GORDON SIGNY FELLOWSHIP REPORT

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Institution: Duke University Medical Center

Department: Haematopathology

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Faculty Mentor(s): Drs McCall, Lagoo, Wang and Neff

REPORT

My experience at Duke haematopathology was an unforgettable one. Since then, I have always made reference to it as an opportunity that brought me closer to state of the art clinical pathology practice. I had clinical exposure in areas that were poorly developed in Nigeria. My main rotations included diagnostic flow cytometry, haemoglobin laboratory and molecular pathology. I also had rotations to the Duke automation laboratory, the microbiology section, IHC laboratory as well as Duke HLA laboratory.

My morning sessions were occupied with laboratory rotations and conferences. I shadowed the pathologists and technologists in the course of routine work, in the respective laboratory. I focused on understanding the path of work flow, the testing processes, basics of instrumentations, quality control/quality assurance processes, as well as the laboratory information management. In my first week, I was at the flow cytometry laboratory. Prior to this fellowship, I have never had the experience of the flow set up and the different panels, data acquisition, gating, and reporting of test results. Flow cytometers are relatively unavailable in Nigeria. However, the Gordon Signy fellowship gave me a first-hand exposure and training in diagnostic utility of flow cytometry.

I also visited the haemoglobin and protein electrophoresis laboratory. Again, an exciting exposure to capillary electrophoresis, zone and immunofixation electrophoresis. This is particularly exciting considering the laboratory volume, as well as the album (past collections) of uncommon haemoglobin variants to learn from. From my experience in Nigeria, haemoglobin diagnosis is still largely qualitative (zone electrophoresis at alkaline Ph) without densitometry. I have a couple of experience with high performance liquid chromatography. It is exciting to learn protein, Immunofixation and haemoglobin separation using capillary electrophoresis.

In yet another rotation, I shadowed the molecular and cytogenetics laboratory. I had laboratory bench rotations including nucleic acid extractions, PCR, sequencing and next generation sequencing. I also spent time on cytogenetics/karyotyping, as well as fluorescent in situ

hybridation. Frankly speaking, these technologies are not available in Nigeria. Aside from theoretical learning, I practically had no clinical laboratory exposure on these testings, till the Gordon Signy fellowship.

In the afternoons throughout my stay, I participated in haematopathology sign out sessions with the pathologists (my hosts), pathology residents and fellow (Dr Xin Liu), as well as physicians from other teams (haematologists and oncologists). This was always a very stimulating session lasting over 2 hours. In those sessions, pathology findings from morphology, immunophenotyping, molecular and cytogenetics, other ancillary investigations are tied up with the clinical details and reported back to the clinicians. In some instances, clinical meetings are required for clinical-pathologic correlations. The pathology sign-out sessions featured review of peripheral blood, bone marrows, lymph nodes and aspirate cytology. For me, I am really excited about how much better patient care will be if we could incorporate those technologies into pathology practice in Lagos, Nigeria. I am looking forward to a time, when diagnostic flow cytometry, molecular and cytogenetics will be locally and readily available in Nigeria. This will enable more accurate and reliable diagnosis, promote new therapeutic options such as immunotherapy (monoclonal antibodies) as well as better prognosis from MRD detection.

As well, I partook in the weekly quality review (morphology) sessions, where the haematopathologists will each present a couple of difficult, challenging or perhaps interesting patients and their slides to share with colleagues, for clarifications, consensus or correlations. Everyone contributes and learns. I also did attend a couple of other departmental and interdepartmental conferences. I wished I could be here for longer but I had to return to my home country and institution. I guess the only thing I desired but missed is inability to initiate, partake or participate in collaborative research with my faculty mentors, due to the limited time. Hopefully, more opportunities will open up in the future for collaborations.

Going forward, I hope to advocate and drive local capacity for flow cytometry immune-phenotyping, cytogenetics and molecular genetic pathology through hospital leadership engagements, community participations, funders and sponsors as well as maintain relevant international collaborations for successful outcomes.

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