

MICRONUTRIENT RESEARCH LABORATORY,
DIVISION OF BASIC MEDICAL SCIENCES,
SCHOOL OF MEDICINE AND HEALTH SCIENCES,
UNIVERSITY OF PAPUA NEW GUINEA

ENSURING THE QUALITY OF URINARY IODINE PROCEDURES (EQUIP)
HEARTY CONGRATULATIONS ON YOUR TENTH ANNIVERSARY

I wish, on behalf of all the staff in the Micronutrient Laboratory (MNL), Division of Basic Medical Sciences (BMS) in the School of Medicine and Health Sciences (SMHS), University of Papua New Guinea (UPNG), to extend our warmest congratulations to the “Ensuring the Quality of Urinary Iodine Procedures” (EQUIP) program on the tenth anniversary of their excellent service to laboratories around the world. We cannot overemphasize the significant role of EQUIP in ensuring high quality assurance in Iodine laboratories world wide.

Quality assurance in laboratory testing is particularly relevant in resource limited countries like Papua New Guinea (PNG) – we thank EQUIP for their unquantifiable support of Iodine laboratories in these countries.

The MNL in SMHS (MNL-SMHS) UPNG was set up in 2002. Our major focus was to obtain appropriate research data that could be used to assist in formulating public health policies aimed at improving maternal and child micronutrient status in PNG.

To demonstrate the commitment of the SMHS and the National Department of Health (NDOH) to continuous monitoring of the implementation of universal salt iodization (USI) strategy, the Iodine Research Unit (IRU) was set up in the MNL-SMHS UPNG in 2003. Since then, the IRU has contributed immensely to the assessment and reassessment of progress in the elimination of iodine deficiency disorders (IDD) in PNG.

The MNL-SMHS UPNG deeply appreciate the tremendous support we received from EQUIP in setting up the internal quality control (QC) program in the IRU in 2004. Since then, routine participation in EQUIP has been the major quality assurance program in our IRU.

Before proceeding further, we also wish to express our sincere gratitude and appreciation to some colleagues in the Centers for Disease Control and Prevention (CDC) that played a major role in linking the MNL-SMHS UPNG with the EQUIP program.

The link was initiated by Prof. Rosemary Schleicher. Rose, thank you for the excellent presentations made during the “Regional Training Workshop on Maternal and Child Nutrition Surveys” conducted by UNICEF in collaboration with the Institute of Nutrition, Mahidol University, Thailand, and CDC, in Bangkok Thailand, from the 2nd to 13th March, 2004.

During the discussion on IDD, Rose suggested that laboratories doing urinary iodine (UI) analysis should register and participate in the EQUIP program in CDC. We immediately indicated our willingness to register in the EQUIP program. The assistance from Rose was very fast in coming; about two weeks later, we received an email from Dr. Tracy L Dearth-Wesley from CDC, with details about the EQUIP program.

That original email from Tracy that initiated our relationship with the EQUIP program read:

June 18 2004

Dear Victor, I wanted to follow-up with you regarding the analysis of urinary iodine in your lab in order to get a start on some quality control issues. I am not sure if Rose mentioned in Thailand about the external quality assurance program that CDC manages for urinary iodine? The program is called EQUIP, which stands for Ensuring the Quality of Urinary Iodine Procedures.

EQUIP is a CDC standardization program designed to provide urinary iodine laboratories with an independent assessment of their analytical performance. The program assists labs to monitor the degree of variability and bias in their urinary iodine assay. Participation in EQUIP is voluntary and free of charge. Labs do not pass or fail under EQUIP and results are not used for accreditation or certification.

We would strongly recommend that your lab participate in EQUIP. If enrolled, blind QC pools of varying concentrations would be sent to your lab 3-4 times a year for analysis. You would then report your results to CDC for feedback. If you are interested, please complete the attached questionnaire and we can enrol your lab in the program. Thanks, Tracy

Our response to this email was immediate:

June 18, 2004

Hi, Tracy, thanks for the email. Indeed, Rose told us about EQUIP and I immediately expressed our willingness to participate if given the opportunity. My colleagues in the Division of Basic Medical Sciences are all aware of it and we are all very happy to be given the opportunity to enrol in EQUIP. We shall complete the questionnaire as soon as possible for our urinary iodine lab to be enrolled in the program. Thank you once again for the opportunity to enrol in EQUIP.

Regards, Victor

We completed and returned the questionnaire to Tracy, who then responded with this email:

June 25th 2004

Victor, Thanks for sending the completed questionnaire so quickly. I have passed it along to my colleagues, Kathleen Caldwell and Amir Makhmudov, who manage the EQUIP program. They will likely be contacting you shortly regarding when the next shipment of external quality assurance material will be sent.

Thanks, Tracy

The response from EQUIP did not take long, as evidenced by Tracy's next email:

29th June 2004

Dear Victor, Amir Makhmudov sent EQUIP samples to your lab via FedEx today. The tracking number for the shipment is 7901-9026-9030. This EQUIP round consists of twelve vials, 1.8 mL per vial-three each of four natural urine pools for iodine analysis. The vial labelled "Round Robin Level 3" is included and to be used for calibration verification. There is no need to report back results for this pool. The target value for "Round Robin Level 3" is 19.1ug/L (acceptable range is 13.4 – 24.8). The other three pools results need to be reported by August 14, 2004. We would encourage you to report these results electronically, which are described in detail below. You may also e-mail them to Kathy Caldwell (KCaldwell@cdc.gov). Your lab ID is 48.

A reporting system for the EQUIP program has been developed by CDC, which includes an electronic data submissions form. This data submissions form is a part of a web site that has been specifically created for EQUIP program participants. You can access the site at www2a.cdc.gov/nceh/dls/itndatasubmission/login;

The EQUIP web site is password protected. The user login information for your lab is as follows:

** E-mail: templevj@upng.ac.pg; * Password (case-sensitive): hYwShI0K.*

The EQUIP web site includes links to announcements,.....

Thanks, Tracy

We thank Dr. Tracy L Dearth-Wesley for helping us with the enrolment process. Tracy also assisted by providing us with appropriate contacts and information for registration in the IRLI Network (ID # obtained in July 2004), ICPMR QA program in Westmead Hospital Australia, and the Asia Pacific Regional Network (APRN) (Lab ID # obtained in September 2004).

We also thank Dr. K. Caldwell and Dr. Amir Makhmudov of the EQUIP program for providing the Urine Standards used to set up our internal QC programs. We are extremely grateful to both of them for helping us solve the problems encountered during the setting up of our internal QC protocol.

Many thanks to Dr. Bridgette M H Bowen (Bridgette M H Haynes) who took over from Tracy and continued the excellent relationship between MNL-SMHS UPNG and the CDC Micronutrient research lab. Many thanks also to Katie Tripp, the CDC coordinator of the National Micronutrient Survey in Papua New Guinea in 2005 (PNG NMS 2005), for the excellent support and confidence in our MNL-SMHS to carry out analyses of UI and iodine content in salt in all the samples collected during the NMS 2005.

Our enrolment and performance in the EQUIP program elevated the status of the IRU MNL-SMHS, proving beyond doubt that we are capable of carrying out analyses of the UI and iodine content in salt samples collected during the NMS 2005. That was the first major project carried out in the MNL-SMHS UPNG. Funds provided for this project were used to substantially improve the instrumentation in the IRU MNL-SMHS.

Development in the MNL-SMHS has been progressive over the last eight years, with the IRU playing a leading role in obtaining research grants. Our regular and continuous participation in the EQUIP program assures the high quality of data produced in the IRU. This is corroborated by the "Certificate of Participation in EQUIP" (introduced in 2008) by the Director and Coordinator of the EQUIP program. This recognition served to strengthen our resolve to maintain high internal QC through effective participation in the EQUIP program.

Some of the achievements of the IRU MNL-SMHS in the last seven years also include providing verifiable scientific data highlighting the iodine nutritional status of vulnerable groups in various regions of PNG. A database of results on monitoring of salt iodine and urinary iodine in PNG is now available in the IRU MNL-SMHS UPNG.

Some major projects completed by the IRU (excluding projects on salt iodine monitoring) are listed below:

- ❑ Assessment of urinary iodine level in children, 6 – 12 years old, in Hella region (Tari and Koroba districts) Southern Highland Province, PNG (Joint research project with the Division of Public Health SMHS, completed in 2003: Funded by SMHS Research Grant)

- ❑ Assessment of urinary iodine levels in non-pregnant, pregnant and lactating women in National Capital District, PNG. (Joint research project with Department of O & G Port Moresby General Hospital, completed in 2004: Funded by SMHS Research Grant)
- ❑ PNG First National Micronutrient Survey (NMS 2005): Project conducted in collaboration with the International Micronutrient Malnutrition Prevention and Control Program (IMMPaCt) National Center for Chronic Disease Prevention and Health Promotion, UNICEF, PNG National Department of Health (NDOH) and SMHS UPNG (Completed in 2005) {Funded by UNICEF, CDC & NDOH}
- ❑ Assessing the status of iodine nutrition of infants and lactating women resident in the National Capital District, PNG: (Joint project with the Division of Child Health SMHS, completed in 2006: Funded by SMHS Grant)
- ❑ Assessment of the Iodine Nutritional Status of School Children (6 – 12 yrs) in Honiara, Solomon Islands: (Joint Project with the Department of Health and Department of Education Honiara, Solomon Islands, completed in 2007: Funded by IRU MNL-SMHS)
- ❑ Assessing the Iodine Nutritional Status of Infants, Age 6 to 24 Months Resident in the National Capital District, PNG (Joint project with the Division of Child Health SMHS, completed in 2008: Funded by Office of Higher Education, Research, Science & Technology)
- ❑ Iodine Nutrition Status of School-age Children (6 – 12years) in Aseki- Menyamya District, Morobe Province, PNG: (Joint project with the Division of Public Health SMHS, completed in 2009: Funded by Office of Higher Education, Research, Science & Technology)

Projects in Progress for 2010 include:

- ❑ “Does successful universal salt iodization guarantee optimal iodine nutrition in mother and infant?” (Joint project with Divisions of Public Health and Child Health SMHS; In progress 2010: Funded by Office of Higher Education, Research, Science & Technology)

Publications from projects completed in IRU MNL-SMHS:

- ❑ Temple VJ. “Iodine Deficiency Disorders (IDD): Focus on the process and significance of monitoring in PNG” Med Sci. Bull, 2003, Vol. 1, 28 – 32.
- ❑ Mapira, P, Temple VJ. and Adeniyi, K. O. “Assessing the status of iodine nutriture in children 6 – 12 years in Hella Region Southern Highland Province, PNG”. Med Sci Bulletin, 2003, Vol. 1, 3 – 4.
- ❑ Haindapa B, Temple VJ, Turare R, Masta A. and Amoa AB. “Assessment of Urinary Iodine Levels in Pregnant Women in NCD, PNG”. Med Sci Bull, 2004, Vol. 2, 8 – 11.

- ❑ Temple VJ, Mapira P, Adeniyi KO and Sims P. “Iodine Deficiency in Papua New Guinea (Sub-clinical iodine deficiency and salt iodization in the highlands of Papua New Guinea)” *Journal of Public Health* 2005, 27 (1): 45 – 48.
- ❑ Temple VJ. “Progress towards elimination of IDD in PNG” *International Council for Control of Iodine Deficiency Disorders. IDD Newsletter*, Vol. 22, No 4, Nov. 2006; 11 – 13.
- ❑ Temple VJ, Haindapa B, Turare R, Masta A, Amoa AB, Ripa P. “Status of Iodine Nutrition in Pregnant and Lactating Women in National Capital District, Papua New Guinea. *Asia Pac J Clin Nutr*: 2006; Vol. 15 (4): 533 – 537.
- ❑ Temple VJ, Oge R, Daphne I, Vince JD, Ripa P, Delange F and Eastman CJ. “Salt Iodization and Iodine Status among Infants and Lactating Mothers in Papua New Guinea” *AJFAND*, Vol 9, No. 9, Dec 2009, 1807 – 1823.

Conclusion:

Research data produced by the IRU MNL-SMHS in the last eight years allow us to conclude that the current status of the salt iodization program in PNG can be characterized as “existent but needing strengthening.” Further progress requires periodic reviews of the program, to ensure that its tempo is maintained. Consolidation of the current monitoring systems for salt iodization is necessary to achieve the ultimate objective of eliminating IDD in PNG.

Once again, Congratulations on EQUIP’s 10th Anniversary!!! We strongly support EQUIP’s continued existence and wish you many more successful decades of active service. We assure you of our continuous participation in the EQUIP program.

Highest Regards,

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NB: Two pictures are attached:

- ❑ First picture shows: Prof. V. J. Temple and Mr. Eric Bilo (final year Bachelor of Medical Laboratory Sciences student);
- ❑ Second picture shows: Two staff members in the Iodine Research Unit: Mr. Nigani Willie (B. Sc. Biochemistry) and Ms Vineanna Fabila (B. Sc. Medical Laboratory Sciences). Mr. Eric Bilo is the third person in the picture.
- ❑ Portrait of Prof. Francois Delange is seen in the background. Late Prof. F. Delange took great interest in the research activities of the IRU MNL-SMHS UPNG and actively participated in some of our research projects.