

Proceedings of the FHI 360 Emerging Infectious Diseases and Health Security Hosted Workshop at the Global Health Security Network Symposium 2022

Science and Communication – Pandemic Friend or Foe?

Executive Summary

FHI 360 hosted the “Science and Communication – Pandemic Friend or Foe?” workshop at the Global Health Security Network 2022 (GHS 2022) conference that took place June 28–July 1, 2022 in Singapore. GHS 2022 aimed to promote a dynamic and contemporary program and provide information about the latest in global health security (GHS) science and innovations as well as encourage lively discussions and debate on the challenges that impact GHS.

The FHI 360-led workshop offered hands-on experience during the two sessions:

- 1** To improve understanding and create effective public health communication messages in the context of emerging infectious diseases (EID).
- 2** Share the critical importance of groundbreaking research to detect such events.

During the social and behavior change (SBC) session, participants identified a number of missed opportunities where SBC could have strengthened the national and community response to COVID-19. These missed opportunities fell into the high-level categories of (1) adequate governance and coordination, (2) adequate investment in the response, (3) inclusion of SBC as an integral part of the response, (4) adequate national and subnational SBC plans and strategies, (5) need for multisectoral coordination, and (6) need for community engagement and co-creation to inform SBC strategies and interventions.

To address these missed opportunities, recommended SBC approaches and techniques included...



1 Robust community engagement



2 Segmenting audiences for more tailored SBC interventions

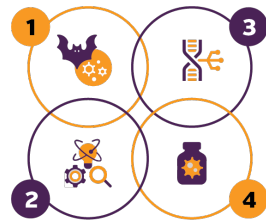


3 Developing an SBC strategic plan including risk communication and community engagement (RCCE) committees



4 Using role models to increase demand for priority behaviors and/or services.

During the science and research session, four scientific topics were discussed:



1. Active surveillance of zoonotic diseases
2. Gain-of-function research (GOFR)
3. Next generation sequencing (NGS)
4. Pathogen biocontainment during research activities


Surveillance and GOFR were regarded to be important activities that can more quickly identify outbreaks and their transmission dynamics and inform prevention and interruption interventions including the development of vaccines and therapeutics. But because both can expose people to pathogens they need to be conducted safely and under strict controls. For GOFR, the risk of accidental or intentional release was raised along with the concern that such research might enhance pathogen manipulation skills that could be used for ill intent. NGS was noted to contribute to pandemic response as it facilitated the development of diagnostics and therapeutics but came with similar risks as those encountered with GOFR. During any of the activities it was noted that maintaining a biobank of samples is important for ongoing study and for future research. But biocontainment measures need to be strong and controlled to avoid accidental release of stored pathogens.

It is clear that many factors led to the spread of COVID-19. This workshop discussed two factors that need to be considered to prevent and respond to the next pandemic. SBC must become part of the comprehensive toolkit to prevent, detect, and respond to pandemics. In the same way, scientific tools and new technologies, when used safely and responsibly, can help us be better prepared and able to act when the next outbreak occurs.

Background

The **Global Health Security Agenda (GHSA)** is a group of more than 70 countries, international organizations, nongovernmental organizations, and private sector companies that have come together to achieve the vision of a world safe and secure from global health threats posed by infectious diseases (IDs). This multisectoral, multilateral effort was launched in 2014 in response to the Ebola epidemic. It provides a useful framework to address priorities and gaps in efforts to build and improve country capacity and leadership in the prevention, early detection of, and effective response to infectious disease threats. The GHSA divides interventions into these three key areas: prevent, detect, and respond.

The GHS Network organized the Global Health Security (GHS) conference to “promote discussions and debate on the challenges that impact global health security.” GHS 2022—the second iteration—was held June 28–July 1, 2022 in Singapore. It included a series of workshops, side events, keynote panel presentations, and plenary sessions.



A delegation of nine staff from four countries (Guinea, Kenya, United States, Vietnam) represented FHI 360 and facilitated a workshop titled “Science and Communication – Pandemic Friend or Foe?”

FHI 360’s Emerging Infectious Diseases and Health Security (EIDHS) and SBC divisions collaborated to conduct the four-hour workshop with the objective to provide an instructional and skills development opportunity for attendees to learn more about two important aspects of EIDs: (1) the role of SBC in preventing and controlling EID, and (2) the exploration of potential opportunities and harms of public health science innovations and technologies for preventing and detecting EIDs. This workshop targeted policymakers, public health officials, researchers, and implementers for improving understanding and creating effective public health communication messages in the context of EIDs and sharing the critical importance of groundbreaking research to detect such events.

FHI 360 is an international nonprofit working to improve the health and well-being of people in the United States and around the world. FHI 360 serves more than 60 countries with a staff of more than 4,000 people who implement work that is grounded in research and science, reinforced by partnerships, and focused on strengthening the capacity of individuals, local organizations, and national governments. FHI 360 has diverse sectoral expertise incorporating cutting edge behavioral, sociomedical, epidemiological, laboratory, and clinical research sciences and technological innovation that allows us to contribute systematically to country capacities in close collaboration with governments, civil society, and the private sector.

The COVID-19 global pandemic, the widespread outbreak of Ebola in West Africa beginning in 2014, and the appearance over the last decade of deadly infectious diseases—avian influenza, H1N1 pandemic flu, Middle East respiratory syndrome (MERS), Zika virus, and others—highlight the urgent need for strategies to **prevent, detect, and respond** to EIDs as a singular basis for GHS.

FHI 360’s **Emerging Infectious Diseases and Health Security (EIDHS)** division was established to lead our efforts to be part of the global fight against EID threats. Our work builds on more than 15 years of experience enhancing the capacity of countries to improve their diagnostic testing and surveillance systems to detect priority diseases.

Additionally, since the 1980s, FHI 360 has provided thought leadership and strategic direction to advance the field of SBC. FHI 360 uses a socioecological lens to view the complex interplay between individual, interpersonal, community, and societal factors that affect behaviors. Our SBC work integrates best practices from disciplines such as social psychology, human-centered design, anthropology, behavioral economics, social marketing, and other behavioral sciences. FHI 360 builds on a history of implementing USAID SBC programming in GHSA preparedness and response, and continues to implement coordination, risk communication, mitigation, and behavioral research to support the GHSA priorities.

WORKSHOP APPROACH

The workshop consisted of participatory audience engagement, including presentations, group discussions, group reporting, audience questions and answers, and conclusions.



Session 1

More than Messages: the Role of Social and Behavior Change in Preventing and Controlling Emerging Public Health Threats



PREVENT: SOCIAL SCIENCE APPROACHES/NEW TECHNOLOGIES AND TOOLS

Drawing from lessons learned from recent epidemics and pandemics such as COVID-19, Ebola, severe acute respiratory syndrome (SARS), and avian influenza, this session actively engaged participants in discussion and reflection on the role of SBC and how understanding people, communities, and culture can enable a successful response to future threats. Through a series of interactive activities, participants increased their understanding of the role of evidence-based SBC interventions in pandemic prevention and response—moving from risk communication to a more holistic view of SBC—as well as generated promising strategies and approaches that have relevance to the current COVID-19 response and future pandemic prevention and response needs.

► Overview of Presentation

SBC was framed as being core to public health and the prevention and control of EIDs. Whether it is laboratory strengthening, supply chain management, policy reform, health service strengthening, strategic information, or health communication, changing behavior is a key component of achieving these outcomes. SBC is used to understand the determinants of people's behaviors and how these behaviors can be individually and collectively shaped for positive action. SBC is more than just communications; it is a holistic approach that systematically applies participatory, theory-based, and evidence-driven behavioral science approaches and strategies to address change at the individual, social, and structural or governance level.

► Session and Discussion Summary

The session was divided into two interactive, participatory activities designed to first strengthen participants understanding of SBC and then apply those learnings to identify promising practices to address public health emergencies.

During the first activity, participants were divided into four groups and worked together to “match” key SBC concepts that contribute to preventing and controlling EID threats. Each group was given a “deck” of cards, with each card either showing the name of a key concept or a definition of a key concept. The groups then worked together to match the correct definition with the correct key concept. In plenary, each of the concepts was presented, and the groups were asked to share the definition they identified for the concepts. The facilitator shared real-world examples of how the concepts have been applied, and also asked participants to share examples from their own work. The sharing of these examples allowed for a deeper understanding of the concepts and a recognition by participants that they are already using SBC approaches and techniques in their work but may not have recognized it as SBC.

In the second activity, participants examined a case study from real-world examples of countries’ COVID-19 responses and identified common missed opportunities for incorporating SBC strategies, approaches, and techniques. Working in the same four groups, participants applied the key concepts presented in the first activity and engaged in lively discussions and brainstorming about how SBC could have been applied for a more robust and holistic approach to preventing and controlling COVID-19.

The participants identified a number of missed opportunities and proposed SBC strategies and approaches that could have strengthened the national and community response to COVID-19 (see **Table 1**). Across the four groups, several common topics permeated the discussions. First, SBC plays an important role across the GHS continuum in preparing for, preventing, and responding to EIDs. Second, SBC policies or plans, coordinating structures, and capacities should be routinely strengthened and/or updated so that countries and communities are prepared to effectively respond to EIDs when they emerge. Third, that even when responding to an urgent EID, countries should employ rapid approaches to co-design, co-deliver, and co-monitor SBC interventions to ensure they are effectively tailored to the target audiences. And fourth, SBC is much more encompassing than just communication and much of what we do in preparing for, preventing, and responding to EID is rooted in behavioral science and SBC.

Building off this foundation in SBC and the established role it plays across the GHS agenda, participants transitioned to looking at the pros and cons of new and emerging technologies, science, and research and their role in preventing and controlling future EIDs.

TABLE 1

IDENTIFIED MISSED OPPORTUNITIES	PROPOSED SOLUTIONS
Lack of established clear governance and structures for SBC in public health emergencies and/or letting established structures become defunct	<ul style="list-style-type: none"> • Establish/reinvigorate RCCE committee and conduct routine meetings • Intra-action reviews • Simulation exercises
Lack of an updated response plan	<ul style="list-style-type: none"> • Develop a public health emergency response plan that covers multiple levels, communication plans, and governance
Limited multisectoral coordination	<ul style="list-style-type: none"> • Conduct more robust community engagement using civil society organizations, partners, faith-based organizations and leaders, and community leaders
Lack of a formative community assessment or co-creation to develop SBC/RCCE strategy and interventions	<ul style="list-style-type: none"> • Conduct a community assessment to gather insights
Lack of an SBC/RCCE strategy to guide national response from multiple donors and implementing partners	<ul style="list-style-type: none"> • Develop an SBC/RCCE strategic plan
Lack of tailored SBC interventions and messages for different audiences	<ul style="list-style-type: none"> • Segment audiences for more tailored SBC interventions • Co-design SBC interventions and messages with priority audiences • Use role models to increase demand for priority behaviors and/or services • Use and continually adapt interactive voice response (IVR) system/short message service (SMS) to enhance access to correct information
Countering mis/disinformation	<ul style="list-style-type: none"> • Develop rumor-tracking system and surveil social media • Clearly communicate risks and uncertainties from the beginning • Develop a social media plan that utilizes key influencers and addresses myths and misinformation in real time • Improve trust and literacy in science and public health at individual, community, and country levels
Poor data and surveillance management resulting in underreporting of cases	<ul style="list-style-type: none"> • Strengthen laboratory services, surveillance, and health systems, with a focus on centralization and harmonization

Session 2

The Flipside: Balancing Public Health Science with Public Health Risk: Thoughts from Both Sides of the Table



Detect: Emerging Infectious Diseases/Biothreats and Emerging Diseases

In response to public health crises in recent years, the United States government and others have funded groundbreaking efforts to detect, assess, and share information on pandemic-prone pathogens. However, concerns have been expressed that such efforts may inadvertently or intentionally build capacity to use that knowledge for ill intent and malice. While these concerns may be legitimate, stakeholders could allay them by setting stringent biosafety and biosecurity safeguards and ensuring adequate regulatory oversight. This session explored both perspectives—should we allow such research or not—and what ideas participants could propose to minimize risk. Participants were presented different scenarios and in groups they debated the benefits and risks along with solutions to mitigate the identified risks. During this session, participants:

- Explored the possibilities that current developments in science, research, and public health offer for EID prevention and control
- Identified possible causes of biothreat concerns in EID control activities across the world
- Reflected on potential methods to avoid potential harm from the double-edged sword that global infectious disease (ID) research can pose

► Overview of Presentation

Background information on the role of scientific research and innovation in preventing and controlling outbreaks and pandemics set the ground for group discussions. The key role that research and innovation have played in responding to other outbreaks, including smallpox, measles, polio, and COVID-19, allowing for the development of vaccines and therapeutics was stressed. Despite the role they played, there has been a mounting distrust that such activities are safe as evidenced by the reported accidental release of H1N1 and SARS-CoV1 viruses from laboratories which are thought to have led to infections.

After the presentation, participants were assigned to four groups to discuss the potential benefits, risks, and risk mitigation measures for four topics (scientific activity). Groups rated whether they felt the activity was sufficiently important to permit, assuming adequate controls were identified to reduce risks. Groups then reported back and were asked to defend their position on whether to permit the activity or not.

► Session and Discussion Summary

Four groups were each assigned one of the following topics for discussion: active surveillance of zoonotic diseases, biotechnology: gain-of-function research (GOF), next generation sequencing (NGS), and COVID-19 and Ebola research and biocontainment.

After discussion and identification of benefits, risks, and risk-reducing measures, groups rated the topic on a one-to-five scale (as illustrated): one being too risky with risks not outweighing benefits and five being very important with benefits outweighing risks. Related benefits are included below with associated risks and mitigation measures in **Table 2**.

Innovation Risk Rating Scale



The surveillance team identified several benefits including building a robust ID database and improving intersectoral collaboration that the public health community could leverage to quickly develop therapeutics for stronger and faster preparedness and response to EID. Several risks led to assigning a 3.5/5 approval rate for this measure. Participants in the plenary sessions thought this should be higher considering the strong benefits and almost negligible risks.

Members of the GOFR group shared that increased understanding of transmission dynamics and the development of diagnostics methods, vaccines, and therapeutics could result from GOF technology and lead to overall better and adaptive responses to ID outbreaks. The group's approval score for GOFR was rated at 4/5, despite the numerous risks identified.

NGS was ascribed the benefits of helping to advance the manufacturing of diagnostics and therapeutics for ID which would lead to less costly and more impactful management of outbreaks and pandemics. A score of 4/5 was assigned with the potential to be higher if measures were taken to mitigate the identified risks.

Biocontainment of high-risk viruses such as Ebola and COVID-19 had a good approval rate given that it opens the way for biological research and can help develop therapeutics for future epidemics. It could also serve several other purposes such as training personnel and helping with technological advancement. The group scored this method as 4/5.

TABLE 2

POTENTIAL RISKS BY METHOD	SUGGESTED MITIGATION SOLUTIONS
Active Surveillance	
<ul style="list-style-type: none"> • Increased exposure of scientists and communities to EID • Increased mistrust from communities • Depletion of funds because of resource intense activities 	<ul style="list-style-type: none"> • Design and implement BSBS plans • Train personnel involved • Ensure supervision of implementation for BSBS measures • Co-design and implement projects with communities • Strong advocacy and communication strategies for communities • Lobbying and building strong partnerships • Build sustainability plans for surveillance
Gain-of-Function Research	
<ul style="list-style-type: none"> • BSBS risks: accidental release of pathogens • Cause unforeseen environmental risks • Bioterrorism • Inequities related to access to GOFR results 	<ul style="list-style-type: none"> • Establishment of policies and procedures at national and international levels • Capacity building • Limit and secure access to data and biobanks • Ethics protocols to guide research and sharing of research outcomes • Improve communication to build trust • Implement continued surveillance to identify and limit transmission
Next Generation Sequencing	
<ul style="list-style-type: none"> • Creation of resistant and mutant pathogens • Disparities in the access to research results • Use of results for malevolent activities • Costly activity 	<ul style="list-style-type: none"> • Establishment of internationally agreed upon standards and agreements • Promote responsible research • Build robust capacities for BSBS through tripartite collaboration among World Health Organization (WHO), Food and Agriculture Organization (FAO), World Organization for Animal Health (OIE) • Strengthen One Health approach in risk mitigation activities
Biocontainment of High-Risk Viruses	
<ul style="list-style-type: none"> • Risk of leak during sample movement • Use of samples for biowarfare • Limited community trust • Increased criminal activities related to storage banks 	<ul style="list-style-type: none"> • Develop internationally agreed upon standards • Deactivate samples to reduce risk of pathogenicity • More coordinated development of policies, standards, and guidelines for BSBS and ethics • Improve risk communication for communities • Establishment of regional biobanks to reduce their number

Across the four groups, common strategies were identified to help mitigate the risks of these methods (details in **Table 2**).

- First, internationally agreed upon and binding regulations for countries should be established to help mitigate the misuse of these innovations through agreed upon standards for storage, access, and use of specimens.
- Second, building trust through strong advocacy, communication, and transparency measures would be instrumental to addressing mistrust in scientific research and innovations.
- Third, capacity building through established global hubs for innovation that will lead to the development of harmonized data-sharing protocols and training material is paramount.
- Fourth, strong biosafety and biosecurity (BSBS) should consider the reinforcement of infection prevention and control measures and the biocontainment of deactivated samples to reduce risks to the lowest level possible.

Conclusions

Among the SBC groups, discussions indicated that behavioral change is key to health system strengthening and evidence-driven behavioral science and is the best approach to address change. Several themes also arose; the first was the importance of including SBC in EID preparation, prevention, and response. Second, strong SBC policies, plans, coordination, and capacity are necessary. Third, collaborative approaches should be used when designing, delivering, and monitoring tailored SBC interventions. Last, SBC is a holistic approach that goes beyond communication.

Across the scientific research and innovation session groups, common themes were identified to help mitigate risks. First, an international governance framework is needed to regulate innovative research. If established, regulations would bind signatory countries. They would help reduce the misuse of innovations through agreed upon standards for storage, access, and use of specimens. Second, transparent communication could help to address mistrust in scientific research and innovation through strong advocacy, communication, and the establishment of transparent measures. Third, capacity building through established global hubs for innovation that will lead to the development of harmonized data-sharing protocols and training material is paramount. Fourth, strong BSBS should consider the reinforcement of infection prevention and control measures and the biocontainment of deactivated samples to reduce risks to the lowest possible level.

Lessons Learned

The workshop brought together two very timely topics—the role of SBC in preventing and responding to EID and the benefits and risks of new and emerging technologies, research, and science. While these two topics appear different, they are in fact related; as SBC plays a critical role in promoting and diffusing the adoption or rejection of new and emerging technologies, research, and science. Throughout the current COVID-19 pandemic, these topics have gained greater attention as countries and the global public health community have struggled to initially respond to and later adapt to the ever-evolving pandemic. WHO and other public health governing bodies and donors are diving into discussions around how SBC can be used to address misinformation and disinformation, as well as the risks of public health scientific research and innovations and how these topics play into preventing and controlling epidemics. While other sessions during the conference looked at these topics, this workshop explored them in tandem, allowing participants to gain greater exposure to how SBC and science are indeed complementary.

Speakers and Facilitators

Janet Robinson is an infectious diseases, health security, clinical laboratory, health systems strengthening, quality assurance, and regulatory specialist with more than 30 years' experience in health care programming, health systems strengthening, medical and animal health laboratory diagnostics, regulatory affairs/quality assurance, and clinical trials. She is currently serving as FHI 360's director of Emerging Infectious Diseases and Health Security (EIDHS), leading a global portfolio of infectious diseases and health systems strengthening projects spanning Asia, Africa, and South America. For the past 20 years, she has provided regulatory, clinical, and laboratory leadership, implementation, technical assistance, capacity building, and training to program and research professionals, institutions, and governments in resource-constrained geographies focused on building capacity for EIDs.

Heather Chotvacs is an SBC professional with approximately 20 years' experience in public health, public media, and education. She is experienced at providing thought leadership and technical guidance to design and co-create SBC programs that engage diverse audiences to increase demand for and utilization of health and development products and services and the adoption of positive behaviors. As an SBC technical advisor with FHI 360's Global Health, Population, and Nutrition division, she provides technical leadership to design and implement theory-based, evidence-informed SBC strategies and locally led solutions to address individual, social, and structural determinants that impede positive individual and collective behaviors and social norms across a variety of health and development areas.

Salomon Compaore is a surveillance specialist in the EIDHS division with expertise in public health, cross-border surveillance, global health capacity building, outbreak preparedness and response, and international health regulations. He has more than a decade of experience in global health practice and has worked in countries including the

United States, Burkina Faso, Guinea, and Liberia. His previous work spanned from immunization registry project coordination and GHS strengthening to the control of EIDs such as dengue fever and COVID-19. He currently oversees EID surveillance and strategic information in the EIDHS division.

Anicet Dahourou is a program director for the EIDHS division at FHI 360. He has more than 25 years of experience in multilevel public health and clinical diagnostics as well as in planning, developing, and implementing ID programs. He is a laboratory management specialist with a doctorate in pharmaceutical science and a master of science in microbiology with specialization in clinical pathology, medical virology, and blood transfusion.

Pat Sadate-Ngatchou is a program director for the EIDHS division at FHI 360. She is a global health professional with a multidisciplinary background as a medical laboratory technologist, life scientist (molecular biology, genomics, immunology), and epidemiologist. Her recent contributions are in the areas of antimicrobial resistance (AMR) surveillance, Global Health Security Agenda (GHSA), COVID-19, prevention of mother-to-child transmission (PMTCT) of human immunodeficiency virus (HIV), and human papillomavirus (HPV).