



START ►►

**SMA / DHS / NCTC / CENTCOM / START
Panel Discussion:
Bio Threats**

Booklet

23 February 2018

1200-1330 EST

**Dial (866) 712-4038; Passcode
37250264#**

Strategic Multi-Layer Assessment (SMA) provides planning support to Commands with complex operational imperatives requiring multi-agency, multi-disciplinary solutions that are NOT within core Service/Agency competency. Solutions and participants are sought across USG and beyond. SMA is accepted and synchronized by Joint Staff/J-39 DDGO and executed by ASD (EC&P).

Agenda

Session Notes/Abstract:

The session will cover the environment in which non-state actor adversaries are currently operating and how that impacts their ability to access and adopt bio weapons and related tactics. Rocco Casagrande will discuss the trends in the democratization of biotechnologies. Gary Ackerman will discuss the changes in the adversaries themselves pulling from research he and his team have conducted relating to this topic. Rebecca Earnhardt will talk about how this all intersects with cybercrime and cyber activity and that that in itself impacts the 'environment' for adversaries. Gigi Gronvall will provide perspective on the implications of the political and policy environment as it relates to adversary behavior in this area.

Panel Moderator and Speaker: Dr. Rebecca Earnhardt (University of Maryland START)

Speakers:

- Dr. Gary Ackerman (University of Maryland START)
- Dr. Gigi Gronvall (Center for Health Security at Johns Hopkins University)
- Dr. Rocco Casagrande (Gryphon Scientific)

Speakers' Talking Points:

- Dr. Rocco Casagrande:
 - Why understanding the speed of democratization of biotechnologies is an important aspect of biosecurity and biodefense
 - Introduce the methodology—technology based and phenotype based
 - Introduce the case studies
 - Show data for technology based
 - Show data for phenotype based (if time)
- Dr. Gary Ackerman:
 - Latest findings about the psychology, motivations and decision making of bioterrorists, esp. why some terrorists pursue (and more importantly, why most do not) BW
 - Empirical attributes associated with bioterrorists (from the CBD project) – is there a “profile” of a bioterrorist?
 - The impact of emerging biotechnologies on non-state adversary behavior
- Dr. Rebecca Earnhardt:
 - Discussion of recent UWT-START work on bioterrorists (the CBD project) as grounding for bioterrorist trends
 - Convergence between cyber security and biosecurity - how this translates to bioterrorist attack modalities
 - Use implantable medical device hacking as example
- Dr. Gigi Gronvall:
 - Discussion of what can be gleaned about current administration priorities regarding biodefense and also an update on PAHPA reauthorization
 - Challenge for policy to see what is new and dangerous— a summary of the National Academies' synthetic biology committee report (which I'm on, final report should be released soon), and how their framework should be used?

Speaker Biographies

Dr. Gary Ackerman

*University of Maryland START
Founding Director of the Unconventional Weapons and Technology Division*

Gary Ackerman is an Associate Professor in the College of Emergency Preparedness, Homeland Security and Cybersecurity (CEHC) at the University at Albany. He is also the Founding Director of the Unconventional Weapons and Technology Division at the National Consortium for the Study of Terrorism and Responses to Terrorism (START) and before that the Director of the Research and Special Projects Director at START and the Director of the Weapons of Mass Destruction Terrorism Research Program at the Center for Nonproliferation Studies in Monterey, California. His research encompasses various areas relating to terrorism and counterterrorism, including terrorist threat assessment, terrorist tactics, terrorist technologies, motivations for using chemical, biological, radiological, and nuclear (CBRN) weapons, and the modeling and simulation of terrorist behavior. He is the co-editor of *Jihadists and Weapons of Mass Destruction* (CRC Press, 2009), author of several articles on CBRN terrorism and has testified on nuclear terrorism before the Senate Committee on Homeland Security. He completed his PhD in War Studies at King's College London, dealing with the impact of emerging technologies on terrorist decisions relating to weapons adoption.

Dr. Rocco Casagrande

*Gryphon Scientific
Founder*

Dr. Rocco Casagrande began his public sector career as a U.N. weapons inspector in pre-war Iraq where he led the U.N.'s biological analysis laboratories. Today, as a founder and Managing Director of Gryphon Scientific, he is a widely respected thought leader on the risks and medical responses to naturally occurring infectious diseases as well as intentional CBRN events. Dr. Casagrande has provided intellectual leadership to dozens of CBRN defense projects for health and defense agencies. In one notable collaboration with DHS and CDC, he developed a methodology to incorporate risk in the choice of supplies in the Strategic National Stockpile, the nation's largest repository of medicines available for a public health emergency. A life scientist, with a degree from Cornell in biology and chemistry and an MIT Ph.D. in biology, Dr. Casagrande has a particular interest in the benefits and threats of emerging biotechnologies—innovations that may have transformative effects on life sciences but raise considerable challenges for policy and governance. In one project, Dr. Casagrande and his team studied whether and how to regulate the synthetic DNA industry to minimize the risk that a terrorist group could synthesize and weaponize the genome of a dangerous viral or bacterial agent. To balance the positive, environmental, industrial and medical applications of the technology against the biosecurity risks, Dr Casagrande proposed voluntary guidelines for screening customers that have become standard industry practice. Similarly, Dr. Casagrande designed a study to address the risks and benefits of engineered influenza viruses after NIH imposed a moratorium on all research to make pathogens of pandemic potential more transmissible or pathogenic. Consistent with all of Dr. Casagrande's work on important questions of science policy, a science advisor to NIH commented that the results established new boundaries on a complex set of questions.

Dr. Rebecca Earnhardt

*University of Maryland START
Researcher and Project Manager for the Unconventional Weapons and Technology Division*

Rebecca Earnhardt is a Researcher and Project Manager for the Unconventional Weapons and Technology Division at the National Consortium for the Study of Terrorism and Responses to Terrorism (START). She focuses on emerging technologies of national security concern, biological threats and biotechnology, and adversary decision making. With experience in designing and implementing red team exercises, Rebecca takes a creative and innovative approach to addressing key areas of security concern including aviation security and radiological material control. Rebecca received her M.S. in Biodefense from George Mason University, and completed a B.A. in Political Science and a B.A. in Homeland Security / Emergency Preparedness at Virginia Commonwealth University.

Dr. Gigi Kwik Gronvall

*Johns Hopkins, Bloomberg Center for Mental Health
Senior Scholar, Associate Professor*

Dr. Gronvall is a Senior Scholar at the Johns Hopkins Center for Health Security and an Associate Professor in the Department of Environmental Health and Engineering at the Johns Hopkins Bloomberg School of Public Health. She is an immunologist by training.

Dr. Gronvall's work at the Center addresses the role of scientists in health security—how they can contribute to an effective

technical response against a biological weapon or a natural epidemic. She is particularly interested in developing policies that will boost the safety and security of biological science activities while allowing beneficial research to flourish.

Dr. Gronvall is the author of the book *Synthetic Biology: Safety, Security, and Promise*, published in fall 2016 (Health Security Press). While the synthetic biology discipline is poised to revolutionize important sectors for national security, there are technical and social risks. Dr. Gronvall describes what can be done to minimize risks and maximize the benefits of synthetic biology, focusing on biosecurity, biosafety, ethics, and US national competitiveness. Dr. Gronvall is also the author of the book *Preparing for Bioterrorism: The Alfred P. Sloan Foundation's Leadership in Biosecurity*. By describing the major grants that represented Sloan's investments in civilian preparedness, public health law, law enforcement, air filtering in buildings, influenza preparedness, and business preparedness, Dr. Gronvall constructed, for a nontechnical audience, a chronicle of early gains in US efforts to confront the threat of bioterrorism.

Dr. Gronvall is a member of the Threat Reduction Advisory Committee (TRAC), which provides the Secretary of Defense with independent advice and recommendations on reducing the risk to the United States, its military forces, and its allies and partners posed by nuclear, biological, chemical, and conventional threats. In 2014-15, she led a preparatory group that examined the US government response to the Ebola outbreak in West Africa as a case study for DoD's strategic role in health security and that made recommendations for future DoD actions in response to disease outbreaks.

She served as the Science Advisor for the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism from April 2009 until the Commission ended in February 2010. She has testified before Congress about the safety and security of high-containment biological laboratories in the United States and served on several task forces related to laboratory and pathogen security, most recently the National Institutes of Health Blue Ribbon Panel to Review the 2014 Variola Virus Incident on the NIH Campus (2016) and the Committee for Comprehensive Review of DoD Laboratory Procedures, Processes, and Protocols Associated with Inactivating *Bacillus anthracis* Spores, formed in response to the Dugway anthrax shipments (2015). Dr. Gronvall has investigated and presented policy recommendations on the governance of science to the Biological Weapons Convention (BWC) in Geneva, Switzerland.

Dr. Gronvall is an alumnus of the European Union Visitors Program, a competitive program designed to increase mutual understanding between professionals and future leaders from non-EU countries and their EU counterparts, and the Council on Foreign Relations Term Member Program.

Dr. Gronvall is an Associate Editor of the journal *Health Security* (formerly *Biosecurity* and *Bioterrorism*). She is a founding member of the Center, and, prior to joining the faculty, she worked at the Johns Hopkins University Center for Civilian Biodefense Strategies. She was a National Research Council Postdoctoral Associate at the US Army Medical Research Institute of Infectious Diseases (USAMRIID) in Fort Detrick, Maryland.

Dr. Gronvall received a BS in biology from Indiana University, Bloomington. She subsequently worked as a protein chemist at the Memorial Sloan-Kettering Cancer Center and received a PhD from Johns Hopkins University for work on T-cell receptor/MHC I interactions.