

Mercury levels in hair from pregnant women in Suriname

P Ouboter¹, G Landburg¹, M Lichtveld², W. Zijlmans³, S. MacDonald-Ottevanger³, J. Wickliffe²

¹National Zoological Collection of Suriname/Environmental Research Center (NZCS/CMO), Anton de Kom University of Suriname, Paramaribo, Suriname

²Department of Global Environmental Health Sciences, Tulane University, New Orleans, Louisiana, USA

³Academic Hospital Paramaribo, Scientific Research Center Suriname, Paramaribo, Suriname

Email: jwicklif@tulane.edu

Objective: To compare the levels of mercury in hair samples from women of reproductive age from three regions of Suriname.

Design and Methods: Hair samples were collected from female volunteers considered to be of reproductive age and who were pregnant at the time of enrollment. Samples were collected from women in Paramaribo, Nickerie, and interior villages in the Brokopondo region. One gram hair samples obtained close to the scalp were rinsed, cleaned, and processed for total mercury analysis using cold vapor atomic absorption spectroscopy. Hair: blood conversions (250:1) were carried out to facilitate comparison with levels from other biomonitoring studies in the United States. Levels of mercury among villages were analyzed using non-parametric methods.

Results: Mercury levels in hair were determined in 266 women from Paramaribo, 56 from Nickerie, and 25 from the interior area. Median levels were 0.6 µg/g (range 0.0-4.1 µg/g), 0.7 µg/g (0.1-4.4 µg/g with one at 21.2 µg/g), and 2.1 µg/g (0.7-11.8 µg/g) in Paramaribo, Nickerie, and the interior area respectively. The individual in Nickerie with the highest exposure was deemed a statistical outlier and follow-up indicated her exposure was likely not dietary. Mercury levels in the interior were significantly higher than those in Nickerie or Paramaribo ($p < 0.001$, KW 44.1)

Conclusion: Levels of mercury in women from coastal Suriname are similar to those in the U.S. Levels of mercury in the interior are much higher than in coastal communities which may reflect consumption of fish from watersheds with high mercury concentrations.