



Global Health Case Competitions: Building an Analytical, Field Ready Workforce in Cameroon

In recent years, multidisciplinary and multisectoral approaches to addressing complex health issues are proving the most effective ways of handling emerging infectious disease outbreaks. In the recent past, the world has been grappling with repeated outbreaks of Ebola, Marburg, yellow fever, Rift Valley fever, and recently the COVID-19 pandemic, with several waves happening in different parts of the world. With other public health challenges like antimicrobial resistance, food safety, and climate change provoking new emerging infectious diseases and health challenges, the knowledge and expertise required to manage them is a major area of focus. Since Cameroon has experienced several health crises over the past years, including Ebola virus threats from Nigeria, Monkeypox cases near several borders and in the Center province, and over 120,000 COVID cases in Cameroon this year, the current workforce must be bolstered in order to develop the skills and instincts necessary to respond to such complex emerging health dynamics.

In order to develop a field-ready workforce, training institutions therefore cannot continue to deploy the centuries-old, siloed approaches they have been using to train their respective professionals; something has got to change. Africa, one of the continents most affected by these complex health challenges, is one

of the places where this change is happening. Africa One Health University Network (AFROHUN) has developed and pioneered several experiential multi-disciplinary training programs and approaches, specifically a “Global Health Case Competition” that we have used and tested in Cameroon since 2019.

Global Health Case Competitions (GHCC) are a high-level approach to training the One Health workforce. Done right, the competitions heighten students’ understanding of issues of national, regional and/or global interest and concern. They bring together students from multiple disciplines who work together to identify and propose innovative but practical ideas and solutions to a provided case scenario on a complex health challenge. The cases we worked with have focused on ever-changing and growing infectious disease threats, including COVID-19, rabies, Ebola, and AMR, among others. In GHCC, student teams compete against each other for the most innovative and practical solution to the case. In the AFROHUN network, this training approach is promoted as one of the most effective ways of molding a future workforce that is collaborative, team-oriented, analytical, and can think on their feet to detect, respond and prevent disease outbreaks and other health and development challenges.

The GHCC approach

PREPARATION PROCESS

Application procedure

In 2019 and 2020, Cameroon participated in the GHCC at the Regional level in Kampala and via a virtual meeting on Zoom, respectively. Team Cameroon was then comprised of selected students from Université des Montagnes and the University of Buea. For the 2021 and 2022 editions, a different process was adopted with the competition locally organized. All the students were informed about the opportunity to participate

through a competition announcement and provided a form to fill out, shared via digital communication channels (email, WhatsApp). Participants were requested to write a letter of interest. The teams had to be multi-disciplinary, and gender balanced. Twelve (12) teams from two (02) public universities (Ngaoundere University and the University of Buea) and one private university (Université des Montagnes) applied and were engaged. Students came from the following disciplines: human medicine, nursing, veterinary medicine, mathematics, clinical biology, computer

science, industrial chemistry, crop production, microbiology, dental surgery, livestock production, and marketing.

Faculty team mentors

A faculty mentor was assigned to each team. They were invited because they were knowledgeable about global health and experienced in working with students. They also came from various disciplines including veterinary medicine, agronomy, human medicine, and applied nutrition. Faculty mentors were provided a standardized training from Labyrinth Global Health, a One Health Workforce Next Generation consortium member, via Zoom. The training provided an overview of the faculty mentor's role and expectations. Most importantly, faculty mentors were advised on their function as a coach for their assigned team and the importance of maintaining the integrity of the process by not engaging in solving the case for the students. They had to provide the team with an opportunity to discuss their proposed recommendation and to offer broad mentorship and guidance. Mentors met with their respective teams for a maximum of three hours throughout the entire process. This ensured that students manage the process on their own, as much as possible.

Recruitment of Judges

For the 2022 edition, we used the same recruitment process as in 2021. The recruited judges had both a strong "expertise" in disease surveillance and strong "experience" with similar competitions. Since we had trained judges for the 2021 competition, it was feasible to use the same individuals. To avoid conflict of interest, we assure that faculty do not serve as judges. Judges must be neutral evaluators of the competition process. In the 2021 GHCC edition, judges were

trained via an online session by the AFROHUN Cameroon team in collaboration with a Labyrinth Global Health team member. A summary of the case was first given to the judges, along with a judging sheet where the major criteria for judging the case was provided. The judges also received background resources on the case in addition to the presentation details. For the 2022 edition, we simply e-mailed the cases to the recruited judges one day before each stage of the competition.

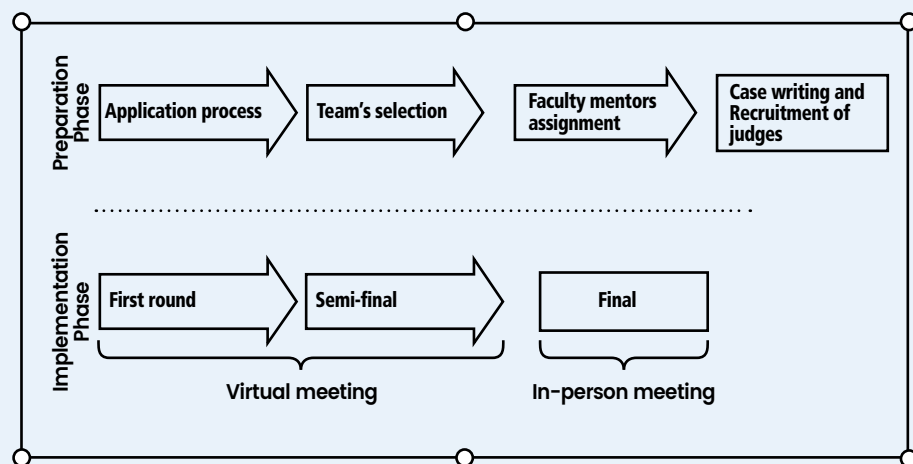
Writing the cases

One of the most sensitive aspects of the process, case writing, can be both exciting and mentally demanding. The topic of the case was determined and developed by faculty within the AFROHUN institutions. The key considerations were the presence of the disease on the official list of priority zoonoses in Cameroon and was based on the recent and real outbreaks that had occurred in West Africa and nearby in the Democratic Republic of the Congo. The writing team was composed of the AFROHUN Cameroon team in charge of the GHCC in collaboration with the Labyrinth Global Health and the AFROHUN Secretariat staff. After the selection of the disease to be addressed, the writing team conducted background research on the disease, to guide the students'

understanding of the case. Once the competition kicked off, at each stage, the cases were emailed to the student leads two weeks before the competition, with instructions on how to proceed.

The Competition

We organized the competition into two main phases in 2021. The first step was a virtual competition with fourteen (14) teams from Ngaoundere University, University of Buea and Université des Montagnes. Four teams then succeeded in moving to the next step. After the 2021 edition, we had grown in confidence in organizing the competitions and we were seeing more interest to participate. The GHCC 2022 was therefore a different style of competition involving three stages: the Quarter-final, the Semi-final (both held virtually on Zoom), and the Final which was an in-person event. After the Quarter-final, four teams were admitted in the Semi-finals. The two (02) successful teams from the Semi-finals then competed in the Finals for the first-place prize. We rewarded them with trophies. This GHCC 2022 edition was more challenging to the teams, as they had to master the art and science of teamwork and remote presentation coordination, as they were using virtual means to work through their responses to the case.



RESULTS

Outcomes

New partnerships created -

Since the beginning of the GHCC in 2019 in Cameroon, two partners have joined us in the process: the National Program for the Control and Prevention of Emerging and Re-emerging Zoonoses (PNPLZER) located in the Prime Minister's office, and Breakthrough Action, an eight-year cooperative agreement funded by the United States Agency for International Development (USAID) to implement creative and sustainable social and behavior change programming around the world. The final stage of the 2022 GHCC edition was indeed organized as part of the OH Day celebration, in collaboration with the PNPLZER and Breakthrough Action.

Building student capacity in team-building - From this experience, students gained competency in team-building and collaborative work.

“To set up a voluntary team that finds interest in competing, you have to build the team throughout the year by organizing internal competitions.” **Dr NDONGMO NJUKENG Tarcisus, Mentor of the team New Genius, University of Ngaoundere**

The team noted that many innovative ideas to overcome diseases were generated by the students. For example, one of the teams in the final stage of the competition-New Generation, from University of Ngaoundere - advised the creation of “No Rabies Ambassadors” in communities as motivation for rabies vaccination and prevention. The winning team of the competition -The Avengers from Université des Montagnes - suggested the initiation of a bonus for social responsibility to strengthen the participation and engagement of local communities

for their adoption of activities related to the response to the Ebola Virus Disease. The students were so enthusiastic about OH that they requested its inclusion in undergraduate level courses. We were happy to recognize that students engaged in the GHCC 2022 have learned how to work in a multidisciplinary environment, which will surely enable these students to take on multidisciplinary perspectives when dealing with challenging health and development situations, including disease outbreaks.

“This competition allowed us to learn to integrate the points of view of other colleagues from other disciplines and to have a greater mastery of computer tools, as well as verbal communication.”

Dr Agueba Fofack Ronaldo, Team Lead of The Avengers, Université des Montagnes

The impact of the GHCC on the adoption of multidisciplinary approaches when dealing with diseases at the Human-Animal-Environment interface has been confined to Cameroonian academic community. After taking part in organizing the GHCC, the Government through the National

One Health Platform has decided to take the lead on this activity and has introduced it to stakeholders in Civil Society Organizations (CSO's):

“I think that the Global Health Case Competition as a training approach for a field ready One Health workforce can be used to prepare or capacitate other actors to be ready to respond appropriately to future real-life issues.”, **Dr Beti Noma Epse Dibongué Elisabeth- Cameroon National One Health Platform Deputy Permanent Secretary.**

CONCLUSION

The GHCC provided both faculty and students an opportunity to work in multidisciplinary teams. The outbreak cases provided an occasion for students to apply theoretical knowledge to a real-life practical scenario, while also improving their knowledge about zoonoses prevention and control. Exposure to real experienced professionals encouraged students to generate innovative and viable solutions to the cases. Learning from this experience, many other One Health issues like AMR and food security can be addressed through such competitions.



The winners of the GHCC 2022 in Cameroon, The Avengers of Université des Montagnes with the organizers of the competition



The second team of the GHCC 2022 in Cameroon, *New Generation* from Ngaoundere University, with the organizers of the competition.

ABOUT AFROHUN

Africa One Health University Network (AFROHUN) is an international network, currently in 28 higher education institutions of public health, veterinary medicine, pathobiology, environmental sciences, medicine and global health, in 10 countries in Africa. The countries are *Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Liberia, Rwanda, Senegal, Tanzania and Uganda.*

AFROHUN is working to transform the training environment and approaches in universities and allied institutions in Africa, to develop a One Health workforce: a workforce with no disciplinary boundaries. AFROHUN is building a workforce with competency to predict, detect and respond to the kind of complex health challenges we are witnessing today. To achieve this transformation, we are reviewing curricula, designing new and exciting experiential learning multidisciplinary training programs, re-tooling teachers and trainers, educating communities on existence and transmission of zoonotic and infectious diseases, while engaging national and sub-national governments to integrate One Health into national policy and strategic planning.

For More Information about AFROHUN

Plot 20B Kawalya Kaggwa Close, Kololo-Uganda

P.O Box 100953 Kampala

☎ +256 392 001 642 ✉ secretariat@afrohun.org 🌐 www.afrohun.org 🐦 @AFROHUN_



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