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Strengthening Laboratory Leadership in Uganda: Reflections from the Uganda Public Health Fellowship Program

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Abstract

Robust laboratory systems are essential for effective health emergency preparedness, response, and recovery, and this requires a skilled workforce trained in laboratory leadership. In 2023, the Uganda Ministry of Health through Uganda National Institute of Public Health in collaboration with Makerere University School of Public Health, Baylor Foundation Uganda, the US Centers for Disease Control and Prevention, and the Association of Public Health Laboratories launched the Uganda Public Health Fellowship Program-Laboratory Leadership Program. This is a two-year, part-time, competency-based, One Health-focused, through-service, non-degree, post-master's fellowship. Fellows are selected through an open, competitive process to acquire key competencies by completing structured deliverables. By December 2024, the first cohort of five fellows had contributed to national public health efforts, co-authoring four guidelines, supporting 14 health emergency investigations, publishing 21 newspaper and 10 Uganda public health bulletin articles, and presenting at seven conferences. Graduates demonstrated enhanced competencies across the nine GLLP domains as evidenced by the completion of defined deliverables. These were measured through the successful execution of a standard set of field-based projects designed to translate didactic sessions into institutional impact. Early implementation underscored the importance of tailoring the curriculum to Uganda's context, promoting inter-institutional learning. A key implementation challenge during this period was balancing fellowship demands with routine job responsibilities. In conclusion, the program's inaugural cycle demonstrated its capacity to build a competent laboratory leadership workforce capable of responding to health emergencies across the human, animal, and environmental health ecosystem in Uganda.

Background

Health laboratory systems are a vital component of national health systems, playing a critical role in disease detection, diagnosis, treatment, and control (1). Strengthening laboratory systems is a key requirement for implementing the 2005 International Health Regulations (IHR) (1). A strong national laboratory system relies on a skilled and knowledgeable workforce capable of detecting and responding timely to health emergencies (2) as well as mobilizing and utilizing both procured and donated resources (3). However, the leadership and management skills essential for this purpose are often underrepresented in conventional academic training programs (3). As a result, many laboratory managers are underprepared to develop and lead functional laboratory systems that support effective diseases' surveillance and response (1). Laboratory leadership is central in establishing and maintaining laboratory quality management systems, building resilient national laboratory networks, and enhancing preparedness for health emergencies. Increasing representation of the laboratory sector in high level health governance also requires targeted leadership training to ensure meaningful participation and decision making capacity (1, 3).

Despite growing interest in equipping laboratory personnel with these competencies, formal programs dedicated to laboratory leadership remain limited (3). This gap was highlighted during the launch of the Global Health Security Agenda in 2014, which emphasized the need to strengthen global capacities for preventing, detecting, and responding to disease outbreaks (2). Experts from the United States Centers for Disease Control and Prevention (US CDC) similarly noted the need for structured training programs to build sustainable and resilient laboratory systems globally (2). To address this need, the Global Laboratory Leadership Program (GLLP) was established in 2017 through collaboration among US CDC, the Association of Public Health Laboratories (APHL), the European Centre for Disease Prevention and Control (ECDC), the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (WOAH), and the World Health Organization (WHO) (1, 2). GLLP is the first laboratory leadership program to adopt a One Health approach and it focuses on fostering and mentoring current and emerging leaders to build, strengthen, and sustain national laboratory systems (1, 2). The program consists of four components: didactic learning, mentorship, project development, and community building. In alignment with this global initiative, Uganda's Ministry of Health (MoH) through the Uganda National Institute of Public Health (UNIPH), adapted the GLLP model and tailored it to the Uganda Public Health Fellowship Program (UPHFP) model to form the Laboratory Leadership Program (LLP). The hybrid program was developed by integrating GLLP principles with the existing structure and philosophy of the UPHFP, providing a novel framework for interdisciplinary health security training in the region. We describe our experience in implementing this specialized laboratory leadership training program in Uganda during the period 2023–2024.

Methods

Program description

The LLP is a two-year, post-graduate, competency-based, through-service fellowship implemented by the Ministry of Health (MOH) through Uganda National Institute of Public Health (UNIPH). The program is implemented in collaboration with Makerere University School of Public Health, Baylor Foundation Uganda, APHL, U.S CDC. The LLP constitutes one of the six training tracks under the Uganda Public Health Fellowship Program (UPHFP), and is overseen by a multi-sectoral steering committee (5).

The LLP is designed as a work-based training model that allows fellows to remain at their job stations while undertaking structured learning activities. The program targets laboratory professionals at managerial levels and aims strengthen leadership capacity to effectively address human, animal, and environmental health challenges within a One Health framework.

Admission into the program requires candidates to possess a master's degree in a health laboratory-related discipline and at minimum of three years of professional experience, including at least one year in laboratory management. During fellowship, participants are required to demonstrate

proficiency in nine core competency domains (2,4) defined in the Laboratory Leadership Competency Framework (https://www.who.int/publications/i/item/9789241515108). Competency acquisition is achieved through completing a portfolio of projects (Table 1).

The day-to-day operations of the program are coordinated by secretariat comprising a Program Director, Program Coordinator, Administration Assistant, and support staff. Additional technical support is provided by US CDC, Field Epidemiology Training Program (FETP) and Data to Policy Program.

The LLP is primarily funded by US CDC through the Division of Global Health Protection (DGHP). The total cost of training the inaugural cohort was USD 385,408 in the first year and USD 417,125 in the second year, inclusive of the startup costs which would not be applicable to subsequent cohorts. These expenditures informed the estimation of a sustainable unit cost per fellow for subsequent cohorts, projected at USD 23,029 for year one and USD 25,646 for year two.

The program operates in close collaboration with key national institutions involved in laboratory services and public health response, including the Department of National Laboratory and Diagnostics Services (NHLDS), the Public Health Emergency Operation Center (PHEOC), Uganda Virus Research Institute (UVRI), Infectious Disease Institute (IDI), the Department of Integrated Epidemiology, Surveillance and Health emergencies, and the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC).

Implementation procedures (2023-2024)

Recruitment of fellows: Recruitment for the inaugural cohort commenced in July 2022 through a one-month open call for applications. Applications were reviewed by a selection panel against predefined eligible criteria. Shortlisted candidates were invited for structured oral interviews. As a part-time training program, the recruitment team required confirmation of institutional commitment from employers in ensuring an enabling training environment for successful candidates. Selected candidates received formal offer letters from the MOH and MAKSPH and submitted written acceptance.

Selection of mentors and instructors: Host site mentors were selected from a national pool for experienced laboratory professionals and assigned to fellows based on predefined criteria, including area of expertise, experience and geographical accessibility. They were formally engaged through service agreements and provided with a periodic facilitation to support mentorship activities. Defined roles and responsibilities guided mentor engagement, with additional technical support provided by program staff and partners. Instructors were drawn from the UPHFP, US CDC, IDI, NHLDS, APHL, and NADDEC.

Didactic sessions: The program delivered structured didactic training through residential learning sessions held at the UNIPH. Sessions were conducted periodically throughout the year and complemented by additional targeted trainings based on identified needs. Selected sessions were conducted jointly with other fellowship programs to promote interdisciplinary learning.

Mentorship sessions: Continuous mentorship was a core component of the training model. Fellows engaged in regular mentor-mentee interactions throughout the fellowship period. Mentorship was structured to support competency development, project implementation, and professional growth. Standard tools, including GLLP laboratory sector questionnaire, were applied during the fellowship to guide system assessment and inform project development.

Project implementation and output dissemination: Fellows implemented field-based projects aligned with program competencies. Project topics were identified through situation analyses of laboratory systems and refined through consultation with mentors and subject matter experts. All projects underwent internal program review for alignment with objectives and were submitted for ethical and non-research determination processes. Dissemination of project outputs was encouraged through scientific and public communication platforms.

Community of practice: A community of practice was established to support continuous learning and collaboration among fellows, mentors and program staff. Engagement platforms included virtual meetings, emailing lists, messaging platforms, and periodic in-person technical sessions. These platforms facilitated peer learning, experience sharing and problem-solving throughout the fellowship (6).

Monitoring and evaluation: The program implemented a comprehensive monitoring and evaluation framework comprising routine session evaluations, module assessment, and periodic performance reviews. Supportive supervision was conducted through scheduled host site visits by program staff and mentors to assess progress and address implementation challenges.

Graduation and certification: Certification was contingent upon demonstration of competency across all nine domains of the GLLP Laboratory leadership competency framework. Fellows were required to complete a predefined set of deliverables documented in their portfolios. Successful completion of all program requirements resulted in the ward of a certificate of completion.

Results

Recruitment of fellows

A total of 60 applications were received following the open call. After eligibility screening, and panel review, 10 candidates were shortlisted and invited for interviews. Six candidates were initially selected, of whom five enrolled and completed the program following the withdraw of one fellow due to competing commitments. Employers of all enrolled fellows provided institutional commitment prior to onboarding of fellows.

The cohort was predominantly female (60%), with a mean age of 36 years (range: 33-41 years). All fellows held master's degree in laboratory-related disciplines and were employed in senior managerial (n=3) or mid-managerial (n=2) roles across national institutions including NHLDS, UVRI, IDI and Mildmay Uganda (Table 3).

Selection of mentors and instructors

Six mentors were initially identified from a pool of over 50 laboratory experts, with five remaining active following one mentee's withdrawal. All mentors had more than 11 years of laboratory leadership experience and were predominately male (80%). Detailed characteristics of mentors are presented in table 3.

A total of 16 instructors were engaged to deliver training sessions, drawn from UPHFP, US CDC, IDI, NHLDS, APHL, NADDEC and other partner institutions.

Didactic sessions

The program delivered four quarterly residential training sessions comprising 37 modules covering key competency domains, including laboratory systems, leadership, quality management systems, biosafety, communication, and emergency preparedness among others (Table 4).

Additional targeted trainings were conducted in areas such as data analysis, manuscript writing, policy brief development, cost-effectiveness analysis, and public speaking. Selected sessions including introduction of outbreak investigation, role of laboratory during outbreak investigation, were conducted jointly with FETP fellows, facilitating interdisciplinary learning.

Mentorship sessions

All fellows participated in structured mentorship engagements throughout the fellowship. Each fellow completed 24 mentor-mentee meetings, resulting in 24 documented meeting minutes and eight progress reports per fellow.

The application of the GLLP laboratory sector questionnaire enabled identification of system-level knowledge gaps, which informed the development of laboratory systems strengthening projects.

Project implementation and output dissemination

Each fellow completed two short-term projects and one capstone project aligned with program competency domains (Table 5). Short-term projects primarily focused on quality improvement and descriptive analyses, while capstone projects addressed broader national laboratory system challenges.

Collectively, fellows contributed to the development of four national guidelines and participated in 14 health emergency investigations (table 8). Disseminated outputs including 21 newspaper advocacy articles and 10 Uganda Public Health Bulletin Publications (Table 7), as well as presentations at seven national and international conferences (Table 6). These outputs demonstrated application of competencies in among others laboratory systems strengthening, communication, and emergency preparedness.

Community of practice

The community of practice platforms were actively utilized throughout the program. Fellows participated in more than 30 weekly virtual laboratory leadership sessions and five in-person technical seminars, in addition to join activities with FETP fellows.

Digital platforms, including two WhatsApp groups and one emailing list, supported continuous peer engagement, knowledge sharing, and real-time problem-solving. Fellows also collaborated during the 14 joint health emergency investigations, further strengthening interdisciplinary coordination (Table 8).

Graduation and certification

All five fellows successfully completed the required 12 deliverables and demonstrated competency across all nine domains of the GLLP laboratory leadership competency framework (Table 1).

Following successful completion of the program requirements, fellows were awarded certificates of completion during a formal graduation ceremony held in January 2025.

Discussion

Laboratory leader globally face multiple challenges, including difficulties in securing project ownership, managing competing priorities, communication breakdowns, and implementing sustainable system improvement (7). These challenges are further compounded by a shortage of adequate trained laboratory leaders, a gap that undermines effective responses to major public health threats such as HIV/AIDS, tuberculosis, and malaria. The WHO has emphasized the need for targeted leadership training to address these deficiencies and strengthen laboratory systems (8). It is within this context that LLP was established to equip laboratory professionals at managerial levels with the competencies required to effectively address human, animal and environmental health challenges.

The findings from this program demonstrate that a competency-based, through-service training model can successfully translate theoretical learning into practical, field-level impact. The observed contributions of fellows to emergency response efforts, knowledge dissemination, and institutional strengthening reflect the successful application of leadership competencies within real-world health systems. Rather than functioning solely as trainees, fellows operated as active contributors to national public health priorities, highlighting the effectiveness of embedding training within routine service delivery structures.

A notable strength of the LLP was its emphasis on experiential learning through structured field-based projects. This approach enabled fellows to directly apply quality improvement and systems-thinking principles within their institutions, thereby addressing context-specific challenges. The application of such approaches is critical in resource-limited settings, where laboratory systems often face inefficiencies that require locally driven, evidence-based solutions. By linking training deliverables to institutional needs, the program ensured that competency development was closely aligned with health system strengthening.

The synergy of the LLP with FETP and other national response structures reinforced interdisciplinary collaboration, consistent with the One Health approach. This synergy enhanced coordination between laboratory and epidemiological functions, which is essential for timely detection, confirmation, and response to public health events. Strengthened laboratory involvement in emergency preparedness and response contributes directly to improved health security and supports national compliance with the international health Regulations (IHR 2005). In this regard, the LLP contributes to strengthening workforce capacity as outlines in Joint External Evaluation (JEE) indicators, particularly those related to workforce development (5).

The program also contributed to a shift in the role of laboratory professionals within Uganda's public health system. Historically, laboratory professionals have had limited involvement in emergency planning and coordination. The LLP appears to have facilitated greater participation of laboratory professionals in decision-making processes, including preparedness planning, response coordination, and intersectoral collaboration. This shift reflects the growing recognition of laboratories as central components of the health systems rather than purely diagnostic support units.

Another important contribution of the program was the establishment of a functional community of practice, which fostered peer learning, collaboration, and continuous professional development. Such platforms are increasingly recognized as essential for sustaining leadership competencies beyond formal training and promoting knowledge exchange across institutions. This collaborative approach strengthens resilience within health systems by enabling professionals to collectively address emergency challenges.

Despite these strengths, some challenges were identified. The dual responsibility of balancing fellowship requirements with routine job functions pose a constraint for some participants, reflecting broader systemic pressures within the health workforce. While engagement with host employers helped mitigate this challenge, it underscores the need for institutional policies that formally support workforce development initiates. Additionally, the reliance on external funding raises concerns regarding long-term sustainability. Ensuring continued program impact will require diversification of funding sources and incorporation of the LLP into national training sources and workforce development frameworks.

Lessons learned from the early implementation of the LLP highlight the importance of contextualizing training programs to local health system needs. Tailoring the curriculum to address country-specific challenges, fostering inter-institutional collaboration, and engaging national and international stakeholders were critical to the program's success. These elements are essential for ensuring relevance, promoting ownership, and achieving sustainable impact.

Conclusion

In conclusion, the LLP represents a robust and scalable model for strengthening laboratory leadership in low- and middle-income settings. By integrating competency-based training with field or workplace application, the program demonstrates how leadership development can be effectively translated into improved laboratory system performance and enhanced public health response.

Recommendation

Continued investment in such models will be essential for building resilient health systems capable of addressing current and emerging global health threats.

Declarations

Author contributions

SG - Led the writing process, collecting data, data analysis, interpretation, drafted and wrote the manuscript; GB, TN, SNN, JI, KL, AM, LBN, LB, DK, JH, and ARA reviewed the manuscript.

Ethical consideration

This is an initiative of the Uganda Ministry of Health, a joint program implemented in collaboration with the US Centers for Disease Control and Prevention, Makerere University School of Public Health and Baylor Foundation Uganda, aimed at workforce capacity strengthening and public health systems improvement. The fellowship activities, including project implementation and monitoring, were reviewed by the US CDC and determined to be non-research under public health practice; therefore, institutional review board (IRB) approval was not required. All projects conducted by fellows underwent CDC non-research determination (NRD) clearance prior to implementation to ensure compliance with ethical and regulatory standards. Permission to access and use program data for publication was granted by the office of the Director General Health Services, Ministry of Health.

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Disclosure statement

No potential conflict of interest was reported by the authors.

AI assistance disclosure

During the preparation of this work the authors used Claude (Anthropic, version accessible January 2026) and ChatGPT (OpenAI; version GPT-4o, o1) for tasks including formatting, cross-checking of data and English language fluency editing. All scientific interpretations, data analysis, and conclusions remain the sole responsibility of the authors, who reviewed and verified all AI-generated edits for accuracy and appropriateness.

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Tables

Table 1: Deliverables and competencies, Uganda, Cohort 2023 laboratory leadership fellows

Deliverable	Minimum number	Timeframe in month	Competency
Design / Review / Evaluation of a Health Laboratory Policy / Guideline / Procedure / Policy brief	2 reports on any 2 themes	18	Laboratory systems, Laboratory leadership, Communication, Management, & Research
Written critique of a scientific research article	1 report	8	Communication, Research, & Laboratory leadership
Coordination of / Participation in an outbreak investigation	2 reports [1 coordination, 1 participation]	16	Laboratory-based disease surveillance and outbreak investigation; Laboratory leadership, Emergency Preparedness, Response, and Recovery; Biosafety and Biosecurity
Evaluation of an outbreak investigation	1 report	18	Emergency Preparedness, Response, and Recovery; Biosafety and Biosecurity
Article submission to newspaper/bulletin	6 articles	19	Communication, Laboratory leadership
Manuscript submission	1 manuscript	18	Communication, Laboratory leadership
Abstract submission	3 conferences (2 national & 1 international)	20	Communication, Laboratory leadership
Short term project implementation	2 reports, 2 presentations	12	Laboratory system, Laboratory leadership, Management, communication, Quality management system & Research
Capstone project implementation	1 report, 1 presentation	24	Laboratory system, Laboratory leadership, Management, Communication, Quality management system & Research

Table 2: Mentor roles by category, Uganda, Cohort 2023 laboratory leadership program

Mentor	Description	Roles and Responsibilities
Program staff	Uganda PHFP staff	[1] Guide fellow during project implementation, and field activities. [2] Guide fellow on writing articles, manuscripts, and reports. [3] Review fellow's products (protocol, reports, articles, and abstracts).
Host mentor	A pool of national laboratory experts identified by the secretariat to support the program. May be within the host institution or neighboring institution.	[1] Guide fellow on how and where to obtain support towards his or her projects. [2] Liaison between fellow host institution, UNIPH and any other stakeholder/ partner [3] Support fellow to complete program deliverables within required timeframe. [4] Guides fellow to develop their professional network and career goals/path.
US CDC mentor	US CDC Uganda country office, Division of Global Health Protection (DGHP) staff	[1] Review and clear fellows 'products (protocol, articles, and abstracts). [2] Ensure compliance with US CDC policy through review of the Non-Research determination (NRD)

Table 3: Description of Cohort 2023 laboratory leadership fellows and mentors		
Category	Number (N=5)	Percentage (%)
Fellows		
Gender		
Male	2	40
Female	3	60
Age group (years)		
<30	0	0
31-40	4	80
>41	1	20
Health sector		
Human	5	100
Animal	0	0
Environment	0	0
Master's degree		
MSc. Molecular Biology and Biotechnology	1	20
MSc. Biomedical Laboratory Technology and Management	2	40
MSc. International Infectious Disease Management	1	20
MSc. Immunology and Clinical Microbiology	1	20
Host institution		
NHLDS	2	40
Mildmay Uganda	1	20
IDI	1	20
UVRI	1	20
Management roles		
Managerial	3	60
Mid-Managerial	2	40
Mentors		
Gender		
Male	4	80
Female	1	20
Health sector		
Human	5	100

Animal	0	0
Environment	0	0
Leadership experience		
<10 years	0	0
>10 years	5	0

Table 4: List of modules completed by Cohort 2023 laboratory leadership fellows during their didactic sessions by quarter	
Module	Period
Introduction to GLLP & LLP	Quarter 1 (January, 2023)
Introduction to lab systems	
General management skills	
Financial management	
Logistics management	
Human resource management	
Laboratory information system	
Laboratory role in surveillance and outbreak response	
Introduction to Quality management system	Quarter 2 (May, 2023)
Process management	
Documents and record management	
Equipment and consumables	
Non-conforming events management	
Quality management system assessment	
Continual improvement	
Customer focus	
Biosafety	
Biosecurity	
Shipment of dangerous goods	
Emergency preparedness	
Emergency response	
Emergency recovery	
General leadership skills	Quarter 3 (August, 2023)
Laboratory policy and strategic planning	
Organizational leadership	
Critical thinking	
Partnership and coalition building	
Ethics in the lab	
General communication skills	
Proposal writing	
Messaging and media relations	
Risk communication	
Scientific communication	
Research and innovation	
Model laboratory system	Quarter 4 (November, 2023)
Laboratory system essentials	

Data management and analysis by Epi info	Quarter 5 (January, 2024)

Table 5: Short-term and capstone projects implemented by Cohort 2023 laboratory leadership fellows

SN	Project
Quality improvement project	
1	Evaluation of Turn Around Time for Yellow Fever Testing in Uganda, 2023
2	Strengthening HIV-Test Kits Inventory Management in The IDI Core Lab in Uganda
3	Designing a Model for District-Based Laboratory Testing Competency Assessments to Improve Quality of Laboratory Services
4	Reduction of Sample Receipt Turnaround Time in Selected Facilities in The Kigezi Region from February 2023
5	Evaluation and Improvement of The Handling, Transportation and Packaging of Supplies and Consumables During Delivery to Hubs/Facilities By NHLDS/CPHL Logistics Department
Descriptive study project	
6	Description of HIV Viral Load Outcomes of Patients Switched from Nonnucleoside Reverse Transcriptase Inhibitors to Dolutegravir-Based Therapy in Selected Health Facilities in Kampala. 2019 To 2022, Uganda
7	Description of *Vibrio Cholerae* Isolates at The National Microbiology Reference Laboratory, Ministry of Health, Uganda, 2014 –2023
8	Description of Laboratory Surveillance System of Seasonal Influenza in Uganda By Place, Person and Time 2019-2023
9	Distribution of Pathogenic Yeasts Species Isolated from Clinical Samples in Uganda 2020 To 2024
10	Evaluation Of DHIS-2 Laboratory Test Menu Fulfilment Rates in Uganda
Capstone project	
11	Knowledge, Attitude, And Practices Towards Regionalization of Laboratory Services at Sub-Regional Level in Uganda, 2024
12	Staffing Needs Assessment of The Health Laboratory Workforce in Selected Health Facilities, Lango Sub-Region, Uganda, 2024
13	Knowledge, Attitudes, And Practices of Health Care Workers Towards Arboviruses in Central Uganda, 2024
14	Building A Reliable Testing System: A Pilot on Developing and Implementing Internal Quality Control Program for Rapid Diagnostic Tests in Health Laboratories in Mubende Region, Uganda 2024
16	Development of Operational Guidelines for Continuous Professional Development Program for Laboratory Professionals in Uganda, January-December 2024

Table 6: List of scientific conferences in which cohort 2023 laboratory leadership fellows shared project findings

Sn	Conference	Location
1	9th National Field Epidemiology Conference	Kampala, Uganda
2	10th National Field Epidemiology and 2nd National Laboratory Leadership Conference	Kampala, Uganda
3	3rd International Conference on Public Health in Africa (CPHIA)	Lusaka, Zambia
4	22nd Annual HuQAS Scientific Conference,	Mombasa, Kenya
5	9th East Africa Health and Scientific Conference	Kigali, Rwanda.
6	6th Biennial African Society for Laboratory Medicine (ASLM) Conference	Cape Town, South Africa.
7	2024 Word One-Health Congress	Cape Town, South Africa.

Table 7: Articles by cohort 2023 laboratory leadership fellows published in the Uganda Public Health Bulletin and in a local newspaper

SN	Article
Uganda public health bulletin articles	
1	Improving HIV Testing Kits Inventory Management in High Volume Testing Laboratory, Uganda 2023
2	Cyanide Poisoning Investigation, Terego District, Uganda, February 2023
3	Strengthening HIV Test Kit Inventory Management at A HIV Testing Laboratory, Kampala, 2023
4	A 31.9% Laboratory Test Menu Fulfillment Rate in District Health Information System Version 2, July 2022-June2023, Uganda
5	Development of A District-Based Competency Assessment System in Mubende Region, Uganda, February -July 2023
6	Suspected Cholera Alert, Luweero Island Buvuma District March 2023
7	Investigation of Unusual Death Reports in Kyotera District, Uganda, November 2023-January 2024
8	Trends and Distribution of Vibrio Cholerae Isolate at The National Microbiology Refence Laboratory, Ministry of Health, Uganda,2014-2023
9	Investigation of Suspected Anthrax Outbreak in Ibanda District Uganda, May 2023
10	World Health Awareness Days and International Health Days October-December 2023
Newspaper articles	
1	Dangers of Unregulated Rapid Diagnostic Test Kits
2	Annual Physical, Laboratory Test Checkup Is Key to Early Detection of Non-Communicable Diseases
3	Laboratories Are Shaping the Future of Healthcare Service
4	Regular Assessments Needed to Improve Healthcare
5	Our Public Transport System A Public Health Risk
6	Increase Laboratory Testing to Eliminate Yellow Fever
7	How to Effectively Manage Arbovirus Disease
8	Fast Track Mobile Laboratory
9	Traditional Spiritual Healers' Vital Stakeholders in Timely Disease Detection
10	The Role of Laboratory in Eliminating Viral Hepatitis By 2023
11	Health Labour Analysis: The Answer to Health Laboratory Workforce Dynamics

Table 8: Health emergencies investigated or responded to by Cohort 2023 laboratory leadership fellows

SN	Health emergency
1	Typhoid fever outbreak investigation in Kampala, June 2023
2	Rotavirus outbreak investigation in Watoto Bay Home, Suubi Mpigi District, August 2023
3	Cyanide poisoning investigation in Terego district, February 2023
4	Anthrax outbreak investigation in Ibanda district, January-March 2023
5	Cholera outbreak investigation in Luweero Island, Buvuma District
6	Food poisoning investigation in Buyengo Town council, Jinja District and Nawamiti sub county, Luuka district, February 2024
7	Rift valley outbreak investigation in Mbarara region
8	Yellow fever outbreak investigation in Buvuma, June 2023
9	Unusual death investigation in Kyotera district, November-January 2023
10	Cyanide poisoning investigation in Katwe town council, Kasese District
11	Food poisoning investigation in Mukono, July 2023
12	Anthrax outbreak investigation in Kyotera district, June- December 2023
13	Meningitis outbreak investigation in Obogi District, March 2023
14	Cholera outbreak investigation in Kayunga and Buvuma districts, July 2023