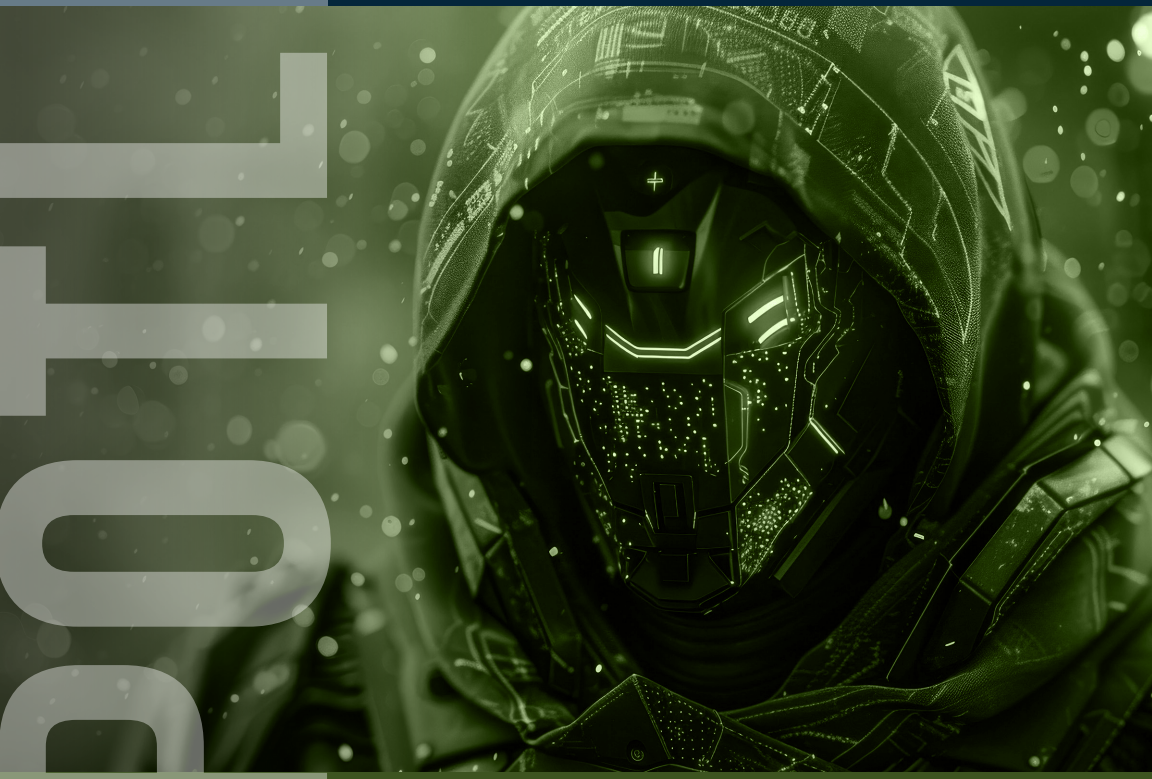
BATTLE RATTLE

FAST MOVERS FOR MILITARY BIODEFENSE

A REPORT BY THE
BIPARTISAN COMMISSION ON BIODEFENSE

May 2025



BIPARTISAN COMMISSION ON BIODEFENSE

SPOTLIGHT

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COMMISSION
ON BIODEFENSE

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BACKGROUND

- The threat of bioterrorism and biological warfare are increasing with Russia, North Korea, and other nations identified by the Department of State as potentially engaging in active biological weapons programs.
- The Department of Defense (DOD) possesses more funding ($824.96 billion in FY2024) and personnel (2.04 million service members) than any other department in the federal government.
- The military produced biological weapons as part of the US offensive biological weapons program until 1969, when President Richard Nixon eliminated the program. Dropping the offensive program, assuming a defensive-only posture, and increasing commitments from other nations that they were not developing or using biological weapons led to DOD rightly stepping back from its primary leadership role in biodefense.
- The military's mission to protect the warfighter includes a responsibility to anticipate and protect service members from biological threats.
- Before and for a short while after 1969, DOD planning with regard to biological attacks was comprehensive and based on its own state-of-the-art information. The Department refreshed its body of biodefense policy in the early 1990s, but DOD has added and replaced various elements in executing the Global War on Terrorism and addressing weapons of mass destruction threats over the years since.
- Responsibility for addressing weapons of mass destruction (including biological) was transferred from US Strategic Command to US Special Operations Command in 2017.
- The military has modernized its biodefense policies, most recently with the development of the 2023 Biodefense Posture Review.
- Military officials make significant investments in medical countermeasures, biodetection technology, and other advances designed to protect warfighters from biological attacks and naturally occurring diseases. For example, the Defense Advanced Research Projects Agency (DARPA) develops scientific and technological breakthroughs—including in the biological sciences—to protect the military and contribute to national security.
- Military personnel partner with civilian agencies and the private sector during outbreaks, epidemics, and pandemics (e.g. Zika, COVID) to develop and test vaccine candidates rapidly.
- The military possesses significant intelligence capabilities that also address biological threats. Nine DOD entities participate in the Intelligence Community: (1) Defense Intelligence Agency; (2) National Security Agency; (3) National Reconnaissance Office; (4) National Geospatial-Intelligence Agency; (5) Army Intelligence; (6) Naval Intelligence; (7) Marine Corps Intelligence; (8) Air Force Intelligence; and (9) Space Force Intelligence.
- The Defense Industrial Base (DIB) is one of the Nation's 16 critical infrastructure sectors.
- Many personnel leave the military and join the private sector, often bringing their expertise to companies that support DOD and other federal departments and agencies.
- The military possesses significant logistical and resource capabilities that can be leveraged to assist civilian agencies in addressing biological threats and events.
- The Department operates the Cooperative Threat Reduction program and has dealt with mis- and disinformation regarding DOD-supported laboratories, including those in and around Ukraine.
- The Defense Threat Reduction Agency (DTRA) works to deter strategic attacks against the United States and its allies, and to prevent, reduce, and counter the use of weapons of mass destruction and emerging threats (including biological).

March 2020

POSITIVE CASES: **1271**

DEATHS: **1**

26.6%

% INFECTED

TOTAL NUMBER OF CREW MEMBERS:

4779

USS Roosevelt

In March 2020, the U.S.S. Roosevelt made an emergency stop in Guam when crew members began testing positive for COVID-19. The virus spread undetected following a scheduled stop in Da Nang, Vietnam. The Navy subsequently quarantined the ship for more than two months, during which many crewmembers became ill and unable to fulfill their duties. The outbreak and subsequent response highlighted inadequate preparedness, military policies, and practices for addressing transmission of deadly pathogens in close quarter environments, and the operational and financial impact biological threats can have on military readiness.

DAYS OF UNDETECTED DISEASE SPREAD: **15**

DAYS OUT OF SERVICE: **70**

3/9 3/24 3/26 6/4

COST TO QUARANTINE SAILORS IN 1 SHIP:

$42,820,000

TOTAL NUMBER OF SHIPS IN THE U.S. NAVY: **296**

The pandemic also affected US naval assets elsewhere. The virus ultimately spread to 3 other aircraft carriers and at least two dozen other naval vessels. The Navy decided to keep the Harry S. Truman Carrier Strike Group at sea for months longer than planned to avoid contamination and to ensure a continued military capability to respond to crises. Future pandemics or biological attacks could occur during — or invite — military conflicts with our Nation's enemies. Navy policy for port quarantine during combat conditions is unclear.

Source: Reference 1.

INTRODUCTION

Biological attacks on the United States and biological events that overcome society will require action by the Department of Defense.

Warfighter protection is a top priority for DOD and its programs must defend our Nation and military personnel against biological weapons use and diseases found in areas of operation throughout the world. Capabilities are developed in accordance with requirements identified in the field. Military intelligence capabilities additionally address biological threats to a limited extent, although military and other intelligence agencies have taken note of renewed efforts by Russia, North Korea, and other adversaries to pursue, develop, and produce biological weapons.

The Department also possesses resources and expertise that would be applicable in civilian contexts. For example, the national response to COVID-19 required the Department's logistics capabilities to distribute needed equipment and other resources early in the pandemic, and DOD contracting authorities and leadership proved vital to the success of Operation Warp Speed. Future biological events will require military resources, logistics, and leadership. Undoubtedly, effective federal biodefense requires a whole-of-government approach and robust inter-agency coordination together with proactive pre-incident engagement of the private sector for research and development, countermeasure scale-up, and distribution logistics.

Policy documents and doctrine addressing biological warfare; biological weapons of mass destruction; laboratory biosecurity; scientific efforts involving select agents; battlefield survival in areas contaminated by biological agents; personal and other protective equipment; medical countermeasure and therapeutic development, distribution, and administration; and biological intelligence are scattered throughout DOD. Current military biodefense doctrine and policy improved with the issuance of the Biodefense Posture Review but still falls short of ensuring warfighter protection and unimpeded operations.

As 21st Century biological threats bear down upon the Nation, policymakers must further strengthen military biodefense and increase coordination within DOD and with its civilian partners. Military readiness and national security depend on them.

It is important to note that while the analysis and recommendations that follow are critical to national biodefense, they do not and cannot fully address all military policy, programmatic, and operational needs to help defend against biological threats. Instead, this report offers targeted recommendations for vital elements of the military biodefense enterprise that can be quickly adopted and have a significant impact on both military and civilian biodefense capabilities. Future Commission activities will continue to further examine these and other DOD biodefense programs.

Figure 1. Department of Defense Organization Chart

DEPARTMENT OF DEFENSE

Secretary of Defense

OFFICE OF THE SECRETARY OF DEFENSE

- Deputy Secretary of Defense
- Under Secretaries of Defense
- Assistant Secretaries of Defense

SERVICE BRANCHES

- Army
- Navy
- Air Force
- Marines Corps
- Space Force
- Coast Guard

JOINT CHIEFS OF STAFF

- Chairman
- Vice Chairman
- Chief of Staff of the Army
- Chief of Naval Operations
- Chief of Staff of the Air Force
- Commandant of the Marine Corps
- Chief of the National Guard Bureau
- Chief of Space Operations

COMBATANT COMMANDS

- Africa Command
- Central Command
- Cyber Command
- European Command
- Indo-Pacific Command
- Northern Command
- Southern Command
- Space Command
- Special Operations Command
- Strategic Command
- Transportation Command

DEFENSE AGENCIES

- Defense Advanced Research Projects Agency
- Defense Commissary Agency
- Defense Contract Audit Agency
- Defense Contract Management Agency
- Defense Finance and Accounting Service
- Defense Health Agency
- Defense Information Systems Agency
- Defense Intelligence Agency
- Defense Legal Services Agency
- Defense Logistics Agency
- Defense Security Cooperation Agency
- Defense Security Service
- Defense Threat Reduction Agency
- Missile Defense Agency
- National Geospatial-Intelligence Agency
- National Reconnaissance Office
- National Security Agency
- Central Security Service
- Pentagon Force Protection Agency

RECOMMENDATIONS

STRENGTHEN BIODEFENSE LEADERSHIP

Currently, DOD biodefense responsibilities are executed by various civilian leadership positions and the service branches. Within the Office of the Secretary of Defense, five Under Secretary positions oversee different elements of its biodefense activities.[2] Recognizing the need to further coordinate these policies and programs, the Deputy Secretary of Defense established a Biodefense Council with the release of the unclassified 2023 Biodefense Posture Review to address the Review's recommendations and integrate its biodefense activities.[3] The Under Secretary of Defense for Acquisition and Sustainment serves as the Chair of this Council, with day-to-day responsibility for the Council's activities assigned to the then-titled Assistant Secretary for Nuclear, Chemical, and Biological Defense Programs.[4]

Congress acknowledged the need for unified weapons of mass destruction policy leadership when it established the Assistant Secretary of Defense for Nuclear Deterrence, Chemical, and Biological Defense Policy and Programs in the National Defense Authorization Act signed into law on December 23, 2025.[5] Congress elevated this position to report directly to the Secretary of Defense, while also serving in an advisory and assistance role to the Deputy Secretary, Under Secretary of Defense for Acquisition and Sustainment, and Under Secretary of Defense for Policy. This welcome development presents a steppingstone to the eventual creation of a dedicated Under Secretary position.

In accordance with Recommendation 1 of the 2024 *National Blueprint for Biodefense*,[6] the Commission makes the following:

RECOMMENDATION 1: Elevate Department of Defense leadership to address weapons of mass destruction.

Congress should amend the Goldwater-Nichols Department of Defense Reorganization Act of 1986 (P.L. 99-433) to establish the position of Under Secretary of Defense for Nuclear, Chemical, and Biological Defense at DOD. The Under Secretary should be responsible, and provide overall direction and supervision, for (1) the development, implementation, coordination, and integration of biological, chemical, and nuclear defense activities across DOD; (2) quadrennial biological, chemical, and nuclear defense posture reviews to refresh and inform the Department's biological, chemical, and nuclear defense activities; and (3) other such duties and powers as the Secretary of Defense may prescribe. Congress should establish separate positions for Assistant Secretary of Defense for Biological Defense, Assistant Secretary of Defense for Chemical Defense, and Assistant Secretary of Defense for Nuclear Defense, to report directly to the Under Secretary of Defense for Nuclear, Chemical, and Biological Defense.

INTEGRATE SCIENCE AND TECHNOLOGY FOR NATIONAL BIODEFENSE

The military has long recognized the need to develop innovative technologies and countermeasures to address biological agents deployed by our adversaries, yet organizational elements within DOD do not coordinate their biodefense research and development activities effectively. The lack of coordination results in both capability gaps and duplication of biodefense investments. Federal law requires the Secretary of Defense to encourage the transfer of technology between DOD laboratories and research centers, and those of other federal agencies, state and local governments, colleges and universities, and private persons.[7] The Domestic Technology Transfer Program facilitates the sharing of technologies with the private sector, but the Department does not have an established process to share biodefense technologies within DOD.[8] Collaboration with other federal entities and the private sector also remains obligatory.

DARPA is known for its mission and ability to identify and create ways to combat future threats. Despite their successes, however, the Agency has trouble finding homes for its technologies within DOD and elsewhere. Program directors would benefit from additional understanding of biodefense capability gaps throughout the Department and federal government that DARPA can help to address.[9]

In accordance with Recommendation 14 from the 2024 *National Blueprint for Biodefense*,[10] the Commission makes the following:

RECOMMENDATION 2: Coordinate military research to defend the warfighter against biological threats.

Congress should amend the National Defense Authorization Act to direct the Secretary of Defense to establish a process for transitioning biotechnologies throughout DOD. The Secretary should submit a plan to Congress and issue a corresponding directive detailing this process no later than 180 days after enactment. The Secretary should direct the Under Secretary of Defense for Research and Engineering to develop an integrated biodefense research plan for DOD. This plan should include an assessment of existing DOD biodefense research and development activities, including DOD laboratories, and how they support the goals of the National Defense Strategy, National Security Strategy, and National Biodefense Strategy. The Director of the Defense Advanced Research Projects Agency should identify biodefense research gaps within DOD and realign DARPA research and development investments to generate needed research. The Director should submit an annual report to the Secretary of Defense describing any changes in biodefense research and development based on capability needs. The Under Secretary should identify opportunities throughout DOD—and other federal agencies, non-federal agencies and the private sector—for uptake of biodefense technologies developed by DARPA and other Department research programs.

PRODUCE BIOLOGICAL INTELLIGENCE

Military intelligence activities inform its national defense mission, and are carried out by the Army, Navy, Air Force, Marine Corps, Coast Guard, Space Force, and several defense agencies. The Under Secretary of Defense for Intelligence and Security is responsible for coordinating these activities within the Department and with the Director for National Intelligence on behalf of the Department. Biological intelligence is addressed as part of these efforts, but even intelligence specific to biological weapons is not as highly prioritized as it should be, considering the known and suspected offensive biological weapons programs run by other countries. Historically, iterations of the Defense Intelligence Agency Strategy make only passing references to biodefense and disease threats.[11]

The DOD National Center for Medical Intelligence may have been among the first federal agencies to identify COVID-19 as a potential threat to the United States.[12] Medical intelligence, however, is not included in what DOD considers to be the separate field of military intelligence. Medical service personnel produce medical intelligence, while intelligence personnel produce military intelligence. This becomes problematic during combat and other deployments, and results in attempts by non-medical analysts to address biological threats or no one addressing biological threats at all. The continued separation of medical intelligence activities and military intelligence activities no longer serves the Department (if it ever did).

In accordance with Recommendation 5 of the 2024 *National Blueprint for Biodefense*,[13] the Commission makes the following:

RECOMMENDATION 3: Address enduring and emerging biological weapons intelligence issues.

Congress should amend the National Defense Authorization Act to direct the Under Secretary of Defense for Intelligence and Security, in communication with the Director of National Intelligence, to address enduring and emerging biological weapons intelligence issues. The Under Secretary of Defense for Intelligence and Security should ensure that the biological weapons threat is addressed specifically by the Defense Intelligence Strategy. Annually, the Under Secretary of Defense for Intelligence and Security should also (1) provide formal input regarding biological intelligence needs and information gaps to the development of the National Intelligence Priorities Framework, and make recommendations to the Director of National Intelligence in this regard; (2) ensure that the biological weapons threat is specifically addressed by Military Intelligence Program planning, programming, and budgeting activities, and allocation of collection and analytic resources; (3) incorporate the National Intelligence Priorities Framework in the execution of their responsibilities; (4) identify collection and analysis activities in accordance with national and military intelligence priorities, and adjustments made to these collection and analysis activities; and (5) recommend national intelligence priorities based on military needs and the identification of information gaps.

REVIEW BIODEFENSE POSTURE QUADRENNIALLY

Biodefense policies remain fragmented throughout DOD. They separately address activities (e.g., countering weapons of mass destruction, developing personal protective equipment (PPE), administering vaccines and antiviral medications, ensuring laboratory biosecurity, producing biological intelligence) that fall under the Department's mission to defend the Nation against all threats, including biological.[14]

The COVID-19 pandemic made DOD rethink its approach to addressing biological threats to the warfighter. Rather than an attack from an adversary, a naturally occurring biological event impacted military readiness. Recognizing this, then-Secretary of Defense Lloyd Austin ordered a review of DOD biodefense policies in 2021.[15] That order resulted in the August 2023 release of the unclassified Biodefense Posture Review which contained 57 recommendations for strengthening DOD biodefense activities.[16] In the FY2025 National Defense Authorization Act, Congress included a requirement for DOD to conduct additional Biodefense Posture Reviews in 2026 and 2029.[17] A permanent requirement for regular assessments of military biodefense activities would strengthen accountability, oversight, and review of efforts to implement identified recommendations.

In accordance with Recommendations 2, 6, and 26 of the 2024 *National Blueprint for Biodefense*,[18] and the recommendation to identify all DOD and non-DOD critical infrastructure essential to the Department's mission to defend against biological threats in the 2021 report, *Insidious Scourge: Critical Infrastructure at Biological Risk*,[19] the Commission makes the following:

RECOMMENDATION 4: Provide quadrennial biodefense posture reviews and implementation mechanisms.

Congress should amend the National Defense Authorization Act to (1) direct the Secretary of Defense to produce a quadrennial biodefense posture review; (2) authorize the Department of Defense Biodefense Council, assign responsibility to the Council for implementing improvements to DOD policies and programs, and require the Council to meet at least quarterly; and (3) require an annual briefing of the biodefense posture review and current biodefense posture of DOD to the House Committee on Armed Services and the Senate Committee on Armed Services. The Secretary should provide the first briefing no later than 90 days after enactment. The briefing should include (1) a joint update from the Defense Intelligence Agency, National Center for Medical Intelligence, and Defense Health Agency on the biological threat, military biological intelligence priorities, and military medical intelligence priorities; (2) an update on DOD biodefense activities, including medical countermeasure development and other biodefense research and development efforts; (3) an assessment of where existing biodefense activities are falling short of addressing the threat; and (4) an assessment of DOD needs with regard to addressing future biological threats.

BUDGET FOR BIODEFENSE

The federal government previously lacked an official accounting for its annual spending on biodefense, leaving the work of calculating biodefense investments to nongovernmental organizations and academia. Congress took an important step to address this information gap in 2020 by requiring the Office of Management and Budget to conduct an annual crosscut of federal biodefense spending.[20] The Office issued the first such analysis in January 2023, having determined that DOD spent $1.3 billion for biodefense in FY2022 and $1.7 billion in FY2023.[21] This assessment accounted only for current and previous biodefense spending, and did not address future biodefense funding needs.

The military annually produces the Future Years Defense Program, a five-year funding plan that accompanies its budget submission to Congress. This program allows Congress to periodically evaluate the overall direction and intent of current and future defense spending. Congress should similarly require the Secretary of Defense to establish future years budget programs for specific categories of work vital to national security, including for chemical, biological, nuclear, and radiological defense activities. The Secretary should start by instituting a Future Years Biodefense Budget Program. Annual plans developed and submitted to Congress under this program should summarize all DOD biodefense programs and resources, and address estimated expenditures for at least five years—the current fiscal year for which funds are requested and the following four fiscal years. These predicted expenditures would force advanced and strategic planning, encourage private sector investment, and enable Congress to consider at least five years of cost data during the appropriations process. The Future Years Biodefense Budget Program would allow policymakers to evaluate future biodefense needs alongside other projected defense requirements and determine how to best allocate funding in the current fiscal year.

In accordance with Recommendation 3 from the 2024 *National Blueprint for Biodefense*,[22] and the recommendation to require the establishment of a Future Years Biodefense Budget Program in the 2018 report, *Budget Reform for Biodefense*,[23] the Commission makes the following:

RECOMMENDATION 5: Establish a Future Years Biodefense Budget Program.

Congress should amend the National Defense Authorization Act for Fiscal Years 1990 and 1991 (P.L. 101-189, 10 USC § 221) to establish a Future Years Biodefense Budget Program, requiring the Secretary of Defense to submit to Congress an annual Future Years Biodefense Budget Program plan with the President's Budget Request. This plan should capture current and future planned spending on DOD biodefense activities. The plan should include the estimated expenditures and requested appropriations for at least the current and four succeeding fiscal years. The amendment should require the Secretary to ensure that expenditure estimates and proposed appropriations for any fiscal year are consistent with the total estimated expenditures and appropriations deemed necessary to support DOD biodefense programs, projects, and activities.

REDUCE RISK TO THE DEFENSE INDUSTRIAL BASE

The DIB Sector meets US requirements for weapons systems, subsystems, components, and parts needed to mobilize, deploy, and sustain military operations through (1) research and development; and (2) design, production, delivery, and maintenance. DOD is the designated federal agency responsible for risk management of the DIB Sector.

DOD does not identify critical infrastructure assets (including networks, assets, and associated dependencies) that it considers critical for the Department's operations or defense of the Nation to the same extent that civilian sector-specific agencies do. The Defense Critical Infrastructure Program (DCIP) does not receive as much attention as the Department of Homeland Security Cybersecurity and Infrastructure Security Agency. DCIP depends on DIB, the critical infrastructure assets DIB owns and operates, and the interdependence between defense industrial and civilian critical infrastructure.

In a 2022 review by the Government Accountability Office, COVID-19 impacted DOD industrial base partners generally, but most particularly the aviation, space, shipbuilding, and microelectronics sectors.[24] The DIB overcame supply chain disruptions and challenges associated with social distancing, and the DOD Industrial Base Council authorized the use of Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136) funding to reduce impacts to DIB.[25] However, should a more severe strain of COVID-19 arise, or other biological threats like mpox, Marburg, or H5N1 influenza develop into a pandemic, unavoidable delays and precautions would affect our warfighters and national defense. Congress saw the need to further prioritize risk reduction to DIB when it created an Assistant Secretary for Industrial Base Policy to address industrial base policy.[26] This position should work with DIB partners to determine the vulnerability of the sector to future biological events.

In accordance with recommendations to address biological risk to DIB in the 2021 report, *Insidious Scourge: Critical Infrastructure at Biological Risk*,[27] the Commission makes the following:

RECOMMENDATION 6: Reduce biological risk to the Defense Industrial Base.

Congress should amend the National Defense Authorization Act to direct the Assistant Secretary of Defense for Industrial Base Policy to work with the Defense Industrial Base Sector Coordinating Council to (1) produce a list of unclassified assets addressed by the DCIP program; (2) assess vulnerabilities of these assets to biological threats; (3) determine how to eliminate those vulnerabilities; and (4) provide this information to Congress annually.

REDUCE INDOOR PATHOGEN TRANSMISSION TO SUSTAIN READINESS

Indoor air quality affects tactical and operational readiness as well as threatens the quality of life of military personnel and their families. The harsh conditions under which personnel operate, as well as the unique characteristics of military bases, can enable diseases to spread. Respiratory infections are of particular concern. Military facilities and conveyances of all types (e.g., barracks, carriers, laboratories, submarines, tanks, underground installations) are at risk.[28] Once biological events occur in these settings, commanders need information to determine how best to treat those affected, reduce the spread of diseases indoors, and predict how diseases will impact force readiness.

The US Army, Defense Health Agency, and Defense Centers for Public Health seek to understand and characterize a number of health factors (e.g., outdoor air quality, water quality, vector-borne disease risk) at Army installations throughout the world. Through the Installation Health Index, the Army assesses factors affecting health and wellness in these settings.[29] Missing, however, is consideration of indoor air quality, and in particular, levels of biological contaminants in that air that could lead to infections in our warfighters.

In accordance with Recommendations 13 and 23 of the 2024 *National Blueprint for Biodefense*,[30] the Commission makes the following:

RECOMMENDATION 7: Increase force readiness of the US military by addressing pathogen transmission indoors at installations, facilities, and conveyances.

Congress should amend the National Defense Authorization Act to direct the Commander of the US Army Engineer Research and Development Center to expand their Infection Risk Assessment on Military Installations Project to (1) quantify the spread of pathogens indoors and evaluate associated impact and risk on military personnel resident or working in military installation facilities; (2) produce a tool that will address threat reduction, capacity impacts, closure requirements, indoor air quality, available PPE (in addition to military-grade PPE designed for use in combat environments) and social distancing, at a minimum; and (3) determine whether current resources (including human) are sufficient to ensure indoor air quality and maintain mission readiness. Congress should also amend the National Defense Authorization Act to direct the Secretary of the US Army, Director of the Defense Health Agency, and Directors of the Defense Centers for Public Health to (1) add indoor air quality metrics that meet or exceed those set forth in the American Society of Heating, Refrigerating and Air-Conditioning Engineers standards 61.1, 61.2, and 241[31,32] to the metrics used to inform the Installation Health Index; (2) address the concentration of biological contaminants (i.e., bacteria, viruses, fungi, dust mites, animal dander, pollen) in this indoor air quality metric; and (3) report annually to Congress and the Under Secretary of Defense for Personnel and Readiness.

STRENGTHEN OVERSEAS BIOLOGICAL THREAT REDUCTION

During recent biological events, including the COVID-19 pandemic and recent outbreaks of mpox, DTRA developed innovative solutions to address the needs of US military personnel and civilians.[33] DTRA works with other departments and agencies to accomplish international biodefense goals, but there is no formal understanding among them when it comes to their respective biodefense roles and responsibilities. Clarifying these roles would improve coordination, collaboration, and impact on the United States and partner countries.

Defense threat reduction activities currently require authorization on a country-by-country basis. Providing DTRA and its programs with global authority would allow more flexibility to prioritize programs and areas with the greatest need and opportunity. The Under Secretary of Defense for Policy and the combatant commanders should rightfully continue to provide input on decisions to offer threat reduction support for our allies and other countries on a recurring basis. The Secretary of Defense should also ensure that any DTRA-supported laboratories are able to share information regionally, if not globally.

In accordance with Recommendation 8 from the 2024 *National Blueprint for Biodefense*,[34] the Commission makes the following:

RECOMMENDATION 8: Enhance international biodefense capacity building.

The Secretary of Defense should direct the Director of the Defense Threat Reduction Agency to enter into Memoranda of Understanding with other departments and agencies to clarify roles and responsibilities for building biodefense capabilities internationally in execution of national security and other US federal policies, with DOD focused on working with defense counterparts in allied countries. These agreements should address how each federal entity selects partner countries, and the feasibility of coordinating efforts with each country. The Secretary should require that, to the greatest extent feasible, laboratories supported with DTRA funding should be connected and share information on a regional, if not global, basis. The Secretary should also provide DTRA with global authority to support development of biodefense capabilities and capacities in allied countries, subject to review and input on an as-needed basis by Department leadership and the relevant combatant commands.

TRANSITION PERSONAL PROTECTIVE EQUIPMENT TECHNOLOGY

Military responsibility for force health protection warrants developing next-generation PPE to protect military personnel from biological threats. Military technology requires additional advancements to shield warfighters comprehensively from the biological threats of today and tomorrow. DOD research and development efforts are already underway to generate next-generation PPE.[35] The Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense, Chemical and Biological Defense program within the Office of the Under Secretary of Defense for Acquisition and Sustainment, and other elements within DOD are exploring novel technologies that can be deployed in the field to protect servicemembers, and nontraditional partnerships and methods for acquiring new PPE technologies made in America.[36]

Though the operational needs for PPE used in combat zones and clinical settings differ, defense biotechnologies may also prove useful for federal civilian partners, first responders, and the American public. The Department should explore sharing next-generation PPE research and development results with other departments and agencies, for use in developing advanced protective equipment (e.g., respirators) for healthcare personnel and other essential workers.

In accordance with Recommendations 12 and 14 from the 2024 *National Blueprint for Biodefense*,[37] the Commission makes the following:

RECOMMENDATION 9: Catalog and share next-generation military personal protective equipment.

Congress should amend the National Defense Authorization Act to require the Secretary of Defense to identify and develop an inventory of all next-generation PPE technology possessed by DOD and of ongoing DOD research and development programs for next-generation PPE. The inventory should include Technology Readiness Levels and capability descriptions for each technology listed. The inventory should be submitted in unclassified form but may have a classified annex. The Secretary should submit the inventory to Congress and share it with the Secretary of Agriculture, Secretary of Health and Human Services, Secretary of Homeland Security, and other federal departments and agencies as determined by the Secretary no later than 180 days after enactment. No later than one year after enactment, the Secretary should begin annually updating this inventory and submitting a report to Congress about any technologies from the inventory that have been transitioned to or otherwise shared with the Department of Health and Human Services and other federal departments and agencies.

TRANSITION MEDICS WITH BIODEFENSE EXPERTISE

Jurisdictions across the country are in high need of additional Emergency Services Sector personnel to respond to health emergencies and biological events, a need that could be met by many former military paramedics trained to respond to and treat deployed warfighters who could be attacked with biological weapons. Military paramedics also develop other skills similar to those of civilian emergency medical services (EMS) professionals. Upon separating from the military, however, many find that they must obtain additional training and certification of skills they already have. Documentation provided to medics leaving the military does not provide enough detail about their experience for state licensing authorities to expedite training and certification requirements. Separating paramedics also lack information about how to navigate the often-complicated process for joining civilian EMS agencies. Transition programs like SkillBridge[38] and the Army Career Skill Program[39] do not include many EMS personnel, nor do they address requirements for civilian EMS certification and licensure. The military has taken some steps to prepare their paramedics for civilian careers,[40] but not all depart the military sufficiently ready to do so.

In accordance with Recommendation 32 of the 2024 *National Blueprint for Biodefense*,[41] the Commission makes the following:

RECOMMENDATION 10: Enable separating military medics with biodefense expertise to more easily join civilian medical service organizations.

Congress should amend the National Defense Authorization Act to direct the Secretary of Defense to develop a program to help military paramedics with biodefense expertise join civilian EMS organizations and hospital emergency departments more easily upon departure from active duty. This program should (1) require all active-duty military paramedics to obtain and maintain National Registry of Emergency Medical Technicians (NREMT) certification; (2) establish a scholarship program for former military medics with biodefense expertise to support their pursuit of emergency nursing or EMS degrees; (3) provide civilian-oriented EMS training sufficient to meet state licensure requirements; (4) explain differences in military and civilian EMS activities; (5) provide DOD EMS providers with real-world civilian work experiences through specific industry trainings, apprenticeships, or internships during the last 180 days of their service; and (6) make information regarding the experiences of separating military paramedics easier for state EMS licensure entities to understand. Documentation provided by DOD should clearly explain what competencies and training separating military paramedics possess (including but not limited to biodefense) and how they translate to civilian EMS activities and requirements.

Table 1. Recommendations for Action by the Administration and Congress

RECOMMENDATIONS	CONGRESS SHOULD...	FOR ADMINISTRATION ACTION BY...
1. Strengthen Biodefense Leadership	Amend the Goldwater-Nichols Department of Defense Reorganization Act of 1986 (P.L. 99-433) Confirm Under Secretary of Defense for Nuclear Chemical Biological Defense	Secretary of Defense
2. Integrate Science and Technology for National Biodefense	Amend the National Defense Authorization Act Conduct oversight	Secretary of Defense Under Secretary of Defense for Research and Engineering
3. Produce Biological Intelligence	Amend the National Defense Authorization Act Conduct oversight	Under Secretary of Defense for Intelligence and Security, in communication with the Director of National Intelligence
4. Review Biodefense Posture Quadrennially	Amend the National Defense Authorization Act Conduct oversight	Secretary of Defense
5. Budget for Biodefense	Amend the National Defense Authorization Act for Fiscal Years 1990 and 1991 (P.L. 101-189, 10 USC § 221) Provide appropriations	Secretary of Defense
6. Reduce Risk to the Defense Industrial Base	Amend the National Defense Authorization Act Conduct oversight	Assistant Secretary of Defense for Industrial Base Policy
7. Reduce Indoor Pathogen Transmission to Sustain Readiness	Amend the National Defense Authorization Act Conduct oversight	Secretary of the Army Director of the Defense Health Agency Directors of the Defense Centers for Public Health Commander of the US Army Engineer Research and Development Center
8. Strengthen Overseas Biological Threat Reduction	Amend the National Defense Authorization Act Conduct oversight	Secretary of Defense Under Secretary of Defense for Policy Under Secretary of Defense for Acquisition and Sustainment
9. Transition Personal Protective Equipment Technology	Amend the National Defense Authorization Act Conduct oversight	Secretary of Defense Under Secretary of Defense for Research and Engineering Under Secretary of Defense for Acquisition and Sustainment
10. Transition Medics with Biodefense Expertise	Amend the National Defense Authorization Act Conduct oversight	Secretary of Defense US Surgeon General

CONCLUSION

In an era marked by escalating biological threats, the Department of Defense must safeguard the Nation and its warfighters.

Naturally occurring and accidentally released threats, known offensive biological weapons programs in North Korea and Russia, and quickly advancing potential biological threats from countries like China and Iran, all necessitate a robust and well-funded approach covering the full spectrum of military biodefense requirements. DOD biodefense efforts must protect military personnel and their families from biological threats. The extensive capabilities of the Department are also crucial in support of civilian authorities during biological events, especially those affecting national security.

The COVID-19 pandemic and other biological events demonstrate that significant biological events have the potential to severely compromise DOD assets and military readiness domestically and overseas. The Department, however, has not sufficiently ensured that warfighters are able to operate in environments contaminated by biological agents or infectious diseases. Issuing the Biodefense Posture Review was a good first step toward addressing these concerns. However, fortifying DOD biodefense posture requires (1) developing in-depth understanding of the biological threats that warfighters may be forced to confront; (2) clarifying and coordinating biodefense roles and responsibilities; (3) developing needed biodefense capabilities in relatively short order; and (4) ensuring that the Department's efforts to defend against biological threats align with the National Defense Strategy and other national strategies.

We can and must reduce biological risk to our military immediately. This plan provides ten actionable recommendations that the Administration and Congress can take to strengthen military biodefense now. By implementing this plan immediately, we can ensure our warfighters have the battle rattle they need to fight and win against biological threats.

ACRONYMS

DARPA	Defense Advanced Research Projects Agency
DCIP	Defense Critical Infrastructure Program
DIB	Defense Industrial Base
DOD	Department of Defense
DTRA	Defense Threat Reduction Agency
EMS	Emergency Medical Services
NREMT	National Registry Emergency Medical Technician
PPE	personal protective equipment

METHODOLOGY

The Bipartisan Commission on Biodefense was established in 2014 to inform US defense against biological threats and provide recommendations for change. The Commission, supported by academia, foundations, and industry, determines where the United States falls short in addressing bioterrorism, biological warfare, accidental releases of pathogens from facilities, and emerging and reemerging naturally occurring infectious diseases.

RESEARCH QUESTIONS

To examine military biodefense needs, we developed the following research questions:

- How are DOD biodefense programs currently organized and led?
- How can biological agents—naturally occurring, intentionally introduced, or accidentally released—impact military readiness?
- What is the extent of military support for civilian biological event response?
- Should DOD make changes to its discharge process and documentation to help separating service members more easily obtain civilian EMS positions?
- How does DOD make decisions about biodefense spending for future years?
- What steps are required to coordinate and execute military biodefense policies and programs?
- Is the military prepared for biological attacks on our troops overseas and/or stateside?

PRELIMINARY RESEARCH

The Commission reviewed previous research efforts; scientific studies; previous US government research and development programs; and federal strategies, plans, funding, and research and development programs related to military biodefense programs. This review allowed for an assessment of the breadth and efficacy of biodefense in this regard.

ANALYSIS

Alongside a literature review, Commission staff synthesized and evaluated ideas, feedback, and suggestions to help inform the development of this report. Staff evaluated findings and recommendations taking the Commissioners' own experiences into consideration. Staff did not use quantitative methods for this analysis.

LIMITATIONS

Several biodefense programs and policies; intelligence, raw data, and reports; appropriations and budget documents; and other sensitive information are classified or otherwise unavailable. The Commission did not review these materials.

ENDNOTES

[1] Kasper, M.R., et al. (2020). An Outbreak of COVID-19 on an Aircraft Carrier. New Engjland Journal of Medicine 383(25): 2417-2426. Retrieved from: https://doi.org/10.1056/ nejmoa2019375; *see also* Office of the Inspector General. (2021). Evaluation of the Navy's Plans and Response to the Coronavirus Disease-2019 Onboard Navy Warships and Submarines. Washington DC: Department of Defense. Retrieved from: https://media.defense.gov/2021/ Feb/08/2002577798/-1/-1/1/DODIG-2021-049_ REDACTED.PDF; *see also* O'Rourke, R. (2025). Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress. Washington DC: Congressional Research Service. Retrieved from: https://www.congress.gov/crs-product/ RL32665#:~:text=In%20March%202024%2C%20as%20 part,unmanned%20surface%20and%20 underwater%20vehicles.

[2] Those positions are the Under Secretary for Policy, Under Secretary for Acquisition and Sustainment, Under Secretary for Research and Engineering, Under Secretary for Intelligence and Security, and Under Secretary for Personnel and Readiness. Such activities include intelligence, research and development, policy in the Pentagon and individual service branches, net assessment, special operations, laboratory programs, medical programs, medical intelligence, and threat reduction.

[3] Department of Defense. (2023). Biodefense Posture Review, p. 14. Washington DC: Department of Defense. Retrieved from: https://media.defense.gov/2023/Aug/17/2003282337/-1/-1/1/2023_ BIODEFENSE_POSTURE_REVIEW.PDF.

[4] Department of Defense. (2023). Biodefense Posture Review, p. 15. Washington DC: Department of Defense. Retrieved from: https://media.defense.gov/2023/Aug/17/2003282337/-1/-1/1/2023_ BIODEFENSE_POSTURE_REVIEW.PDF.

[5] Section 1621 of the Servicemember Quality of Life Improvement and National Defense Authorization Act for Fiscal Year 2025 (P.L. 118-159).

[6] Bipartisan Commission on Biodefense. (2024). The National Blueprint for Biodefense: Immediate Action Needed to Defend Against Biological Threats, p. 37. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/the-national-blueprint-for-biodefense/.

[7] Section 4224, National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484, 10 USC §4832).

[8] Office of the Under Secretary of Defense for Research and Engineering. (2022). DOD Instruction 5535.08: DOD Domestic Technology Transfer Program. Washington, DC: Department of Defense. Retrieved from: https://www.esd.whs.mil/portals/54/documents/dd/issuances/ dodi/553508p. pdf?ver=2018-10-22-082514-847.

[9] One of the difficulties DARPA faces in achieving uptake is with the SIGMA+ program, an effective biodetection technology with far better outcomes than those of the Department of Homeland Security's BioWatch program. After the program ended in 2023, technology development halted and metropolitan areas utilizing this technology had to fund its continued maintenance and operations without federal support.

[10] Bipartisan Commission on Biodefense. (2024). The National Blueprint for Biodefense: Immediate Action Needed to Defend Against Biological Threats, p. 72. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/the-national-blueprint-for-biodefense/.

[11] Defense Intelligence Agency. (2022). Defense Intelligence Agency Strategy, p. 5. Washington DC: Department of Defense. Retrieved from: https://www.dia.mil/Portals/110/Documents/DIA_Strategy_ Oct_2022.pdf.

[12] Dilnanian, K. (2020). Spying on Coronavirus: a little-known U.S. intel outfit has its most important mission yet. *NBC News.* Retrieved from: https://www.nbcnews.com/health/health-news/spying-coronavirus-little-known-u-s-intel-outfit-has-its-n1157296.

[13] Bipartisan Commission on Biodefense. (2024). The National Blueprint for Biodefense: Immediate Action Needed to Defend Against Biological Threats, pp. 48-51. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/the-national-blueprint-for-biodefense/.

[14] In the Commission's 2015 *National Blueprint for Biodefense*, the Commission noted that "current military biodefense doctrine and policy fall short of adequately protecting the warfighter and ensuring that military operations continue unimpeded." Recommendation 26d from that report suggested that DOD update and implement its military biodefense doctrine. An analysis by the Commission in 2020 found that the military had subsequently taken steps to update some of its biodefense policies, including the DOD functional contingency plan for pandemic influenza and infectious disease.

[15] Austin, Lloyd P. (2021). Biodefense Vision Memorandum. Washington DC: Department of Defense. Retrieved from: https://media.defense.gov/2021/Dec/03/2002903201/-1/-1/0/BIODEFENSE-VISION-FINAL.PDF.

[16] Department of Defense. (2023). Biodefense Posture Review. Washington DC: Department of Defense. Retrieved from: https://media.defense.gov/2023/Aug/17/2003282337/-1/-1/1/2023_BIODEFENSE_POSTURE_REVIEW.PDF.

[17] Section 1069 of the Servicemember Quality of Life Improvement and National Defense Authorization Act for Fiscal Year 2025 (P.L. 118-159).

[18] Bipartisan Commission on Biodefense. (2024). The National Blueprint for Biodefense: Immediate Action Needed to Defend Against Biological Threats, pp. 39, 53, 103-104. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/the-national-blueprint-for-biodefense/.

[19] Bipartisan Commission on Biodefense. (2021). Insidious Scourge: Critical Infrastructure at Biological Risk, p. 35. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/insidious-scourge-critical-infrastructure-at-biological-risk/.

[20] Section 363 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283) requires the Director of the Office of Management and Budget to annually conduct a detailed and comprehensive analysis of federal biodefense programs and develop an integrated biodefense budget submission. The statute requires that any such submission include (1) the display of all funds requested for biodefense activities, both mandatory and discretionary, by agency and categorized by biodefense enterprise element, such as threat awareness, prevention, deterrence, preparedness, surveillance and detection, response, attribution (including bioforensic capabilities), recovery, and mitigation; and (2) detailed explanations of how each program and activity included aligns with biodefense goals and objectives as part of the National Biodefense Strategy required under section 1086 of the National Defense Authorization Act for Fiscal Year 2017 (6 U.S.C. 104).

[21] Office of Management and Budget. (2023). Report to Congress on Biodefense Activities. Washington DC: The White House. Retrieved from: https://biodefensecommission.org/wp-content/uploads/2023/01/OMB-Report-Biodefense-Activities-FY-2023-Budget.pdf.

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[24] Government Accountability Office. (2022). Defense Industrial Base: DOD Should Take Actions to Strengthen Its Risk Mitigation Approach, p. 3. Washington DC: Government Accountability Office. Retrieved from: https://www.gao.gov/assets/gao-22-104154.pdf.

[25] Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136).

[26] Section 903 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283) created the position of Assistant Secretary of Defense for Industrial Base Policy.

[27] Bipartisan Commission on Biodefense. (2021). Insidious Scourge: Critical Infrastructure at Biological Risk, p. 35. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/insidious-scourge-critical-infrastructure-at-biological-risk/.

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[31] American Society of Heating, Refrigerating and Air-Conditioning Engineers. (2022). The Standards for Ventilation and Indoor Air Quality. Peachtree Corners, GA: American Society of Heating, Refrigerating, and Air Conditioning Engineers. Retrieved from: https://www.ashrae.org/technical-resources/bookstore/standards-62-1-62-2.

[32] American Society of Heating, Refrigerating and Air-Conditioning Engineers. (2023). ASHRAE Publishes Standard 241, Control of Infectious Aerosols. Peachtree Corners, GA: American Society of Heating, Refrigerating, and Air Conditioning Engineers. Retrieved from: https://www.ashrae.org/about/news/2023/ashrae-publishes-standard-241-control-of-infectious-aerosols.

[33] Lewis, J. (2021). DTRA Receives Second Highest Unit Award for C-WMD and C-Threat Networks Efforts. Fort Meade, MD: Defense Visual Information Distribution Service. Retrieved from: https://www.dvidshub.net/news/388061/dtra-receives-second-highest-unit-award-c-wmd-and-c-threatnetworks-efforts.

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[40] During the Administration of President Barack H. Obama, DOD established the Military Credentialing and Licensing Task Force to examine ways to streamline state licensing for separating service members ("The Fast Track to Civilian Employment: Streamlining Credentialing and Licensing for Service Members, Veterans, and their Spouses," available at: https://obamawhitehouse.archives.gov/sites/default/files/docs/military_credentialing_and_licensing_report_2-24-2013_final.pdf). The Army requires its paramedics to obtain and maintain NREMT Certification, a certification standard recognized by civilian EMS licensing authorities. Also, the Army has in recent years offered advanced combat medic training to some of its paramedics to further enhance baseline NREMT certification.

[41] Bipartisan Commission on Biodefense. (2024). The National Blueprint for Biodefense: Immediate Action Needed to Defend Against Biological Threats, pp. 131-132. Washington DC: Bipartisan Commission on Biodefense. Retrieved from: https://biodefensecommission.org/reports/the-national-blueprint-for-biodefense/.

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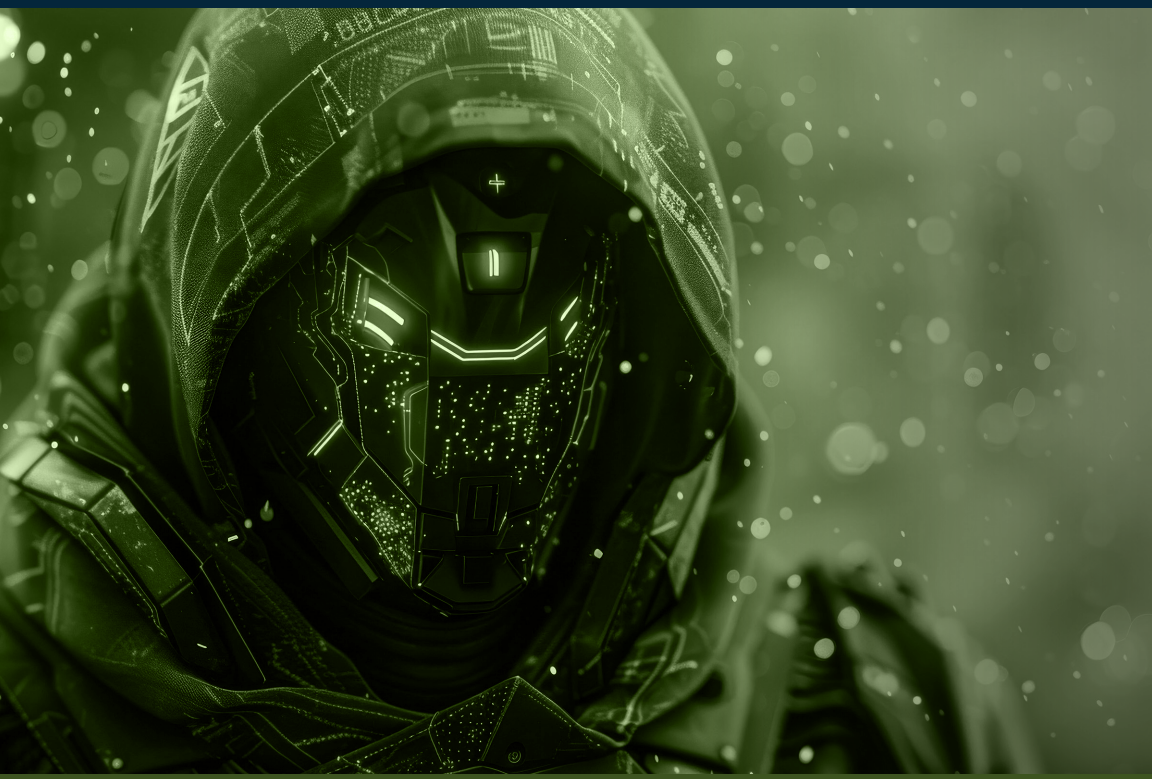

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