JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Center for Health Security

2017 ANNUAL REPORT

MISSION

The Center for Health Security works to protect people's health from the consequences of epidemics and disasters and to ensure that communities are resilient to major challenges.

LETTER FROM THE DIRECTORS

“As the world becomes more interconnected, the potential consequences of natural, accidental, and deliberate biological threats and other major public health threats grow more complicated.”

Dear Friends,

We’re grateful to report that 2017 was a year of exciting new opportunities for the Center and promise for the future of the health security field.

At the beginning of 2017, our Center received a $16 million grant from the Open Philanthropy Project, a philanthropic organization that is making a profound impact with its commitment to supporting initiatives to address global catastrophic biological risks such as those posed by pandemic threats. This grant—Open Philanthropy’s largest to date for biosecurity and pandemic preparedness projects—is an endorsement of the talents and contributions of our staff in this field and affirms the positive impact of their efforts. It also acknowledges how much needs to be done to ensure the safety of people at home and abroad as biological threats continue to emerge and evolve.

We are thrilled to have the support of leadership at our new home in the Johns Hopkins Bloomberg School of Public Health. That support and the deep dedication of Hopkins faculty and staff to improving health security have made our transition to the school highly rewarding. And it is compelling to work with the rising generation of students, public health experts, and scientists who will help us think through the many challenges and opportunities that lie ahead.

As the world becomes more interconnected, the potential consequences of natural, accidental, and deliberate biological threats and other major public health threats grow more complicated. The United States must strengthen preparedness in its own healthcare system, strengthen the ability of public health systems at all levels to detect and respond to threats, and move ahead in its efforts to make the new medicines and vaccines that will be needed for future epidemics.

US leadership on collaborative international initiatives is critical. We should continue to support the Global Health Security Agenda and other international efforts that strengthen our ability to cope with major pandemics. We need to find new paths for addressing serious potential dangers that will arise from the power of biotechnology, while at the same time not slowing its extraordinary benefits for medicine, health, and economic growth. And we need to be ready to deal with the big surprises that will pose unexpected threats to global health security in the years ahead.

In our work we endeavor to study the most pressing problems in the field, to build national and international networks of concerned scientists and health experts, and to share what we discover with policymakers and practitioners in ways that bring about constructive changes. We are inspired by the many possibilities to collaborate with partners around the country and the world on issues at the heart of our mission.

Thank you and take care,

Tom Inglesby, MD
Director

Anita Cicero, JD
Deputy Director

UNIQUE APPROACH

- Conduct research and analysis on major health security issues.
- Engage with scholars, the policymaking community, and the private sector.
- Convene working groups, conferences, and congressional seminars to provoke new thinking and action.
- Educate a rising generation of scholars, practitioners, and policymakers in the field.

PRIORITY AREAS

Emerging Infectious Diseases and Pandemic Flu
Biosafety and Biosecurity
Medical and Public Health Preparedness and Response
Community Resilience
Disease Surveillance
Risk Communication
Synthetic Biology
Policies on Medicines, Vaccines, and Diagnostics
Science Diplomacy

COMBINED EXPERTISE

Public health
Epidemiology
Infectious diseases
Anthropology
Immunology
Critical care medicine
Emergency medicine
Internal medicine
Modeling
Risk assessment
Healthcare preparedness
Mass casualty response
Biosurveillance
Disaster response
International relations/ global health
Health communications
Law

SPONSORS AND FUNDERS

Open Philanthropy Project
Sloan Foundation
Robert Wood Johnson Foundation
deBeaumont Foundation
Smith Richardson Foundation
Taiwan Ministry of Health
Biomedical Advanced Research and Development Authority (HHS)
US Centers for Disease Control and Prevention
Defense Threat Reduction Agency (DoD)
US Department of Homeland Security, Science and Technology Directorate
US Department of State
US Food and Drug Administration
National Biodefense Analysis and Countermeasures Center (DHS)
US Naval Postgraduate School
Office of the Assistant Secretary for Preparedness and Response (HHS)

BY THE NUMBERS

34 Meetings and briefings for policymakers

36 Published peer-reviewed articles by staff

17 Presentations and panels

261 Expert interviews conducted for project research

23 Active projects

120+ Emerging Leaders in Biosecurity Fellowship applications

Health Security article downloads
UP 55%

180+ Media placements

SHINING A LIGHT ON

GLOBAL CATASTROPHIC BIOLOGICAL RISKS

"Global Catastrophic Biological Risks are those events in which biological agents—whether naturally emerging or reemerging, deliberately created and released, or laboratory engineered and escaped—could lead to sudden, extraordinary, widespread disaster beyond the collective capability of national and international governments and the private sector to control. If unchecked, GCBRs would lead to great suffering, loss of life, and sustained damage to national governments, international relationships, economies, societal stability, or global security." —*Health Security*, July 2017

The potential consequences of biological threats could range from modest to extraordinary. Efforts to prevent and respond to smaller outbreaks receive a disproportionate share of attention because they are more frequent and their demands are often urgent. The Center commits substantial efforts to those kinds of events. But it also believes it is important that dedicated efforts be made to understand and prepare for biological risks that could pose the most consequential global dangers, a set of risks that can be termed Global Catastrophic Biological Risks (GCBRs). To that end, the Center developed a working definition of risks that could fall into this realm and asked other health officials and scientists to provide their judgments and recommendations on how to approach these risks. The Center's analysis, along with 10 companion commentary pieces written by leading experts in related fields, were published together in an effort to catalyze more collective thinking and engagement around challenges of this magnitude.

Potential Global Catastrophic Biological Risks include future flu pandemics, novel strains of contagious pathogens, biological accidents, threats to food supplies, or engineered organisms. The full article is available at liebertpub.com.

ASSESSING THE PANDEMIC POTENTIAL OF PATHOGENS

National and international epidemic and pandemic preparedness programs, scientific efforts, and funding are driven, in large part, by lists that have been developed to gauge the relative likelihood that a given pathogen will cause major epidemics or pandemics. Different lists and criteria have been developed for influenza risks, for emerging disease risks, and for biological weapons threats, with varying degrees of transparency, clarity, and inclusion of a broader range of scientific views.

The Center undertook a project to study all classes of pathogens and all criteria that might bear on epidemic or pandemic potential with the goal of generating a transparent, more extensive means of making assessments about pandemic risks. It studied the patterns and consequences of past pandemics. It gathered the judgments of many of the world's international infectious disease experts, paleontologists, physicists, virologists, astrobiologists, mycologists, and parasitologists, among others. It considered the leading edge of the science around pathogens that had potential to do great harm. The resulting report's findings challenge some of the received wisdom in the field and offer practical recommendations on how to gauge risk, make investments, and take action to prevent and prepare for pandemic threats.

RISK COMMUNICATION DURING PUBLIC HEALTH EMERGENCIES

Events in recent years have shown how high the stakes are when public health leaders communicate with the public during public health emergencies. The public needs to understand how to minimize their own risks of disease. Local public health agencies need to understand technical information and recommendations coming out of the federal government and international organizations. Leaders who over-reassure can lose the confidence of both the political leadership and the public.

The Center is conducting a research study of the public health communication efforts made during the Zika outbreak and developing evidence-informed recommendations intended to provide strategic input, potential language, and communication approaches for senior health officials at the state and federal levels to be used in future public health emergencies. The study includes an analysis of the news messages that were delivered during the height of the Zika response, gathers public views through surveys and deliberative sessions and focus groups, and tests sample messages that will resonate with the American public.

Based on this research and collaborative work with scientific staff from the US Centers for Disease Control and Prevention, the Center is preparing practical advice for senior health officials regarding their strategy for communicating risks and response activities during future health emergencies in ways intended to strengthen public support and understanding.

HARNESSING TECHNOLOGY TO ADDRESS PANDEMIC RISKS

In the event of a pandemic or other major global catastrophic biological risk, new technologies may have the potential to provide earlier warning, diminish spread, and/or control consequences.

The Center is pursuing a research study to identify technologies that could be used for those purposes by examining extant and emerging technologies that have the potential to help prevent, diminish, or radically improve the trajectory of global catastrophic biological risks.

Technologies of particular interest in this study include those that would help distribute vaccine manufacturing more evenly in the world; approaches that make use of ubiquitous genome sequencing; novel live vaccine strategies; rapid diagnostic approaches; and comparatively inexpensive mechanical ventilators. The purpose of the project is to identify and analyze technology solutions that, with strategic investment by government or nongovernmental organizations over the next decade, might significantly reduce these severe human, animal, and plant infectious disease events that pose a catastrophic risk to humanity.

INTERNATIONAL BIOSAFETY NORMS

Of all kinds of biosafety risks, there is one area that deserves special study and attention because of its potential societal consequences. This is the realm of biological accidents that have the potential to cause epidemic or pandemic spread. Only a few kinds of laboratory accidents might pose these kinds of risks, including viruses with past pandemic potential that are not now circulating (e.g., SARS, smallpox) and viruses that have been engineered to take on new pandemic characteristics of virulence and transmissibility.

The Center is working to develop international norms and seek broad support for implementing them. These kinds of norms include the need for national guidelines that oversee this work, national accident reporting systems, training programs, public transparency surrounding these kinds of experiments, and more. The Center is drafting the norms in the form of recommended updates to the World Health Assembly's Resolution 58.29, "Enhancement of Laboratory Biosafety," adopted in 2005 following an international outbreak of SARS, with the goal of developing broad international support for these changes via that process.

THE CENTER'S *Project Work*

GLOBAL HEALTH SECURITY INDEX

In partnership with the Nuclear Threat Initiative and the Economist Intelligence Unit, the Center is developing the Global Health Security Index to assess countries' technical, financial, socioeconomic, and political capabilities to prevent, detect, and rapidly respond to epidemic threats with international implications, whether naturally occurring, deliberate, or accidental.

The index draws from internationally accepted technical assessments, including the World Health Organization's International Health Regulations Joint External Evaluation and the World Organization for Animal Health's Performance of Veterinary Services Pathway. It also incorporates other important factors, such as countries' overall health system strength, commitment to global norms, and the risk environment.

The index framework is being piloted by a group of countries to determine what adjustments, if any, need to be made before it can be scaled up significantly. Once the framework is complete, the Center and its partners will use the framework to assess, collect, and analyze data on a country-by-country basis, with the ultimate goal of informing improvements to vital global health security capabilities needed to prevent loss of life, political and economic instability, and undue restrictions on trade, travel, and individual rights.

INDIA-US BIOSECURITY DIALOGUE

The Center is leading and facilitating the second year of Track II dialogue on biosecurity among former government officials, scientists, and public health experts in India and the United States. There are multiple goals for the dialogue: to expand knowledge and understanding between India and the United States about biological threats; to increase awareness and probability of exchanges for early warning and detection of unusual biological events; to deepen relationships between participants, who can serve as technical resources to each other going forward; and to identify issues that may warrant official government-to-government priority.

Bilateral ties between the United States and India, the world's two largest democracies and major centers for biotechnology, are of great consequence to global security, defense, and health. In an era of rapid globalization, major geopolitical transitions, and evolving national security landscapes, partnership between the two nations on critical issues in biosecurity are particularly important. Developing shared bilateral understandings of and approaches to tackling difficult problems in biosecurity promises to strengthen trust and cooperation between the countries and facilitate collaborative efforts among Indian and American policymakers, national security experts, life scientists, public health professionals, and healthcare practitioners.

S.R. Rao, PhD, senior biotechnology advisor for the Government of India, addresses fellow participants in the Center's bilateral biosecurity dialogue at a November meeting in Washington, DC.

MULTILATERAL BIOSECURITY DIALOGUE WITH SINGAPORE, MALAYSIA, INDONESIA, AND THE UNITED STATES

The Center hosts a multilateral Track II biosecurity dialogue among biosecurity experts from Singapore, Malaysia, Indonesia, and the United States, as well as observers from Thailand and the Philippines, to promote engagement that helps improve national and regional responses to natural, accidental, and deliberate biological events.

Dialogue participants discuss challenges and best practices relating to Southeast Asia's increasingly complex biosecurity risk landscape—natural outbreaks of emerging and potential pandemic pathogens, porous borders and highly mobile populations, rising terrorism threats, and a rapidly growing biotechnology industry—as they explore how they can work together to strengthen preparedness.

This dialogue originated in 2014 as a bilateral effort, facilitated by the Center, between Singapore and the United States and has expanded over the years to include participation from Malaysia, Indonesia, Thailand, and the Philippines. Track II dialogues are an opportunity for respected, experienced stakeholders to collectively identify important issues that merit official policy engagement between and among governments (i.e., Track I level).

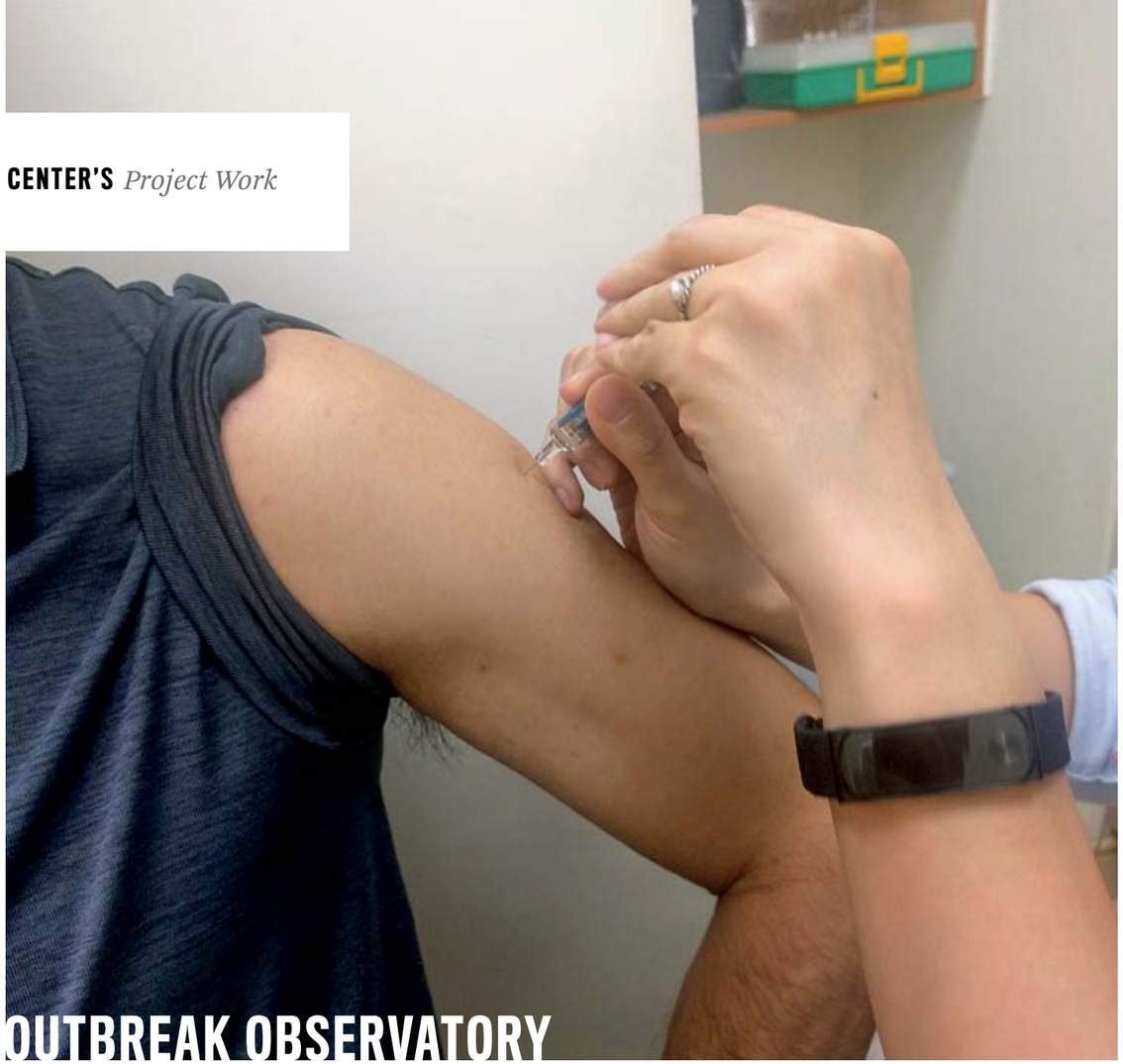
With this foundation, participants are prepared to engage senior leadership in their home countries in an influential way. A group of participants from this dialogue hosted a side meeting at the December 2017 Meeting of the States Parties to the Biological Weapons Convention in order to promote the value of Track II biosecurity dialogues. Others from this dialogue were invited to present on the contributions of this dialogue at the Prince Mahidol Conference in Thailand this year.

EMERGING LEADERS IN BIOSECURITY FELLOWSHIP

The ELBI 2017 summer workshop in Baltimore, MD.

The Emerging Leaders in Biosecurity (ELBI) Fellowship aims to educate, inspire, and connect the next generation of leaders and innovators in the biosecurity community. Now entering its seventh year, this highly competitive program is an opportunity for talented career professionals to deepen their expertise, expand their network, and build their leadership skills through a series of sponsored events coordinated by the Center. ELBI Fellows in the 2017 cohort visited Gingko Bioworks and the George Church Lab at Harvard University during the ELBI fall workshop, the most recent of three multi-day gatherings held throughout the year.

This fellowship boasts more than 100 alumni who represent government, defense, private industry, science, law, public health, medicine, global health, journalism, the social sciences, and academia.



OUTBREAK OBSERVATORY

One of the challenges surrounding the approach to outbreaks is the difficulty of documenting and disseminating the operational problems, lessons, and best practices that emerge in the course of a response. While there are often dedicated efforts to publish clinical and epidemiologic information from an outbreak, operational issues are often not noted or analyzed during an outbreak or its aftermath.

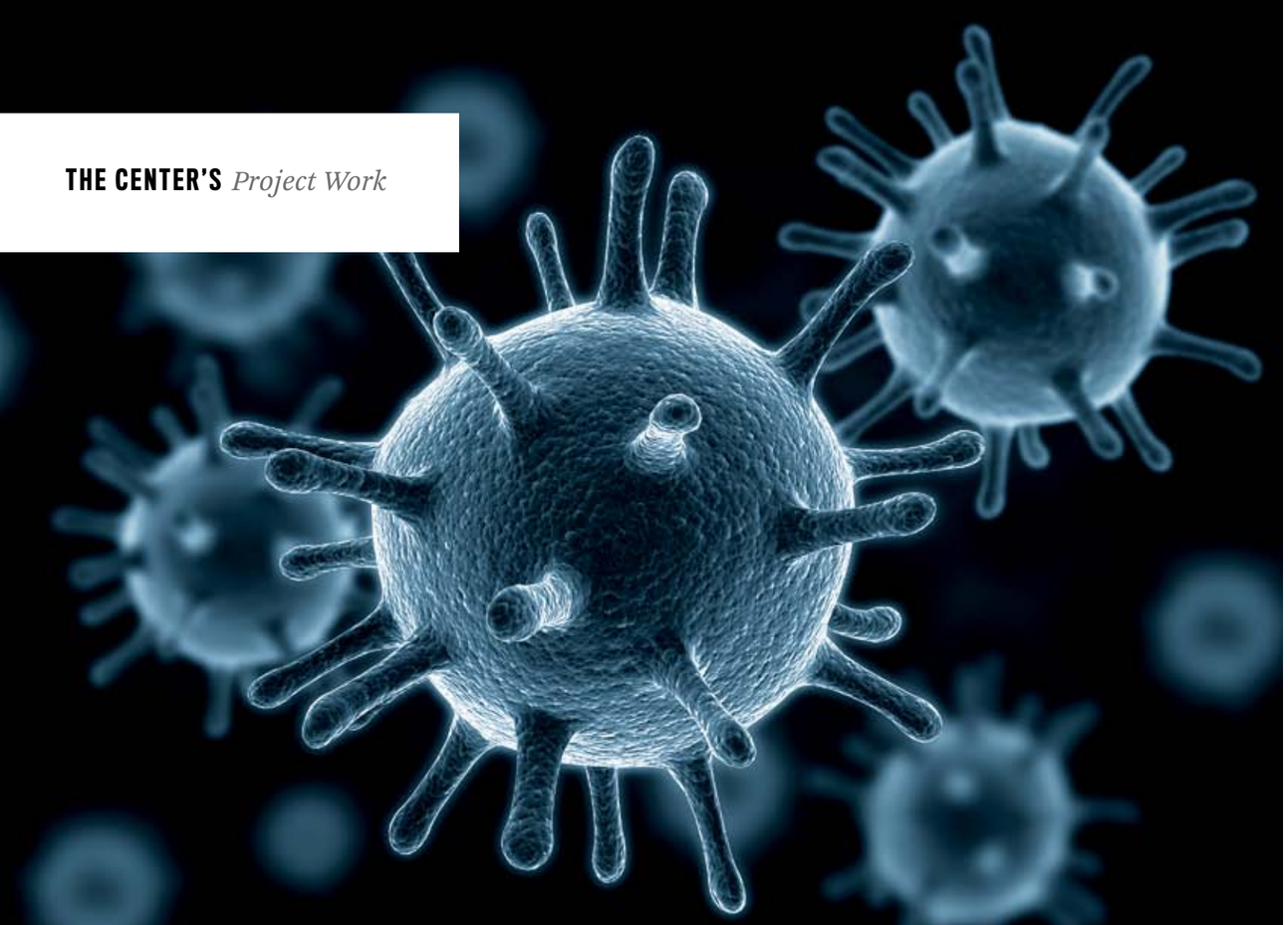
In an effort to address this issue, the Center has created "Outbreak Observatory" with the purpose of observing operational lessons on the ground and sharing those lessons with the broader community who are responsible for outbreak management. The goal is for Center faculty to work with officials onsite in outbreak response to identify unmet needs, unexpected problems, new solutions, and lessons to share.

The project team will collaborate with local practitioners involved in outbreak response to co-author analyses of lessons learned that will fill gaps in existing health security literature. The project team completed its pilot observation in October 2017, in Taipei, Taiwan, where they observed the annual mass influenza vaccination campaign alongside officials from Taiwan's CDC. The project team will share the lessons of that experience broadly with other countries planning mass vaccination efforts.

RED-TEAMING GLOBAL CATASTROPHIC BIOLOGICAL RISKS

Life science and biotechnology are providing incredible benefits to humanity, through the development of new medicines, food, and economic drivers. There is, however, the possibility of the misuse of these powerful new tools, as evidenced by the history of national biological weapons' programs and the publicly expressed interest in using biological weapons by various terrorist groups globally. The Center wanted to better understand the paths that might be taken to misuse biotechnology in efforts to do great harm so that appropriate protections could be considered and put in place.

This project used a red-teaming approach that identified these kinds of vulnerabilities as well as the solutions to address them. Many firms in the public and private sectors have benefited from red-teaming exercises that help identify threats and generate new ideas to protect vulnerabilities by challenging exercise participants to view a problem through the lens of an adversary. In this project, teams of scientists with different backgrounds were engaged in scenarios to identify potential new or unexpected challenges posed by the misapplication of life sciences. Vulnerabilities identified during the exercises are being studied and validated to inform the Center's development of technical and policy solutions intended to protect against the consequences of misuse while not impairing the great benefit of emerging biotechnologies.



MOBILIZING TO TAKE ON GLOBAL CATASTROPHIC BIOLOGICAL RISKS

In the effort to improve how professionals consider and enhance prevention and response initiatives for global catastrophic biological events, the Center is studying how the wider community of experts and practitioners sees and communicates about these issues—for example, what might help galvanize scientists and public health professionals to take more actions? What might raise concerns? What would increase chances that investments made to diminish catastrophic risks might also help improve more common outbreaks? What mistakes have been made in the past when communicating about pandemic planning efforts?

This project is also working to better understand how major practical and policy commitments have been made around other major global catastrophic risks of climate change and nuclear winter and determine what can be learned from those experiences. The goal of the work is to identify communication strategies for these issues that take note of the views of key national and global stakeholders and to work to create momentum to make serious improvement in how extraordinary biological risks are approached.

HEALTH SECTOR RESILIENCE FOR HIGH-CONSEQUENCE INFECTIOUS DISEASES

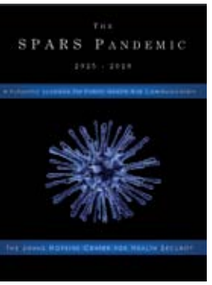
In collaboration with the US Centers for Disease Control and Prevention, the Center studied the impact of the West Africa Ebola outbreak on the US healthcare system. The study analyzed the firsthand experience of handling confirmed cases of Ebola virus disease in 4 US cities (Atlanta, Dallas, New York, and Omaha) and identified solutions to both common and highly specific problems faced by these cities, with a particular focus on identifying unexpected problems.

The goal of the study was to develop a Health Sector Resilience Checklist that outlined actions that communities should take to prepare for high-consequence infectious disease outbreaks. That checklist report was completed, published, and disseminated widely, with a special emphasis on providing practical guidance to medical and public health professionals and the community organizations that provide a substantial portion of community medical care outside the hospital setting.

SPARS PANDEMIC SCENARIO TOOL

The Center's SPARS Pandemic exercise narrative, released in October 2017, created a scenario planning tool that illustrated a range of communication challenges concerning medical countermeasures (MCMs) that might arise in future epidemics. Its purpose was to give users the ability to consider the many ways that communication could be challenged, stymied, or confused in those conditions—perhaps by social media, by groups opposed to vaccines, by incomplete information, or by political pressures.

While engaged with a rigorous simulated health emergency, scenario readers have the opportunity to mentally "rehearse" responses while also weighing the implications of their actions. It gives users a chance to consider risk communications, rumor control, interagency message coordination and consistency, issue management, proactive and reactive media relations, cultural competence, and ethical concerns. Users also have a chance to consider what potential measures implemented in today's environment might avert comparable communication dilemmas in the future.



BOLSTERING PUBLIC HEALTH AND COMMUNITY PHARMACY PARTNERSHIPS

As pharmacies have added more health offerings in recent years, it has become evident that they have important contributions to make to improving public health. To better understand the actual and potential impact of pharmacies on public health, the Center conducted a study regarding how public health could more meaningfully engage with community pharmacies—the collective group of US independent and chain pharmacies, traditional drug stores, grocery stores with pharmacies, and mass merchants with pharmacies.

The resulting report, released in October 2017, found that the collective group of chain and independent US pharmacies remain a largely untapped resource in the effort to curb the national opioid crisis, stem the spread of antibiotic resistance, and strengthen pandemic and emergency preparedness and response. The study provided recommendations on how to strengthen that partnership.

DEVELOPMENT OF A MODEL OF COMMUNITY FUNCTIONING DURING DISASTERS:

THE CoPE-WELL MODEL

The Center is collaborating with the US Centers for Disease Control and Prevention and other researchers at Johns Hopkins University and the University of Delaware Disaster Research Center to develop a model of community resilience and functioning that helps communities gauge their strengths and weaknesses, identify areas of greatest concern, and develop key partnerships across professional domains in ways that don't happen easily.

The work is based on a conceptual and systems dynamic computational model that identifies the major domains of community function, predicts the time course of community functioning after a disaster, and takes into account the nature of a disaster and the speed and robustness of the efforts necessary to regain functioning. The project uses both qualitative and quantitative approaches, and the team is developing a self-assessment component of the framework that helps provide a focus for community assessment and action.

MEMOS TO THE NEW ADMINISTRATION

Health Security, January 2017

To serve as baseline information for the incoming new Administration and Congress, the scholars at the Center for Health Security wrote a series of commentaries providing facts and assessments of what has been accomplished in key areas of health security and what needs to be done now. They highlighted some ambitious goals that could, if embraced by the new Administration, significantly advance our national ability to save lives, economies, and societies when faced with serious health security threats. Some of these goals have been aspired to for a long time, but there has not been the kind of national commitment to fully achieve them.

The new Administration and Congress could collectively realize all or part of this vision and transform health security in the United States.

- Funding and Organization of US Federal Health Security Programs~ *Crystal R. Watson and Matthew Watson*
- Healthcare Preparedness: Saving Lives~*Eric Toner*
- Strengthening the US Medical Countermeasure Enterprise for Biological Threats~ *Sanjana Ravi and Amesh A. Adalja*
- Assessing and Addressing US Health Security Risks~*Crystal R. Watson*
- Improving Biosurveillance Systems to Enable Situational Awareness During Public Health Emergencies~*Jennifer B. Nuzzo*
- Strengthening US Public Health Preparedness and Response Operations~ *Matthew Watson, Jennifer B. Nuzzo, Matthew P. Shearer, and Diane Meyer*
- Partnering with Communities to Foster Trust, Save More Lives, and Prompt Recovery in Epidemics and Disasters~*Monica Schoch-Spana*
- A Biosafety Agenda to Spur Biotechnology Development and Prevent Accidents~ *Gigi Kwik Gronvall*
- When the Next Disease Strikes: How To Communicate (and How Not To)~ *Tara Kirk Sell*
- Maintaining US Leadership in Emerging Biotechnologies to Grow the Economy of the Future~*Gigi Kwik Gronvall*
- International Engagement Is Critical to Fighting Epidemics~ *Jennifer B. Nuzzo and Matthew P. Shearer*
- Prevention of the Development or Use of Biological Weapons~*Gigi Kwik Gronvall*

HEALTH SECURITY

A BI-MONTHLY PEER-REVIEWED SCHOLARLY JOURNAL

Health Security provides research and policy discussions on a wide range of issues relevant to the field. The Journal explores the issues posed by disease outbreaks and epidemics; natural disasters; biological, chemical, and nuclear accidents or deliberate threats; foodborne outbreaks; and other health emergencies.

It offers important insight into how to develop the systems needed to meet these challenges. Taking an interdisciplinary approach, *Health Security* covers research, innovations, methods, challenges, and ethical and legal dilemmas facing scientific, military, and health organizations. The Journal is a key resource for practitioners in these fields, policymakers, scientific experts, and government officials.

100+
Manuscripts received

34
Commentaries and editorials published

60
Peer-reviewed articles published

55%
Downloads up over 2016

15
Years of publication

14
Countries where authors live:

Canada
China
Italy
Japan
Liberia
Montenegro
Myanmar
Pakistan
Sweden
Taiwan
Thailand
Tunisia
United Kingdom
United States

170
Countries where *Health Security* is read

47,000+
Full-text downloads

CAPITOL HILL SEMINAR ON PRIORITIES FOR US-FUNDED HEALTH SECURITY PROGRAMS

The Center co-hosted a seminar on Capitol Hill in June with Trust For America's Health. The standing room–only event, "What Is Needed Now to Prepare for Major Health Emergencies," attracted nearly 100 congressional staffers and other stakeholders from inside and outside government.

"Congress has a vital role to play in preparing the nation for emergencies of all kinds," Tom Inglesby, MD, director of the Center, said in opening remarks. That message was affirmed by a panel of nationally recognized thought leaders in public health preparedness and health security policy, including Umair Shah, MD, MPH, executive director of the Harris County (TX) Public Health Department; Beth Cameron, PhD, senior director for global biological policy at the Nuclear Threat Initiative (NTI); and Paul Petersen, PharmD, director of the emergency preparedness program at the State of Tennessee Department of Health.

Crystal Watson, DrPH, MPH, senior scholar at the Center, presented an overview of changes to health security program funding proposed in the President's FY2018 budget request. The Center performs this analysis annually and produces a corresponding report. This year, Watson and co-authors Tara Kirk Sell, PhD, MA, senior scholar, and Matthew Watson, senior analyst, found the proposed budget would cut federal funding for health security programs by an estimated $1.25 billion, or 9%, the largest decrease in more than a decade.

MEETING OF BWC AND STATES PARTIES IN GENEVA

A delegation of staff from the Center attended the 2017 Meeting of States Parties to the Biological and Toxin Weapons Convention (BWC) at the United Nations in Geneva, Switzerland, in December, alongside representatives from 179 nations that have signed and ratified the treaty.

Invited nongovernmental organizations had the opportunity to address country delegations and other NGOs present with a statement during an opening public session. In its statement, the Center urged the BWC and States Parties to facilitate engagement with the broader international scientific and policy community to strengthen global norms against the use of biological warfare by keeping pace with the rapid rate of progress in the life sciences.

"Because biological research occurs mostly outside the direct control of governments and sometimes without oversight, the responsibility for transparency, accountability, and responsible use often falls to scientists themselves," said Director Tom Inglesby, MD, who delivered the Center's statement on Tuesday, December 5. "It is critical that these stakeholders become more involved, both to identify and assess emerging risks and threats and to work together to ensure safe, responsible, and peaceful use of science."

While in Geneva, Center staff met with participants from the Center's ongoing multilateral biosecurity dialogue among the United States and southeast Asian countries and bilateral dialogue between the United States and India. They will continue to discuss how these dialogues can be useful in addressing regional and global biological weapons threats.

NATIONAL BIODEFENSE STRATEGY MEETING IN DC

In June, the Center brought together more than 50 public and private sector biosecurity stakeholders for a daylong meeting in Washington, DC, to engage in a discussion about US biodefense capabilities and offer recommendations for the forthcoming National Biodefense Strategy and Implementation Plan.

During extensive discussions, leading experts and practitioners from government, industry, and academia shared their thoughts on the US biological threat landscape; existing programs, policies, and mechanisms for mitigating the broad spectrum of naturally occurring, accidental, and deliberate biological threats facing the nation; unmet challenges in global, national, and subnational emergency preparedness and response efforts; and priorities for strengthening the United States' national biodefense enterprise.

Their contributions will help to inform the Departments of Defense, Health and Human Services, Homeland Security, and Agriculture—tasked with developing the strategy and implementation plan—as well as other federal agencies and officials responsible for biosecurity.

IN THE NEWS

Center staff were quoted in the news more than 180 times in 2017. Their commentary appeared in numerous prominent outlets, including *The Atlantic*, the *Washington Post*, CNN.com, NPR, *Wired*, *Foreign Policy*, Huffington Post, *Science*, *Newsweek*, Reuters, and the *Los Angeles Times*, among others.

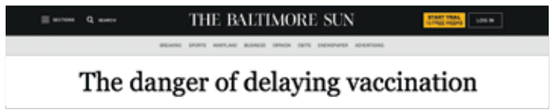
OP-EDS


THE HILL

How Trump's budget makes us all vulnerable to bioterrorism

219 SHARES

In a May op-ed in *The Hill*, Crystal Watson, DrPH, MPH, senior scholar, Tara Kirk Sell, PhD, MA, senior scholar, and Matthew Watson, senior analyst, explained how the first federal budget released by the Trump administration threatened to undo the bipartisan progress to build US biodefenses by crippling, and in some cases eliminating, programs that are vital to national health security.


THE BALTIMORE SUN

The danger of delaying vaccination

A report from Maryland health officials found pertussis cases rose 15% across the state in the first half of 2017. The observed increase in this preventable disease should stand as a stern warning to any parent who is considering skipping the pertussis vaccine for their child—or delaying it, wrote Analyst Diane Meyer, RN, MPH, Senior Scholar Jennifer Nuzzo, DrPH, and Senior Analyst Matthew Shearer, MPH, in an August op-ed in the *Baltimore Sun*.

HORSEPOX SYNTHESIS COMMENTARY

Center Director Tom Inglesby, MD, wrote in July about important questions global health and science leaders should be asking in the wake of news that the publication of experimental work that synthesized horsepox was imminent. "The entrepreneurial and unpredictable nature of biological research, now coupled with powerful global markets, is overwhelmingly positive for the world," Inglesby said on the Center's Bifurcated Needle blog. "But this case of horsepox synthesis shows us that there are also specific and serious challenges that require special attention now."

His commentary received extensive attention. Johns Hopkins University's online newsroom, *The Hub,* quoted him extensively, and *Hopkins Medicine* magazine ran a version of his blog in its fall 2017 print edition.

E-NEWSLETTERS

Clinicians' Biosecurity News (CBN), a twice-monthly email newsletter, is written and edited by Drs. Amesh Adalja and Eric Toner. It provides updates on new developments in a range of clinical research and practice areas that intersect with biosecurity and health security.

Health Security Headlines is a daily email digest of news and developments in health security sent to more than 2,500 subscribers. Matt Watson edits the newsletter.

Preparedness Pulsepoints is a weekly email update on US government action in readiness and response. The newsletter is edited and produced by Sanjana Ravi, MPH, and has more than 2,500 subscribers.

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