

**NHANES 2001–2002 Data Release
September 2004
Documentation for Laboratory Results**

Laboratory 6 – Urinary Iodine

(1) Documentation File Date – September 24, 2004

(2) Documentation File Name – Laboratory 6 - Urinary Iodine

(3) Survey Years Included in this File Release – 2001–2002

(4) Component Description

Trace metals have been associated with adverse health effects in occupational studies or laboratory studies, but have not been monitored in general population groups. Information on levels of exposure to these compounds is essential to determine the need for regulatory mechanisms to reduce the levels of hazardous pollutants to which the general population is exposed and to establish population-based reference intervals for several potentially toxic metals.

(5) Sample Description:

5.1 Eligible Sample

Participants aged 6 years and older on a one-third sample were tested.

(6) Description of the Laboratory Methodology

Inductively coupled plasma-mass spectrometry (ICP-MS) is a multi-element analytical technique. Liquid samples are introduced into the ICP through a nebulizer and spray chamber carried by a flowing argon stream. By coupling radio-frequency power with flowing argon, plasma is created in which the predominant species are positive argon ions and electrons. The sample passes through a region of the plasma that has a temperature of 6000–8000 K. The thermal energy atomizes the sample and then ionizes the atoms. The ions and the argon enter the mass spectrometer through the interface that separates the ICP, which operates at atmospheric pressure, from the mass spectrometer, which operates at a pressure of 10^{-6} torr. The mass spectrometer permits rapid-sequence ion detection at each mass, which allows determination of individual isotopes of an element. Electrical signals from the ion detection are processed into digital information that is used to first indicate the intensity of the ions and then is used to indicate the concentration of the element. Urine samples are diluted 1+9 with 1% (v/v) tetramethylammonium hydroxide (TMAH) containing tellurium for internal standardization.

(7) Laboratory Quality Control and Monitoring

The NHANES quality control and quality assurance protocols (QA/QC) meet the 1988 Clinical Laboratory Improvement Act mandates. Detailed quality control and quality assurance instructions are discussed in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM). Read the LABDOC file for detailed QA/QC protocols.

(8) Data Processing and Editing

Specimens were processed, stored and shipped to Division of Laboratory Sciences, National Center for Environmental Health, National Centers for Disease Control and Prevention, Atlanta, Georgia. Detailed specimen collection and processing instructions are discussed in the NHANES Laboratory/Medical Technologists Procedures Manual (LPM). Read the LABDOC file for detailed data processing and editing protocols. The analytical methods are described in the Description of the Laboratory Methodology section.

(9) Data Access:

All data are publicly available.

(10) Analytic Notes for Data Users:

Measures of urinary iodine were assessed in participants aged 6 years and over on a one-third sample.

The analysis of NHANES 2001–2002 laboratory data must be conducted with the key survey design and basic demographic variables. The NHANES 2001–2002 Household Questionnaire Data Files contain demographic data, health indicators, and other related information collected during household interviews. They also contain all survey design variables and sample weights for these age groups. The phlebotomy file includes auxiliary information such as the conditions precluding venipuncture. The household questionnaire and phlebotomy files may be linked to the laboratory data file using the unique survey participant identifier SEQN.

(11) Subsample Weight Notes

Special sample weights are required to analyze these data properly. Use the special weights included in this data file when analyzing data.

(12) References

N/A