

Federal Experts Security
Advisory Panel Summary of
Findings and
Recommendations Regarding
the Proposed Addition of
Bacillus cereus biovar
anthracis to the Department
of Health and Human
Services' List of Select
Agents and Toxins

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Federal Experts Security Advisory Panel Summary of Findings and Recommendations Regarding the Proposed Addition of *Bacillus cereus* biovar *anthracis* to the HHS List of Select Agents and Toxins

On July 2, 2010, President Obama signed Executive Order (EO) 13546 “Optimizing the Security of Biological Select Agents and Toxins,” which created the Federal Experts Security Advisory Panel (FESAP) and tasked it with addressing policy issues relevant to the security of biological select agents and toxins (BSAT).

The mission of the FESAP is to make technical and substantive recommendations concerning the appropriate safeguards and security standards for persons possessing, using, or transferring BSAT. In December 2014, the FESAP conducted a coordinated federal review and made recommendations to optimize biosafety, biosecurity, oversight and inventory management and control for BSAT¹ that include methods to improve worker safety. The FESAP emphasized the importance of conducting work in a manner that protects laboratory personnel, public health, plant and animal health, agriculture, and the environment.

The Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services (HHS) proposes to add *Bacillus cereus* biovar *anthracis* to the list of HHS select agents and toxins as a Tier 1 select agent. Genetic analysis shows that *B. cereus* biovar *anthracis* contains plasmids² associated with virulence that are similar to *Bacillus anthracis*, a Tier 1 select agent. Therefore, CDC has determined that *B. cereus* biovar *anthracis* has similar potential to pose a severe threat to public health and safety as *B. anthracis* and should consequently be regulated as a Tier 1 select agent. CDC is proposing to regulate this agent to prevent its misuse, which could cause a biological threat to public health and/or national security. CDC concludes that adding *B. cereus* biovar *anthracis* through the publication of an interim final rule (IFR)³

¹ [Report of the Federal Experts Security Advisory Panel](#), December 2014.

² A plasmid is a self-replicating circular fragment of DNA that is distinct from the normal genome of bacteria.

³ An IFR is when a department or agency adopts a rule without the opportunity for prior public input, but may modify the rule, as appropriate, following post-promulgation comment. A department or agency may dispense with the “notice and opportunity to comment” requirement if the department or agency for good cause finds (and incorporates the finding and a brief statement of reasons therefore in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

rather than the publication of a notice of proposed rulemaking (NPRM)⁴ is in the best interest of public health and national security.⁵

In accordance with EO 13546, the FESAP was tasked to review and make recommendations on CDC's proposal to add *B. cereus* biovar *anthracis* to the list of HHS select agents.

BACKGROUND

On June 12, 2002, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 was signed into law. The Act is designed to improve the ability of the United States to prevent, prepare for, and respond to bioterrorism and other public health emergencies. Section 201(a) of the Act amends the Public Health Service Act by adding section 351A (Enhanced Control of Dangerous Biological Agents and Toxins) (42 U.S.C. 262a) that requires all persons possessing, using or transferring those biological agents or toxins designated by the HHS Secretary as having the potential to pose a severe threat to public health and safety (i.e., HHS select agents and toxins) to register with the HHS Secretary and meet biosafety and security standards and procedures established by the HHS Secretary. The CDC has been designated as the HHS agency responsible for promulgating and implementing regulations, as well as providing guidance, for HHS select agents and toxins. The HHS select agents and toxins regulations can be found in Part 73 of Title 42 of the Code of Federal Regulations (42 CFR Part 73).

In determining whether to include an agent or toxin on the HHS select agents and toxins list, the HHS Secretary considers the effect on human health of exposure to the agent or toxin; the degree of contagiousness of the agent or toxin and the methods by which the agent or toxin is transferred to humans; the availability and effectiveness of pharmacotherapies and immunizations to treat and prevent any illness resulting from infection by the agent or toxin; and any other criteria, including the needs of children and other vulnerable populations, that the HHS Secretary considers appropriate. The HHS Secretary consults with appropriate Federal

⁴ The publication of a NPRM in the *Federal Register* provides the notice and opportunity to comment by interested persons required by section 553 of the Administrative Procedure Act (5 USC 553). The NPRM includes a reference to the legal authority under which the rule is proposed; and the terms or substance of the proposed rule.

⁵ The CDC has proposed that the HHS Secretary find that there is good cause to dispense with advance public notice and opportunity to comment on this rule because any delay in promulgating the rule would be contrary to the public interest.

departments and agencies and with scientific experts representing appropriate professional groups, including groups with pediatric expertise (42 UCS 262a (a)(1)(B)(ii)). The Secretary reviews and republishes the list biennially, or more often as needed, and, by regulation, revises the list as necessary.

HHS is considering whether to publish an IFR that would add *B. cereus* biovar *anthracis* to the list of HHS select agents and toxins as a Tier 1 select agent and has sought the advice of the FESAP. Tier 1 select agents are a subset of select agents and toxins that present the greatest risk of deliberate misuse with significant potential for mass casualties or devastating effect to the economy, critical infrastructure, or public confidence, and pose a severe threat to public health and safety.

B. cereus biovar *anthracis* is an emerging pathogen that has been isolated from great apes with anthrax-like disease in Cameroon and Côte d'Ivoire. These strains possess properties similar to those of *B. anthracis*, which makes them difficult to classify. The CDC's Intragovernmental Select Agents and Toxins Technical Advisory Committee (ISATTAC) deliberated on the addition of *B. cereus* biovar *anthracis* to the select agent list. The ISATTAC considered 13 criteria during their review and recommended the immediate regulation of *B. cereus* biovar *anthracis* as a Tier 1 select agent because the ISATTAC concluded that it presents a public health risk comparable to wild-type *B. anthracis*. CDC's Division of Select Agents and Toxins (DSAT) drafted an IFR that would add *B. cereus* biovar *anthracis* as a Tier 1 select agent. In subsequent ISATTAC discussions, the ISATTAC again unanimously recommended regulating *B. cereus* biovar *anthracis* as a select agent; however, the vote was split on whether the agent should be listed as a Tier 1 select agent due to lack of information on disease progression and diagnostic methods.

CHARGE

The FESAP was charged to consider technical and policy factors related to the addition of *B. cereus* biovar *anthracis* to the select agents and toxins list in order to make recommendations on the following three questions:

- Should *B. cereus* biovar *anthracis* (a bacterium with virulence characteristics and threat potential similar to *B. anthracis*) be added to the HHS select agents and toxins list?
- If *B. cereus* biovar *anthracis* is added to the HHS select agents and toxins list, should it be listed as a Tier 1 or non-Tier 1 select agent?

- If *B. cereus* biovar *anthracis* is added to the HHS select agents and toxins list, should the addition be accomplished through a NPRM or through an IFR?

METHODS

The FESAP convened several meetings in June and July 2016 to discuss the proposed amendment of the HHS select agents and toxins list to include *B. cereus* biovar *anthracis* as a Tier 1 select agent.

In order to address the proposed addition, the FESAP utilized appropriate federal subject matter experts (SMEs) from its members' departments. The FESAP drew from the expertise of its membership, information from presentations by several federal departmental and agency SMEs, and technical input from the Federal Select Agent Program to develop recommendations.

The recommendations presented in this report represent the view of the members of the FESAP and not necessarily the views of their respective departments, agencies, or offices.

FESAP FUNCTION

The duties of the FESAP are solely advisory and shall extend only to the submission of advice and/or recommendations.

ADDITION OF *B. CEREUS* BIOVAR *ANTHRACIS* TO THE HHS LIST OF SELECT AGENTS AND TOXINS

HHS Updating of Select Agents and Toxins List

Subtitle A of Title II of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, (42 U.S.C. 262a) (the Bioterrorism Preparedness and Response Act), requires the HHS Secretary to establish by regulation a list of each biological agent and toxin that has the potential to pose a severe threat to public health and safety. The CDC has the primary

responsibility for implementing these provisions of the Bioterrorism Preparedness and Response Act.

In determining whether to include an agent or toxin on the list, the HHS Secretary considers the following broad categories:

- Effect on human health of exposure to an agent or toxin;
- Degree of contagiousness of the agent or toxin and the methods by which the agent or toxin is transferred to humans;
- Availability and effectiveness of pharmacotherapies and immunizations to treat and prevent illnesses resulting from an agent or toxin; and
- Any other criteria including the needs of children and other vulnerable populations.

The Bioterrorism Preparedness and Response Act requires that the HHS Secretary consult with Federal departments and agencies.

CDC has proposed that *B. cereus* biovar *anthracis* should be added to the list of HHS select agents and toxins as a Tier 1 select agent through the use of an IFR.

INTRAGOVERNMENTAL SELECT AGENTS AND TOXINS TECHNICAL ADVISORY COMMITTEE (ISATTAC) REVIEW PROCESS AND RECOMMENDATIONS

Review process

Among its responsibilities, the ISATTAC conducts technical reviews of the makeup of the HHS select agents and toxins list. It is co-chaired by HHS and USDA and is comprised of SMEs employed at CDC, Biomedical Advanced Research and Development Authority (BARDA) within the Assistant Secretary for Preparedness and Response (ASPR), National Institutes of Health (NIH), Food and Drug Administration (FDA), Department of Homeland Security (DHS), Department of Defense (DOD), the USDA/Animal and Plant Health Inspection Service (APHIS), USDA/Agricultural Research Service (ARS), and USDA Center for Veterinary Biologics (CVB). While four broad evaluation categories are outlined in the Bioterrorism Preparedness and Response Act, the ISATTAC considers the following more granular sub-criteria in their review of the HHS list of select agents and toxins (which include both HHS only and Overlap select agents and toxins):

- Organism
 - Degree of pathogenicity (ability of an organism to cause disease); and

- Communicability (ability to spread from infected to susceptible hosts);
- Production
 - Ease of dissemination;
 - Route of exposure;
 - Environmental stability (including the ability to retain viable organisms using an aerosol dissemination device);
 - Ease of production in the laboratory;
 - Ability to genetically manipulate or alter;
- Host
 - Long-term health effects;
 - Untreated acute mortality;
 - Available therapeutics and vaccines (e.g. medical countermeasures);
 - Status of host immunity;
 - Vulnerability of special populations; and
 - Burden or impact on the health care system.

GENERAL POLICY CONSIDERATIONS

The FESAP considered the ISATTAC's and CDC's key findings about the policy considerations relevant to adding *B. cereus* biovar *anthracis* to the HHS list of select agents and toxins. Key findings and FESAP considerations are detailed below:

1. Whether there would be operational concerns for regulating *B. cereus* biovar *anthracis*, particularly for the *B. cereus* community

One topic of discussion regarded how entities would know they possess *B. cereus* biovar *anthracis* and thus would need to register or amend their registration with the Federal Select Agent Program. There was general agreement that there are sufficient tools to positively identify this strain in a suspect clinical specimen in a diagnostic laboratory. The diagnostic testing algorithm will need to be adjusted to ensure differentiation of *B. cereus* biovar *anthracis* from *B. anthracis* and *B. cereus* strains.

2. Whether *B. cereus* biovar *anthracis* should be regulated given some uncertainty in the knowledge base of these emerging pathogen strains

In determining whether to include the agent on the HHS select agent list, the Public Health Security and Bioterrorism Preparedness and Response Act requires that the effect on human

health of exposure to the agent or toxin be considered. The FESAP found that *B. cereus* biovar *anthracis* presents a public health risk comparable to wild-type *B. anthracis*, and therefore recommended that it be listed as a select agent.

The FESAP did not support the addition of *B. cereus* biovar *anthracis* to the select agent list as a Tier 1 agent at this time because a clear, documented threat to humans has yet to be determined. In addition, the FESAP concluded that more research is needed to better understand the agent and host response, and that large animal studies are necessary to fully understand progression of the disease resulting from *B. cereus* biovar *anthracis* infection.

3. Whether the listing of *B. cereus* biovar *anthracis* as a select agent should be accomplished via a NPRM or an IFR

Based on the FESAP finding that *B. cereus* biovar *anthracis* presents a public health risk comparable to wild-type *Bacillus anthracis*, the FESAP agreed with the ISATTAC and concluded that dispensing with prior public notice and the opportunity to comment on the rule before it becomes effective is warranted.

FESAP RECOMMENDATIONS

FESAP recommends listing *B. cereus* biovar *anthracis* as a select agent (not Tier 1) via the IFR mechanism.

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