

**National Children's Study
Examples of Potential Exposures and Outcomes**

This table is intended to inform the IOM workshop discussion on the NCS Main Study design on January 11, 2013. The examples of exposures and outcomes are not intended to be comprehensive, and are provided here as exemplars for discussion.

The "Examples of Potential Outcomes" are examples of outcomes of interest, with a proposed age at which the outcome assessment could be made, and the prevalence of the potential outcomes are based on Centers for Disease Control national estimates. The sample size calculations provided under the "Potential Prevalence of Exposures" heading are the simplest bivariate case, with 80% power and alpha of 0.05, in order to detect a relative risk of 1.5. The proposed exposures range in prevalence from 1% to 50% in order to demonstrate a spectrum of possibilities. The additional columns reflect the visits that are proposed, along with the proposed environmental assessment for the visit.

Below the outcomes and exposures are the estimated collection costs, by visit, based on publicly available information, which are the estimated direct costs. These costs do not include the analysis, storage or shipping costs, and therefore may not reflect costs that may be incurred by the NCS. These are provided to demonstrate the factors to consider as we refine implementation plans.

Examples of Potential Outcomes	Proposed Age at Assessment	Prevalence of Potential Outcomes (%)	Example of Exposures	Potential Prevalences of Exposure					Prenatal	Birth	6 months		12 months		24 months		36 months	
				1%	3%	5%	25%	50%	Mother	Mother	Mother	Child	Mother	Child	Mother	Child	Mother	Child
Infant mortality*	1	0.7	Tobacco Smoke	600,184	203,709	124,503	30,746	22,227	Blood	Blood	Blood		Blood			Blood		Blood
Metabolic syndrome	18	0.4	Multiple including: Phenols, BPA	1,054,675	357,963	218,777	54,019	39,046	Urine	Urine	Urine		Urine			Urine		Urine
Autism spectrum disorder	4	1	Multiple including: neurotoxic compounds, such as organochlorines and polyhalogenated compounds	418,388	142,007	86,793	21,436	15,500	Blood	Blood	Blood		Blood			Blood		Blood
Heart defects	1	0.6	PAHs	701,182	237,988	145,453	35,917	25,965	Urine	Urine	Urine		Urine			Urine		Urine
Type II diabetes	18	1	Multiple including: BPA, polyfluoroalkyl compounds, polyhalogenated compounds	418,388	142,007	86,793	21,436	15,500	Urine	Urine	Urine		Urine			Urine		Urine
Asthma	4	7.5	Multiple including: Tobacco Smoke, VOCs, PM	50,752	17,232	10,536	2,611	1,895	Questionnaire, Observations		Questionnaire, Observations		Questionnaire, Observations			Questionnaire, Observations		Questionnaire, Observations
	7	8.5	Multiple including: Tobacco Smoke, VOCs, PM	44,098	14,973	9,155	2,270	1,649	Questionnaire, Observations		Questionnaire, Observations		Questionnaire, Observations			Questionnaire, Observations		Questionnaire, Observations
Neurocognitive development	12	8	Multiple including: Dialkyl phosphate metabolites of organophosphorus pesticides	47,217	16,032	9,802	2,430	1,764	Urine	Urine	Urine		Urine			Urine		Urine
Neurodevelopmental disabilities	18	10	Multiple including: Organochlorines, Polyhalogenated compounds	36,611	12,432	7,602	1,887	1,372	Urine	Breast milk, Urine	Breast milk, Urine		Urine			Urine		Urine
Preterm birth < 37 weeks	0	12	Multiple including: PAHs, tobacco smoke	29,540	10,033	6,136	1,525	1,110	Dust		Dust		Dust			Dust		Dust
Obesity	12	17.1	Multiple including: BPA, polyfluoroalkyl compounds, polyhalogenated compounds	18,993	6,453	3,948	985	720	Blood, Urine	Blood, Urine	Blood, Urine		Blood, Urine			Blood, Urine		Blood, Urine
Estimated Collection Direct Costs																		
Blood									20	20	20		20			20		20
Urine									15	15	15		15			15		15
Breast milk										15	15							
Biospecimen supplies									10	10	10		10			10		10
Air sample collection									325		325		325			325		325
Bulk Dust									30	30	30		30			30		5
Questionnaire administration									75		75		75		75	75		75
Observation									25		25		25			25		25
Visit Cost									500	90	515		500		75	500		475