

Biomonitoring

Bisphenol A (BPA)

Table B11: Bisphenol A in women ages 16 to 49 years: Median and 95th percentile concentrations in urine, 2003-2012

	Concentration of BPA in urine (µg/L)				
	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012
Median	3.1	2.0	2.5	2.1	1.4
95th percentile	15.9	9.8	15.1	9.7	10.6

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

NOTES:

- 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.
- BPA does not appear to accumulate in bodily tissues; thus the distribution of NHANES urinary BPA levels may overestimate high-end exposures as a result of collecting one-time urine samples rather than collecting urine for a longer time period.⁶⁻⁸

Table B11a: Bisphenol A in women ages 16 to 49 years: Median concentrations in urine, by race/ethnicity and family income, 2009-2012

Race / Ethnicity	Median concentration of BPA in urine (µg/L)		
	All Incomes‡ (n=608)	< Poverty Level (n=186)	≥ Poverty Level (n=373)
All Races/Ethnicities (n=608)	2.1	2.6	2.0
White non-Hispanic (n=277)	1.8	2.8*	1.8
Black non-Hispanic (n=113)	3.5*	NA**	3.7*
Mexican-American (n=102)	2.2*	NA**	2.1*
All Other Races/Ethnicities† (n=116)	2.2	NA**	2.0

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:

- 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 reported measurements of BPA in urine include both BPA itself and biologically inactive metabolites of BPA.

† 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 B11b: Bisphenol A in women ages 16 to 49 years: 95th percentile concentrations in urine, by race/ethnicity and family income, 2009-2012

Race / Ethnicity	95 th percentile concentration of BPA in urine (µg/L)		
	All Incomes‡ (n=608)	< Poverty Level (n=186)	≥ Poverty Level (n=373)
All Races/Ethnicities (n=608)	9.7	13.2	9.2
White non-Hispanic (n=277)	9.2	NA**	8.3
Black non-Hispanic (n=113)	14.9*	NA**	14.9*
Mexican-American (n=102)	7.0*	NA**	7.0*
All Other Races/Ethnicities† (n=116)	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:

- 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 reported measurements of BPA in urine include both BPA itself and biologically inactive metabolites of BPA.
- BPA does not appear to accumulate in bodily tissues; thus the distribution of NHANES urinary BPA levels may overestimate high-end exposures as a result of collecting one-time urine samples rather than collecting urine for a longer time period.⁶⁻⁸

† 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 B12: Bisphenol A in children ages 6 to 17 years: Median and 95th percentile concentrations in urine, 2003-2012

	Concentration of BPA in urine (µg/L)				
	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012
Median	4.0	2.4	2.4	2.0	1.5
95 th percentile	16.0	16.5	12.2	9.7	8.8

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: BPA does not appear to accumulate in bodily tissues; thus the distribution of NHANES urinary BPA levels may overestimate high-end exposures as a result of collecting one-time urine samples rather than collecting urine for a longer time period.⁶⁻⁸

Table B12a: Bisphenol A in children ages 6 to 17 years: Median concentrations in urine, by race/ethnicity and family income, 2009-2012

Race / Ethnicity	Median concentration of BPA in urine (µg/L)		
	All Incomes‡ (n=727)	< Poverty Level (n=210)	≥ Poverty Level (n=451)
All Races/Ethnicities (n=727)	2.0	2.2	2.0
White non-Hispanic (n=236)	1.8	NA**	1.9
Black non-Hispanic (n=146)	2.8	NA**	2.6*
Mexican-American (n=199)	2.0	1.9*	2.2*
All Other Races/Ethnicities† (n=146)	1.9	NA**	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: The reported measurements of BPA in urine include both BPA itself and biologically inactive metabolites of BPA.

† 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 B12b: Bisphenol A in children ages 6 to 17 years: 95th percentile concentrations in urine, by race/ethnicity and family income, 2009-2012

Race / Ethnicity	95 th percentile concentration of BPA in urine (µg/L)		
	All Incomes‡ (n=727)	< Poverty Level (n=210)	≥ Poverty Level (n=451)
All Races/Ethnicities (n=727)	9.7	12.3	9.7*
White non-Hispanic (n=236)	10.6*	NA**	NA**
Black non-Hispanic (n=146)	10.5	NA**	6.7*
Mexican-American (n=199)	10.4	NA**	12.3*
All Other Races/Ethnicities† (n=146)	9.0	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:

- The reported measurements of BPA in urine include both BPA itself and biologically inactive metabolites of BPA.
- BPA does not appear to accumulate in bodily tissues; thus the distribution of NHANES urinary BPA levels may overestimate high-end exposures as a result of collecting one-time urine samples rather than collecting urine for a longer time period.⁶⁻⁸

† 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 B12c: Bisphenol A in children ages 6 to 17 years: Median and 95th percentile concentrations by age group, 2009-2012

	Concentration of BPA in urine (µg/L)			
	All ages	Ages 6 to 10 years	Ages 11 to 15 years	Ages 16 to 17 years
Median	2.0	1.7	2.2	2.0
95th percentile	9.7	9.7	NA**	11.1

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

NOTES:

- The reported measurements of BPA in urine include both BPA itself and biologically inactive metabolites of BPA.
- BPA does not appear to accumulate in bodily tissues; thus the distribution of NHANES urinary BPA levels may overestimate high-end exposures as a result of collecting one-time urine samples rather than collecting urine for a longer time period.⁶⁻⁸

** 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.