

Overseas Practice on (Field Epidemiology • Collaborative Research)

2015/02/23 (Year/Month/Day)

report form (For Student)

Name	Nesta Bortey-Sam
Laboratory	Toxicology
Year (Grade)	3
Place of practice	Kwame Nkrumah University of Science and Technology (KNUST). Kumasi, Ghana
Period of practice	21 st January 2015 to 12 th February 2015 (23 days)
Purpose	Human urine sampling

Summary of activities (about 800 words, provide photos, tables and figures that clearly show the activities during the period)

Sampling in Ghana

I made a trip to the Kwame Nkrumah University of Science and Technology, KNUST, Kumasi, Ghana from 21st January to 12th February, 2015 based on the study **Determination of concentrations of polycyclic aromatic hydrocarbon metabolites (OH-PAHs) in human urine and bio-markers for cancer risk**. Prior to sampling, I visited the Ghana Health Service (GHS) and the Council for Scientific and Industrial Research (CSIR) for discussion and submit an inception report. I travelled to Kumasi on 24th January, to start proceedings/preparation for sampling.

As a developing country, the economic and population growth rates in Ghana over the past few years have seen tremendous increase. The growing rate of industrialization is gradually leading to contamination and deterioration of the environment and pollution is likely to reach disturbing levels. Our previous studies in particulate matter (air) and soils in Kumasi showed high concentrations of PAHs including carcinogenic BaP. Carcinogenic potency of PAHs load from the city centre was approximately 150 times higher as compared to a pristine site, KNUST's Botanical Garden. BaP contributed 70% of the total PAHs toxicity level in the city centre of Kumasi.

We had a discussion with Dr. Osei Akoto (host Lecturer) to draft a sampling strategy which would help us collect enough samples within our stay and also get to know the hot spots within the area. The meeting was very effective and we were assigned various duties to enhance and facilitate the sampling process. The day after the discussion we started sampling. We went to different hospitals to discuss with the Medical Superintendents and health workers to help us explain the protocol and collect urine samples from participants/patients.

Human urine samples were therefore collected in three different hospitals (Atonsu, Manhyia, and Tafo

hospitals), some of which were a few kilometres from the city centre of Kumasi, Ghana. Sampling started from 26th January to 5th February, 2015. Questionnaires were administered and collected to know the previous and current life styles of volunteers and to study the risk factors. It also involved the type of work of volunteers and working environment. Interviews were conducted by a team of researchers set purposely for this study including representatives from the respective hospitals and/ or on the sampling site. The study was further explained to volunteers/participants before they signed the consent forms. Urine samples were collected from willing participants of both sexes and all ages who visited the hospitals for various reasons, during the course of the study. Participants who visited the hospitals were provided with a clean and dry collection container to collect their urine by themselves. Laboratory/hospital representatives (for the purposes of this study) attended to them for collection and labelling of the urine specimen. Samples were kept on ice or frozen. For random sampling (KNUST campus), early morning and spot urine samples were collected in a clean, dry collection container by participants and the field representatives labeled the containers after which samples will be kept on ice. Sampling was successful and by the end of our stay we had collected 200 samples, although there were a few challenges. After the sampling process, I again visited the GHS and CSIR to give them a report/feedbacks about the sampling and other details. The table below gives a rough idea of the number of samples collected within our period of stay in Kumasi, Ghana. From the samples collected, I will measure hydroxylated PAHs (OH-PAHs) as well as various biomarkers of DNA damage due to exposure to PAHs.

Hospital name	Urine collected
Kumasi South Hospital	75
Manhyia Government hospital	43
Tafo hospital	57
KNUST campus	25



a. Discussion with Dr. Obirikorang about the possible and best ways of samples collection



b. Visit to Ghana Health Service

b. Visit to Council for Scientific and Industrial Research

(Field Epidemiology • Collaborative Research) Evaluation by supervisor

Institution • Official title • Name	Hokkaido University Prof. Mayumi Ishizuka	印
<p>Describe overall evaluation on the applicant's activity in overseas practice.</p> <p>He could complete the human sampling. I would like to highly acclaim his management ability. This field research activity is fruitful experience and necessary step for him. He will be able to accelerate his laboratory experiments as a good result of this field work.</p>		

- ※1 Send the electronic file to the Leading School section, International Affairs Office, also submit the original print out with seal of supervisor to the Leading School section, International Affairs Office.
- ※2 The Steering Committee of the Leading Program will first confirm the content of this report and the report will be forwarded to the Educational Affairs Committee for credits evaluation.

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