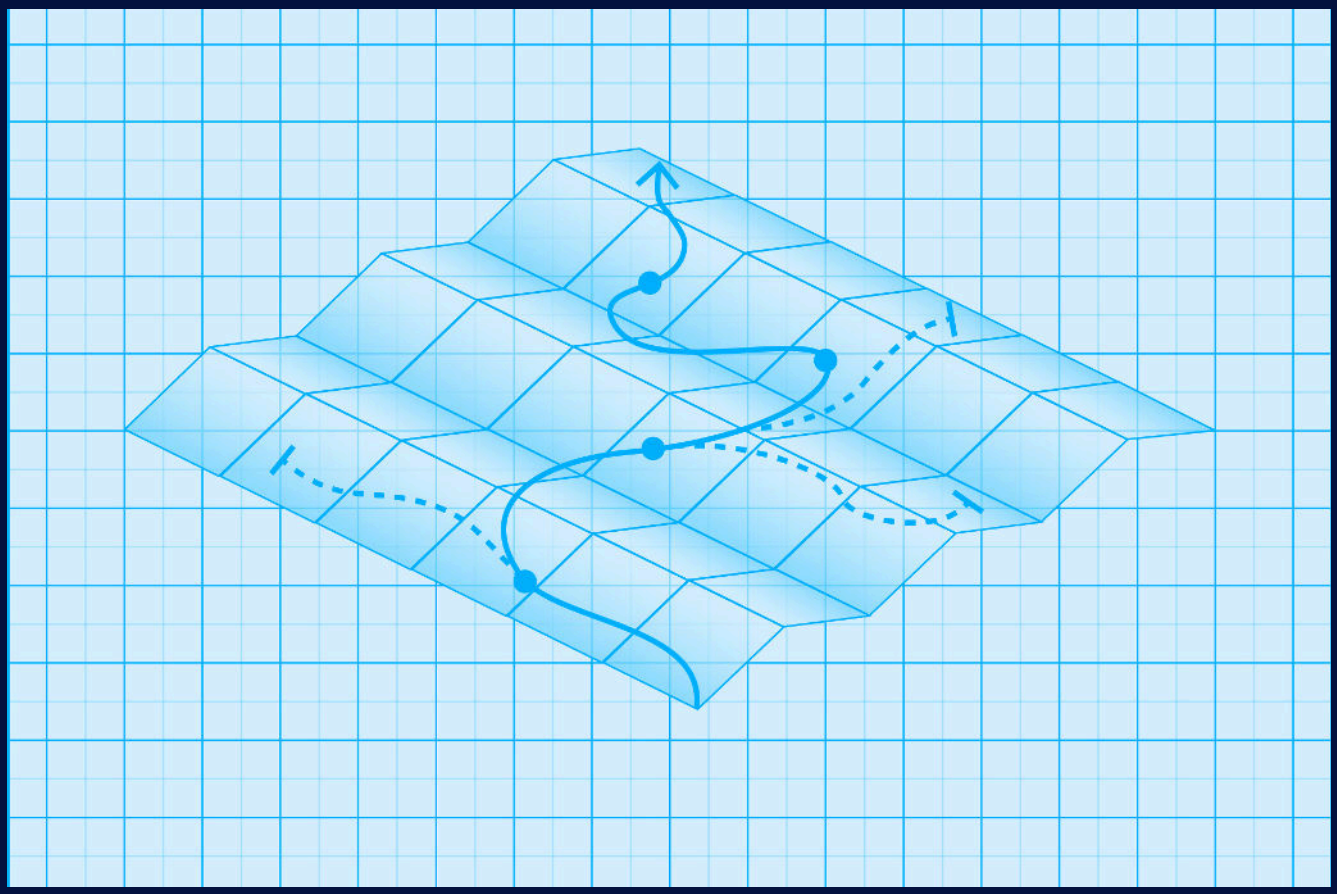
Blueprint Biosecurity

2025 Annual Report



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Letter from the Executive Director

Dear Friends,

Since 2023, this organization has grown significantly. What once began as a small idea has evolved into 16 full-time employees bringing diverse educational backgrounds and expertise to a single mission: ensuring the next outbreak doesn't become the next pandemic.

The years following the COVID-19 pandemic have shown us that outbreaks are constant. Mpox, avian influenza, and emerging pathogens continue to test our global defenses. We know that an outbreak is inevitable, but a pandemic is preventable. The difference lies in whether society invests in the right interventions before the next emergency strikes.

This year, Blueprint took significant steps to turn that principle into reality. We awarded millions to academic institutions, nonprofit organizations, and engineering consultants advancing research on far-UVC, personal protective equipment (PPE), and additional built environment transmission suppression (BETS) technologies. We funded landmark studies to evaluate far-UVC's effectiveness against real human-generated aerosols, with data expected early next year to inform broader real-world deployment. We've also expanded our work evaluating other underexplored and deployable tools for pathogen transmission suppression (e.g., glycol vapors) that may have the potential to reduce transmission and save lives.

This progress is only possible because of support from people who believe in our mission, but our work is far from complete. Without sustained funding and infrastructure, critical interventions risk being abandoned before they can reach the communities that need them most.

For that reason, thank you for standing with Blueprint and helping ensure this work continues. I'm proud to lead this organization into the future, and I'm grateful to have you with us.

Warmly,
Jake Swett
Founder and Executive Director

Organization Overview

Vision

A future where humanity can detect, prevent, and stop disease outbreaks before they become pandemics.

Mission

Blueprint Biosecurity accelerates the development and deployment of countermeasures against pathogens with pandemic potential by advancing the evidence base for promising technologies, developing strategic pathways for implementation, and equipping decision-makers with clear recommendations to prepare society before, during, and after outbreaks.

2025—By the Numbers

Impact at a Glance

$17.5M+ raised for both operations and grantmaking

$10M+ targeted for priority research initiatives including PPE, far-UVC, and additional built environment transmission suppression technologies

22 grants allocated to academic institutions, nonprofits, and consultancies

1 publication released: *Blueprint for Far-UVC*

28 team engagements at scientific, academic and industry events worldwide

6 mentions on the importance of reusable respirators were included across House and Senate appropriations bills; language included in the Agriculture appropriations bill is now law

Geographic Reach

9 grants awarded to academic institutions across NY, PA, MA, IN, CA, GA, NE, and CO

Australia

Brazil

United Kingdom

Japan

Malaysia

5 countries reached through active grants or partnerships beyond the U.S.

About Blueprint Biosecurity

Blueprint Biosecurity at a Glance

Blueprint Biosecurity is a nonprofit dedicated to strengthening society's ability to prevent and respond to pandemics. The organization advances practical, pathogen-agnostic solutions through targeted research, strategic grantmaking, and evidence-based policy guidance that protect vital workers and reinforce systems essential to pandemic preparedness and response.

Its work spans personal protective equipment, far-UVC, and other built environment transmission suppression technologies. Blueprint Biosecurity pairs research with active implementation, working with partners across government, academia, industry, and philanthropy to translate its strategic frameworks, known as Blueprints, into real-world action. The organization's goal is to ensure that when the next outbreak begins, society is ready to respond so communities remain safe, stable, and resilient.

Why This Work Matters

Pandemic pathogens continue to evolve faster than the systems designed to detect, prevent, and contain them. Current pandemic preparedness efforts rely on a range of countermeasures, but gaps remain in tools that can operate continuously, scale rapidly, and reduce airborne transmission in occupied spaces. The organization focuses on advancing these underdeveloped but high-impact technologies to build a more resilient and prepared society.

Program Areas

The organization evaluates promising, practical, and scalable technologies that can help build a robust pandemic preparedness and response toolkit.

Current areas of interest include:

- **Personal Protective Equipment (PPE)** – Ensuring there are robust reusable respirator stockpiles, understanding and overcoming barriers that prevent critical workers from successfully using reusable respirators during an emergency, and assessing strategies for respirator surge manufacturing.
- **Far-UVC** – Assessing the potential of Far-UVC light as a safe, effective, continuous air disinfection method to reduce airborne transmission in occupied spaces.
- **Additional Built Environment Transmission Suppression (BETS) Technologies** – Developing guidance for readily available technologies beyond far-UVC that can reduce pathogen transmission, while also assessing underexplored options that could expand the pandemic preparedness and prevention toolkit.

Program Highlights: PPE

Overview

Over the past year, the team worked to validate core assumptions about elastomeric half-mask respirator (EHMR) effectiveness, developed more sophisticated models for emergency PPE distribution, and built strategic partnerships, while maintaining strong research and analysis capabilities.

Program Highlights:

- **PPE Grants**: Scoped three PPE-focused grants—one launched in 2025, with two planned for early 2026.
- **Congressional and Policy Engagement:** Advanced federal engagement efforts during FY2026 appropriations, laying the groundwork for multiple policy and funding outcomes described in the Government Affairs section below
- **Testing & Evaluation**: Completed 100+ tests assessing respirator fit and user experience.

Key Learnings

To advance organizational understanding around EHMRs, the team launched a collaboration with the engineering consultancy Amodo Design to support hands-on, engineering-led evaluation of respiratory PPE under pandemic-like conditions.

Preliminary insights include:

- Without training, a surprising number of users put elastomeric respirators on upside down.
- Training has a large impact on fit test results, often determining whether a user passes or fails.
- For many respirators, fit test results may not reliably predict fit over time.

These early insights will inform future controlled studies and help address critical knowledge gaps in real-world respirator performance.

Looking Ahead

In 2026, the team will address fundamental questions about PPE effectiveness through several Requests for Proposals (RFPs). These RFPs will examine opportunities to improve currently available PPE for airborne pathogen transmission, investigate causes of filtration efficiency loss in filtering facepiece respirators (FFRs), and assess the needs of critical infrastructure workers, including gaps in understanding around the use of reusable respirators.

Program Highlights: Far-UVC

Overview

Over the past year, the team significantly expanded its strategy, shifting from a primary focus on research synthesis to actively building the far-UVC ecosystem and driving change through grants and other initiatives. A key inflection point was the publication of the *Blueprint for Far-UVC*, which established clear guidance and programmatic direction to accelerate deployment of far-UVC as a potential pandemic countermeasure.

Program Highlights:

- **Far-UVC Grants**: Funded 13 grants supporting far-UVC work.
- **Educational Outreach**: Delivered 11 conference presentations on far-UVC.
- **Blueprint for Far-UVC**: Published the field-defining *Blueprint for Far-UVC,* which outlines recommendations and priority research questions for broad deployment.

Key Learnings

Building on this strategic shift, the past year sharpened the team's understanding of where far-UVC stands and what is required to move it from promise to practice. The evidence base now strongly supports far-UVC as a scalable approach to cleaning indoor air, while making clear that the key challenge is no longer whether the technology works in principle, but whether laboratory findings can be translated into trusted, real-world deployment.

Key insights include:

- Multiple high-quality studies published this year reinforce that far-UVC can dramatically reduce airborne pathogen concentrations in controlled settings, strengthening confidence in its potential as a pandemic countermeasure.
- For far-UVC to be deployed during an emergency, decision makers must have confidence in its effectiveness, safety, and practicality before a crisis occurs.
- Beyond efficacy, far-UVC's success depends on strengthening the surrounding ecosystem, including eye safety and air quality research, improved measurement methods, and standards development.

Looking Ahead

In 2026, the team will assess early results from key laboratory and real-world far-UVC studies, including EXHALE, DEMIST, and the AIR Facility Tuberculosis Transmission Study in South Africa. These findings will inform the development of a clinical trial protocol to evaluate whether far-UVC can reduce indoor transmission of respiratory infections in congregate settings. Additional requests for proposals will address remaining foundational questions and support effective real-world deployment.

Program Highlights: Additional BETS Tech

Overview

In 2025, the team began identifying additional existing technologies that could be deployed in the near term to reduce the spread of pathogens with pandemic potential, while also assessing underexplored approaches to strengthen the pandemic preparedness and response toolkit.

As part of this effort, the team focused on several areas, including:

- **Filtration and portable air cleaners**, which reduce airborne pathogen concentrations by removing particles from indoor air.
- **Upper-room germicidal ultraviolet (GUV) light**, a long-standing approach that inactivates airborne pathogens in occupied indoor spaces.
- **Glycol vapors**, an underexplored airborne disinfection approach that reduces concentrations of infectious airborne pathogens.

Key Learnings

During the early phase of this workstream, the team examined remaining gaps in approaches to reducing pathogen transmission, focusing on technologies already available for deployment as well as underexplored options with the potential to bolster outbreak response.

Preliminary insights include:

- Established tools such as portable air cleaners and upper-room GUV systems can reduce airborne pathogens, but adoption is constrained by various factors, such as cost, maintenance requirements, and limited public awareness.
- Practical, trusted guidance on when and how to use these tools outside healthcare and research settings remains limited.
- Historical and select contemporary studies suggest that some glycol vapors may reduce airborne pathogen viability; however, significant gaps remain regarding effectiveness, safety, and deployment feasibility in occupied spaces.
- Across all technology areas, regulatory uncertainty, operational barriers, and public perception strongly influence outbreak usability, independent of technical performance.

Looking Ahead

In 2026, the team will announce grantees to initiate research across five technical areas evaluating the safety and efficacy of select glycol vapors, including triethylene, propylene, and dipropylene glycol. This work will bridge gaps between historical and contemporary evidence and clarify conditions for safe, effective deployment. In parallel, the team will evaluate strategies for deploying other readily available technologies during near-term outbreaks or pandemics, with findings from select programs expected in late 2026 and early 2027.

Government Affairs Highlights

Overview

In 2025, the organization launched a government affairs function to translate evidence-based findings on pandemic preparedness and response countermeasures into sustained federal policy and funding pathways. Initial efforts have focused on PPE, reflecting its near-term readiness and clear policy demand, while laying the groundwork for expansion into additional priority areas in the coming year.

Early Policy Impact

In its first year, the government affairs team focused on establishing the relationships, credibility, and policy pathways needed to support durable federal engagement, while securing targeted appropriations wins for PPE stockpiling. This work included developing a clear PPE policy agenda, building trust with congressional and executive branch stakeholders, and positioning the organization as a technically grounded partner in pandemic preparedness and response policy. Blueprint also led an initiative to write a letter, with seven additional signatories, on the importance of reusable respirators to the Administration.

These efforts resulted in six separate mentions across House and Senate Appropriations bills for Fiscal Year 2026, reflecting early alignment between Blueprint Biosecurity's PPE-focused policy recommendations and congressional funding and oversight decisions. As of this reporting period, the Agriculture appropriations bill has passed, with health-related bills expected to advance later this month.

Government Affairs Highlights:

- **Congressional Engagements**: Conducted 57 meetings with congressional offices since March 2025 to advance biosecurity and pandemic preparedness priorities.
- **Appropriations Wins**: Achieved six mentions of the importance of reusable respirators across House and Senate Appropriations bills
- **Executive Branch Engagement**: Led 19 briefings and meetings with executive branch and administration officials across relevant agencies.
- **Partnership Development**: Established 25+ cross-sector partnerships spanning government, industry, academia, and the private sector to support policy and implementation goals.

Looking Ahead

In 2026, the team will build on its PPE-focused policy engagement while expanding government affairs efforts to support additional pandemic preparedness and response countermeasures. Planned activities include deepening coalition partnerships, strengthening Congressional and Administration relationships and education, and advancing policy pathways that enable scalable deployment of effective biosecurity technologies.

Priorities for the Year Ahead

As Blueprint Biosecurity moves into the next phase of its work, it will focus on several priorities that build on progress made this year. Together, these efforts will guide continued growth and help ensure that promising technologies are used safely, effectively, and at scale.

Strategic Objectives

Build the Evidence Base

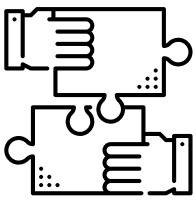
Generate the evidence needed for safe, effective, and scalable use of countermeasures against pathogens with pandemic potential. Advance research across priority areas, including far-UVC, PPE deployment under supply constraints, and glycol vapors, to produce real-world data on performance, feasibility, and limitations.

Explore Emerging Technologies

Identify other high-impact technologies that may have the potential to reduce transmission of pathogens with pandemic potential.

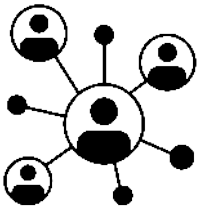
Deepen Strategic Partnerships

Grow collaborations with researchers, industry leaders, laboratories, universities, and policymakers to accelerate progress and ensure alignment across program priorities.



Advance Regulatory & Policy Initiatives

Work with regulators, standards bodies, and policy stakeholders to define clear requirements, safety frameworks, and evaluation criteria that support the formal assessment and adoption of emerging pathogen transmission suppression technologies.



Build Awareness & Credibility Across the Biosecurity Ecosystem

Synthesize and translate credible evidence and real-world deployment learnings to clarify readiness, use cases, and limits of countermeasures against pathogens with pandemic potential, enabling informed decision-making and responsible scale-up.

Financial Highlights

Throughout 2025, Blueprint Biosecurity remained committed to the efficient, high-impact use of resources. The majority of spending was allocated toward programmatic activities, including evidence generation and early-stage exploratory work, while operational costs were kept lean to maximize the impact of each dollar invested in advancing pathogen transmission suppression technologies.

Key Figures

$17.5M raised for operational and grantmaking support
$10M+ targeted for priority research initiatives
22 funded projects and collaborations launched
- Individual awards varied between **$25,000 to $1.5M**

For a complete overview of projects formally awarded in 2025, please refer to the Bioresilience Fund report.

Stewardship & Oversight

Internal financial controls and oversight processes are maintained to ensure funds are used in alignment with the organization's mission. Spending priorities are regularly reviewed to support strong stewardship and responsiveness to emerging biosecurity needs.

A copy of Blueprint Biosecurity's IRS Form 990 is available upon request.

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For information on how to support Blueprint Biosecurity's work, please contact donations@blueprintbiosecurity.org or donate online through the Blueprint Bio PayPal Giving Fund.