

**TITLE:**

Blood and urine exposure biomarkers as environmental surveillance tools for assessing military deployment exposures

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**ABSTRACT:**

This collaborative project will test newly developed blood and urine exposure biomarkers as environmental surveillance tools for assessing military personnel exposure to relevant military contaminants during military deployments. The objective of this research was to compare existing environmental exposure monitoring methods to new exposure biomarker methods by determining levels of volatile organic compounds, total and isotopic uranium, chemical agents, and heavy metals in the blood and/or urine of deployed troops pre-, during, and post deployment. Data from human specimens and environmental samples will be collected prospectively. Human specimens were compared internally and externally to national reference ranges published by the National Health and Nutrition Examination Survey. Environmental samples were used to determine correlations between external monitoring and exposure biomarker methods. Data collection was integrated with spatial (Geographical Information System) and epidemiological data for human populations. Once validated, this methodology will assess potential chemical health risks to future deployed forces and provide critical public health policy information.