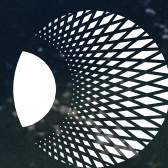


Anomalous Health Threats

Health Security Considerations for UAP

The Sol Foundation

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Executive Summary

The United States government's recent acknowledgment of Unidentified Anomalous Phenomena (UAP) has prompted renewed interest in their national security implications. While much attention has focused on the aerospace implications of UAP, the potential health security dimensions remain underexplored. This paper examines assertions in recent UAP legislation, considers hypothetical health threats linked to UAP based on prior reported incidents, discusses the challenges in detecting and managing anomalous health threats in general, and recommends strategies to improve US preparedness for these low-probability, high-consequence scenarios.

This analysis is speculative, drawing on definitions in recently proposed federal UAP legislation and a limited number of reported UAP incidents. It does not claim these definitions or reported incidents are conclusive and acknowledges that if UAP-related health effects are substantiated, they may have prosaic explanations. However, given the potential for significant harm, the report argues that accounting for these tail risks in US biodefense planning is prudent. While preparedness for “unknown unknowns” should not distract from higher-probability health security priorities, the consequences of strategic surprise justify some proactive risk mitigation.

Implementing these recommendations will require sustained high-level leadership and resources but will leave the nation better prepared to assess and respond to all forms of health threats, regardless of origin.

In this paper, we discuss the following key findings:

1. The proposed UAP amendment to the FY2024 National Defense Authorization Act (NDAA) specifically referenced “invasive biological effects” and “biological evidence of non-human intelligence” in connection with UAP.
2. Proactive efforts to understand the health security implications of UAP are warranted, given the potential for catastrophic consequences from a genuine health threat.
3. UAP-related biological effects can be viewed as a special case of the broader challenge of “anomalous health threats,” which may range from exposure to radiation or directed energy weapons to unconventional biological agents.
4. Existing US biodefense and health security frameworks have gaps in their ability to detect and respond to truly anomalous health threats.

We also make the following recommendations for the US government:

1. Assign responsibility for all anomalous health threats to the National Security Council (NSC) Directorate for Global Health Security and Biodefense.

- 2.** Establish an interagency task force to coordinate efforts to assess and respond to all anomalous health threats.
- 3.** Establish a Rapid Response Team (RRT) that can respond to anomalous health incidents.
- 4.** Create a comprehensive database for anomalous health incidents.
- 5.** Strengthen biosurveillance infrastructure for early detection of emerging threats.
- 6.** Harmonize UAP-related plans with existing national health security and biodefense strategies.

Introduction

The increasingly open discussion of UAP by US government officials points to a growing acknowledgment that UAP encounters represent real, physical occurrences that merit serious investigation.

In 2023, an amendment proposed to the FY2024 National Defense Authorization Act (NDAA) by Senate Majority Leader Chuck Schumer and Senator Mike Rounds highlighted this shift.¹ The proposed UAP amendment mandated the declassification of government records related to UAP. Joining the Senate Majority Leader, members of the Senate Armed Services Committee and the Senate Select Committee on Intelligence cosponsored this legislation.

Notably, amendment sponsor Senator Schumer and cosponsor Senator Marco Rubio are both members of the Gang of Eight, the set of leaders within the United States Congress who are briefed on the most classified intelligence matters and covert actions. While the original draft of the proposed amendment was ultimately not included in the final NDAA, it introduced a number of important definitions. The most salient parts of the text are reproduced here for convenience, with the portions particularly relevant to this discussion bolded. These excerpts include some of the definitions set forth in the legislation, as well as an excerpt on the materials that would be subject to eminent domain.

SEC. 03. DEFINITIONS.

(2) CLOSE OBSERVER.—The term “close observer” means anyone who has come into close proximity to unidentified anomalous phenomena or non-human intelligence.²

(12) NON-HUMAN INTELLIGENCE.—The term “non-human intelligence” means any sentient intelligent non-human lifeform regardless of nature or ultimate origin that may be presumed responsible for unidentified anomalous phenomena or of which the Federal Government has become aware.³

(14) PROSAIC ATTRIBUTION.—The term “prosaic attribution” means having a human (either foreign or domestic) origin and operating according to current, proven, and generally understood scientific and engineering principles and established laws-of-nature and not attributable to non-human intelligence.⁴

(18) TECHNOLOGIES OF UNKNOWN ORIGIN.—The term “technologies of unknown origin” means any materials or meta-materials, ejecta, crash debris, mechanisms, machinery, equipment, assemblies or sub-assemblies, engineering models or processes, damaged or intact aerospace vehicles, and damaged or intact ocean-surface and undersea craft associated with unidentified anomalous phenomena or incorporating science and technology that lacks prosaic attribution or known means of human manufacture.⁵

(21) UNIDENTIFIED ANOMALOUS PHENOMENA.—

(A) IN GENERAL.—The term “unidentified anomalous phenomena” means any object operating or judged capable of operating in outer space, the atmosphere, ocean surfaces, or undersea lacking prosaic attribution due to performance characteristics and properties not previously known to be achievable based upon commonly accepted physical principles. Unidentified anomalous phenomena are differentiated from both attributed and temporarily non-attributed objects by one or more of the following observables:

- (i) Instantaneous acceleration absent apparent inertia.
- (ii) Hypersonic velocity absent a thermal signature and sonic shockwave.
- (iii) Transmedium (such as space-to-ground and air-to-undersea) travel.
- (iv) Positive lift contrary to known aerodynamic principles.
- (v) Multispectral signature control.
- (vi) **Physical or invasive biological effects to close observers and the environment.**

(B) INCLUSIONS.—The term “unidentified anomalous phenomena” includes what were previously described as—

- (i) flying discs;
- (ii) flying saucers;
- (iii) unidentified aerial phenomena;
- (iv) unidentified flying objects (UFOs); and
- (v) unidentified submerged objects (USOs).⁶

SEC. 10. DISCLOSURE OF RECOVERED TECHNOLOGIES OF UNKNOWN ORIGIN AND **BIOLOGICAL EVIDENCE OF NON-HUMAN INTELLIGENCE.**

(a) EXERCISE OF EMINENT DOMAIN.—The Federal Government shall exercise eminent domain over any and all recovered technologies of unknown origin and **biological evidence of non-human intelligence** that may be controlled by private persons or entities in the interests of the public good.⁷

The definitions make assertions about not just the existence of UAP technologies and vehicles, but also their “physical or invasive biological effects to close observers and the environment” and potential “biological evidence of non-human intelligence” that are presumably associated with the vehicles. These assertions raise important questions about how the US government would assess and respond to health threats that may be associated with UAP.

It is crucial to approach these assertions with caution and skepticism. While the members of Congress making these claims have access to classified information not available to the general public, this does not in itself substantiate them. The lack of publicly available evidence to support these assertions is a significant limitation that must be acknowledged.

Furthermore, it is entirely possible that the alleged UAP-related biological effects, if genuine, have prosaic explanations that do not necessarily imply non-human technology or biology. For instance, the described symptoms could potentially be caused by advanced directed

energy weapons, an area of active research and development.⁸ Alternatively, they may be the result of complex, poorly understood psychological or psychosomatic conditions, as some have alleged may be the case in reports of anomalous health incidents.⁹

However, while caution is warranted, claims of novel or anomalous health threats cannot simply be dismissed outright. The US government has a clear obligation to rigorously investigate anomalous health threats using the best available scientific tools and expertise, regardless of origin. The national security apparatus must be proactive in guarding against technological surprise from poorly understood threats, avoiding cycles of panic and neglect that have historically weakened our biodefense posture.¹⁰

Novel biological threats—whether naturally occurring, accidentally released, or deliberately engineered—represent significant risks to US health and national security. The COVID-19 pandemic demonstrated the devastating consequences of being unprepared for such events.¹¹ If nonanthropogenic UAP are under as serious consideration by the federal government as recent UAP legislation seems to indicate, it is in the nation's interest to take a broader view of potential health threats and strengthen biosurveillance and biodefense strategies accordingly.

1. Examples of Anomalous Health Threats

UAP-related biological effects can be viewed as a special case of the broader challenge of anomalous health threats. Such threats are wide-ranging and could take the form of incidental exposure to artificial sources of nonionizing radiation, directed energy weapons, or truly unknown or unconventional biological agents.

This section explores a few categories of anomalous health threats: reports of health effects from self-reported UAP close observers, reports of “anomalous health incidents” or cases of Havana syndrome, and potential risks from biotechnology.

This analysis does not aim to substantiate, definitively characterize, or assess the likelihood of any of these categories of threats. Instead, the intent is to outline plausible risks and identify capability gaps that warrant further investigation and preparedness efforts.

Reports from UAP Close Observers

Allegations of deleterious health effects from UAP encounters have arisen sporadically for decades, though epistemological issues severely constrain their evidentiary value. A small number of published medical case reports describe symptoms such as burns, eye injuries, and neurological impairment among self-reported close observers of UAP.¹² While these reports are largely anecdotal and must be approached with caution, they provide a starting point for considering potential health risks associated with UAP encounters.

Representative incidents that have garnered attention include:

- **Falcon Lake Incident (1967):** Industrial mechanic Stefan Michalak claimed to have encountered a UAP near Falcon Lake, Manitoba. He reported that after he approached the craft, it emitted a blast of hot gas that set his clothes on fire and left a grid-like pattern of burns on his chest. In the following weeks, Michalak experienced symptoms including nausea, headaches, diarrhea, and blackouts. He also reported weight loss and the recurrence of burn marks.¹³
- **Colares Incident (1977):** During a wave of UAP sightings in Colares, Brazil, numerous residents reported being struck by beams of light from the crafts, resulting in skin lesions on their faces and thoracic areas. Some victims exhibited small puncture wounds and areas of hair loss. The Brazilian Air Force conducted an official investigation (Operação Prato), which compiled medical reports and witness testimony.¹⁴
- **Cash–Landrum Incident (1980):** Betty Cash, Vickie Landrum, and Colby Landrum (Vickie’s grandson) reportedly encountered a UAP emitting intense heat on a Texas road.

In the aftermath, they experienced severe health problems consistent with high levels of radiation exposure. Symptoms included burns, eye inflammation, hair loss, diarrhea, vomiting, and extreme weakness. Betty Cash, who had the most direct exposure, suffered from recurrent hospitalizations and eventually developed cancer.¹⁵

These cases illustrate a range of reported health effects associated with close UAP encounters:

- Acute effects: burns, nausea, dizziness, eye inflammation, vomiting.
- Short-term effects: headaches, diarrhea, weakness, hair loss.
- Long-term effects: recurrent symptoms, cancer.

While suggestive, the evidence base for UAP health effects remains sparse, presenting significant challenges in understanding the potential threat. The data primarily consist of self-reported symptoms, with diagnostic evaluations often delayed, complicating the attribution of symptoms to UAP encounters. The lack of consistent evidence collection and standardized clinical protocols further hinder efforts to establish causal relationships.

Despite these limitations, the reported health effects, if substantiated, could point to potential mechanisms of injury. From both the FY2024 NDAA amendment and the available reports, a spectrum of hypothetical UAP-related health threats can be outlined:

- Physical injuries from UAP-emitted electromagnetic or acoustic radiation.
- Exposure to toxic or reactive materials of exotic composition.
- Exposure to biological materials associated with UAP, potentially resulting in the acquisition of infections.

These hypothetical threats highlight key gaps in existing biodefense capabilities. First, the ability to rapidly detect and characterize injuries from suspected directed energy weapons or other advanced technologies is limited. Developing standardized diagnostic criteria and forensic tools for directed energy injuries should be a priority.

Second, if reports of UAP materials are substantiated, safely handling such substances and screening for toxic or reactive properties would be essential. Planetary protection protocols used for space missions provide a starting framework but could be adapted for terrestrial incidents.

Finally, the possibility of novel, nonterrestrial biological agents challenges existing biosurveillance systems optimized for known pathogens. Capabilities for threat-agnostic detection and analysis of unknown biological materials are needed, as discussed further below.

Havana Syndrome

Another informative category of anomalous health threats is the constellation of neurological symptoms reported by US diplomatic personnel and intelligence officers, in what has come to be known as “Havana syndrome” or “anomalous health incidents” (AHI).¹⁶

In late 2016, personnel at the US embassy in Havana, Cuba, began reporting an abrupt onset of unusual sensory phenomena, sometimes displaying strong location dependence. These included loud sounds inside the head, sensations of pressure on one side of the head or body, and quick dissipation of effects upon leaving a specific location, only to return when revisiting that spot. The initial sensory disturbances were followed by chronic symptoms such as vertigo, dizziness, tinnitus, vision problems, headaches, and cognitive difficulties. Subsequent cases with similar symptomatology were identified, affecting US government employees in several other countries.¹⁷

Investigations in 2020¹⁸ and 2022¹⁹ found a subset of AHI cases to be particularly unique. After considering a range of hypotheses, both investigations concluded that some cases could plausibly be explained by exposure to directed, pulsed radiofrequency energy, despite significant uncertainties. However, research on the biological effects of radiofrequency energy has been limited.²⁰

After years of investigation, no definitive cause for these medical conditions has been identified. While some personnel sustained verifiable injuries and experienced distressing symptoms, expert scientific panels were unable to arrive at a conclusive explanation. Nearly a decade later, Havana syndrome remains unresolved.

The Havana syndrome saga holds several lessons for evaluating anomalous health threats more broadly. First, it illustrates the inherent difficulty in investigating and attributing the cause of novel symptom clusters. Second, it shows how challenging it is to collect definitive evidence for an anomalous health incident after the fact, underscoring the importance of timely, on-site investigations and standardized clinical evaluations. Third, it reveals the degree of institutional confusion and disorganization that can occur when bureaucratic structures and processes are not equipped to respond to novel threats. Lack of a unified leadership structure and unclear agency roles and responsibilities hampered the early US government response to AHI cases. Finally, it demonstrates the importance of proactive surveillance for anomalous health threats.

The challenges in investigating anomalous health incidents demonstrate the need for improved health security policies and capabilities for anomalous health threats moving forward. While UAP health incidents may ultimately be shown to have very different etiologies compared to the Havana syndrome cases, they both point to the importance of developing systems for rapidly detecting, analyzing, and responding to health incidents that do not fit established paradigms.

Potential Risks from Biotechnology

The field of biotechnology presents another hypothetical example that can motivate the need for a more proactive approach toward tail risks in health security. Biotechnology is the use of biological systems, organisms, or their components to develop or modify products and processes for specific applications. It ranges from traditional techniques like fermentation to more advanced techniques in genetic engineering and synthetic biology.²¹

Biotechnology offers immense benefits in health, energy, agriculture, and other sectors. These advancements have led to the development of life-saving medicines, more resilient crops, and sustainable energy sources. The field has revolutionized medical treatments, enabling personalized therapies and novel approaches to combating diseases. In agriculture, biotechnology has enhanced crop yields and nutritional content, contributing to global food security. It has also opened up new possibilities in environmental remediation and the production of eco-friendly materials.²²

However, biotechnology also poses some possible health security risks. While the same tools and techniques can be used for beneficial purposes, they could potentially be misused to deliberately create biological weapons or accidentally release engineered organisms into the environment.²³ Like other examples of anomalous health threats discussed in this paper, engineered biological agents may plausibly cause novel clinical presentations or have other exotic properties that present challenges for detection and characterization. Current diagnostic tests, such as polymerase chain reaction (PCR), are often scoped to a single known pathogen. Even those methods that are more flexible, such as sequencing, assume the analyte in question is nucleic acid-based.

These limitations in our current detection capabilities highlight the need for more flexible technologies that can detect and characterize unconventional biological agents. Future advances in biotechnology point to a broader need for more proactive risk assessment and horizon scanning.

These same challenges may extend beyond risks from biotechnology. If assertions about the existence of biological materials associated with UAP are substantiated, such biological materials may differ substantially from conventional biology as we know it. This possibility further emphasizes the need for flexible, threat-agnostic detection and characterization methods.

2. Detecting and Managing Anomalous Health Threats

Assessing the Biological Effects of Radiation

While tools exist for detecting environmental radiation, rapidly assessing human exposure to electromagnetic or acoustic energy remains challenging. A surveillance system that could perform this task would likely include standardized clinical protocols for assessing cases, incorporating exposure histories, physical examinations, and diagnostic tests such as hematological and immunological assays and cytogenetic analyses.

Research is needed to develop additional diagnostic tests, however. For example, little is known about the cellular, tissue, and clinical effects of pulsed electromagnetic and acoustic energy. To produce noninvasive tests, research should be conducted to find biomarkers of cellular injury that can better characterize nervous system function.²⁴

Threat-Agnostic Biosurveillance Technologies

Existing health security frameworks, heavily oriented toward known infectious diseases, are ill-equipped to anticipate and mitigate emerging threats. Confronting this challenge requires threat-agnostic technologies to detect and characterize novel agents without relying on prior genetic, molecular, or epidemiological signatures.

Promising technological solutions are emerging to meet these needs. Metagenomic sequencing, for example, enables broad-spectrum pathogen detection without prior knowledge of the target.²⁵ Ongoing advances in sequencing speed, portability, sensitivity, specificity, sample preparation, and bioinformatics are making metagenomic biosurveillance increasingly feasible.²⁶ Significant limitations remain in cost and complexity, however, and sequencing technologies rely on the assumption that the analytes are nucleic acid-based.

Advanced mass spectrometry techniques, such as liquid chromatography-tandem mass spectrometry (LC-MS/MS), can rapidly detect novel proteins, peptides, and other biomolecules.²⁷ These approaches can complement genomic sequencing by identifying biological agents not based on nucleic acids. Additionally, imaging technologies such as transmission electron microscopy (TEM) enable rapid, nanometer-scale structural characterization.²⁸ Advances in automation, sample processing, and image recognition could enable high-throughput TEM for morphological analysis of both known and novel threats.²⁹

Integrating these and other advanced technologies into a comprehensive biodefense architecture will be key to addressing the full spectrum of novel biological threats, regardless of origin. Equally important will be developing the operational capabilities and coordination mechanisms to rapidly investigate and respond to anomalous health threats.

Planetary Protection

The prospect of biological materials potentially associated with UAP poses additional challenges. The concern about biological contamination originating from space is not new, as space missions have been governed by planetary protection measures for decades.³⁰ However, most scientific attention and protocols have focused on either preventing Earth-originating contamination of other celestial bodies or handling the return of anticipated and well-characterized materials from official space missions. Relatively little infrastructure exists to handle potential biological threats associated with UAP that could emerge in a more uncontrolled fashion.

Managing UAP-associated biological materials would require the development of robust sample handling and analysis protocols spanning collection, transport, storage, and study. Initial on-site collection and field-screening capabilities could employ portable versions of threat-agnostic technologies, as discussed in the previous section on biosurveillance. Strict chain of custody procedures and fail-safe containment measures would be essential throughout.

Comprehensive sample characterization would require a dedicated network of high-containment facilities equipped with state-of-the-art instrumentation. Key analytical capabilities might include single-cell and spatial multi-omics techniques³¹ for dissecting heterogeneous cell populations, as well as advanced methods in spectrometry,³² spectroscopy,³³ and microscopy³⁴ for structural and functional analysis.

3. Recommendations for the US Government

To strengthen US government preparedness for a wide range of anomalous health threats, this paper outlines a set of policy recommendations. The core objectives are to improve national-level coordination on the topic, to expand capabilities for detecting and investigating incidents, and to encourage a more anticipatory posture toward the most significant tail risks. Specific proposals are as follows.

Assign Responsibility for All Anomalous Health Threats to the National Security Council Directorate for Global Health Security and Biodefense

Given the uncertainty surrounding anomalous health threats and their potentially significant implications for national security, we recommend assigning responsibility for anomalous health threats to the National Security Council Directorate for Global Health Security and Biodefense.

We recommend that the Directorate designate a Director who is solely dedicated to overseeing all efforts related to anomalous health threats. This Director for Anomalous Health Threats would be responsible for providing full-time oversight and coordination of all US government initiatives aimed at managing all anomalous health incidents, including those related to UAP.

The primary objective of this position is to ensure a cohesive strategy across agencies by serving as a central node, facilitating communication, coordination, and rapid response across the federal government. The Director for Anomalous Health Threats would:

- Assume the responsibilities currently held by the Anomalous Health Incident Interagency Coordinator.³⁵
- Report directly to the Senior Director for Global Health Security and Biodefense.³⁶

Additionally, key responsibilities of the Director for Anomalous Health Threats would include:

- Developing and overseeing the implementation of comprehensive strategies to assess and respond to anomalous health threats.
- Coordinating interagency efforts to collect data and implement rapid response to these threats, ensuring that relevant agencies have access to the necessary information and resources.

- Engaging with scientific experts, medical professionals, and other stakeholders to advance research efforts aimed at understanding the nature and origin of all anomalous health threats.
- Providing regular briefings and updates to senior administration officials, Congress, and other key stakeholders on the status of efforts to address these threats and making recommendations for additional actions or resources as needed.

Establish an Interagency Task Force to Coordinate Efforts to Assess and Respond to All Anomalous Health Threats

We recommend that the Director for Anomalous Health Threats establish an interagency task force that coordinates data collection and sharing, rapid response, biosurveillance, research, and long-term planning for all anomalous health threats.

In addition to those agencies that have already designated an AHI Agency Coordination Lead, the interagency task force should include representatives from the following:

- White House Office of Science and Technology Policy (OSTP)³⁷
- Office of the Director of National Intelligence (ODNI)³⁸
- National Center for Medical Intelligence (NCMI)³⁹
- Defense Science Board (DSB)⁴⁰
- DHS Science and Technology Directorate (DHS-S&T)⁴¹
- DOS Health Incident Response Task Force (HIRTF)⁴²
- HHS Administration for Strategic Preparedness and Response (ASPR)⁴³
- NASA Office of Planetary Protection⁴⁴

Establish a Rapid Response Team That Can Respond to Anomalous Health Incidents

To improve the US government’s ability to respond to reports of anomalous health incidents quickly and effectively, we recommend the interagency task force establish a specialized Rapid Response Team (RRT). This RRT would be equipped to mobilize to incident locations to conduct time-sensitive medical evaluations and gather essential forensic data. Key steps in implementing this recommendation include the following:

- Assemble an RRT composed of physician–scientists and other expert personnel trained in the rapid deployment of medical and investigative procedures. Core RRT capabilities should include conducting blood tests (chemistry, hematology, toxicology, and immunology), genetic testing (including cytogenetic analysis and tissue biopsies), MRIs, and thorough physical examinations. Samples should be banked for additional analysis.
- Develop clear RRT deployment protocols and chains of command, building on lessons learned from the US government response to AHI cases. These protocols should designate roles and responsibilities for relevant agencies in areas such as medical care, forensic investigation, and intelligence gathering.

- Establish a streamlined mechanism for RRT activation, including a civilian reporting system and RRT mobilization procedures to ensure timely response to anomalous health incident reports.
- Implement an analytical process to rapidly integrate RRT-collected data into cohesive incident descriptions and assess potential injury mechanisms.

Create a Comprehensive Database for Anomalous Health Incidents

We recommend the creation of a comprehensive, centralized database for collecting and analyzing medical, environmental, and intelligence data on anomalous health incidents. Key steps in implementing this recommendation include the following:

- Design a secure, scalable data repository capable of storing and integrating diverse types of information, including medical records, environmental measurements, and intelligence reporting related to anomalous health incidents.
- Develop standardized data-collection protocols to ensure consistency in information gathered across different incidents, locations, and agencies. This should include guidelines for documenting key variables such as incident location, duration, and characteristics; witness descriptions; and specific health symptoms and medical findings.
- Establish clear access and sharing policies to enable authorized personnel from relevant agencies to contribute to and use the database, while ensuring appropriate safeguards for privacy, security, and need-to-know restrictions.
- Conduct a retrospective review of medical records and incident reports related to historical AHI cases and UAP incidents to populate the database with baseline information and identify potential patterns or trends. This should include a meta-analysis of physiological and medical effects reported by UAP observers, with rigorous and consistent inclusion criteria.
- Implement data analytics and visualization tools to support ongoing analysis of the database, including the ability to map incidents, identify correlations between variables, and detect emerging clusters or patterns of health effects.

Strengthen Biosurveillance Infrastructure for Early Detection of Emerging Threats

Detecting and responding to anomalous health incidents, whether related to UAP or another cause, requires robust biosurveillance systems capable of identifying novel threats. We recommend significantly increasing investments in next-generation biosurveillance tools and integrating them into operational biodefense capabilities. Priority actions include the following:

- Increase funding for R&D on adaptable biosurveillance technologies optimized for characterizing unknown agents, including threat-agnostic diagnostics⁴⁵ (e.g., metagenomic sequencing, mass spectrometry, electron microscopy) and other host-based diagnostics.⁴⁶
- Invest in R&D for new, sensitive tests of nervous system function, such as blood markers of cellular injury.⁴⁷
- Invest in field-deployable and point-of-care versions of these technologies to enable rapid analysis. Support miniaturization and automation to allow use by nonspecialist personnel in a variety of settings.
- Promote integration and interoperability of biosurveillance efforts across the federal government.⁴⁸

Harmonize UAP-Related Plans with Existing National Health Security and Biodefense Strategies

Efforts to address anomalous health threats should leverage and extend existing US government initiatives to strengthen health security and biodefense, rather than being treated as a wholly separate endeavor.

We recommend that the Director for Anomalous Health Threats work with the interagency task force to harmonize UAP-related plans with the National Biodefense Strategy,⁴⁹ National Health Security Strategy,⁵⁰ and other relevant national strategies and frameworks.

Conclusion

The emergence of UAP as a subject of serious governmental inquiry necessitates a commensurate response in health security planning. Implementing the recommendations outlined in this paper will enable the US government to effectively anticipate, assess, and respond to anomalous health threats, thus enhancing national health security in a landscape of rapidly evolving risks. Although the origins and exact nature of UAP-related health effects remain uncertain, the potential severity of these threats warrants strategic preparation.

At the same time, the UAP topic requires extremely judicious communication to avoid undue alarm and speculation. Health security efforts should focus on addressing actionable UAP-related scenarios as part of broader all-hazards preparedness, rather than stoking fears of the unknown. The recommendations proposed are designed to strengthen the foundations of the biodefense enterprise to deal with novel threats from any source.

This paper argues for the dual utility of the recommended operational and analytical actions: they are essential not only for addressing UAP-related risks but also for strengthening national readiness against pandemics, bioweapons, and other systemic health security challenges. Just as financial institutions prepare for “black swan” events, biothreat preparedness would benefit from similar scenario planning and capability gap assessments.

Given the lessons of past technological surprises, complacency in health security is not an option. The initiatives recommended here—improved interagency coordination, enhanced anomaly detection capabilities, and research and development programs designed to anticipate emerging threats—aim to strengthen national readiness for significant health threats, whether they stem from UAP or other sources.

The aim of this paper is to stimulate a more imaginative approach to health security planning, emphasizing readiness for the unforeseen. If these conjectural scenarios and recommendations prompt greater creative engagement with the challenges of “unknown unknowns,” then this paper will have served its purpose.

The question is no longer whether we can afford to take anomalous health threats seriously, but whether we can afford not to. The recommendations in this paper offer a roadmap not just for UAP preparedness, but for a more resilient, adaptive, and secure future for all.

Notes

1. “Schumer, Rounds Introduce New Legislation” 2023.
2. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 4, line 14.
3. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 6, line 19.
4. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 7, line 6.
5. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 8, line 10.
6. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 10, line 3.
7. “Unidentified Anomalous Phenomena Disclosure Act” 2023, p. 57, line 22.
8. “Science and Tech Spotlight” 2023.
9. Vergano 2024.
10. “Bipartisan Commission on Biodefense Urges Immediate Action” 2024.
11. Cutler and Summers 2020.
12. Schuessler 1996.
13. Bernhardt 2017.
14. Wells 2016.
15. Schuessler 1998.
16. Relman 2024.
17. Relman 2024.
18. National Academies of Sciences, Engineering, and Medicine 2020.
19. “Complementary Efforts on Anomalous Health Incidents” 2022.
20. Relman 2024.
21. Langer and Sharma 2020.
22. Langer and Sharma 2020.
23. Langer and Sharma 2020.
24. Relman 2024.
25. Chiu and Miller 2019.
26. “Agnostic Diagnostics” 2021.
27. “Liquid Chromatography Tandem Mass Spectrometry” n.d.
28. “Transmission Electron Microscopy” n.d.
29. Yin et al. 2020.
30. “Planetary Protection” n.d.
31. Vandereyken et al. 2023.
32. “Liquid Chromatography Tandem Mass Spectrometry” n.d.
33. “Nuclear Magnetic Resonance Spectroscopy” n.d.
34. “Transmission Electron Microscopy” n.d.; “Cryo-Electron Microscopy” n.d.
35. “Memorandum on Implementation of the Anomalous Health Incidents Provisions” 2022;
“Shaheen, Collins Meet with AHI Interagency Coordinator Maher Bitar” 2022.
36. “Key Global Health Positions and Officials in the US Government” 2024.
37. “Office of Science and Technology Policy” n.d.
38. “Office of the Director of National Intelligence” n.d.
39. Clapper 2009.
40. “Defense Science Board” n.d.
41. “Science and Technology Directorate” n.d.

42. “Health Incident Response Task Force” n.d.
43. “Administration for Strategic Preparedness and Response” n.d.
44. “Planetary Protection” n.d.
45. “Agnostic Diagnostics” 2021.
46. “Host-Based Diagnostics” 2022.
47. Relman 2024.
48. D’Souza and Schmitt 2024.
49. “National Biodefense Strategy” 2022.
50. “National Health Security Strategy” 2022.

Bibliography

- “Administration for Strategic Preparedness and Response.” n.d. Department of Health and Human Services. <https://aspr.hhs.gov/Pages/Home.aspx>.
- “Agnostic Diagnostics.” 2021. BARDA DRIVe. <https://drive.hhs.gov/ngs.html>.
- Bernhardt, Darren. 2017. “Falcon Lake Incident Is Canada’s ‘Best-Documented UFO Case,’ Even 50 Years Later.” *CBC*, May 19, 2017. <https://www.cbc.ca/news/canada/manitoba/falcon-lake-incident-book-anniversary-1.4121639>.
- “Bipartisan Commission on Biodefense Urges Immediate Action to Address Major Vulnerabilities.” 2024. Bipartisan Commission on Biodefense, May 7, 2024. <https://biodefense-commission.org/bipartisan-commission-on-biodefense-urges-immediate-action-to-address-major-vulnerabilities>.
- Chiu, Charles Y., and Steven A. Miller. 2019. “Clinical Metagenomics.” *Nature Reviews Genetics* 20:341–55. <https://doi.org/10.1038/s41576-019-0113-7>.
- Clapper, James R. 2009. “National Center for Medical Intelligence (NCMI).” Department of Defense Instruction, no. 6420.01 (March 20): <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/642001p.pdf>.
- “Complementary Efforts on Anomalous Health Incidents.” 2022. Office of the Director of National Intelligence. <https://www.dni.gov/index.php/newsroom/reports-publications/reports-publications-2022/3591-complementary-efforts-on-anomalous-health-incidents>.
- “Cryo-Electron Microscopy.” n.d. ScienceDirect. <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/cryo-electron-microscopy>.
- Cutler, David M., and Lawrence H. Summers. 2020. “The COVID-19 Pandemic and the \$16 Trillion Virus.” *JAMA* 324, no. 15 (October): 1495–96. <https://doi.org/10.1001/jama.2020.19759>.
- “Defense Science Board.” n.d. Department of Defense Research and Engineering. <https://dsb.cto.mil>.
- D’Souza, Arielle, and Janika Schmitt. “Mapping America’s Biosurveillance.” 2024. Institute for Progress, April 3, 2024. <https://ifp.org/mapping-americas-biosurveillance>.
- “Health Incident Response Task Force.” n.d. United States Department of State. <https://www.state.gov/health-incident-response-task-force>.
- “Host-Based Diagnostics.” 2022. BARDA DRIVe. <https://drive.hhs.gov/host-dx.html>.
- “Key Global Health Positions and Officials in the US Government.” 2024. KFF, June 7, 2024. <https://www.kff.org/global-health-policy/fact-sheet/key-u-s-government-agency-positions-and-officials-in-global-health-policy-related-areas>.
- Langer, Ronit, and Shruti Sharma. 2020. “The Blessing and Curse of Biotechnology: A Primer on Biosafety and Biosecurity.” Carnegie Endowment for International Peace, November 20, 2020. <https://carnegieendowment.org/research/2020/11/the-blessing-and-curse-of-biotechnology-a-primer-on-biosafety-and-biosecurity>.
- “Liquid Chromatography Tandem Mass Spectrometry.” n.d. ScienceDirect. <https://www.sciencedirect.com/topics/immunology-and-microbiology/liquid-chromatography-tandem-mass-spectrometry>.
- “Memorandum on Implementation of the Anomalous Health Incidents Provisions in the National Defense Authorization Act for Fiscal Year 2022.” 2022. White House,

- February 1, 2022. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/01/memorandum-on-implementation-of-the-anomalous-health-incidents-provisions-in-the-national-defense-authorization-act-for-fiscal-year-2022>.
- National Academies of Sciences, Engineering, and Medicine. 2020. *An Assessment of Illness in US Government Employees and Their Families at Overseas Embassies*. Washington, DC: National Academies Press. <https://doi.org/10.17226/25889>.
- “National Biodefense Strategy.” 2022. Department of Health and Human Services. <https://aspr.hhs.gov/biodefense/Pages/default.aspx>.
- “National Health Security Strategy.” 2022. Department of Health and Human Services. <https://aspr.hhs.gov/NHSS/Pages/default.aspx>.
- “Nuclear Magnetic Resonance Spectroscopy.” n.d. ScienceDirect. <https://www.sciencedirect.com/topics/materials-science/nuclear-magnetic-resonance-spectroscopy>.
- “Office of the Director of National Intelligence.” n.d. <https://www.dni.gov>.
- “Office of Science and Technology Policy.” n.d. White House. <https://www.whitehouse.gov/ostp>.
- “Planetary Protection.” n.d. NASA Office of Safety and Mission Assurance. <https://sma.nasa.gov/sma-disciplines/planetary-protection>.
- Relman, David A. 2024. “Neurological Illness and National Security: Lessons to Be Learned.” *JAMA* 331, no. 13 (March): 1093–95. <https://doi.org/10.1001/jama.2023.26818>.
- Schuessler, John F. 1996. *UFO-Related Human Physiological Effects*. La Porte, TX: Geo Graphics.
- Schuessler, John F. 1998. *The Casb–Landrum UFO Incident*. La Porte, TX: Geo Graphics.
- “Schumer, Rounds Introduce New Legislation to Declassify Government Records Related to Unidentified Anomalous Phenomena & UFOs—Modeled after JFK Assassination Records Collection Act—as an Amendment to NDAA.” 2023. Senate Democrats, July 14, 2023. https://www.democrats.senate.gov/newsroom/press-releases/schumer-rounds-introduce-new-legislation-to-declassify-government-records-related-to-unidentified-anomalous-phenomena-and-ufos_modeled-after-jfk-assassination-records-collection-act-as-an-amendment-to-ndaa.
- “Science and Technology Directorate.” n.d. Department of Homeland Security. <https://www.dhs.gov/science-and-technology>.
- “Science and Tech Spotlight: Directed Energy Weapons.” 2023. Government Accountability Office, May 25, 2023. <https://www.gao.gov/products/gao-23-106717>.
- “Shaheen, Collins Meet with AHI Interagency Coordinator Maher Bitar to Discuss Admin’s Response to Directed Energy Attacks.” 2022. Senator Jeanne Shaheen, March 3, 2022. <https://www.shaheen.senate.gov/news/press/shaheen-collins-meet-with-ahi-interagency-coordinator-maher-bitar-to-discuss-admins-response-to-directed-energy-attacks>.
- “Transmission Electron Microscopy.” n.d. ScienceDirect. <https://www.sciencedirect.com/topics/materials-science/transmission-electron-microscopy>.
- “Unidentified Anomalous Phenomena Disclosure Act of 2023.” 2023. Senate Democrats. https://www.democrats.senate.gov/imo/media/doc/uap_amendment.pdf.
- Vandereyken, K., A. Sifrim, B. Thienpont, et al. 2023. “Methods and Applications for Single-Cell and Spatial Multi-Omics.” *Nature Reviews Genetics* 24:494–515. <https://doi.org/10.1038/s41576-023-00580-2>.
- Vergano, Daniel. 2024. “People with ‘Havana Syndrome’ Show No Brain Damage or Medical Illness.” *Scientific American*, March 18, 2024. <https://www.scientificamerican.com/article/people-with-havana-syndrome-show-no-brain-damage-or-medical-illness>.

- Wells, Andy. 2016. "Operation Saucer: The Official Search for UFOs That Attacked Brazilians with 'Light Beams' in 1977." *Yahoo! News*, March 8, 2016. <https://www.yahoo.com/news/operation-saucer-the-official-search-for-ufos-155317526.html>.
- Yin, W., D. Brittain, D., J. Borseth, et al. 2020. "A Petascale Automated Imaging Pipeline for Mapping Neuronal Circuits with High-Throughput Transmission Electron Microscopy." *Nature Communications* 11, no. 4949 (October): <https://doi.org/10.1038/s41467-020-18659-3>.

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