinine in nonsmoking children ages 3 to 17 years: Median and 95th percentile concentrations in blood serum, 1988-2010

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

	Median concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	**All Incomes‡** *(n=4,284)*	**< Poverty Level** *(n=1,323)*	**≥ Poverty Level** *(n=2,648)*
All Races/Ethnicities *(n=4,284)*	0.04	0.14	0.03
White non-Hispanic *(n=1,310)*	0.04	NA**	0.04
Black non-Hispanic *(n=955)*	0.11	0.38	0.06
Mexican-American *(n=1,229)*	0.02	0.03	0.02
All Other Races/Ethnicities† *(n=790)*	0.03	0.09	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 $\leq$ 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, 2007-2010

Race / Ethnicity	95th percentile concentration of cotinine in serum (ng/mL)		
	All Incomes‡ (n=4,284)	< Poverty Level (n=1,323)	≥ Poverty Level (n=2,648)
All Races/Ethnicities (n=4,284)	2.5	4.1	2.0
White non-Hispanic (n=1,310)	2.9	5.8	2.3
Black non-Hispanic (n=955)	2.6	3.0	2.3
Mexican-American (n=1,229)	0.8	0.9*	0.7*
All Other Races/Ethnicities† (n=790)	1.5	NA**	0.7*

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.

** 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 B4c: Cotinine in nonsmoking children ages 3 to 17 years: Median and 95th percentile concentrations in blood serum, by age group, 2007-2010

	Concentration of cotinine in serum (ng/mL)				
	Ages 3 to 17 years	Ages 3 to 5 years	Ages 6 to 10 years	Ages 11 to 15 years	Ages 16 to 17 years
Median	0.04	0.06	0.05	0.03	0.04
95th percentile	2.5	2.9	2.5	2.3	2.9

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

Table B5: Cotinine in nonsmoking women ages 16 to 49 years: Median and 95th percentile concentrations in blood serum, 1988-2010

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

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.

Table B5a. Cotinine in nonsmoking women ages 16 to 49 years: Median concentrations in blood serum, by race/ethnicity and family income, 2007-2010

	Median concentration of cotinine in serum (ng/mL)		
Race / Ethnicity	All Incomes‡ (n=2,601)	< Poverty Level (n=583)	≥ Poverty Level (n=1,781)
All Races/Ethnicities (n=2,601)	0.03	0.05	0.03
White non-Hispanic (n=949)	0.03	NA**	0.03
Black non-Hispanic (n=475)	0.10	0.33	0.06
Mexican-American (n=654)	0.03	0.04	0.02
All Other Races/Ethnicities† (n=523)	0.03	0.03*	0.03

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, 2007-2010

Race / Ethnicity	95ᵗʰ percentile concentration of cotinine in serum (ng/mL)		
	All Incomes‡ (n=2,601)	< Poverty Level (n=583)	≥ Poverty Level (n=1,781)
All Races/Ethnicities (n=2,601)	1.6	3.5	1.4
White non-Hispanic (n=949)	1.4	3.7*	1.0
Black non-Hispanic (n=475)	3.4	8.3	3.0
Mexican-American (n=654)	1.6*	2.5	NA**
All Other Races/Ethnicities† (n=523)	NA**	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.