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## About the Series

In the History and Future of Planetary Threats series, The Institute for Social and Economic Research and Policy (ISERP) convenes meetings to examine historic and contemporary catastrophic risks and hazards, whether natural, accident or deliberate, in the following domains: geological, biological, epidemic infectious disease, environmental, chemical, extreme weather, radiological and nuclear, or combinations of these. By catastrophic we understand to mean classes of events that could lead to sudden, extraordinary, widespread disaster beyond the collective capacity of national and international organizations and the private sector to control, causing severe disruptions in normal social functioning, heavy tolls in terms of morbidity and mortality, and major economic losses; in sum, events that may well cause a change in the direction of history. Nuclear falls into a class of its own because it can result in the annihilation of life on planet earth and the end of history as we know it.

For further information, please visit [www.iserp.columbia.edu](http://www.iserp.columbia.edu).

## Acknowledgements

The partners, collaborators, and panelists deserve appreciative thanks for their participation in the third colloquium of The History and Future of Planetary Threats series. The views expressed by speakers are their own and not necessarily those of any organization with which they are affiliated. Thank you to the Academy of Political Science for their work transcribing, editing, and producing these proceedings. We are particularly grateful to the Academy's Loren Morales Kando and Marianna Palumbo for their sterling work and its President, Robert Y. Shapiro, for agreeing to have the Academy be the ISERP series' publishing partner. At ISERP, thanks to Harlowe Wang and Jennifer Ward for their technical organization of the 31 March 2021 colloquium on which this record of proceedings is based. The idea for a colloquium on risk communication arose from research on COVID-19 pandemic response in Egypt, Ethiopia, Kenya, Nigeria and South Africa at the ISERP Center for Pandemic Research funded by Schmidt Futures.

# Preface

TOM FRIEDEN

THE COVID-19 PANDEMIC HAS AMPLIFIED the critical role of risk communication and the need to reach every corner of every community, leaving no one behind. This becomes even more essential when the behavior of individuals and communities can have a direct impact on the health of others—limiting or amplifying transmission through what were once normal societal activities.

Risk communication should be driven by data and a combination of good public health, social science, and sensitive communication practices. It requires that we be first, be right, and be credible. Listening and empathizing are key. Communication is most effective when carrying messages with practical, concrete things for people to do to protect themselves and others. Consistent messaging from the highest levels of government, amplified by community influencers, faith leaders, and other trusted voices, builds the trust with communities and individuals that is essential for messaging to be received and acted upon as intended.

Fundamentally, societal and public health leaders need to tell people what we know, how we know it, when we know it, and also what we don't know and what we're doing to find it out. Focusing on scientific evidence with transparency and clarity helps build that trust. This includes communicating that the evidence may change as more is learned, that there are still unknowns, and how the evidence informs recommendations when they change. Doing so combats misinformation, which can spread even more rapidly than the virus itself. Clear and consistent communication delivered by trusted sources that provides concrete actions people can take to protect themselves, their families, and their communities is the best weapon against false and potentially dangerous information.

Taking time to listen is essential to effective risk communication. Communication needs to be an active two-way process to be effective. Public health and social measures to reduce disease spread are critical for pandemic control, but can be difficult to implement, particularly among vulnerable populations. The more disruptive these measures are to day-to-day life, the more important it is to engage with communities and work with them to implement effective solutions that are sensitive to the cultural, economic, and social context.

We must translate science into action by reducing its complexity.

To support evidence-based policy making and communication, we at Resolve to Save Lives are pleased to have helped establish the Partnership for Evidence-Based Response (PERC), which started in April 2020 to integrate epidemiology, information about the trajectory of the outbreak, and other data, including population surveys, to inform policy and communications. One overarching theme in survey responses is that many people feel they lack the proper information to make

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informed decisions. Effective risk communication systems can fill these gaps to improve people's situational knowledge and give them confidence to take appropriate actions.

Engaging communities and involving them remain essential to our ongoing response to COVID-19 in Africa and elsewhere. The pandemic is not over, and won't be until we get vaccines to the entire world. Refining and strengthening our risk communication strategies now will help reduce the time it takes to get through this next phase of the pandemic, and will lay a stronger groundwork to address future health emergencies.

# Welcome and Prologue

*Welcome*  
WILMOT JAMES

*Prologue*  
MURUGI NDIRANGU  
YOUSSEF CHERIF

**WILMOT JAMES:** I am a Senior Research Scholar at Columbia University and the host of today's meeting. I welcome you to The History and Future of Planetary Threats seminar series hosted by The Institute for Social and Economic Research and Policy (ISERP) at Columbia University. An earlier seminar was given by Dr. Ernest Moniz of the Nuclear Threat Initiative on nuclear security today. The second seminar was given by Fareed Zakaria on his book, *Ten Lessons for a Post-Pandemic World*. We also partnered with the Program in Vaccine Education at the Vagelos College of Physicians and Surgeons in February for the 2021 Symposium on Vaccines and Global Health.

It is my great pleasure to welcome you to the third colloquium in The History and Future of Planetary Threats series on crisis communications and vaccine uptake in fragile African settings, which we consider to be a global risk, not just a regional risk. Resolve to Save Lives released statistics indicating the low willingness of African citizens to take vaccines when they arrive. Thirty-five percent in Tunisia, 59 percent in Kenya, and 61 percent in South Africa say that they are willing to take the vaccine when it arrives. These are all alarming figures. On 14 April 2021 we convened the fourth History and Future of Planetary Threats seminar to discuss President Biden's plan for an advanced warning system for pandemic and epidemic outbreaks.

I would like to acknowledge our partners: Frontline Nurses from the Center for the Study of Social Difference, the Columbia School of Nursing, the Program in Vaccine Education at Columbia's Vagelos College of Physicians and Surgeons, the Earth Institute, the Columbia Global Centers—represented here today by Murugi Ndirangu and Youssef Cherif—and the Academy of Political Science. I would like to thank my collaborators, Victoria Rosner and Jennifer Dohrn, and for their superb assistance, Harlowe Wang and Jennifer Ward at Columbia. Finally, I would like to thank Schmidt-Futures for their generous support for our ongoing research on pandemic response in Egypt, Ethiopia, Kenya, Nigeria, and South Africa as well as for underwriting the Vaccine Safety and Confidence-Building Working Group (VacSafe WG) I convened with Lawrence R. Stanberry (Columbia University) and Shabir Madhi (University of the Witwatersrand).

I will now introduce Dr. Murugi Ndirangu, who leads the Columbia Global Center in Nairobi. She spearheads education, research, and public programming activities, while liaising with the academic divisions, the professional schools, and administrative units at Columbia University, as well as both regional and local partners.

**MURUGI NDIRANGU:** Thank you very much, Wilmot. Welcome, everyone. Thank you for joining us for today's event. I am the Director of the Columbia Global Center in Nairobi. CGC—

Nairobi is part of Columbia University's global network of Centers, aiming to create research and scholarship opportunities. In addition to the Nairobi Center, Columbia University has established Centers in Amman, Beijing, Istanbul, Mumbai, Paris, Rio, Santiago, and Tunis. My colleague from Tunis will be speaking to you shortly.

The Nairobi Center, and all the global Centers, serve as regional hubs for research and collaboration as part of Columbia University's strategy to achieve a global presence. Our Center here in Nairobi links the Eastern and Southern African region to Columbia's scientific rigour, technological innovation, and academic leadership. We are delighted and honoured to be associated with this critical and very timely discussion, considering that we are experiencing a potent third wave of the COVID-19 pandemic in some countries in our region, including Kenya. Vaccine rollout has commenced, but the uptake, as Wilmot said, has been slow in some instances, with a lot of misinformation driving vaccine hesitancy in the population.

I look forward to an enlightening discussion on how stakeholders can communicate better to address these challenges. I now welcome my colleague, Youssef Cherif, the Tunis Center Director.

**YOUSSEF CHERIF:** Thank you very much, Murugi and Professor James. Murugi presented the work of the Global Centers, and I would just add that at the Global Center in Tunis, we work on the Western and the Northern parts of Africa with plenty of programs, including programs on public health and medicine, especially since the outbreak of COVID-19. I will briefly introduce the political setting and four major problems facing vaccine distribution in the African continent. One: the political instability that we see in Libya, most of the Sahel, and the Horn regions. Two: economic difficulties that make buying the vaccine quite difficult for African governments. Three: the weak infrastructure of the health sector, which complicates the distribution of the vaccine. And four: the spread of disinformation and misconceptions about the virus and the vaccines—which is especially important for the topic that we are discussing today. Dr. James and Dr. Ndirangu mentioned a few points related to this.

In fact, the pandemic is not taken very seriously by important segments of the population across the globe, not just in Africa. But it takes another dimension in our continent because elite groups—including ministers, heads of state, and other public figures—issued statements that are skeptical of the pandemic and the vaccine process. The belief that the virus and the vaccine are conspiracies is quite widespread from the northernmost point of Africa, where I am now, to its southernmost cape. At the end, it becomes difficult to make people accept to take the right precautions and vaccinate them. Again, Dr. James mentioned a few statistics about those who are not willing to take the vaccine. This is something we hear whenever we talk to people in the street—including doctors and people who should be very well-informed—hence the importance of this gathering. We are very honored to be part of this symposium. Thank you.

**JAMES:** Thank you very much, Youssef—a political analyst specializing in North African affairs who just introduced the topic for today's discussion in a really powerful way. Thank you very much.

# Keynote I

*Keynote*

NATALIA KANEM

*Introduction*

WILMOT JAMES

**WILMOT JAMES:** Natalia Kanem is the United Nations Under-Secretary-General and Executive Director of the United Nations Population Fund (UNFPA), the United Nations sexual and reproductive health agency. She is, I am happy to say, a Columbia University graduate. She has a M.D. and more than 30 years of strategic leadership in the fields of preventive medicine, public and reproductive health, social justice, and philanthropy. I had the great pleasure of working with Natalia at the Ford Foundation, where I served as a Trustee for 12 years. She was and is a fabulous leader, and I am delighted that she is joining us today.

**NATALIA KANEM:** Thank you so much, Professor James, for the introduction, and my greetings and thanks to the conveners. Distinguished participants, partners, colleagues, and friends—as the world continues to deal with the devastating impact of the novel coronavirus pandemic, we can all agree that today’s conversation on crisis communications and vaccine uptake in fragile African settings is crucial at a moment when potentially millions of lives are at stake. Ensuring fair, equitable, and efficient distribution of vaccines is a critical and timely challenge that the world can solve and cannot afford to delay. It is in that spirit that I join you today to share the unique experience of UNFPA in risk communication and engaging marginalized communities during public health emergencies.

For over 50 years now, UNFPA has operated in some of the most complex and challenging settings, including humanitarian settings, to deliver sexual and reproductive health and protection services amidst conflict, natural disasters, and disease outbreaks, like the current pandemic. Providing reliable and effective communication during any emergency is never simple, but this COVID-19 pandemic is presenting unique challenges. The pandemic imposed a new level of suffering and hardship across the world’s already vulnerable populations, especially women and girls—many of whom were already facing significant barriers to public health information and services.

Movement restrictions and social distancing measures require new ways of communicating, even in remote areas. Many women and girls live off the grid. They may not have electricity or internet access. They may live in an island nation. They may be up the mountain or down in the valley. It is often very difficult for them to reach service delivery points without walking for inordinate amounts of time. So, the simple measures that the World Health Organization (WHO) has recommended—like frequent handwashing, physical distancing, and other types of mitigation measures—can be much more difficult or even impossible for them to adhere to.

Throughout the pandemic, UNFPA has helped to amplify COVID-19 prevention measures and to boost the dissemination of accurate information about the virus to women and girls. We have

trusted the young people we serve to carry correct information to their communities. This is alongside efforts to keep people informed about their rights, including their sexual and reproductive health and rights. To our long history of partnering with governments, civil society, women's groups, academia, and youth networks, we are now adding more faith-based alliances, as well as traditional systems with authority over the lives of women and girls.

Along with other UN agencies, we serve as an organization with eyes, ears, and feet on the ground in over 150 locations. We are uniquely positioned in these countries to provide reliable, trusted information. The midwives and nurses that UNFPA contracts are trusted, reliable providers of information and support.

I would like to note some of the experiences that we have been able to draw on from our past in dealing with disease outbreaks. At the outset of COVID-19, our regional office in West Africa commissioned a review of the response to major epidemics since 2003, including SARS, HIV, Ebola, Zika, and MERS. The HIV response has a rich store of information about activism and its role in preventing propagation of infection.

Here are the three takeaways that I would like you to know. First is consistency. Consistent messaging and community engagement is essential to help women and their families seek early advice to make timely decisions regarding their own health, their maternal and newborn health, and in general. Because of the nurses and midwives, maternity wards are safe places to learn and to engage.

Second, health promotion campaigns are critical for informing communities about how to access health services, including contraception and other sexual and reproductive health services. During a time of pandemic, women who have a choice typically choose not to become pregnant. We have seen this in the developed countries. In contrast, in developing countries, we are seeing a baby boom, including among teenagers, who are not able to exercise control over their fertility in a way that they would wish.

My third takeaway is the importance of partnership and collaboration with existing formal and informal social networks. This includes giving tangible support to women's groups, community groups, and civil society organizations who play an outsized role on the front lines of tackling spikes in gender-based violence, which have accompanied this pandemic. I am speaking of humanitarian circumstances as well. We know that during this pandemic, misinformation coupled with a lack of trust are undermining the uptake of life-saving tools, services, and information. The Secretary-General of the United Nations has spoken about this misinformation and disinformation—as has Dr. Tedros Adhanom Ghebreyesus of WHO, and as has UNFPA.

In our survey of almost 200 young people conducted in East and Southern Africa, they confirmed to us a fear of accessing health services due to COVID-19. These fears will likely linger and have long-term repercussions on their health and wellbeing. It is an empowered community that can help tackle misinformation and build that trust. This is especially true for women. Women are often in a very good position to relay accurate information through their networks. This is especially the case for local women's groups, who are key social mobilizers. Engaging communities and effectively involving them in risk communication efforts must be a critical part of our response to COVID-19 in Africa and beyond, of understanding the lived reality during the pandemic, and of keeping communication channels open during a time of physical distancing—particularly for those who are at greatest risk of being left behind.

To give a couple of examples, persons with disabilities are too often overlooked in our communications. In Ghana, UNFPA has engaged private sector support for a state school for the deaf to provide hundreds of girls with specially modified dignity kits. These kits contain face masks and age-appropriate information, education, and communication materials relating to COVID-19, as well as menstruation and hygiene supplies, along with adolescent sexual and reproductive health information.



Another example is sex workers. Apart from their danger of contracting and spreading the virus, they are severely affected by movement restrictions put in place to control the spread of COVID-19. They suffer stigma, loss of income, and a heightened risk of gender-based violence. In Kenya, along the trucking corridor serving Uganda, Rwanda, the Democratic Republic of Congo, and Burundi, UNFPA runs drop-in centers. These are places where COVID-19 prevention messages are disseminated among sex workers and drivers. Our onsite tele-counseling is offered for health consultations and treatment support in the local language. Face masks, hand sanitizer, and other supplies are given out alongside condoms. The centers' personnel also provide services for the clinical management of rape.

Indeed, who is conveying a message matters as much as the message itself. In previous crises, the uptake of risk prevention recommendations was highest when reliable intermediaries delivered the messages. During the Ebola outbreak, UNFPA worked with communities in the Democratic Republic of Congo to raise awareness of infection prevention and control practices. We used trusted messengers to reach people at home, in churches, and in markets with essential information for preventing and controlling Ebola.

In South Sudan, we have been active in using community dialogues. This is a great way to reach people during COVID-19, while social distancing as appropriate. We work with community influencers, including religious leaders, teachers, artists, and young people. Radio has a wide reach along with house-to-house mobilization where possible. We have supported various multimedia campaigns and efforts. Some efforts, led by our cadre of young innovators, raise pandemic awareness among young people, but also support young people in this time of need. This is especially important now in communities that have been curtailed, given limited social interaction through school and typical settings. These programs are helping young people to stay connected and interested. The programs also give young people an avenue to express COVID-related anxieties and the mental health consequences of this pandemic.

In Namibia, young people are helping their peers through a youth outreach program, sharing information about COVID prevention. They are mobilizing to undertake rapid on-the-spot assessments of the impact of COVID on young people, while they provide sexual and reproductive health and rights information, condoms, and referrals to services.

Amid school closures, adolescent girls and young women have been at a greater risk of gender-based violence, unintended pregnancies, and harmful practices such as child marriage and female genital mutilation, which are still prevalent on the continent. In Sierra Leone, UNFPA supports a radio program that airs up to five days a week and aims to reach both in- and out-of-school adolescents with empowerment messages. UNFPA has distributed more than 1,000 radios to households with vulnerable adolescent girls to increase access to this program.

We continue to support research. UNFPA is entrusted with population censuses, and we generate information and insights into how risk communication and community engagement activities can be better framed, packaged, and delivered. All of this can enhance our COVID-19 pandemic response. Understanding communities and adapting to reflect their current insights—that is how the story is going to change. That story is different in every community. There is not a one-size-fits-all approach.

At the heart of the matter during these challenging times, our insistence on upholding health systems and the principles of dialogue for justice and peace spells the difference—for ourselves, for those we serve, and certainly for the United Nations, which represents a beacon of hope in neutrality and impartiality through its human rights-based approach. For all of us across the United Nations system—as international civil servants and broadly as citizens of this planet—we must ensure that we communicate clearly to the rights holder herself, her inalienable possession of such rights, which are indivisible, including her right to bodily autonomy and sexual and reproductive health and rights, as expressed in the Sustainable Development Goals unanimously adopted by

United Nations member states. Furthermore, she, as a rights holder, must be aware that she is at liberty to exercise such rights without fear of coercion or violence, and without discrimination due to racism, sexism, or ableism.

Indeed, millions of lives hang in the balance at a time of rampant coronavirus spread if the population of Africa is not urgently availed of vaccines in sufficient quantity, or if disinformation and big lies lead to vaccine avoidance and rejection. This is true in Africa and it is true elsewhere, as we note that Afro-descendant communities and indigenous peoples are the hardest hit by the death toll of this pandemic.

So, dear friends, the big takeaway from this global pandemic is that the world is intimately connected, and none of us are safe until all of us are safe. Until vaccines are widely available and equally distributed, our behavior remains the most powerful weapon to stop the spread of the virus. They say that if you close your eyes to facts, you must learn through accidents. While the vaccine represents humanity's best hope to end this global public health emergency, the vaccine is also arriving at a time when misinformation and mistrust have probably never been greater, and as longstanding inequalities have been laid bare for all to see. A successful public health response to break the chains of transmission and to mitigate the impacts on the most vulnerable, including women and girls, will require close communication and engagement on the ground with communities, leading to trust in data and evidence.

Pandemic or not, UNFPA will continue to champion the safety and the dignity of vulnerable groups. We will support communities by forging alliances, nurturing relationships, building trust, and using facts and evidence-based approaches as the antidote to fear. When we invest in the health and wellbeing of communities, that builds the resilience we will need to cope with this crisis and future ones, and to ensure a healthier world for all. Thank you.

**JAMES:** Thank you very much, Dr. Kanem, for meticulously and systematically taking us through the special vulnerabilities that women and girls, and populations overall, experience. It is hard, as she described. The economic impact of the pandemic has been severe, and it has been quite brutal in many parts of Africa and elsewhere. There is a level of suspicion and conspiracies that pandemics always generate, but it has been amplified by leaders who do not send consistent science-based messages. Yours is a most welcome review. Your insistence that we urgently tackle the questions of both vaccine acquisition and vaccine rollout, aligned with a sensible strategic approach to public health delivery, is greatly appreciated. I thank you very much for your contribution today and for laying the framework for our session.

# Agency and the Health Citizen

*Speakers*

DONDA HANSEN  
MICHAEL T. GHEBRAB

*Moderator*

WILMOT JAMES

**WILMOT JAMES:** Our first panel discussion will reflect on the importance of human agency. We would like to approach the panel discussion from the point of view of the individual health citizen participating in pandemic response. We need to acknowledge people’s agency in health decision-making. The question is: How do we build a communications infrastructure directed at the individual from the local level up, rather than top-down? Clearly, both are required. Communication requires a top-down approach combined with a bottom-up approach, and we recognize that they interact.

Our first speaker on this panel will be Donda Hansen. She is the Associate Director for Communications at the Center for Global Health at the United States Center for Disease Control in Atlanta. She has 25 years of communications experience. She was involved in the 2014–2016 West Africa Ebola response, in the 2018–2019 Democratic Republic of Congo (DRC) Ebola outbreak, and in other parts of the world when it comes to risk communication. We have asked her to speak on vaccine-related lessons from the Ebola outbreak in the DRC, which, unlike the West African outbreak, was tackled with a vaccine in hand. Vaccines were distributed and valuable lessons were learnt from that experience.

**DONDA HANSEN:** I am going to talk specifically about my experience and what I observed while I was deployed to the DRC for the Ebola outbreak in the fall of 2019, with the headquarters of the response based in Goma. The outbreak began in the DRC in August of 2018, and was spreading across the eastern health zones. This was a border region where thousands of people crossed every day into neighboring countries. The hotel where I stayed was right at the border, so we saw that firsthand. In September of 2018, the U.S. Centers for Disease Control and Prevention began deployments to the area to support the Ministry of Health. Then in July of 2019, the World Health Organization (WHO) declared a public health emergency of international concern. So, when I arrived in Goma in September of 2019, the outbreak had been going on for a year. It had affected 29 health zones across three provinces at that point. There were around 3,000 cases and 2,000 deaths, and this is about the time that the second vaccine was introduced into the DRC. A bit more about the environment: The response was hindered by unpredictable insecurity in the Ebola-affected areas. There was community reticence and ongoing armed group activity. In addition, there was concern that transmission would spill over into the neighboring countries, including Burundi, Uganda, Rwanda, and South Sudan.

The WHO and the DRC government’s Ministry of Health were leading the response and overseeing the development of a strategic response plan. This plan drew on key tools, strategies, and

experience from the West Africa Ebola response, including broad vaccination and therapeutic clinical trials. These have evolved since the West Africa response. As I said, the response was based in Goma and I worked very closely there with the communication commission, which led the campaign around the vaccine. Rumors and misunderstanding were rampant. Many were concerned that the Ebola response was a business. There were feelings that money should be focused on security instead of the response. There was confusion regarding who was eligible for the vaccine and vaccination procedures, as well as confusion about the efficacy and safety of the vaccine.

A Novetta survey conducted on vaccines and treatment centers between late August and early September in the Butembo-Katwa region found that about 28 percent of the population had received the vaccine and 72 percent had not. Reasons cited for not getting the vaccine included not knowing if the vaccine was good or not. They thought there were too many secondary side effects. They thought people who got the vaccine are not cured, and only the Ebola Treatment Unit could cure you. There were political reasons as well, including a fear that the vaccine was there to kill certain ethnic groups. There was fear of the vaccine containing Ebola—that people start dying when the vaccine arrives to an area and the vaccinated were the first to die. People were concerned about deaths they perceived as being associated with the vaccine—that it passes Ebola to kill people and the vaccine results in death.

There was also widespread belief that there were two vaccines, and the one being given to the community was not effective. There was a fear that the second vaccine would be deployed in the DRC as a way for response teams to continue to profit from the people of North Kivu. This confusion over the second vaccine allowed opportunities for the sale of fake vaccines. There were rumors circulating in a WhatsApp channel that claimed someone was peddling a Congolese-made vaccine. With security issues really dominating the local media channels, little information was being shared about the timeline of the introduction of that second vaccine. So, there was a lot of uncertainty.

At the time, the vaccine was being deployed using a ring vaccination strategy to prevent the spread of the disease by social networks. This is the strategy that was used in Guinea and the West Africa Ebola outbreak. It is the same strategy that was used to eradicate smallpox. In this case, the vaccine was offered to contacts, and the contacts of contacts of patients with confirmed Ebola. Healthcare workers and frontline workers, also working in the affected areas, received the vaccine. Those in areas at risk of spread of the outbreak were also vaccinated. Finally, if there was an affected geographic area where security concerns made it unfeasible to do contact tracing, then all people living in that geographic area would have received the vaccine.

The CDC's objective was to support the Ministry of Health in the DRC and the WHO's vaccine efforts. It is difficult to communicate about uncertainty. In that area, generally, the surveys were showing that most of the people were getting their news from the radio—upwards of 80 percent—followed by local media officials or local leaders, community members, and then WhatsApp. WhatsApp was a huge channel where people were getting information, and a lot was not accurate. Getting information out to outlying areas was an issue. We worked with the communication commission to publish a weekly summary, and it was distributed with information from headquarters out to the local areas through the sub-commissions. This was an attempt to make sure they were getting updates that were being shared at the response headquarters.

Community feedback was key. Surveys were conducted by various partners over the course of the outbreak. One example was a unique partnership between the Red Cross and CDC. Red Cross community health workers were on the front lines of the response—they were regularly engaging with the community. CDC experts were able to analyze data. Together they developed a form that the Red Cross volunteers could take with them into the field when engaging with the community. Then those forms were returned to CDC, and CDC would code that data and provide weekly summaries of trends and themes to the response—such as what those rumors or beliefs were or what they were hearing.

Because of the feedback received, the international community developed Principles of Community Engagement. This was vetted by almost all the partners working in the area. It was intended to guide the way the international community engaged with local communities, because this was so key. We wanted to make sure that the international community engaged in a respectful way accepted by communities. Another area was to incorporate risk communication principles into training. For example, the infection prevention control, contact tracing, and vaccine pillars would incorporate risk communication principles into their training. This way, everybody understood how to communicate while they were engaging with communities.

We also wanted to make sure that the community health workers and the frontline workers—everyone who was out there engaging with the community on a daily basis—understood the vaccine so that they could respond to questions and concerns. There was a series of workshops designed to educate those vaccinators, starting with the hotspots and then moving on to other health zones. The overall objective is to understand the importance of communication throughout the vaccination process, and to communicate effectively and sensitively with those vaccination candidates in order to increase confidence and the vaccination rates among those at higher risk.

Regarding some of the lessons learned: First of all, the vaccine was deployed very quickly. We did not have that in West Africa, but many of those lessons learned from West Africa were used in the DRC. Within a week of the outbreak in August of 2018, the experimental vaccine was deployed. As I said, community engagement was key. In September of 2019, there were over 30 partners and 53 local associations—some of them faith-based, women, youth, taxi drivers—supporting community engagement. Ebola messages were on 85 radio stations in outbreak hotspots, and it is estimated that 16.8 million people were receiving that information.

A one size fits all approach to community engagement is not effective. People asked for responders who were local, familiar, and spoke local languages. Most of the materials produced at the headquarters were in Swahili and French. That was not sufficient. Many of the local languages were not being addressed. So that was a key piece. As the response continued, there was an attempt to reach people in the language that they understood. We learned that citizens who received vaccine information from community bulletins and local medical professionals increased the probability of accurate information dissemination. So, when they were able to get that information from trusted local leaders, it tended to encourage the acceptance of accurate information.

Misinformation thrived on social media. A local WhatsApp channel claimed that treatment was the only cure for Ebola, and encouraged citizens not to take the vaccine. This caused a lot of confusion between vaccines and treatment. We also noted that in some regions, when Ebola messaging declined from official sources, it picked up on social media and the misinformation increased. If we are not providing accurate information, it is an opportunity for misinformation to spread. The CDC has a motto from our Crisis and Emergency Risk Communication Program, “The right message, at the right time, from the right person can save lives.” That is the basis of risk communication, so I will close with that. Thank you very much.

**JAMES:** Thank you very much, Dr. Hansen, for taking us through the DRC vaccine rollout process. The Democratic Republic of Congo is a very difficult terrain in which to work. The state does not often have a presence in big parts of the territory. Therefore, putting together a communications team is quite an elaborate exercise, and you took us through exactly what that meant. The lessons that you shared with us about the efficient process of vaccine distribution are important. It is clear that where vaccines are not available, the longer the delay, the more you have conspiracy theories floating around. Efficient, quick distribution and access is quite key. Your emphasis on community engagement, the use of local languages, and trusted individuals who communicate smart messages is absolutely key to successful vaccine risk communication. Thank you very much for that.

I would like to introduce our next panelist, Michael Ghebrab. Michael is going to speak to us about his experiences working in pre- and post-crisis situations in South Sudan, Uganda, and Sierra Leone. He is an international development specialist with deep African experience. His most recent project was to lead a USAID-funded project on food security in Malawi. He is also a former veteran of the Catholic Relief Services.

**MICHAEL T. GHEBRAB:** Thank you for the introduction and for inviting me to participate in this important forum. What I am going to share is not necessarily the experience or view of the organization that I work for, but, primarily, my personal reflection on what went right and what did not with regard to the Ebola response in Sierra Leone. I will make some mention of South Sudan and Uganda, regarding the pre- and post-crisis situation in relation to Ebola. My presentation is not strictly focused on risk communication, but it highlights overall lessons learned with regard to factors that improved the Ebola response in Sierra Leone.

Usually, in a pre-crisis situation, there are three main areas that non-governmental organizations (NGOs), including Catholic Relief Services, focus on to strengthen delivery of health services. First is strengthening governance and operational structures. Second is capacity building of communities and different local structures. Third is strengthening the programmatic, institutional, and financial domains of organizations implementing social, behavioral, and communication interventions.

I will highlight the importance of communication with regard to coordination at a higher level in Sierra Leone. As much as it is important to address communication from the bottom up, the way emergency response is triggered is actually top-down. Usually, it is the president of the country who has to declare a state of emergency based on assessment and information provided by the respective ministry. Depending on the nature of the disaster, the ministry responsible for the assessment may be Ministry of Agriculture or Ministry of Health.

The Ebola outbreak started in Guinea in December of 2013 and hit Liberia in March, three months later. Within this context, Sierra Leone had at least a short window to prepare. Unfortunately, the opportunity was missed, and when Ebola hit Sierra Leone in May, there were parallel structures rushing to take the responsibility for coordinating the response. The Ministry of Health and the Office of the President were both trying to take the lead in coordinating the response. The figures and information they were releasing were not in alignment, which revealed poor coordination and created confusion. In addition, the absence of clear strategic and operational planning, as well as poor communication, frustrated the donors and international organizations who were committed to help Sierra Leone. As a result, donors and the government agreed to use the WHO office as the center for coordinating the Ebola response. Unfortunately, the altercation between the Ebola response coordinator, who was appointed by the Office of the President, and the Minister of Health continued in the WHO office, and confusion continued while the Ebola virus was spreading to all corners of the country at an alarming pace.

On 19 September 2014, one day after a UN Security Council emergency session on the Ebola crisis declared the outbreak a threat to peace and security, UN Secretary-General Ban Ki-Moon established the UN Mission for Ebola Emergency Response (UNMEER), the first ever UN health emergency mission. It aimed to unify the UN approach to the crisis, with five objectives—stopping the outbreak, treating the infected, ensuring essential services, preserving stability, and preventing further outbreaks. The establishment of UNMEER triggered a transition to a new response mechanism for Sierra Leone. Therefore, something unprecedented had to be done to contain the unprecedented scale and magnitude of the Ebola disaster.

With funding from the Office of U.S. Foreign Disaster Assistance and the Department for International Development (UK), as well as support from the British and Sierra Leone armies, Catholic Relief Services and a consortium of faith-based organizations were tasked to set up “command and control centers” throughout the country, one in each district and a national command and

control center in the capital, Freetown. The new structure had the Minister of Defense as its Chief Operating Officer and was coordinated from the National Ebola Response Center (NERC). This was a different structure that was never planned for, nor conceptualized before, but the evolution of the response, as well as challenges in coordination and communication, made it necessary so as to bring a sense of order and effective coordination. Many studies and research came out in the aftermath of the Sierra Leone experience recommending establishment of command and control centers to coordinate emergency response.

Within a short period of six weeks, the command and control centers were set up and became operational in all 14 districts. The success was a turning point, and proof of concept for the efficiencies and effectiveness that the command and control approach brought to the response. It was recognized that coherence and coordination at all levels, with public health messaging and behavior influence reaching into the villages, played a crucial role in slowing down the transmission chain and, later, rolling out the vaccine trial and containing the outbreak. The quality and effectiveness of the response greatly improved in all the sub-committees—including contact tracing, testing and treatment, risk communication, and social mobilization.

I had the opportunity to work in South Sudan long ago before it became a country. From my previous knowledge and follow up with colleagues, everything was functional. But it was, and it still is, a United Nations- and NGO-led system because there was no functional system in Southern Sudan. The robust external support did help in preventing major outbreaks. The quality of services was great, but lack of local ownership and higher levels of dependency on donor funding may be the main concern there.

Similarly, I served in Uganda right after the country had the first Ebola disaster in the Northern region, specifically Gulu. I believe Uganda learned from the incident effectively. The reflections and reviews of what happened informed the planning and preparedness for subsequent outbreaks. Since then, between 2002 and 2020, Uganda had about five incidents of Ebola but not an outbreak, just a few cases. They were able to contain it at its budding stage, which means they created a capacity. They have the multi-disciplinary national task force and national rapid response teams, which carried out the assessment and guided the response by establishing the risk levels. They identify the risk quickly, define the capacity, and determine actions needed, including constant communication on the risk. The informed public responded logically.

Besides strengthening governance and operational structures, the second area of focus was capacity building. The main activity undertaken in the case of Sierra Leone was training of key actors and change agents from the district to the village level. As NGOs, when we heard about the Ebola situation in Guinea, we started anticipatory preparations. We used the Sierra Leone NGO (SLANGO) umbrella platform as an initial coordination attempt of our activities to take stock of who will do what. We shared tools and experience, and each organization capitalized on what they considered their strength. As Catholic Relief Services, we identified this as an opportunity to work with religious leaders and activate alliances with other faith-based organizations. We contacted the Inter-Religious Council, the highest body of all the different religious groups within the country. They were receptive to our call and identified focal persons from their respective district-level offices for the training.

Fortunately, the Health Communication Capacity Collaborative (HC3) project, one of the United States Agency for International Development flagship projects in health communication, was operational in Sierra Leone at the time. We invited technical resource persons from the HC3 and did a training for local, media, and religious organizations. The training focused on two dimensions—social accountability to monitor the health services that would be provided during the Ebola situation, and social mobilization to equip them with skills to mobilize their constituencies and influence people to act as individuals, as families, and as communities.

In addition to social mobilization, the religious leaders made a commitment to be the voice for the voiceless, which was helpful. The religious leaders played a very effective role, right from the beginning. For those familiar, the decisions taken and the WHO guidelines around “safe burial”

created major concerns in Sierra Leone. Based on strong opinions from the wider public, the religious leaders advocated and took up the matter directly with the president of the country to influence a change. As a result, what was a “safe” burial was modified to “safe and dignified” burial processes. We were involved in reviewing and updating the guidelines so that burials are done in a manner that respected the local traditions and religious beliefs. Such interventions helped to enhance collaboration and responsiveness of the communities and, more importantly, we were able to avert much bigger issues than the Ebola that could have disrupted the response.

The involvement of the Sierra Leone army motivated many citizens to participate and do their part. We did informal interviews with our own staff and partners to understand perceptions on the involvement of the army in the response. Most of them said they expected the national army to defend the nation from an enemy. Since Ebola was considered an enemy, then the involvement of the army demonstrated seriousness of the matter. Obviously, there were some differences in approach between military and civilian responders, but they gradually diminished because the principles the army followed on planning and executing an operation are the same as the result-oriented and evidence-based decision-making principles in project management. Hence, the leadership of the military had a positive impact on motivating professionals at all levels, and they had the convening power to bring everyone under one roof to combat the Ebola outbreak.

As far as risk communication and social mobilization is concerned, the command and control centers played a vital role. One of the core functions of the command and control center was to collect and analyze real-time data and inform decision-making. Of course, at the time, the vaccine was not developed, and we only had the roll out of the vaccine trials without much resistance.

The initial messaging to the public created a bit of confusion. The local translation had a connotation in the local language that “Ebola does not have a cure.” As a result, most of the local people did not trust the health facilities and turned to traditional healers. They did not see the rationale for seeking help from health facilities when the health workers were saying the disease has no cure. As a result, we witnessed a rapid increase in infection rates because the traditional healers were not observing the recommended triage and prevention measures. Many traditional leaders and locals died. Immediate measures were taken to review and adjust the messages and local translation. The integrated mechanism for feedback, review, and updating of messages within the ongoing response was a crucial function of the sensitization and social mobilization sub-committee within the decentralized district-level command and control centers which ensure consistent communication to each of the context.

Currently, there are serious concerns with regard to the uptake of the vaccine for COVID-19 largely influenced by the counterproductive information war on social media which is impacting people and building resistance. One strategy, I believe, to counteract the influence of social media should involve working with artists, celebrities, and people who have large followings on social media to disseminate the right message. They can send the right communication to encourage the uptake of vaccines. Involving NGOs, particularly those working on social risk communication and social behavioral change communication, is critical. They have the knowledge of the grassroots structure and local context which enables them to think more creatively on how to design and implement appropriate risk communication strategies to increase uptake of vaccines.

In an emergency situation, the issue of funding causes unnecessary delays, but a strong coordination center that brings together all the different communities is important. Obviously, coordinating across agencies is notoriously difficult. But as observed from the Sierra Leone experience, the command and control center approach really worked. It succeeded in reconciling the different working practices, and the inter-ministerial as well as personality wrangles and organizational cultures. It brought everyone under one roof, which facilitated real-time data and information sharing, expert analysis, and quick decision making. But more importantly, that structure enabled donors to transfer funds directly and quickly with relative efficiency, which was really encouraging for an



emergency response. Timely financing is essential and it enhances collaboration among the different key stakeholders. Thank you.

**JAMES:** Thank you very much, Michael. What you are describing is fundamentally important for us, because we need to learn from the Ebola experience. You provide granular-level descriptions of how pandemic response actors created systems from what it is they had available as resources. You also highlight some of the mistakes made, and the consequences that had in human lives lost. Your crisscrossing so many African countries is remarkable, such diverse and rich an experience. Thank you for sharing your accounts and reflections with us.

To bring it back to COVID-19, data collected by the Partnership for Evidence-Based Response (PERC) indicated that when asked the question (in February 2021), “If a vaccine becomes available, will you be willing to take it?,” 35 percent of Tunisians, 59 percent of Kenyans, 61 percent of South Africans, 76 percent Ethiopians, and 78 percent of Egyptians said yes. This is an indication of the scale of our challenge (Table 1). Some countries are much better placed than others, with Tunisia, Kenya, and South Africa causes of concern.

The IPSOS survey also established the reasons why people did not want to be vaccinated. Some people denied that the virus exists (Table 2). Others did not believe that they were at risk. But the single most compelling response, among all of the countries surveyed, was that citizens could not decide whether or not to accept a vaccine because they lacked the information. These are citizens who are hungry for information and they do not have it. This information gap can be filled by proper risk communication systems.

TABLE 1  
*Number of Cases and Vaccine Willingness*

<i>Country</i>	<i>Notified Cases (March 2021)</i>	<i>Percentage Vaccine Willing (February 2021)</i>
South Africa	1,544,466	61
Tunisia	249,703	35
Ethiopia	200,563	76
Egypt	199,364	78
Nigeria	162,489	72
Kenya	130,214	59

TABLE 2  
*Top Reasons Why Not to Be Vaccinated (Percentage Response)*

<i>Country</i>	<i>South Africa</i>	<i>Tunisia</i>	<i>Ethiopia</i>	<i>Egypt</i>	<i>Nigeria</i>	<i>Kenya</i>
Do not believe virus exists	27				21	22
Believe not at risk		20	12	14	26	
Don't know enough to make a decision	25	30	28	23	26	41
Confident other treatments coming soon	18					
Vaccine development rushed and not properly tested			21	12		15
Do not trust vaccines/health authorities		15				

TABLE 3  
*Most Trusted Institutions and Individuals (Percentage Favorability)*

<i>Country</i>	<i>South Africa</i>	<i>Tunisia</i>	<i>Ethiopia</i>	<i>Egypt</i>	<i>Nigeria</i>	<i>Kenya</i>
Physician	75	66	77			
Community Health Workers		75				83
Hospital/Health Centers	68		84	71	82	90
Ministry/Dept. of Health	67		87		80	85
National Public Health Institutes			75			
Medical Professional Associations	66			71	79	84
WHO				79	83	85
UNICEF				62	82	
Religious Institutions		68	77			
Army/Military		83				
Police		67				
President	65					
Media			75			

*Source:* All tables use Partnership for Evidence-Based Response (PERC) data published in March 2021 based on an IPSOS survey conducted in February 2021, available at <https://preventepidemics.org/covid19/perc>.

In terms of what/who the most trusted institutions and individuals are to be effective risk communicators, the PERC studies point to the importance of physicians, community health workers, hospitals and health centers, ministries of health, national public health institutes, and medical professional associations. In some countries, the WHO and UNICEF are particularly important. In Tunisia and Ethiopia, religious institutions are. Very significant in the case of Tunisia is the authority of the army and police, but in other countries they have no such standing (Table 3).

I share this data as a point of entry into the discussion around how we maximize vaccine uptake through effective risk communication on the African continent. Donda, given your description of the experience in the DRC, please share the most important piece of advice you would give to people who are leading risk communication campaigns on the African continent and elsewhere. What is the most important lesson that you would want to share in terms of how they can drive risk communication systems in relation to this particular pandemic?

**HANSEN:** I think providing accurate and credible information early on is probably one of the most important things. We have some principles at CDC on our crisis and emergency risk communication: be first, be right, and be credible. Very often people go back to that first credible source for information time after time. If officials want to be that source of information, they cannot hesitate.

I have had the opportunity to teach risk communication in many countries around the globe. One of the things always asked is why the officials do not want to say anything until they have all the information. That does not work. It just allows the opportunity for misinformation to grow. If we want people to come to the official source for information, we have to talk right away. If that information is yours to share, share it first and make sure it is from a credible source.

The key is that you do not know everything first. You have to talk about what you do know, what you do not know, what you are going to do to find that information, or where the response is

going, and then provide regular updates. I think that is the key piece. Do not let that information vacuum fill up with misinformation. Make sure that the official sources are providing accurate information early on. Make sure you are saying what you do not know and when you want to get that information to them.

**JAMES:** That is a great answer. Thank you very much. The institutions and individuals trusted by people clearly vary by country. It varies by culture, by region, and by the deep personal experience people have dealing with state agencies. In the case of South Africa, because of a long history of apartheid and the role of the military in suppressing internal dissent, people do not trust the military very much. But they trust the medical associations and others. Risk communication, apropos of your point, has to be smartly tailored so that the right people communicate the messages. Thank you very much for that response, Donda.

I want to turn to Michael. In the Q&A, there is a healthy discussion going on about the role of religious institutions in providing misinformation, or feeding into the anti-vaccine movements, but also to note that religious organizations can be very helpful. I recall in the case of the DRC, the Catholic Church played a really positive role in many parts of the DRC where there was no state presence. Would you reflect on how religious institutions can play a very positive role in terms of vaccine communication and vaccine rollout?

**GHEBRAB:** I will give you a very good example that still lingers in my head from Sierra Leone. When the vaccine trials started, there was still some resistance, and we involved the Inter-Religious Council. One of the religious leaders chairing the council was a Muslim leader. He came out and encouraged the public that this is useful. The Catholic bishop who followed him said something that still lingers in my head: This is the answer to our prayers. We prayed for a solution and God has answered our prayers. This is how God is going to provide a solution because if there are miracles, it is how quick the vaccine was developed. God cannot come and do the healing himself, but he used the scientists. I think that message resonated with a lot of people. This is how they can tailor the scientifically proven and accurate messages to their religious messaging and encourage the people.

Also, I think each person getting vaccinated can go to their respective friends and ask them, “I have been vaccinated, have you been vaccinated?” That is going to add peer pressure on people, but it will also show them that it is not harmful. Here in Malawi, in the district of Zomba, there was no one turning up to take the vaccine a couple of weeks ago. Last week there was a queue of people trying to get vaccinated. I attribute that largely to what I just mentioned. Each of the persons getting vaccinated were going out and asking their friends and colleagues, “I took the vaccine, have you?”

As we did in Sierra Leone, it is important to train a selected group of faith leaders as trainers on “behavioural change communication” at the national level, and both the Christian and Muslim participants should be able to draft tailored messages supported with a relevant “Bible” and “Quran” verse or story to speak to the hearts and minds of their respective followers. The overarching principle for the messaging will be to encourage individuals to act primarily on the basis of the following three main reasons:

- Do your part (save yourself);
- Do it for those you love most (save and protect those you love and care about); and
- Do it before it is too late (highlighting importance of timely action—“a stitch in time saves nine”).

The messages should be reviewed by the relevant risk communication and community engagement sub-committee. Then a quick pre-testing of the messages is undertaken to get public feedback

before finalization and wider dissemination. The complete process from the training of trainers to the finalization of the messages took two weeks. With appropriate financing in most of Sub-Saharan Africa, faith institutions are like the glue in the manner they hold communities together, and that is what needs to be harnessed to deliver much needed services to communities. With consent of the faith leaders, vaccination exercises can be scheduled and carried out from a tent outside a church or mosque after a religious service if advance arrangements are made. However, the faith leaders need to be provided with a full disclosure of the scientifically approved and accurate information about the vaccines to dispel any reservations and fears they may have.

**JAMES:** Thank you very much for that, Michael. There are a number of other comments in the Q&A about the role of religious and traditional leaders. It seems to me that one of the key lessons from the Ebola and other epidemic experiences is the vitally important role of traditional and religious leaders in communicating sensible, honest, science-based pandemic response information to citizens. One of the challenges we face is to put together systems of risk communication that can achieve those goals, drawing on the wide spectrum of leaders in society. This is the time when leaders must rise to the occasion, where they must participate and not stand on the sidelines. Clearly, the lesson here is that we need to upscale our efforts to develop those bottom-up risk communication systems. I thank Donda Hansen and Michael Ghebrab for their contributions.

# Postscript

BENJAMIN DJOUDALBAYE

THE AFRICAN UNION (AU) THROUGH ITS TECHNICAL ARM, the Africa Centres for Disease Control and Prevention (Africa CDC), has been working closely with African Member States to strengthen their preparedness and response capabilities to limit transmission and minimize the resulting morbidity and mortality from the COVID-19 pandemic. A Joint Continental Strategy for COVID-19 response was developed, and an African Task Force on Coronavirus (AFTCOR) was launched to coordinate the preparedness and response efforts on the continent.

The implementation of the joint African continental strategy is based on eight operational pillars which are: coordination and collaboration; epidemiological surveillance; laboratory diagnostic and subtyping; countermeasures; medical care; risk communication and social engagement; and supply chain management. An additional pillar for science, standards, and regulation was recently added after careful consideration by the ministerial coordinating committee led by the ministers of health.

Communication is a major aspect of the management of emergencies because of the need to provide timely and accurate information to the public about an outbreak as it evolves. “Infodemics” has been the major challenge in this pandemic response. Therefore, strategic communication and community engagement helped reduce misinformation, rumours, and panic, and can help reduce fatality due to the disease.

Given that COVID-19 is a dynamic disease, and the facts are frequently changing, it was vital for Africa CDC to provide the public with timely and adequate information in case of any eventuality. To strengthen COVID-19 risk communication and community engagement in Member States, Africa CDC in collaboration with other partners has:

- Convened and facilitated training for government officials in 26 countries across multiple sectors in proven methods of risk communication for infectious disease outbreaks;
- Launched surveys to measure impact of physical distancing on the continent;
- Developed risk communication materials on COVID-19; and
- Provided trainings on COVID-19 risk communication and community engagement for 107,262 and 451 communication officers through onsite and virtual webinar platforms, respectively.

To educate and inform the public about COVID-19, Africa CDC undertook the following activities:

- Engage the media and journalists’ emergency preparedness and response efforts;
- Weekly press briefing by the Director of Africa CDC;

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**BENJAMIN DJOUDALBAYE**, Head of Policy, Health Diplomacy and Communication at Africa Centres for Disease Control and Prevention, contributed this postscript to the event reflective of Africa CDC’s perspective on risk communication and community engagement.

- Rumour tracking system with Novetta;
- Launch of the Partnership to Accelerate COVID-19 Testing (PACT)—Test, Trace, Treat;
- Weekly webinar for journalists, civil society organizations (CSOs), faith-based organizations (FBOs), youth—United Nations Development Programme, World Health Organization held every Friday;
- One by One campaign with Access Challenge; and
- Several media/celebrity events to amplify the One by One campaign.

Public acceptance of vaccines, including concerns about safety and efficacy, is critical especially in the face of disinformation, which is particularly rampant as the COVID-19 pandemic continues to take its toll on the continent. This is according to the Africa CDC COVID-19 Vaccine Perceptions study.

The Africa CDC, as a trusted source of information, partnered with key stakeholders in the #Vaccinesaresafe #Sharethetruth campaign to ensure effective communication, and to educate the public on up-to-date information on the vaccines as well as on the importance of being vaccinated.

In addition to a campaign working with influential stakeholders in the community—like faith-based community leaders, media, CSOs, community leaders, social media influencers, as well as digital media companies like Facebook, WhatsApp, Twitter, and Wikipedia—Africa CDC conducts trainings, digital marketing, town hall meetings, and advertising across all platforms to ensure the public gets the correct information.

# Keynote II

*Keynote*  
SIMONE CARTER

*Introductions*  
WILMOT JAMES  
JENNIFER DOHRN

**WILMOT JAMES:** I will now introduce Dr. Jennifer Dohrn, an academic, a nurse, and midwife practitioner at Columbia’s School of Nursing. She is one of the colleagues that I work with on a project called Frontline Nurses, together with Victoria Rosner.

**JENNIFER DOHRN:** I have the honor of introducing Simone Carter, UNICEF’s lead on Integrated Multidisciplinary Outbreak Analytics for Public Health Emergencies, where she provides support to countries to better integrate and operationalize evidence in outbreak response. She joined the Eastern Democratic Republic of Congo (DRC) Ebola outbreak response in September 2018 and is currently in Guinea. We look forward to her remarks on using integrated analytics to inform vaccine related communications.

**SIMONE CARTER:** Thanks very much for the opportunity to present today. I will go over key results from the different studies on vaccination during the tenth and eleventh Ebola outbreaks in the DRC; how we have adapted the questions for COVID surveys based on what we learned from the Eastern DRC Ebola outbreak questions on households and healthcare workers; show what those results actually look like; and talk about some guidance of how we could better use social science evidence in terms of communication on vaccination.

First, what is the Social Sciences Analytics Cell (CASS)? The unit was set up in 2018 to support the Ebola DRC outbreaks. In recent outbreaks, we have gotten better at having epidemiological analysis cells and about being able to show more differential trends in the outbreak and transmission chains. However, one of the things missing was the ability to explain why. Why might more children be affected in one area or another? Why might there be greater community deaths in one area or another? Setting up the CASS was a way to better explain the different epidemiological trends that we were seeing. The unit, working together with epidemiologists and health services, was signed off by the Ministry of Health to provide systematic, integrated evidence to better explain outbreak dynamics. That has since been replicated in the DRC for the eleventh Ebola outbreak in Équateur, for COVID, and for cholera. It has been replicated here as well in Guinea as an integrated analytics cell.

The aim is to conduct rapid surveys to better understand outbreak dynamics and to support different actors in using this evidence. It is not enough to do a presentation. It is important to present the data from local health authorities to NGOs and to Ministries of Health, and to see how the data can be better used by all the different actors in the response. We help them co-develop actions and track those over time. I think we have a tendency to present a lot of evidence, but miss

how the evidence is being used and how it works or not. We create a space for integrated multi-disciplinary outbreak analytics. This means understanding that factors influencing outbreaks or health behavior go beyond the disease itself—there might be socioeconomic, gender-based, conflict, or displacement factors. We make sure that we are looking at everything holistically, not as one disease on its own. And of course, we work with national partners, researchers, and institutions.

I will share first some key results of the data that we have from the tenth and eleventh Ebola outbreaks in the DRC. Something that was previously mentioned—but is an important distinction to make when we are taking experience from the Eastern DRC context and talking about the COVID vaccine—we want to remember that in the DRC we were in a phase III vaccination trial, which is not the same case here. That means consent forms were being used. Those consent forms were often not in languages which were understood. Words like “trial” and “experiment” were being used, which can fuel distrust. There are amazing tools that have since been developed for COVID by the WHO that actually show the different phases of a vaccine, vaccine trials, and roll-outs, which can help to address some of that language issue.

This presentation is based on a meta-synthesis from multiple studies. In the Eastern DRC we have 14 different CASS studies—household surveys, healthcare worker surveys, and qualitative studies—which covered over 4,000 individuals. In Équateur from June to July 2020 (the eleventh outbreak) the studies covered 117 of 189 health care facilities in the area, and household surveys reached over 2,000 individuals in the seven health zones.

Regarding community perceptions, we saw that almost half of community members reported refusing the vaccine because of an issue with eligibility criteria—the concept of ring vaccination. When we are thinking about COVID vaccines, it will be important for us to reflect on the fact that this, again, is a vaccine that will not be available for everyone. So, how are we communicating clearly on who is eligible, who is not, and why?

Twenty-three percent reported that they refused the vaccine because there was not sufficient information. How are we correctly communicating and giving the information that is requested by communities to support their engagement with vaccines? Also, between 47 and 62 percent reported that, since Ebola, communities have become afraid of vaccinating their children because they were scared that it would be the Ebola vaccine. When we are looking at data around vaccines, are we ensuring that we are looking holistically at everything that is happening with vaccines, and not only the one disease at a time?

When we look at healthcare worker perceptions, we saw that 42 to 55 percent of healthcare workers said that they needed more information. People want the information from healthcare workers. But are we actually ensuring our healthcare workers have the information that they need? In the epicenter in Beni at the end of the outbreak in 2020, only 21 percent had reported receiving training to be able to explain the vaccines. We are not equipping the right people with the right information to be able to respond and build trust. Sixty-five percent of health care workers said that people were refusing the vaccine because they feared side effects—despite the fact that most people know that vaccines have side effects. We are not sufficiently equipping them with information on how it works and what the side effects are, which are questions that could be answered easily if the information and the training were provided.

When we look at the key results from Équateur, the community data results show that the majority of communities had heard of the Ebola vaccine. Again, this was the eleventh outbreak—they had one in 2018 and again in 2020. We asked, “If the vaccine were offered, would you accept it?” Almost half still said no. The reason for refusing a vaccine, first, was a lot of distrust, but 34 percent were concerned that the vaccine itself would infect them. I think we are very quick to say that something is a lie, a rumor, or misinformation. Whereas, it often comes from misunderstanding the concept of things like antibodies, which have been tested and have been talked about.



Rather than disregarding the misinformation, it is actually more important to address them and ask: Why do you think that it would infect you? What is the information that made you think that? How can we address that more holistically and answer those questions?

Thirty-one to 42 percent reported that they did not believe Ebola was in the area. I think we need to be very honest about understanding proximity to a disease, and our willingness to engage in any prevention measure with something that we are not aware of. We are much more likely to engage in preventative measures—whether that is a vaccine, handwashing, or safe and dignified burials—when we have had that disease close by or when somebody in our family has been affected. When we are affected by malnutrition, measles, and malaria, that might be our biggest priority. As responders, we need to consider that when we communicate on one vaccine, we are also considering and including the other needs of communities at the same time.

Looking at the healthcare worker results in Équateur, the majority of them were aware of the vaccine and the majority believed that it works. However, 49 percent of healthcare workers still had not been vaccinated. In terms of reasons for not being vaccinated, again, some of it comes down to information. Eighteen percent did not know where to get vaccinated. We are very quick to say people are resistant, or hesitant, or not engaging. But actually, we are not recognizing how little information we provide if 18 percent do not know where they can get vaccinated. Again, we see about 46 percent concerned about side effects. It comes back to: What information are we truly providing about the vaccine to be able to address these concerns? And how are we comparing that to the information people already know about vaccines and how they work?

In summary, there are some key themes that came out over the two years. One is about misunderstanding and misinformation—all focused on the side effects and the eligibility criteria and strategy. The ring vaccination strategy was confusing, and there were no communication materials on it. This could be done very simply with practical examples of groups of individuals—either physically moving people around and showing how you would be a contact or contact of a contact, or through images or videos. But those communication materials did not exist to help people understand that eligibility criteria. There was also misunderstanding on changes in eligibility criteria. This included pregnant and breastfeeding women, and how that changed over time.

Distrust was related to a lack of understanding of how the vaccine worked. Again, we have tons of videos of how polio vaccines or how other vaccines work, but we lack videos or communication materials on how the Ebola vaccine works. We promoted the vaccine, but then we did not offer it for everybody. We told people that this is a life-saving vaccine, and then said, “but you, you, and you cannot have it.” Telling people to accept something without explaining how it works, what the side effects are, or why you would receive it and somebody else would not, are not ways to build trust.

Distrust came from the vaccine being provided in unusual locations—like tents or outside of healthcare facilities. Also, we used and had the police present in the vaccine location. If we want to normalize and engage people with the vaccine, we cannot treat that vaccine or disease differently from others. That means that vaccine locations and procedures need to be the same as for other vaccines. This also goes for locations, ethics forms, police, and the military. We need to ensure that the vaccines are being administered by healthcare workers who are trusted, and that those healthcare workers have sufficient information to explain why somebody would get it, why others would not, how it works, and what the side effects are. Again, we must be able to paint this in a holistic way that includes other vaccines too.

We have adapted some of the surveys based on all of the lessons learned. Asking if you would accept the vaccine is not a good question. We have taken that question out of our surveys. It has a tendency to create defiant or hesitant communities. Saying that 40 percent of people would not accept a vaccine, when it is a hypothetical question, pits us against communities. We are not looking at that data against: What is the political view? What is your government’s view? What are the

leaders saying? Do you know somebody who has COVID or not? Do you have somebody who is high risk in your family? All of these factors would influence a hypothetical answer.

We know the vaccine is coming to all countries. So, whether they accept it or not, most important is knowing what information they need, who they need it from, and how they can get it in order to respond to needs with actionable types of questions, followed by the actions. This would result in campaigns focused on providing information across modalities and by people who are trusted, rather than campaigns focused on telling people to accept the thing that they hypothetically said they would not.

On how to use data better, mix qualitative and quantitative data. Thus, understand not just perceptions, but the causes and drivers of those perceptions. Ask action-oriented questions: What information do you need? When do you need it? How do you need it? From whom? Ensure that the data users are involved in the survey creation. When we do healthcare worker surveys, we involve all the different actors who work with healthcare workers, not just those who work with vaccines. They are involved in the survey creation, so that they are more likely to use the data when it comes out. This includes the Ministry of Health and also NGOs. Also, do not focus on COVID-19 alone, but look at vaccination holistically. What do you know about vaccines? What information do you understand about vaccines? How do you feel about vaccinating your children? All those other factors together in one single survey provide a more holistic understanding of outbreak dynamics and the different dynamics engaging with vaccines.

I will close with some examples of how this data looks in the new healthcare worker surveys that we conducted in January 2021. In a representative sampling from the healthcare workers in Kinshasa, we saw that confidence in the vaccine right now is all over the place. This will give us a baseline to see whether the confidence level changes over time if we address the questions and respond with the actions that are requested. We asked about the fears or the concerns about the new vaccine. Again, we see side effects as a main fear. It is important for us to talk about communications that clarify what side effects look like and compare this to the already known side effects of vaccines.

We also asked, “What information would you like to have about the new COVID-19 vaccine?” Number one was side effects, followed by how the vaccine works, how long it lasts, what is in it, and who will receive it. This information is available. Communicating on some of the information we do not know is okay, but explain: here is where you will be able to get it, here is how we will update that information, and this is why we do not know that information yet. And again, compare that to things that people know. For example, we all know that the yellow fever vaccine used to protect for 10 years and then had to be re-boosted, but now it does not. These kinds of comparisons can help people, especially healthcare workers, better understand and communicate with communities. But as much as possible, bring it back to things that they know and make those kinds of comparisons.

We also asked, “Who would you like to receive the information from?” Because this was asked in one health area, in Kinshasa, we know that this is right for Kinshasa. But we will do surveys across the country in different locations, making sure to adapt appropriately. We see the importance of working with medical leaders in the area, including who should have the right information and be sufficiently equipped to communicate on this correctly.

It is really important to repeat surveys over time to check that the information needs are being met by type and by source of information. Are we presenting the results of the work only at big forums or in reports? Are we hosting meetings—with the health and water-sanitation-hygiene clusters, the different NGOs, or the different departments at the Ministry of Health—to ask what is being done with this data, check on how it is coming across, and make sure that everybody has access to the data in a way that is usable?

When co-developed recommendations are done, document and track them to see what works and to monitor that over time. I think with COVID, we are data obsessed. We collect big data, but we are not using or tracking that at a granular level. Sometimes we do not even need studies. Sometimes we just need to engage communities. But perception studies at large levels are often harder to use than granular qualitative data at a community level—especially for things like recognizing when there might be a high-risk group or a particular vulnerable population that we want to reach and engage.

Everything we do is open access. The tools, the presentations, the trainings, and the results are all available online to ensure that anybody can use the information. Please do not hesitate to get in touch if any of that can be useful for you. Thanks very much.

**DOHRN:** Thank you, Simone. That was such a refreshing discussion. Honesty, transparency, how we engage in the community, being direct, listening so that we can provide solid answers—it really opens the door to the social science approaches paving the way for all vaccinations. Yes, we are now talking about COVID-19, but there is also polio and yellow fever. Vaccines in general are an issue. To take this evidence you have gathered is so helpful. There are so many important lessons here. We greatly appreciate what you said, and thank you for taking the time to join us.

# Community Partnerships

## *Speakers*

CHINWE LUCIA OCHU

STEFANO CORDELLA

SHEILA DAVIS

RICHARD GARFIELD

## *Moderator*

JENNIFER DOHRN

**JENNIFER DOHRN:** We are going to explore a different perspective of risk communication response to crises, including vaccine hesitancy. We need coordinated global, regional, and national efforts to direct response to catastrophic situations—from wars, to forced migration, to outbreaks of infectious diseases. We need organized and recognized communities, the peoples within the country, to bring their wisdom and knowledge of what is needed and how it is to be delivered as equal authority in directing strategies and solutions.

I pose two premises as a framework for this discussion. One, an engaged community is essential for effective crisis response. Two, to have an engaged community, a primary health care system needs to be in place. This means sound investments in public health components, such as health systems and the health workforce, that result in the community having trust and being engaged in their own health outcomes. Crises are portals that reveal with clarity the existing fractures within societies. Crises such as pandemics unfold in specific and distinct contexts in the Global North and Global South. In countries with ongoing legacies of inequities and disparities, crises invade and inhabit the social structures of how the country is governed, and its societal foundations.

For example, in the United States during this COVID-19 pandemic, with health institutions built on structural racism and exclusion, the rates of infection and death for black people and people of color are more than double that of white people. Their rates of vaccinations are much lower, too. Combine this with years of medical experimentation and poor access to quality healthcare, it is no mystery when communities of color question the safety of vaccines. It is in this context that risk communication must be relevant in order to be effective.

In Global South countries, and specifically in African countries, the legacies of colonialism, global slave trade, and exploitation as weapons of the invaders, have often left clinical deserts with minimal investment and maintenance of the public health infrastructure. Global guidelines must be contextualized into the specific conditions. The community possesses the expertise to do this, if they are given agency. The paradigm of containment versus care emerges within these contexts—too frequently with a focus on containment rather than attention to the basic health needs of the community. The central dilemma here is whether effective containment is possible without safe and effective care.

Now you will hear from four experts with long histories engaging communities to ensure effective crisis communication response strategies. They will also share what it means to communi-

cate risks in situations where governments might not be effective, due to unstable and fragile systems. To begin, I welcome Chinwe Ochu of the Nigeria Centre for Disease Control. Chinwe has a lengthy history in prevention of infectious diseases, including risk communication during polio outbreaks in Nigeria. She is now leading the COVID-19 risk communication strategies in Nigeria.

**CHINWE LUCIA OCHU:** Thank you very much, Jennifer. I appreciate this opportunity to share the Nigerian experience in community partnerships and engagement, especially as it pertains to our COVID-19 vaccine response. Let me start with a disclaimer. As a country, we have done a lot and we are doing a lot, but we have not done enough. We keep learning from the process and from our past experiences. We keep improving and adjusting our strategy to be able to deliver on our mandate to our country and to our communities. We have learned over time the importance of community partnership. We have had to deal with the Ebola outbreak in 2014. That was a good learning experience for us, as was the polio eradication program. We have seen that engaging the community at every stage of our public health development and strategy implementation is more effective than using the top-down approach that we have highlighted over the course of this meeting.

Community partnership and engagement is one of the five pillars of risk communication. Designing with end users, we have also seen, is key to behavioral change. For our response to the COVID-19 outbreak, and especially as we roll out vaccines, we have adopted the WHO Global Routine Immunization Strategies and Practices, which we also utilized in our polio response. This endorses community involvement and espouses strategies for community partnership as a way to improve the uptake of vaccines.

Let me start by breaking down the Nigerian context, so that we understand the complexity around community engagement and risk communication in the country. We are a nation of over 250 ethnic groups with more than 500 languages. We are rich with socio-cultural diversities, and the strategy we use in communicating risk in one part of the country may not necessarily be effective in another. So contextualism has been a key strategy that we have used—adapting our risk communication interventions to the particular contexts in our country. Wide socioeconomic disparities are another challenge. We have very rich people and very poor people, with different level of access to healthcare services and programs. This makes it difficult to communicate, especially if it is seen as people on the top of the ladder trying to communicate to those at the lower steps of the ladder. These are things we take into consideration when trying to engage the community.

Of course, a lot of religious diversity also brings up differences in the way people perceive our public health interventions. In the Northern parts of the country, and other parts, we have communities that are faced with different kinds of insecurity issues. We have the Boko Haram insurgency, and a lot of internally displaced persons. So, making sure that these people, who are also part of our communities, have equal access to public health risk communication messages and interventions is key in our community engagement efforts. We also have a power disparity that exists in our patriarchal society. That means we could have diversities in access across the various genders and the various power structures. These are all things that combine in a manner unique to our country, and make it very important that the approaches we adopt address the needs of the specific targets of our public health programs.

We have developed a Risk Communication and Community Engagement strategy, which has come out of this response to COVID-19. It outlines how we communicate with the public, and our stakeholder and partner engagement. We emphasize capacity building in risk communication and community engagement. We have understood the importance of opinion leaders and trusted voices. I think this cannot be over-emphasized. We have heard it from the previous speakers. We train and engage them. We make use of them to communicate risk, and to help promote public

health interventions. Our risk communication engagement strategy is based on the overall goal of providing people with the information and options needed to make informed decisions, and to take actions that save lives and lead to recovery. Another interesting aspect of our strategy is the dynamic listening and rumor management efforts we have, which I will speak about as we go on.

In our risk communication and community engagement strategy, we carry out surveys to try to understand what the people feel about what is happening. What are their perceptions? Then we engage community influencers to disseminate information. We also want to find out the concerns of the communities. We engage them in dialogue regarding what they feel about the desired behavior we are preaching to them to adopt. We stimulate the community to lead and own the response. This is the core component of our community engagement strategy. We try, as we learn from the whole process, to improve by the day.

Here is an example of some of the opinion leaders and trusted voices in our public health interventions in Nigeria, as well as in many other parts of Africa and the world. Many of the conspiracy theories that grow have religious and cultural undertones. Making faith-based and traditional organizations, and their leaders, champions for our public health programs and interventions has been very effective. We equip them with necessary trainings. We provide evidence-based facts, and then let them capture the vision and identify the effective strategy for communicating these interventions to their own people. We support community influencers and volunteers. We help them craft their own promotional risk communication messages that are evidence-based, yet specific to the needs of their communities.

What have we adopted as our COVID-19 vaccination strategy? Like I said before, we have leveraged our experience in the eradication of polio. We have several structures. The Emergency Operation Center (EOC) is a multi-sectoral platform where relevant stakeholders are engaged in our activities. For COVID-19, I am happy to announce, we were able to activate Emergency Operation Centers in all 36 states and the federal capital territory of the country. So, in every state of Nigeria, we have an active EOC that is able to respond to public health emergencies.

We leveraged the Committee of Northern Traditional Rulers for the eradication of polio, and we are making use of them as well in our response to COVID. The Nigerian Military and Civilian Joint Task Force has been our partner in helping to reach the security-compromised communities. They are part of our EOCs and technical working groups. We have partnered with civil society organizations and humanitarian organizations which already have community presence, especially in difficult to reach communities and internally displaced persons camps. We make use of them to reach these people, rather than reinventing the wheel. In Nigeria, we have Ward Development Committees and Village Development Committees at the community level, and these people help drive ownership from the communities. So, we have made use of them in previous responses, and we are still making use of them for the COVID-19 response.

The Partnership for Evidence-Based Response to COVID-19 survey has further underscored the importance of healthcare workers as trusted voices in risk communication. Nigeria has prioritized the training of these frontline workers on the COVID-19 vaccination. Our target is to train over 100,000 of them, and it is the National Primary Health Care Development Agency that is leading our vaccination efforts in the country.

Like I said before, we listen to the communities and try to see what is happening. We call this dynamic listening. We have an integrated rumor management system, where we use a digital app to scan social media platforms for trending news. We want to understand what information is, as they say, trending. Is it risky? Are there misconceptions or misinformation? Are there speculations that could negatively affect the health of the community? Once we do that, we investigate, analyze, and make decisions based on our findings. It informs the development of our risk communication

messages. We disseminate and then get feedback from the community using this very robust mechanism of rumor management.

In 2019, Nigeria trained healthcare workers nationwide on adverse events following immunization (AEFI). We have further strengthened that training, including targeted modules on COVID-19 vaccines. The AEFI committees we have had before were not functional. But we are happy that the National Agency for Food and Drug Administration and Control has introduced the MedSafety App, which is a digital app that supports pharmacovigilance. People are able to report real-time adverse reactions following immunization. This is a key improvement in our strategy.

Religious leaders, the traditional rulers, and even marketplace mobilization interact with the people closely. Whatever strategy we are using, we have the people participating in every aspect.

The T.E.A.C.H strategy is what Nigeria is using to enroll people into the vaccination campaign. We are still using the Traditional Vaccination Campaign Approach. Beyond that, we have Electronic Self-Registration by Eligible Nigerians. For those who cannot register themselves electronically, we assist them in this registration. We have also conducted Concomitant Vaccination alongside Electronic Registration. This will play out more when we get into community-level vaccination. We also have House-to-House Electronic Registration. We used this approach before, and we intend to use it for our COVID-19 vaccination process.

What have been our challenges? We have a very fragile health system that has suffered from decades of sub-par investments. This is a big challenge we are hoping to keep overcoming as we keep progressing. Our community involvement and risk communication activities are new—they are not typically prioritized in the country. But the lessons we are learning from the COVID-19 response, as well as from the Lassa fever and the Ebola responses, have brought to the fore the importance of this strategy in our efforts. Mistrust of government has affected our COVID-19 response, and this has also led to hesitancy to the COVID-19 vaccines. But our rumor management system is helping us address most of the misinformation. This also highlights the need for transparency in the government, so that people can trust whatever strategy you will have. People must see us as being faithful to our promises. They must see that whatever we are providing for them is backed by science and evidence, and that we really appreciate the role that the community has to play.

We have learned that rolling out COVID-19 vaccines must tap into our polio experiences. We had a very successful polio eradication program. We are learning lessons from that, and we are strengthening our routine immunization in the country. We need to keep applying design thinking to our vaccination strategy. We will design with the community—with end users participating in the design and implementation of our strategies. There is a need to invest in strategies for community partnerships, both for this vaccination and for health system strengthening. When one country does not have health security, no country in the world can say that they are safe. We continue to ensure that we support global health security.

In conclusion, community partnerships must be deliberate. They must be designed to contain disease outbreaks and increase vaccine demand. Effective risk communication and community engagement must continue to take the bottom-up approach. We must let the community members themselves identify their problems and priorities, and then proffer solutions to address those problems. We equip them with all they need to be able to do that. That is the concept of empowerment. Vaccine inequities are not only between countries. We can have vaccine inequities within a country, and we need cross-cutting community partnerships to address that.

Let me end with this favorite phrase for community engagement: We should do it with them; not for them or on them! Thank you very much.

**DOHRN:** Thank you, Chinwe. So many lessons learned from previous strategies, particularly around polio in Nigeria, and from your discussing the role of traditional leaders and making them champions. Thank you for those wise remarks.

Next, I would like to introduce Stefano Cordella, from the International Federation of Red Cross and Red Crescent Societies, currently based in Libya. He has been on the frontline of humanitarian responses during wars and forced migration.

**STEFANO CORDELLA:** Thank you, Jennifer, and thank you to the Institute for Social and Economic Research and Policy for inviting me to be here with you today. I would like to share my experience on risk communication and community engagement in Libya. In sharing these thoughts, I would like to frame our experience. I am working in Libya with the International Federation of Red Cross and Red Crescent Societies (IFRC), and we work hand in hand with our membership of national societies. In this case, the Libyan Red Crescent Society (LRCS).

Libya fell into chaos after the uprising in 2011. The country remains split between two rival administrations, the West and the East, with each one backed by different armed groups and foreign powers for several years. Only recently, a few weeks ago, the country reunited—although it is still a very complex and volatile situation. The political dialogue promoted by the United Nations reached a ceasefire last October and made progress towards agreeing on the transitional government. On 15 March 2021, the Government of National Unity was sworn in in Tripoli, the capital of Libya. This government was mandated to bring the country together, after being divided for a number of years.

However, a number of challenges still remain. For two weeks we have had a Government of National Unity. That should lead to elections in December of 2021, and although more challenges might be expected. There are two main concerns that make Libya a very complex and volatile situation. First of all is the number of foreign fighters. It is estimated that there are still 20,000 foreign fighters in Libya. And, indeed, the ineffectiveness of the arms embargo is another concern. Weapons are still entering Libya. Although there have been a number of positive developments over the last few months and weeks, the environment remains complex.

Over the last 10 years, we witnessed the deterioration, or the partial collapse, of the liberal standards of the Libyan population and the basic services. We also witnessed the widespread grave violations of human rights, and a significant impact on the physical and mental wellbeing of the affected population. Libya continues to struggle with the effects of insecurity, as well as a social and economic governance crisis. This was made even worse, of course, by the COVID-19 pandemic. It is estimated that in 2020, 2.5 million people had been affected. Out of these 2.5 million people affected by the overall crisis, 1.3 million were in urgent need of humanitarian assistance.

The pandemic also coincided with conflict escalation. At the very beginning of the pandemic, very few cases were reported—indicating a vast undercount. The number of cases increased exponentially as the conflict declined toward the end of 2020. The fear is that Libya might be in a situation where we witness the perfect storm. Full-blown transmission of the pandemic is feared. And the Libyan health system was already overstretched and under-resourced before the escalation of COVID that we witnessed in the spring of 2020. So, the pandemic added additional challenges to the national health system. What is the true scale of the pandemic in Libya? Now we are counting roughly 160,000 cases, but it might be much higher than what has been reported.

The IFRC, together with the LRCS, has carried out an important effort over the last few years in community-based health. There was an important effort on risk communication and community engagement. Why did we focus so much on community-based health, risk communication, and community engagement? This was first due to the real strength of the LRCS. The LRCS is without a doubt the main national humanitarian actor in Libya. Over the last few years, even during the



conflict, the LRCS was the only actor with unlimited access to all parts of the country—through its branches, through its staff, but most importantly, through its network of volunteers. The LRCS can count on the network of at least 3,000 active volunteers. So, it was easy for the LRCS to engage at the community level and then build on this.

In doing so, the LRCS was better positioned than other actors to intervene, and to strengthen its role in risk communication and community engagement. It was well positioned to deliver messages that otherwise might not have been fully trusted by the population. The idea was to address the effects of the conflict on the one hand, but also to support the country’s response to the COVID-19 pandemic throughout the nation.

In this effort, there have been a number of activities carried out by the LRCS. A cooperation arrangement has been established with the National Center for Disease Control that will accompany the vaccination campaign in Libya. The LRCS will not deliver the vaccination itself, but shall be engaged in raising awareness and delivering key messages to the population. Together with the LRCS, we are strengthening advocacy efforts to ensure equitable access to the immunization, as well as fostering trust, social cohesion, civil responsibility, and public solidarity for the vaccine uptake.

I would like to share with you an effort that might enlighten the role the LRCS has played, together with support of the IFRC, in risk communication and community engagement. In March 2020 at the very beginning of the pandemic, the LRCS launched an initiative in the city of Benghazi called Volunteer in Every Street. Benghazi is not the capital of Libya, but it is where the LRCS is based—so in a way it is stronger and has a more rooted presence. This initiative linked capacity, the community-based strength of the national society, together with risk communication and community engagement. They sensed a need for supporting the communities during the pandemic outbreak, especially in terms of providing the population with a trusted source of information and guidance.

How did this initiative proceed? First, the LRCS prepared the volunteer guide to disseminate to the existing network of volunteers. It explained the goal of the initiative, the objective, and so on. Later, there was an effort to increase the number of volunteers, especially in the city of Benghazi. This effort led to the deployment of an additional 700 volunteers. Over the first two weeks, just to give an example, these volunteers were able to carry out 2,000 door-to-door visits to families.

What was important about this initiative? It was easy to implement and did not require a lot of time to launch—based on an already existing network of volunteers. This could be easily replicated in other contexts. Red Cross and Red Crescent societies exist all over the world, and their strength is the volunteer network. We assessed that this initiative could be replicated in other similar situations, like in war torn countries where the Red Cross or Red Crescent already operates. It could be also replicated during the vaccination campaign.

It is clear that the population trusts the messages much more when coming from members of its communities, rather than from other sources. This is particularly relevant for the most vulnerable communities. I would elaborate more, but I know that time is limited.

**DOHRN:** Now I welcome Sheila Davis from Partners In Health.

**SHEILA DAVIS:** Great, thank you. I really appreciate the opportunity to talk with all of you today. Partners In Health is an international NGO, and we work in 11 countries globally. Our philosophy during COVID is similar to what we have been doing for HIV, multi-drug resistant tuberculosis, and Ebola, as well as for quality health care around the world. With COVID, we wanted to focus on treatments, and not just containment as Jennifer alluded to at the beginning.

We focused on making sure the countries in which we work had access to oxygen, to safe facilities, and to PPE, for example.

When it comes to vaccines, we believe 100 percent that there needs to be safe and equitable access, globally and in the United States. A big piece of this is supporting the increase in supply of vaccines. We have joined with many organizations in advocating for the people's vaccine effort. We support COVAX, an initiative which includes the WHO, the Bill & Melinda Gates Foundation, and others who have mobilized around buying vaccines at lower rates, and then distributing them. There are some challenges. The full allocations needed by the ministries in terms of amount are not available, even to cover the bare minimum of frontline workers. Globally, this has to be something that we continue to advocate for.

Another big piece of this is focusing on waiving the World Trade Organization's Trade-Related Aspects of Intellectual Property Rights Agreement. This is so that we are able to produce vaccines not just in the United States, but in other places. This means putting pressure on the pharmaceutical companies to enable that to happen, particularly with new technologies like mRNA vaccines. We need to be able to produce this on the African continent, in Latin America, and in other places to have full coverage.

When we were asked to work in the United States on COVID, we took lessons learned from Haiti during the Cholera vaccine, from West Africa during Ebola, and from the many other public health efforts happening in our countries around the world. We applied these lessons learned to the U.S. setting, which I think was surprising for some people, but certainly public health expertise sits oftentimes outside the United States. And that is where we need to be able to learn from. We were happy to bring the expertise from our colleagues in Rwanda, Sierra Leone, Haiti, and other countries to the United States.

In the United States we are focused on vaccine justice because we know that certain neighborhoods, areas, and underserved populations have been disproportionately impacted by COVID. We know that that will follow through to vaccine access. We are also focused on comprehensive public health and enduring long-term public health. To illustrate how we have done this in collaboration with our communities, I am going to focus on three of the communities that we have been working with since May 2020.

Partnering with local governments is what we do around the world. Public health is local health. People who know the context best will be best able to come up with the strategies that work. The best messengers are those who are from the community. Also, connecting the vaccination rollout with other efforts embedded in these communities has been critical. It is clear that we need to be advocating for quality health care all the time, not just during a pandemic like COVID. We are seeing the repeated impact of the under-resourcing of healthcare in communities and in countries around the world, which gets illuminated during times like COVID.

Our comprehensive public health approach, which we do globally, is honesty. I know many speakers have talked about this—answering questions about the vaccine in an honest, upfront way and discussing what we do know and what we do not know. It is not just the “you need to take it” verbiage that has been around for a while with a lot of public health interventions. We need to listen to the community. The vaccine may not be the biggest pressing issue that they want addressed. We have to be able to look at larger issues that are impacting people's day-to-day.

Also, we connect the vaccine to healthcare and social services. We infused into our contact tracing program in Massachusetts and in other places—just as we do in Sierra Leone, Rwanda, Liberia, and other countries—much-needed social services for the most vulnerable. Do people have access to food? Are people able to isolate or quarantine safely? Are they in a household with many other people? Addressing these things upfront while embedded in communities enables us to be more effective vaccine ambassadors.

For enduring public health, we need to prioritize the needs of the marginalized. In the U.S. public health system, for example, public health has been under-resourced for decades. I think it is about 30 percent of healthcare jobs that have been cut over the past decade. In times like this, when we really need a strong foundational public health system, the U.S. response to the pandemic has been poor. That has many different layers, but our lack of a strong, robust, and invested-in public health system is a big piece of that.

We formed the United States Public Health Accompaniment Unit in May of 2020 thinking it would be short term, but it is still ongoing. We conduct very different work in different places, based on what the identified needs are in specific geographies. In Massachusetts, we have been part of the Governor's effort. We launched a huge contact tracing initiative with thousands of employees as one arm of Governor Charlie Baker's response. In places throughout the United States, we approached it as we do in our global work of accompaniment of what is needed. Newark, New Jersey needed things differently than Immokalee, Florida or Chicago, Illinois.

In Immokalee, which is a migrant farm community in Florida, there was not a lot of trust in the local clinics and public health systems. We worked really hard to have boots on the ground, working with clinics and public health departments to have community health workers be connected to those in the community.

When one of the first vaccination sites opened in Immokalee, there were very few people from the Immokalee community. People from all over Florida drove to the site to access the vaccine, but it did not serve the people of Immokalee. So, we worked very closely with the community by leveraging community partners, and the next vaccination event was much more successful. We canvassed the community in advance and identified those who fit the criteria at that point (over age 65). We reviewed patient registrars with community workers and did specific outreach. We did local messaging, tailoring the message to that community. We promoted the connection to social supports, explaining that other needs could be addressed at the vaccine pop-up. The follow-up event was much more successful because it was grounded in the community and their needs. The people of Immokalee were actually vaccinated, not just the people from other parts of Florida.

In all of the places we were asked to come in and help, we partnered with local boards of health, mayoral offices, and departments of public health. We looked at vaccine hesitancy in Montgomery, Alabama. We worked closely with the City of Montgomery Mayor's Office, which was very motivated and wanted to help the people of their community. Montgomery's population is 60 percent Black, and 20 percent of people fall below the federal poverty line. Vaccine hesitancy was high in this group. In focus groups, about one in six low-income Black and Latinx residents said they would definitely get the COVID vaccine. This is morphing every day. More and more people are agreeing and wanting to get the vaccine. But we were surprised that 50 percent of healthcare workers expressed reluctance. We had a multichannel public awareness and engagement campaign that communicated key public health prevention messages. Again, we had trusted ambassadors from the community talking with people to address questions and concerns. Every place has had to have targeted and specific outreach—done by people from the community who have the best insight into what is needed.

In Chicago, Illinois, we partnered with local community-based organizations on a vaccine corps partnership. This looked at identifying and mobilizing trusted messengers within the communities served by the different community-based organizations. Then that group constructed a communication and education campaign. They looked at designing a long-term model for community-led development, which is key for all of this. The coordination of messaging across institutions was critical. Throughout the United States, there has been messaging from different institutions regarding where vaccinations take place—whether it is at a pharmacy, a hospital, a local clinic, or a pop-up clinic. The goal was to align all of this messaging so there was no confusion.

We created a mechanism to share learnings and insights, bringing visibility and transparency to what is needed. This cross-sharing still continues today. Because there are phenomenal leaders in Chicago, we played the role of designing and implementing the governance process for this group to ensure appropriate representation. We went into the hardest-hit communities, and then did local partnership coordination.

We are advocating for a long-term, enduring, and comprehensive public health system for the future. We think, just as in other parts of the world, that community health workers are key. We need to have care embedded into the community in a long-term process, and not just during a pandemic.

In summary, I think that lessons learned globally are founded on the need to have a long-term strategy. That strategy does not just revolve around giving a vaccine, but around providing public health and comprehensive health services that are rooted in the community. We should also provide much-needed social support systems, so that we are addressing all the people's needs, not just the ones being pushed on them at this point, which is vaccination. Thank you.

**DOHRN:** Thank you, Sheila. I would now like to welcome Richard Garfield who is with the United States Centers for Disease Control and Prevention. He has been a long-time colleague of mine at Columbia University School of Nursing, and instrumental in bringing the global health equity perspective to nursing education for many years.

**RICHARD GARFIELD:** It is a daunting task to comment on these several presentations. The part that is so impressive is that these people are doing the work, then talking about it. What often happens in conferences is that great thinkers talk about things that they are not actually doing. Here, we have a very different situation.

What we have not talked about that much is: Who do we have to do these things? Who can we reach to carry out these activities? I am glad that the IFRC was taking part because, if no one else is present in areas that are unstable, there is almost always some presence of the local Red Cross Association in a country. We at CDC have often found them to be our best last-mile participants.

The comments also make me think about one positive aspect that has occurred recently in the United States. Whether having had the vaccine or intending to take the vaccine, the racial gap in vaccine uptake has greatly decreased in the last six weeks. That is to say, there is an increased interest across racial/ethnic groups in vaccine uptake as people become more familiar with it. But the major change has occurred among African Americans. I think this is because there has been such an active effort to recruit religious leaders and popular personalities to communicate information. People are receiving information from various sources—some of it is technically trusted and some of it is socially trusted. We are experiencing a positive thing here that all of us can learn from. Information cannot only come from one source. Messaging has to come from multiple sources. Our best sources are people—talking to people to find out who they trust and where information should come from.

I have not heard mentioned what I might call “market segmentation.” We have talked about communities, but communities are not uniform entities. There are early adopters—people who are in heavier information streams, both in the positive and negative side of vaccine hesitancy. There is usually a larger group of people who are wait-and-see, and may possibly be interested. Then there is a group of resisters, or people who see themselves as independent and against the mainstream. The size and nature of those groups differ across countries and cultural environments.

We have been working a lot in the Navajo Nation in the United States, and resisters are almost non-existent there. Some native communities in the United States are already at 95 percent vaccinated. We have gone from several hundred cases a day, to three days last week with not a single

case. But that means working with communities to know the different components of the communities and the ways to reach them.

Finally, going forward I want to make us think about what will hopefully be a good problem—an imbalance between access to a vaccine and demand for a vaccine. Hesitancy is not only about fear or rumors. It is also about frustration over availability. Vaccines will become available slowly in many of the poorest and most unstable areas of the world. It is probably going to be several years before everybody who wants the vaccine will have access to it. As we have experienced in the United States in a small way, there will be moments of imbalance. It is likely to be much larger in unstable areas, which may be the last areas to get vaccines—where there are many people who want it and have trouble getting it. We are already seeing a fake vaccine in some countries, adding to the problems and confusion as people take advantage of that imbalance. That imbalance will be a leapfrogging situation—where we catch up to demand, but then demand grows again as things evolve, and new leaps will have to occur.

It is a sobering situation because there are more logistics involved in providing this vaccine—unlike polio, which is very easy with an oral presentation. There are some low income and complex emergency areas of the world where we have never had more than 80 percent of the target population vaccinated for measles. So, we will have great challenges, and we will have to find new ways to reach people. Moving forward we need to have high levels of vaccine availability for all the things that people need.

Many of the speakers today are nurses, including myself. When we are talking about trusted community members—people who need information so that they can give out good information—nursing staff reach into many areas where other people do not. Nursing is often the silent backbone of societies, and we should not forget that.

That is it from me on a few perspectives from our work in the Centers for Disease Control in the United States. Thanks very much.

**DOHRN:** Thank you, Richard. We have worked through many pandemics and crises before. It is truly remarkable to have everyone here and acknowledge the role that nurses play. Stefano, what contributed to make the Volunteer in Every Street initiative successful?

**CORDELLA:** This initiative was particularly successful because it relied on access to members of their own communities. So, the message was much easier to convey to the population, and especially to those in vulnerable categories. People in vulnerable categories might not have access to such channels of communication as television or social media. The door-to-door approach was key in reaching out to them. There were also other barriers. For example, language barriers. There are about 700,000 migrants in Libya. The approach of visiting these vulnerable individuals really helped in reaching out and in providing better access to health facilities. It helped in explaining key messages and in avoiding any rumors, misinformation, or misunderstandings.

**DOHRN:** Chinwe, can you talk a little bit about what you have seen work from among your strategies, with focus on the use of jingles and the multi-stakeholder risk communication platform?

**OCHU:** Yes, that is a very good example, Jennifer. We tried playing jingles to target communities. We used that in Lagos, and we had focus group discussions and audio diagnoses. We presented the information and education materials to the community, and then got their feedback and their input. One key thing that came out of this: we identified that the use of horizontal-outstretched arms to depict two-meter-distancing was very effective. A poll conducted last year in Lagos showed that after two weeks of implementing this intervention in that state, there was a 22 percent

increase in the proportion of the population that considered COVID-19 to be real and no longer a hoax. So, we think that has worked.

Regarding the multi-stakeholder platform, we have a National Risk Communication Technical Working Group consisting of all the relevant stakeholders across the various sectors. They are currently developing a multi-hazard risk communication plan for the country.

**DOHRN:** Sheila, I want to note that you took a leadership role in Partners In Health during the Ebola response. As a nurse, you really broke many glass ceilings, so thank you. What is your view on the role of nurses as primary or central risk communicators?

**DAVIS:** Our big push has always been that those closest to the issue and to the people should have the most say. In most of the places where we work around the world, and in U.S. settings, nurses are the trusted advisors—the people who are connected and embedded in the communities. For all levels of the organization, acknowledging and highlighting that a lot of the leaders are nurses is critical to moving nurses up within an organization—so they are permanently at decision-making tables and not just sporadically there during outbreaks. I think that will be the key for longer-term, more sustained, and more effective efforts globally.

**DOHRN:** Richard, there is a question in the Q&A for you: Do you have any studies to point us to the effect of Israeli occupation on the Palestinian population?

**GARFIELD:** There is good data on the health status in occupied areas because of the Palestinian Ministry of Health, which as long done good monitoring. The effect of occupation, though, is a long chain of events with multiple inputs. That is where there is a lot of analytical and research-related activities. Much of this has been published by Palestinian groups.

**DOHRN:** Thank you.

# Keynote III

*Keynote*

MELINDA FROST

*Introduction*

WILMOT JAMES

VICTORIA ROSNER

**WILMOT JAMES:** I now introduce Victoria Rosner, one of our key partners today. She is a Dean at Columbia’s School of General Studies and a Professor of English.

**VICTORIA ROSNER:** We are delighted to have Melinda Frost joining us to deliver the third and final keynote of today’s event. She is the perfect person to speak to us on these topics. She joins us as the Technical Officer and Risk Communication and Community Engagement lead for the World Health Organization (WHO). Having worked in the field for more than 25 years, she served as the Director for Emergency Risk Communication for the U.S. Centers for Disease Control and Prevention in Beijing, China, for six years. She developed and led new communications programs from the agency headquarters for more than 10 years. I am very much looking forward to her remarks today.

**MELINDA FROST:** Thank you for having me today. It is a pleasure to be part of this session. I am going to present some of the work that we have been doing at the World Health Organization around the COVID-19 response. It has been quite a year and quite a journey for us as an organization. I will talk about some of the major areas of activity.

We have focused a lot of our work around the typical factors of emergency risk communications: uncertainty, public perception, and gaining trust with our stakeholders and our populations. Somewhat atypical from past WHO responses, we have tried more than ever to communicate with individuals from our vantage point at the global level. That has not been the focus of previous emergency responses from WHO. So, we have really tried to do this, and it is not an easy task. I will explain how we have been able to do that over the course of the year.

Risk communication and community engagement is a major pillar of our work. It started around 2005–2006 after the SARS outbreak, when we realized that member states and countries really needed to have a focus on how to better communicate with their populations during an emergency. We began working more and more with member states on how to improve this critical area of any emergency response. It is one of the key pillars under the International Health Regulations (IHR). I suspect that this may change a little bit after COVID-19, but this area will probably only grow and strengthen as we keep learning the same lessons over again about how critical this part of the response really is.

We have worked with member states under the IHR to help this response area. Through Joint External Evaluations, countries were able to evaluate themselves on different components of emergency risk communications—including community engagement, rumor management, misperceptions, public

communication with mass and social media, and partner coordination—in order to align the many voices coming forward and speaking during an emergency. It includes making sure that there are enough staff to prepare and respond, that they are well-trained and integrated into the emergency response, and that they are sitting at the table in the incident management system. I think we are seeing that now, more than we have in past emergencies. The WHO's Pandemic Influenza Preparedness (PIP) framework also has a strong focus around risk communication and community engagement, which enabled us to build more capacity for member states in this area.

Now that brings us to 2020–2021 with the COVID-19 response. I think all can see that this response area is growing in new ways. We are learning over again how critically important community engagement and community-centered approaches really are. But also, we are learning a whole new area of work around what we at WHO are calling Infodemics. The overwhelming amount of information, both online and offline, is making it really difficult for individuals to make informed decisions about their health and wellbeing. We use a standard approach—awareness to action. That is what we have been looking at throughout our response. From the global level, we have often felt that the most we could do was simply give awareness of the basic content such as symptoms and prevention. But now, we are trying to gear more of our communications, even at the global level, around personal solutions—how to live one's life safely to protect against COVID-19. We are trying to present a lot of the work we do in common scenarios that anybody might face in their day-to-day lives: How do you go to a doctor's office safely? How do you do your grocery or market shopping safely? How do you do these things in the context of COVID-19?

I am at the global level of WHO, and so when we think about communication and who we are truly communicating to, that is a difficult thing. Are we providing prevention methods to a grandmother in Costa Rica? Are we describing how COVID can spread to a 15-year-old in Kenya? Or are we providing recommendations on preparing a home for the possibility of a sick family member to a woman who is the same age as I am, has two kids, and is working in Thailand full time? Of course, we are trying to address global audiences as much as we can, but we really depend upon our regional offices. The regional offices further contextualize things. They put messages into different languages—in the words and the terms that individuals are using.

In the first six months of the COVID-19 response, we had the typical challenges. How do we communicate transmission? What are the symptoms? Who is this affecting? Who are the risk groups? We focused on information that was needed as soon as possible. Then, we put a lot of effort into combating myths. You might be familiar with our myth-busting series because there were so many myths in the beginning. It was pretty easy to identify them and address them. Now, not so much, which is a good sign. However, information must now become more nuanced and individualized.

In the second six months of the response, we dealt with challenges from individuals being confused by so much information. An abundance of information was coming from different sources—some typically-trusted sources, some not so much. People were beginning to have fatigue with the basic prevention measures, which we know work and still need to be used even with a vaccine. We were trying to find new and different ways of presenting that information.

We had to contextualize our information and individualize some of our approaches. We did interactive content and quizzes, which were more engaging. Presented with a scenario, individuals could make a choice and then find out whether that choice was risky or not. We are also working with key amplification networks and co-developing content that is scientifically sound but more relevant to specific audiences. This has been quite successful with faith organizations and youth networks. Business sectors can be a good conduit of information from employer to employee.



In phase one of our vaccine-related communication, we prepared the public and countries for the onset of vaccine rollout. Through a vaccine explainer series, we explained how vaccines were tested and developed so quickly, but still in a very safe manner.

In the second phase, we began to work towards explaining the evolving science of vaccines to address more nuances, questions, and concerns. You can see a lot of this in a series we call “Science in 5.” We take five minutes to interview an expert who answers some of the key questions that we gather through our Google ads, and things like that. So, we can address current needs very quickly with a somewhat more engaging type of communication.

We are beginning now to address other specific issues, including what is known and what is not known. A good example of that right now is how variants of concern may affect vaccine efficacy going forward. The course of the response has really pushed WHO to consistently communicate updated scientific findings as technical recommendations—risk-based approaches for national decision makers and individuals purely seeking trusted health information.

To ensure flexibility with evolving information and recommendations, we date stamp our products, knowing that some information may change. Statements are said in a way that allows for some change later, without overemphasizing the uncertainty. Our strategies have tried to strike a balance to ensure that we appropriately couch uncertainty without creating mistrust in science itself.

Lately, there have been a number of questions of vaccine safety. Our strategy has been to push out some information about how vaccines are developed, the vaccine testing process, what is an adverse event following immunization, and other questions. As soon as questions arose, we began to push this information out through all of our regional offices to make sure we could pre-bunk any questions around vaccine safety. We are trying to get positive information out there—good information, scientific information—to help address questions and concerns before they grow into rumors or misinformation.

As our colleagues earlier mentioned, we are very much trying to tap into these influencer networks, and healthcare workers are chief among them. Healthcare workers are globally seen as one of the most trusted sources of information. We are getting out more communications intended for healthcare workers, so they can talk individuals through that vaccine process and answer questions in a very respectful manner. When it comes to hesitancy, people are not always questioning the safety of the vaccine. They actually have very valid questions that need answers. They are in need of information, and not necessarily always questioning the safety of the vaccine.

More now than ever, we have social listening data that provides us with a clearer vision of people’s questions and concerns. We do sentiment analysis. This is all through certain social media, but mostly Twitter. This does not give us a full picture globally but gives us a snapshot of certain populations. We try to marry this data with other information that we gather on common questions and concerns. We look at social and behavioral data derived from some of our community engagement, mostly partnerships with other organizations like UNICEF and the International Federation of Red Cross and Red Crescent Societies, and dozens of others doing this work on the ground.

WHO has a new program called EARS. Early AI-supported Response with Social Listening is a country-based tool that allows countries to scan social media that is open-source content to find out where the questions are and what the concerns are. Soon, this is going to give us more data, and countries will be able to overlap other epidemiologic, social science, and behavioral data to give a fuller picture of the situation in their countries. This platform is currently live in about 23 different countries, but we are trying to expand from there.

On the other side of the spectrum, we know that approximately 45 percent of the world’s population does not have access to smartphones. We want to make sure we are providing the digitally-

poor population with information in a trusted environment that will be relevant for their circumstances and lives. To address community awareness and acceptance of COVID-19 vaccines, therapeutics, and diagnostics, WHO created “10 Steps to Community Readiness” which, along with useful tools, highlights key principles for effectively working with communities. Shifting towards a community-focused approach, and ultimately a community-led response as part of COVID-19, we have a website that gives community engagement professionals and community leaders guidance. This ensures that the large investment made in vaccines will be accepted by the communities they were designed to help.

Touching on the specific work of some of my colleagues in the Africa region, we have a new alliance called the Africa Infodemic Response Alliance (AIRA). Earlier I mentioned the infodemic, which we at WHO refer to as the overwhelming amount of information that makes it difficult for individuals to find what they need to make informed decisions about their health and well-being. We focus on public health outbreaks of disease, and so on. This alliance addresses health misinformation and information gaps. They have an application called Viral Facts Africa, which debunks myths spreading around the region. It is quite an interesting project.

In terms of vaccine rollout in Africa as of March 2021, 44 countries have received 29 million COVID-19 vaccines. There are some challenges in terms of a limited supply—balancing vaccine eagerness with lack of availability. Some successes are that, in general, there has been effective communication at vaccination sites with beneficiaries. We are getting messages out through healthcare workers that are giving the vaccines. They are using innovative campaigns, with digital tools, influencers, and opinion leaders. There is strong support from key opinion leaders and heads of state who have publicly gotten their vaccination.

WHO is also addressing vaccine confidence and uptake through work being done by colleagues in our immunization division. When we think about vaccine confidence, vaccine hesitancy, and related issues, there are a lot of different perspectives that come into an individual’s decision-making process. It is not just about confidence, or what individuals think about the vaccine or the safety issues. There is a lot of social processing that goes on—the influence of other individuals in their lives. What are the vaccination norms of the community? Is there trust in the vaccine providers? In terms of healthcare workers: What are the perceived risks coming from other individuals or organizations? What are the workplace norms when it comes to vaccination? Are there other healthcare workers that do, or do not, believe in the efficacy of the vaccine? What are their self-confidence issues in being able to answer questions from the vaccinee? Healthcare workers need lots of support, both in terms of their questioning of vaccines and their ability to have conversations with patients that respect patient concerns, clearly respond to their questions, and understand the perspective with which they may have doubts about getting a vaccine. There are many issues around motivation, including practical issues that come into play such as ease of access, preferred physical site or location, knowing when and where to get the vaccine, or previous uptake of the vaccine. Lots of different aspects are at play in the decisions of individuals to get vaccinated.

Fortunately, what we are largely seeing in the data is that there has been an increase in confidence and willingness to take the vaccine since December of 2020. That is swinging in the right direction. Of course, it could always change, and so we are keeping a close eye on this. We believe hesitancy comes from individuals needing to have answers to their questions and needing to know more about the vaccine in order to make the right decision.

It is important to know that there is an entire spectrum of where people lie in terms of vaccine decision making. Thus, it is always good for healthcare workers to know what questions or concerns people are coming with to the vaccination site, and then to know how to communicate and answer the questions or concerns. Finally, there are those who are accepting, then demanding, and then advocating.

Unfortunately, we have lots of misinformation about vaccinations and misinformation about COVID-19. We want to pre-bunk those myths ahead of time at the national and community level, before individuals hear them. So, we are preparing what we call a “truth sandwich” for communities to use. First you state the truth or the facts about vaccinations. Then add, “You may be hearing this particular myth. . . . Be forewarned, it is going to be a myth.” Then again, repeat the truth at the end. We try to use trusted individuals and organizations to get that information out before misinformation has a chance to start and spread.

Proactive risk communication involves a great deal of preparing and planning on how to manage adverse events following immunization. We build resiliency across the different components of the vaccination world to ensure we are engaging communities, religious groups, healthcare workers—important trusted influencers. Building a public understanding of the importance of the vaccine is key, as well as ensuring quality services.

**ROSNER:** Melinda, thank you so much for your fascinating remarks. I especially appreciate your focusing on the many moments in the messaging process around vaccine uptake and, in particular, your focus on the idea of hesitation. And to understand that as not a moment of stubbornness, blind fear, or panic, but a moment of consideration and thought. Individuals are looking for the information that they need to make considered and thoughtful decisions about their health. I really appreciate the time you took to unpack that, as well as the need to continually evolve messaging as the pandemic continues to morph and shift. Thank you so much for your remarks.

# Journalists Reflect

*Speakers*

MADELINE DREXLER  
MARK HEYWOOD

*Moderator*

VICTORIA ROSNER

**VICTORIA ROSNER:** We now turn to the role of journalism. To introduce the final panel, I want to say a few words about today's trajectory. The design of today's program began at the scale of the individual health citizen, expanded in the second panel to the role of the community, and now our final panel is focused on the public sphere. All these levels of engagement are inter-reliant. All begin from individuals and communities, who are making decisions on a daily basis everywhere in the world about how to contend with the COVID-19 pandemic.

We all know that during a worldwide health emergency, there is broad reliance on journalistic accounts—especially in parts of the world that have ready access to public media—and they figure prominently in any risk communications plan. We have heard today a lot about the current climate of misinformation and distrust, and journalism has a key role to play. Wilmot James also spoke earlier about the exact factors that can hold communities of individuals back from making the choice to be vaccinated. Journalists, who are in some ways professional persuaders, can offer tools to support health citizens in making informed, confident decisions about their health.

Our two speakers today will offer perspectives from the interconnected world of journalism and activism, and I hope will talk about that connection. Both Madeline and Mark have spent their careers thinking about what journalism can contribute to the work of making equitable access to healthcare a human right. Their remarks will dramatize the ethical role that journalism can play in creating sound risk communications, in supporting vaccine uptake, and in building or repairing public trust.

I will first introduce Madeline Drexler, who is a Visiting Scientist at the Harvard T.H. Chan School of Public Health. Her work is familiar to you if you read publications like *The New York Times*, *The Nation*, and *The Atlantic*. Her recent feature story in the latter periodical showcased how a small, relatively-poor nation with a porous border has managed to mount one of the world's most successful COVID response efforts. Her talk today is "Pandemic Response and Risk Communication: Lessons from Bhutan."

**MADELINE DREXLER:** Thank you, Victoria, and thank you for inviting me to this meeting. As Victoria mentioned, I am going to talk about a pandemic response that is a bit of a counterpoint to some of the challenging experiences that we have heard about today. The Himalayan nation of Bhutan has seen only one death so far from COVID-19, and that death did not occur until January 2021. Bhutan has also stamped out all community transmission in the country. Right now, there are only four active cases of coronavirus infection.

I published a February 2021 piece in *The Atlantic* that examined how Bhutan was able to manage this amazing feat. One of the key factors in its success was astute risk communications from

the government and from the monarchy. Listening to the presentations today, I realized that many of the things that Bhutan did right have mirrored the best practices described so far.

Bhutan may be best known for its guiding policy of Gross National Happiness, but it is still a poor country. It is on the United Nations' list of least developed countries. When the pandemic began, it had only 337 physicians in the entire country, and it had just one PCR machine. Also, while Bhutan may seem isolated in terms of geography, it shares a long, porous border with India, which has been a hotspot. One advantage that Bhutan did have was a public health focus on prevention, which all low- and middle-income countries have no choice but to adopt, because a runaway pandemic would overwhelm their health facilities. For years before coronavirus emerged, Bhutan had been beefing up its pandemic response.

Bhutan's first case of COVID-19 showed up in March 2020 in an American tourist. But the country, acting very quickly, barred all tourists and closed all public institutions. It relentlessly called for face masks, hand hygiene, and social distancing. Just as important, the Prime Minister and the Minister of Health started holding daily press conferences where they both appeared to share updates on the situation. The Ministry of Health also started posting statements on social media that corrected disinformation that was appearing on blogs and social media.

Right after the World Health Organization declared COVID-19 a pandemic, also in March 2020, Bhutan launched a massive testing and contact tracing program that continues today. It also started mandatory quarantine in government-run facilities for all Bhutanese who were potentially exposed to the virus. This included thousands of expatriates who were flown in on chartered flights. The government underwrote every aspect of this quarantine. It put up people in tourist-level lodgings, provided free meals, and offered free Wi-Fi. As much as possible, the government removed all inconveniences from the quarantine process. It also provided psychological support services.

Bhutan is a very tightly knit country. In many respects, it is a traditional culture. What is impressive to me about Bhutan's response is that it leveraged social mores, cultural traditions, and the Buddhist religion to reinforce its message and actions. It staged a massive media campaign on the people's responsibility to protect each other and break the chain of transmission called "Our Gyenkhu," which means "Our Responsibility." This campaign featured social influencers in Bhutan like artists, bloggers, sports personalities, and actors.

It is notable that community transmission did not start until August 2021. When the first outbreak of community transmission was discovered, Bhutanese officials ordered a very strict three-week lockdown. Leaders had been talking about this inevitability for months, so people were prepared for it. Leaders did everything they could to help Bhutanese endure the lockdown. They delivered food, medicine, and other essentials to every household in the nation, which is an amazing accomplishment in a Himalayan nation. They sent special care packages to senior citizens. They set up shelters for victims of domestic violence, which was increasing in Bhutan, as it was in many places. The King even ordered the Royal Bhutan Army to feed stray dogs, which was very much in line with the Buddhist idea of compassion.

The leaders reinforced the concept of collective responsibility with their own actions. In spring 2020, the King set up a relief fund for everybody who had lost his or her job, and that relief fund is still distributing money. In order to model good precautionary behavior, the King has quarantined himself after every trip around the country. During the national lockdowns, the Prime Minister did not go home at the end of the day. He did not want to risk bringing the virus home to his wife and kids, so each night he slept in a narrow window seat in his government office. There was a picture of it in the newspaper, *The Bhutanese*. So, the message from these leaders was: We would not ask you to do anything that we ourselves would not do. We are all in this together.

Bhutan's astute way of communicating also extended to its vaccination rollout. It plans to give the first dose of the AstraZeneca vaccine to all eligible people in the country in just one week. The

rollout started on 27 March 2021, and the vast majority of the Bhutanese have signed up. We all know that there have been publicized concerns about the vaccine. The Prime Minister assured Bhutanese that if health authorities discovered any unexpected complications or side effects, they would halt the vaccination campaign.

Bhutan has had the vaccine for a few months as a gift from India. But leaders decided to wait and consult with the Central Monastic Body to figure out an auspicious week for launching the vaccination campaign (auspicious according to the Buddhist lunar calendar). The monk body is very influential in Bhutan. The monks said it would be auspicious to start on 27 March, and auspicious if a 30-year-old woman, born in the Year of the Monkey, be the first Bhutanese to receive the vaccine. And that is exactly what happened in a ceremony this past Saturday. After that woman was vaccinated, the Prime Minister, his family, and then the members of the cabinet were vaccinated. When the main vaccine shipments arrived from India, the monastic leaders gathered at the international airport and they intoned prayers to the Medicine Buddha. They were cleansing the vaccines of defilements according to their religion.

Throughout this pandemic, the monastic leaders have strongly reinforced the public health messaging. When I was reporting this piece in *The Atlantic*, I was very curious about this. I asked a source: How is it possible that the health leaders were adhering to the most rigorous science, but also to Buddhist astrology? I could not reconcile those two things. I was told that Bhutan is a country that believes both in medical treatment and in divine intervention, and that there would be more buy-in from the citizens if religious tenets were followed. This echoes a lot of what has been described during these sessions.

The element of trust has been paramount throughout Bhutan's pandemic response. The young King in Bhutan carries a great moral authority. From the start, he told government officials that even one COVID-19 death in Bhutan would be one too many, because Bhutan is a small nation that regards itself as family. The government officials openly repeated the King's admonitions to them. The King traveled far and wide across the country to personally encourage the frontline workers and express his gratitude.

Speaking of trust, there was great trust in the government officials themselves. The reason is that the Prime Minister and the Foreign Minister are physicians. The Minister of Health is a global health epidemiologist who trained at Yale, and the Minister of Finance is a public health graduate. This was a leadership team that was very attuned to public health principles and whose judgments could be trusted. A prominent journalist in Bhutan, Namgay Zam, told me, "I don't think any other country can say that leaders and ordinary people enjoy such mutual trust. This is the main reason for Bhutan's success."

At this point in the pandemic, Bhutanese are very proud that they succeeded where the wealthy West failed, and there is even a hint of smugness in their attitude. On 27 March, the first day of the vaccination campaign, the national newspaper *Kuensel* said in an editorial, "In our fight against COVID-19, we are the most prepared country. About 150,000 doses arrived in the country earlier this year. We chose to wait. It gave us enough time to observe, study, and prepare. With His Majesty the King at the helm providing guidance and vision, we have been successful in preventing a disaster that even the most developed countries couldn't."

I am not arguing that all of Bhutan's strategies and values were flawless, or that they could be transported into other places. But I do think that Bhutan offers public health lessons that transcend culture and geography. Or at the very least, it gives us food for thought. Thank you.

**ROSNER:** Madeline, thank you so much. It was quite wonderful to hear you describe this immense integration and collaboration between religious leaders and government officials. There was no apparent discrepancy between scientific ways of thinking on the one hand, and religious

on the other. It seems almost a parable about collaboration across diversity, listening to you describe it.

I want to introduce our final speaker for this event, Mark Heywood. He brings to this discussion a lifetime of experience in human rights activism, and specifically in response to the AIDS pandemic. He is currently the editor of the *Maverick Citizen*, a section of the South African *Daily Maverick*. His recent op-ed calls for a massive, decentralized campaign in the media, but also on the ground, to overcome vaccine hesitancy. I am hopeful he will say more on that topic to us today. His talk today is titled, “An Activist’s Perspective on Science Communications: What We Learned From the HIV/AIDS Pandemic.”

**MARK HEYWOOD:** Thank you very much. It has been a very interesting set of presentations. Thank you for drawing parallels and connections between COVID-19 and the HIV/AIDS epidemic, an epidemic that, we should be clear, is not over. In fact, one of the tragedies brought about by the COVID-19 crisis globally, is that a significant portion of the ground we have won in relation to HIV, tuberculosis, and other diseases—including how we message and communicate on those diseases—is at risk of being lost. In countries like South Africa, I believe that ground is being lost at the moment.

I do think that when we talk about risk communication, one of the first lessons is the need to have a holistic approach to risk communication, which does not lose sight for one minute of other causes of ill-health, mortality, and of underdevelopment—even whilst we recognize the immediacy and urgency of COVID-19. It is important to make this connection. Although the two pandemics are very different—in terms of modes of transmission, the societal and political responses, and the fact that after decades we still do not have a vaccine for HIV, but we have a vaccine for COVID-19—we have faced very similar problems when it comes to this question of risk communication.

I have often questioned whether we have learnt enough from HIV. I have questioned whether we have carried our learnings into COVID-19, particularly in the real world at the governmental level and at the societal level. In South Africa, for example, I see a great focus on individual behavior change, *to the exclusion of community behavior change*. Capacity to change often depends upon creating an enabling social environment which allows individual change, after an individual has made an informed decision based on understanding the risk.

I think a second set of lessons that we have to learn is how not to abstract health-seeking behavior from other risks to health and wellbeing. Poor people, marginalized people, criminalized people, refugees, and migrants often have to balance and negotiate behavior changes in terms of the multiple risks they face at that immediate moment. I think those are the challenges that we face.

***My comments come from two perspectives.*** One is as a treatment-access activist in the HIV epidemic, where the communication and advocacy was not for a vaccine, but for access to antiretroviral (ARV) medicines. My second perspective is working as a journalist-activist over the last year in relation to the COVID-19 pandemic. I want to speak briefly to both of these and to try to build a bridge between HIV and COVID-19. Although my comments are drawn from our experience in South Africa, I do think that they have broader applicability and relevance to many other developing countries in Africa.

Starting with HIV: the baseline for communication that we had to confront around HIV was a situation not entirely dissimilar from COVID-19. There was fear, stigma, illiteracy, and misinformation. In South Africa, the AIDS denialism of our then President Thabo Mbeki was only supported by a minority of scientists and plenty of quacks, but its impact and the confusion it caused

was widespread. That is not a million miles away from the anti-vax misinformation that we confront in relation to COVID-19.

As with COVID-19, we had to adjust our communication strategies to the changing phases of the epidemic. We had high rates of HIV infection. We struggled with behavior change. For example, in the case of HIV, initially all of the advocacy and communication was on prevention and safer-sex, but after the advent of ARVs, communication strategies had to develop to encompass access to treatment and to encourage people to seek diagnosis, care, and then to adhere to their treatment.

***What did we learn from that?*** I think we learned mostly from our mistakes. As activists, we learned the importance of building communication from below. We pioneered in South Africa the notion of HIV treatment literacy, which sought to address the questions, the fears, and the misunderstandings about HIV treatment, but in a way that did not dumb down the science and medicine. We took medicine into communities with all of its complexity, but taught it in a way that could be understood and in a way that could be further communicated within communities.

We worked with scientists. There was some emphasis today on the importance of working with nurses and with community healthcare workers. But there is sometimes an assumption that nurses and community health care workers will have the knowledge necessary for communication, and that knowledge will only come from government. Our experience was that it sometimes took community activists to convey medical knowledge and information to healthcare workers who are marginalized within the health system.

Finally, in relation to HIV, there was the importance of educating the mainstream media and then using the media to educate society. Having carried out that process of education, we sought to enlist the media in effective risk communication. We have achieved high rates of adherence to antiretrovirals, which have been sustained against odds for over a decade and are proof of the pudding of this type of risk communication mobilization.

***Turning to COVID-19, I think we faced a different situation to our experience with HIV in South Africa.*** From the very beginning, we have had a high level of political will from President Ramaphosa and the government. Research reports, including the Partnership for Evidence-Based Response to COVID-19 analyses, report high levels of understanding of COVID-19 risk and of acceptance of public health measures to reduce that risk. However, the question that I struggle with is: *Given what appears to have been a sound political response, why is it that we have had such poor observance of non-pharmaceutical interventions? Does that tell us something about the fact that risk communication also has to embrace strategies to help people navigate the socioeconomic barriers that are critical to health behavior change?*

Despite the fact that the South African government might be saluted as having shown political will and intent, and as having been prepared to take necessary and drastic measures, South Africa has one of the worst COVID-19 epidemics in the world. Although our statistics officially indicate 1.5 million infections, most scientists believe the numbers could be 10 times that. Although our deaths due to COVID-19 are officially just over 50,000, the total excess deaths above the average since May 2020 has now reached over 150,000. The social impact of the COVID-19 epidemic in South Africa is perhaps as bad as any country in the world.

Therefore, I want to finish by saying: What are the lessons that we should draw from this? How do we explain this dissonance between what appeared to be effective communication and the failure of that communication to translate into protective behavior change? I would say that it is the following: Most communication has been from above. There has been little community mobilization and involvement and, therefore, little community ownership of prevention strategies around COVID-19.



We have had media saturation around COVID-19, which is very different from HIV, but you have to ask questions about the *quality* and the *form* of that media. Accuracy is not enough. It has to be accurate *and accessible*.

Whilst the digital media may be awash with information, very many people do not have access to digital media. There has been a reliance on coercion rather than cooperation. There has been, unfortunately, insufficient coordination. There are a whole lot of separate initiatives—from the Government Communication and Information System, the South African Medical Research Council, the national Department of Health, the Solidarity Fund, and our nine Provincial Governments—but with very little coordination or quality control.

I will finish with one more point about my role as a journalist. I think that one of the things that we can point to with COVID-19, is that there has been media innovation. We have seen, and this is probably a global trend, the importance of not-for-profit media organizations working in the space of health and of COVID-19. We have seen the use of webinars. We have seen the publication of science and scientific opinion in mainstream news and newspapers. Yet despite all of those positives, for reasons I have suggested, it has not yet been enough to give us the advantage over this epidemic, certainly in South Africa.

Wilmot James pointed out that we have 61 percent of people in South Africa reporting vaccine acceptance. That is not bad, but still 39 percent of people have significant questions. We have seen growing evidence of fatigue in relation to non-pharmaceutical interventions.

Therefore, I want to conclude by saying that everything that has been said in this webinar is of very immediate relevance to a country like South Africa, and to the Southern African region, because vaccine rollout has barely started in this region. We are in the midst of a work in progress, in a region which will come to be seen as one of the worst affected regions in the world. It is not too late to reinforce the approaches, best practices, and learnings that have been the subject of today's webinar. Thank you very much for the inspiration and ideas that my fellow panelists have presented in the course of the last three hours.

**ROSNER:** Mark, thank you so much for what I can only describe as a call to arms for the work that still lies ahead. It is so striking to listen to your comments side-by-side with Madeline's. There is Mark's call for a bottom-up, community-driven, participatory approach to risk communications, versus Madeline's portrayal of a country where an extremely regimented, top-down, government-driven campaign was very successful. I do not think we are looking at a contradiction here. I think we are seeing that there are multiple successful ways to achieve vaccine uptake and a successful COVID-19 response.

Perhaps the key lies in one phrase that Mark used in his remarks, which was that there has been "a reliance on coercion rather than cooperation." As Madeline described the situation in Bhutan, although there was a strong central response, it was a cooperative one. Citizens were understood to retain agency over their own health and were drawn into collective participation. That effort helped to sustain morale. Mark's remarks describe the fatigue with compliance, which I would interpret as a kind of low morale arising from a sense of disconnection from risk communications.

**DREXLER:** Victoria, I would just say that in Bhutan there was a strong preexisting sense of interdependence in the culture.

**HEYWOOD:** I agree. I think that top-down can embrace bottom-up. Top-down can unleash local agency. It really depends upon the type of top-down.

**ROSNER:** I want to take the opportunity to close us out by talking for a moment about the early origins of today's event. The topic of nurses has arisen at different moments in our discussion

today. The original seed for this event, as Wilmot mentioned, was a project aimed at better understanding the role of frontline nurses in infectious disease outbreaks by hearing and recording their stories of emergency response. Jennifer Dohrn was part of the small team that conducted oral history interviews with nurses in Liberia and Sierra Leone—nurses who provided direct care during the 2014 Ebola outbreak in West Africa. These oral histories confirm Mark’s point about the value of decentralized risk communications.

In the Ebola epidemic, the very first moment that the nurses realized that an outbreak might be underway, which was the first time a patient came in with possible symptoms of Ebola, the nurses immediately engaged the task of getting themselves trained. They then moved to work with their communities, building trust, and offering public education about infection control and prevention. It was frontline Ebola nurses who realized that community burial practices were putting people at risk. So, they developed their own grassroots risk communications and worked with local communities to modify funerals—rather than eliminate them as some central authorities tried unsuccessfully to mandate. The Ebola nurses in that outbreak turned the story around, despite an overall case mortality in excess of 40 percent. They did it in the context of supply shortages, weak healthcare infrastructure, and the lack of either effective therapies or a vaccine.

In the broader frame, a recent review of COVID-19 pandemic responses in Egypt, Ethiopia, Kenya, Nigeria, and South Africa, a study led by Wilmot James and launched by WHO DG Tedros Adhanom Gebreyesus at the Schmidt Futures Forum this past January, documents how community health workers and nurses have emerged as the most trusted and effective risk communicators. This is often because they are part of the communities that they care for, and are frequently visibly putting their lives on the line as a routine part of their professional commitment. It is hard to imagine a successful risk communications program that does not draw on this expertise.

Even as we have been talking today about the current challenge of supporting vaccine uptake, we are thinking for the longer term about how to institutionalize the lessons learned on the ground by nurses and community health workers. We have to see these colleagues as compelling designers and implementers of risk communication strategies, offering battle-tested strategies for effective crisis communications in vaccine uptake. These strategies are already known to many of the people who have spoken today, as well as to the nurses and community workers who are the majority of the healthcare workforce.

As we have been discussing today, building COVID literacy and vaccine uptake happens through community partnerships. All of our speakers have described a number of great models—models that demonstrably work in supporting vaccine uptake in the most challenging circumstances. I hope we will all go forward from here with these models and lessons in mind, finding ways to implement them at country, regional, and local levels.

I will close by expressing much gratitude to all of our speakers, to the Columbia Global Centers, and to Wilmot James and Jennifer Dohrn for their leadership. I am sure I speak for all of us when I say that the experience, commitment, and courage in the group assembled today is an inspiration. We look forward to continuing these vital conversations.

# Appendix: About the Speakers

## KEYNOTE SPEAKERS



**NATALIA KANEM** is United Nations Under-Secretary-General and Executive Director of the United Nations Population Fund (UNFPA), the United Nations sexual and reproductive health agency. Appointed by United Nations Secretary-General António Guterres in 2017, Dr. Kanem has more than 30 years of strategic leadership experience in the fields of preventive medicine, public and reproductive health, social justice, and philanthropy. She started her research career with the Johns Hopkins and Columbia University schools of medicine and public health.

Dr. Kanem joined the United Nations in 2014 as UNFPA Country Representative in the United Republic of Tanzania. In 2016, she was named Assistant Secretary-General and Deputy Executive Director in charge of programmes. Previously, she served as founding president of ELMA Philanthropies, Inc., and as senior associate of the Lloyd Best Institute of the West Indies.

At the Ford Foundation from 1992 to 2004, she funded pioneering work on women's reproductive health and human rights, serving first in West Africa and eventually as Deputy Vice-President for peace and social justice programmes in Africa, Asia, Eastern Europe, Latin America, and North America.

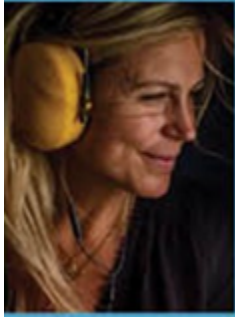
She holds a medical degree from Columbia University, and a Master's degree in Public Health with specializations in epidemiology and preventive medicine from the University of Washington in Seattle. She is a magna cum laude graduate of Harvard College in history and science.

In 2019, Dr. Kanem presided over the Nairobi Summit on ICPD25, which marked the 25<sup>th</sup> anniversary of the International Conference on Population and Development. Dr. Kanem is recognized for her powerful advocacy for the rights and choices of women and girls and as a key influencer and thought leader in the formulation of global policy on sexual and reproductive health and rights in the Sustainable Development Goals era. She has been listed on the Gender Equality Top 100.

A member of the United Nations Senior Management Group, a high-level body chaired by the Secretary-General, she is also a member of the United Nations System Chief Executives Board for Coordination; the United Nations Secretariat Management Performance Board; the H6 Partnership for global health; and the UNAIDS Committee of Cosponsoring Organizations, which she has chaired. She is also a Governor of the United Nations System Staff College and a member of the Honorary Advisory Council of the Dag Hammarskjöld Fund for Journalists.

Dr. Kanem advocates for the rights of women and girls on the Inter-Agency Standing Committee, an international forum for humanitarian partners, and as co-chair of the Reference Group of Family Planning 2020-2030, a global partnership for investing in rights-based family planning. She has made leadership contributions to the Secretary-General's organizational transformation initiatives towards reform of the United Nations development system, including co-chairing the Strategic Financing Group of the United Nations Sustainable Development Group, and as a member of the High-Level Steering Groups on Gender, Youth, the System-wide Response to Sexual Exploitation and Abuse, and the global response to COVID-19.

Dr. Kanem is the fifth Executive Director of UNFPA since the Fund became operational in 1969.



**SIMONE CARTER** is UNICEF’s lead on Integrated Multidisciplinary Outbreak Analytics for the Public Health Emergencies, where she provides support to countries to better integrate and operationalize evidence in outbreak response. Simone joined the Eastern Democratic Republic of Congo (DRC) Ebola outbreak response in September 2018, where she, under the strategic coordination for the Ministry of Health (MOH), developed, set up, and managed the Social Sciences Analytics Cell (CASS), which is now operational in the DRC for Ebola, COVID and cholera. The DRC was the first time that such a structure has existed in outbreaks: providing real time social and behavioral analysis data in an integrated

and coherent way to systematically influence the response. Simone is currently in Guinea Conakry working with WHO, CDC, MSF and the MOH to replicate this integrated analytics approach.

Simone has a Master of Science in Epidemiology from the University of British Columbia’s Faculty of Medicine where she focused her research on understanding HIV treatment attrition among sex workers. She has spent the last 10 years working across Latin America, sub-Saharan Africa, and the Middle East in humanitarian response, six of which working for Oxfam’s rapid response team leading the humanitarian and public health emergency response. Since the 2014–16 West Africa Ebola outbreak, Simone has focused on operational research to inform programming, aiming to improve accountability to communities through the use of evidence.

Simone leads the GOARN Analytics for Operations working group which aims to support different organizations and country teams in collaboration with academic, government, and operational actors to ensure that integrated analytics are set up, coordinated, and used to influence outbreak response. She is dedicated to ensuring that research and data are gender inclusive, using evidence for advocacy and raising the voices of women and children in public health emergencies.



**MELINDA FROST**, M.A., M.P.H., is a leader in global public health communication and education with a focus on infectious disease, immunization, non-communicable disease, and health security. She is currently the ‘Translate Science’ team lead of Infodemics Pillar for the World Health Organization’s response to COVID-19. In this role she represents the risk communication and community engagement response (RCCE) for the Organization.

Prior to COVID-19, Melinda led RCCE capacity building for WHO under the Pandemic Influenza Preparedness Framework. She directly supported more than 40 countries in building their emergency RCCE preparedness and response capabilities under the International Health Regulations. She co-led and designed the Emergency Communications Network and SocialNet deployment trainings which collectively prepared 300+ media and emergency risk communicators and social and behavior scientists for deployment. She also designed the WHO European Region’s Emergency Risk Communication five-step capacity-building package as well as numerous journalist trainings.

Prior to 2013, Melinda was the Director for Emergency Risk Communication for the U.S. Centers for Disease Control and Prevention in Beijing, China for six years and developed and led new communications programs from the agency headquarters for more than 10 years. Melinda has also consulted for UNICEF, FAO, and IFRC to assess national existing communication capacity, coordinate multi-sector partnerships, develop communication strategy, and facilitate programs to strengthen national and sub-national level communication response.

Melinda’s experience spans more than 25 years as a manager, director of programs, project officer, health communicator, writer, producer, instructional designer, and educator. She holds a Master’s degree in Global Public Health, a Master’s degree in Educational Psychology–Cognitive Studies, and a Bachelor’s degree in Communications.

## MODERATORS AND PANELISTS

### *Agency and the Health Citizen*



**WILMOT JAMES, Ph.D.** is Senior Research Scholar at the Institute for Social and Economic Research and Policy (ISERP). He received his PhD (Sociology and African History) from the University of Wisconsin at Madison. Dr. James was a post-doctoral fellow of the Southern African Research Program at Yale University, the American Bar Foundation in Chicago, and the Hannah Arendt Center at Bard College. Dr. James pursued his interest in science and society (James, *Nature's Gifts: Why We Are the Way We Are*, WITS University Press, 2010) as a visiting fellow at the Economic and Social Research Council at the University of Edinburgh and as the Gordon Moore Visiting Professor in the Humanities at the California Institute of Technology.

Dr. James is a policy specialist. He joined the University of Cape Town in 1986 as a member of the academic faculty in sociology, and became department chair in 1992. His research on labor migration (James, *Our Precious Metal: African Labour in South Africa's Gold Industry*, Indiana University Press, 1992) led to his appointment as chairman of the task team that designed the first post-apartheid refugee protection and immigration policies under President Nelson Mandela. As a Member of Parliament and opposition spokesman on health, and given Africa's disease burden and infectious disease outbreak patterns, Dr. James developed an enduring interest in global health security policy formulation and practice. He authored and edited 20 books and policy monographs, 40 plus journal articles and book chapters, and over 200 opinion/education articles. He is a contributing author to and editor of *Vital Signs: Health Security in South Africa* (Brenthurst Foundation, 2020). His greatest honor was to serve as a co-editor of the late President Nelson Mandela's presidential speeches published as *Nelson Mandela In His Own Words* (Little Brown and Co, 2003).

As Trustee of the Ford Foundation and Chairman of its Education, Media, Arts and Culture (EMAC) committee, Dr. James oversaw the introduction of a \$320 million International Fellowship Program, the largest single program investment the Foundation ever made. Over 4,300 students graduated with masters level degrees worldwide with support from the Foundation.

Dr. James's current research interests are in global health security with a particular interest in the welfare of children. He also serves as a senior consultant to the Nuclear Threat Initiative (NTI) and is an honorary professor of public health at the University of the Witwatersrand in Johannesburg, South Africa.



**DONDA HANSEN** has more than 25 years of communication experience working in Asia, Africa, Europe, and the Middle East. Ms. Hansen has been with CDC's Center for Global Health for eight years where she has touched on all functions of the Associate Director of Communication office, including managing media, overseeing the Center's web pages, supporting every global emergency response, developing and facilitating risk communication training, and leading a team that provides communication technical assistance to CDC staff in more than 60 countries around the globe.

Ms. Hansen deployed for the West Africa Ebola response—first to the WHO Africa Regional headquarters in Brazzaville in the early days of the outbreak as part of the WHO Emergency Communicator's Network, then to Liberia for CDC where she worked closely with partners, the Ministry of Information, and the Incident Management System Lead on risk communication. She also deployed to Goma, Democratic Republic of Congo for the 2018–2019 Eastern DRC Ebola outbreak.



Prior to coming to CDC, Ms. Hansen served as public affairs officer for the U.S. Army for more than 20 years. Five of those years were also spent as a foreign area officer for the Horn of Africa. Most recently, Donda managed crisis and risk communication activities for U.S. Africa Command. During the Balkan conflict she worked with the Organization for Security Cooperation in Europe to monitor media for compliance with the Dayton Peace Accords in Bosnia-Herzegovina and developed journalist professional education programs to bring the ethnic groups together.



**MICHAEL T. GHEBRAB** is an international development professional with more than 16 years of experience working for multilateral development organization in East, Southern, and Western parts of Africa.

Most recently, he led the USAID funded, Development Food Security Activity (DFSA) in Malawi with Project Concern International, “Njira project” where he built dynamic partnerships with government counterparts and communities, at all levels, establishing close working relationships that aided in promoting sustainability and a strong sense of community ownership of all project interventions. One of the three main pillars for the Njira project focused on Maternal/Child Health and Nutrition targeting over 64,000 households. The project used the Care Groups approach to increase coverage and promote sustainable behavior change by training a large network of volunteer health/nutrition educators. As part of the Disaster Risk Reduction strategy, the project enhanced capacity of communities and individuals to prepare, respond, and cope with natural disasters.

Michael served with Catholic Relief Services (CRS) as Head of Program for over five years (2005–2011) and had extensive exposure and experience in design, implementation, and evaluation of diverse project portfolios that aimed to address the most pressing problems of the targeted communities; from emergency interventions and infectious disease to food and economic security, as well as climate change adaptation projects using sound technical assistance and evidence-based implementation strategies. He had the opportunity to work in diverse cultures, geographies, and sectors, enabling local stakeholders to drive their own solutions and find pathways to change through a focused approach on capacity building.

Prior to his recent experience as a volunteer crisis management advisor on COVID-19 with the Blythe District Health Office in 2020, Michael served as a Chief of Party with Project Concern International in Malawi and Country Director with CRS in Sierra Leone. Besides his leadership role, Michael had dependable programming experience and he has overseen Cholera emergency response projects in Southern Sudan as well as Sierra Leone, implemented the early phase (2005–2007) of the well-resourced HIV/AIDS PEPFAR (President’s Emergency Plan For AIDS Relief) program in Uganda, and served as a member of the National Ebola Task Force in Sierra Leone (2014–2016).

Given his experience in Southern Sudan, Northern Uganda, and Sierra Leone, he is regarded as an expert in adaptive management. He has operated in the nexus between emergency and development programs with experience pivoting within development programming designed to respond to immediate shocks and addressing acute needs while protecting development gains.

As our world wrestles with the COVID-19 pandemic and the frequency as well as coverage of health emergencies seems to be on the increase, Michael is able to reflect and share his thoughts and join platforms that may influence policy and program approaches to strengthen the preventive capacity and mitigate the negative impacts of health emergencies.



**BENJAMIN DJOUDALBAYE, M.D., M.Sc., M.P.H., Pg. Dipl. in infectious diseases** is Head of Policy, Health Diplomacy and Communication at Africa CDC. Prior to joining Africa CDC, he was a Senior Health Officer for HIV/AIDS, Tuberculosis, Malaria and other Infectious Diseases at the African Union Commission for more than eight years. Before then, he worked for the International SOS, Ministry of Health of the Republic of Chad, and SOLTHIS. He has strong professional experience in strategic planning, administration, management and evaluation of policies, infectious diseases and public health programmes and projects, capacity building, and operational research in Africa. He also has

knowledge of coordination mechanisms including multidisciplinary and multisectoral teams, partnerships development, negotiation skills, advocacy and resource mobilization, multilateral and bilateral cooperation, public and private sector, and civil society. Dr. Djoudalbaye holds a Doctor of Medicine degree, a master's degree in population studies and public health, and specialized training certificates in infectious diseases and epidemiology and biostatistics from the University Claude Bernard Lyon, and HIV/AIDS and sexual reproduction health from the University Denis Diderot Paris.

### *Community Partnerships*



**JENNIFER DOHRN, DNP, CNM, FAAN,** is an Associate Professor and Assistant Dean of the Office of Global Initiatives and its PAHO/WHO Collaborating Center for Advanced Practice Nursing at Columbia University School of Nursing. She has worked in Sub-Saharan African countries since 2003, helping to expand the role of nurses and midwives in HIV pandemic response, and nursing response to Ebola in Sierra Leone and Liberia. She is currently conducting oral histories of nurses in New York City who are on the frontlines of the COVID-19 pandemic. Jennifer has integrated her global experiences in pandemic response and complex humanitarian emergencies into two decades of teaching in midwifery and global health equity.



**CHINWE LUCIA OCHU** is a medical doctor with over 24 years of experience as a clinician. She has a MBBS from Nnamdi Azikiwe University, Nigeria (1996) and a MPH from University of Liverpool, UK (2016).

She currently works with Nigeria Centre for Disease Control (NCDC) as the Acting Director, Prevention, Programmes & Knowledge Management, and as the Head of Research. NCDC is Nigeria's National Public Health Institute with the mandate to protect the health of Nigerians through prevention, early detection, and control of infectious diseases of public health importance. She represents NCDC at the National Lassa Fever Research Consortium and

National Health Research Technical Working Group. She is a member of the Body of Experts of Central Bank of Nigeria's Health Sector Research & Development Intervention Scheme, and a member of the Research Functional Working Group and Sustainable Production Group of the Presidential Task Force on COVID-19.

She represents NCDC in the Ebola Steering Committee of the Infectious Disease Data Observatory (IDDO) whose aim is to improve the research capacity of countries affected by Ebola. She has represented Nigeria in international discussions that border on the advancement of accelerator 5 of SDG3 (R&D, Innovation and Access). She was part of the health product development, implementation, and funding partners deliberation on tackling bottlenecks that impede access to health innovation, and was a speaker at the 2019 World Health Summit. She represents Nigeria at the Uniting Efforts for Innovation Access & Delivery (UEIAD), a UNDP-Japanese Government-

GFID convened partnership. She is a collaborator of Global Burden of Disease (GBD) and a reviewer for scientific journals and research funders, including the National Institute for Health Research (NIHR), UK. She is the Principal Investigator of the U.S. CDC-funded Advancing Infectious Disease Research across Nigeria (AIDRAN) project. She is the convener and National Coordinator of the Nigeria COVID-19 Research Consortium.



**STEFANO CORDEZZA** is the Head of Delegation for Libya for the International Federation of Red Cross and Red Crescent Societies (IFRC), the world's largest humanitarian organization, comprising 192 member Red Cross and Red Crescent National Societies. He joined the IFRC in 2015 as Head of Delegation for Sudan.

He spent 20 years in international and humanitarian affairs, working in politically sensitive environments, in complex and volatile situations, both in conflict and post-conflict scenarios—from Afghanistan and Iraq, to Lebanon and Libya, from Pakistan and Palestine (and Gaza), to Syria and Sudan. He worked with the United Nations system, the Red Cross and Red Crescent Movement, and the NGO sector.

He holds a post-graduate international diploma in humanitarian assistance from the Centre for International Humanitarian Cooperation, Fordham University, a master of philosophy in development studies from the University of Bologna, and a master of arts in international affairs from the University of Trieste. He was born in Adria, Italy, in 1976. He is an enthusiastic runner and tennis addict.



**SHEILA DAVIS**, DNP, ANP-BC, FAAN, is the Chief Executive Officer at Partners In Health (PIH). Previously, she served as Chief of Clinical Operations and as Chief Nursing Officer, where she oversaw nursing efforts as well as supply chain, medical informatics, laboratory, infrastructure, and quality improvement activities. Starting in 2014, she served as the Chief of Ebola Response as she led PIH's response efforts during the West Africa epidemic. She has been a nursing leader in the field of HIV/AIDS and served on the National Board of the Association of Nurses AIDS Care (ANAC). She entered the global health arena in 1999, responding to the global HIV pandemic and working in a number of countries.

She was the co-founder of a small NGO that worked in South Africa and Boston from 2004–2010 on health projects, including a rural village nurse clinic. Dr. Davis is a frequent national speaker on global health and clinical topics including HIV/AIDS, the Ebola epidemic, leadership in public health, and the role of nursing in human rights.

Dr. Davis received her BSN degree from Northeastern University in 1988, her Masters in Nursing degree as an Adult Nurse Practitioner in 1997, and her Doctorate in Nursing Practice with a concentration in global health in 2008. Both of her graduate degrees are from the MGH Institute of Health Professions. Dr. Davis was a faculty member at the School of Nursing at the MGH Institute of Health Professions for four years and an Adult Nurse Practitioner at the MGH Infectious Diseases outpatient practice for over 15 years. Currently she is Adjunct faculty at the UCSF School of Nursing. She was inducted as Fellow in the American Academy of Nursing in 2008, and in 2009 was inducted as a member of the inaugural class of 12 Carl Wilken's Fellows working on anti-genocide global efforts as part of the Genocide Intervention Network.

She recently completed a Robert Wood Johnson Executive Nurse Fellowship as part of the 2012–2015 cohort.





**RICHARD GARFIELD**, RN, DrPH, is Team Lead for Assessment, Surveillance, and Information Management in the Emergency Response and Recovery Branch of the US Centers for Disease Control and Prevention in Atlanta, Georgia, USA. He is also the Henrik H. Bendixen Professor Emeritus of International Nursing and Professor Emeritus of Population and Family Health, Columbia University, and Adjunct Professor of Public Health at Rollins School of Public Health, Emory University. Garfield has been Visiting Professor at the London School of Tropical Medicine and Hygiene in the U.K. and Karolinska Institutet in Sweden.

Dr. Garfield worked with health authorities in Central America in malaria control, where wars during the 1980s stymied disease control efforts. He helped reorganize health services to protect civilians from the impact of conflict. In the 1980s and 1990s he quantified the impact of conflict on noncombatants using epidemiologic methods and studied the effects of economic sanctions on health in Iraq, Cuba, Nicaragua, Liberia, Haiti, and the former Yugoslavia. He is known for estimates of mortality changes related to conflict. Garfield was the founding director of the Health and Nutrition Tracking Service at the World Health Organization (WHO), continues to consult with WHO on non-communicable diseases and information systems, assisted in developing the Global Health Center at the US Centers for Disease Control and Prevention (CDC), and coordinated the Collective Violence risk group of the third round of Global Burden of Disease estimates. He has taken part in large scale needs assessment surveys for the UN related organizations following disasters in Myanmar, Pakistan, Haiti, South Sudan, the Philippines, and in New Orleans. He has assisted in developing applied methods of epidemiologic assessment to the area of emergencies and disasters, and currently does this in advising The Assessment Capacities Project (ACAPS) in Geneva and ALNAP in London.

### *Journalists Reflect*



**VICTORIA ROSNER**, B.A., Columbia College (1990), Ph.D., Columbia University (1999), specializes in modernist literature and culture, with particular interests in architecture and design, gender and sexuality studies, and life writing. She is the author of *Modernism and the Architecture of Private Life* (Columbia UP, 2005), winner of the Modernist Studies Association Book Prize. She is also the editor of *The Cambridge Companion to the Bloomsbury Group* (Cambridge UP, 2014) and *The Global and the Intimate: Feminism in Our Time* (Columbia UP, 2012; with Geraldine Pratt). With Nancy K. Miller, she edits the Gender and Culture book series for Columbia

University Press. She recently published *Machines for Living: Modernism and Domestic Life* (2019, Oxford University Press, New York).



**MADELINE DREXLER** is a Boston-based journalist specializing in public health. She is a visiting scientist at the Harvard T.H. Chan School of Public Health and author of *Emerging Epidemics: The Menace of New Infections* (Penguin, 2010). Drexler's work has appeared in *The Atlantic*, *The New York Times*, *The Nation*, *The American Prospect*, *The Virginia Quarterly Review*, *Nieman Reports*, *Saveur*, and many other national publications. She has reported extensively from Bhutan.



**MARK HEYWOOD** is a social justice activist and former Executive Director and co-founder of SECTION27 as well as a co-founder of the Treatment Action Campaign. He sits on the Boards of several health and human rights NGOs in South Africa and internationally. He is currently editor of *Maverick Citizen*, a section of the *Daily Maverick* that focuses on activism, human rights, and social justice. He is also adjunct Professor at the Nelson Mandela School of Public Governance at the University of Cape Town, a distinguished visitor at the O'Neill Institute for National and Global Health Law, Georgetown University Law Center, and a visiting scholar at the Bonavero

Institute for Human Rights, Oxford University. He has written numerous articles on law, human rights, HIV/AIDS, health and literature, and edited and written several books, including in 2015 a book of poetry *I Write What I Fight*.

After graduating from Oxford University in 1986, he worked for the Marxist Workers Tendency of the ANC. During this time, he was instrumental in setting up campaigns such as the Philemon Mauku Defence Campaign, the Leeukop Political Prisoners Support Committee, and the Johannesburg Inner City Community Forum. He has also lectured and wrote on the influences of Shakespeare on African writing and politics in South Africa.

Heywood joined the AIDS Law Project (ALP) in 1994, becoming its head in 1997 and executive director in 2006. In 1998, he was one of the founders of the Treatment Action Campaign (TAC). In 2007, he was elected as deputy chairperson of the South African National AIDS Council. He was also the chairperson of the UNAIDS Reference Group on HIV/AIDS and Human Rights between 2006 and 2012. In 2009, Heywood was appointed as a member of the Ministerial Advisory Committee on National Health Insurance.

In 2010, together with Adv Adila Hassim, Heywood founded and was the first executive director of SECTION27, a public interest law center that seeks to influence, develop, and use the law to protect, promote, and advance human rights, particularly in relation to healthcare services, sufficient food, and education.

Heywood has written extensively on HIV, human rights, and the law, including co-editing *AIDS and the Law Resource Manual* (three editions) and *Health & Democracy: A Guide to Human Rights, Health Law and Policy in Post-Apartheid South Africa*. He has been part of the legal teams of the ALP and TAC that have been involved in all the major litigation around HIV and human rights.

Heywood holds degrees in English language and Literature from Balliol College, Oxford University, and completed an M.A. in African Literature at the University of Witwatersrand, Johannesburg.

## Appendix: About Event Partners



**INSTITUTE FOR SOCIAL AND ECONOMIC RESEARCH AND POLICY (ISERP)** is Columbia University’s research institute dedicated to the social sciences. ISERP pioneers research and integrates knowledge and methods across the social sciences. ISERP supports researchers, faculty, students, and social science research through research development, education and training programs, centers, workshops, and administrative support. ISERP achieves its mission by: fostering a dynamic intellectual community for the social science community at Columbia University; strategically investing in research development; educating the next generation of researchers; translating social science research for the broader public and policymaking worlds.

[www.iserp.columbia.edu](http://www.iserp.columbia.edu)

**THE CENTER FOR PANDEMIC RESEARCH** coordinates new work by Columbia social scientists on COVID-19 and other disease outbreak topics. This Center is structured as an ISERP “start-up center” program. The Center convenes studies and discussions about the social science aspects of the COVID-19 pandemic. It funds faculty research through seed grants in a separate process from ISERP’s standard calls for funding proposals, enabling quick support of pandemic-related research while preserving funds for non-Covid-19 projects. Other Center activity includes hosting events and seminars, and supporting undergraduate and graduate student research assistantships.

[www.iserp.columbia.edu/center/center-pandemic-research](http://www.iserp.columbia.edu/center/center-pandemic-research)



**FRONTLINE NURSES**, a working group of the **COLUMBIA CENTER FOR SOCIAL DIFFERENCE**, recognizes the critical contribution of nurses and midwives and advocates for their role in forming public health policies—a project that has become even more urgent during the international battle against COVID-19. The Center for the Study of Social Difference (CSSD) is an interdisciplinary research center supporting collaborative projects that address gender, race, sexuality, and other forms of inequality to foster ethical and progressive social change. Bringing Arts and Sciences faculty into conversation with faculty from Columbia’s professional schools and Global Centers, along with scholars, artists, writers, and policymakers in the United States and abroad, CSSD deepens Columbia’s partnerships at home and abroad.

[www.socialdifference.columbia.edu](http://www.socialdifference.columbia.edu)



**COLUMBIA UNIVERSITY SCHOOL OF NURSING** prepares expert nurse clinicians and researchers to improve the health of individuals, families, and communities in the United States and

around the world. Emphasis on clinical practice, the creation of new knowledge, and leadership in health policy place Columbia Nursing at the forefront of nursing excellence.

[www.nursing.columbia.edu](http://www.nursing.columbia.edu)



**THE PROGRAM IN VACCINE EDUCATION AT THE COLUMBIA VAGELOS COLLEGE OF PHYSICIANS AND SURGEONS** educates medical students and informs health care professionals, public health experts, academic, government and industry researchers, policy makers, global health non-governmental organizations, journalists, and the general public as to the cutting-edge advances and challenges in modern vaccine development.

[www.pgh.cuimc.columbia.edu/education/program-vaccine-education](http://www.pgh.cuimc.columbia.edu/education/program-vaccine-education)

## COLUMBIA GLOBAL CENTERS

**COLUMBIA GLOBAL CENTERS NAIROBI AND TUNIS** are part of a network of seven other global Centers located in Amman, Beijing, Istanbul, Mumbai, Paris, Rio de Janeiro, and Santiago. The Global Centers, as envisioned by Lee C. Bollinger, President of Columbia University, were founded with the objective of connecting the local with the global, to create opportunities for shared learning, and to deepen the nature of global dialogue.

<https://globalcenters.columbia.edu>



**COLUMBIA'S EARTH INSTITUTE** blends research in the physical and social sciences, education, and practical solutions to help guide the world onto a path toward sustainability. The people who make up the Earth Institute are earth scientists, economists, business and policy experts, specialists in public health and law, researchers, teachers, and students. The Earth Institute comprises more than two dozen research centers and several hundred people who collaborate across many disciplines and schools at the university.

[www.earth.columbia.edu](http://www.earth.columbia.edu)



**THE ACADEMY OF POLITICAL SCIENCE**, founded in 1880, promotes nonpartisan, scholarly analysis of political, social, and economic issues by sponsoring conferences and producing publications. Published continually since 1886, the Academy's journal, *Political Science Quarterly*, is edited for both specialists and informed readers with a keen interest in public and international affairs.

[www.psqonline.org](http://www.psqonline.org)

