Blood and Urine Collection

Venipuncture

Public Health Objectives:

Venipuncture is performed to obtain laboratory results that provide prevalence estimates of disease, risk factors for exam components, and baseline information on health and nutritional status of the population.\

Staff:

Certified Phlebotomist

Protocol:

Methods:

Blood is drawn from the examinee's arm. In the laboratory the blood is processed, stored and shipped to various laboratories for analysis. The complete blood count (CBC) results are reported in the MEC and all other results are reported from NCHS to the participant.

The volume of blood drawn by age follows.

- 1-2 years, 9 ml (0.3 ounces), 0.6 tablespoons
- 3-5 years, 20 ml (0.7 ounces), 1.3 tablespoons
- 6-11 years, 35 ml (1.1 ounces), 2.3 tablespoons
- 12+ 104 ml (3.4 ounces), 7.0 tablespoons

Time Allotment:

Depending on age of participant. Range 5-10 minutes.

Health Measures:

Laboratory test results.

Eligibility:

Sample persons aged 1 year and older who do not meet any of the exclusion criteria.

Exclusion Criteria:

- Hemophiliacs
- Participants who received chemotherapy within last 4 weeks
- The presence of the following on both arms: rashes, gauze dressings, casts, edema, paralysis, tubes, open sores or wounds, withered arms

or limbs missing, damaged, sclerosed or occluded veins, allergies to cleansing reagents, burned or scarred tissue, shunt or IV.

Justification for using vulnerable populations:

- Minors are included in this component because they are an important target population group. Laboratory data are linked to other household interview and health component data and are used to track changes that occur in health over time.
- There is no reason to exclude mentally impaired or handicapped individuals because there is no contraindication.

Risks:

The following are known risks associated with venipuncture:

- Hematoma
- Swelling, tenderness and inflammation at the site
- Persistent bleeding
- Vasovagal response - dizziness, sweating, coldness of skin, numbness and tingling of hands and feet, nausea, vomiting, possible visual disturbance, syncope and injury fall from fainting.

Rare adverse effects:

- Thrombosis of the vein due to trauma.
- Infection which results in thrombophlebitis.

Special precautions:

- Sterile equipment issued with all sample persons.
- Physician on call in case an adverse affect occurs.

Report of Findings:

Reported in the MEC:

Complete Blood Count (CBC)

Reported from NCHS:

Other laboratory results

Urine Collection

Public Health Objectives:

Urine is collected to obtain laboratory results that provide prevalence estimates of disease, risk factors for exam components, and baseline information on health and nutritional status of the population.

Staff:

MEC Coordinator

Protocol:

Methods:

Urine is collected from individuals aged 6 years and above.

Time Allotment:

2 minutes

Health Measures:

Laboratory test results.

Eligibility:

Sample persons aged 6 years and above.

Exclusion Criteria:

None

Justification for using vulnerable populations:

- Minors are included in this component because they are an important target population group. Laboratory data are linked to other household interview and health component data and are used to track changes that occur in health over time.
- There is no reason to exclude mentally impaired or handicapped individuals because there is no contraindication.

Risks:

None

Special precautions:

None

Report of Findings:

Reported in the MEC: Pregnancy Test
Reported from NCHS: Other laboratory results

Bone Mineral Status Markers

Laboratory Measures:

Vitamin D and serum parathyroid hormone

Public Health Objectives:

Evaluation of bone mineral status will utilize an evaluation of vitamin D status based on two analytes: serum 25-hydroxyvitamin D and parathyroid hormone. Vitamin D is essential for active intestinal calcium absorption and plays a central role in maintaining calcium homeostasis and skeletal integrity. In addition, vitamin D has recently been linked to other non-skeletal conditions of public health significance, such as hypertension, and cancer. Vitamin D is derived mainly from cutaneous synthesis in the presence of ultraviolet sunlight while dietary intake constitutes a minor fraction. Serum 25(OH) D is the best indicator of vitamin D status. It is converted in the kidney, stimulated by parathyroid hormone (PTH), to the hormonally active metabolite 1,25-dihydroxyvitamin D (1,25 (OH)2D). Serum parathyroid hormone concentration is a very sensitive indicator of calcium homeostasis and vitamin D deficiency. The inclusion of this measure to the NHANES laboratory protocol will increase the usefulness of the vitamins D measurement in evaluating vitamin D status particularly as it relates to skeletal status. The inclusion of both these markers in the NHANES survey will provide a more complete picture of vitamin D status.

Inclusion of serum 25(OH)D in NHANES will allow us to continue to assess vitamin D status in the population, while inclusion of PTH will help us better interpret the meaning of low 25(OH)D values in various groups. Interest in vitamin D status in the US has increased significantly in recent year. For example, questions have been raised recently about the extent of vitamin D deficiency and insufficiency in the U.S. population. Furthermore, the adequacy of the 1997 Dietary Reference Intake recommendations for vitamin D in the U.S. are now being questioned, especially since new data suggests that optimal serum 25(OH)D levels may be noticeably higher than previously thought. Finally, recent studies have clarified that rickets still occurs in the U.S. Thus, it is important to include these two measures of vitamin D status in the NHANES survey. In addition, these measures can be linked with other measures included in the survey, such as blood pressure and bone mineral density, in order to evaluate its role in both skeletal and nonskeletal conditions.

It has been estimated that the annual cost of osteoporosis is about $10 billion. The magnitude of this problem is likely to increase dramatically over the next few decades as the population ages. The

risk of hip fractures (the most costly fractures in terms of morbidity, mortality and health care costs) begins to increase exponentially after age 65.

Important pieces of data are not currently available about the changes in bone mass in the population, especially in minority populations. There are no data on total body bone measures from a nationally representative sample. Measures of total body bone mineral content or density will allow researchers to gain insights into age, sex, and racial/ethnic differences in the skeleton relative to other measures of body composition such as total muscle and fat mass, as well as behavioral factors such as diet and activity.

Childhood and adolescence are the periods to target for intervention strategies in osteoporosis. Measurement in younger individuals will provide insight into early racial/ethnic differences in the rate of bone accretion. Furthermore, correlation of DXA measures with bone markers over age can provide information about the utility of these markers as surrogates for bone density or content when seeking age of peak bone mass or indicators of high or low bone turnover. This information is crucial to understanding when the best and most effective dietary intervention can be implemented to maximize peak bone mass.

NHANES is the only nationally representative survey that can shed light on when peak bone mass is attained and the degree of total body bone loss with age. This information is vital to all aspects of treatment and prevention of this disease and is particularly critical to government funding of related research, medical screening, treatment, and reimbursement programs.

Data on bone status and its relationship to age among racial ethnic groups can be used to target osteoporosis prevention programs to the most important age groups. The data from the DXA scans and the bone marker studies will also provide important reference distributions and allow studies of the association between bone status, diet, activity, and other body composition measures.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings Level		
			1	2	3
Vitamin D	1 and older	300-500 uL			
Parathyroid hormone	6 and older	1 mL		Yes	Yes

Vitamin D deficiency leads to a decrease in calcium absorption in the gastrointestinal tract and overproduction of parathyroid hormone.

Increased PTH may also be found with other conditions such as hyperthyroidism, malabsorption and some cancers. PTH levels outside the normal range will be reported to NHANES participants.

Normal ranges: age <45 years: 10-45 pg/ml [intact immunoradiometric assay (IRMA)]

Age 45+: 10-65 pg/ml references ranges.

Diabetes Profile

Laboratory Measures:

Fasting Glucose, Insulin, and Glycohemoglobin

Public Health Objectives:

Diabetes mellitus will be assessed by fasting measures of plasma glucose, insulin, c-peptide and glycohemoglobin in 12 years and over.

Diabetes is a large, growing, and costly public health problem in the United States and disproportionately affects racial and ethnic minorities. About 17 million Americans have diabetes and over 1 million new cases of diabetes are diagnosed each year. Diabetes is the leading cause of kidney failure, non- traumatic lower extremity amputation, and blindness in working-age adults, and an estimated $135 billion were spent on direct and indirect medical costs for diabetes in 2002. Alarmingly, type 2 diabetes (formerly considered an adult disease) is now being diagnosed in children and adolescents and there has been a large increase in diagnosed diabetes among adults <40 years of age.

Information on the prevalence of diabetes disease, especially in its early stages, and associated risk factors will be used to help develop early intervention and prevention programs for the disabling consequences of this condition.

Specifically, the diabetes disease examination will provide population data to:

1. determine a national estimate of diabetes disease prevalence (diagnosed and undiagnosed), including those at high risk for the late complications of the disease;
2. identify the risk factors of diabetes disease;
3. permit a national cohort to be established for follow-up studies of this condition; and
4. provide critical information to clinicians and public health officials for the development of preventive care and community-based interventions.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings Level		
			1	2	3
Glucose	12 and older	500 uL		Yes	Yes
Insulin	12 and older	1 mL			
Glycohemoglobin	12 and older	400uL		Yes	Yes

Infectious Disease Profile

Laboratory Measures:

Hepatitis virus

Public Health Objectives:

Hepatitis viruses

Viruses that primarily infect the liver constitute a major public health problem because of the morbidity and mortality associated with the acute and chronic consequences of these infections. New immunization strategies have been developed to eliminate transmission of hepatitis B and hepatitis A viruses in the United States. Because of the high rate of asymptomatic infection with both viruses, NHANES will provide the best means for determining the age-specific effectiveness of immunization strategies to prevent these infections. In addition, NHANES provides the means to better define the epidemiology of hepatitis viruses that were recently characterized, such as hepatitis C and G virus along with D and possibly F. In NHANES testing for markers of infection with the hepatitis viruses will be used to determine secular trends in infection rates across most age and racial/ethnic groups, and will provide a national picture of the epidemiologic determinants of these infections.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings Level		
			1	2	3
Hepatitis virus	6+	200 ml, 1.5 ml		Yes	

Miscellaneous Laboratory Assays

Laboratory Measures:

C-reactive protein, Standard Biochemical Profile includes Alanine Aminotransferase (ALT), Albumin, Alkaline Phosphatase (ALP), Aspartate Aminotransferase (AST), Bicarbonate (HCO_3), Blood Urea Nitrogen (BUN), Calcium, Cholesterol, Creatinine, Gamma Glutamyltransaminase (γ-GT), Glucose, Iron, Lactate Dehydrogenase (LDH), Phosphorus, Sodium, Potassium, and Chloride, Total Bilirubin, Total Protein, Triglycerides, and Uric Acid.

Public Health Objectives:

C-reactive protein

C-reactive protein is considered to be one of the best measures of the acute phase response to an infectious disease or other cause of tissue damage and inflammation. It is used to correct the iron status measures which are affected by inflammation. It can also be used to measure the body's response to inflammation from chronic conditions, such as arthritis, and environmental exposures to agents such as tobacco smoke.

Standard biochemical profile

This battery of measurements are used in the diagnosis and treatment of certain liver, heart, and kidney diseases, acid-base imbalance in the respiratory and metabolic systems, other diseases involving lipid metabolism and various endocrine disorders as well as other metabolic or nutritional disorders.

A. Alanine Aminotransferase (ALT)
   Alanine aminotransferase measurements are used in the diagnosis and treatment of certain liver diseases (e.g., viral hepatitis and cirrhosis) and heart diseases. Elevated levels of the transaminases can indicate myocardial infarction, hepatic disease, muscular dystrophy, or organ damage. Serum elevations of ALT activity are rarely observed except in parenchymal liver disease, since ALT is a more liver-specific enzyme than aspartate aminotransferase (AST).

B. Albumin
   Albumin measurements are used in the diagnosis and treatment of numerous diseases primarily involving the liver or kidneys.

C. Alkaline Phosphatase (ALP)
Increased ALP activity is associated with two groups of diseases: those affecting liver function and those involving osteoblastic activity in the bones. In hepatic disease, an increase in ALP activity is generally accepted as an indication of biliary obstruction. An increase in serum phosphatase activity is associated with primary hyperparathyroidism, secondary hyperparathyroidism owing to chronic renal disease, rickets, and osteitis deformans juvenilia due to vitamin D deficiency and malabsorption or renal tubular dystrophies. Increased levels of ALP are also associated with Von Recklinghausen's disease with bone involvement and malignant infiltrations of bone. Low levels are associated with hyperthyroidism, and with the rare condition of idiopathic hypophosphatasia associated with rickets and the excretion of excess phosphatidyl ethanolamine in the urine.

D. Aspartate Aminotransferase (AST)
AST measurements are used in the diagnosis and treatment of certain types of liver and heart disease. Elevated levels of the transaminases can signal myocardial infarction, hepatic disease, muscular dystrophy, or organ damage.

E. Bicarbonate (HCO_3)
Together with pH determination, bicarbonate measurements are used in the diagnosis and treatment of numerous potentially serious disorders associated with acid-base imbalance in the respiratory and metabolic systems.

F. Blood Urea Nitrogen (BUN)
BUN measurements are used in the diagnosis of certain renal and metabolic diseases. The determination of serum urea nitrogen is the most widely used test for the evaluation of kidney function. The test is frequently requested in conjunction with the serum creatinine test for the differential diagnosis of prerenal, renal, and postrenal uremia. High BUN levels are associated with impaired renal function, increased protein catabolism, nephritis, intestinal obstruction, urinary obstruction, metallic poisoning, cardiac failure, peritonitis, dehydration, malignancy, pneumonia, surgical shock, Addison's disease, and uremia. Low BUN levels are associated with amyloidosis, acute liver disease, pregnancy, and nephrosis. Normal variations are observed according to a person's age and sex, the time of day, and diet, particularly protein intake.

G. Calcium
Elevated total serum calcium levels are associated with idiopathic hypercalcemia, vitamin D intoxication, hyperparathyroidism, sarcoidosis, pneumocystic carinii pneumonia and blue diaper syndrome. Low calcium levels are associated with hypoparathyroidism, pseudohypoparathyroidism, chronic renal failure, rickets, infantile tetany, and steroid therapy.

H. Cholesterol
An elevated cholesterol level is associated with diabetes, nephrosis, hypothyroidism, biliary obstruction, and those rare cases of idiopathic hypercholesterolemia and hyperlipidemia; low levels are associated with hyperthyroidism, hepatitis, and sometimes severe anemia or infection.

I. Creatinine
Creatinine measurement serves as a test for normal glomerular filtration. Elevated levels are associated with acute and chronic renal insufficiency and urinary tract obstruction. Levels below 0.6 mg/dL are of no significance.

J. Gamma Glutamyltransaminase (γ-GT)
γ-GT measurement is principally used to diagnose and monitor hepatobiliary disease. It is currently the most sensitive enzymatic indicator of liver disease, with normal values rarely found in the presence of hepatic disease. It is also used as a sensitive screening test for occult alcoholism. Elevated levels are found in patients who chronically take drugs such as phenobarbital and phenytoin.

K. Glucose
Glucose measurements are used in the diagnosis and treatment of pancreatic islet cell carcinoma and of carbohydrate metabolism disorders, including diabetes mellitus, neonatal hypoglycemia, and idiopathic hypoglycemia.

L. Iron
Iron (non-heme) measurements are used in the diagnosis and treatment of diseases such as iron deficiency anemia, chronic renal disease, and hemochromatosis (a disease associated with widespread deposit in the tissues of two iron-containing pigments, hemosiderin and hemofuscin, and characterized by pigmentation of the skin).

M. Lactate Dehydrogenase (LDH)
LDH measurements are used in the diagnosis and treatment of liver diseases such as acute viral hepatitis, cirrhosis, and metastatic carcinoma of the liver; cardiac diseases such as myocardial infarction; and tumors of the lungs or kidneys.

N. Phosphorus
There is a reciprocal relationship between serum calcium and inorganic phosphorus. Any increase in the level of inorganic phosphorus causes a decrease in the calcium level by a mechanism not clearly understood. Hyperphosphatemia is associated with vitamin D hypervitaminosis, hypoparathyroidism, and renal failure. Hypophosphatemia is associated with rickets, hyperparathyroidism, and Fanconi syndrome. Measurements of inorganic phosphorus are used in the diagnosis and treatment of various disorders, including parathyroid gland and kidney diseases and vitamin D imbalance.

O. Sodium, Potassium, and Chloride
Hyponatremia (low serum sodium level) is associated with a variety of conditions, including severe polyuria, metabolic acidosis, Addison's disease, diarrhea, and renal tubular disease. Hypernatremia (increased serum sodium level) is associated with Cushing's syndrome, severe dehydration due to primary water loss, certain types of brain injury, diabetic coma after therapy with insulin, and excess treatment with sodium salts.

Hypokalemia (low serum potassium level) is associated with body potassium deficiency, excessive potassium loss caused by prolonged diarrhea or prolonged periods of vomiting and increased secretion of mineralocorticosteroids. Hyperkalemia (increased serum potassium level) is associated with oliguria, anuria, and urinary obstruction.

Low serum chloride values are associated with salt-losing nephritis, Addisonian crisis, prolonged vomiting, and metabolic acidosis caused by excessive production or diminished excretion of acids. High serum chloride values are associated with dehydration and conditions causing decreased renal blood flow, such as congestive heart failure.

P. Total Bilirubin
Elevated levels are associated with hemolytic jaundice, paroxysmal hemoglobinuria, pernicious anemia, polycythemia, icterus neonatorum, internal hemorrhage, acute hemolytic anemia, malaria, and septicemia. Low bilirubin levels are associated with aplastic anemia, and certain types of secondary anemia resulting from toxic therapy for carcinoma and chronic nephritis.

Q. Total Protein
Total protein measurements are used in the diagnosis and treatment of a variety of diseases involving the liver, kidney, or bone marrow, as well as other metabolic or nutritional disorders.

R. Triglycerides
Triglyceride measurements are used in the diagnosis of diabetes mellitus, nephrosis, liver obstruction, and other diseases involving lipid metabolism and various endocrine disorders and in the treatment of patients with these diseases.

S. Uric Acid
Uric acid measurements are used in the diagnosis and treatment of numerous renal and metabolic disorders, including renal failure, gout, leukemia, psoriasis, starvation or other wasting conditions and in the treatment of patients receiving cytotoxic drugs.

Health Measures, Eligibility, Report of Findings:

Health Measure		Eligibility	Volume Required	Report of Findings Level		
				1	2	3
C-reactive protein		1 and older	500 uL			
Biochemistry profile		12+	800 uL			
	ALT				Yes	Yes
	AST				Yes	Yes
	Albumin				Yes	Yes
	Alkaline Phosphatase					Yes
	Bicarbonate (HCO_3)				Yes	Yes
	BUN				Yes	Yes
	Calcium				Yes	Yes
	Cholesterol					
	Creatinine				Yes	Yes
	GGT					Yes
	Glucose				Yes*	Yes*
	Iron					Yes*
	LDH					Yes
	Phosphorus				Yes	Yes
	Sodium				Yes	Yes
	Potassium Chloride				Yes	Yes
	Total Bilirubin				Yes	Yes
	Total Protein				Yes	Yes
	Triglycerides				Yes*	Yes*
	Uric Acid				Yes	Yes

* Value may be reported from different assay

Kidney Disease Profile

Laboratory Measures:

Serum creatinine, blood urea nitrogen, urinary albumin and creatinine

Public Health Objectives:

The purpose of the kidney and urologic diseases portion of the NHANES is to determine prevalence of specific nephrologic and urologic conditions in the population; to determine the association between health conditions such as diabetes and hypertension and the development of kidney and urologic diseases; to monitor trends in the prevalence of these diseases and their risk factors over time. These data will be used to assist in planning for initiatives and other programs for the prevention and treatment of nephrologic and urologic diseases.

Blood specimens will be used to obtain measures of serum creatinine, blood urea nitrogen, urinary albumin and creatinine will be measured. Self-reported information on chronic analgesic use and incontinence will be collected.

The incidence of end stage kidney failure is increasing rapidly in the U.S. in adults of all age groups which implies that the prevalence of progressive renal impairment is also increasing. However, little information is known about the prevalence of chronic renal impairment on a national level. Urologic disease, including urinary incontinence affects a large proportion of the population. Little nationally representative data on the prevalence and risk factors associated with these conditions are available.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings level		
			1	2	3
Serum Creatinine/blood urea nitrogen	12 and older	1 mL		Yes	Yes
Urinary albumin and creatinine	6 and older	3 mL			

Pregnancy Test and Prostate Specific Antigen (PSA)

Laboratory Measures:

Pregnancy test, PSA

Public Health Objectives:

Pregnancy test

Information on current pregnancy status will be used to exclude participants from the DXA examination and for interpretation of current nutritional status and body measures.

PSA test

Prostate cancer is the most common non-skin malignancy among men with approximately 180,000 new cases diagnosed and 37,000 deaths in 1999. The total and free PSA tests have been recognized as tumor markers for the screening, diagnosis and management of prostate cancer. The total PSA is not specific for prostate cancer. Mildly elevated total PSA (above the cutoff of 4 ng/mL) can be seen in benign prostatic hypertrophy and prostatitis. Falsely low PSA may be seen in men treated with finasteride or taking herbals such as Saw Palmetto. The more recent free PSA assay is recommended to increase the specificity when the total PSA is between 4-10 ng/mL. A percent free PSA (free/total PSA X 100%) of less than 25% suggests prostate cancer

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings level		
			1	2	3
Urine: Pregnancy Test	8-59 females	1 mL			Yes
PSA Test	Males 40+	1 ml		Yes	Yes

Report of Findings:

PSA:

Male survey participants tested for PSA will receive test results in their Final Report of Findings. If the result is greater than 4 ng/mL, an early reporting letter will be sent.

Nutritional Biochemistries and Hematologies

Laboratory Measures:

- Complete blood count
- Erythrocyte protoporphyrin
- Serum folate
- RBC folate
- Serum iron & TIBC
- Serum ferritin
- Transferrin receptor (TfR)
- Transferrin saturation (TS) (calculated from iron and TIBC)
- Serum vitamin C
- Serum vitamin A/E/carotenoids
- Plasma homocysteine
- Serum vitamin B_{12}
- Serum vitamin B_6

Public Health Objectives:

The objectives of this component are to:

1) Provide data for monitoring secular trends in measures of nutritional status in the U.S. population;
2) Evaluate the effect of people's habits and behaviors such as physical activity and the use of alcohol, tobacco, and dietary supplements on people's nutritional status; and
3) Evaluate the effect of changes in nutrition and public health policies including welfare reform legislation, food fortification policy, and child nutrition programs on the nutritional status of the U.S. population.

These data will be used to estimate deficiencies and toxicities of specific nutrients in the population and subgroups, to provide population reference data, and to estimate the contribution of diet, supplements, and other factors to serum levels of nutrients. Data will be used for research to further define nutrient requirements as well as optimal levels for disease prevention and health promotion.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings level		
			1	2	3
Complete blood count	1 and older	1.5 mL		Yes	Yes
Erthrocyte protoporphryin	3-5 yrs, 12-	400 uL			Yes

	49F				
Serum folate/Vitamin B_{12}	1 and older	700 uL-1 mL		Yes	Yes
Serum iron & TIBC	1 and older	100 uL		Yes	Yes
Serum ferritin/TfR	3-5 yrs, 12-59F	300-500 uL			Yes
Serum vitamin A, E, carotenoids, & retinyl esters	6 and older	400-500 uL		Yes	Yes
Vitamin C	6 and older	100 uL			
Plasma homocysteine	20 and older	1 mL			
Serum vitamin B_6	6 and older	200-500 uL			

Sexually Transmitted Disease Profile

Laboratory Measures:

Chlamydia trachomatis, Neisseria gonorrhoeae, Herpes simplex 1 and 2, HIV, Human papillomavirus virus (HPV) (antigen from vaginal swabs, females age 14- 59 years and HPV 16 antibody, all, age 14-59 years).

Public Health Objectives:

Chlamydia trachomatis and *Neisseria gonorrhoeae* (Urine Test)

Sexually transmitted infections caused by *Chlamydia trachomatis* and *Neisseria gonorrhoeae* may lead to pelvic inflammatory disease, ectopic pregnancy, infertility, and chronic pelvic pain in women. They may also increase the risk of HIV transmission in women. Pregnant women may transmit infection to their newborn causing serious medical complications. At the present the prevalence of chlamydial and gonococcal infection in the general population of the United States is unknown. NHANES offers an opportunity to assess the prevalence of chlamydial and gonococcal infection in the general population and to monitor trends in prevalence as prevention programs are established and expanded.

Herpes simplex 1 and 2 (Blood Test)

Sera from NHANES subjects ages 14-49 will be tested for antibody to Herpes simplex 1 and 2 (HSV-1/2) to continue to monitor the prevalence of HSV-1/2 infection in the U.S. HSV-1 is a common chronic infection that is associated with lower socioeconomic status. HSV-2 is an index of sexually transmitted infections. In addition, questions about those sexual behaviors that are risk factors for sexually transmitted infections and that are the focus of major national HIV and sexually transmitted diseases risk reduction efforts will be included. The joint availability of sexually transmitted infection and risk factor data in a national sample on a periodic basis is a unique and invaluable resource for evaluation of national HIV/STD risk reduction efforts and for risk-based modeling of the frequency and trends of sexually transmitted infections.

HSV-2 infections are rarely life threatening, but morbidity due to recurrent genital ulcerations is substantial. Just as important, HSV-2 infection is the best current marker of sexual behavior risk factors leading to sexually transmitted infections, generally, because: (a) HSV-2 infections are common and, thus, HSV-2 rates are a sensitive measure of sexually transmitted infection risk factors; (b) HSV-2 infection is almost always a result of sexual transmission and, thus, a specific measure of sexually transmitted infection; (c) HSV-2 infections are not curable and, thus, HSV-2 risk is not influenced by health care seeking factors; and (d) sensitive, specific, and relatively inexpensive tests for HSV-2 antibody are available. HSV-2 is a very important index of the success of large national efforts, motivated by the acquired immunodeficiency epidemic, to reduce risky sexual behaviors.

HIV antibody (Blood or Urine Test)

The estimated prevalence of human immunodeficiency virus (HIV) infection in the United States population is an important measure of the extent of the medical and financial burden the nation faces due to this virus. NHANES III data on HIV infection during 1988-94 will serve as a baseline for monitoring the changes in the epidemic over time in the general population of the United States. In addition to HIV testing in NHANES, whole blood samples will be collected and stored for future CD4 testing once the HIV status of the sample is known. This will allow CDC to determine the distribution of CD4 cells in a random sample of HIV positive individuals. NHANES is now the only national survey collecting blood on a population based sample, therefore it will be a key element in future estimates. If the participant refuses phlebotomy but does not refuse the HIV test urine will be tested for HIV antibody.

Human papillomavirus (HPV) (Vaginal swab – DNA test; Blood test for antibody HPV

Genital human papillomavirus (HPV) infection is likely the most common sexually transmitted infection in the U.S., and cervical infection with certain types of HPV, especially HPV-16, is the single strongest risk factor for cervical cancer. No surveillance systems exist for HPV infections, the majority of which are subclinical. Serum from participants age 14-59 years will be tested for antibody to HPV-16, the antigenic type most linked with cervical cancer to estimate the percentage of individuals of both genders who have ever been infected with this virus. Testing of HPV DNA from vaginal swabs from women 14-59 will provide an estimate of current infection. Vaginal swabs will be tested for HPV DNA by the FDA approved Hybrid Capture II method (Digene) and by consensus PCR with type specific analysis. The Hybrid Capture assay will detect overall high risk HPV types, but cannot identify specific types. The PCR will allow identification of specific HPV type. Participants will be notified of their Hybrid Capture results and specific messages will be developed to explain the implications of the findings based on their age group.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings Level		
			1	2	3
Chlamydia trachomatis Neisseria gonorrhoeae	14-39	10 ml		Yes	Yes
Herpes 1 and 2 antibody	14-49	200 ul		Yes	Yes
HIV antibody	18-49	500 ul		Yes	Yes
HPV	14-59	500 µL			

* Persons with positive STD or HIV findings will be referred for counseling and treatment.

Justification for using vulnerable populations:

- Teenagers are included because they are at increasing risk for STD's. A pilot study in NHANES III demonstrated an increased prevalence chlamydial infection starting at age 14 years (whites 4%, blacks 12% Mexican Americans 6%).
- Mentally impaired persons will be excluded from the STD profile due to NCHS' inability to provide adequate support and counseling to this group with the test result.

Blood Lipids

Laboratory Measures:

Total Cholesterol, HDL- Cholesterol, LDL-Cholesterol, Triglycerides

Public Health Objectives:

The goals of this component are to:

1. Monitor the prevalence and trends in major cardiovascular conditions and risk factors in the U.S.;
2. Evaluate prevention and treatment programs targeting cardiovascular disease in the U.S.

The main element of the cardiovascular disease laboratory component in NHANES is blood lipid levels. Cardiovascular disease is the leading cause of death in the United States. An estimated 4.8 million Americans have congestive heart failure. Increasing prevalence, hospitalizations, and deaths have made congestive heart failure a major chronic condition in the United States.

The data will be used to:

1. Monitor the status of hypertension prevalence, awareness, treatment and control and the success of the National HBP Education Program;
2. monitor the status of hyperlipidemia and the success of the National Cholesterol Education Program;
3. Estimate the prevalence of congestive heart failure and compare to the baseline data from the NHANES I.

Health Measures, Eligibility, Report of Findings:

Health Measure	Eligibility	Volume Required	Report of Findings Level		
			1	2	3
Total Cholesterol	3 and older	+++		Yes	Yes
HDL-Cholesterol	3 and older	+++			Yes
LDL-Cholesterol	3 and older	calculated			Yes
Triglycerides*	3 and older	+++		Yes	Yes

+++ For all four assays and 1 ml used for persons 6 years and older

Environmental Health Profile

Laboratory measures for the following classes of chemicals:

- Cotinine
- 4-(Methylnitrosamino)-1-(3-pyridyl)-1-Butanol
- Heavy metals
- Phthalates
- Phytoestrogens
- Polycyclic aromatic hydrocarbons (PAHs)
- Organophosphate insecticides: dialky phosphate metabolites
- Organophosphate insecticides: specific metabolites
- Pyrethroid pesticides
- Organochlorine pesticides
- Other pesticides and fungicides
- Herbicides
- Halogenated phenolic compounds
- Perfluorinated compounds
- Polychlorinated and polybrominated dibenzo-p-dioxins and dibenzofurans
- Polychlorinated biphenyls (PCBs)
- Polybrominated diphenyl ethers
- Toxaphenes
- Volatile organic compounds
- Acrylamide
- Perchlorate

Public Health Objectives:

- to determine the types of chemicals and concentration levels to which Americans are exposed
- for chemicals with a known toxicity level, determination of the prevalence of persons above that toxicity level (e.g., blood lead > 10 µg/dL)
- to establish reference ranges that may be used by state and local public health physicians and scientists to determine whether an individual or group has an unusually high exposure
- to assess the effectiveness of efforts to reduce exposure to specific chemicals
- to determine whether exposure levels are higher among minorities, children, women of childbearing age, and other vulnerable groups
- to observe time trends in the levels of exposure within the population
- to set priorities for human health effects research

Additional information on the classes of environmental chemicals:

Environmental tobacco smoke exposure

Cotinine

Cotinine, a metabolite of nicotine, is measured in the blood as a biochemical marker to substantiate self-report of smoking and to define exposure to environmental tobacco smoke (ETS). The harmful effects of cigarette smoking have long been established, and evidence has accumulated linking exposure to ETS with lung cancer, respiratory and other chronic diseases. Measurements of cotinine have been included in the survey since NHANES III. At that time, findings from NHANES showed a preponderance of exposure to ETS. While major efforts have been made to limit tobacco smoking in public places and restaurants in order to minimize ETS exposure, the inclusion of this biochemical marker is useful to examine trends and track progress in this area.

NNAL

Another tobacco biomarker of importance is NNAL, a tobacco-specific nitrosamine (TSNA) which is a metabolite of NNK (NNK is (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone)) in the body, and which has been detected in the urine of smokers, and in many cases, in nonsmokers exposed to SHS. NNK is formed in tobacco and in cigarette smoke from nicotine, so it and its NNAL metabolite are as specific for tobacco and cigarette smoke exposure as is cotinine or nicotine itself. Furthermore, both NNK and NNAL are known to be potent pulmonary carcinogens in rodents, and they are believed to be lung carcinogens in people as well. Thus, measuring NNAL in people will help to address the exposures of both smokers and nonsmokers to this potent carcinogen.

Total NNAL in urine samples from NHANES 2007-2008 will be measured to help characterize the concentration levels of this important marker in the U.S. population of both smokers and nonsmokers, and to compare the findings with previous estimates based on a currently proposed retrospective assessment of residual samples from the prior NHANES 2005-2006 survey. As tobacco processing and cigarette manufacturing continue to change, and as newer tobacco delivery devices such as the "potentially reduced exposure products (PREPS)" are introduced, changes in carcinogen levels such as the TSNA may occur in people. Thus, we expect to continue to monitor NNAL in subsequent NHANES to track exposure levels in both smokers and nonsmokers over time. The use of surveys such as NHANES to address this issue has been implicitly proposed by the Institute of Medicine.

Heavy metals

Trace metals were associated with adverse health effects in occupational studies or laboratory studies, but these substances have not been monitored in general population. Urinary antimony (Sb), barium (Ba), beryllium (Be), cadmium (Cd), cesium (Cs), cobalt (Co), lead (Pb), molybdenum (Mo), platinum (Pt), thallium (Tl), tungsten (W), and uranium (U) levels were measured in previous NHANES. Urinary assessments of chromium (Cr), manganese (Mn) and nickel (Ni) were added to the laboratory protocol in NHANES 2005-2006. Exposure information will be used to establish population-based reference ranges and to evaluate the need for regulations to reduce levels of exposure.

Lead

Lead is a known environmental toxin that affects the nervous, hematopoietic, endocrine, renal and reproductive systems. In young children, lead exposure is a particular hazard because children more readily absorb lead than do adults, and children's developing nervous systems also make them more susceptible to the effects of lead. The primary sources of exposure for children are lead laden paint chips and dust as a result of deteriorating lead-based paint. The risk for lead exposure is disproportionately higher for children who are poor, non-Hispanic black, living in large metropolitan areas, or living in older housing. Among adults, the most common high exposure sources are occupational.

Blood lead levels measured in previous NHANES programs have been the cornerstone of lead exposure surveillance in the U.S. The data have been used to document the burden of and dramatic decline of elevated blood lead levels; to promote the reduction of lead use; and to help to redefine national lead poisoning prevention guidelines, standards and abatement activities.

Cadmium

Cadmium is used in batteries, pigments, metal coatings, and plastics. Cadmium enters the environment from the weathering and mining of rocks and minerals that contain cadmium. Contaminated water sources, foods, and combustion sources may also result in human exposure. Cadmium exposure occurs from inhalation of cigarette smoke. Exposure to cadmium may occur in industries, such as mining or electroplating, which use or produce the chemical. Once absorbed into the body, cadmium may remain for decades. Low level chronic exposures over many years may result in accumulation of cadmium in the kidneys. Chronic ingestion also has produced painful osteomalacia, a bone disorder similar to rickets in children. Large, acute airborne exposures to dusts and fumes, as occurs for example from welding on cadmium-alloyed metals, may result in severe swelling of the lungs (edema) and subsequent scarring (fibrosis). Other cadmium toxicity, as seen in animal studies, includes reproductive and teratogenic effects. The International Agency for Research on Cancer has determined that cadmium is a known human carcinogen.

Mercury

NHANES 2007-2008 will continue to include measurements of mercury species (methyl, ethyl, and inorganic) in blood to define exposure to various sources of mercury more precisely—methods became available for methyl and ethyl mercury and they are new to the protocol. Mercury is widespread in the environment and originates from natural and anthropogenic sources. The general population may be exposed to three forms of mercury: elemental, inorganic, or organic (primarily methylmercury). Elemental and inorganic mercury exposure can result from mercury spills, dental amalgams, and occupational exposures. Methylmercury is formed, through microbial action from inorganic mercury that deposits in aquatic environments and bioaccumulates in the food chain. Exposure occurs primarily through consumption of seafood and/or freshwater fish, particularly larger predatory fish. Methylmercury is a well-established human neurotoxin and the developing fetus is most sensitive to the adverse effects. The concentration of total mercury in blood is a reasonable biomeasure of methylmercury exposure. The concentration of total mercury in urine is a biomeasure of exposure to inorganic mercury. NHANES 1999-2002 provided the first estimates of exposure for US children and women of childbearing years based on measurements of total mercury in blood and total mercury in urine (women only Mercury assessments will be conducted in persons 1 year of age and older; urinary mercury will be measured in persons 6 years of age and older.

Arsenic

Arsenic is widely distributed in the earth's crust and is found most often in ground water rather than surface water. People encounter arsenic in many chemical forms that vary greatly in toxicity. The most toxic of the naturally-occurring arsenic compounds are inorganic forms of arsenic and their methylated metabolites. Less toxic are the organic arsenic compounds. Exposure to inorganic arsenic can result in a variety of adverse health effects, such as skin disorders, nerve impairment, cancer of the liver, bladder, kidneys, prostate, and lungs, and even death from large doses. People may be exposed to inorganic arsenic through activities such as drinking water contaminated from geological sources or because of occupational exposure, especially breathing air contaminated with sawdust or smoke from wood treated with chromated copper arsenic preservatives. Organic arsenic compounds are generally less toxic and may be encountered by ingesting various types of fish, shellfish, poultry or seaweed. Adverse health effects resulting from arsenic exposure include hematopoietic and immune system changes, cardiovascular and neurological disorders, as well as skin and internal cancers. In January 2001 the Environmental Protection Agency (EPA), in compliance with the 1996 Safe Drinking Water Act (SDWA) proposed a lower Maximum Contaminant Level (MCL) for arsenic in drinking water. The previous MCL was 50 ppb, a standard that was set by the U.S. Public Health Service in 1947. The new level proposed by the EPA is 10 parts per billion (ppb), the same limit is used by the World Health Organization (WHO).

Pesticides and Other Chemicals

Phthalates

Phthalate acid esters (phthalates) are used extensively as plasticizers in a wide range of applications such as children's toys, food packaging, and medical supplies. Because some of these compounds are known to be estrogenic and have been associated with a host of health problems in rats, such as cancers and teratogenicity, governments in Europe and Japan have become increasingly concerned about levels in food packaging materials and children's toys. Biomeasures of phthalates in humans is necessary to evaluate potential human health threats from exposure to these chemicals.

Phytoestrogens

Many different plants produce compounds, called phytoestrogens, that mimic or interact with estrogen. The major classes of phytoestrogens are lignans (present in flaxseed, carrots, berries, and grapes) and isoflavones (present in soybeans and other legumes). Biomeasures of phytoestrogens are necessary to establish reference ranges for these compounds and to evaluate their potential effects on human health.

Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs constitute a group of chemicals which are formed during the incomplete combustion of coal, oil and gas, garbage, and other organic substances. These compounds require metabolic activation prior to their interactions with cellular macromolecules. PAHs are ubiquitous, thus exposure to them is widespread. In general, people are exposed to mixtures of PAHs, the sources of which include vehicle exhausts, asphalt roads, coal, coal tar, wild fires, agricultural burning, charbroiled foods, and hazardous waste sites. Although most of the data regarding the carcinogenicity of these compounds comes from rats and mice, epidemiologic studies have shown increased mortality due to lung and bladder cancer in humans exposed to coke-oven emissions, roofing-tar emissions, and cigarette smoke. PAHs enter the body quickly and easily by all routes of exposure and are readily and predominantly metabolized to hydroxylated metabolites as well as glucuronide metabolites. These metabolites are excellent indicators of exposure to the parent PAHs. While background level ranges of PAHs in air and water are known, the equivalent metabolite background levels in humans are not known.

Non-persistent pesticides (organophosphate insecticides, pyrethroid pesticides, other pesticides and fungicides, and herbicides)

In the 2007-8 NHANES analysis of many pesticides will be measured in plasma as well as in urine. Parent compounds are measured in plasma, whereas metabolites of pesticides are generally measured in urine. Many of these pesticides were originally planned to be measured in serum in NHANES 2003-2004. However, degradation of parent compounds occurred in serum and these measurements were not done at that time. Methods have now become available to measure the pesticides in plasma. Additional pesticide metabolites in urine are added in 2007-2008 because of development of laboratory methods.

In 1999, about five billion pounds of pesticide active ingredients were used in the US, most of it for agricultural applications. The most recent registration data provided by the US EPA showed over 800 pesticidal active ingredients available in about 21,000 different formulations. Widespread use of the contemporary pesticides for agriculture and residential applications makes it virtually impossible for the average person to completely avoid exposure. Pesticide residues and their metabolites in human tissues and fluids can be indicative of pesticide exposure and the total body burden of these pesticides. Exposure to several pesticides was assessed by measuring urinary pesticide metabolites during NHANES 1999-2002. However, determination of the specific pesticide linked to the exposure can be inaccurate because some metabolites are common to multiple pesticides. Beginning in NHANES 2003-2004, specific pesticides in blood were also measured.

Little information is available concerning residential or household exposures to pesticides among the general population. Sufficient data do exist, however, from surveys or other focused research efforts to suggest that household exposure to certain common pesticides can be extensive and might be of significant public health concern. Pesticides of particular concern are: chlorpyrifos, 2,4-D, diazinon, permethrin, ortho-phenyl phenol, methyl parathion, and organophosphate pesticides.

Persistent organochlorines (organochlorine pesticides, polychlorinated and polybrominated dibenzo-p-dioxins and dibenzofurans, and polychlorinated biphenyls (PCBs))

Organochlorines are diverse, synthetic chemicals that are persistent in the environment and tend to bioaccumulate. Most of these chemicals are banned in the U.S. Assessment of exposure to persistent organochlorines in a representative sample of the U.S. population is needed to determine current prevalence and level of exposure and the potential for human health threat from exposure to these chemicals.

Perfluorinated compounds

Organic fluorochemicals are used in multiple commercial applications including surfactants, lubricants, paints, polishes, food packaging and fire-retarding foams. Recent scientific findings suggest that several perfluorinated surfactants, a group of these fluorochemicals, are ubiquitous contaminants found both in humans and animals worldwide, and there is increased concern regarding the toxicity of these perfluorinated compounds, including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS). PFOS has been used in a wide variety of industrial and consumer products including protective coatings for carpets and apparel, paper coatings, insecticide formulations, and surfactants. In May 2000, the 3M Company, the sole manufacturer of PFOS in the United States and the principal manufacturer worldwide, announced that it was discontinuing the production of fluorochemicals, including PFOS. PFOA is used primarily to produce its salts which are used in the production of fluoroelastomers and fluoropolymers, such as polytetrafluoroethylene (PTFE) and polyvinylidine fluoride (PVDF). PFOA is still being produced (e.g., by DuPont). PTFE has numerous uses in many industrial and consumer products, including coatings on textiles and carpet; uses in the automotive, mechanical, aerospace, chemical, electrical, medical, and building/construction industries; personal care products; and non-stick coatings on cookware. PVDF is used primarily in electrical/electronics, building/construction, and chemical processing industrial sectors.

Polybrominated diphenyl ethers (BDEs)
Brominated flame retardants (BFRs) are heavily used as additive or reactive chemicals in polymers and textiles. Increasing levels of polybrominated diphenyl ethers (PBDE) have been observed in mothers' milk from Sweden, Germany and Norway. PBDE concentrations found in North Americans are considerably higher than those found in Europeans. There is an increasing usage of PBDEs worldwide and results of several studies indicating that concentrations in North American populations may be increasing. Such information suggests that more information is needed to evaluate the degree of human exposure in the US population.

Toxaphene
Toxaphene is a mixture of chemicals that was one of the most commonly used insecticides in the United States prior to 1982. It consists predominantly of polychlorinated camphenes that are lipophilic (dissolve well in lipids) and persist for years in the environment. EPA banned the use of toxaphene in the U.S. in 1990. In 1993, EPA banned the importation of food that contained toxaphene residues. Toxaphene is considered a probable human carcinogen by EPA and the National Toxicology Program.

Volatile organic compounds (blood)
Additional volatile compounds are added in 2007-2008 because of laboratory method development. Exposure to volatile organic compounds (VOCs) is ubiquitous. Chronic exposure to extremely high levels of VOCs can lead to cancer and neurocognitive dysfunction. VOC exposure assessment will be expanded to include additional analytes of toxicological significance to include chemicals that are on priority toxicant or critical contaminant lists, and thus of toxicological concern. Hexane is a widely used solvent with neurotoxic properties. Acrylonitrile is a probable human carcinogen used widely in the polymer industry. Cis- and trans-1,3-dichloropropenes and 1,2-dibromoethane are widely used as soil fumigants resulting in unknown human exposure. Furan also became a VOC toxicant of interest on May 7, 2004 when FDA released extensive data showing levels of this potential human carcinogen in food products.

Volatile organic compounds (home tap water)
In addition to assessing levels of VOCs in blood, VOC levels will be measured in home tap water specimens provided by NHANES participants. The list of water VOC analytes was expanded in NHANES 2005 to include new water disinfection byproducts (5 halonitromethanes and 2 iodotrihalomethanes) and new fuel oxygenate ethers that may be used to replace Methyl Tertiary Butyl Ether (MTBE). The new water disinfection byproducts are more toxic than the currently regulated trihalomethanes. Widespread exposure to potentially toxic new fuel oxygenates may occur as MTBE usage is decreased.

Trans-fatty acids
Trans-fatty acids are produced when liquid oils are chemically modified to give solid fat - a process called hydrogenation. From the widespread use of trans-fatty acids in processed foods, the majority of the US population is exposed. Because of their unique structure, trans-fatty acids have biological activities that are different from those of naturally occurring unsaturated fatty acids. Controlled intervention (feeding) studies in different population groups in the United States and other countries consistently indicate that consumption of diets containing trans fatty acids results in elevations of serum LDL-C (the major dietary risk factor for coronary heart disease, CHD) compared with consumption of diets containing naturally occurring unsaturated fatty acids. The relationship between the intake of trans fatty acids and coronary heart disease is now established. In response to health concerns, the FDA has issued requirements for food manufacturers to identify trans-fatty acids in their products. The trans fatty acid content in food has been limited in many other countries.

Acrylamide
In April 2002 the Swedish National Food Administration and researchers from Stockholm University announced their findings that acrylamide, a toxic and potentially cancer-causing chemical, is formed in high amounts in many types of food prepared/cooked at high temperatures. Because acrylamide is formed during the cooking process, specifically when producing French fries, potato chips and other fried products, intake of acrylamide through consumption of these foods can be high, thus exposing a large portion of the population to this chemical and putting them at risk of adverse health effects. Though acrylamide is known to cause adverse health effects and biomarkers exist to assess exposure to this chemical, no data on the actual acrylamide exposure in the population exist. Filling this knowledge gap is especially important to properly assess the risks associated with the consumption of food containing high levels of acrylamide.

Perchlorate

Perchlorate is a polyatomic anion that can disrupt thyroid function by competitively inhibiting iodide uptake. Despite the potential health effects of perchlorate exposure, widespread use of perchlorate salts coupled with little regulation concerning its disposal has led to widespread environmental contamination. Perchlorate is primarily produced as ammonium perchlorate for use as an oxidant in solid fuel propellants for rockets and missiles. Lesser amounts of perchlorate are used in matches, fireworks, and automotive airbags. Industries using perchlorate in the past have legally dumped large amounts into unlined lagoons resulting in large plumes of contamination in many areas of the United States.

Eligibility and Report of Findings:

Blood lead, blood cadmium, and blood mercury are measured in persons 1 year and older. Serum cotinine is measured in persons 3 years and older. Blood VOCs are measured in a ½ sample of persons 12 years and older. Urine perchlorate is measured in full sample of persons 6 years and older. All other serum analytes are measured in a one-third subsample of persons 12 years and older. All urine analytes are measured in a one-third subsample of persons 6 years and older. Blood lead, blood cadmium, blood mercury and urine arsenic results above critical values are reported to survey participants.

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Tobacco Smoke						
Cotinine/ vial 17	serum	Age 3 +	3-5 yrs, 1 ml			
Cotinine/ vial 17	serum	Age 3 +	6+yrs. 1.3-1.8			
Metals						
Lead/ vial 1	whole blood	Age 1 +	1-3 yrs, 300ul		Yes	Yes
Lead/ vial 1	whole blood	Age 1 +	6+ yrs, 400ul			
Lead/ vial 50	urine	Heavy metal 1/3 subsample age 6+	10 ml			
Cadmium/vial 1	whole blood	Age 1+	See blood Lead	Yes	Yes	Yes
Cadmium /vial 50	urine	Heavy metal (HM) subsample age 6+	10 ml			
Mercury /vial 1	whole blood	Age 1+	See blood Lead	Yes	Yes	Yes
Mercury/vial 62	urine	HM subsample age 6+	10 ml			
Cobalt/ vial 50	urine	HM subsample age 6+	10 ml			
Uranium/vial 50	urine	HM subsample age 6+	10 ml			
Antimony/vial 50	urine	HM subsample age 6+	10 ml			
Barium/vial 50	Urine	HM subsample age 6+	10 ml			
Beryllium/vial 50	Urine	HM subsample age 6+	10 ml			
Cesium/vial 50	urine	HM subsample age 6+	10 ml			
Molybdenum/vial 50	urine	HM subsample age 6+	10 ml			
Platinum/vial 50	urine	HM subsample age 6+	10 ml			
Thallium/vial 50	urine	HM subsample age 6+	10 ml			
Tungsten/vial 50	urine	HM subsample age 6+	10 ml			
Arsenic/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Arsenous (3) acid/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Arsenic (V) acid/vial 86	urine	Age 6 + 1/3 subsample	3 ml	Yes	Yes	Yes
Monomethyl Arsonic acid/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Dimethyl Arsinic acid/vial 86	urine	Age 6 + 1/3 subsample	3 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Arsenobetaine/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Arsenocholine/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Trimethylarsine oxide/vial 86	urine	Age 6 + 1/3 subsample	3 ml			
Iodine/vial 69	urine	Age 6+ 1/3 subsample	3 ml			
Inorganic Mercury/vial 5	whole blood	Age 1 +	500ul;			
Methyl Mercury/vial 5	whole blood	Age 1 +	500ul;			
Ethyl Mercury/vial 5	whole blood	Age 1 +	500ul;			
Phthlates						
Mono-methyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-ethyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-n-butyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-iso-butyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-benzyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-cyclohexyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-2-ethylhexyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-(2-ethyl-5-oxohexyl) phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-(2-ethyl-5-hydroxyhexyl) phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-(3-carboxypropyl) phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-n-octyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-isononyl phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Mono-(5-carboxy-2-ethylpentyl) phthalate/vial 67	urine	Age 6+ 1/ 3 subsample	3ml			
Phytoestrogens						
Daidzein/vial 65	urine	Age 6+ 1/3 subsample	3ml			
Enterodiol/vial 65	urine	Age 6+ 1/3 subsample	3ml			
Enterolactone/vial 65	urine	Age 6+ 1/3 subsample	3ml			
Equol/vial 65	urine	Age 6+ 1/3 subsample	3ml			
Genistein/vial 65	urine	Age 6+ 1/3 subsample	3ml			
O-Desmethylangolensin/vial 65	urine	Age 6+ 1/3 subsample	3ml			
Polycyclic Aromatic Hydrocarbons						
1-Hydroxybenz[a]anthracene /vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxybenz[a]anthracene and 9-Hydroxybenz[a]anthrace	urine	Age 6+ 1/3 subsample	3ml			
1-Hydroxybenzo[c]phenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
2-Hydroxybenzo[c]phenanthrene /vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxybenzo[c]phenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
1-Hydroxychrysene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
2-Hydroxychrysene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxychrysene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
4-Hydroxychrysene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
6-Hydroxychrysene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxyfluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
2-Hydroxyfluorene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxyfluorene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
9-Hydroxyfluorene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
1-Hydroxyphenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
2-Hydroxyphenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxyphenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
4-Hydroxyphenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
9-Hydroxyphenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
1-Hydroxypyrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
3-Hydroxybenzo[a]pyrene/vial 66	urine	Age 6+ 1/3 subsample	3ml			
1-Hydroxynapthalene (1-Naphthol)/vial 66	urine	Age 6+ 1/3 subsample	3ml			
1-Hydroxynapthalene (1-Naphthol)/vial 91	serum	Age 12 +1/3 subsample	4 ml			
2-Hydroxynapthalene (2-Naphthol)/ vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-Hydroxynapthalene (2-Naphthol)/ vial 91	serum	Age 12 +1/3 subsample	4 ml			
1-amino-naphthalene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-amino-biphenyl/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-amino-naphthalene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
4-amino-biphenyl/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
1-amino-fluorene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-amino-fluorene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
9-amino-phenanthrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
1-amino-anthracene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-amino-anthracene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
3-amino-fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
1-amino-pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
6-amino-chrysene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
3-amino-benzanthrone/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
8-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
7-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
1-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
9-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
12-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
8-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
9-OH-benzo(e)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
3-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
12-OH-benzo(a)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
5-OH-benzo(a)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
11-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
6-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
3-OH-benzo(k)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
4-OH-benzo(e)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
10-OH-benzo(b)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
9-OH-benzo(k)fluoranthene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
7-OH-benzo(a)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
10-OH-benzo(e)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
3-OH-benzo(e)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
2-OH-benzo(e)pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
1-OH-indeno-[1,2,3-c,d]-pyre/vial 66ne	urine	Age 6+ 1/3 subsample	3 ml			
2-OH-indeno-[1,2,3-c,d]-pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
6-OH-indeno-[1,2,3-c,d]-pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
8-OH-indeno-[1,2,3-c,d]-pyrene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
3-OH-dibenzo[a,h]anthracene/vial 66	urine	Age 6+ 1/3 subsample	3 ml			
Organophosphate Insecticides: Dialkyl Phosphate Metabolites						
Dimethylphosphate/vial 49	urine	1/3 subsample age 6+	10 ml			
Dimethylthiophosphate/vial 49	urine	1/3 subsample age 6+	10 ml			
Dimethyldithiophosphate/vial 49	urine	1/3 subsample age 6+	10 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Diethylphosphate/vial 49	urine	1/3 subsample age 6+	10 ml			
Diethylthiophosphate/vial 49	urine	1/3 subsample age 6+	10 ml			
Diethyldithiophosphate/vial 49	urine	1/3 subsample age 6+	10 ml			
Organophosphate Insecticides: Specific Metabolites						
Malathion dicarboxylic acid/vial 49	urine	1/3 subsample age 6+	10 ml			
para- Nitrophenol/vial 49	urine	1/3 subsample age 6+	10 ml			
3,5,6-Trichloro-2-pyridin/vial 49ol	urine	1/3 subsample age 6+	10 ml			
2-Isopropyl-4-methyl-6-hydroxypyrimidine/vial 49	urine	1/3 subsample age 6+	10 ml			
2-(diethylamino)-6-methylpyrimidin-4-ol/one /vial 49	urine	1/3 subsample age 6+	10 ml			
3-Chloro-7-hydroxy-4-methyl-2H-chromen-2-one/ol /vial 49	urine	1/3 subsample age 6+	10 ml			
Chlorpyrifos/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Diazinon/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Dichlorovos/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Fonophos/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Malathion/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Methyl parathion/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Parathion/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Phorate/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
Terbufos/vial 91	serum	1/ 3 subsample age 12+	4 lmL			
5-Chloro-1,2-dihydro-1-isopropyl-[3H]-1,2,4-triazol-3-one/via	urine	1/3 subsample age 6+	10 ml			
Acephate/vial 49	urine	"	"			
Methamidaphos/vial 49	urine	"	"			
Pyrethroid Pesticides						

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
4-Fluoro-3-phenoxybenzoic acid /vial 48	urine	1/3 subsample age 6+	10 ml			
Cis-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxyli	urine	1/3 subsample age 6+	10 ml			
Trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carbox	urine	1/3 subsample age 6+	10 ml			
Cis-3-(2,2-dibromovinyl)-2,2-dimethylcyclopropane carboxyli	urine	1/3 subsample age 6+	10 ml			
3-Phenoxybenzoic acid /vial 48	urine	1/3 subsample age 6+	10 ml			
cis/trans-dimethylvinylcyclopropane carboxylic diacid/vial 48	urine	1/3 subsample age 6+	10 ml			
Allethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Cyfluthrin /vial 91	serum	1/3 subsample age 12 +	4 ml			
Cyhalothrin/ vial 91	serum	1/3 subsample age 12 +	4 ml			
Cypermethrin /vial 91	serum	1/3 subsample age 12 +	4 ml			
Deltamethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Fenoxycarb/vial 91	serum	1/3 subsample age 12 +	4 ml			
Fenvalerate/vial 91	serum	1/3 subsample age 12 +	4 ml			
Imidacloprid/vial 91	serum	1/3 subsample age 12 +	4 ml			
Imiprothrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Prallethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Resmethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Sumithrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Tetramethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Tralomethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
trans-Permethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
cis-Permethrin/vial 91	serum	1/3 subsample age 12 +	4 ml			
Hexachlorobenzene/vial 91	serum	1/3 subsample age 12 +	4 ml			
Organochlorine pesticides						
Beta-hexachlorocyclohexane/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Gamma-hexachlorocyclohexane/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
p,p'- DDT/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
p,p' -DDE/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
o,p' -DDT/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Oxychlordane/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
trans -Nonachlor/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Heptachlor Epoxide/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Mirex/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Aldrin/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Dieldrin/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Endrin /vial 28	serum	1/ 3 subsample age 12 +	8 ml			
alpha-Hexachlorocyclohexane (HCCH)/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
cis-Chlordane (or alpha)/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
trans-Chlordane (or gamma)/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
cis-Nonachlor/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
o,p'-DDE/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
p,p'-Methoxychlor/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Isodrin/vial 28	serum	1/ 3 subsample age 12 +	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Octachlorosytrene/vial 28	serum	1/ 3 subsample age 12 +	8 ml			
Dihydroxy methoxychlor/vial 48	urine	1/3 subsample age 6+	10 ml			
Endosulfan-ether/vial 48	urine	1/3 subsample age 6+	10 ml			
Endosulfan-lactone/vial 48	urine	1/3 subsample age 6+	10 ml			
Endosulfan-sulfate/vial 48	urine	1/3 subsample age 6+	10 ml			
Monohydroxy methoxychlor/vial 48	urine	1/3 subsample age 6+	10 ml			
Other Pesticides and Fungicides						
2-Isopropoxyphenol/vial 91	serum	1/3 subsample age 12 +	4 ml			
2-Isopropoxyphenol/vial 48	urine	1/ 3 subsample age 6+	10 ml			
Carbofuranphenol/vial91	serum	1/3 subsample age 12+	4 ml			
Carbofuranphenol/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
ortho -Phenylphenol/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
2,5-Dichlorophenol/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
Ethylenethio urea (ETU)/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
Propylenethio urea (PTU)/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
Aldicarb-SO/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
Aldicarb-SO2/vial 48	urine	1/ 3 subsample age 6 +	10 ml			
Bendiocarb/vial 91	serum	1/3 subsample age 12+	4 ml			
Carbofuran/vial 91	serum	1/3 subsample age 12+	4 ml			
Propoxur/vial 91	serum	1/3 subsample age 12+	4 ml			
Chlorothalonil/vial 91	serum	1/3 subsample age 12+	4 ml			
Pyrethrin I/vial 91	serum	1/3 subsample age 12+	4 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Phthalimide/vial 91	serum	1/3 subsample age 12+	4 ml			
Tetrahydrophthalimide/vial 91	serum	1/3 subsample age 12+	4 ml			
Metalaxyl/vial 91	serum	1/3 subsample age 12+	4 ml			
Amidosulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Azimsulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Bensulfuron-methyl/vial 48	urine	1/3 subsample age 6+	10ml			
Chloroimuron ethyl/vial 48	urine	1/3 subsample age 6+	10ml			
Flazasulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Flupyrsulfruon methyl/vial 48	urine	1/3 subsample age 6+	10ml			
Foramsulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Halosulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Halosulfuron-methyl/vial 48	urine	1/3 subsample age 6+	10ml			
Imazosulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Nicosulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Primisulfuron-methy/vial 48l	urine	1/3 subsample age 6+	10ml			
Pyrazosulfuron ethyl/vial 48	urine	1/3 subsample age 6+	10ml			
Rimsulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
Sulfometuron-meth/vial 48yl	urine	1/3 subsample age 6+	10ml			
Sulfosulfuron/vial 48	urine	1/3 subsample age 6+	10ml			
N,N-diethyl-3-methylbenzamide (DEET)/vial 91	serum	1/3 subsample age 12+	4 ml			
N,N-diethyl-3-methylbenzamide (DEET)/vial 48	urine	1/3 subsample age 6+	10 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
DEET acid/ vial 48	urine	1/3 subsample age 6+	10 ml			
Desethyl DEET/ vial 48	urine	1/3 subsample age 6+	10 ml			
Desethyl DEET acid/ vial 48	urine	1/3 subsample age 6+	10 ml			
Desethyl hydroxy DEET/ vial 48	urine	1/3 subsample age 6+	10 ml			
Captan/ vial 48	urine	1/3 subsample age 6+	10 ml			
Dichloran/vial 91	serum	1/3 subsample age 12+	4ml			
Folpet/vial 91	serum	1/3 subsample age 12+	4ml			
Piperonyl butoxide/ vial 91	serum	1/3 subsample age 12+	4ml			
Chlorsulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Cinosulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Ethametsulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Metsulfuron-methyl/vial 48	urine	1/3 subsample age 6+	10 ml			
Prosulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Thifensulfuron-methyl/vial 48	urine	1/3 subsample age 6+	10 ml			
Thiofensulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Triasulfuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Tribenuron/vial 48	urine	1/3 subsample age 6+	10 ml			
Tribenuron-methyl/vial 48	urine	1/3 subsample age 6+	10 ml			
Triflusulfuron-methyl/vial 48	urine	1/3 subsample age 6+	10 ml			
Herbicides						
2,4,5-Trichlorophenoxyacetic acid/vial 48	urine	1/3 subsample ages 6+	10 ml			
2,4-Dichlorophenoxyacetic acid/vial 48	urine	1/3 subsample ages 6+	10 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
2,4-Dichlorophenol/vial 48	urine	1/3 subsample ages 6+	10 ml			
Atrazine mercapturate/vial 48	urine	1/3 subsample ages 6+	10 ml			
Alachlor mercapturate/vial 48	urine	1/3 subsample ages 6+	10 ml			
Acetochlor mercapturate /vial 48	urine	1/3 subsample ages 6+	10 ml			
Metolachlor mercapturate /vial 48	urine	1/3 subsample ages 6+	10 ml			
Dichlorophenyl methyl urea/vial 48	urine	1/3 subsample ages 6+	10 ml			
Dichlorophenyl urea/vial 48	urine	1/3 subsample ages 6+	10 ml			
Dimethoxy pyrimidine/vial 48	urine	1/3 subsample ages 6+	10 ml			
Dimethyl pyrimidine/vial 48	urine	1/3 subsample ages 6+	10 ml			
Diuron/vial 48	urine	1/3 subsample ages 6+	10 ml			
Linuron/vial 48	urine	1/3 subsample ages 6+	10 ml			
Methyl methoxytriazine/vial 48	urine	1/3 subsample ages 6+	10 ml			
Glyphosate/vial 48	urine	1/3 subsample ages 6+	10 ml			
Acetochlor/vial 91	serum	1/3 subsample ages 12+	4 ml			
Alachlor/vial 91	serum	1/3 subsample ages 12+	4 ml			
Atrazine/vial 91	serum	1/3 subsample ages 12+	4 ml			
Desethylatrazine/vial 48	urine	1/3 subsample age 6+	10 ml			
Desisopropylatrazine/vial 48	urine	1/3 subsample age 6+	10 ml			
Hydroxyatrazine/vial 48	urine	1/3 subsample age 6+	10 ml			
Dacthal/vial 91	serum	1/3 subsample ages 12+	4 ml			
Metolachlor/vial 91	serum	1/3 subsample ages 12+	4 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Trifluralin/vial 91	serum	1/3 subsample ages 12+	4 ml			
Aminomethyl phosphonic acid/vial 48	urine	1/3 subsample age 6+	10 ml			
Halogenated Phenolic Compounds						
2,4,5-Trichlorophenol/vial 48	urine	1/3 subsample age 6+	10 ml			
2,4,6-Trichlorophenol/ vial 48	urine	1/3 subsample age 6+	10 ml			
2,4,5-Trichlorophenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
2,4,6-Tribromophenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
2,6-Dibromophenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
2,4-Dibromophenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Pentachlorophenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Pentachlorophenol/vial 48	urine	1/3 subsample age 6+	10 ml			
Pentachloroanisole/ vial 28	serum	1/3 subsample ages 12+	8 ml			
5-Chloro-2-(2,4-dichlorophenoxy)-phenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Hexachlorophene/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Pentabromphenol/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Tetrachlorobisphenol A/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Tetrabromobisphenol A/ vial 28	serum	1/3 subsample ages 12+	8 ml			
Perfluorinated compounds						
2-(N-Ethyl- Perfluorooctane sulfonamido) acetic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
2-(N-Methyl-perfluorooctane sulfonamido) acetic acid/ vial 9(	serum	1/3 subsample age 12+	4 ml			
Pefluorodecanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorobutane sulfonic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Perfluoroheptanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorohexane sulfonic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorohexanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorononanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorooctane sulfonamide/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorooctane sulfonic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluorooctanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluoropentanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perfluoroundecanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
Perflurododecanoic acid/ vial 90	serum	1/3 subsample age 12+	4 ml			
3-tert-butyl phenol/ vial 90	serum	1/3 subsample age 12+	4 ml			
4-tert-butyl phenol/ vial 90	serum	1/3 subsample age 12+	4 ml			
Benzophenone-3/ vial 90	serum	1/3 subsample age 12+	4 ml			
Bisphenol A/ vial 90	serum	1/3 subsample age 12+	4 ml			
n-nonyl phenol/ vial 90	serum	1/3 subsample age 12+	4 ml			
n-octyl phenol/ vial 90	serum	1/3 subsample age 12+	4 ml			
tert-octyl phenol/ vial 90	serum	1/3 subsample age 12+	4 ml			
Triclosan/ vial 90	serum	1/3 subsample age 12+	4 ml			
Polychlorinated and Polybrominated Dibenzo - - dioxins and Dibenzofurans						
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)/vial 28	serum	1/3 subsample ages 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) /vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,7,8-Tetrachlorodibenzofuran (TCDF)/vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,7,8-Tetrabromorodienzo-p-dioxin (tbdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8-Pentabromodibenzo-p-dioxin (pndd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8-Hexabromorodibenzo-p-dioxin (hxbdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,6,7,8-Hexabromodibenzo-p-dioxin (hxbdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8,9-Hexabromodibenzo-p-dioxin (hxbdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8-Heptabromoodibenzo-p-dioxin (hpbdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8,9-Octabromodibenzo-p-dioxin (obdd)/vial 28	serum	1/3 subsample ages 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
2,3,7,8,-Tetrabromodibenzofuran (tbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8-Pentabromodibenzofuran (pbcdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,4,7,8-Pentabromodibenzofuran (pbcdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8-Hexabromodibenzofuran (hxbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,6,7,8-Hexabromodibenzofuran (hxbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,7,8,9-Hexabromodibenzofuran (hxbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3,4,6,7,8,-Hexabromodibenzofuran (hxbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8-Heptabromodibenzofuran (hpbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,7,8,9-Heptabromodibenzofuran (hpbdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
1,2,3,4,6,7,8,9-Octabromodibenzofuran (obdf)/vial 28	serum	1/3 subsample ages 12+	8 ml			
2,Bromo-3,7,8-Trichlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
2,3-Dibromo-7,8-Dichlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
1-Bromo-2,3,7,8-Tetrachlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
2-Bromo-3,6,7,8,9-Pentachlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
1-Bromo-2,3,6,7,8,9-Hexachlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
1-Bromo-2,3,4,6,7,8,9-Hepatachlorodibenzo-p-Dioxin/vial 28	serum	1/3 subsample ages 12+	8 ml			
3-Bromo-2,7,8-Trichlorodibenzofuran/vial 28	serum	1/3 subsample ages 12+	8 ml			
1-Bromo-2,3,7,8-Tetrachlorodibenozofuran/vial 28	serum	1/3 subsample ages 12+	8 ml			
Polychlorinated Biphenyles						
2,2',5-Trichloro biphenyl (PCB 18)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,4,4'-Trichlorobiphenyl (PCB 28) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2'3,5'-Tetrachloro biphenyl (PCB 44)/vial 28	serum	1/3 subsample age 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
2,2',4,5'-Tetrachloro biphenyl (PCB 49)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',5,5'-Tetrachlorobiphenyl (PCB 52) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,4,4',5-Tetrachlorobiphenyl (PCB 74)/vial 28	serum	1/3 subsample age 12+	8 ml			
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)/vial 28	serum	1/3 subsample age 12+	8 ml			
3,4,4',5-Tetrachlorobiphenyl (PCB 81) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5-Pentachlorobiphenyl (PCB 99) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3,3',4',6-Pentachlorobiphenyl (PCB 110)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3',4,4',5-Pentachlorobiphenyl (PCB 118) /vial 28	serum	1/3 subsample age 12+	8 ml			
2',3,4,4',5-Pentachlorobiphenyl (PCB 123)/vial 28	serum	1/3 subsample age 12+	8 ml			
3,3',4,4',5-Pentachlorobiphenyl (PCB 126) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138	serum	1/3 subsample age 12+	8 ml			
2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4',5',6'-Hexachlorobiphenyl (PCB 149)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153) /vial 28	serum	1/3 subsample age 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) /vial 28	serum	1/3 subsample age 12+	8 ml			
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (F	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 201)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl (PCB 206)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,5',6,6'-Decachloro biphenyl (PCB 209)/vial 28	serum	1/3 subsample age 12+	8 ml			
4-HO-CB107/vial 28	serum	1/3 subsample age 12+	8 ml			
3-HO-CB153/vial 28	serum	1/3 subsample age 12+	8 ml			
4-HO-CB146/vial 28	serum	1/3 subsample age 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
4-HO-CB187/vial 28	serum	1/3 subsample age 12+	8 ml			
Polybrominated Diphenyl Ethers						
2,2',4'-Tribromodiphenyl ether (BDE 17)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,4,4'-Tribromodiphenyl ether (BDE 28)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3',4,4'-Tetrabromodiphenyl ether (BDE 66) /vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5,5'-Hexabromobiphenyl (BB 153)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)/vial 28	serum	1/3 subsample age 12+	8 ml			
Hexabromocyclododecane (HBCDD)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether (BDE 196)/vial 2	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',6,6'-Octabromodiphenyl ether (BDE 197)/vial 2	serum	1/3 subsample age 12+	8 ml			
2,2',3,4,4',5,5',6-Octabromodiphenyl ether (BDE 203)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether (BDE 206)/via	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether (BDE 207)/via	serum	1/3 subsample age 12+	8 ml			
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether (BDE 208)/via	serum	1/3 subsample age 12+	8 ml			
Decabromodiphenyl ether (BDE 209)/vial 28	serum	1/3 subsample age 12+	8 ml			
1,2-bis(2,4,6-tribromophenoxy) ethane (BTBPE)/vial 28	serum	1/3 subsample age 12+	8 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Hexabromobenzene (HBB)/vial 28	serum	1/3 subsample age 12+	8 ml			
Decabromodiphenyl ethane (DBDEthane)/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3-Dibromopropanol/vial 28	serum	1/3 subsample age 12+	8 ml			
2,3-Dibromopropanol/vial 48	urine	1/3 subsample age 6+	10 ml			
Toxaphenes						
Parlar 26 2-Endo,3-exo,5-endo,6-exo,8b,8c,10a,10c-octachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Parlar 50 2-Endo,3-exo,5-endo,6-exo,8b,8c,9c,10a,10c-nonachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Parlar 62 2,2,5,5,8c,9b,9c,10a,10b-nonachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Parlar 40 2-Endo,3-exo,5-endo,6-exo,8b,9c,10a,10c-octachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Parlar 41 2-Exo,3-endo,5-exo,8c,9b,9c,10a,10b-octachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Parlar 44 2-Exo,5,5,8c,9b,9c,10a,10b-octachlorobornane/ vial 28	serum	"1/3 subsample age 12+	8 ml			
Volatile Organic Compounds-VOCs)						
1,1,1-Trichloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,1,2,2-Tetrachloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,1,2-Trichloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,1-Dichloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,1-Dichloroethene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,2-dibromo-3-chloropropane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,2-dibromoethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,2-Dichlorobenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,2-Dichloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,2-Dichloropropane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
1,3-Dichlorobenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
1,4-Dichlorobenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
2,5-Dimethylfuran/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Acrylonitrile/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Benzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Bromodichloromethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Bromodichloromethane/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			
Bromoform/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Bromoform/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			
Carbon Tetrachloride/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Chlorobenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Chloroform/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Chloroform/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			
cis-1,2-Dichloroethene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Dibromochloromethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Dibromochloromethane/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			
Dibromomethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Ethylbenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Furan/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Hexachloroethane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Hexane/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Iodobromochloromethane/ vial 4	Whole blood	1/ 2 subsample, 12+	10 ml			
Iodobromochloromethane/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Iododichloromethane/ vial 4	Whole blood	1/ 2 subsample, 12+	10 ml			
Iododichloromethane/ vial 56	Home tap water	12 yrs+ 1/2 1subsample	5 ml			
m-/p-Xylene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Methylene Chloride/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Methyl-tert-Butyl Ether (MTBE)/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Methyl-tert-Butyl Ether (MTBE)/ vial 56	Home tap water	12 yrs+ 1/2 subsample	5 ml			
Nitrobenzene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
o-Xylene/ vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Styrene/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Tetrachloroethene/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Toluene/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
trans-1,2-Dichloroethene/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Trichloroethene/vial 4	whole blood	1/ 2 subsample, 12+	10 ml			
Trans Fatty Acids						
Hexadecanoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
cis-9-Hexadecenoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
trans-9-Octadecenoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
Octadecanoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
cis-9-Octadecenoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
trans-9-Octadecenoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
cis,cis-9,12-Octadecadienoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
trans,trans-9,12-Octadecadienoic acid/ vial 28	serum	1/3 subsample 12+	8 ml			
Other						
Perchlorate/ vial 102	urine	Age 6+	5 ml			

Analyte Name/ Vial	Matrix	Eligibility	Volume in a vial (multiple tests per vial)	Report of Findings 1	2	3
Perchlorate/ vial 56	Home tap water	12 yrs+ 1/2 subsample	10 ml			
Acrylamide/ vial 88	Whole blood	Age 3+	1 ml			
Glycidamide/ vial 88	Whole blood	Age 3+	1 ml			