

COMBATting EMERGING BIOLOGICAL THREATS – PREPARING FOR THE FUTURE TODAY

Establishment Of A Collaborative Roadmap And Standard Protocol For Rapidly Assessing The Fate Of Emergent Biological Agents In The Environment (fate)

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Informing effective preparation, response, and recovery efforts to a biological incident of national significance, whether a naturally occurring infectious disease or an intentional act of terrorism, requires information about the fate of the biological agent in the various environments in which it may be encountered (e.g., air, water, surfaces, natural bodily fluids). Understanding the fate of biological agents in the environment supports the Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) computational modeling of the transport and duration of the agents in the environment; subsequent risk assessments used by the DHS Countering Weapons of Mass Destruction Office to prioritize threats, make material threat determinations, and inform interagency investments to mitigate the risks; and informs the plans and processes that can be implemented to mitigate the impact of the incident including impacts to the DHS workforce and operations.

During the COVID-19 pandemic, scientists rapidly sought to address questions regarding the stability of SARS-CoV-2 in the environment to assess potential routes of exposure and to identify solutions to reduce transmission and risk of infection. Laboratory studies to understand the fate of biological agents in different environments are complex, often requiring specialized facilities and personnel. Without sufficient data and proper characterization of the test systems and materials, experimental results may be misleading, are often misaligned, or not readily applicable for intended purposes. Establishing common approaches, standardized requirements, and study methods across scientific institutions in advance of an incident of national or international significance can improve the ability of multiple laboratories to rapidly and effectively generate meaningful biological agent fate data to support the response.

The Establishment of a Collaborative RoadMap and Standard Protocols for Rapidly Assessing the Fate of Emergent Biological Agents in the Environment (FAtE) effort is an international working group through DHS S&T's Five Research and Development (5RD) Global Biodefense Network (GBDN) that is working to define the critical data that are needed during the early stages of an emergent biological hazard; identify existing capabilities and subject matter expertise for performing studies to collect the data; and develop a roadmap and standard of methods for efficient and rapid assessment the fate of biological agents in coordination with participating institutions.