Columbia World Projects
COVID-19 Forum Report

October 2, 2020

Foreword

Dear Reader:

COVID-19 has impacted virtually every aspect of our lives, communities and institutions, and Columbia World Projects (CWP) is no exception. The mission of CWP is to bring university research and scholarship to bear on fundamental challenges facing humanity and improve people's lives, and it quickly became clear that the pandemic presented an opportunity – and a responsibility – to do just this with the unprecedented crisis at hand. How could the university's expertise be marshaled to mitigate the lasting devastation being wrought by this virus, particularly on society's most vulnerable populations? And consistent with Columbia University's new Fourth Purpose, how could we swiftly mobilize scholars and researchers to partner with governments, nongovernmental and intergovernmental organizations, businesses and others on the front lines of this effort?

In light of the challenge before us, we set about adapting our capacities to meet the needs of the moment. After deciding to hold a Forum on COVID-19, we shortened our timelines for project generation, development and implementation, and designed a virtual Forum process to take the place of the one that we usually hold in person. At the same time, we remained committed to not just studying the challenges at hand, but working alongside practitioners to develop, implement and measure ways to address them. And we maintained CWP's focus on the types of fundamental problems that cannot be solved by experts from any one field or discipline alone – encouraging participants to focus on the medium to long-term challenges the current crisis presents, many of which require profound transformations of systems and policies.

On successive days over the week of June 22, 2020, CWP held five virtual working group discussions focused on projects aimed at addressing distinct facets of the current crisis. On June 30, the findings of those working groups were presented to more than 35 experts who took part in the Forum's closing plenary session. Those experts were then asked to identify the projects that, in their view, most merit further development by CWP, and strike the right balance between feasibility and the potential for transformational impact. The attached report describes the work that took place in the Forum's working groups and closing plenary session, and identifies five project ideas for possible further development by CWP. Given the rigor and innovation of the ideas presented, we anticipate many of the remaining proposals will be pursued through other channels or partnerships that emerge from the Forum.

In closing, it is worth noting that, like all previous CWP Fora, almost all the challenges tackled by projects in the COVID-19 Forum reflect systemic inequities in our societies, whether due to socioeconomic status, race, gender or other factors. While these problems existed long before COVID-19, the disproportionate impact of the pandemic on already disadvantaged communities has only exacerbated such trenchant injustices. Furthermore, the magnitude and urgency of the current crisis presents an opportunity to reform, and perhaps even reimagine, the institutions, practices and systems that have long perpetuated these problems. It is an opportunity these projects, and CWP in general, aim to seize.

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I. Defining the Challenge

There is no aspect of our lives and communities that has not been significantly affected by the COVID-19 pandemic, from our livelihoods and the way we interact with one another in public spaces, to the way we provide essential functions such as educating our youth and caring for the sick. Even as the trajectory of the pandemic remains uncertain and will vary with geography, its impact is unquestionably global and will be felt for years to come. At the time of writing, more than 33 million people have been infected with the virus and an estimated 1 million have died as a result.[1] Moreover, multiple studies suggest the prevalence of infections and deaths is much higher than officially reported. Yet the public health effects of the virus have yet to reach an apex. At the time of the Forum, even as the virus's spread was slowing in some countries, worldwide the number of new cases was growing faster than ever.[2] As a result of the crisis, an estimated 1.5 billion children were out of school in the spring,[3] and by summer, 463 million – approximately one-third of the world's schoolchildren – could not access remote learning.[4] Meanwhile, the global economy is expected to shrink by over 5 percent in 2020 alone.[5] With the prolongation of lockdown, quarantine, physical distancing and other measures needed to suppress transmission of the virus, the global economy is sliding into a recession of monumental proportions. The disruption of supply chains has put whole sectors at risk of collapse, and as enterprises close, more and more workers are losing their incomes and livelihoods. According to some forecasts, COVID-19 is likely to cause the first increase in extreme global poverty since 1998.[6]

While the pandemic's reach is global, its burden has not fallen equally on all people. The virus has disproportionately impacted communities based on race, socioeconomic status and other factors, exacerbating deep and long-standing inequities in our societies. The most comprehensive data available from the U.S. Centers for Disease Control and Prevention shows that Black and Latinx residents in the U.S. have been three times as likely to be infected as White residents, and nearly twice as likely to die from the virus.[7] These disparities in outcomes are rooted in a combination of economic inequality and long-standing legacies of racism that perpetuate similar inequities in access to quality health care, housing and education. And they result in vast differences in the ability of individuals to act in ways that reduce their risk of contracting the virus, such as the ability to work remotely, avoid taking public transportation

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[1] *New York Times*, "Covid World Tracking Map," September 28, 2020, https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html.

[2] *New York Times*, "The outbreak is growing: Two of the highest daily tallies in new global cases were reported this week," June 18, 2020, https://www.nytimes.com/2020/06/18/world/coronavirus-cases-usa-world.html.

[3] UNESCO, "Learning never stops," September 4, 2020, https://en.unesco.org/news/learning-never-stops-tell-unesco-how-you-are-coping-covid-19-school-closures-0.

[4] UNICEF, "COVID-19: Are Children Able to Continue Learning During School Closures?," August 2020, https://data.unicef.org/resources/remote-learning-reachability-factsheet/.

[5] The World Bank, "Pandemic, Recession: The Global Economy in Crisis," June 2020, https://www.worldbank.org/en/publication/global-economic-prospects.

[6] The World Bank, "Projected poverty impacts of COVID-19," June 8, 2020, https://www.worldbank.org/en/topic/poverty/brief/projected-poverty-impacts-of-COVID-19.

[7] Richard A. Oppel Jr., Robert Gebeleof, K.K. Rebecca Lai, Will Wright and Mitch Smith, "The Fullest Look Yet at the Racial Inequity of Coronavirus," *The New York Times*, July 5, 2020, https://www.nytimes.com/interactive/2020/07/05/us/coronavirus-latinos-african-americans-cdc-data.html.

or access needed testing. The World Food Programme estimates that the number of households facing acute food shortages globally could double by the end of the year – from 135 million to 265 million people – as a result of COVID-19 and the policies put in place to slow its spread.[8] These dire consequences may force low-income subsets of the global population to break with such policies in order to seek work, and thus put themselves at greater risk of infection.

Furthermore, the impact of the pandemic varies from country to country as a consequence of a number of factors, including the policies that leaders implement to manage the crisis, the degree to which governments invested in preparedness before the pandemic, and countries' wealth and the state of their health care systems, among others. The vast gap between the capacities and resources of developed and developing countries to respond to pandemics has only been widened by the current crisis, during which some countries (and even states and cities) have used their relative wealth and power to hoard limited supplies, rather than working collectively to ensure that those supplies reach the communities that need them most. For example, in April there were fewer than 2,000 ventilators across 41 countries in Africa, compared to 170,000 in the United States.[9] Yet even wealthy countries like the United States have scrambled to obtain ventilators, personal protective equipment (PPE), tests and other limited resources through a range of aggressive measures, from outbidding poorer countries to blocking exports and seizing shipments.

In highlighting these challenges in our societies and in the international system, the pandemic has also raised the fundamental question of whether this seismic disruption presents an opportunity to reform or even reimagine flawed systems and institutions. And to do so not only to slow the virus's spread, but also to promote greater equity and advance human development and dignity. As we convened our CWP Forum, many of these fundamental questions were being raised across the United States with respect to policing and structural racism in our society, driven by many of the same underlying inequalities and injustices that are exacerbating the impact of COVID-19 on certain communities.

Alongside these fundamental questions are also practical ones around when public and private institutions, communities and individuals should resume routines and behaviors disrupted by the virus. Doing so requires weighing a complex set of factors, including considerable gaps in reliable evidence that informs our understanding of COVID-19. These include major uncertainties, such as how long the virus can circulate in indoor and outdoor spaces, the degree of immunity for those who have been previously infected and why some people get so much sicker from the virus than others. These knowledge gaps are exacerbated by a combination of disinformation and misinformation, including by politicians and others who have spread specious claims about the virus, downplayed its risks or cast doubt on the things we know about the virus.

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[8] World Food Programme, "COVID-19 will double number of people facing food crises unless swift action is taken," April 21, 2020, https://www.wfp.org/news/covid-19-will-double-number-people-facing-food-crises-unless-swift-action-taken.

[9] Ruth Maclean and Simon Marks, "10 African Countries Have No Ventilators. That's Only Part of the Problem," *The New York Times*, April 18, 2020, https://www.nytimes.com/2020/04/18/world/africa/africa-coronavirus-ventilators.html

Even applying evidence-based strategies and policies to the current crisis raises a series of concerns and trade-offs, which experts may have different views on how to balance. Perhaps most discussed is what some view as the tension between public health goals and what is in our economic best interest. Of course, it is not a simple trade-off. Although social distancing carries with it considerable economic consequences, it is also true that governments that have avoided imposing such measures or rushed to reopen – citing economic imperatives – have often seen infection rates rise and outbreaks worsen. Such outbreaks not only threaten residents' health, but are also likely to require the re-imposition of closures and social distancing measures, to the detriment of the economy. Privacy issues and concerns have also been raised with respect to contact tracing, which may be needed to slow the virus's spread and to allow communities to reopen. However, effective bio-surveillance can be conducted with sensitivity to privacy, as contact-tracing efforts in Taiwan have demonstrated.[10]

Finally, we continue to struggle with finding the political will to build resilient infrastructure and societies in the face of long-term threats such as pandemics, as we know this will not be the last one we face. Yet time and again, crises like the current one lay bare our failure to do just this. In the summer of 2019, Columbia World Projects held a Forum on Disaster Preparedness, Resilience and Response that came to precisely this conclusion. One of the Forum's key findings was that we chronically under-invest in measures that, if effected in advance of these crisis, could save lives and mitigate the damage they cause.[11] That is in large part due to a lack of incentives for decision makers, as well as significant obstacles to effective coordination between key actors and institutions. But it is also attributable to the foibles of human nature, which tends to underestimate risks we have not experienced, no matter how likely they are, and prioritizes problems seen as needing immediate solutions. This may explain why, despite clear warnings for years that a pandemic of this scale was not merely possible but likely, the majority of countries, including the United States, were caught woefully unprepared for the current crisis. Moreover, in a number of countries where the foundation had been laid for a more effective response, such preparation was squandered by leaders who failed to seize on such capacities as the outbreak spread.

Bringing together the academy and practitioners to address some of the most complex challenges posed by the COVID-19 crisis also models how we can work together in tackling future pandemics and other collective action problems like climate change. Doing so may also provide an opportunity to help to ameliorate some of the entrenched inequities in our societies, which have amplified the pandemic's devastating consequences for our most marginalized communities.

II. Projects and Working Group Discussions

The participants in the Forum were divided into five working groups, the themes for which were identified in advance based on the areas where academics and practitioners agreed

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[10] Jaron Lanier and E. Glen Weyl, "How Civic Technology Can Help Stop a Pandemic," *Foreign Affairs*, March 20, 2020, https://www.foreignaffairs.com/articles/asia/2020-03-20/how-civic-technology-can-help-stop-pandemic

[11] Columbia World Projects. *Disaster Preparedness, Resilience, and Response Forum Report.* August 15, 2019, https://worldprojects.columbia.edu/sites/default/files/2019-12/Disaster%20Preparedness%20Forum%20Report.pdf.

research and scholarship could have a significant and measurable impact on the urgent challenges of the COVID-19 crisis: (1) Testing, Social Distancing and Density; (2) Adapting Public Health Systems, Models and Approaches; (3) Information, Justice and Civil Society; (4) Mental Health and Emotional Resilience; and (5) Education.

CWP Fora usually take place in a day-long, in-person gathering, with the five working groups being held concurrently on that day. Due to the pandemic, we held the working groups virtually on successive days in the week prior to the Forum's closing plenary session. Nonetheless, each working group lasted the same amount of time, followed the same format, and was asked to apply the same criteria when reviewing projects. Each working group was assigned three to four projects to review, all of which had been developed in advance by Forum participants and CWP staff and distributed prior to the discussion.

All of the discussions in the working groups and the subsequent closing plenary were conducted under the Chatham House Rule, whereby participants cannot identify a speaker or their affiliation but are free to use the information from the discussion. As such, readers will not find views in this report attributed to individual participants, though we have tried where possible to reflect the relative support for different ideas and points of view.

Participants were pre-assigned to the five working groups in an effort to bring together complementary fields of knowledge and distinct institutional backgrounds, as well as different schools of thought on issues where cleavages exist in the expert community, with the idea of promoting a maximally effective interrogation of each project idea.

For each project proposal, one of the leads from the project team presented a succinct summary of the idea, with the presumption that other participants had read the proposal in advance of the discussion. Then the working group's moderator facilitated a discussion on the project, aimed at providing critical feedback and affirmative suggestions focused on the following key areas:

- Weaknesses, omissions, assumptions or risks in the framing of the problem or the proposed solution.
- Implementation challenges. What are the greatest potential obstacles to implementing this project and can they be overcome? (If so, how?) Is implementation feasible within two years and/or with the funding limit CWP has set for these projects?
- Partners. Has the project team begun to build the partnerships with practitioners that are needed for academic research and scholarship to inform some kind of action? If not, is it feasible to do so within the three-month period designated for the project design phase?
- Impact and strengths. If successful, what impact will the project likely have on the identified challenge and on people's lives, and why is this important? What impacts are achievable in the timeframe anticipated by the project, and what impacts would require more time to manifest themselves?
- Role of research and scholarship. Does the project build on research and scholarship in a significant way? Is the project one that will require significant new research before such knowledge can be applied by a practitioner partner?

After each working group reviewed the projects it had been assigned, participants were given the opportunity to share ideas for new projects that surfaced in the course of the discussion, or to propose that certain projects be combined. If the working group considered a new project idea or an idea for a hybrid project worthy of serious consideration, they were asked to subject it to the same rigorous evaluation as the other proposals.

Lastly, the working group members were asked to consider the strength of the project ideas relative to one another, from the perspective of which projects most merit further development by CWP, and synthesize the main points they wanted the moderator to highlight in the closing plenary of Forum participants – whether regarding individual projects or broader insights from the discussion. Below is a synopsis of each of the five working groups, beginning with the group's overarching theme and any crosscutting themes that emerged in the discussion, and followed by a summary of each project the group discussed and the feedback it received.

A list of the 19 projects proposals, organized by the working group in which they were discussed, follows:

1. *Testing, Social Distancing and Density*
   - Developing Best Practice for Management of Telemedicine Following the COVID-19 Outbreak
   - Evidence-Based Guidelines for Social Distancing in Indoor and Outdoor Environments
   - Field-Testing a Mobile App for Tracking COVID-19 Test Results
   - Incentivizing Un(der)banked Households to Socially Distance via Forgivable Digital Loans

2. *Adapting Public Health Systems, Models and Approaches*
   - COVID-19 and the Policy Capacity of the American States
   - Many Curves to Flatten: Preventing Side Effects of COVID-19 in Vulnerable Communities
   - Scheduling Elective and Urgent Surgery in Light of the COVID-19 Outbreak

3. *Information, Justice and Civil Society*
   - Improving COVID-19 Reporting and Public Knowledge: Embedding Academic Expertise in the Newsroom
   - Sites of Faith: A Proposal on the Challenges Posed by Covid-19 to the Infrastructures of Religious Life
   - Vaccines in the Medical Imagination
   - Reducing COVID-19 Health Risks for Justice-Involved People through Diversion, Decarceration and Community-Based Support

4. *Mental Health and Emotional Resilience*
   - A Virtual Support System for Palliative Care
   - Digital Mental Health Care for COVID-19 High Risk Populations
   - Implementing Collaboratively-Designed Community Psychoeducation in Kenya and Brazil in Response to COVID-19

- Tools and Connections: Strengthening Support for COVID-19 Bereavement in Harlem and Beyond

5. Education
- Education Through Crisis and Disruption: Inquiry Based STEM Learning Via Text Message
- Project-Based Assessments: Evaluating and Evolving Education for the 21st Century
- Rapid Response to Learning Loss & Broader Holistic Needs of Out-of-School Children in Liberia
- Increasing the Participation of Women in Healthcare to Assist in Addressing Gender-Based Violence Exacerbated by COVID-19

1. Testing, Social Distancing and Density

We know that widespread testing, social distancing and density reduction in public spaces are some of the most effective ways to control the spread of the virus, and are critical factors to address as we try to sustain economic activity. Yet when it comes to providing the tools necessary to take these steps – including cost-effective, rapid tests at scale; precise guidance on distances, based on certain conditions, that are necessary to reduce the spread of infection; and policies, incentives and models that promote adequate testing and distancing – we have in many instances come up short. People who exhibit symptoms are told to get tested, but many lack easy access to testing sites. Public and private institutions are encouraged to put forward clear social distancing guidelines as they reopen, but there is no consensus on whether the uniform distances recommended are adequate, much less whether the same distance should be observed in a doctor's waiting room as in a public park. People are told to stay home, but for some, doing so may result in losing income they depend on to feed their families; while for others, staying home can risk worse consequences than COVID-19. This working group examined technologies, nudges and operations that can help governments, health care providers and households adopt the policies, guidelines and behaviors that are known to slow the virus's spread, while also allowing our societies to resume core activities. A summary of each of the four projects and the feedback it received in the working group is provided below.

<u>Evidence-Based Guidelines for Social Distancing in Indoor and Outdoor Environments</u>

Project Summary: The current six-feet distancing guideline that underpins social distancing is too simple to be valid over the full range of circumstances under which COVID-19 transmission might occur. An evidence-based approach is needed to quantify the risk of droplet and aerosol transmission, determine the conditions conducive for such transmission, and detail how this risk varies by environment and building structure. This project seeks to develop the first high-fidelity numerical simulation framework to study pathogens' dispersion from expiratory events; use the findings to design improved social distancing guidelines for indoor and outdoor environments; and to then test the effectiveness of those guidelines in critical environments that will be of most immediate concern as New York City attempts to reopen, potentially in partnership with the New York City Departments of Health and Mental Hygiene and Parks and Recreation.

Discussion: While participants recognized the importance of this research, several raised questions about how one would evaluate whether the numerical simulation framework is an accurate predictor of virus transmission in real world settings. The project team noted that they were confident in the accuracy of the simulation and what it would reveal about the dispersal and airflow of droplets in indoor environments. They underscored that because there is a dearth of information on this critical aspect of transmission, the findings from the simulation would significantly advance understanding of how the virus spreads in different landscapes. Moreover, they pointed out that the findings would be generalizable for the spread of other SARS-associated viruses. Nonetheless, the project team expressed less certainty around whether it would be possible to use findings from the simulation to shape and measure the efficacy of different social distancing guidelines for New York City agencies within the time allotted for the project.

Field-Testing a Mobile App for Tracking COVID-19 Test Results

Project Summary: Antibody testing is crucial for informing the prevalence of COVID-19 and hence developing a more accurate understanding of the disease mortality rate, tracking its prevalence and forecasting future hotspots. It will also be important to track the efficacy of vaccine candidates. Low-cost, rapid antibody tests – which can provide results in minutes – will likely be widely available in the near future to consumers at home. But providing point-of-care tests to tens or even hundreds of millions of untrained consumers leaves open the possibility of large numbers of users performing and interpreting the tests inaccurately, and then not proceeding on the basis of their results in a way that is consistent with public health guidelines. Moreover, the results of these tests will be difficult to track. This project will seek to field-test in New York: 1) a mobile app that will help users accurately perform and interpret rapid COVID-19 antibody tests, and 2) a cloud-hosted platform that will track the results in real-time, matched to geolocation and co-morbidities. Data from this project will result in a user-tested companion app customized for COVID-19 antibody tests.

Discussion: Participants raised multiple questions about the accuracy of rapid antibody tests and what they can indicate about immunity. One participant asked why the project team had selected the particular test from the many that are available, while others pointed to recent research questioning whether antibody testing is an accurate predictor of immunity to COVID-19, as well as the duration of antibodies' presence in the body after an infection. The project team responded that the aim of the project was not to promote a certain test, but rather to develop an effective approach for tracking their results that would be scalable when a rapid antibody test is approved by the FDA and widely used. In addition, the project team made the case that recent research notwithstanding, it is reasonable to assume the presence of antibodies at least points to short-term immunity. There were also questions as to whether a sufficient proportion of the population would be willing to take the rapid tests at home and share their results, due to lack of confidence in the science or fear that an individual's privacy may be compromised. On the latter point, participants asked what steps would be taken to protect user data. The project team responded by noting that that the data would be protected by HIPPA privacy rules, but that the project's tracking aims would require thinking more about how patients would be informed about – and given control over – the way their data is shared. Asked whether socioeconomic status might affect accessibility of the tests or the technology required to operate the app, the team pointed to their work on HIV rapid testing, which revealed that socioeconomic status did not prevent individuals from accessing similar tests and

apps. However, the team noted that aging populations, who are particularly vulnerable to COVID-19, may have difficulty giving themselves tests and navigating an app. As such, the team would explore whether it would be possible to create an app for caregivers.

Developing Best Practice for Management of Telemedicine Following the COVID-19 Outbreak

Project Summary: The COVID-19 outbreak has forced hospitals and clinics to shift many patient visits to remote telemedicine visits. While this embrace of telemedicine visits is expected to grow even more, no systematic tool exists to help health systems make the complex operational decisions around the scheduling and sequencing of telehealth and in-person visits. These decisions demand taking into account a wide array of factors, such as the availability of resources, the number of patients and the time and space needed to create an environment conducive to social distancing. This project seeks to address this problem by (i) developing algorithms and guidelines for operational decision-making that can be flexibly adapted to local circumstances; (ii) utilizing data from a clinical partner to calibrate the model; and (iii) implementing the model with clinical partners (including Columbia University Irving Medical Center, CUIMC), measuring its efficacy and improving on its design for further dissemination.

Discussion: Medical practitioners from the project team explained that while the use of telehealth has increased exponentially during the pandemic, including at CUIMC, its integration with in-person visits is still ad hoc and implemented haphazardly in most health systems – underscoring the importance of this project. In response to one participant's suggestion that the model should seek to measure the cost-effectiveness of the optimization, the project team noted that a member of their team planned to work on precisely that issue. Another participant recommended incorporating the rate of health insurance reimbursement for telehealth into the model. The project team responded that some temporary changes to federal and state reimbursement policies around telemedicine may expire after the pandemic, but that the model could account for this variability. The project team underscored the importance of promoting the model in a way that ensures buy-in from physicians, which it intends to do through a gradual, step-by-step scale up. Participants urged the project team to think further about ways to identify key decisionmakers in other hospital systems beyond CUIMC, and how this model (if proven effective) might be presented to them, so as to determine a pathway by which this approach could be taken to scale.

Incentivizing Un(der)banked Households to Socially Distance via Forgivable Digital Loans

Project Summary: Social distancing measures disproportionately impact the poor and un(der)banked households (those excluded from the traditional banking system), as they are more likely to lose income or jobs as a result of such policies. These consequences also mean that these populations may be less able to socially distance, resulting in higher risk of infection. This project would pilot and evaluate the efficacy of paying certain people to stay home and socially distance, with anticipated returns to both household economic security and overall public health. Working with a digital finance platform (ScoreOne) that serves un(der)banked households in the Philippines, India and Vietnam, the project would run a randomized control trial to partially forgive short-term digital loans if borrowers adhere to a target amount of social distancing, measured using geolocation and network data. The aim would be to develop an approach that makes the social distancing efforts promoted by governments, NGOs and international organizations both more effective and more equitable.

Discussion: The project team underscored that the goal of this project is not to incentivize blanket social distancing, but rather to adopt a nuanced incentive structure that optimizes sustainability while minimizing risk. To that end, several participants suggested ways the app could promote other safe behaviors beyond staying home, such as the wearing of masks, as well as allowing certain movements that might be good for individuals without increasing risk of transmission. The project team explained that the app would use Bluetooth, WiFi and location data, which may be able to detect the population density of an environment, enabling it to distinguish between such movements. One participant suggested that the project might appeal to potential government partners by emphasizing not only the health benefits, but also its potential to increase economic resilience of low-income populations (i.e., preventing households with little to no savings from slipping deeper into poverty or debt at a time of extreme financial hardship). The project team wholeheartedly agreed with this suggestion, stating that the project aimed to improve social protection policy as much as health policy. Given the project's intention to partner with governments, another participant asked how the project would ensure the privacy of user data, which would be particularly important if partnering with authoritarian governments. The project team identified several steps they would take to protect user data, including the use of participant consent forms with clear explanations of how the data would be used as well as the option for participants to delete the data after the study was completed.

2. Adapting Public Health Systems, Models and Approaches

By definition, health care and public health systems each have a central role to play in responding to epidemics. But in the context of a pandemic, the capacity of the health care system – which includes both public and private actors – is a critical constraint that, if exceeded, can significantly exacerbate the impact of the crisis. In fact, one of the main purposes of social distancing is to "flatten the curve" so as to avoid a spike in the number of people getting sick at once, which can overwhelm heath care and public health systems. Nevertheless, such surges occur, and when they do, health care institutions may need to shift resources away from areas or populations that are seen as comparatively less urgent in order to fulfill their immediate and high-priority responsibilities. Simultaneously, they may need to adapt the way their services are delivered to mitigate the risks to patients and providers. During the COVID-19 pandemic, hospitals have been forced for months to postpone a significant proportion of surgeries and other procedures, creating a significant backlog of cases and large fiscal losses. Meanwhile, preventive health programs that used to be carried out primarily through in-person visits, have had to suspend operations dramatically and reorient the way they provide such services through telehealth. These decisions demand weighing critical short-term needs and risks against chronic problems that, if delayed for too long, may also have devastating health consequences. Public and private actors have pursued such massive shifts with varying degrees of coordination. In the United States, the absence of a proactive federal response has left a great deal of the coordination of these and other responses to state and local authorities, leading to a range of approaches, with mixed results. This working group examined three areas where the pandemic has forced swift, significant adaptations of health systems to address key challenges that have emerged: the management of elective surgeries as hospitals ramp operations up and down in response to waves of COVID-19; the delivery of preventive care to socioeconomically-disadvantaged populations in a time of social distancing; and the stewardship of health-related pandemic responses by individual U.S. states in a period of diminished federal engagement,

along with a comparative cross-national look at the pandemic response in several nations with federal systems.

A common theme that emerged in the working group was how to strike the right balance between feasibility and transformational impact when seeking to change systems – whether those are the systems employed by Medicaid providers, hospitals or state health agencies. One example is the trade-off between a more narrowly-defined intervention with a higher probability of impact, and a broader, relatively less-defined intervention, which may have a more transformational impact, but whose probability of success is lower. Two years, participants agreed, is a very short period of time in which to transform systems, yet the current crisis has also catalyzed political will to an unprecedented degree, as well as generated greater openness to reform, in many instances out of necessity. Moreover, as all three projects in this group would aim to work with actors (e.g., health professionals, social workers) on the front lines of the COVID-19 response, a key question was how much time these prospective partners would be able to dedicate to such efforts, given the demands on their time. A summary of each of the three projects and the feedback it received in the working group is provided below.

<u>Many Curves to Flatten: Preventing Side Effects of COVID-19 in Vulnerable Communities</u>

Project Summary: During public health crises, preventive care is often neglected – especially among disadvantaged communities – increasing the risk of future morbidity and mortality. This problem is exemplified by a recent drop in preventive health care appointments among disadvantaged communities in the City of New York during the COVID-19 pandemic, as recorded by the Community Health Network (CHN) – a Federally Qualified Health Center providing care to medically underserved communities at essentially no cost. This project seeks to increase the access to preventive health care for this population by collaborating with CHN to: (i) evaluate how the shift to remote preventive appointments is impacting attendance rates, for different appointment types and patient groups; (ii) quantify the degree to which attending preventive care appointments decreases the risk of avoidable future illnesses, and develop models to recommend the types of appointments that should be done remotely versus in-person; and (iii) leverage machine learning models to implement community-specific behavioral interventions to improve participation in remote consultations. The project will also track the mental health of low-income communities to identify opportunities to mitigate negative long-term consequences resulting from COVID-19.

Discussion: The project team highlighted that preliminary work on this subject showed that attendance rates were already increasing through telehealth. This suggests that an increase in telehealth services for certain types of care might have a positive impact on appointment attendance. It was suggested that the team could optimize their work on this by focusing on areas where telehealth is most likely to be effective. Participants viewed the potential scalability to other providers in the Medicare-Medicaid network as a strength of the project, but noted that the temporary nature of the waivers granted to allow for the provision of such care through telehealth may not continue after the pandemic, which should be considered along with potential findings. While there is growing momentum in Congress to modernizing telehealth services delivery and payment, making permanent the current flexibilities is by no means guaranteed, a participant noted. Participants noted that while it is feasible to measure the effectiveness of the interventions in reducing no-show rates, it may be harder to measure

the impact of higher attendance on broader health outcomes, especially for mental health. The team noted that they would rely on proxy indicators such as vaccination rates and emergency room visits, while for mental health, they would examine data related to isolation and low activity levels. At the same time, the team acknowledged that some of the longer-term health impacts would take longer to measure.

Scheduling Elective and Urgent Surgery in Light of the COVID-19 Outbreak

Project Summary: The COVID-19 outbreak forced many hospitals to cancel and postpone non-emergency surgical operations. Even state-of-the-art approaches to scheduling and prioritization of surgical operations, while clinically effective, suffer from operational inefficiencies. Given the backlog of surgical patients the COVID-19 outbreak has and will continue to create, hospitals are faced with a critical clinical and logistic challenge: to establish better scheduling and prioritization schemes that account for factors such as ancillary resource requirements, patient delay sensitivity, and the need to build in flexibility as the demands placed on hospitals by COVID-19 hospital demand increase and decrease. This project seeks to address this problem by (i) utilizing data from a clinical partner to determine the sensitivity of different types of patients to delays in procedures; (ii) developing algorithms and guidelines for surgical scheduling that incorporates these effects; and (iii) implementing the model with clinical partners (including Columbia University Irving Medical Center), measuring its efficacy and improving on its design for further dissemination.

Discussion: The project team noted that inefficiencies in the scheduling of surgeries existed prior to COVID-19, but that the pandemic exacerbated the problem and its consequences. Participants raised questions about how the model could incorporate key variables that are especially salient during the pandemic, such as the availability of personal protective equipment, as well as whether it would still have relevance post-pandemic, to which the project team responded that the model can be tailored to different contexts and variables, and that it would improve efficiency even in non-crisis settings. Another participant inquired about the degree to which the patients whose data is used to build the initial model will be representative of patients elsewhere (such as their comorbidities and environmental factors), and – to the extent they are not – how that would affect the model's adaptability. The project team noted while it is difficult to create an optimal model for each context, the recommendations produced would allow for greater efficiency. In addition, there were questions as to whether the model could be used to advance perverse ends by decisionmakers within hospital systems who are empowered with assigning value to the algorithm's different inputs, such as prioritizing insured populations over under or uninsured populations, or putting the more profitable procedures before less profitable ones. While the ends of the model are ultimately in the hands of the user, the project could mitigate such risks by selecting partners with strong ethical codes and missions to prioritize underserved populations.

COVID-19 and the Policy Capacity of the American States

Project Summary: The laggard and confused response to COVID-19 by the United States federal government has obliged states to shoulder both the formulation and the implementation of policies, underscoring the complicated inter-governmental mix of federal, state and local agencies under a frequently ambiguous division-of-labor in the U.S. public health system. This project will examine the extraordinary inter-state variation in the nation's COVID response,

the impact and underlying drivers of such variation and the effective practices that more successful states can share. This project will have two phases: 1) conducting field research to examine the technical, organizational and political capacity of four to five U.S. states in regard to the timeliness, aggressiveness and legitimation of their response (along with a comparative cross-national look at the pandemic response in several peer nations with federal systems); and 2) working with officials from the state of Washington to apply some of those lessons learned to improve the state's pandemic preparedness.

Discussion: Participants underscored that in the absence of federal leadership, the effectiveness of the COVID-19 response in the United States has depended upon individual states, and in particular the coordination of agencies within those states. Among some of the key questions asked of the project were whether the findings gleaned from the first year of research would be focused on addressing the current crisis or geared toward reforms for long-term pandemic and emergency preparedness, as well as whether a year would be sufficient time to not only work with policymakers to implement some recommendations, but also to measure their impact on people's lives. The project team highlighted as key areas of focus the coordination across agencies that are often siloed, with a particular focus on service delivery; marshaling advances in technology to improve the connections between government agencies and the populations they serve; and seeking to produce a set of metrics around the development of systems that tackle issues such as the social determinants of health, as a meaningful measure of state policy capacity. Participants pointed out that a key part of any effective response would be the legitimacy of government officials in the eyes of constituents, which varies considerably from state to state, agency to agency, and even within communities served. The project team noted that they would aim to select a diversity of states in terms of geography, culture and policy capacity to ensure a comprehensive examination of the challenge, and solicited recommendations on state selection.

3. Information, Justice and Civil Society

At a time when accurate, trustworthy and accessible information is indispensable to helping people stay healthy and advocate for their needs and rights, the pandemic has given rise to a parallel "infodemic" of misinformation, disinformation and news deserts. The distrust this sows will prove especially challenging in upcoming efforts to vaccinate against the COVID-19 virus. Simultaneously, the pandemic has disrupted many of the community networks and institutions that have traditionally assembled in-person, such as religious congregations and civil society organizations. As traditional means of gathering have been inhibited and civic spaces have closed by social distancing, community bonds have been weakened, resources strained and sources of credible information lost. Few subsets of the population have faced greater risks in this time than the incarcerated – due to the lack of social distancing and other basic preventive health measures in jails – which have unsurprisingly turned them into hotspots of the virus. Even when facilities have released prisoners, as they have been doing in growing numbers, decarcerated individuals have received almost no support, placing them at risk of homelessness, destitution and greater risk of contracting and spreading the virus as they return to communities in lock-down. This working group considered projects that would address chronic gaps in the way the media, the justice system and civil society organizations inform and serve communities. The projects included efforts to integrate scientific knowledge into media organizations, in order to improve the dissemination of accurate information about the pandemic; to build a deeper understanding of vaccine hesitancy, in order to design and

implement effective campaigns to ensure the broadest possible uptake of a future COVID-19 vaccine; to develop tools for religious congregations to play some of their key roles and carry out rituals remotely, while simultaneously preserving their physical spaces, which are used by a broad network of civil society groups; and to develop protocols to reduce the spread of COVID-19 in jails, including through decarceration, and to provide support for people who are released from jail and the communities to which they return.

A number of cross-cutting themes and insights emerged in the working group discussion. The first was the abiding importance of communities in shaping the way individuals understand and respond to the virus. This can be for good or for ill – just as communities can fill gaps in support for decarcerated individuals, so can they spread misinformation about the risks of vaccines. Communities are also indispensable in raising public awareness that is crucial for slowing the virus's spread, yet participants noted that efforts to inform and engage communities too often adopt an ineffective one-size-fits-all approach. Instead, communicating effectively with communities requires understanding culturally-embedded language, signs and channels of information dissemination, as well as winning over trusted messengers. In addition, several of the projects grappled with the challenge of how institutions whose financial health was tenuous even before the pandemic – from religious congregations, to social service organizations, to newsrooms – can do more for underserved populations in a time of greater austerity. Finally, each project highlighted the way COVID-19 exacerbates socioeconomic inequality, and the discussion reinforced that any efforts to increase trust in institutions of all kinds – scientific, political, religious, media, and others – must attend to this issue.

<u>Improving COVID-19 Reporting and Public Knowledge: Embedding Academic Expertise in the Newsroom</u>

Project Summary: People are turning to local news outlets in record numbers for resources about COVID-19 – from keeping their families safe, to the prognosis for their cities. The journalist reporting these stories makes choices – between incomplete or incompatible data sets and conflicting forecasts, published in pre-printed scientific articles produced at unprecedented speed and scale. In the inconsistency and volume of information, the public can find conspiracies, uncertainty, and, ultimately, grounds for distrusting the science and the experts who produce it. This project would seek to balance the need for greater accuracy (an academic strength) against the need for accessible and informative stories, focused on the needs of the public (a newsroom strength), through two interventions: (i) creating novel partnerships between news outlets and academics in health-related fields (e.g., epidemiology, biostatistics) and other sciences to help with stories of impact, recovery and accountability (e.g., social and political science); and (ii) defining and integrating an academic editor into newsrooms (beginning with the Detroit Free Press) to help journalists navigate the science in reporting richly on a topic like COVID-19. This reporting would aim to enhance reader engagement and build trust, while also influencing the priorities for academic research, extending its reach beyond the university, especially in this time of crisis.

Discussion: Participants voiced support for improving the link between scientific research and the public consumption of health-related news, while also identifying potential challenges in presenting the public with information on complex issues like COVID-19, where scientific understanding is swiftly evolving. Multiple participants asked whether the approach was unique to the coverage of COVID-19 or should be focused more generally on a set of science-

driven topics (e.g., climate change). The project team acknowledged that the idea of an academic editor was not necessarily specific to the current crisis, and that other academics could rotate into the position to focus on emerging issues. However, the project team made the case that COVID-19's unique context of rapid research dissemination alongside the critical importance of improving public awareness presented an ideal pilot for this approach. Participants also raised questions around the sustainability of the model given the financial challenges facing newspapers. The project team responded that foundation-based funding could likely provide support for such efforts, and that a number of news organizations might pool resources for a shared position. In addition, multiple participants highlighted the tension between offering news consumers an accurate view of the lack of scientific consensus on an issue, which may lead to an impression of uncertainty and deniability, and the risk of being paternalistic by obfuscating such debates. The project team noted that public distrust to conflicting scientific findings already exists, and an academic news editor would mitigate the issue, in part through ensuring that uncertainty was conveyed with sensitivity.

Sites of Faith: A Proposal on the Challenges Posed by COVID-19 to the Infrastructures of Religious Life

Project Summary: Closures and social distancing have upended religious ritual life and the role it plays in spiritual and emotional well-being, while also affecting the role that houses of worship play in providing physical spaces to sustain a wide range of civic, social and cultural organizations and activities. Working with the Interfaith Center of New York, this project would seek to bring together a range of partners and stakeholders to understand what congregations in New York City are doing in response to these necessary shifts, and then use this knowledge to develop a "religion lab." The lab would identify models of faith-based/civic engagement that inform and empower local stakeholders to (i) re-imagine faith-based connections and the value of presence and (ii) re-think how faith spaces can be used in the post-pandemic social system. The project would seek to apply the models developed in the lab with additional congregations, and potentially scale them to other urban contexts, nationally and internationally.

Discussion: Participants were supportive of efforts to think holistically about religious institutions' roles in their communities during times of crisis, while also raising questions around whether meeting the project's goals would imply supporting religious congregations, their beliefs and their role as hubs of community activity. It was noted that the financial and administrative challenges facing many religious institutions, especially those serving disadvantaged communities, were longstanding, even if they had been exacerbated by the pandemic. This sparked a conversation about how religious institutions might take steps to ensure greater financial stability, including through partnering with libraries and other publicly-funded institutions, to provide essential services to community members. The conversation transitioned to the tension between the project team's objectivity toward religion, and the project's implicit support for religious institutions providing physical space for diverse community activism. The project team noted that this is a tension they have navigated in the past; they suggested that making explicit their neutral stance toward religion has allowed them (and partners like the Interfaith Center) to build trust among different faith groups, while being clear about not endorsing their beliefs. Several questions emerged about the legal and administrative realities of maintaining the physical buildings of religious institutions. In response, the project team explained how the project envisioned assisting religious

organizations in handling land transactions, which might involve preparing the organizations to communicate with neighborhood associations, historic preservation commissions, city agencies, and other groups. The discussion concluded by focusing on the project's potential to yield measurable findings in the two-year window, with the project team making the case that it was well-situated to operate for a longer period due to its institutional partners, providing more time to deliver sustainable impact.

Vaccines in the Medical Imagination

Project Summary: Language around vaccine hesitancy shapes the public's distrust in science, medicine and government. The concerted, global effort to produce a coronavirus vaccine will be undermined if current projections on vaccine refusal and hesitancy hold. Absent a nuanced effort to understand vaccine hesitancy, there is a significant risk that ineffective vaccination campaigns could prolong the COVID-19 pandemic, as well as allow the resurgence of other diseases. This project would seek to use state-of-the-art computational methods, medical humanities and literary criticism to: (i) collect a significant database of anti-vaccine rhetoric, found in online forums, discussion groups and social media; (ii) analyze vaccine hesitancy as a cultural, linguistic phenomenon – so as to better understand its causes and concerns; and (iii) propose and implement new ways of presenting vaccines to the public that increase acceptance and participation, in partnership with leading practitioners in the public and private sectors.

Discussion: While participants were generally supportive of the project's proposed methodology, several participants suggested ways to expand its scope, partners, means of analyzing online communication, and mechanisms for staging interventions. Asked for more detail on the proposed analysis, the project team explained that it would involve identifying and aggregating a constellation of terms associated with vaccine hesitancy, leading to the development of themes to inform an eventual messaging strategy. Other participants noted that language is always embedded in culture and ideology – including politically-associated anti-vaccination ideology – and constellations of words associated with vaccine hesitancy could have very different meanings across contexts – especially where linguistic traditions differ. While recognizing the link between language and belief, the project team suggested that the proposed strategy for language analysis would smooth over some complexity, and that the intervention could potentially be tailored to different demographic groups and communities. Furthermore, the project team noted the possibility of partnering with anthropologists and other qualitative researchers to search for culturally embedded practices. The conversation then transitioned from the project's data collection to its strategy for communicating findings, with a participant questioning whether the project's messaging would be effective if vaccination hesitancy were more of an identity-driven issue than an epistemic issue. The project team acknowledged that it would be very challenging to change the views of the small group of people whose identity is shaped by vaccine refusal. However, the much larger vaccine-hesitant population could be influenced by counteracting the online messaging of the aforementioned group with identity-driven opposition to vaccines. Multiple participants emphasized the challenge of partnering with a well-known pharmaceutical company, which may be viewed as undermining the project's objectivity and thus its credibility. The project team responded by noting that a micro-targeting strategy, which increases personalization and deemphasizes the top-down nature of the communication, has proven effective in the past, but also expressed an openness to working with smaller, less recognizable partners.

<u>Reducing COVID-19 Health Risks for Justice-Involved People through Diversion,
Decarceration and Community-Based Support</u>

Project Summary: This project would seek to reduce the rate of COVID-19 transmission and
risks to health and safety at Rikers Island and other NYC jails, safely decarcerate jail
populations and provide community-based support to recently-incarcerated people in ways that
promote overall public health and curb the spread of the virus, especially in communities where
the footprint of the criminal justice system falls most heavily. This would be done in two parts:
1) developing strategies for diversion and accelerating release from jails to limit the spread of
the virus; and 2) implementing initiatives that couple decarceration and case management with
community-based assistance in the areas of housing, healthcare and income support, which are
critical to both successful community reintegration after incarceration and to public health
goals.

Discussion: While several participants lauded the group for addressing an often-overlooked
group with heightened vulnerabilities to the pandemic, they encouraged the project team to
consider additional services for decarcerated individuals. One participant suggested a potential
collaboration with the projects in the Forum's mental health working group, and the project
team agreed this was worth considering. Another participant asked how the project's goal to
provide decarceration guidance fit within broader efforts to close the Rikers Island facilities.
The project team explained that the research informing this project began as part of the larger
effort to close Rikers which, like the project, also involved dedicating deeper focus to services
and case management for those released. The team suggested that the project was designed to
help understand how decarceration could be accelerated as a result of COVID-19 while
simultaneously improving support for those released. Finally, a participant asked whether
recidivism by even a small proportion of decarcerated individuals could be used by ideological
opponents of justice reform to argue that such changes carried unacceptable risks. The project
team acknowledged that decarceration efforts are politically charged and negative news
coverage could compromise efforts to reduce the prison population. However, they also noted
that COVID-19 has been a catalyst for decarceration efforts, out of a necessity to maintain the
health both for the incarcerated and people who work in jails. The team also noted the efforts to
offer housing and healthcare to decarcerated individuals would have wider community benefits,
increasing local support for such efforts.

4. Mental Health and Emotional Resilience

The public's emotional, psychological and social well-being is significantly impacted in a
pandemic – a time of increased fear, worry and stress, both real and perceived, as well as
heightened isolation and the absence of relationships. Evidence has already emerged of a rise in
depression, anxiety and other forms of psychological distress in response to COVID-19, with
specific groups facing especially high risk, such as health professionals and other frontline
workers, socioeconomically-disadvantaged populations and critically ill people and their loved
ones. Moreover, the current approach to mental health services – which relies predominantly
on face-to-face, facility-based service delivery – is ill-suited both for the massive surge in the
demand for mental health care and the need for it to be provided virtually, due to social
distancing. Making matters worse, the spread of the virus has, in many instances, made it
harder to access services aimed at helping people cope with these challenges, whether by
making in-person meetings and rituals such as funerals more difficult, or by placing

unprecedented demands on support systems that were overstretched even before the crisis. These include informal networks of community support, such as religious congregations and block associations, who traditionally provide comfort in times of increased mental and emotional stress. Such stresses have disproportionately impacted populations who, as a result of structural inequalities and discrimination, have been hardest hit by the pandemic, from Black communities in the United States to the residents of Brazil's favelas. Projects in this working group focused on building mental and emotional resilience in high-risk populations through virtual, preventive mental health interventions for high-risk groups in the United States.; psychosocial support for bereaved Black families and the traditional pillars of support in their community in Harlem; psychosocial support people living in informal settlements in Brazil and Kenya; and a remote system of palliative care for seriously ill patients and their families in the United States.

In the working group discussion, there was consensus among the experts that the mental health consequences of the COVID-19 pandemic could themselves lead to a massive crisis – a pandemic of its own – which is both likely to take longer to manifest and persist for years after the current pandemic. Participants also noted that the comorbidity between physical and mental health means that as the pandemic continues to spread, so will the magnitude of the mental health crisis. There was also agreement that COVID-19 has exacerbated a series of disparities in mental health that existed before the pandemic, including chronic inequities in access to prevention and treatment, which are themselves shaped in significant part by the social determinants of health.

Given the agreement on the most pressing challenges in mental health, it was not surprising that the projects shared a number of overlapping elements. All focused on addressing inequities in access to quality mental health care, in particular along socioeconomic and racial lines. In addition, while the projects focused on different parts of the mental health care continuum from prevention to treatment, all sought to address the reality that the traditional means of delivering mental health are not only constrained by social distancing, but are also incapable of meeting the magnitude of need in this time. As such, all of the projects looked to virtual elements as a means of reaching more – or more remote – populations. In addition, all of the projects sought to integrate non-specialists into the delivery of mental health care, whether those were community leaders, pastors, students in advanced degree programs or family members. And multiple proposals recognized the importance of engaging local communities in this effort, in some instances empowering them as potential providers. A summary of each of the four projects and the feedback it received in the working group is provided below.

A Virtual Support System for Palliative Care

Project Summary: A high proportion of critically ill patients with COVID-19 and their families need palliative care, which in times of surging hospital admissions can swiftly overtake the capacities of local health care systems. This project would seek to build upon a two-tiered model of specialist and generalist-level palliative care support that was developed at Columbia University Irving Medical Center during the height of the pandemic in New York City, and pilot the model at additional hospitals in the U.S., in collaboration with the Center to Advance Palliative Care. The dual approach would consist of (i) developing an online platform to provide specialist palliative care remotely, while simultaneously (ii) developing a training for generalist palliative care to be given to individuals within a given hospital system, in order to surge local,

in-person capacity. This project could help respond swiftly to the increased need for palliative care due to the COVID-19 pandemic and future emergencies, while reducing the disparities in palliative care services accessible to underserved communities.

Discussion: Participants noted a potential challenge in that the hospitals where the need for palliative care is greatest may also have the most limited institutional capacity to manage a new initiative, as hospitals serving the underserved communities hardest hit by the pandemic often lack palliative care experts. Moreover, serving communities who have faced structural racism will require cultural sensitivity and a recognition that such a program would need to overcome a significant trust deficit. Thus, successfully adapting the project to the unique needs of each hospital and community while also ramping up quickly in the face of overwhelming need might present implementation challenges. The project team underscored the importance of "righting the disparities" in palliative care access. According to the team, the initial pilot in New York City demonstrated that as long as a hospital had a local champion of the program – even if that person was not a palliative care expert – it was possible to quickly implement the project, and that even a modest increase in palliative care capacity seemed to have made a meaningful difference for the families served. Regulatory challenges were also noted in the discussion. Namely, if other states do not allow for the fast-tracking of licensing for out of state health professionals, as New York's governor did by issuing an executive order during the peak of cases, palliative care experts would not be allowed to provide remote care in time.

Digital Mental Health Care for COVID-19 High Risk Populations

Project Summary: The COVID-19 pandemic is likely to overwhelm capacity to provide timely mental health treatment, yet the current approach to mental health services – which largely relies on face-to-face, office-based service delivery – is ill-equipped to meet this surge. This project will partner with the State of New York Office of Mental Health (NYS OMH) to develop brief online interventions that aim to prevent long-term psychiatric problems among four high-risk groups: frontline health care workers; first responders; patients with psychiatric histories; and minority (Black, Latinx, Asian), low-income individuals. A total of 4,000 individuals with early mental health problems will be recruited to participate in a randomized controlled trial testing the efficacy of an interactive, video-based intervention, in which empowered protagonists will share COVID-19 related mental health problems and describe how they changed their views of mental health, which in turn helped them seek mental health care. The video will be followed by a short digital behavioral change module, aiming to reduce exposure to social media, increase social support, and promote sleep and physical exercise – with the goal of promoting treatment seeking, symptom reduction and well-being. If effective, Columbia and NYS OMH will work together to scale this approach to statewide implementation.

Discussion: The project team noted the potential of tapping into FEMA's significant funding to address COVID-19 related mental health challenges in New York, while acknowledging that the funding often expires long before the problems have been fully addressed. However, the team also noted the possibility of leveraging the project to demonstrate the efficacy of digital-based interventions to supplement FEMA's reliance on telephonic interventions.

Several participants raised questions around whether the intervention would provide treatment for target beneficiaries or simply screen for more serious problems that required referral. The

project team clarified that the short interventions were intended to serve a preventive function, encouraging changes that could prevent mental health problems from setting in or worsening, while simultaneously reducing stigma associated with such challenges and with seeking treatment. Those identified at risk for depression, anxiety and post-traumatic stress disorder (PTSD) would be referred to a network of clinical providers through NYS OMH. Participants also raised questions around the high-risk target groups identified by the project, with participants suggesting bereaved individuals and home health care workers as alternative groups meriting attention, and recommended that the project distinguish between low-income populations and minority populations (in one of the target groups identified). In response, the project team noted that the model could be adapted to different high-risk populations, taking into account the group's suggestions.

<u>Implementing Collaboratively-Designed Community Psychoeducation in Kenya and Brazil in Response to COVID-19</u>

Project Summary: COVID-19's effects have been acutely felt among the one billion people around the globe who live in rapidly-expanding informal settlements – urban areas with overcrowding, poor-quality housing, limited access to water, sanitation and electricity, and minimal health and mental health resources. Rates of depression, anxiety, psychological distress, substance abuse and suicidality are higher in informal settlements than in surrounding communities, and have been exacerbated by the pandemic. This project will use a technology-based, train-the-trainer psychoeducation model to work with local leaders in Nairobi, Kenya and Rio de Janeiro, Brazil to address these increasing needs. Psychoeducation, is an evidence-based, interactive, nonhierarchical, anti-oppressive approach that provides opportunities for emotional processing, building trust, strengthening alliances and sharing knowledge and experiences. Working collaboratively with partner organizations and community members in Nairobi and Rio, the project will consist of five phases: (i) a community needs and assets assessment and trust-building; (ii) development of a culturally-adapted curriculum; (iii) a training-of-trainers pilot followed by their training of community members; (iv) analysis of process and outcome data and relevant curriculum revisions; and (v) a sustainability and impact assessment. Findings will fill a gap in understanding the impact and implementation of community-engaged psychoeducation on the mental health and health of community leaders and members within informal settlements.

Discussion: The working group highlighted the profound challenges faced by people living in informal settlements – as noted in the project's concept paper – which have resulted in deep, sustained stressors that long predate the pandemic. To this end, a participant asked how the project would measure the impact of the intervention, given the potential difficulty of disaggregating the mental health challenges rooted in COVID-19 from the lasting drivers of psychological distress, as well as the intervention's ability to ameliorate those stressors. The project team acknowledged that COVID-19-specific measurements were nascent and thus not yet proven to be successful in informal settlements, but part of the objective of this pilot would be to test their effectiveness. Participants appreciated the project team's emphasis on the training-of-trainers model through local partnerships, which they believed to be a sustainable approach tailored to the local context, and to seeking to address chronic and COVID-19-specific mental health challenges side-by-side. Another question was raised with respect to the ability of the project to tackle fear-based behavior, which might prevent the community members from taking part in the proposed project or attending workshops organized by

trainees. The project team responded that the project would address these fears through digital platforms that would seek to destigmatize the virus and raise awareness about proven preventive measures.

<u>Tools and Connections: Strengthening Support for COVID-19 Bereavement in Harlem and Beyond</u>

Project Summary: COVID-19 mortality rates are markedly elevated in Black communities. Other COVID-19 related stressors – such as physical distancing, financial and caregiving – are also elevated in a context of ongoing racism, pervasive inequities and injustices (e.g., police violence, disparities in health care and education). These challenges increase vulnerability to mental and physical grief complications. The Center for Complicated Grief at Columbia University works to disseminate a proven efficacious short-term intervention for people struggling with grief. Research by SafeLab at Columbia University research has documented the importance of social media for grief expression, especially among inner-city Black youth. Mount Neboh church in Harlem is a center for the community in the COVID-19 response. This project will bring together these three entities to enhance bereavement support for Black neighbors around Columbia University, in Morningside Heights and Harlem, and will be carried out in three phases: i) work with the Senior Pastor of Mount Neboh church to identify and partner with a network of community members who provide formal and informal support for bereaved individuals; ii) develop digital enhancement programs to address needs and gaps in existing support; and iii) use university educational expertise to build teams of readily-available, culturally-sensitive mental health professionals, with knowledge and skills to work with COVID-related grief and adaptation to loss.

Discussion: Several participants recommended ways in which the project could broaden its scope beyond grief to tackle related health disparities in the Black community in Morningside Heights and Harlem. One participant suggested that in an effort to mitigate grief, the project might try to connect members of the target community with palliative care resources when a family member is seriously ill, while another participant asked whether experts might help families navigate complex decisions in the health care system around access and cost. There were also recommendations to include comorbidities beyond complicated grief like PTSD and depression, as well as to encourage behavioral changes to reduce risk of infection and other health issues. The project team clarified that the project already intended to address all aspects of bereavement from accepting the reality of a loss to restoring well-being through physical activity. In response to a question about measuring impact, the project team noted that they would rely on evaluations before and after the use of the digital enhancement interventions.

5. Education

COVID-19 required governments around the world to suspend in-person educational programs, either shifting such programs to virtual formats or shutting them down altogether. The impact is extraordinary, affecting approximately 90 percent of the world's student population and 60 million teachers worldwide. These closures have presented profound challenges for delivering educational services, from reductions in learning time, to adapting curricula designed for in-person instruction to a remote learning context, to disruptions to the

traditional ways of evaluating student advancement.[12] The pandemic has also exacerbated long-standing educational disparities that reflect and reinforce inequities along racial, gender and socioeconomic lines. For example, many students lack access to the technology necessary for online instruction,[13] and school closures have required many families to provide their children with additional meals and childcare, a burden that has fallen hardest on low-income households.[14] Meeting the complex needs of students, their families and educators in this time demands a willingness to reimagine models of learning and holistic student health. Yet in the face of this crisis, many governments and educational institutions are doubling down on practices that proved ineffective even before the pandemic. This working group considered projects that sought to promote educational approaches for student populations marked by inequality and insufficient resources by reimagining: how student achievement is assessed with distance learning; how critical educational, health and nutritional resources can be integrated to support the development of those left out of school; how the unique learning that students attain through experiments and inquiry-based activities can be fostered remotely in low-technology settings; and how women can be trained and empowered to assume leadership roles in healthcare. The subsequent sections describe project-specific feedback that took place during the working group discussion as well as a culminating conversation assessing each project's feasibility within a two-year timeframe.

A number of cross-cutting themes and insights emerged in the working group discussion. One was the importance of distinguishing between learning lost and learning missed, with experts pointing out that the discussion around the pandemic's impact on education – particularly with respect to children – often focuses on the loss of prior knowledge, rather than the impact of not being able to learn. Consequently, experts recommended dedicating more attention to understanding the incremental impact of learning missed and ways to ameliorate it. There was consensus in the group that the educational impact of the current crisis is falling disproportionately on underserved and marginalized populations. In addition, the discussion highlighted the ways all of the projects need to grapple with uncertainty, whether around when schools would reopen, or whether those openings will be sustained or temporary (given the likelihood of subsequent waves of the pandemic). Furthermore, all of the experts recognized the importance of broadening the aperture when it comes to thinking about the inputs of a child's education, from the role of a student's peers or family members as educators, or their lived environment as a laboratory for exploration and learning. Finally, there was consensus around the necessity to empower women in educational settings and to more explicitly study and address how the pandemic is exacerbating inequities across gender lines.

<u>Rapid Response to Learning Loss & Broader Holistic Needs of Out-of-School Children in Liberia</u>

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[12] Roberta Michnik Gollinkoff, Helen Shwe Hadani Nad Kathy Hirsh-Pasek, "Avoiding the COVID-19 slump: Making up for lost school time," *The Brookings Institution*, April 30, 2020, https://www.brookings.edu/blog/education-plus-development/2020/04/30/avoiding-the-covid-19-slump-making-up-for-lost-school-time/

[13] Dana Goldstein, "Research Shows Students Falling Behind During Virus Disruptions," June 5, 2020, https://www.nytimes.com/2020/06/05/us/coronavirus-education-lost-learning.html

[14] Caroline G. Dunn, Erica Kenney, Sheila E. Fleischhacker, and Sara N. Bleich, "Feeding Low-Income Children during the Covid-19 Pandemic," *The New England Journal of Medicine*, April 30, 2020. https://www.nejm.org/doi/full/10.1056/NEJMp2005638

Project Summary: COVID-19 has exacerbated the education challenges in Liberia, where even before the pandemic children had only completed an average of 4.4 years of schooling by age 18, while simultaneously increasing risks to children's health and wellbeing (e.g., trauma, domestic violence, infection, malnutrition). This project would work with the Luminos Second Chance program that provides an accelerated learning program that currently serves out-of-school children aged 8-12 in Liberia and enables them to enter government schools in 3rd or 4th grade. In partnership with the Luminos Fund and the Liberian Ministries of Education and Health, key project activities would include to: (i) Develop and implement a needs assessment to identify critical aspects of students' health, socio-emotional development and academic skills; (ii) Design targeted interventions to promote student health and school attendance post-COVID-19; and (iii) Adapt the Luminos curriculum to include activities and strategies to address student socio-emotional development and wellbeing – during and following the pandemic. The tools, curricula and lessons would be shared with the Liberian government and would inform Luminos's efforts to scale the program in Lebanon, Ethiopia and other countries in Africa. In sum, the project would seek to reimagine schooling to provide integrated support for students' health, social-emotional development and academic learning in a cost-effective way.

Discussion: Participants found the layering of academic and health interventions, particularly through socioemotional learning, to be timely and innovative, and they viewed Luminos's existing program as providing a strong foundation. However, they had questions about the means of delivery in a time of social distancing, as several participants sought clarification on how the educational and health services would be delivered and by whom. The project team indicated Luminos's existing local providers would be able to augment their standard set of interventions in a safe manner during the pandemic, but that the project team would need to finalize details with local, national and international entities to ensure additional health services could be implemented using Luminos's existing team and infrastructure. One participant suggested the interventions should include sexual and reproductive health resources, and the project team agreed. Another question was raised regarding the transferability of the proposed model to other geographies. In response, the project team acknowledged that while parts of the approach would need to be tailored to different cultures and contexts, the integration of socioemotional learning would be consistent across countries. Finally, a participant asked how the project team would cope with the potential cycle of opening and closing of schools and other facilities as a result of the pandemic. The project team acknowledged the great challenge – for both their team and Liberia's leadership – of dealing with these fluctuations, but indicated that Luminos's existing funders had committed to continue supporting the organization through all phases of the crisis, and noted that the team was experienced with ushering students through unpredictable transitions.

Project-Based Assessments: Evaluating and Evolving Education for the 21st Century

Project Summary: Like most U.S. states, New York evaluates elementary and secondary school students primarily through annual pencil-and-paper tests, which are administered simultaneously across the state and require in-person attendance. These exams are the cornerstone of state accountability for every school, and have direct implications on student promotion, teacher ratings and school evaluations, yet COVID-19 forced New York to suspend them for the first time since 1865. The inability to administer these exams has only

underscored their systemic shortcomings and the degree to which they reflect antiquated concepts of learning and knowledge. This project proposed developing a project-based assessment for New York that would provide an alternative way of measuring learning – reflecting the skills that students need for the 21st century. In addition, unlike the existing exams, these project-based assessments would allow asynchronous, un-proctored, in-home completion – addressing logistical challenges posed by the current pandemic. In partnership with the New York City Department of Education Office of Periodic Assessment, the project team would design five to seven project-based assessments, pilot them in 30-50 schools in New York City, and then disseminate the results so that the New York Board of Regents could provide project-based assessments as an alternative to the standardized state test.

Discussion: Participants were supportive of offering non-standardized assessments, yet concerns arose regarding the scalability, feasibility and fairness of the assessments. The most prominent theme from the discussion focused on difficulties involved in bringing project-based assessments to scale. One participant made the case that the current standardized test format was ubiquitous in large part because it was scalable and inexpensive to administer, while another noted that scaling project-based assessments might result in watered-down versions that reproduce more of the flaws of the existing system. The project team acknowledged these challenges, but noted that advances in technology could make the administration of such assessments more efficient, while the risk of diluted versions of the assessment could be ameliorated by partnering with content area specialists to create projects demanding rigorous thinking and communication within standards-based templates. The team also noted that piloting project-based assessments in roughly 30-50 schools would offer some initial lessons around implementation across a range of different environments. Another participant questioned whether group assessment might complicate the ability to evaluate individual students, and highlighted the risk of race, gender and other biases influencing evaluations. The project team noted that project-based assessments give teachers the purview to manage group dynamics while also allowing individual members with different strengths to contribute. On the risk of bias, they noted that standardized tests are rife with biases, and that coding and anonymizing projects could provide protection against bias in evaluations. Finally, participants asked if it was reasonable to assume that the project could swiftly obtain approval for such assessments from the state, in response to which it was noted that New York City already allowed a small subset of schools to adopt state-approved project-based assessments, and offering a portfolio of options to additional schools would represent a natural extension of this work.

Education Through Crisis and Disruption: Inquiry Based STEM Learning Via Text Message:

Project Summary: The COVID-19 pandemic has underscored the limitations of existing educational infrastructure to adapt and deliver high-quality instruction to children across the socioeconomic spectrum outside of a physical school setting, particularly low-income children who often lack a stable device, internet access and a high limit data plan. This project would develop a low-cost, mobile phone-based Science, Technology, Engineering and Math (STEM) Messaging System designed to deliver, monitor and offer support for inquiry-based learning activities for students at home. The system would support real-time, interactive, message-based STEM activities for which the only resource required is a mobile phone. The system would include an educator-facing component that would help teachers input and structure inquiry-based curriculum, collect responses, track student activity, monitor progress toward learning

goals and intervene when necessary; and a student-facing component that would use common text-messaging systems to guide students through inquiry-based, hands-on STEM activities. The project would be piloted in the public K-8 school system of the city of Sobral, Brazil (population ~200,000), building on an existing relationship with the city's Secretary of Education.

Discussion: Participants supported the idea of allowing more teacher-student interaction outside of school even after the pandemic, and wondered if there were potential synergies between the proposed app and the idea discussed previously in the working group, which focused on project-based assessments. The project team noted that many countries, including Brazil, require less in-person instruction than the U.S., and the app could be a way to extend educational time and increase students' interaction with teacher-driven content even in non-pandemic times. Participants generally sought more clarity on how teachers would interface with the app (whether the app would generate content or only would include teacher-produced content), and how teachers would adjust pedagogically when using it. The project team indicated that technology is not yet sophisticated enough to generate responsive content, and teachers would manually enter in lessons and projects for their students. The team also suggested the app was malleable to different pedagogical orientations, and explained that the focus on inquiry-based activities meant students could use their home environments to explore a variety of questions. Another participant wondered if Brazil was the most appropriate site for a pilot, given that cell phones are also common in countries where disruptions of in-person schooling are more common. The team expressed openness to piloting in different countries, while indicating that Brazil was selected because of both its relatively high level of need and the strong relationships the team has with education officials there.

Increasing the Participation of Women in Healthcare to Assist in Addressing Gender-Based Violence Exacerbated by COVID-19

Project Summary: While women predominantly provide the health and gender-based violence (GBV) services to communities – and often know how to best address prevention and care – gender specialists and women activists are often sidelined from national and subnational discussions on these issues, and there is an overall lack of effective capacity training and comprehensive leadership development for women. The COVID-19 pandemic has exacerbated these disparities. This project would work with the UN Population Fund (UNFPA) to assess the disparity in women's leadership opportunities and the related ability of women to access sexual and reproductive health and GBV services. To do so, it would focus on the COVID-19 response in Jordan and Ghana, which represent a humanitarian and a development setting. The project would then develop and apply a systematic, measurable, adaptable approach to mobilize women-led civil society health service providers in order to influence policy, deliver sexual and reproductive health and rights and GBV services, and constitute a permanent part of health care leadership architecture, including in the humanitarian context.

Discussion: Participants were enthusiastic about the project's focus on gender and on empowering women leaders, but identified several structural and implementation challenges. A number of participants pointed out that the chief impediment to leadership opportunities for women is often not capacity or training, but rather discrimination and bias on the part of individuals and systems that systematically exclude them or undervalue their voices. As such, participants asked whether the project had contemplated focusing on reducing bias among

current, mostly male leaders, or using international funding to exert effective pressure to ensure women are given more substantive leadership positions. Even when women get a seat at the table, one participant noted, there is a danger of "tokenism" – where they are present, but not heard. The team acknowledged that challenges existed in working within national-level infrastructures for support and training, since these are the very infrastructures that have reinforced such inequities. One of the participants suggested drawing on Columbia's network of human rights experts from around the globe for insights and best practices in how to overcome some of these challenges, which the project team expressed an openness to doing. Finally, one participant asked for more detail on why the pilot sites of Jordan and Ghana were selected. The project team explained that their organizations had developed strong relationships with key partners in both countries, and noted the importance of implementing the model in at least one humanitarian setting and one developing country, given the distinct challenges in these two contexts.

III. Conclusions and Project Selection

Crosscutting Insights: The Working Groups and Closing Plenary

A number of crosscutting themes and insights emerged in the working groups and plenary discussion.

Many of the projects reflected the reality that addressing the challenges of the COVID-19 crisis requires engaging non-specialists as partners and equipping them with the tools, training and resources to help themselves, their families and their communities. This is in part a consequence of the magnitude of the current needs, which far outstrip the capacities of specialists, as well as of the constraints imposed by social distancing. But participants also underscored the unique role that non-specialists are positioned to play, due in significant part to having the trust of the target populations and understanding intimately their needs. For instance, several projects that focused on addressing mental health challenges in the current crisis – whether through preventing serious problems from taking root through early interventions, or providing care for people experiencing profound grief as a result of losing loved ones – looked to family members, co-workers and community leaders to provide critical care and support. Similarly, several of the education projects presented at the Forum sought to enlist parents as partners in teaching their kids at home while schools are closed or operating with reduced schedules.

Trust – and the lack of trust – was another theme that cut across many of the projects and discussions. Trust in the guidance provided by experts – particularly public health professionals and government officials – is indispensable to people adopting behaviors and taking actions that reduce the spread of the virus. And where distrust leads people to ignore or challenge such guidance, it puts at risk not only individuals but entire communities. Several working groups explored ways to build trust. This included efforts to strengthen the legitimacy of experts that inform the public about ways to prevent the infection's spread, particularly in communities where they may be viewed with skepticism. It also included ways to mitigate the spread of misinformation, as through finding ways to overcome the growing vaccine hesitancy and improving the way that news organizations process and disseminate scientific information to the public.

Across working groups, participants grappled with the question of how to make permanent some of the temporary policies and practices put in place in response to COVID-19 that have allowed effective – and in many instances long overdue – reforms and innovations. Regulatory changes are one example. A number of the most promising advances across a range of fields during the crisis – from the use of telehealth and its coverage by insurance programs, to the adoption of novel decarceration policies, to shifts in how schools measure student learning – have been enabled by temporary changes to regulations and policies. These changes often improve the way institutions work, benefit communities and save costs. Yet some of these exceptional policies have already expired, while in other instances, uncertainty around how long they will last has held back more comprehensive innovation. As such, a number of projects homed in on what can be done to push regulatory bodies and policymakers to make such changes permanent.

The importance of strengthening the relationship between Columbia University and the Harlem community was also identified as a critically important goal. Harlem was the proposed target site for the work of multiple projects, and participants felt the neighborhood's diversity along ethnic, racial, socioeconomic and religious lines – among others – presented an opportunity to measure impact across a range of different contexts. The longstanding and complex relationship between the university and Harlem was discussed as both an asset and a potential challenge, yet there was consensus around the value of focusing CWP's efforts on the community that Columbia is part of – especially given how profoundly it is being impacted by the pandemic. Participants encouraged projects to create the conditions for genuine reciprocal learning between the university and the neighborhood, and to collaborate with the deep networks of community and faith leaders who took part in projects proposed at the Forum.

Finally, in the context of the ongoing and widespread protests against structural racism, a number of participants underscored the urgency of projects both studying how trenchant inequalities contribute to the challenges that they are focused on, as well proactively taking steps to address them. Indeed, many projects sought to focus their efforts specifically on empowering underserved communities – from increasing the access of socioeconomically disadvantaged populations to preventive and mental health services, to improving decarceration policies and expanding support services for those who are released, issues that disproportionately impact Black and Latinx communities. In doing so, the project teams emphasized the importance of tailoring their interventions to the local context, and engaging beneficiaries in the project design and implementation, even as they sought to develop models that could be scaled up, as needed.

Project Selection

In the Forum's virtual closing plenary on June 30, the five moderators reported out on the projects discussed in their respective working groups and the feedback each project proposal received from the group's participants. Next, each of the 37 participants was asked to identify up to three projects that she or he thought most merited further development by CWP for potential implementation. (Participants were asked not to express support for their own projects.) There was strong support for four projects, as well as notable support for a fifth project. As a result, we intend to bring five projects to the CWP Advisory Committee for consideration.

The first is "Tools and Connections: Strengthening Support for COVID-19 Bereavement in Harlem and Beyond," which proposes working with Black faith and community leaders in Harlem to reduce the health and mental health effects of bereavement – as well as their broader social consequences – caused by the disproportionate number of COVID-19 deaths among Black residents. Several participants pointed to the particular value of Columbia University helping to address the outsized impact of the pandemic within its own neighborhood, which could deepen the connection between the communities. Multiple participants were also drawn to the project's integration of community knowledge and social capital, and the sustainable impact that could result from equipping local leaders with tools they seek. The academy could learn just as much if not more from community leaders, as community leaders could from academics, participants said. A number of participants suggested broadening the faith groups who would be the project's initial partners, with a few participants suggesting a possible collaboration with the project on "Sites of Faith: A Proposal on the Challenges Posed by Covid-19 to the Infrastructures of Religious Life," and its practitioner partner, the Interfaith Center of New York.

The second is "Digital Mental Health Care for COVID-19 High Risk Populations," which proposes to develop, test and, if effective, implement scalable video-based mental health interventions that aim to prevent the onset of serious mental health issues due to COVID-19, with a special focus on high risk groups such as frontline health workers. There was consensus among participants on the importance of focusing on mental health issues, which in general receive far fewer resources and less attention than other health issues, a gap that the pandemic has widened. A number of participants saw as a key strength the project's potential to adapt the model across a range of high-risk groups, which would allow for its broader scaling to communities in need. Moreover, a number of participants spoke to the way they had seen the pandemic's mental health impact within their own professional and personal spheres. Finally, multiple participants saw the established partnership with the New York State Office of Mental Health as significantly increasing the likelihood that the proposed interventions could be scaled if proven effective.

The third project, "A Virtual Support System for Palliative Care," aims to partner with hospitals in places experiencing significant surges in COVID-19 cases to replicate a two-tiered model for increasing specialist (virtual) and generalist (in-person) palliative care, which was piloted at Columbia University Irving Medical Center during the peak of New York City's outbreak. As with mental health issues, participants felt palliative care was a worthy area of focus because it is perpetually under-resourced and under-staffed, particularly in hospitals serving Black and Latinx populations and low-income communities. A number of participants highlighted as a strength the fact that palliative care is predicated on empowering patients and their families to make informed decisions in a health care system that often fails to adequately inform or empower the people it serves. Furthermore, many participants said the fact that such a system was implemented swiftly and effectively in crisis conditions (during New York City's peak in cases) suggests that it can be achieved elsewhere.

The fourth project is "Vaccines in the Medical Imagination," which proposes to develop a body of research on vaccine hesitancy drawing on literary criticism, medical humanities and large-scale computational analysis in order to inform and shape efforts by advocates and practitioners to increase confidence and uptake for an eventual COVID-19 vaccine. There was a widespread

sentiment among participants that vaccine hesitancy is a serious threat that needs to be addressed not only for COVID-19, but also for other viruses, and several participants saw this as a field where academic expertise had been underutilized. Due to the media's central role in shaping public perceptions of vaccines, participants suggested potential collaboration with the project on "Improving COVID-19 Reporting and Public Knowledge: Embedding Academic Expertise in the Newsroom."

The fifth and final project is "Reducing COVID-19 Health Risks for Justice-Involved People through Diversion, Decarceration and Community-Based Support." This project would aim to pursue diversion and decarceration strategies to reduce the spread of the virus among individuals involved with the justice system, while also providing case management and community-based assistance to facilitate the reintegration of the growing number of people being decarcerated during the pandemic, with a focus on housing, health care and income support. Participants supported this project because of its strong and diverse practitioner partners; its community-centric approach, from the reintegration of formerly incarcerated people to looking holistically at the impact of the justice system on entire communities; and the urgency of working with justice-involved people, given their vulnerability to the virus and the inextricable link between justice-related problems and structural racism.

IV. Next Steps: Project Design, Assessment and Implementation

The five aforementioned project ideas will be presented to the CWP Advisory Committee, which is composed of scholars, researchers and practitioners with expertise and experience consistent with the mission and purpose of CWP. The committee advises on whether to pursue the development of the project proposals that emerge from each Forum. Projects that are determined to merit further development will receive an initial tranche of funding to undergo a rigorous project design phase of approximately three months. During this time, project leads will work with CWP staff to: articulate a theory of change; clarify the project's goals and desired impact; identify major deliverables and key stakeholders; craft a workplan with a timeline for implementation; describe the roles and responsibilities for the project team; establish a budget; identify a set of performance indicators to be used for project monitoring and evaluation; and build partnerships with the internal and external individuals and entities who will take the project forward. For projects that continue to move along this track, all of these activities will be synthesized in a project design report that will be shared with CWP's President's Council and Columbia President Lee C. Bollinger for final consideration. If approved, the projects will be implemented over a period of up to two years.

V. Acknowledgements

We are profoundly grateful to the people who helped conceive of, organize and shape the CWP Forum on COVID-19.

First, we thank the many individuals who gave generously of their time in advance of the Forum, informing our understanding of the crisis and suggesting potential partners for implementation. They include (unless otherwise noted, the institution with which individuals are affiliated is Columbia University): Richard Briffault, Joseph P. Chamberlain Professor of

the International Research Institute for Climate and Society/Earth Institute) and Director, Climate and Health Program; Allison Silvers, Vice President, Payment & Policy, Center to Advance Palliative Care; Josef Sorett, Associate Professor of Religion and of African American and African Diaspora Studies; Neng Wang, Professor of Real Estate and Finance, Columbia Business School; Jack Willis, Assistant Professor; Susan Witte, Professor of Social Work; and Siqin (Kai) Ye, Assistant Professor, Director for the Cardiology Inpatient Consultation Service and Associate, CUIMC.

Fourth, we extend our appreciation to Joanna Dozier, Molly Hellauer, Maria Nicrone, Katyanna Johnson, Christina Shelby and Carrie Walker from the Office of the President; and to the exceptional notetakers for the Forum's working groups, Crystal Harris, Master of Public Health candidate; Yue Hu, PhD candidate in the Division of Decision, Risk and Operations at Columbia Business School; Chloé Lincoln, MSW; G. Faith Little, Senior Program Manager, Center for the Professional Education of Teachers; and Aliza Naiman, Clinical Research Assistant, PTSD Research and Treatment Program.

We are grateful to CWP colleagues Tom Asher, Ann Bourns, Daphne McCurdy, Sue Radmer, Hillary Schrenell, Sarah Silliman and Marina Vasilyeva. And special thanks go to Tyler Haupert, Natalie Kirchhoff and Lily Wendle for their extraordinary efforts in working with the project teams to draft and edit the concept papers for this Forum; and to Cassie Ziegler, who deftly managed the complex logistics for CWP's first virtual Forum. Above all, thanks go to Avril Haines, whose vision shaped the CWP Forum process and whose leadership guided the CWP project team in this endeavor, as in so many others. Without these collective efforts, this Forum would not have been possible.

Finally, our profound thanks go to the Forum participants, who went above and beyond the call in helping us to understand the complex crisis at hand and generate compelling ways to address it, and who are listed in the annex that follows.

VI. Annex: Biographies of Forum Participants

Lee C. Bollinger
President, Columbia University
Lee C. Bollinger became Columbia University's 19th president in 2002 and is the longest serving Ivy League president. Under his leadership, Columbia stands again at the very top rank of great research universities, distinguished by comprehensive academic excellence, an innovative and sustainable approach to global engagement, the largest capital campaign in Ivy League history, and the institution's most ambitious campus expansion in over a century.

Bollinger is Columbia's first Seth Low Professor of the University, a member of the Law School faculty and one of the nation's foremost First Amendment scholars. Each fall semester, he teaches "Freedom of Speech and Press" to Columbia undergraduate students. His latest book, *The Free Speech Century,* co-edited with Geoffrey R. Stone, was published in the fall of 2018 by Oxford University Press.

Bollinger is a director of Graham Holdings Company (formerly The Washington Post Company) and serves as a member of the Pulitzer Prize Board. From 2007 to 2012, he was a director of the Federal Reserve Bank of New York, where he also served as Chair from 2010 to 2012.

From 1996 to 2002, Bollinger was the President of the University of Michigan. He led the university's historic litigation in *Grutter v. Bollinger* and *Gratz v. Bollinger*, Supreme Court decisions that upheld and clarified the importance of diversity as a compelling justification for affirmative action in higher education. He speaks and writes frequently about the value of racial, cultural, and socio-economic diversity through columns, interviews, and appearances around the nation and across the world.

Claire Ankuda
Assistant Professor, Mount Sinai
Claire Ankuda is a palliative medicine physician and health services researcher in the Brookdale Department of Geriatrics and Palliative Medicine at the Icahn School of Medicine at Mount Sinai. Her work examines the role of Medicare Advantage plans and home health policy in shaping disparities and quality of care for older adults with serious illness. A former Robert Wood Johnson Clinical Scholar at the University of Michigan, she is currently funded by the National Palliative Care Research Center. She received an MD from the University of Vermont, an MPH from the Harvard School of Public Health, and an MSc in Health Services Research from the University of Michigan.

Caitlin Baron
CEO, Luminos Fund
Caitlin Baron is the inaugural CEO of the Luminos Fund, a philanthropic initiative dedicated to advancing education innovations for the world's most vulnerable children. Luminos has enabled 132,611 children to have a second chance at an education. Luminos believes in the power of creative pedagogies and activity-based education to transform children's lives, even in the poorest corners of the world. Baron spent the previous decade as a senior leader within the Michael & Susan Dell Foundation, helping to grow the organization to steward over $1 billion in charitable giving. She founded and led the foundation's office in South Africa and built MSDF's impact investing portfolio. She graduated from UCLA in Political Science and is pursuing an executive masters with the Fletcher School of Law and Diplomacy at Tufts University.

Michael C.C. Benhamou
Director of Corporate Sustainability, Public Affairs & Business Intelligence, ScoreOne Technologies
Michael C.C. Benhamou specializes in the GDPR, data privacy and PR strategies. By the age of 23, he completed 3 independent master degrees in France, Ireland and China. He majored in Politics, Political Sciences & Sustainable Development from the world's top universities, across Europe (Sciences Po & UCC) and Asia (Tsinghua). Valedictorian at Tsinghua University (GPA 3.94), he is now a Corporate Director at ScoreOne Technologies, a Singapore-based FinTech corporation across SE Asia and India.

Courtney Bender
Professor, Department of Religion, Columbia University
Courtney Bender is Professor of Religion at Columbia University. A sociologist and ethnographer by training, her research investigates a range of religious and entanglements in American social and public life. She has published on religious-secular dynamics in non-profit organizations, congregations, and politics, and has investigated the reach and complications of contemporary spirituality in the arts, health care, and business. Bender's research aims to provide models and approaches that will equip scholars to better evaluate the complex roles that American religious histories and processes play in American public and social life. She is the author of two monographs, *Heaven's Kitchen: Living Religion at God's Love We Deliver* and the award-winning *The New Metaphysicals: Spirituality and the American Religious Imagination*, and is the co-editor of several interdisciplinary volumes on religion, secularity, and pluralism. Bender has also served as the academic director of two funded projects at the Social Science Research Council, including a multi-year, multi-million dollar grants program on new research directions in the study of prayer. She is currently completing a manuscript that explains the development of American "interfaith" through critical analysis of dozens of fantastic plans made by twentieth century modern architects and city planners that imagined a democratic and irenic "religion of the future."

Susan Birch
Director, Washington State Health Care Authority
Susan Birch was appointed by Governor Jay Inslee in January 2018 to oversee efforts to transform the health care system, helping ensure Washington residents have access to high-quality, affordable health care. HCA purchases care for nearly 2.5 million residents through Washington Apple Health (Medicaid), the Public Employees Benefits Board (PEBB) Program and the School Employees Benefits Board (SEBB) Program. HCA also is responsible for the state community-based behavioral health system. Before joining Governor Inslee's Cabinet, Birch served as the executive director of the Colorado Department of Health Care Policy and Financing. She led the state's successful implementation of the Affordable Care Act, which expanded coverage to more low-income Coloradans while focusing on cost containment and improved service delivery. She also has served as chief executive officer of the Northwest Colorado Visiting Nurse Association. Birch has completed appointments to the National Advisory Committee on Rural Health and Human Services, and served as the Bonfils-Stanton Foundation Livingston Fellow and the Robert Wood Johnson Executive Nurse Fellow.

Paulo Blikstein
Affiliate Associate Professor of Education, Technology and Design, Teachers College; Affiliate Associate Professor of Computer Science; Faculty, Data Science Institute, Columbia University
Paulo Blikstein is an Associate Professor of Education, Technology and Design at Teachers College, an Affiliate Associate Professor of Computer Science and Affiliate Faculty at the Data Science Institute at Columbia University. An engineer by training, Blikstein holds a PhD. in Learning Sciences from Northwestern University and an MSc. from the MIT Media Lab, and was on the faculty of the Graduate School of Education at Stanford University from 2008 to 2018. His research focuses

on how new technologies can deeply transform the learning of science, computer science, and engineering, and focuses on the applications of data mining, AI and multimodal learning analytics for learning. Blikstein created in 2010 the first research-based program to bring makerspaces to schools, the FabLearn Project, now present in 22 countries. A recipient of the National Science Foundation Early Career Award and the AERA Jan Hawkins Early Career Award, his work has been featured in the New York Times, Scientific American, Wired, The Guardian, and several other outlets.

Craig D. Blinderman
Director, Adult Palliative Care Service; Associate Professor in the Department of Medicine, Columbia University Irving Medical Center
Craig D. Blinderman is the Director of the Adult Palliative Medicine Service at Columbia University Medical Center/New-York Presbyterian Hospital and an Associate Professor of Medicine in the Department of Medicine, Columbia University, College of Physicians & Surgeons. He has published numerous original articles, reviews and chapters in the following areas: palliative care response to COVID-19, early palliative care in lung cancer patients (Temel et al. *NEJM* 2010), comfort care for the dying patient (*NEJM*, 2015), medical ethics, existential distress, symptom distress in chronic illnesses like COPD and CHF, etc. His academic interests include: decision-making at the end of life, palliative care in developing countries, medical ethics, and the integration of contemplative care and narrative medicine in palliative care. Blinderman also has a strong interest in teaching and developing programs to improve students' and residents' skills in communication and care for the dying.

Carri Chan
Associate Professor of Business, Columbia Business School
Carri Chan is an Associate Professor of Business in the Decision, Risk and Operations Division at Columbia Business School. Her research is in the area of healthcare operations management. Her primary focus is in data-driven modeling of complex stochastic systems, efficient algorithmic design for queuing systems, dynamic control of stochastic processing systems, and econometric analysis of healthcare systems. Chan's research combines empirical and stochastic modeling to develop evidence-based approaches to improve patient flow through hospitals. She has worked with clinicians and administrators in numerous hospital systems including Northern California Kaiser Permanente, New York Presbyterian, and Montefiore Medical Center. She has spent the 2019-2020 academic year on sabbatical at the Value Institute at NY Presbyterian Hospitals. Chan is the recipient of a 2014 National Science Foundation (NSF) Faculty Early Career Development Program (CAREER) award and the 2016 Production and Operations Management Society (POMS) Wickham Skinner Early Career Award. She received her BS in Electrical Engineering from MIT and MS and PhD in Electrical Engineering from Stanford University.

Henia Dakkak
Head of Policy and Liaison Unit, Humanitarian Office New York, UNFPA
Henia Dakkak is the Head of Policy and Liaison Unit with The United Nations Population Fund (UNFPA) Humanitarian Office. Dakkak provides UNFPA country and regional offices with advice on policy, coordination and technical support related to humanitarian preparedness, emergency response, disaster risk reduction, recovery and resilience. Her goal and role is to advance gender equality, to promote sexual and reproductive health and rights including menstrual health, mental health and psychosocial support and to prevent and respond to gender based violence issues in humanitarian settings and across humanitarian, development and peace nexus. Before joining the UN in June 2004, Dakkak was the Director of Relief and Development programs with International Medical Corps (IMC), she managed and developed the technical aspect of service delivery programming to improve quality of care within IMC global programs in relief and development settings throughout Africa, Central Asia, Middle East and Southeast Asia. She has also worked as technical advisor for the Reproductive Health in Conflict Consortium, providing technical advice and training to projects implemented in nine countries across conflict and post conflict situations around the globe.

Anjanette Delgado
Senior News Director for Digital, Detroit Free Press
Anjanette Delgado is the senior news director for digital at the *Detroit Free Press*, part of the USA Today Network, and a contributor to the Norman Lear Center's Media Impact Project. Chartbeat selected her as a leader in the field of real-time analytics in 2014 for her work at lohud.com in New York, and she was featured in an international documentary on journalism's digital transformation for ARTE TV. Before moving into audience work, she was the top editor of *The Salinas Californian* and *El Sol* newspapers in California, the editor of several niche publications, a designer and a reporter. She was born and raised in North Dakota.

Katherine Fischkoff
Assistant Professor of Surgery and Critical Care, Columbia University
Katherine Fischkoff, MD is an Assistant Professor of Surgery and Critical Care. She is an Acute Care Surgeon and intensivist at Columbia University and is the Medical Director of the Surgical Step Down Unit. She has a B.B.A, and M.P.A and an M.D. from the George Washington University. Her clinical interests are in ethics, communication and outcomes research. Fischkoff is a certified ethics consultant and an active member of the Columbia University Ethics Committee. She is the author of a number of peer-reviewed articles, directs clinical trials in the Division of General Surgery and is the recipient of an Apgar Education Research Grant.

Marco G. Giometto
Assistant Professor in Civil Engineering and Engineering Mechanics; Data Science Institute, Columbia University
Marco Giometto received his BS and MS degrees in civil engineering from the University of Padua, and a joint PhD in civil and environmental engineering from Braunschweig TU University and the University of Florence (2014). In 2016, he earned a second PhD in mechanical engineering from École Polytechnique Fédérale de Lausanne, where he won the EDME Award for the best thesis in mechanical engineering. Before joining Columbia University in 2018, Giometto held postdoctoral positions at the University of British Columbia and at the Center for Turbulence Research, which is jointly operated by Stanford University and NASA Ames. His research focuses on fluid mechanics and turbulence. Insights from his research have implications in geophysics, engineering, biology, and energy technologies, where heat and mass transfer, evaporation, and skin friction often determine system performance or environmental impact.

Henry Goldschmidt
Director of Programs, Interfaith Center of New York
Henry Goldschmidt is a cultural anthropologist, community educator, interfaith organizer, and scholar of religion. He is currently the Director of Programs at the Interfaith Center of New York, where he develops and facilitates education and social action programs for a range of audiences, including religious and civic leaders, K-12 teachers and students, social service and mental health professionals, and the general public. Goldschmidt received his Ph.D. in anthropology from the University of California at Santa Cruz in 2000, and taught religious studies and cultural anthropology at Wesleyan University and elsewhere before joining the staff at the Interfaith Center in 2010. He is the author of *Race and Religion among the Chosen Peoples of Crown Heights*, an ethnography of Black-Jewish difference in a contested Brooklyn neighborhood, as well as other scholarly and popular publications on American religious diversity and K-12 religious studies pedagogy. He is a life-long, fanatic New Yorker, and lives in Brooklyn with his wife and children.

Johnnie Green
President/CEO, Mobilizing Preachers and Community, New York (MPAC-NY); Senior Pastor, The Mount Neboh Baptist Church, Harlem, New York
A native of Dallas, Texas, Dr. Johnnie Green is the son of Deacon Johnnie M. Green, Sr. and the late Mrs. Earmer J. Green. Green earned his Doctor of Ministry from Drew University, Master's of Divinity from Princeton Theological Seminary and a Bachelor's of Arts from Dallas Baptist University. After 41 years of preaching the gospel and 34 years as a Senior Pastor, Green for the past 14 years has served as Senior Pastor of The Mount Neboh Baptist Church, in Harlem, New York. Green has successfully led the church through gentrification, a building restoration program, and demographic change in Harlem. Known for his dynamic preaching, teaching, bold activism and social justice work, Green has served as a guest preacher, evangelist and lecturer for churches, colleges and seminaries across the United States and Abroad. He is the Proprietor/President of Agape Children's Academy of New Jersey (one school in two locations), President/CEO of Mobilizing Preachers and Communities (MPAC), and President/Founder of Manna for Your Mornings

Ministry, which is broadcast live Tuesday through Friday at 7 am on Facebook Live, with more than 7,500 Manna Partners worldwide. Married to Jacqueline Marie (Bowser) Green, they have two sons, Jeremiah Christian and Joshua Christian. Green is a member of Omega Psi Phi Fraternity Incorporated, Area 6 Vice President of The Empire Baptist Missionary Convention, and serves as a National Board Member of National Action Network (NAN), headed by Reverend Al Sharpton. Under his leadership, Mount Neboh - Harlem remains one of the leading African American Baptist Churches in New York City and a strong and vibrant witness in the Village of Harlem.

Avril Haines
Senior Research Scholar, Columbia University; Deputy Director, Columbia World Projects (on leave at the time of report publication)
Avril Haines is the Deputy Director of Columbia World Projects, a Lecturer in Law at Columbia Law School, and a Senior Fellow at the Johns Hopkins University Applied Physics Laboratory. She was appointed by President Obama to serve as a Member of the National Commission on Military, National, and Public Service, and serves on a number of boards and advisory groups, including the Nuclear Threat Initiative's Bio Advisory Group, the Board of Trustees for the Vodafone Foundation, and the Refugees International Policy Advisory Council. Prior to joining Columbia University, she served as Assistant to the President and Principal Deputy National Security Advisor to President Obama. Before that, she served as the Deputy Director of the Central Intelligence Agency. She also held a number of senior legal positions in the government, including Legal Adviser to the National Security Council. Haines received her bachelor's degree in Physics from the University of Chicago and a law degree from Georgetown University Law Center.

Mark Hansen
Professor; Director, Brown Institute, Columbia Journalism School
Mark Hansen joined the faculty at Columbia Journalism School in July of 2012 and took on the position of inaugural director of the east coast branch of the Brown Institute for Media Innovation. Prior to joining Columbia, he was a professor at UCLA, holding appointments in the Department of Statistics, the Department of Design Media Arts and the Department of Electrical Engineering. Hansen began his career as a Member of the Technical Staff at Bell Laboratories in Murray Hill, New Jersey. He is a member of the Board of Directors for the Center for Responsive Politics, and serves on the Council for the Inter-University Consortium for Political and Social Research. He is also an Elected Member of The International Statistical Institute. Hansen holds a BS in Applied Math from the University of California, Davis, and an MA and a PhD in Statistics from the University of California, Berkeley. He has been awarded eight patents and has published over 60 papers in data science, statistics and computer science.

Thomas Hatch
Co-Director, National Center for Restructuring Education, Schools, & Teaching (NCREST); Professor, Teachers College, Columbia University
Thomas Hatch is a Professor at Teachers College, Columbia University and Co-Director of the National Center for Restructuring Education, Schools, and Teaching (NCREST). His research includes studies of school reform

efforts at the school, district and national levels. His current work focuses on efforts to create more powerful learning experiences both inside and outside schools in developed and developing contexts. He is also the founder of internationalednews.com and has developed a series of images of practice that use multimedia to document and share teachers' expertise. Hatch previously served as a Senior Scholar at the Carnegie Foundation for the Advancement of Teaching. His books include *The Schools We Need for a Future We Can't Predict* (Corwin, in press); *Managing to Change: How Schools can Survive (and Sometimes Thrive) in Turbulent Times* (Teachers College Press, 2009); *Into the Classroom: Developing the Scholarship of Teaching and Learning* (Teachers College Press, 2005); and *School Reform Behind the Scenes* (Teachers College Press, 1999).

Shunichi (Nick) Homma
MM Hatch Professor of Medicine, Columbia University Medical Center, Columbia University
Shunichi Homma is the MM Hatch Professor of Medicine at Columbia University Medical Center where he serves as the Deputy Chief of Cardiology Division. He is also the CMO for Columbia's Faculty Practice Organization (1,800 providers), independent practice association (400 providers) and its accountable care organizations (ACOs). Homma chairs the Strategy and Quality Committee as well as the Digital Health Governance Committee. He is a graduate of Dartmouth College, Albert Einstein College of Medicine (MD), and Tuck School of Business/Geisel School of Medicine (MHCDS). He completed cardiology fellowships at Massachusetts General Hospital and Columbia-Presbyterian Medical Center. Homma is a founding board member of AHA Heritage affiliate, American Society of Echocardiography and serves or has served on various guideline committees including those for American Academy of Neurology, American Society of Echocardiography and European Heart Failure Society. He is credited with over 400 full-length manuscripts, over 30,000 literature citations, and has been continuously funded by NIH since 1989. He is also a visiting professor at Tohoku University, Tokyo Women's Medical University and Kansai Medical University. With a thorough understanding of research and teaching missions, Homma aims to create an effective alignment between an academic medical center's clinical objectives with the research and teaching missions to further enhance the value of such institutions.

Harrison Hong
John R. Eckel Jr. Professor of Financial Economics, Columbia University
Harrison Hong is Professor of Economics at Columbia University, where he teaches courses in the undergraduate and PhD programs. He is currently the John R. Eckel Jr. Professor of Financial Economics. Before coming to Columbia in 2016, he was on the economics faculty of Princeton University, most recently as the John Scully '66 Professor of Economics and Finance. Prior to that, he was an assistant professor of finance at the Stanford Graduate School of Business from 1997-2001. He received his B.A. in economics and statistics with highest distinction from the University of California at Berkeley in 1992 and his Ph.D. in economics from M.I.T. in 1997. Hong has contributed to a number of topics in financial economics, especially on behavioral finance and stock market efficiency. Topics include disagreement in asset markets, speculative bubbles and crashes, frictions and arbitrage, strategic bias among professional forecasters, scale and performance in asset management, social networks and investments, compensation and bank risk-taking, and corporate sustainability and climate change risks. In 2009, Hong was awarded

the Fischer Black Prize, given once every two years to the best American finance economist under the age of 40. He has received several honorary doctorates. He is a research associate at the National Bureau of Economic Research and an editor of the *International Journal of Central Banking*. He has been an associate editor at the *Journal of Finance, Journal of Financial Intermediation* and a Director of the American Finance Association.

Malo Hutson
Associate Professor of Urban Planning, Director of the Urban Community and Health Equity Lab, Columbia University
Malo Hutson is an Associate Professor in Urban Planning and founder and director of the Urban Community and Health Equity Lab at Columbia University. He is also an Associate Member of the Earth Institute faculty at Columbia. Hutson's specific focus is on community development and urban health equity, racial and ethnic inequalities and urban policy, as well as the built environment and health. He earned his Ph.D. in Urban and Regional Planning from the School of Architecture and Planning at the Massachusetts Institute of Technology, and earned both his Bachelor of Arts in Sociology and Master of City Planning degrees from the University of California at Berkeley. Hutson is an alumnus of the Robert Wood Johnson Health and Society Scholars Program where he was a fellow at the University of Michigan's Center for Social Epidemiology and Population Health within the School of Public Health.

Roberta Lenger Kang
Director, Center for Professional Education of Teachers, Teachers College, Columbia University
Roberta Lenger Kang was a high school English teacher for eight years in Denver, Colorado and New York City. She wrote several district wide curricula for Denver Public Schools and the NYC Department of Education before transitioning from classroom teacher to professional development coach in 2006. As a coach, Kang has supported schools on instruction, assessment, systems and structures, literacy and accountability mandates. In 2015, she completed her doctorate in English Education from Columbia's University, Teachers College with a focus on the impact of mandated assessments on students, teachers and school leaders. In her role as the Center Director, she supervises the professional development programs and five signature initiatives across the Center. Kang cultivates partnerships with schools, districts and organizations, in critical areas such as developing leadership skills, refining literacy, creating meaningful instruction for high stakes assessments and leveraging city and state mandates for authentic school change.

Dylan Kolleeny
Director, STEM Assessment Design, New York City Department of Education
Dylan Kolleeny is the Director of STEM Assessment Design for the Office of Periodic Assessment in the New York City Department of Education (NYCDOE). She helps design and oversee the formative science and math assessments in the Periodic Assessment portfolio. Prior to her work with the Office of Periodic Assessment, Kolleeny taught science at NYCDOE schools in Manhattan and the Bronx and designed digital curricula for an educational

technology start-up. She is a New York City native and holds a BS in Ecology from the University of Vermont and an MS in Science Education from Lehman College.

Boyana Konforti
Director, Scientific Strategy and Development, Howard Hughes Medical Institute
Boyana Konforti joined Howard Hughes Medical Institute (HHMI) in November 2017 as director of scientific strategy and development where she leads and collaborates on a variety of strategic initiatives from the President's Office. Konforti was the first director of education & outreach at the Simons Foundation, where she pioneered efforts to make science part of culture and unlock scientific thinking in everyone. She served for 15 years as a scientific journal editor, including being the launch editor of *Cell Reports*, the first open access journal at Cell Press. Before these pursuits, she spent more than a decade working as a bench scientist. She holds a PhD in biochemistry from Stanford.

Nicholas Lemann
Director, Columbia World Projects; Director, Columbia Global Reports; Joseph Pulitzer II and Edith Pulitzer Moore Professor of Journalism; Dean Emeritus of the Faculty of Journalism
Nicholas Lemann directs Columbia World Projects. He also directs Columbia Global Reports, a book publishing venture that presents reporting around the globe on a wide range of political, financial, scientific, and cultural topics. As Dean of Columbia Journalism School, he led its first capital fundraising campaign, started its first new professional degree program since the 1930s and launched significant initiatives in investigative reporting, digital journalism, and executive leadership for news organizations. Board memberships include Columbia's Knight First Amendment Institute and the Russell Sage Foundation. Lemann is a member of the New York Institute for the Humanities, the American Academy of Arts and Sciences, and the American Academy of Political & Social Science. His latest book is *Transaction Man: The Rise of the Deal and the Decline of the American Dream*. He is a staff writer for *The New Yorker*.

Anne Liu
Lecturer, School of International and Public Affairs, Columbia University
Anne Liu is an innovations expert focused on digital solutions for disease surveillance and health systems strengthening. She currently serves as Technical Adviser at the Clinton Health Access Initiative, focusing on developing, implementing, and monitoring a suite of digital solutions to enhance surveillance capability in malaria elimination settings across Southern Africa, Southeast Asia, Mesoamerica and Hispaniola. Previously, Liu led the Community Health Worker and Mobile Health programs in 10 countries with the Millennium Villages Project from 2010-2015 and oversaw the deployment of mobile tools for Ebola surveillance in Guinea during the West Africa Ebola Outbreak in 2014. She currently co-teaches Introduction to Global Health at Columbia University School of International and Public Affairs, with a focus on health systems strengthening, community health worker systems and health technology.

Terry McGovern
Harriet and Robert H. Heilbrunn Professor and Chair, Heilbrunn Department of Population and Family Health, Director, Program on Global Health Justice and Governance, Columbia University
Terry McGovern currently serves as Harriet and Robert H. Heilbrunn Professor and Chair of the Heilbrunn Department of Population and Family Health and the Director of the Program on Global Health Justice and Governance at the Columbia University Mailman School of Public Health. McGovern founded the HIV Law Project in 1989 where she served as its executive director until 1999. She successfully litigated numerous cases against the federal, state and local governments including S.P. v. Sullivan which forced the Social Security Administration to expand HIV-related disability criteria for women and other excluded individuals, and T.N. v. FDA, which eliminated a 1977 FDA guideline restricting the participation of women of childbearing potential in early phases of clinical trials. As a member of the National Task Force on the Development of HIV/AIDS Drugs, she authored the 2001 federal regulation authorizing the FDA to halt any clinical trial for a life threatening disease that excludes women. From 2006 until 2012, she was Senior Program Officer in the Gender, Rights and Equality Unit of the Ford Foundation. Her research focuses on health and human rights, sexual and reproductive rights and health, gender justice, and environmental justice, with publications appearing in journals including *Lancet Child & Adolescent Health, Health and Human Rights,* and the *Journal of Adolescent Health.* McGovern recently co-edited *Women and Girls Rising: Rights, Progress and Resistance: A Global Anthology.* She has served on the Standing Lancet Commission on Adolescent Health and Wellbeing and the UCL-Lancet Commission on Migration and Health, and currently serves as a member of the UNFPA Global Advisory Council and the UNAIDS Human Rights Reference Group.

Yuval Neria
Professor of Medical Psychology, Departments of Psychiatry and Epidemiology; Research Scientist, New York State Psychiatric Institute; Director of Trauma and PTSD Program, New York State Psychiatric Institute; Director of Columbia-NYP Military Family Wellness Center, College of Physicians and Surgeons, Columbia University
Yuval Neria is Professor of Medical Psychology at Columbia University, Departments of Psychiatry and Epidemiology, and Director of Trauma and PTSD at the New York State Psychiatric Institute (NYSPI). He joined Columbia University Medical Center in 2002, and since then has led and collaborated on numerous epidemiological, clinical, and neuroimaging studies in trauma and PTSD. Neria has conducted large-scale studies among prisoners of war, war veterans, and victims of terrorism and disasters and was involved in large scale training programs mental health professionals after the 9/11 attacks. In addition, Neria and his team have focused on integrating innovative neuroimaging methods into clinical research, aiming to clarify highly needed biomarkers of PTSD, that can guide effective therapeutics. In 2016, he established the first of its kind mental health treatment center for veterans and their family members, and is currently involved in developing research programs to address the unique mental health consequences of COVID-19 pandemic. He has authored more than 200 articles and book chapters, and edited four textbooks focusing on the mental health consequences of exposure to trauma.

Lena Moraa Obara
Research Manager, University of Nairobi
Lena Moraa Obara is an incoming Doctoral student at Rutgers, the State University of New Jersey. She currently works as a Research Manager in Kenya for projects addressing issues concerning women's health and the lived environment in informal settlements run through the Columbia School of Social Work. Obara's research interests focus on the role of the environment in women's and girl's physical and mental health, violence against women and children, access to and distribution of health services for women who have experienced abuse in informal settings such as internally displaced persons (IDP) and refugee camps in East Africa and the role of the built environment in women's and girl's experiences living in IDP and refugee camps. Additionally, she has worked as a research assistant at the University of Nairobi and Rutgers, The State University of New Jersey. She holds a master's degree in Sociology (Disaster Management) from the University of Nairobi, Kenya, and a bachelor's degree in Industrial and Organizational Psychology from Makerere University, Uganda.

Orriel Richardson
Counsel, Subcommittee on Health Committee on Ways and Means, Majority Staff, United States House of Representatives
Orriel Richardson is an attorney and health policy expert licensed to practice law in Maryland and Washington, DC. In 2020, the National Minority Quality Forum named her a 40 Under 40 Leader in Health. Richardson currently serves as Counsel/Professional Staff for the Health Subcommittee of the Committee on Ways and Means Majority, U.S. House of Representatives. She is also a Professorial Lecturer of Health Policy and Management at the George Washington University Milken School of Public Health and Vice Chair for Membership of the Delivery Payment and Reform Affinity Group for the American Health Law Association. Prior to working on the Hill, Richardson worked for the U.S. Department of Health and Human Services; the District of Columbia Department of Health Care Finance; the School of Public Health at GW University; the Johns Hopkins University School of Medicine; the State of Louisiana; and the Louisiana State University Health Sciences Center. Richardson is a proud alumna of Howard University, Tulane University, George Washington University and New College, University of Oxford.

Kai Ruggeri
Assistant Professor in Health Policy and Management, Columbia University Medical Center
Kai Ruggeri is an Assistant Professor in the Department of Health Policy & Management. He joined Columbia from the Department of Psychology at the University of Cambridge, where he directed the Policy Research Group that he founded in 2013. He studies how policy influences population behavior, and how integrating behavioral evidence into policies can improve economic outcomes and population well-being. His teaching is primarily in analytics, decision-making, behavioral policy and managerial economics. Ruggeri's current projects involve a number of behavioral policy studies focusing on large-scale data related to economic choices and related outcomes. Partners include local and national governments, non-profit organizations, industry, and other academic institutions in New York, various parts of the US, and abroad. He is a Senior Fellow at the Centre for Business Research at the Judge Business School and Fellow of Corpus Christi College, Cambridge, as well as a Fellow of the Royal

Statistical Society. Ruggeri also directs the Junior Researcher Programme, a global initiative for early career behavioral scientists.

Katherine Shear
Marion E. Kenworthy Professor of Psychiatry, Founding Director of Center for Complicated Grief, School of Social Work, Columbia University; Clinical Researcher
Katherine Shear is the Marion E. Kenworthy Professor of Psychiatry and the founding Director of the Center for Complicated Grief at Columbia School of Social Work. Shear is a clinical researcher who first worked in anxiety and depression. For the last two decades she has focused on understanding and treating people who experience persistent intense grief. She developed and tested complicated grief therapy (CGT), a short-term targeted intervention and confirmed its efficacy in three large NIMH-funded studies. CGT is strength-based and focused on fostering adaptation to loss. Shear is widely recognized for her work in bereavement, including both research and clinical awards from the Association for Death Education and Counseling and invited authorship of articles for *UpToDate* and the *New England Journal of Medicine.*

Michael Shelanski
Senior Vice Dean, Research, Henry Taub Professor of Pathology and Cell Biology, Columbia University
Michael Shelanski is a cell biologist and neuropathologist. He attended Oberlin College and received his MD and PhD degrees from the University of Chicago. He served on the faculties of Albert Einstein College of Medicine and Harvard Medical School before assuming the Chair of Pharmacology at NYU in 1978. He moved to the Vagelos College of Physicians and Surgeons at Columbia in 1987 where he served as the Delafield Professor and Chairman of the Department of Pathology and Cell Biology until 2015. Together with Richard Mayeux he founded Alzheimer's Disease Research Center at Columbia and served as its Director for almost 25 years. He led the Medical Scientist Training Programs (joint MD and PhD programs) at both NYU and at the College of Physicians and Surgeons. He a member of numerous advisory and editorial boards and a member of the National Academy of Medicine and of the Association of American Physicians. Shelanski's work on identification and purification of tubulin and the characterization of the neurofilament proteins are at the foundation of our understanding of how cells make and keep their shape and organize their internal functions.

Kathleen J. Sikkema
Stephen Smith Professor and Chair of Department of Sociomedical Sciences, Mailman School of Public Health, Columbia University
Kathleen J. Sikkema, Stephen Smith Professor and Chair of Sociomedical Sciences in the Columbia Mailman School of Public Health, conducts community based intervention research focused on HIV prevention and mental health treatment in the U.S. and in low and middle income countries. She is a clinical psychologist who specializes in health and community psychology. Sikkema has led pioneering scholarship in global mental health, specifically related to traumatic stress, coping and gender violence. Funded by NIH for thirty years, her research program has focused on community-level HIV prevention trials, mental health interventions to improve HIV care engagement, and university-community research collaboration. U.S.-based HIV

prevention interventions and mental health interventions developed by Sikkema and her teams have been identified by CDC and SAMHSA as best evidence interventions. Her research on HIV and mental health has had wide-ranging impact, including the development of prevention programs to improve health behaviors and access to treatment in low resource populations in this country and abroad. She has worked in South Africa for twenty years. An honorary professor at the University of Cape Town in the Department of Psychiatry and Mental Health, Sikkema's current research focuses on integrating mental health treatment into HIV primary care for women who have experienced sexual trauma. This research addresses the syndemic nature of HIV and mental disorders, whereby social and economic contextual factors create and exacerbate the risk of disease progression.

Samuel Sia
Co-Founder, Claros Diagnostics; Founder, Harlem Biospace; Professor of Biomedical Engineering, Columbia University
Samuel Sia, a Professor of Biomedical Engineering at Columbia University, has developed novel technologies for point-of-care blood tests, both in an academic and industry setting. He is co-founder of Claros Diagnostics, whose prostate-cancer blood test for doctor's offices has garnered FDA approval and is being commercialized by OPKO Health (NYSE: OPK). Sia's work in global health diagnostics has garnered coverage from *Nature, Science, JAMA, Washington Post*, BBC, NPR and Voice of America. His lab-on-a-chip device has been tested in Rwanda to collect and analyze blood tests at a patient's bedside to diagnose infectious diseases. He was named by *MIT Technology Review* as one of the world's top young innovators in 2010, and is an inducted fellow of the American Institute for Medical and Biological Engineering. Sia is also founder of Harlem Biospace, a biotech incubator facility in New York City (developed with the NYC mayor's office) that has hosted over 50 biotech companies. He currently directs the entrepreneurship initiative for Columbia School of Engineering and Applied Sciences. Sia has a B.Sc. in Biochemistry from the University of Alberta, and a Ph.D. in Biophysics (with a HHMI predoctoral fellowship) from Harvard University. Sia completed a postdoctoral fellowship in Chemistry and Chemical Biology at Harvard University.

Thomas E. Smith
Chief Medical Officer, New York State Office of Mental Health (NYS OMH); Co-Director, NYS OMH Center for Behavioral Health Integrated Performance Measurement; Special Lecturer, Department of Psychiatry, Columbia University
Thomas Smith oversees clinical and quality aspects of the New York State public mental health system with a focus on improving access to prevention, recovery and rehabilitation services for persons with serious mental illness (SMI). As a mental health services researcher, he is the recipient of numerous NIMH and foundation grants for studies of engagement strategies for high-need persons with SMI; services for persons with first episode psychosis, and inpatient psychiatry discharge planning and care transition practices. Smith earned his M.D. at Wayne State University School of Medicine and completed his psychiatry residency at the University of Chicago before coming to New York where he has had extensive experience as a clinician, hospital administrator, and researcher, initially at Weill Cornell Medical College and since 2001, at the New York State Psychiatric Institute and Columbia University Vagelos College of Physicians and Surgeons. Smith is helping to oversee the implementation of New York State's behavioral health Medicaid

Managed Care redesign and has developed and managed several NYS OMH programs that use population health monitoring to support engagement in care and management of adverse events. He is currently leading initiatives related to mental health parity enforcement and system level quality and performance measurement approaches that support value-based payment models.

Michael S. Sparer
Chair, Department of Health Policy and Management, Mailman School of Public Health, Columbia University
Michael S. Sparer, J.D., Ph.D. is Professor and Chair in the Department of Health Policy and Management at the Mailman School of Public Health at Columbia University. Sparer studies and writes about the politics of health care, with a particular emphasis on the health insurance and health delivery systems for low-and-middle income populations, both in the United States and globally. His current projects include a study of efforts to enact "public option" insurance programs, the impact of federalism on the implementation of the Affordable Care Act, and the rise (and demise) of non-profit insurance "cooperatives." He is a two-time winner of the Mailman School's Student Government Association Teacher of the Year Award, the recipient of a 2010 Columbia University Presidential Award for Outstanding Teaching, and a two-time winner of the Core Curriculum Teaching Excellence Award. Sparer spent seven years as a litigator for the New York City Law Department, specializing in inter-governmental social welfare litigation. After leaving the practice of law, Sparer obtained a Ph.D. in Political Science from Brandeis University. Sparer is the former editor of the *Journal of Health Politics, Policy and Law,* and the author of *Medicaid and the Limits of State Health Reform,* as well as numerous articles and book chapters.

Nik Steinberg
Deputy Director, Columbia World Projects
Nik Steinberg is the Deputy Director at Columbia World Projects. He previously served as the Counselor and Chief Speechwriter for Amb. Samantha Power, U.S. Ambassador to the United Nations. Prior to that, Steinberg was a Senior Researcher in the Americas Division of Human Rights Watch, where his work focused primarily on Mexico and Cuba. He is a graduate of Dartmouth College and the Harvard Kennedy School of Government.

Dennis Yi Tenen
Associate Professor, English and Comparative Literature, Columbia University
Dennis Yi Tenen is an associate professor of English Literature, Digital Humanities, and New Media Studies at Columbia University. A long-time affiliate of Columbia's Data Science Institute and formerly a Microsoft engineer and a Berkman Center for Internet and Society Fellow, his code runs on millions of personal computers worldwide. His recent work appears on the pages of *Modern Philology, New Literary History, Amodern, boundary2, Computational Culture,* and *Modernism/modernity* on topics that include literary theory, the sociology of literature, media history, and computational narratology. He is currently writing a book on the creative

limits of artificial intelligence as well as directing a number of public projects at Columbia's Group for Experimental Methods in Humanistic Research.

Bruce Western
Bryce Professor of Sociology and Social Justice; Co-Director, Justice Lab, Columbia University
Bruce Western is the Bryce Professor of Sociology and Social Justice and Co-Director of the Justice Lab at Columbia University. His research has examined the causes, scope, and consequences of the historic growth in U.S. prison populations, labor markets and income inequality. Current projects include a randomized experiment assessing the effects of criminal justice fines and fees on misdemeanor defendants in Oklahoma City, an interview study with men and women subject to pretrial detention in New York City, and a field study of solitary confinement in Pennsylvania state prisons. Western is also the Principal Investigator of the Square One Project that engages policymakers and community leaders to re-imagine the public policy response to violence under conditions of poverty and racial inequality. He was the Vice Chair of the National Academy of Sciences panel on the causes and consequences of high incarceration rates in the United States. He is the author of *Homeward: Life in the Year After Prison* (Russell Sage Foundation, 2018) and *Punishment and Inequality in America* (Russell Sage Foundation, 2006), winner of the American Society of Criminology's Michael Hindelang Award for the best publication in criminology. Western is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. He has been a Guggenheim Fellow, a Russell Sage Foundation Visiting Scholar, and a fellow of the Radcliffe Institute of Advanced Study. Western received his Ph.D. in Sociology from the University of California, Los Angeles, and was born in Canberra, Australia.

Samantha C. Winter
Assistant Professor, School of Social Work, Columbia University
Samantha Winter is an Assistant Professor in the Columbia School of Social Work at Columbia University. Her research focuses on women's health and well-being, violence against them, their ability to access and utilize health-related spaces and services and environmental and social determinants of women's health and well-being in informal settlements, predominantly in East Africa. Prior to joining the faculty at Columbia University in 2019, Winter was a Dorothy Byrne Post-Doctoral Fellow in Global Health in Kenya. She has bachelor and master's degrees in civil and environmental engineering from Colorado State University and Stanford University, respectively; master's and doctoral degrees in social work and a graduate certificate in African Studies from Rutgers, The State University of New Jersey.

Susan Yee
Vice President of Clinical Operations & Programs, Community Healthcare Network
Susan Yee currently serves as Vice President of Clinical Operations and Programs at Community Healthcare Network, a Federally Qualified Health Center that provides primary care and specialty services for low income and low resource communities in New York City. Yee is a public health practitioner and healthcare administrator with over 20 years of experience in

community health, social service and health care delivery within academic, governmental and community health institutions. She holds a Master in Health Administration from University of Washington, Health Policy and Doctorate in Public Health, Community Health Sciences from SUNY Downstate Medical Center. Her interest is focused on reducing health disparities, improving childhood and adolescent health and advancing the field of dissemination and implementation science.