SPOTLIGHT

SEEKING THE SOURCE

BIOLOGICAL ATTRIBUTION FROM ANTHRAX TO AI

A PLAN BY THE BIPARTISAN COMMISSION ON BIODEFENSE AT THE ATLANTIC COUNCIL

November 2026



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Atlantic Council
SCOWCROFT CENTER FOR STRATEGY AND SECURITY

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Isobel Sowells, Young Global Professional (Fall 2026)

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BACKGROUND

- Biological events may occur naturally, result from accidents, or arise from deliberate acts. Attributing the cause of such an occurrence poses several interrelated questions: What happened? Where did the biological material originate? Who was responsible? Did a state or organization direct or support the act?
- Addressing the origin of a biological event requires microbial forensics and epidemiology alongside criminal investigation, intelligence, and a trail of records and physical evidence.
- The 2001 anthrax letter attacks resulted in twenty-two cases of anthrax, including five deaths. The subsequent investigation involved more than 10,000 witness interviews and scientific assistance from twenty-nine government, university, and commercial laboratories.[1]
- When the National Research Council reviewed the investigation, it found that the available scientific evidence alone could not definitively establish the source of the anthrax used in the letters. The review covered only the scientific work, not the full criminal case, and took no position on any particular party's guilt or innocence.[2]
- The National Bioforensic Analysis Center (NBFAC), located within the National Biodefense Analysis and Countermeasures Center (NBACC), is the lead federal laboratory for bioforensic analyses supporting the Federal Bureau of Investigation (FBI). The facility also possesses the capability to handle evidence that is itself contaminated with biological agents.[3]
- Under the 2022 *National Biodefense Strategy and Implementation Plan*, the Department of Health and Human Services (HHS) and the FBI lead the work of enhancing and sustaining federal forensic characterization and attribution capabilities.[4]
- The National Biodefense Strategy also directs HHS and the FBI to institutionalize and exercise the Biological Incident Notification and Assessment (BINA) protocol.[5]
- The scope of the activity pulls in other federal departments and agencies. The Department of Defense, Department of State, Department of Agriculture, Department of Commerce, Department of Energy, and the intelligence community also have equities in the biological attribution decision-making apparatus.
- The Commission previously addressed biological attribution in its 2024 *National Blueprint for Biodefense*. Recommendation 6 calls for a national biological attribution decision-making apparatus and for making the FBI responsible for the NBFAC.[6]

INTRODUCTION

The United States must possess the capability to determine where a biological threat came from and hold attackers accountable. Even in a situation where an event was not deliberate but accidental, the government needs to establish the origin to put preventive measures in place and ensure the accident does not happen again. If an event occurred naturally, officials should know that information as well, so that they better understand what natural vectors could produce a catastrophic biological event.

Public health officials work to contain a biological event while investigators determine its cause, and both happen at once. Knowledge of how the event began—naturally occurring, accidental, or deliberate—materially affects whether and how law enforcement and intelligence officials react in subsequent days, weeks, and months. Even as first responders address the immediate crisis and the threat it poses to the public, evidence of an intentional attack would trigger conversations across the federal government, and ultimately up to the White House, to assign responsibility and determine whether measures are necessary to punish or deter the perpetrators.

Attribution can be imprecise, since it oftentimes relies on a combination of science, intelligence, and investigatory evidence. Officials can potentially accuse a suspect whose guilt is not yet supported by the evidence, risking diplomatic and security fallout. The anthrax attacks that followed 9/11 show what is involved. The investigation encompassed thousands of interviews and tens of thousands of digital documents and emails, and involved dozens of laboratories. Questions about its findings persist today.

The federal government has since enhanced its capacity, but responsibility is dispersed across agencies. The FBI leads federal criminal investigations. The Department of Homeland Security (DHS) currently owns and manages the laboratory the FBI uses for its attributional work. The secretary of health and human services co-leads attribution under the 2022 *National Biodefense Strategy and Implementation Plan*. The intelligence community bears responsibility of its own to gather information, in some cases within hostile territory. Though processes are in place at the highest levels of government, the current approach has not comprehensively unified all these elements to ensure information reaches decision-makers in a timely manner. Such an approach requires that proper procedures, protocols, and information-sharing mechanisms are in place before a biological event occurs. The attribution apparatus must account for collection of evidence, evaluation of differing explanations, and communication of findings and conclusions. Officials also need to understand the evidentiary and intelligence thresholds for making a judgment about responsibility for a biological event.

Artificial intelligence (AI) can already design novel biological threats, and could potentially design agents that escape existing attribution methods.[7] Attribution must keep pace, and AI can provide assistance. In the Defense Advanced Research Projects Agency's (DARPA) Bio-Attribution Challenge, teams analyzed as much as 800 terabytes of data within twenty-four hours. The Department of Energy's Genesis Mission now includes mention of biological attribution, but it does not specify what is required to accomplish the task. Before investigators rely on these tools, agencies need to know where they work, what data they depend on, and how to check their results.

In 2014, the National Academies cited the United Kingdom, Sweden, Germany, China, and France as nations with basic microbial-forensics infrastructure, four of them in Europe. While that infrastructure has expanded since, critical evidence associated with a biological event may lie stranded in a country outside of those regions, and a sharing agreement is of no use if the partner cannot—or will not—collect and preserve samples. Allies need to agree on a path forward for resolving disputes, set out in arrangements made before an investigation begins.

Congress and the US administration should ensure that the nation's attribution capabilities can meet twenty-first-century demands, as the biological threat continues to increase and grow more complex. The recommendations that follow build on existing institutions and authorities to improve the government's ability to investigate biological events and act on the findings. The proposals address work that agencies must complete before a crisis forces them to resolve responsibilities and procedures while an investigation is already underway.

This product is not the Commission's final word on biological attribution. It addresses issues on which the Commission believes Congress and the administration can act now, while the Commission will continue to examine biological attribution with federal, international, and private-sector stakeholders.

RECOMMENDATIONS

DEVELOP ATTRIBUTION STRATEGIES

Federal departments and agencies each hold part of the responsibility for biological attribution. Federal law enforcement leads investigations of biological crimes and efforts to trace their origins, but comprehensive attribution requires resources and expertise from across the government through the interagency process. The core challenge of coordinating attributional activity is recognizing that an event—and relevant information collected by federal departments and agencies as part of their normal workflows—could be intentional in nature and thus should be considered through the nation's attribution apparatus. All too often, officials assume biological events are natural or accidental until much later evidence suggests otherwise, delaying intelligence-gathering efforts and law enforcement investigations.

Goal 1 of the 2022 *National Biodefense Strategy and Implementation Plan* details biological event early warning and detection responsibilities, including leading and supporting departments and agencies for each subgoal.[8] Subgoal 1.1.4 calls for strengthening biological characterization and attribution capabilities for human, animal, plant, and environmental health threats, with HHS and the FBI as the federal leads. The strategy recommends several steps to achieve this outcome, including updating and exercising department and agency early warning operational plans and adhering to the BINA protocol, with Subgoal 1.2 naming the National Security Council as the federal lead for coordinating these activities. The extent of implementation remains unclear, but the White House should clarify biological attribution duties. At a minimum, departments and agencies should assess their responsibilities, identify capability and coordination gaps, and ensure that officials consider all possibilities for the origin of a biological event, including intentional acts.

The next biological attack may originate abroad, from a state weapons program or from a group operating where US law enforcement has little or no access. The FBI leads criminal investigations and supports work overseas through its legal attachés, but it is not equipped to coordinate the diplomatic, military, intelligence, and public health response that an attack of foreign origin would require. Attributing such an attack is as much a national security question as a criminal one. It requires coordination from the White House across the Department of State, Department of Defense (DOD), HHS, Department of Homeland Security, the intelligence community, and the FBI. Government-wide strategies should reflect the need for the national security advisor to lead these activities.

In accordance with recommendations 3 and 6 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:

Recommendation 1: Coordinate national biological attribution policies.

- Congress should amend section 1086 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2017 (P.L. 114-328) to direct the attorney general, secretary of defense, secretary of health and human services, secretary of agriculture, and secretary of homeland security to develop a national biological attribution annex to the *National Biodefense Strategy and Implementation Plan*. This annex should explicitly delineate biological attribution responsibilities for all relevant departments and agencies, and milestones for strengthening biological attribution information and decision-making. The annex should assign the national security advisor responsibility for coordinating attribution of biological events of suspected foreign or state-sponsored origin across diplomatic, defense, intelligence, public health, and law enforcement agencies, with the FBI continuing to lead criminal investigations.
- Congress should authorize and elevate the BINA protocol and require annual reports and associated briefings on biological attribution coordination under that process.
- Congress should require the national security advisor, the attorney general, secretary of defense, secretary of health and human services, secretary of agriculture, and secretary of homeland security to annually review the *National Biodefense Strategy and Implementation Plan* and update the applicable policies to ensure that the strategy and the federal interagency understanding of its requirements remain current.
- Congress should require each federal department with responsibilities under Goal 1 of the *National Biodefense Strategy and Implementation Plan* to develop department-specific biological attribution plans to clarify department goals, responsibilities, and coordination with other departments and agencies. These plans should include processes for determining triggers for an attributional determination for activity captured by routine surveillance and information gathering.

TRANSFER ATTRIBUTION CAPABILITIES TO THE FBI

As the federal lead for domestic law enforcement investigations involving attribution of a suspected biological attack, the FBI has long relied on the bioforensic capabilities of the NBFAC, part of the NBACC, to process biological samples related to the Bureau's cases. The NBFAC traces its roots to the 2001 anthrax attacks, which revealed that the government required its own dedicated capabilities to attribute and characterize biological agents. Though initially intended for DOD, the activity eventually moved to the DHS Science and Technology Directorate through the Homeland Security Act of 2002.[9] In his 2004 Homeland Security Presidential Directive 10 (HSPD-10), *Biodefense for the 21st Century*, President George W. Bush laid out his vision of the NBFAC serving as the lead federal facility to assist all federal departments and agencies with technical forensic analysis of evidence related to a biological attack.[10] From that perspective, it made sense at the time for DHS to own the capability, and to provide it to the interagency when needed.

In practice, the FBI has functionally been the primary customer of the facility and is the only federal entity that submits material for analysis. Other federal entities decline to engage directly with the NBFAC and instead coordinate with the FBI to submit samples. The facility is managed by a science-focused office that has no experience as an operational entity, limiting the assistance and coordination it can provide to federal partners. The focus on forensic analysis using methods that preserve chain of custody makes the facility's capabilities particularly appealing to law enforcement activities, hence the current arrangement with the FBI being the only regular user of the NBFAC. The result is a situation where DHS is effectively paying for and managing a capability that is largely used by a single, separate agency housed within another federal department. Recognizing the unusual situation, since 2018 the FBI and DHS have pursued a cost-sharing arrangement, with Congress's blessing, whereby the FBI contributes more funding for the NBFAC portion of the NBACC, and sets program requirements.[11]

The NBFAC also lacks statutory authority, instead relying on the direction laid out in HSPD-10, which was superseded in 2018 by National Security Presidential Memorandum 14, which set forth implementation for the original National Biodefense Strategy released by President Donald J. Trump.[12] President Joseph R. Biden Jr. in turn superseded National Security Presidential Memorandum 14 in 2022 with the release of National Security Memorandum 15, which accompanied the *National Biodefense Strategy and Implementation Plan*, and, as with the 2018 memorandum, made no direct reference to the NBACC or NBFAC.[13] Consistent appropriations support maintains the capability, but legislation would bring clarity to the mission, scope, and activities of the facility. Such an effort would also provide the opportunity to enshrine FBI ownership of the capability.

As the sole customer, FBI officials effectively manage NBFAC staff and their work in support of the Bureau. Continued DHS operation, administration, contract support, and maintenance

is unnecessary and continues to raise questions about how the Department is providing value and assistance to the work. As the FBI is virtually the NBFAC's only customer, funds the effort, and sets the requirements, it only makes sense for the Bureau to own the activity.

In accordance with recommendation 6 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:

Recommendation 2: Make the Federal Bureau of Investigation responsible for the National Bioforensic Analysis Center.

- Congress should amend the Antiterrorism and Effective Death Penalty Act of 1996 (P.L. 104-132) to transfer custody of the NBFAC, its administration, and its activities to the FBI no later than 180 days after enactment. Such transfer shall charge the FBI with responsibility for interagency biological attribution support, coordination, and cost sharing for the laboratory's activities.
- The secretary of homeland security, in coordination with the attorney general, should develop and submit to Congress a transition plan for the NBFAC no later than ninety days after enactment that would address evidence custody, laboratory operations, accreditation, protected data, regulated high-containment operations, and continuity of service during and after the transition of custody between the two departments.
- Congress should reallocate appropriations accordingly by moving the funds DHS spends to support the center to the FBI.
- Congress should direct the attorney general to strengthen the NBFAC's capacity and capability to sequence pathogens and characterize proteins, including toxins, of unknown origin.
- Congress should authorize the NBFAC and its activities and direct the attorney general to develop and submit an annual report to Congress about the facility's attribution work and authorization and resource needs.

ESTABLISH AN AI ATTRIBUTION STRATEGY

Biological attribution requires investigators to connect laboratory findings with documents, interviews, intelligence, and information about place, time, weather, and the environment. AI can assist in the review of this material, compare explanations, and prioritize leads.[14] In DARPA's 2026 Bio-Attribution Challenge, teams combined genetic, location, and timing data and analyzed 800 terabytes within twenty-four hours.[15] In July 2026, the White House announced an expansion of the Department of Energy Genesis Mission to cover early detection and attribution of biological threats.[16] AI tools can substantially ease the burden of an attribution investigation, but they cannot replace corroborating evidence or human judgment.[17] The national laboratories have long tackled technically difficult attribution problems and can lead the effort to apply AI to biological attribution.[18]

The Genesis Mission announcement is a welcome step, but it does not say who is responsible for the work, what it will cost, how progress will be measured, or how new tools will move from the laboratory to investigators. A national strategy should fill those gaps and cover events of every origin, whether natural, accidental, or deliberate.[19]

Several emerging methods could help. Machine-learning tools can help trace an engineered DNA sequence to the laboratory that likely designed it, though their accuracy depends on good reference data.[20] Screening that examines what a sequence does, and not only whether it resembles a known pathogen, can flag dangerous sequences and give investigators leads to test against other evidence.[21] Researchers are also studying watermarks that AI design tools could embed in the DNA or proteins they produce, along with other provenance[22] information that shows whether an AI system helped design a biological agent or plan its use.[23] The National Institutes of Health Bio Genesis Mission could also supply genomic and public health data that these tools need.[24] The United States must coordinate its efforts to advance AI-enabled biological attribution.

In accordance with recommendations 6 and 10 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:[25]

Recommendation 3: Develop an AI-enabled biological attribution strategy and implementation plan.

- Congress should amend the National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282) to direct the director of the White House Office of Science and Technology Policy, in coordination with the secretary of state, secretary of defense, secretary of agriculture, secretary of commerce, secretary of health and human services, secretary of energy, secretary of homeland security, attorney general, and director of national intelligence, to develop an AI-enabled attribution strategy and implementation plan to achieve the Genesis Mission's biological attribution goals.[26] The strategy and plan should:

a. cover natural, accidental, and deliberate events and explain how AI will help investigators combine scientific findings with investigative, intelligence, environmental, location, and other forms of evidence to distinguish between them;

b. improve tools that trace engineered DNA to its source and screen sequences by what they do, and build the reference data both depend on;

c. assess how foreign actors may use AI to design or conceal biological threats;

d. direct the National Institute of Standards and Technology to test watermarks and other methods for tracing AI-designed DNA and proteins to their source and, where the evidence supports it, develop standards;[27] and

e. name the offices accountable for research, exercises, and moving tools into operational use, and set deadlines, measures of progress, and costs for each.[28]

- The director should submit the strategy and implementation plan to Congress within 180 days of enactment. Then, the director should review progress each quarter, update the strategy annually through the National Science and Technology Council, and report to Congress about delays and any gaps that may remain.

BUILD GLOBAL ATTRIBUTION CAPACITY AND CAPABILITY

Internationally distributed attribution capacity and capability can speed evidence collection and initial analysis while US and international specialists mobilize.[29] In 2014, the National Academies cited the United Kingdom, Sweden, Germany, China, and France as examples of nations with basic microbial-forensics infrastructure, four in Europe.[30] The 2021 *Global Health Security Index* found that 152 of 195 countries lacked demonstrated public health and security links or joint-response procedures.[31] The World Health Organization still tests those links but does not separately evaluate microbial forensics.[32] Interpol trains authorities to recognize biological threats, manage a crime scene, and respond to an incident.[33] The FBI reports attaché coverage in more than 180 countries and territories, though the resources behind that coverage are limited, and it offers little in states such as Russia, China, Iran, and North Korea, where cooperation with US law enforcement is minimal or absent.[34] If biological attribution capability and capacity stay concentrated in a few nations in similar regions, the United States will be exposed to biological events elsewhere in the world that it cannot properly assess.

US programs already supply part of what is needed, and they are a foundation to build upon. The Cooperative Threat Reduction (CTR) program trains foreign partners in attribution as part of its proliferation-prevention work, while the Biological Threat Reduction Program (BTRP) builds biological-threat capacity. The FY 2027 CTR request proposes international biotoxin-forensics standards and proficiency testing for partner laboratories, but nothing on regional microbial-forensics readiness.[35] Building on these efforts would help the United States and its allies establish the attribution infrastructure needed for accountability and security.

In accordance with recommendations 6 and 8 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:[36]

Recommendation 4: Build global attribution capacity and capability.

- Congress should amend the National Defense Authorization Act to direct the secretary of defense, in coordination with the secretary of state, attorney general, secretary of health and human services, secretary of agriculture, and secretary of commerce, to establish a dedicated biological attribution and microbial-forensics line within BTRP for allied nations.[37]
- The secretary of state and the director of the Defense Threat Reduction Agency (DTRA) should execute an interagency agreement within 180 days of enactment that gives the Department of State responsibility for international partner engagement, and tasks DTRA with overall administration of the effort. Under this arrangement, the FBI would set evidence-handling and chain-of-custody standards with partner laboratories and coordinate with Interpol where law enforcement partnerships exist. In countries with limited or no law enforcement cooperation, the Department of State and the Department of Defense would lead efforts to secure access to evidence,

with support from the intelligence community. The Centers for Disease Control and Prevention (CDC) would oversee laboratory standards; the Department of Agriculture would assess animal and plant standards; and the Department of Commerce would address export guidance.[38] Together, these departments and agencies should establish a program that would:

a. select allied regional hubs, weighing biological risk, geographic coverage, information protection, cooperation, and sustainment;

b. develop protocols covering activation, the collection and transport of evidence, chain of custody, sequencing and bioinformatics, validated microbial-forensic testing, secure sample and data exchange, and how confidence is reported;

c. build on existing laboratories, require proficiency testing, and provide support for qualified United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons (UNSGM) nominations;[39]

d. hold exercises with the relevant stakeholders, train local instructors, and line up allied staffing and funding; and

e. track response times, qualified people and laboratories, proficiency, and sustainment, along with how much need remains for US deployments.

- Congress should make attribution an explicit BTRP objective, sustain funding, extend 50 U.S.C. § 3743 through 2035, and require results in CTR reporting.[40]

ESTABLISH ALLIED ATTRIBUTION ARRANGEMENTS

The Biological and Toxin Weapons Convention (BTWC) lacks an implementation organization and a verification regime to support findings on biological attribution.[41] Articles V through VII provide for consultations, complaints, and assistance to States Parties endangered by violations.[42] The UNSGM investigates specific allegations but is not a standing BTWC attribution capability.[43] Negotiations in the 2026 BTWC Working Group over compliance and verification measures remain unresolved.[44] The United States should keep pressing for stronger procedures, without waiting for consensus before it organizes capable partners. A government that can attribute credibly is able to name a responsible actor and support an international investigation, and it has a defensible noncompliance case and a basis for coordinating a response.

The United States–United Kingdom Strategic Dialogue on Biological Security provides a starting point. The two governments have committed to developing new tools and methodologies for microbial forensics and attribution.[45] In February 2026, after President Donald J. Trump's September 2025 announcement of an AI-enabled BTWC verification effort, the Department of State convened a BTWC Industry and AI side event during the Working Group session.[46] Allied arrangements would help make these efforts operational by establishing how allies and trusted States Parties will share and use evidence, resources, procedures, and capabilities for biological attribution.

In accordance with recommendation 7 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:[47]

Recommendation 5: Establish allied attribution arrangements for BTWC accountability.

- Congress should amend the Biological Weapons Anti-Terrorism Act of 1989 (P.L. 101-298) to direct the secretary of state, in coordination with the secretary of defense, secretary of energy, secretary of homeland security, attorney general, and director of national intelligence, to establish bilateral and plurilateral biological attribution arrangements with allies and trusted States Parties, building on the United States–United Kingdom Strategic Dialogue.
- The secretary should work with allies and trusted States Parties to contribute intelligence, law enforcement, scientific, or technological capabilities to biological attribution efforts while protecting shared information. Such agreements should:
    a. establish criteria and processes for sharing, protecting, and assessing intelligence, law enforcement information, epidemiological and scientific findings, technologies, and other relevant evidence;
    b. preserve evidence integrity and produce joint assessments that report out confidence, uncertainty, alternative explanations, and dissent in attributional findings;

c. coordinate discoveries and action under articles V through VII, including support for UNSGM investigations; and

d. define how decision-makers may use AI verification tools, including establishment of requirements for independent testing, audit trails, corroborating evidence, and human review before they rely on AI-derived analysis for a compliance judgment.

- Within 180 days after enactment, the secretary should submit a strategy and implementation plan to Congress that addresses the authorities, roles, release of information, criteria for participation, staffing, and funding.
- The secretary should include implementation and attribution gaps in the annual report required by 22 U.S.C. § 2593a and report significant changes in verification capacity under 22 U.S.C. § 2577.[48]

PRIORITIZE BIOLOGICAL EXERCISES

Through the National Exercise Division, the Federal Emergency Management Agency (FEMA) provides technical assistance and tools to the nation's ten FEMA regions for the design and execution of state, local, tribal, and territorial exercises intended to prepare the United States for future disasters. FEMA also conceptualizes and leads national-level exercises with other federal departments and agencies every two years to stress-test the government's ability to respond to the worst possible disaster scenarios. Such exercises expose capability gaps in specific agencies and can identify concerns that later disasters confirm.[49] The COVID-19 pandemic cost the United States far more lives and treasure than any single historic natural disaster.[50] Yet the federal government has not based a national-level exercise on a biological event scenario in more than two decades.[51] In recent years, exercises have focused on major earthquake, hurricane, or cybersecurity events. National Security Memorandum 15 requires an annual Principals Committee Senior Officials Exercise focused on a biopreparedness health emergency, but these exercises do not necessarily provide the opportunity to test whole-of-government response to the threat.[52]

The Department of Health and Human Services in 2019 designed and executed the only recent major public biological threat exercise, known as Crimson Contagion. Though approximately nineteen departments and agencies and twelve states participated, that same exercise determined that HHS authorities to lead a government response to a biological event were "insufficient and policies are often in conflict with one another, resulting in confusion among exercise participants."[53] The scenario also assumed that the origin of the event was known and did not test the nation's attributional capabilities. FEMA's leadership and authorities are necessary components of biological event response, as evidenced in the Crimson Contagion findings and the early response to COVID-19. The severe outcomes of a future global pandemic or biological attack demand rigorous and regular exercising of the biodefense apparatus. Biological attribution must be part of those scenarios, so that HHS, the Department of Agriculture, and other federal entities consider all possibilities for the origin of the threat, and the potential for additional attacks during the response window.

In accordance with recommendation 6 of the 2024 *National Blueprint for Biodefense*, the Commission recommends the following:

Recommendation 6: Set a biological event exercise agenda.

- Congress should amend section 648 of the Post-Katrina Emergency Management Reform Act (Title VI, P.L. 109-295) to require the administrator of the Federal Emergency Management Agency to base the national-level exercise on a biological threat scenario at least once every four years. These scenarios should incorporate law enforcement investigation elements and require attribution activities to determine the origin of the event. After-action reports should assess the readiness of federal attribution capabilities and feed into the refreshing of the *National Biodefense Strategy and Implementation Plan*.
- The national security advisor should ensure that Senior Officials Exercises addressing biological threat scenarios incorporate a biological attribution component.

RECOMMENDATIONS FOR ACTION

Table 1. Recommendations for action by the administration and Congress

RECOMMENDATIONS	CONGRESS SHOULD...	FOR ADMINISTRATION ACTION BY...
1. Coordinate national biological attribution policies	Amend section 1086 of the FY 2017 NDAA. Require a national attribution annex, departmental plans, and annual strategy review. Authorize BINA and require annual coordination reports and briefings.	Attorney general, secretary of defense, secretary of health and human services, secretary of agriculture, and secretary of homeland security. National security advisor for annual review and coordination of biological event attribution involving suspected foreign or state-sponsored origins; departments assigned responsibilities under Goal 1 for their plans.
2. Make the FBI responsible for NBFAC	Amend P.L. 104-132 to transfer NBFAC to the FBI within 180 days. Authorize its activities, reallocate appropriations, and require a transition plan within ninety days and annual reports.	Attorney general and director of the FBI; secretary of homeland security, coordinated with the attorney general, for the transition plan and continuity of service.
3. Develop an AI-enabled biological attribution strategy and implementation plan	Amend the National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282) to require a strategy and implementation plan within 180 days, accountable offices, deadlines, measures, and costs. Require quarterly progress review, annual updates, and reporting on delays and gaps.	Director of the Office of Science and Technology Policy, coordinated with the secretary of energy, secretary of state, secretary of defense, secretary of agriculture, secretary of commerce, secretary of health and human services, secretary of homeland security, attorney general, and director of national intelligence. Director of the National Institute of Standards and Technology for traceability evaluation and evidence-supported standards.

RECOMMENDATIONS	CONGRESS SHOULD...	FOR ADMINISTRATION ACTION BY...
4. Build global attribution capacity and capability	Amend the NDAA to establish a dedicated BTRP attribution line. Make attribution an explicit objective, sustain funding, extend 50 U.S.C. § 3743 through 2035, and require results in CTR reporting.	Secretary of defense through the Defense Threat Reduction Agency, coordinated with the attorney general, secretary of health and human services, secretary of agriculture, and secretary of commerce. The secretary of state and director of the Defense Threat Reduction Agency for the interagency agreement within 180 days; director of the FBI and director of the CDC for assigned standards.
5. Establish allied attribution arrangements for BTWC accountability	Amend the Biological Weapons Anti-Terrorism Act of 1989 (P.L. 101-298) to require allied arrangements and a strategy and implementation plan within 180 days. Add requirements for implementation and attribution gaps to annual reporting under 22 U.S.C. § 2593a and verification-capacity reporting under § 2577.	Secretary of state, coordinated with the secretary of defense, secretary of energy, and secretary of homeland security; attorney general; and director of national intelligence.
6. Set a biological event exercise agenda	Amend section 648 of the Post-Katrina Emergency Management Reform Act to require a biological national-level exercise at least every four years, including investigation and attribution. Require after-action findings to inform strategy updates.	Administrator of the Federal Emergency Management Agency for national-level exercises. National security advisor for attribution components in biological Senior Officials Exercises.

CONCLUSION

Biological attribution is essential to national defense, deterrence, and accountability for biological attacks.

Biological events can be natural, accidental, or deliberate, and the response depends on knowing which it was, where it came from, and who, if anyone, had a role. AI can now help design novel viruses, so an engineered agent could look natural or accidental, point to the wrong source, or give an attacker plausible deniability.[54] Attribution is how the United States responds proportionally, deters the next attack, holds an attacker accountable at home and abroad, prevents the next accident, and anticipates the next natural spillover.

Russia and North Korea maintain biological weapons programs, according to the State Department's annual compliance report.[55] As the October 2026 death at Russia's Irkutsk Anti-Plague Research Institute shows, attribution depends on evidence that has to be preserved while samples and records still exist.[56] Other state and non-state actors continue to explore the possibility of developing and utilizing biological weapons.[57]

After years of investigation into the 2001 anthrax attacks, the capabilities we had still could not definitively settle the origin of the threat. The nation experienced similar uncertainty in the wake of the COVID-19 pandemic. Regular exercising of attribution capabilities at national and international scale will provide insight into where biological threats originate and how to stop them.

Attributional capabilities have progressed markedly since 2001. The federal government continues to explore avenues for strengthening these tools, particularly through artificial intelligence, but the pace of advance demands that we move faster still. Speed, however, cannot come at the expense of credibility. Credible attribution requires clear roles across departments and agencies before an incident occurs; bioforensic laboratories under the agencies that use them; AI tools that are proven reliable before investigators depend on them; and allies who can collect evidence and reach joint findings with us.

We can and must do this now. This plan provides six actionable recommendations the administration and Congress can implement to improve the nation's biological attribution capabilities. In a rapidly changing global landscape, we cannot afford to be caught flat-footed as we were with COVID-19, because the threats ahead will be harder to detect, harder to attribute, harder to respond to, and harder to deter. Investigators trace a bullet back to the weapon that fired it, and that evidence is what takes a threat off the street. We need to be equally prepared to trace a biological attack to its source. Congress and the administration should act now so that the nation can identify biological threats, establish responsibility, and protect the American people.

ACRONYMS

AI	Artificial intelligence
BINA	Biological Incident Notification and Assessment
BTRP	Biological Threat Reduction Program
BTWC	Biological and Toxin Weapons Convention
CDC	Centers for Disease Control and Prevention
CTR	Cooperative Threat Reduction
DARPA	Defense Advanced Research Projects Agency
DHS	Department of Homeland Security
DOD	Department of Defense
DTRA	Defense Threat Reduction Agency
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FY	Fiscal year
HHS	Department of Health and Human Services
HSPD	Homeland Security Presidential Directive
NBACC	National Biodefense Analysis and Countermeasures Center
NBFAC	National Bioforensic Analysis Center
NDAA	National Defense Authorization Act
UNSGM	United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons

METHODOLOGY

Established in 2014, the Bipartisan Commission on Biodefense informs US biodefense policy and provides recommendations for change. The Commission is part of the Scowcroft Center for Strategy and Security at the Atlantic Council. For this report, the Commission examined how the United States attributes biological events and how attribution supports criminal, intelligence, diplomatic, military, and public health decisions by government leaders.

RESEARCH QUESTIONS

To examine biological attribution needs and requirements for the United States, the Commission developed the following research questions:

- How does the federal government currently organize biological attribution activities, and which public authorities govern them?
- What scientific, epidemiological, investigative, intelligence, diplomatic, legal, agricultural, and environmental information do different attribution questions require?
- How should the United States exercise biological attribution and the decisions it informs?
- How should the FBI, NBFAC, and other entities with specialized capabilities support one another without obscuring their distinct missions?
- What process should be used to determine the evidence that should reach decision-makers, and with what statement of confidence?
- How can existing AI-assisted methods for detecting engineering and analyzing sources support attribution investigations, and how should AI contributions be validated for operational use?
- Which screening and attribution safeguards for AI-enabled biological design are effective for building credibility, and which can be justified for use?

PRELIMINARY RESEARCH

The Commission reviewed current statutes, regulations, presidential directives, national strategies, operational doctrine, congressional materials, agency records, accreditation records, National Academies reports, and peer-reviewed scientific literature.

ANALYSIS

Staff compared alternative recommendation structures, mapped agency roles and examples, and reviewed research relevant to the recommendations. The analysis distinguishes research findings from public-record inferences and policy judgments.

LIMITATIONS

Classification, determinations of law enforcement sensitivity, proprietary restrictions, and other controls make some relevant intelligence, investigative information, interagency procedures, agreements, budgets, operational results, and technical programs unavailable. Absence from the public record does not establish that a capability or process does not exist.

ENDNOTES

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