

# **Time to Reflect on Biomedical Research Agenda in Kenya: A Tribute to our Global Health Mentors**

## **Running Head: In Memoriam to Kenyan Global Health Mentors**

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**Abstract:** We submit this column to present a brief biography, a tribute of three departed biomedical research mentors who were instrumental in our careers and for the growth of global health research in Kenya. We briefly discuss their respective educational backgrounds and put forth a set of qualities, values, personal supportive experiences, and achievements that nurtured our careers as scientists. The mentors are Prof. Ayub Opiyo Ofulla, Dr. John F. Kennedy Vulule, and Dr. Peter Odada Sumba. We appeal to the community of researchers in biomedical sciences, global health, and epidemiology who study a particular disease or health risk (conducting interventional and observational research) to mentor, teach, and serve as role models for upcoming scholars. There is need for a positive and supportive attitude to create a universal environment to nurture the next generation of researchers transcending race, color, nationality, ethnicity, culture, faith, gender identities, sexual orientation, age, ability, and background.

**Key words:** mentors, biomedical research, global health, Kenya.

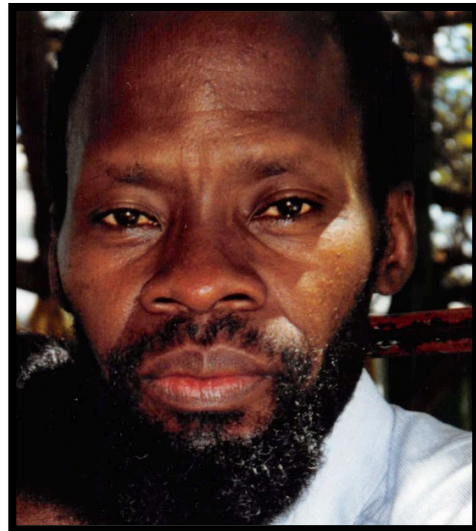
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**Prof. Ayub Victor Opiyo Ofulla (7<sup>th</sup> September 1962 – 27<sup>th</sup> March 2015)**

Ayub Ofulla was a Professor in Biomedical Sciences at Maseno University, Kenya in the Department of Biomedical Science and Technology. He trained for his bachelor's (Botany and Zoology) and master's in Human and Veterinary Parasitology both from University of Nairobi, Kenya. He earned his PhD degree in Zoology from Kenyatta University, Kenya. He joined Maseno University in 1995 as a lecturer in the Faculty of Science and rose through the



academic ranks to become a full professor. He was also a member of the Maseno University Ethics Review Committee. Prof. Ofulla was a link between Maseno University and an array of local research institutions, including the Kenya Medical Research Institute (KEMRI), Lake Victoria Environmental Management Program (LVEMP), International Centre for Insect Physiology and Ecology (ICIPE) and International Livestock Research Institute (ILRI).

Between 1999 – 2010, there were only two professors (the late Phillip Joseph Ragen Aduma and Ayub Victor Opiyo Ofulla) in the department of Biomedical Sciences at Maseno University. He was instrumental in unlocking the potential of his mentees, and a large proportion of postgraduate students at Maseno University were happy being supervised by him. This was not because of the inadequate number of mentors or lack of other role models but due to his inherent scholarly traits. He was humble, approachable, friendly, and non-bureaucratic. These traits inspired many of his graduate students to become researchers, post-docs, and principal investigators in biomedical programs in Kenya and worldwide. He mentored over a dozen students at the PhD level, as one will see from examining the theses in the graduate school libraries in Maseno and other universities. In addition, he was instrumental in advancing the global health research agenda by developing a master's and PhD programs at Maseno University with assistance

from the late Prof. Phillip Aduma. These curricula provided a steady foundation for students to progress into the array of research institutions in Kenya.

Prof. Ofulla expected graduate students to succeed and provided a fair assessment of the assignments or tasks performed. As an example, when he was examining my doctoral thesis (B. N. Ondigo), which he reviewed in a timely manner, he readily discussed his scientific questions with me and provided an assessment that was broadly consistent with that of my research supervisor. The thesis examination provided an opportunity to receive instruction, as well as summative and formative feedback, that all contributed towards improving the quality of the work. This not only made the theses review process academically sound and engaged with current literature on the topic, but also enhanced the logical structure and clarity of my education. As a thesis examiner, Prof. Ofulla was diligent and assisted the student in revising the thesis to be reader-friendly and coherent, which enabled many of his students to graduate within the stipulated time period. He was a strong advocate of a passable thesis moving towards a publishable manuscript, which is also an important contributor to a scientist's career advancement.

Prof. Ofulla was empathetic and fastidious to students. He easily understand some of the challenges associated with graduate studentship. For example, extended mobile phone calling was beyond the limit of most students due to the associated high costs, Prof. Ofulla knew this without being told! As these were the days of expensive cell phone calling rates. He patiently would phone call his graduate students taking them through their work during instances when face to face communication was not possible. Throughout my struggles of graduate work, I found Prof. Ofulla to be courteous and highly committed to his work in a gentle but firm manner of nurturing future biomedical scientists. He urged us on through the power of his own example with his impressive publications. He had not only trained many incredible researchers at Maseno University but also, had a great impact on our biomedical research community in Kenya.

Prof Ofulla believed that to be a good scientist, one ought to read science fiction novels. He reasoned that if you could not imagine something that did not exist, how could you be open to discovering new things? This was the driving motivation as he wrote the book entitled, *The Secrets of Hidden Knowledge: How Understanding Things in the Physical Realm Nurtures Life*<sup>1</sup>.

**Dr. John F. Kennedy Mudegu Vulule (22<sup>nd</sup> December 1963 – 10<sup>th</sup> September 2017)**

John Vulule was a Chief Research Scientist at Kenya Medical Research Institute (KEMRI). He trained for his bachelors in Zoology, master's in Genetics, and PhD degree in Entomology all from University of Nairobi, Kenya. He joined KEMRI in 1990 and somewhat reluctantly became the acting Director (later confirmed) at the Center for Global Health Research (CGHR) in Kisumu-



KEMRI from 1998 to 2014. He then became the CDC-KEMRI field station director and was working to strengthen the KEMRI Center for Infectious and Parasitic Diseases in Busia at the time of his death. Even though he served in these leadership roles, he was first and foremost a scientist and remained a mentor throughout his career.

As a Center Director, Dr. Vulule was a star figure when it came to mobilization of global research partners. His ability relied on facilitating researchers who interacted dynamically, interdependently, and adaptively towards a common and valued goal of global health research. As more researchers came to CGHR (Kisumu)-KEMRI, this provided opportunities for capacity-building and also served as a source of livelihood for hundreds of families who worked at the Center and for trainees who were there to advance their education and careers. In addition, his collaborative nature was evident when he provided *Anopheles gambiae* mosquito strains to Malaria Research and Reference Center (MR4), and in doing so making them accessible to the wider community of entomologists interested in malaria transmission.

Finding a graduate studentship grant for biomedical research in Kenya could become a nightmare for most students. The scarcity of graduate studentships ultimately results in delays in study completion and graduation since intensive research labs have not traditionally existed at Kenyan universities but as the mandate of KEMRI in service to the

entire country. Dr. Vulule provided numerous opportunities for graduate students to meet researchers from outside Kenya who were performing research at KEMRI. Through his mentorship, the lead author (B. N. Ondigo) learned the value of high-quality research, publishing in peer-reviewed journals, international collaborations, and attending scientific meetings. He was a trusted mentor who helped many junior researchers find opportunities to develop successful career trajectories. In addition, several junior researchers were able to attend and participate in training programs covering a range of research skills, spanning the continuum from basic strategic research to technology development. Research skills training included workshops on such topics as biostatistics, laboratory safety procedures, bioinformatics, proposal and manuscript writing, and science communication. He was also an adjunct faculty member at Maseno University. This provided him an opportunity to revise and modify the course content, thus always enabling his students to be better prepared for biomedical research. This resulted in the development of strong doctoral candidates who learned how to stay current within their area of research.

Dr. Vulule was also a great champion of women's empowerment through education. He believed that to aid in the reduction of the gender gap, women researchers should have equal and unhindered opportunities to become scientists. Dr. Vulule provided effective leadership to team leaders in the different research programs during his tenure as the center director. This went a long way to facilitate, coach, and coordinate the activities of multiple teams. He delegated responsibilities and recommended post-doctoral fellows and early career researchers to be team leaders and project coordinators, while still keeping a closer focus on each of them. He took special satisfaction in seeing his mentees succeed, make contributions, and find jobs heading influential medical research programs. This assisted in the development of a cadre of female researchers to move towards being research leaders and collaborators. Dr. Vulule would often refer those working in the center for global health as colleagues, no matter how junior or the scale of employment. While this title may have felt not befitting to the mentee, there is little doubt that Dr. Vulule had both a respect for those who worked for him and an expectation that in future they would have achievements worthy of making them his colleague.

**Dr. Peter Odada Sumba (20<sup>th</sup> December 1955 – 17<sup>th</sup> June 2018)**

Peter Odada held a Diploma in Medical Laboratory Technology from Kenya Medical Training College, Nairobi, Kenya. He started working as a technologist at Kenya Medical Research Institute, Kisumu in 1986 and rising to be a chief technologist. Thereafter, he pursued a master's in Public Health, at Case Western Reserve University (CWRU), USA and a PhD degree from Kenyatta University, Kenya. This enabled him to shift career tracks from technologist to a research scientist. He took up the role as project manager for KEMRI-CWRU collaborative projects in 1999. Dr. Odada was also instrumental member in the development of the association of Kenya Medical Laboratory Science Officers.



Dr. Odada was masterful in the growth of global health research in western Kenya as evidenced his community mobilization skills. He was an instrumental in engaging the community to enhance their participation in cross-sectional, longitudinal, or clinical trials that ultimately provided biomedical knowledge and tested interventions in the field. He was able to explain the purpose of a research study in terms that people from the community could easily understand. An example of this is how he explained why we wanted to study immunity to malaria. He used an analogy between how the police identify criminals based on their behavior to how immune cells recognize pathogens based on how they are different from how healthy cells behave. The immune system was in some ways like the police in stopping the ‘bad actors’ (i.e., the malaria parasites) from taking over (i.e., making you sick).

In addition, Dr. Odada had a passion for justice and ensuring that everyone has access to fair treatment, *mtetezi wa wanyonge* – a Swahili language (translates to defender of the weak). As a defender of the plight of the downtrodden he spoke out and articulated their views and concerns. He pursued social issues addressing corruption, tackling violence, and promoting accountability and transparency. He called for access to information and the promotion of the rule of law at all levels within the realm of biomedical

research. Equal accesses to participatory and inclusive approaches as a mechanism of development of global health were his pillars before his untimely death.

Dr. Odada was also an adjunct faculty member at Maseno University and Jaramogi Oginga Odinga University of Science and Technology. He was instrumental in providing graduate students with vital lessons and lectures on principles of community health. His lectures were packaged in a conducive participatory learning environment replete with real-life examples. He often discussed with his trainees the relationships between a community and specific stages of a research project, to community representation and participation during the whole research process. He regarded the community as the source of biomedical information from which scientific questions would arise. He emphasized that inadequate community involvement could result in non-respect for the study participants living in the study area and limited uptake of results that could be deemed culturally not acceptable. In addition, he emphasized the critical role of listening to the community as the most effective way of building mutual trust with the study participants.

### **In Summary**

It was a great honor for us to work with the three colleagues in biomedical research in Kenya until their passing. They were masters in mentoring and setting the pace for global health research. They challenge us to be good mentors as beneficiaries of their goodness. We have to work hard in biomedical research carrying on where they left us. Our departed colleagues are greatly missed but their mentorship and scientific legacies lives on.

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