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Professor Mark Tetley
Editor in Chief

Welcome to the 17th Volume of the UGMS Research Newsletter. The published articles from the departments in the school were retrieved from Scopus for the period January to June 2020. Ten out of the seventeen departments were represented here in the publications. It is our expectation that each time this Newsletter is published all departments in the school will be featured with their publications. It will be a sign of progress in our effort to encourage research activities in the departments.

The clinical images in this Volume are from the Department of Child Health. This was a child diagnosed with esophageal varices from portal vein thrombosis. The images of the lesion and the successful treatment are presented. The research highlights section has four ongoing projects in the Departments of Obstetrics and Gynaecology, Anatomy, Hematology and Surgery. These ongoing projects when completed promise to have immense impact on health delivery and policies to ensure optimum health outcomes in the country.

EDITORIAL

The landmark case from the Department of Surgery was a 7 year old girl who swallowed a 20 pesewa coin. It got impacted in the upper esophagus for eight months and eroded into the trachea. A chest X-ray which was requested rather late helped with the initial diagnosis and the rare complication of tracheoesophageal fistula (abnormal connection between the wind pipe and gullet) was successfully repaired.

Professor Jane Neequaye is our distinguished personality for this volume. Her invaluable contribution to the development of the Department of Child Health is recounted. The University of Ghana Medical School is grateful for her dedicated service. You will find it instructive reading the medical student's account of life in the COVID-19 era since they came back to school. For the first time, the Department of Surgery has adopted the objective structured clinical examination with manikins for their end of rotation examination. The examination coordinator has written a brief report on the success of this new method of assessing students in the department.

On a sad note to end this editorial, we lost a retired senior member of the School Professor Rudolf Darko early this year. He was a great teacher and a mentor for both students and residents. May His soul rest in perfect peace.

ERRATUM

The Editor-in-chief apologises for an error of a fact in the editorial of the Research Newsletter Volume 16, January 2020 stating that Professor J K Accquaye was the first head of Department of Haematology. The first head was Professor Alexander Bruce-Tagoe. The second head was the late Professor George Ankra-Badu.

DEPARTMENTAL PUBLICATIONS

University of Ghana Medical School

Department of Anaesthesia

1. Delsol-Gyan D, Aniteye E., Oppong S., Ofori-Appiah E., Edwin F. Pregnancy in non-palliated functionally single ventricle: Challenges of management in resource-poor settings Pan African Medical Journal 2020;35

Department of Anatomy

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Department of Child Health

1. Atun R., Bhakta N., Denburg A., Frazier A.L., Renner L., et al Sustainable care for children with cancer: a Lancet Oncology Commission. The Lancet 2020;21(4)
2. Farthing H., Reynolds N.R., Antwi S., Alhassan A., Ofori I.P., Renner L., Amisah K.A., Kusah J.T., Lartey M., Paintsil E., the Sankofa Study Team. Illness Narratives of Children Living with HIV Who Do Not Know Their HIV Status in Ghana: I'm Sick, But I Don't Know the Sickness—A Qualitative Study. AIDS and Behaviour 2020
3. Eden T., Burns E., Freccero P., Renner L., Paintsil V., Dolendo M., Scanlan T., Khaing A.A., Pina M., Islam A., Chunda-Liyoka C., Kouya F., Molyneux E. Erratum to "Are essential medicines available, reliable and affordable in low-middle income countries?" [J. Cancer Policy 19 (March) (2019) 100180] (Journal of Cancer Policy (2019) 19, (S2213538318300766), (10.1016/j.jcpo.2018.12.001))
4. Campbell A.D., Colombatti R., Andemariam B., Strunk C., Tartaglione I., Piccone C.M., Manwani D., Asare E.V., Boruchov D., Farooq F., Urbonya R., Boatemaa G.D., Perrotta S., Sainati L., Rivers A., Rao S., Zempsky W., Sey F., Segbefia C., Inusa B., Antwi-Boasiako C. An Analysis of Racial and Ethnic Backgrounds Within the CASiRe International Cohort of Sickle Cell Disease Patients: Implications for Disease Phenotype and Clinical Research. Journal of Racial and Ethnic Health Disparities 2020

Department of Community Health

1. Tetteh J., Entsua-Mensah K., Doku A., Mohammed S., Swaray S.M., Ayanore M.A., Yawson A.E. Self-reported hypertension as a predictor of chronic health conditions among older adults in Ghana: analysis of the WHO Study on global Ageing and adult health (SAGE) Wave 2 The Pan African Medical Journal 2020;36

Department of Hematology

1. Antwi-Boasiako C., Andemariam B., Colombatti R., Asare E.V., Strunk C., Piccone C.M., Manwani D., Boruchov D., Farooq F., Urbonya R., Wilson S., Boatemaa G.D., Perrotta S., Sainati L., Rivers A., Rao S., Zempsky W., Ekem I., Sey F., Segbefia C., Inusa B., Tartaglione I., Campbell A.D. A study of the geographic distribution and associated risk factors of leg ulcers within an international cohort of sickle cell disease patients: the CASiRe group analysis. *Annals of Hematology* 2020

Department of Microbiology

1. Bjerrum S., Broger T., Székely R., Mitarai S., Opintan J.A., Kenu E., Lartey M., Addo K.K., Chikamatsu K., Macé A., Schumacher S.G., Moreau E., Shah M., Johansen I.S., Denking C.M. Diagnostic accuracy of a novel and rapid lipoarabinomannan test for diagnosing tuberculosis among people with human immunodeficiency virus. *Open Forum Infectious Diseases* 2020;7(1)

Department of Medicine and Therapeutics

1. Painstil E., Kyriakides T.C., Antwi S., Renner L., Nicholas J.S., Amissah K., Kusah J.T., Alhassan A., Ofori I.P., Catlin A.C., Gan G., Lartey M., Reynolds N.R. Clinic based pediatric disclosure intervention trial improves pediatric HIV status disclosure in Ghana. *Journal of Acquired Immune Deficiency Syndromes* 1999;84(1)
2. Hayfron-Benjamin C.F., van den Born B.J., Maitland-van der Zee A.H., Amoah A.G.B., van der Linden E.L., Stronks K., Klipstein-Grobusch K., Bahendeka S., Danquah I., Beune E., Smeeth L., Agyemang C. Higher prevalence of peripheral arterial disease in Ghana compared to Ghanaian migrants in Europe: The RODAM study. *International Journal of Cardiology* 2020;305
3. Yorke E., Boima V., Dey I.D., Ganu V., Nkornu N., Acquaye K.S. Mate-Korle C.C. Comparism of neurocognitive changes among newly disgnosed tuberculosis patients with and without dysglycemia. *BMC Psychiatry* 2020;20(1)
4. Lewis C., Lartey M., Operario D. Resilience and pathways to wellness among HIV-positive patients in Ghana: a qualitative study. *African Journal of AIDS Research* 2020;19(1)
5. Addai J.A., Nuertey B.D. Pattern of Animal Bites and Delays in Initiating Rabies Postexposure Prophylaxis among Clients Receiving Care in Korle-Bu Teaching Hospital *Journal of Tropical Medicine* 2020
6. Eastin J., Dey D., Amissah-Arthur M.-B., Chaudhuri K., Jawad A. Capacity building for the provision of rheumatological services in sub-Saharan Africa. *Clinical Rheumatology* 2020
7. Amissah-Arthur M.B., Baah W. Methotrexate-induced pancytopenia and mucositis caused by medication error. *Ghana Medical Journal* 2020;54(1)

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2. Oppong S.A., Torto M., Beyuo T., Risk factors and pregnancy outcome in women aged over 40 years at Korle Bu Teaching Hospital in Accra, Ghana. *International Journal of Gynaecology and Obstetrics* 2020;149(1)

3. Swarray-Deen A., Nkyekyer K., Seffah J.D., Mumuni K., Mensah-Brown S.A., Tuuli M.G., Oppong S.A. Cerebro-placental ratio as a prognostic factor of fetal outcome in pregnancy complicated by maternal sickle cell disease *International Journal of Gynaecology and Obstetrics* 2020

Department of Pathology

1. Harlemon M., Ajayi O., Kachambwa P., Kim M. S., Simonti C.N., Adusei B, Mensah J.E., Abrahams A.O.D. et al. A custom genotyping array reveals population level heterogeneity for the genetic risks of prostate cancer in Africa. *Cancer Research* 2020;80(13)

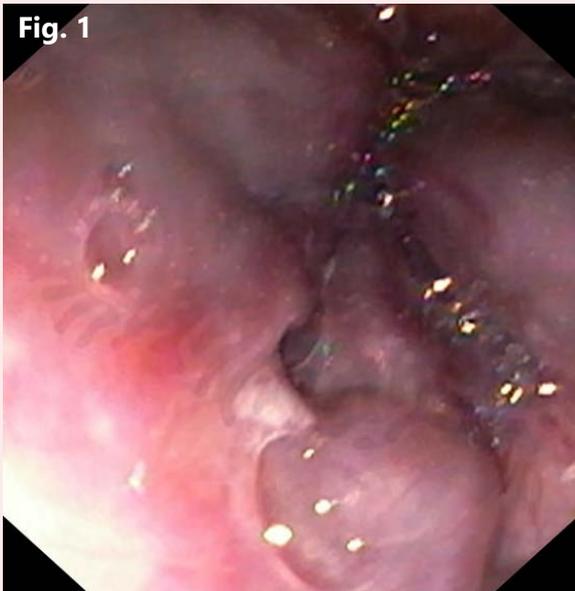
Department of Surgery

1. Tettey M., Edwin F., Aniteye E., Tamatey M., Entsua-Mensah K., Gyan K., Adzamli I. Pattern of esophageal injuries and surgical management: A retrospective review. *Nigerian Journal of Clinical Practice* 2020;23(5)
2. Stauning M.A., Bediako-Bowan A., Bjerrum S., Andersen L.P., Andreu-Sánchez S., Labi A.-K., Kurtzhals J.A.L., Marvig R.L., Opintan J.A. Genetic relationship between bacteria isolated from intraoperative air samples and surgical site infections at a major teaching hospital in Ghana. *Journal of Hospital Infection* 2020;104(3)
3. Bediako-Bowan A., Owusu E., Debrah S., Kjerulf A., Newman M.J., Kurtzhals J.A.L., Mølbak K. Surveillance of surgical site infection in a teaching hospital in Ghana: a prospective cohort study. *Journal of Hospital Infection* 2020;104(3)
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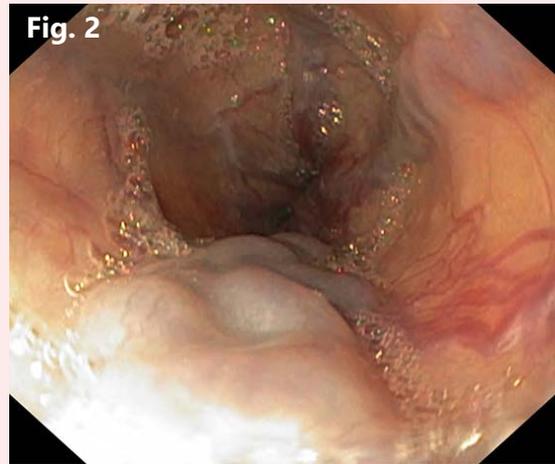


Dr. Taiba Jibril

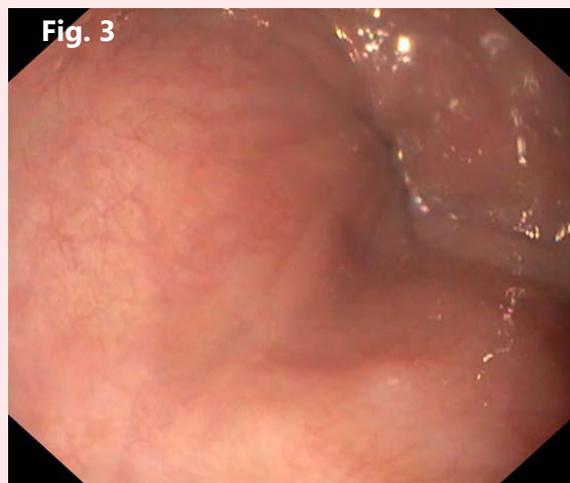
OESOPHAGEAL VARICES SECONDARY TO PORTAL VEIN THROMBOSIS



A six year old with upper gastrointestinal bleed with no history of jaundice or stigmata of chronic liver disease. The only positive finding was thrombocytopenia and a small splenomegaly. Upper gastrointestinal endoscopy showed Grade III varices and abdominal Doppler ultrasound showed a thrombus in the portal vein. The varices were managed with endoscopic variceal banding.



After 2 rounds of variceal banding, the varices reduced in number and grade (grade ii)



After 4 rounds of banding, all the varices have disappeared.

RESEARCH HIGHLIGHTS

Limiting Adverse Birth Outcomes in Resource-Limited Settings -The LABOR Study at the Ghana Site. (Bill and Melinda Gates funded research)

Site Principal Investigator:

Dr. Samuel Antwi Oppong
Head of Department of OBST, & GYNAE

Site Co Investigators:

Christabel Enweronu-Laryea,
Head of Department of Child Health
Titus Beyuo,
Department of Obstetrics and Gynaecology
Mercy A Nuamah,
Department of Obstetrics and Gynaecology

Nearly 300,000 women and 3 million neonates die in childbirth or shortly thereafter each year. The vast majority of this burden is borne by the world's poor due to lack of progress in the development of new diagnostic and risk-stratification strategies appropriate for resource-poor settings.

The primary objective of LABOR Study is to exhaustively document the labour, delivery, and early postpartum course of mother-newborn pairs at the obstetrics ward of Korle Bu Teaching Hospital (KBTH) to gather detailed laboratory, physiologic, and clinical information to develop new algorithms to signal actionable intrapartum diagnoses and prospectively stratify women according to their risk for adverse maternal and neonatal outcomes.

The LABOR Study will prospectively enroll 5,000 pregnant women in labour and their



Dr. Samuel Antwi Oppong

newborns at Korle Bu and followed up till postpartum day 42. Intrapartum ultrasound examination of the fetus, physiological monitoring of maternal and fetal vitals signs coupled with a wide range of clinical and laboratory data will be collected and assimilated through machine learning to develop algorithm that can help predict adverse labour outcomes.

This study is expected to generate composites of potentially modifiable maternal and fetal adverse events that can be attributed to the intrapartum period to help develop novel technological approaches to substantially reduce adverse perinatal outcomes.

Clinical relevance of Human Papilloma Virus status in epithelial head and neck cancers seen at the Korle Bu Teaching Hospital

Dr. Joel Yarney – National Radiotherapy Oncology and Nuclear Medicine Centre
Dr. Kenneth Baidoo – Otorhinolaryngology, UGMS/ Korle Bu Teaching Hospital
Dr. Efua Abrahams – Department of Pathology, UGMS/ Korle Bu Teaching Hospital
Prof S. Anim – Pathology,
Prof Agyeman Badu Akosa – Pathology
Dr. Francis Asamoah – National Radiotherapy Oncology and Nuclear Medicine Centre

Cancers of the head and neck region (larynx, oropharynx, hypopharynx, oral cavity, nasal cavity, paranasal sinuses, and nasopharynx) constitute a significant proportion of patients seen at the Korle Bu Teaching Hospital. It ranks fourth in terms of cancer patient volume following breast, cervical and prostate cancers with the commonest histological type being squamous cell carcinoma. Major risk factors for developing these diseases include smoking and oncogenic viral infection. Radiation treatment remains an integral component in managing head and neck cancers either in whole or as part of a multimodality approach. There is continued paradigm shift in patient management towards radiation treatment de-intensification with comparable treatment outcomes especially for tumors which test positive for the HPV. This approach takes on added significance as quality of life considerations gain increasing prominence and increasing efforts go into mitigating treatment associated morbidity.

Prior research works done among head and neck cancers in Ghana have shown patterns of HPV positivity at variance with data reported from western literature. There exist also Ghanaian data indicating very high prevalence of HPV among biopsies of cervix uteri performed in various clinical settings. It is imperative to confirm this aberration in HPV positivity patterns among head and neck cancer patients and to define the entire spectrum of patient populations likely to benefit from HPV preventative interventions. Our study seeks to identify the association

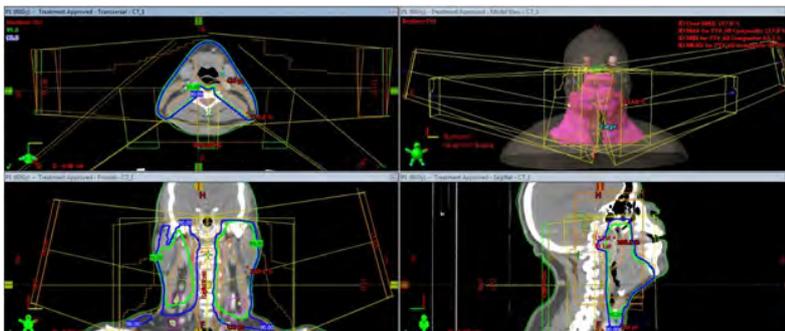


Fig. Radiation treatment plan showing dose profile of a T2N1M0 nasopharyngeal cancer patient.



Dr. Joel Yarney

between HPV positivity and disease – treatment outcomes among a contemporary cohort of head and neck cancer patients seen at Korle Bu Teaching Hospital.

We will retrospectively collate patient demographic, disease and treatment related data. Qualifying patients' archival surgical specimen will subsequently be tested for HPV positivity. HPV status will be correlated to patient disease and treatment specific factors to identify clinically relevant associations.

We hope to identify factors which will be amenable to prospective evaluation for improve disease control and quality of life outcomes for our patients via treatment de-escalation strategies from our work. Our findings may also inform policy direction on the management of oncogenic cancers in our population.

BLOODSAFE: Development and evaluation of community-based approaches and donor care intervention models for improving availability and safety of blood for the management of severe anemia in Ghana

Principal investigators:

Dr Yvonne Dei-Adomakoh, *Department of Haematology, UGMS*

Dr Lucy Asamoah –Akuoko, *Head of Research, National Blood Service Ghana*

Supported by: NHLBI



Dr Yvonne Dei-Adomakoh

The major challenge for blood transfusion services in sub-Saharan Africa is the juxtaposition of an increasing clinical demand for blood and a historically insufficient supply of safe blood in the region. We have identified the system of blood donation in Ghana as the major barrier to providing adequate and regular blood to meet the transfusion needs of the country. Currently, over 70% of blood collection in Ghana is obtained in a Family Replacement Donor (FRD) system, which is associated with insufficient, unsustainable and relatively unsafe supply of blood for emergencies. In contrast with an average rate of 31 per 1000 population in countries with a 100% voluntary blood donor base, blood donation in

Ghana remains at only 5 per 1000 population. As a direct result, blood supply is characterized by chronic inadequacy with frequent critical shortages, and represents a major developmental challenge. Our long-term goal is to secure a sustainable supply of adequate and safe blood in Ghana by establishing a new paradigm of blood donation in the country focused on a community-based volunteer system and nutritional donor enrichment. Deferrals among potential blood donors in Ghana is high. Anaemia accounts for up to 53% of voluntary donor deferrals and is, therefore, a major focus of this research. In addition, fears associated with misconceptions about blood donation, and the lack of knowledge and information on blood donation contribute to the low number of blood donation volunteers in Ghana. The targeting of communities to donate blood not as individuals but as communities (communal collectivism), with a reciprocity model that ensures blood is available for future use by their own communities offers an attractive strategy to recruit new volunteers. Interventions based on communal collectivism and aided by communication strategies are culturally appropriate in SSA but have not yet been explored for increasing blood donation rates. Additionally, other modifiable causes of inadequate blood donation—motivation, access to donation facilities, nutrition—will be targeted using improved communication, behavioural change methods, and iron supplementation to improve overall donor recruitment and retention. Based on these ideas, we will test the ***OVERALL HYPOTHESIS “A community-based volunteer and nutritional donor enrichment model towards recurring blood donors will help to overcome the developmental challenge of blood availability in Ghana”.***

The OVERALL HYPOTHESIS will be tested in two inter-related Specific Aims:

[1] Design and evaluate the efficacy of culturally appropriate communication strategies for recruiting and retaining safe voluntary blood donors among organized community-based blood donor groups in Ghana. With participatory methods, the Consortium will develop short audio-visual docu-dramas and animations to raise public awareness of the importance of blood donation, and promote voluntary blood donation activities to improve availability of blood.

[2] Determine the impact of iron deficiency and iron deficiency anaemia on the recruitment of prospective blood donors in Ghana. All prospective blood donors will be screened for iron deficiency using CBC and iron studies. Confirmed ID and IDA cases will receive donor education on nutritional supplementation and treatment for minimum of 3 months. Following supplementation we will assess response and their suitability as blood donors to recruit them back into the voluntary donor pool.

To accomplish these aims we have assembled a strong multidisciplinary team comprising the leadership of the National Blood Service Ghana, haematologists, public health specialists and sociologists to establish a new paradigm of securing adequate safe blood through voluntary blood donors.

This research is innovative, because it shows a new and substantive departure from the status quo by integrating community active groups and culturally appropriate health communication interventions as an approach for promoting blood donation. Our approach is expected to provide robust scientific evidence for large-scale use in Ghana and the rest of other countries in Sub-Saharan Africa, and minority groups in advanced countries such as the United States with cultures that are somewhat similar to those of Ghana (for example, African-American populations). Overall, this approach is expected to supplement current blood donor recruitment efforts by a shift from the centralized blood centre system to community-owned and driven volunteer donor recruitment.

Evaluation of Circulating Cell-Free DNA (cfDNA) as a Blood Biomarker (liquid biopsy) for assessing Response to Chemotherapy in Breast Cancer Patients: Implications on Clinical Outcomes



Rev Dr Benjamin Arko-Boham

Principal Investigator: Rev Dr Benjamin Arko-Boham
Department of Anatomy, UGMS, CHS, University of Ghana

Introduction: Breast cancer is leading cause of cancer-related deaths in women in Ghana with 4600 new cases diagnosed in 2018 and 1870 deaths. Surgery, chemotherapy, radiotherapy and hormone therapy are used for management of disease. In Ghana where many patients present with metastatic disease, chemotherapy is the main treatment, aimed at systemic clearance of cancerous cells. The assessment of treatment effectiveness is done after 3rd cycle of treatment and a 2nd at end of last cycle. The procedure has inherent challenges as any delay in the

administration of appropriate drugs to patients may lead to disease progression. This warrants development of new and reliable means of assessing chemotherapy effectiveness in breast cancer management.

Aim: This study aims to determine the utility of circulating cell-free DNA (cfDNA) in breast cancer detection, prognosis and assessment of response to chemotherapy, and its implications on clinical outcomes. It focuses on 1. evaluating cfDNA as a blood biomarker for diagnosis and assessing response to chemotherapy in breast cancer patients, 2. investigating influences of chemotherapy on serum cfDNA levels and clinical outcomes among different breast cancer molecular sub-types and 3. investigating the correlation between socio-economic status and assess to patient care; and their influence on disease prognosis.

Methodology: 380 treatment-naïve breast cancer patients scheduled for chemotherapy and 380 controls will be recruited. Demographic, anthropometric, clinico-pathological and treatment information will be collected. 10 ml of blood will be sampled from each participant before treatment, after 3rd and last cycles of

treatment and serum separated. cfDNA will be amplified and quantified with appropriate primers by qPCR for samples from all time points. At time point 1, DNA will be extracted from buffy coat for BRCA genes sequencing and analysis. IHC and ELISA assays will be used for protein studies to investigate the mechanisms underlying the possible differential responses to chemotherapy and clinical outcomes among the different molecular sub-types during treatment. The expression of proteins that influence the HER2 signaling will be assessed in both sera and tissue biopsies. These include breast tumour kinase (Brk), EGFR, calpastatin and calpain-1. Tissue biopsies for patients will be retrieved from the Pathology Department of the Hospitals for histology. The sections will be stained by IHC with appropriate antibodies. Serum levels of the target proteins will be determined by ELISA. cfDNA concentration will be correlated with tumour characteristics and various clinico-pathological parameters by using a multiple analysis. Continuous data will be presented as mean and standard deviation while categorical data presented as proportion. Chi-square and Odds ratios will be used to determine differences in proportion and risk, respectively. Non-parametric statistical models will be used in the analysis of the socio-economic parameters.

A global, multicentre study to assess the sensitivity, specificity and precision of a deep learning algorithm to detect urgent macular disease in optical coherence tomography (OCT)

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2. Statistics and Clinical Trials Unit, Imperial University, London, UK
3. Members of the International OCTane Study Group
4. NIHR Biomedical Research Centre for Ophthalmology, Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology, London, UK.



Dr. Kwesi Amissah-Arthur

Summary:

The global burden of avoidable sight loss and blindness is significant and increasing. 288 million people are expected to have some form of age-related macular degeneration (AMD) by 2040, with approximately 10% having intermediate AMD or worse. The number of people with diabetes aged 20–79 years is predicted to rise to 642 million by 2040, of whom 35% may develop diabetic retinopathy, 7% proliferative DR, and 7% diabetic macular oedema. The increase in the prevalence of diabetes is set to be highest in Sub-Saharan Africa, with an estimated 110% increase by 2045. Optical Coherence Tomography (OCT) has transformed the diagnosis and management of retinal disease. In Ghana there is a significant lack of trained eye personnel to manage such patients, the skills and expertise required to interpret the images have also been slow to develop with most of the expertise in the two large teaching hospitals. OCT represents the gold standard for diagnostic imaging of the macula (which is the central most important part of our retina), but there can often be delays in the interpretation of OCT images by experienced specialists. Less experienced initial readers of OCT images are also more likely to over-refer if in doubt, adding to already stretched ophthalmology services, such as those in Ghana where there is a gross lack of trained capacity. In addition, triage performance is strongly related to clinical experience and training, meaning that junior eye care professionals perform with lower sensitivity and specificity compared to experienced retinal specialists.

Artificial Intelligence, Deep Learning and Machine Learning have come to the fore in ophthalmology in with increased use of

“intelligent” algorithms that have been shown to match the most experienced specialists in certain centres. We are investigating the use of the Google DeepMind macular OCT algorithm in the detection of urgent macular diseases. The algorithm to be examined in the present study has the potential to improve the speed and consistency of the initial assessment of OCT images in patients with new retinal symptoms. This research aims to test the generalisability of an 'artificial intelligence' (AI) computer neural network-based algorithm to detect and triage sight threatening disease using routine three-dimensional optical coherence tomography (OCT) scans. The algorithm has previously been shown to perform at the level of experienced retinal specialists in a study conducted at Moorfields Eye Hospital, London, UK. This study will evaluate the performance of the algorithm in a number of different global health contexts, encompassing a wide range of patient ethnicities and healthcare systems. This study aims to assess the diagnostic accuracy of algorithmic triage of new patients in a global, multicentre, study, evaluating performance across a broad range of ethnicities and settings.

What it means to us in Ghana:

If this artificial intelligence algorithm is shown to be sensitive, specific and precise in a Ghanaian cohort, we can deploy OCT scanners across the country and use the technology to triage patients with macular diseases to determine whether they need urgent attention or not. Given the relative lack of eye care practitioners in the country this would be a game changer in increasing equitable access to retina care for a lot of our population.

LANDMARK CASE

ACQUIRED TRACHEOESOPHAGEAL FISTULA IN A CHILD FOLLOWING A 20 PESEWA COIN INGESTION

Prof. Mark M. Tetley^{1,2,3}, Prof. Martin Tamatey^{2,3}, Dr Kwame Adomako³

1. Department of Surgery, University of Ghana Medical School, Accra
2. Department of Surgery, University of Health and Allied Sciences, Ho
3. National Cardiothoracic Center, KBTH



Prof. Mark M. Tetley

CASE SUMMARY

A 7 year old child with suspected acquired tracheoesophageal fistula (abnormal connection between the wind pipe and the gullet) was referred to the National Cardiothoracic Center (NCTC). She had no other previous history of chronic illness, but had swallowed a coin eight months earlier. This history was not initially known and she had been treated for recurrent upper respiratory tract infections for over 6 months. Three weeks prior to presentation at the NCTC, she was treated at a polyclinic for persistent productive cough, fever and general malaise. A chest x-ray showed a foreign body (coin) below the thoracic inlet. Fig 1. She was referred to the ENT Department of the 37 Military Hospital where she underwent a rigid oesophagoscopy under general anesthesia. A rusted 20 pesewa coin was extracted. A nasogastric tube was passed after the procedure and the child was placed on

intravenous fluid and antibiotics. She was not allowed to eat for 48 hours.

On the second day after surgery, she was started on liquid diet. However, she developed persistent productive cough with bloody greenish sputum each time she drank anything. An acquired tracheoesophageal fistula was suspected. The feeding was put on hold and a chest x-ray and barium swallow were done which confirmed the presence of a tracheoesophageal fistula at the level of T3. Fig 2.

A feeding gastrostomy (a tube inserted through the abdominal wall into the stomach) was carried out. Figure 4. This was used to feed her with liquid and semisolid (blended) foods. She was subsequently referred to the Cardiothoracic Center for repair of the tracheoesophageal fistula. At surgery, there was a 1cm defect (an abnormal hole) just above the carina creating a communication between the trachea and the oesophagus. The surgical repair was done successfully through a right posterolateral thoracotomy (surgery to open the right side of the chest).

The child recovered with no complications and started feeding normally without coughing 5 days after surgery. A repeat barium swallow showed successful repair of the fistula with no sign of leakage into the airways. Fig 3. She was discharged home 7 days after the surgery and has since been doing very well.

Children with repeated chest infections should have a chest X-ray as part of their diagnostic work-up. An early chest X-ray in this child could have prevented this rare and life threatening complication.

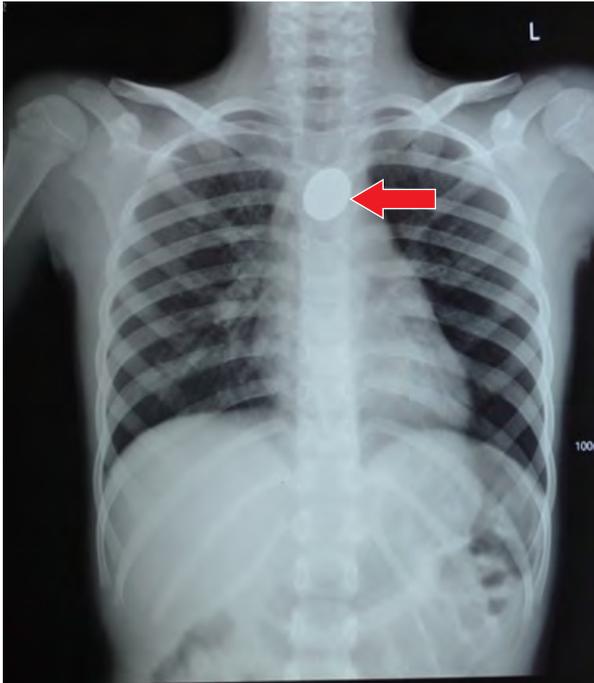


Figure 1. A chest X-ray showing a 20 pesewa coin just below the thoracic inlet.(arrow)

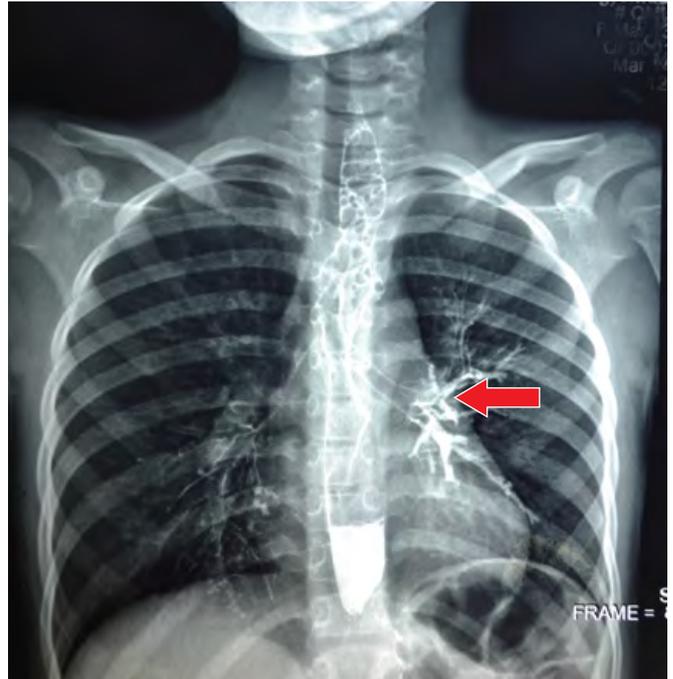


Figure 2. Dilute barium swallow with leakage of barium into the trachea and bronchi.(arrow)

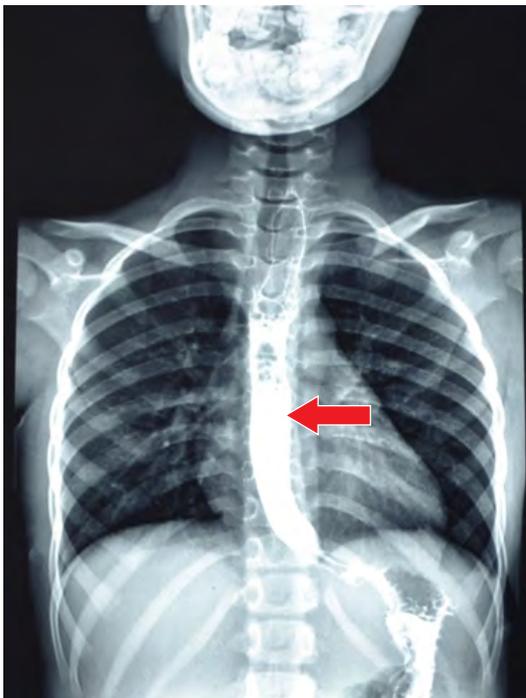


Figure 3. Barium swallow with no sign of leakage after surgery (arrow)



Figure 4. The child with a feeding gastrostomy tube (arrow)

Overview of COVID-19 pandemic and efforts of the UGMS towards the national strategy.

Prof. Alfred Yawson, Dr. Emilia Asuquo Udofia

Department of Community Health, University of Ghana Medical School

Introduction

The Coronavirus Infectious Disease 2019 (COVID-19) pandemic was associated with exposure at the Huanan Seafood Wholesale Market in its early phases, a situation which suggests the disease is of zoonotic origin. The first case was reported in Wuhan, China on December 31, 2020. However, the number of cases increased rapidly without documented exposure to the wholesale market. Since then the disease has spread rapidly mostly on account of travel to various parts of the world, facilitated by person to person spread of the infection. The World Health Organization (WHO) declared it Public Health Emergency of International Concern on January 30, 2020 and a pandemic on March 11, 2020 (just a day before Ghana recorded its first case). The disease has affected millions and left thousands dead globally.

Aetiology

Coronaviruses are single stranded ribonucleic acid (RNA) viruses which are ubiquitous in nature and commonly found in vertebrates including reptiles, fish and mammals. The causative organism of COVID-19 is a novel coronavirus which was named the Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2 virus) by the World Health Organization in February 2020.

Transmission

The disease is highly contagious with a reproduction number ranging generally from 2.24-3.58. Transmission occurs by contact with an infected case in close proximity (within one metre) and/or respiratory droplets which are released when an infected person exhales, coughs and sneezes at close range.



Prof. Alfred Yawson

Head, Department of Community Health

Diagnosis

Clinical diagnosis relies on a history of exposure to an infected case (whether symptomatic or asymptomatic), a clinical assessment and laboratory investigation which include a real-time polymerase chain reaction (RT-PCR) performed using biological specimen namely: a swab from the nose, a swab from the throat, expectorated sputum and nasal lavage. Blood samples, endotracheal aspirate and bronchoalveolar lavage may also be used. RT-PCR is able to detect the virus during the acute phase of the disease.

Clinical presentation

The initial cases in Wuhan were diagnosed with pneumonia of unknown aetiology. Common features include fever, cough and fatigue, as well as headaches, dyspnea, sputum production, diarrhea, sputum production, haemoptysis. These features are similar to other diseases caused by coronaviruses but unique to the COVID-19 is the predilection for the lower respiratory tract often resulting in rhinorrhea, sneezing and sore throat.

Case Management

The management of the disease varies based on the severity of the disease, presence of co-morbidity, context specific drug availability. Globally, as the pandemic evolves more issues arise as to what effective medications should be used, with rather confusing evidence, whose scientific and political motivations cannot be readily ascertained.

National Preventive Measures

In general, preventive measures have included:

Use of facemasks: The use of facemasks is helpful in limiting the spread of respiratory droplets and exposure is minimized when achieved at a population level.

Handwashing: Appropriate handwashing techniques are required using soap under running water for no less than 20 seconds. The use of alcohol-based hand sanitizers advocated in addition to handwashing or in circumstances where handwashing is not immediately possible.

Social distancing: more appropriately, physical distancing- is keeping a distance of two meters -based on the distance over which droplets are able to spread. This reduces the amount of exposure from close contact with a

suspect or confirmed case; this is improved with the appropriate use of facemasks.

Lockdown: Regulation of movement during the COVID-19 pandemic was important in limiting spread of infections, but more importantly in helping with contact tracing. Lockdowns were important in minimizing community transmission as well as global spread.

Psychosocial Measures: During the pandemic, travelers, contacts and cases were often quarantined or isolated implying that they were confined in unfamiliar spaces. This was for the maximum incubation period of the disease, in the case of quarantine and for the period of treatment in the case of isolation. These in addition to the challenges posed by the illness itself required psychological support.

Nutritional and social interventions: The lockdown resulted in loss of employment and winding down of businesses and firms, with resultant loss of productivity and income. Those who were at risk were persons with low socioeconomic status, self-employed, those engaged in informal work and the elderly. These persons required assistance with start up capital if they were in small or medium scale enterprises as well as food packages for the very poor.

Risk communication: This was geared towards a nationwide sensitization to help communities understand the COVID-19 disease, its transmission and important preventive measures. This was essential if population level adherence to the prescribed measures were to be achieved.

Capacity building for health care providers: Training of healthcare workers on Case detection, Contact tracing, Case Management, Co-morbidity and COVID-19, Infection Prevention and Control etc. Health education and health promotion were undertaken at others facilities, industries, educational institutions and ports of entry.

DISTINGUISHED PERSONALITY

Professor Janet Neequaye



Professor Janet Neequaye has been working in Ghana since 1971.

She was born on 4th May 1946 in England and attended Benfleet Primary School and Westcliffe High School for Girls in Southend-On-Sea, Essex. After qualification from St George's Hospital Medical School, London, in 1969, she completed house officer jobs and an anaesthetics senior house officer post at the Gloucester Royal Infirmary. In 1971, she came to Korle Bu Teaching Hospital and took up

medical officer posts in Child Health, Accident and Emergency, and the polyclinic. In 1973, she returned to England, working at Lewisham Hospital as senior house officer, and Bedfordshire as Clinical Medical Officer. After obtaining the MRCP and DCH qualifications in 1974, she returned to Ghana and joined the UGMS in 1976, initially as senior registrar in Child Health. Prof Neequaye assumed headship of the department from 1984 to 1988, during hard times in Ghana, and had to grapple with various issues including severe shortage of all grades of

staff and lack of basic drugs and equipment. Between 1990 and 1992, she worked as consultant paediatrician in Saudi Arabia and returned to the UGMS from 1992. Her appointment as associate professor was from 1st January, 1989 and as a full professor from 1st February, 1991. From 1994 to 1997, she took up locum consultant paediatrician posts in various hospitals in England, and returned to the UGMS in 1997. She has published over 60 papers in peer-reviewed journals on malaria, chloroquine resistance, Burkitt lymphoma, HIV epidemiology in Ghana, neonatal jaundice, neonatal tetanus and sickle cell disease. Her other professional degrees are FRCP (Edin), Foundation FWCP and FGCP.

From 1997 to 2002, Prof Neequaye was again head of department of Child Health. She retired from UGMS in 2006 but continued working as a contract professor, during which period she particularly enjoyed teaching postgraduates on Fridays for several years. She fully retired in 2015 and is now in private practice.

Among her other notable achievements are 1. Refurbishment of the Children's Emergency Room and the OPD consulting rooms with funds from National Commission for Children. 2. Introduction of "Dear pharmacist" system - a means of providing essential drugs to children of families in need. 3. Introduction of the Children's Needy Fund. 4. Running the

department with only one senior member. 5. Equipping the department with funds from British High Commission fund for Ghanaian refugees from Nigeria. 6. Renovating the Mothers' Hostel and setting up its management committee. 7. Setting up the NICU. 8. Setting up the "Amenity ward" where higher level 'hotel facilities' were provided for a fee. 9. Supporting service and training in the department by securing the temporary waiver of rural rotation for prospective paediatric residents (from which the writer benefitted), and 10. Main author and organiser of the Paediatric house officers' handbook.

Regarding memorable teachers, she mentions Professor Francis Nkrumah.

And in response to 'what are your greatest regrets', her answer was "none".

Janet has been married to Prof Alfred Neequaye for 51 years, and has 3 adult children - a consultant vascular surgeon in UK and the two others in London and California working in banking, and 8 grandchildren.

Prof Neequaye's pastimes include bridge, family, swimming, walking and reading. The UGMS is grateful for her invaluable contributions over the years.

Eyi wala donn, agbo agboi ! (Ga phrase for 'we are truly grateful')

By Dr Adziri Sackey, Dept of Child Health in consultation with Prof Neequaye



STUDENTS' CORNER

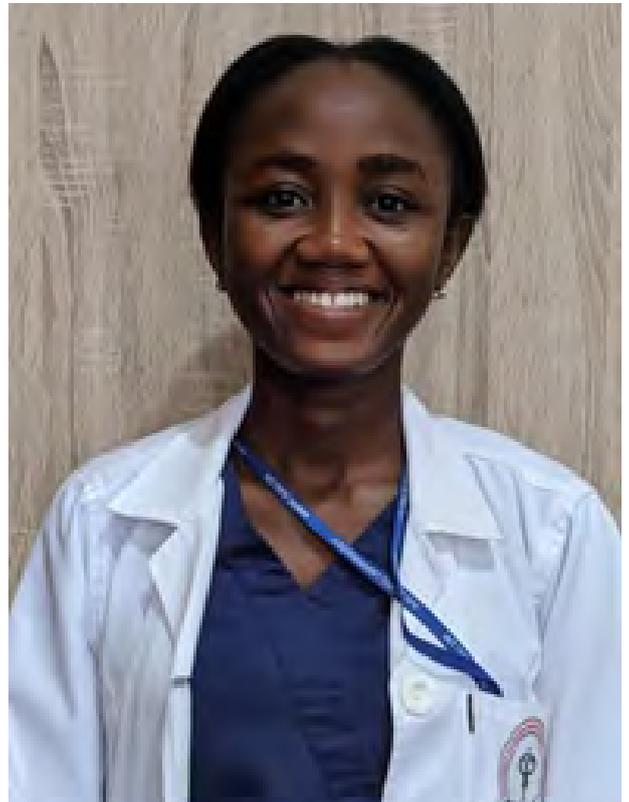
STUDENT LIFE DURING COVID-19 PANDEMIC

The COVID-19 pandemic has emerged in these months to have such a profound impact on global health, economy, governance, and culture as we know it. It has been just a few of months, but it is evident that the changes have been remarkable, indeed.

Student life in the face of the COVID-19 outbreak has understandably seen much change as well, particularly students in the medical sciences and in particular the University of Ghana Medical and Dental Schools. In March 2020, there was the mandatory closure of all educational institutions, a directive from the government that was binding on the students of the University of Ghana Medical School (UGMS) and University of Ghana Dental School (UGDS) as well. This saw many students gathering up a few resources, for what seemed a brief sojourn at home, only for it to extend to a 3-month hiatus, observing with their families from home, the unfolding of the great changes that would be the norm months down the line.

For student life, as with all spheres of our lives today, COVID-19 has brought in its wake the need to find alternative ways to keep up with daily activities. As one clinical year student noted, *"The situation has allowed us to be innovative and explore the use of technology more in our studies."*

It was remarkable to note that after a few weeks, measures were put in place by the University of Ghana to continue pending courses online, using learning platforms like Sakai, and other online learning portals. The eventual heavy dependence on online lectures, tutorials, and group study meetings also required constant internet connection, a challenge which was addressed when students were given access to university pre-arranged internet bundles with some reputable communication networks in the country.



Hillary Attah-Sarfo

As this new step in solely online teaching and learning was a new thing, it certainly came with challenges, but with more experience, there was improvement nonetheless. The semester ended for some classes and some courses successfully, as they were able to take their final examinations with these online platforms.

A first-year medical student remarked, *"We cannot deny the fact that online studies came with its challenges, but the challenges cannot surpass the benefits most students have derived from it."*

Another second-year medical student added, *"the bright side to e-learning is that the coursework for the semester has been completed and that the school management*

has not allowed COVID-19 to put a stop to academic activities."

Due to the nature of teaching and learning in some classes of the UGMS and UGDS, clinical year classes could not rely solely on the online sessions to finish the semester, and there were concerns among students on how the semester would progress since many classes had their final exams scheduled for later in the year.

In plans made by the Government to slowly ease the enforced restrictions, final year students were eventually allowed to resume their courses from June 2020, with extended measures for safety put in place. It has been encouraging to note the measures that have been put in place by the School Administration to aid the smooth and safe return of final year clinical students to school. With a communique and subsequently an orientation on the 'New Normal', students were alerted on the impact of the Pandemic on their way of study. All wards, hostels and lecture areas had hand-washing stands, and a strict 'No mask, No entry' policy to aid in preventing spread of the infection. New regulations in the hostels, recommendations on how to have group meetings, reforms in the general course work; such as the use of Simulation centers in place of frequent patient contact, and other resources such as the School clinic and the psychological support available, were also discussed.

Over a month down the line, students seem to have adapted very well to this new way of campus life. As one student remarked from the onset, *"regardless of the associated challenges, I believe that students are capable of adapting and moving forward."* Many alternative ways of meeting to have study discussions have been adopted, and these include Zoom meetings, Google classroom, Video calls, among many others. Student concerns, including when other classes will also resume, prevailing challenges with online teaching and learning (network stability, attendance), the new clinical experience, the duration of these reforms and when the end will be in sight, may all exist, but students trudge on daily, in pursuit of their goals.

Irrespective of the year group, students share the hope of a return to the former way of life and the opportunity to interact freely with one another. As one respondent put it, *"I look forward to physically meeting my classmates because no matter how frequent, virtual interaction pales in comparison to the real thing"*.

It has been quite a journey these past few months, and one lesson learned is the importance of learning to adapt to new situations, and to work together to overcome challenges. It is heartwarming to know that even amid the COVID-19 pandemic, the mandate of the UGMS and UGDS to create well-rounded, first class health professionals is still being realized.

SEMINARS/TRAINING

Use of Objective Structured Clinical Examination (OSCE) for the Clinical Exams in Surgery



Rev. Dr. Mathew Kyei.

Examination Coordinator, Dept of Surgery

The COVID 19 pandemic brought academic activities in the country to a standstill. The University of Ghana Medical School as part of the University of Ghana had to suspend all academic activities in March 2020. With the resumption of academic activity, the risk of spread of the corona virus by way of droplets had to be contended with as the Hospital environment has been noted to be a high-risk area.

This led to the department of Surgery at a faculty meeting deciding to use the OSCE for its clinical examination as part of its restructuring of the Departmental activities: the first time OSCE was to be used for the assessment of students of the final clinical year. The process involved the setting up of an examinations committee to draw up the modality of its implementation and the vetting of appropriate questions for the examinations. It was agreed to have 10 unmanned stations

Three manned stations were set up for the assessment of history taking and oral discussions on the pathology and management of surgical diseases. To avoid undue contact with patients, manikins were used for the assessment of candidate's in physical examination skills. (fig 2)

In all 48 final year students took part in this first ever OSCE examination on the 8th of July 2020 as part of their end of rotation assessment. Despite the good reception by both students and faculty that acted as examiners, it was obvious the students needed more training in the use of manikins for this exercise especially when this is envisaged to be the method to be used for the Final part III examinations in Surgery. To address this, students currently doing rotations at the Department of Surgery led by their tutors have frequented the University of Ghana Medical School Skills Center for some of their tutorials and demonstrations. An interaction with the management at the Skills Center indicates an increased patronage of the center with advanced bookings being made. What has become obvious is the need to increase the available repertoire of manikins to allow for more pathologies and procedures to be demonstrated at the Center.

It is hoped this that method of examination which has been noted to reduce biases will be continued even after the COVID pandemic.



A student examining the breast using manikins as part of the OSCE; his examiners look on. (simulated)

ANNOUNCEMENTS

Approved Protocols January to June 2020

| Title | Author | Department |
|--|------------------------|---------------------------------------|
| 1. Socioeconomic Impact of Covid-19 on Households in Ghana: A Rapid Assessment | Justice Nonvignon | Health Policy Planning and Management |
| 2. "Phenotypic and Genotypic detection of Carbapenemase-Producing Escherichia Coli and Klebsiella Pneumonia among multidrug resistant enterobacteriaceae in Ghana" | Felicia Pokuaah Dwomoh | Medical Microbiology |
| 3. The Association between Inter-dialytic Weight Gain and Nutritional Parameters in Hemodialysis Patients" | Josephine Hornam Anane | Nutrition and Dietetics |
| 4. "Vitamin D levels and the Severity of Preeclampsia in Pregnant Women" | Eunice Donkor-Adjei | Nutrition and Dietetics |
| 5. Limiting Adverse Birth Outcomes in Resource-Limited Settings: The LABOR Study" | Samuel Antwi Oppong | Obstetrics and Gynaecology |
| 6. The Effect of Natural Cocoa intake and adipose tissue inflammation and liver Steatosis in high-fat diet (HFD) Fed Rats" | Maxwell Kingdow | Anatomy |
| 7. Evaluating the malaria parasite clearance and pharmacokinetics of Artemether Lumefantrine Co-Administered with Unsweetened Natural Cocoa Powder | Akotuah Prince Appiah | Pharmacology |

| | | |
|---|----------------------------|---------------------------------------|
| 8. Ergonomics of Classroom Furniture for Junior High School Children in Ghana | Ellen Afriyie Mensa- Bonsu | Anatomy, |
| 9. Anemia and dietary diversity among pregnant women in Margibi and Grand Cape Mount Counties, Liberia” | Geetah S. Saydee | Nutrition and Dietetics. |
| 10. Comparative Study of Routine Clinical Biochemical Test s across different laboratories in the Accra Metropolis | Elisha Larbi Nketiah | Chemical Pathology |
| 11. Pharmacokinetic evaluation of Cocoa Pod Husk Pectin-Based modified release formulation of carbamazepine | Simon Yeboah | Pharmacology and Toxicology |
| 12.Liver Dysfunction in patients with sickle cell disease” | Robert Nii Ayi Aryee | Physiology |
| 13.Treatment Outcomes and Adverse effects in patients initiating and maintaining a Dolutegravir based treatment regimen;-an observational prospective cohort based study” | Margaret Larthey | Medicine and Therapeutics |
| 14. Stakeholders’ Perspectives on BroadConsent for Genomics Research and Biobanking: a Case Study of the Kidney Disease Research | Francis Adjei | Health Policy Planning and Management |

OBITUARY

PROFESSOR RUDOLPH DARKO
MB CHB, FWACS, FGCS,

A DISTINGUISHED CONSULTANT GENERAL SURGEON

He Was Born On 5th April, 1948 In Aburi And Died On The 23rd February, 2020

Professor Rudolph Darko joined the Department of Surgery in 1989 when he was appointed Consultant General Surgeon at the Korle Bu Teaching Hospital and a lecturer at the University of Ghana Medical School. As a surgeon and teacher, he had high ideals that he tried to pass on to his students and surgical trainees. He was a very skillful and careful operator and a brilliant teacher. At surgery, he was precise and swift, completing surgical procedures expeditiously. When teaching, he was eloquent and straight to the point. His selfless devotion to patient care, training of doctors and surgeons has been exemplary.

His areas of interest both in practice and research were diseases of the biliary tract, abdominal tuberculosis, herniae and surgical endocrinology. His scientific publications and conference presentations mirrored his areas of interest, enabling him to rise through the ranks of academia to become Associate Professor of Surgery in November 2004.

Professor Darko's contribution to the University of Ghana Medical School is reflected in the leadership positions in which he served: Head of Department of Surgery from September 2002 to July 2008; member of the College of Health Sciences Ethics and Protocol Review Committee from 2007 to 2010; and a member of both the University and College of Health Sciences Academic Boards from 2002 until the time of his passing. To encourage students to pursue



surgical careers, Professor Darko instituted the Badoe Prize in Surgery to present cash prizes to deserving students who excelled in Surgery.

On the professional front, Professor Darko was elected Fellow of the West African College of

Surgeons in 1993. He was a very active member of the College, rising through its leadership ranks to become Secretary, and then Chairman and Chief Examiner of the Faculty of Surgery. He was the Editor-in Chief of the West African Journal of Medicine from 2011 to 2017. Professor Darko was a foundation fellow of the Ghana College of Physicians and Surgeons, a foundation member of the International Hepato-Pancreato- Biliary Association from 1994, and member of the Ghana Cancer Society. He was the Director and Principal Instructor of the Advanced Trauma Operative Management (ATOM) Course Center in Accra from its inception in February 2005 to July 2013, and a member of the Basic Laparoscopic and Endoscopic skills training courses, Accra Center supervised by Minimal

Access Center (MIC) University of Turbingen, Germany.

As a Department, we have lost a great surgeon, mentor, and teacher whose many contributions and accomplishments in surgery stand tall in our archives. Professor Darko is fondly remembered by his students (as Sticky), residents and colleagues with whom he has enjoyed a most productive career for decades.

He left behind his wife Mrs. Sophia Amaadi Darko and three children [Dr. Kwame Osae Darko – Plastic Surgeon, Dr. Adwoa Kumiwa Asare Afrane – Paediatrician, Dr. Akosua Amanobe Quarcoopome – Dental Surgeon]

May his soul rest in perfect peace.



Some colleagues at the funeral of Professor Darko

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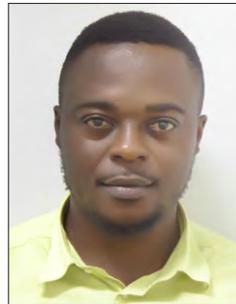
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