

Human Hair Monitoring

Dr Linroy Christian

Study Outline

- Study aim
 - To generate mercury biomonitoring data in Antigua and Barbuda where significant gaps exist and to answer questions that arose from previous joint sampling studies (UNEP/BRI)
- Objectives
 - Measure mercury levels in women of child-bearing age (18 -44).
 - Measure mercury contamination issues potentially related to elevated seafood mercury levels.
 - Produce statistically significant results in relation to mercury levels in Antigua and Barbuda.

Ethical Clearance

AUGUST 24, 2020

Mercury Hair Monitoring in Women of Child-Bearing Age in Antigua and Barbuda

INSTITUTIONAL REVIEW BOARD

ANTIGUA AND BARBUDA
MINISTRY OF HEALTH



18th March, 2021

To: Dr. Linroy Christian
From: Chair, Antigua and Barbuda Institutional Review Board (ANU-IRB)
Reference #: AL-03/032021-ANUIRB
Title of protocol: Mercury Hair Monitoring in Women of Child-Bearing Age in Antigua and Barbuda
Principal Investigator: Ms. Nicola Bird

APPROVAL LETTER

The Antigua and Barbuda Institutional Review Board (ANU-IRB) of the Ministry of Health completed review of the captioned proposed project. The ANU-IRB has decided to endorse this project.

If there is need for major modification of this research project, such modification must be submitted to the Antigua and Barbuda Institutional Review Board for review and approval before implementation. A final review report must be submitted to the ANU-IRB at the completion of the project.

This approval is granted until 31st December 2021. If additional time is required, an interim request for extension of this protocol should be submitted to the ANU-IRB for the requisite clearance. The Antigua and Barbuda Institutional Review Board reserves the right to revoke its approval of the captioned Protocol.

Usefulness of Human Biomonitoring

- To determine the impact of exposure
- Assessment of health risk
- Determining intervention strategies
- Guiding policy and legislation
- Article 22 reporting for Parties
- Collaboration with regional and international networks
- Contribution to the global mercury assessment

Sample Collection Guidance

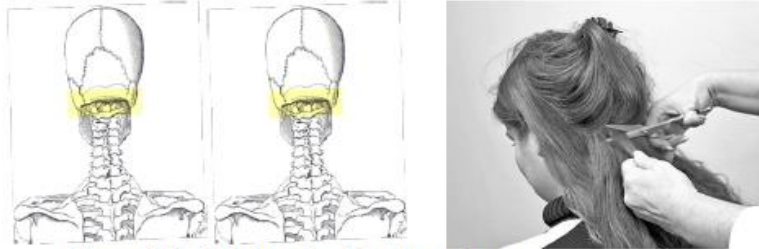


Figure 1. Occipital Region: Target sample area

- Secure the hair sample with a small self-adhesive label using an arrow to indicate the direction of the scalp.
- Please leave 3-4 cm of hair exposed from the label. The hair closest to the scalp will be analyzed for mercury. If it is not possible to leave 3-4 cm of hair, leave as much hair as possible.
- If hair is shorter than 2 cm, please do not use a label. Just place the short hair in the Ziplock bag.
- Place the hair sample in a small Ziplock bag
- Identify the sample by placing a unique sample label on the bag. DO NOT write subject name or any other personal identifiers on the bag.



Figure 2: Securing the sample



Figure 3: Proper storage of the sample



Analytical Procedure

- Total mercury in hair will be analyzed at Department of Analytical Services Research Laboratory following EPA method 7473 by gold-amalgamation atomic absorption spectroscopy following thermal desorption of the sample using a Milestone DMA-80.
- A blank and two calibration standards (DOLT-5 and CE-464) are used in each of the two detector cells. Instrument responses are evaluated immediately following calibration, and thereafter, following every 10 samples and at the end of each analytical run by running two certified reference materials and a check blank.
- Instrument detection limit is approximately 0.050 ng.

Reporting and Assessment

- Review of data in conjunction with questionnaire responses
- Consultation with the Medical Association to provide advice to participants
- Indicate the need for further study or examination of other human media

Next Steps

- Collaboration with BRI on technical aspects
- Bilateral discussions with interested countries to commence similar studies in the immediate to medium term
- Collaboration with Zero Mercury Working Group
- Further research into potential sources of exposure
- Assessing the need for further study
- Maintaining a central database on national information
- Provide assistance as required for similar studies in other countries in the network

Thank You!



— Department of —

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