

2019 Next Generation for Biosecurity Competition Call for Papers

NTI | bio is partnering with the Next Generation Global Health Security (GHS) Network to advance the biosecurity-related targets of the Global Health Security Agenda (GHSA). As part of that work, we are launching the third annual joint competition to foster biosecurity professional development within the Next Generation GHS Network. The 2019 competition will focus on the theme of catalytic actions furthering researcher norms for identifying biological risks; implementing, improving, and/or adhering to biosafety and biosecurity standards; and preventing deliberate or accidental uses of biological agents or materials.

Scientific advances are essential for achieving global health security, yet are outpacing the ability of governments and international organizations to provide effective oversight to reduce biological risks associated with advances in technology. Over the last decade, the international community has often failed to predict, identify, or quickly reduce an emerging biological risk associated with life sciences dual-use research, including the 2012 [experiments related to transmissibility for H5N1 avian influenza](#) and the 2017 [synthetic creation of the horsepox virus](#).

The 2019 Competition

We seek innovative and creative papers for publication by NTI | bio and the NextGen GHS Network that: 1) explore concrete collaborative actions that can be taken to build national, regional, and global norms for preventing deliberate and/or accidental biological events; and 2) promote cross-sectoral and cross-regional partnerships to advance biosecurity and biosafety.

In addition to publication, the winning team for the 2019 Next Generation for Biosecurity Competition will receive travel and lodging support to attend and present during a high-level global health security meeting. Submissions will be assessed by a panel of multisectoral and international experts.

Prizes for Winning Submission(s):

NTI | bio will publish the top paper(s) and provide travel and lodging expenses for up to three members of the winning team to attend a high-level global health security meeting to present the paper to biosecurity and biosafety professionals. The top submissions will be promoted on both the NTI and NextGen platforms.

Paper Outline

Participants should use *publicly available information* to explore the question:

What can the next generation of researchers and/or policymakers contribute to the development and enforcement of and accountability for, responsible life sciences research and biotechnology development that advances global health security while reducing the risk of an accidental or deliberate biological event?

Please note all papers must be in English and submitted as a single pdf with the three curriculum vitae. All papers should be written using size 12, Times New Roman font, and 1-inch margins.

Submissions should use the following outline format and consider the corresponding questions listed in each section:

Title Page

- Include the paper title and all participant's names, affiliations, and email addresses.

Executive Summary

- Include any key background information, key finding(s), and recommendations for the audience. This executive summary should be able to act as a stand-alone document that could be used for distribution. Creative formatting of this page is acceptable. Potential discussion questions explored in the paper can be listed here.

Introduction (~750 words)

- What are specific limitations in existing national, regional, and/or international legal, regulatory, or policy frameworks related to culture of responsibility in life sciences research?
 - Specifically, submissions should address the lack of national, regional, and global frameworks and norms that could deter or prevent the deliberate or accidental release of dangerous biological agents, especially given the rapid pace of biotechnology advancement.

Recommendations (~500 words)

- What can the next generation of researchers and/or policymakers do to address these limitations to reduce the risk of an accidental or deliberate biological event?
 - Each submission should discuss ways in which biosecurity norms could be fostered by the next generation in the absence of adequate policy and regulatory frameworks.
 - Specific recommendations can involve actions researchers, their institutions, funders (to include investors), publishers, governments or other stakeholders can take to more effectively identify and quickly reduce biological risks.

Participants should consider new actions and activities that could promote the development of national, regional, and/or global norms toward identifying and reducing emerging biological risks, including those associated with advances in technology, and how they might apply to the next generation of health security, biosecurity, and biosafety professionals.

Conclusion (~250 words)

References

- Citations should follow Chicago Manual of Style 17th Edition:
 - https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/cmos_formatting_and_style_guide/chicago_manual_of_style_17th_edition.html
- Participants must work with at least one expert in the field of biosecurity and/or biosafety, life sciences, or other field related to their paper's focus. The consultation with this expert must be listed in the references section.

Curricula Vitae

- One-page curriculum vitae is required per author (maximum three pages).

Additional Information

In advance of writing, we encourage teams to read four documents:

- “Fostering an International Culture of Biosafety, Biosecurity, and Responsible Conduct in the Life Sciences” by Dana Perkins, Kathleen Danskin, and A. Elise Rowe, *Science & Diplomacy*, Vol. 6, No. 3 (September 2017).
(<http://www.sciencediplomacy.org/biosafety>)
- “Proposed Global Norms for Microbiology, Synthetic Biology, and Emerging Biotechnologies” by Sarah R. Carter, Stephen S. Morse, and Jaime M. Yassif
(<https://bit.ly/324PVar>)
- Biosecurity Innovation & Risk Reduction Initiative: A Global Initiative to Reduce Biological Risks Associated with Advances in Technology
([https://media.nti.org/documents/NTI Biosecurity and Risk Reduction Initiative Brochure.pdf](https://media.nti.org/documents/NTI_Biosecurity_and_Risk_Reduction_Initiative_Brochure.pdf))
- “Information Hazards in Biotechnology” by Gregory Lewis, Piers Millett, Anders Sandberg, Andrew Snyder-Beattie, and Gigi Gronvall, *Information Hazards in Biotechnology*. Risk Analysis, 39: 975-981
(<https://onlinelibrary.wiley.com/doi/epdf/10.1111/risa.13235>)

We challenge participants to use these papers to understand existing frameworks that aim to foster a culture of responsibility and build global norms in the life sciences.

What do we mean by “biosecurity” and “biosafety”?

For the purposes of this competition, biosecurity and biosafety are defined by the target and indicators outlined within the Joint External Evaluation (JEE) Tool of the World Health Organization (WHO) and the GHSA Action Package on biosecurity and biosafety (APP3). In general, the term “biosecurity” refers to measures that are taken to protect and control access to—and prevent theft and diversion of—dangerous biological materials and toxins, as well as oversight for dual use research. The term “biosafety” refers to measures that are taken to protect people from exposure to dangerous biological materials and toxins.

What is shared responsibility in the context of biosecurity and biosafety?

The idea that there is a “shared culture responsibility” among life sciences researchers is reinforced by World Health Assembly, Resolution WHA55.16, which “...promotes a culture of scientific integrity and excellence, distinguished by openness, honesty, accountability and responsibility” and, “is the best protection against the possibility of accidents and deliberate misuse, and the best guarantee of scientific progress and development.” the WHO JEE target for biosafety and biosecurity promotes, “Biological risk management training and educational outreach conducted to promote a shared culture of responsibility.” However, the concept of a shared culture of responsibility faces significant challenges as biotechnology tools and capabilities become cheaper, more readily available, and easier to use – advancing beyond the ability of governments to provide effective oversight. Recent examples such as the *de novo* synthesis of horsepox¹ and birth of two children whose DNA was edited as an embryo² highlight limitations in the traditional model of shared “culture of responsibility” that currently guides biosecurity and biosafety norms.

Eligibility

To participate in this competition, the following criteria must be met:

- Applicants must be a current member of the [Next Generation GHS Network](#). If submitting as part of a team, at least one-third of the applicants must be current members of the Next Generation GHS Network. Applicants also must be currently enrolled in an academic institution or must be a professional working in the field of global health security.
- Teams are strongly encouraged to include Next Gen professionals from more than one country and/or region.
- Teams are strongly encouraged to be cross-sectoral in their makeup.
- **Papers must include a specific focus on biosecurity (solely or in addition to biosafety) and must address the biosecurity-related indicators contained in the JEE. Broader applications focused on other elements of the GHSA and/or WHO JEE will not be considered for this competition.**

Timeline

- August 6, 2019: Call for paper submissions released and competition launch. If you or someone you know wants to participate in the competition and does not have a team, please sign up [here](#). Then you may find potential teammates with similar interests [here](#).
- August 20, 2019: Program overview webinar. An online Q&A will be conducted by the Next Generation GHS Network at 12:00pm EDT.
- September 17, 2019: Deadline for submissions. All papers must be submitted in full by midnight ET on September 17, 2019 to be considered. Papers should be sent to NTIbio@nti.org.

¹ Ryan S. Noyce, Seth Lederman, and David H. Evans, “Construction of an infectious horsepox virus vaccine from chemically synthesized DNA fragments,” PLoS ONE 13(1): e0188453 (January 19, 2018). <https://doi.org/10.1371/journal.pone.0188453>

² Antonio Regalado, “EXCLUSIVE: Chinese scientists are creating CRISPR babies,” MIT Technology Review (November 25, 2018).

- November 8, 2019: Announcement of winners. NTI will announce the winners of the competition on our website, www.nti.org, and contact teams for next steps.

Competition Goals

The Next Generation for Biosecurity Competition seeks to develop regional and global partnerships among Next Generation professionals to:

- Facilitate relationships between NextGen leaders interested in biosecurity and biosafety across countries and regions in accordance with the GHSA targets on biosecurity and biosafety and linking public health and biosecurity authorities;
- Enhance country and regional capabilities to achieve the biosecurity and biosafety targets within the GHSA and the WHO JEE;
- Inform emerging and established members of the broader global health security community on the significant biological risks posed by advances in technology;
- Improve regional and cross-regional collaboration in the biosecurity and biosafety fields;
- Promote a global cadre of multi-sectoral professionals within the Next Generation GHS Network dedicated to reducing catastrophic biological risks and enhancing biosafety and biosecurity; and
- Provide additional avenues for knowledge transfer to next generation biosafety and biosecurity professionals through mentorships and potential engagement with global health security experts in the field.

About the Sponsors

NTI works to protect our lives, environment, and quality of life now and for future generations. We work to prevent catastrophic attacks with weapons of mass destruction and disruption (WMDD)—nuclear, biological, radiological, chemical, and cyber. NTI has addressed biosecurity issues since our founding in 2001. NTI | bio is developing new initiatives to curb global catastrophic biological risks, catalyze international biosecurity norms and innovation, enhance biosurveillance for emerging threats, and advocate for measurable biosecurity commitments as an integral component of the Global Health Security Agenda (GHSA).

The Next Generation Network engages and facilitates contributions by emerging scholars, scientists, and professionals from government and non-governmental institutions to the Global Health Security Agenda (GHSA) and other global health security projects. Through its mission, the Next Generation Network promotes the values of Education, Innovation, and Participation to approach and overcome the biggest challenges facing the health security fields today.