UK Government

UK Biological Security Strategy

Implementation Report
June 2023 - June 2025

Contents

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(Image Source: Ministry of Defence)

Ministerial Foreword

The Chancellor of the Duchy of Lancaster

(Image source: Cabinet Office)

It is hard to overstate how important biosecurity is in our changing world.

The first priority of any Government is keeping the public safe. And the uncomfortable reality, in 2025, is that the range and scope of the threats we face has never been greater.

Pathogens are evolving all the time, and diseases continue to have ruinous effects on populations across the world.

Whilst rapid advances in fields like engineering biology are unlocking better and faster ways to treat infectious diseases, they also present opportunities for state and non-state actors, hostile to our values and way of life, to harness these new technologies for harmful use.

Our national security depends on us not only keeping pace of these threats, but getting ahead of them.

This basic principle is at the heart of the 2023 UK Biological Security Strategy (BSS).

It heeds one of the urgent lessons of Covid-19. The pandemic was a global wake-up call that showed how devastating the costs are if countries collectively fail to prepare. The absence of crisis must not lead to complacency or inaction. Enduring public safety depends on consistent investment, planning and vigilance.

The BSS brings together policies and programmes across-Government that are building the UK's resilience to a spectrum of biological threats. The BSS comprises serious and practical measures that will consistently improve our resilience. It includes an increased focus on R&D, in areas like engineering biology and artificial intelligence (AI), to unlock new biosecurity solutions and drive growth in our world-renowned life science and biotechnology sectors.

We have already fulfilled a number of the commitments we made in the Strategy at the end of last year. This includes: appointing a lead minister for biosecurity and an expert unit at the centre of Government; developing a Biothreats Radar that upgrades

our early-warning disease monitoring capabilities; and the launch of the Microbial Forensics Consortium.

On top of this, we have signed up to the WHO Pandemic Agreement to strengthen future preparedness and response, published a new action plan for antimicrobial resistance (AMR) and established new guidance and capabilities to protect the public against misuse of new and emerging technologies.

The UK already has huge strengths in fields like engineering biology and metagenomic sequencing, which has the potential to identify new, unexpected pathogens in the first few patients who become infected, rather than months later. But we have more to do and further to go in reinforcing our national biosecurity in the long term. We are committed to doing exactly that.

The Rt Hon. Pat McFadden MP

Introduction

Overview

The 2023 BSS provides the overarching strategic framework to make the UK resilient to a spectrum of biological threats and a world leader in responsible innovation by 2030. This report presents some of the key achievements from across the UK government and devolved governments since the launch of the BSS in June 2023, summarising the progress in delivering flagship commitments, and setting out what we hope to deliver in the next 12 months.

Risk Landscape

The 2023 BSS sets out high-level outcomes to achieve the 2030 vision, and reaffirms the UK's commitment to enhancing preparedness for future pandemics and infectious disease outbreaks, countering the proliferation of biological weapons, and mitigating the risks of biological accidents and incidents.

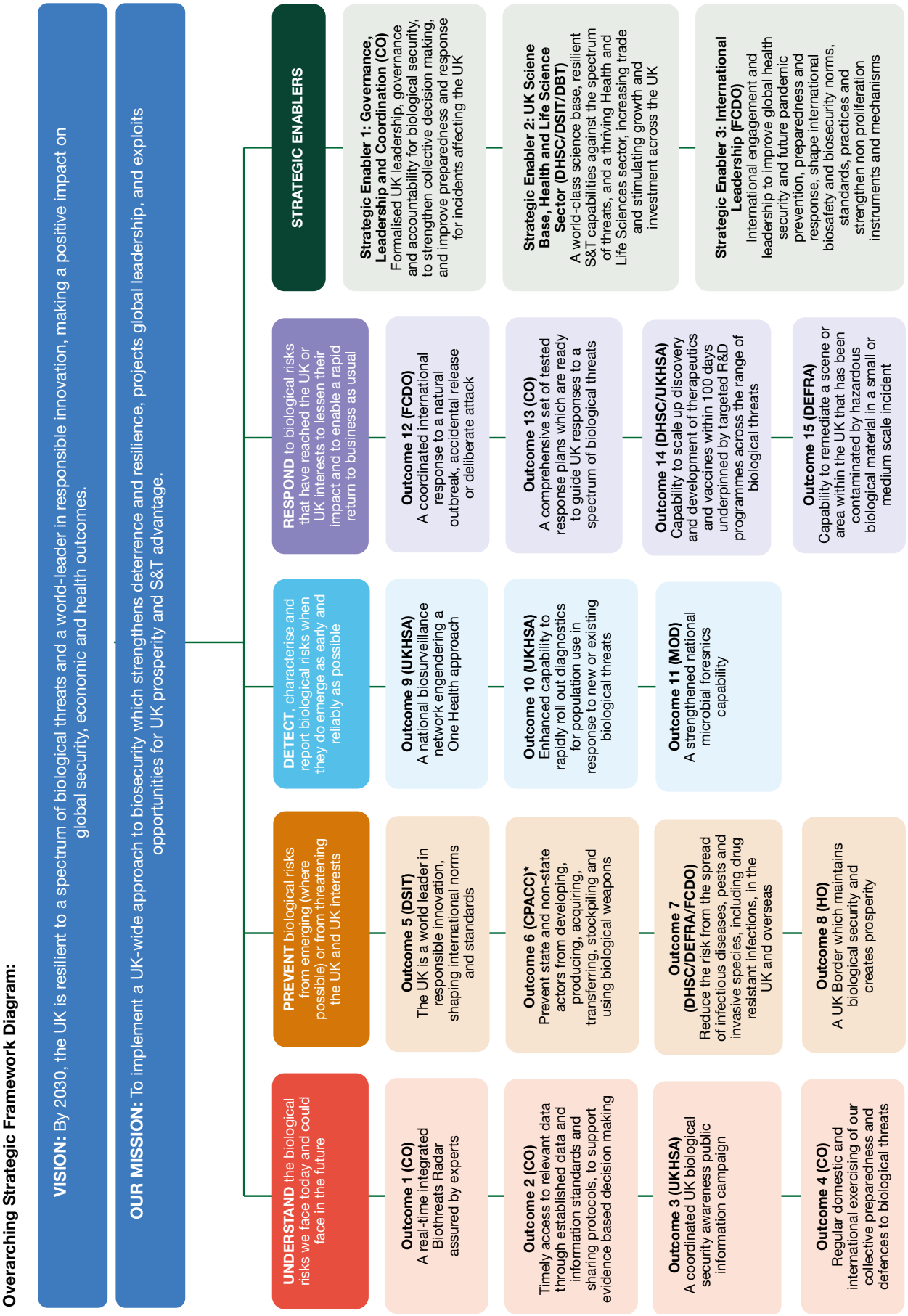
The biosecurity risks facing the UK are more likely, diverse and intersect in new ways out to 2030. Since 2023, the risk landscape has continued to shift, and the biological threats we face have continued to evolve and grow in complexity, driven by a range of global factors. In particular, rapid developments in AI-enabled scientific tools and engineering biology offer significant opportunities for drug discovery and vaccine development, but also have the potential to introduce new risks of misuse.

It is vital that our approach to UK biosecurity remains flexible, so that we mitigate emerging risks without stifling innovation and growth. To get ahead of future threats, we will continue to evolve our capabilities and innovate to understand, prevent, detect and respond effectively.

The activities we have undertaken since publication of the BSS have been influenced by our understanding of the changing risk picture.[1]

1 Some work undertaken under the BSS cannot be disclosed publicly for National Security reasons; however, this report seeks - where possible - to describe actions taken to implement the strategy across government.

Overarching Strategic Framework Diagram:



The short-term commitments delivered since publication of the 2023 BSS

Understand

- Scoped the development of a Biothreats Radar, assured by experts
- Increased data and intelligence capture on biological threats to the UK
- Facilitated simpler exchange of data across the UK government
- Developed a coordinated biological security communications campaign

Prevent

- Established a new Responsible Innovation Advisory Panel (formerly named the Biological Security Leadership Council): a forum to engage strategically with the Life Sciences and Biotechnology sectors, and develop proportionate and pro-innovation approaches to risk management
- Worked with our allies and partners to build the case for, and consensus on, proposals to strengthen the Biological and Toxin Weapons Convention (BTWC)
- Used findings from the Call for Evidence on antimicrobial resistance (AMR) to inform the next National Action Plan

Detect

- Scoped a networked biosurveillance capability across the UK, linked to the International Pathogen Surveillance Network (IPSN), and a strategic approach to diagnostics
- Continued to mature detection technologies for in-field use, and piloted new environmental threat monitoring systems
- Conducted an audit of, and developed plans to strengthen, the UK's leading microbial forensics capabilities

Respond

- Led efforts to implement the 100 Days Mission, including supporting the International Pandemic Preparedness Secretariat
- Published generic invasive non-native species contingency plans that cover terrestrial, freshwater and marine environments
- Developed a roadmap towards comprehensive response plans against a spectrum of biological threats

Strategic Enablers

- Implemented formalised leadership and governance structures for oversight of biological security
- Established a dedicated coordination unit in the Cabinet Office
- Periodically reviewed capability health and took action to address identified gaps
- Stimulated innovation and growth via a pipeline of biological security S&T missions

Understand Pillar Outcomes

Outcome 1 ~ A real-time integrated Biothreats Radar assured by experts

Outcome 2 ~ Timely access to relevant data through established data and information standards and sharing protocols, to support evidence-based decision making

Outcome 3 ~ A coordinated UK biological security awareness public information campaign

Outcome 4 ~ Regular domestic and international exercising of our collective defences to biological threats

Since publishing the BSS in June 2023 we have delivered new capabilities to strengthen our understanding of biothreats:

- Created an integrated, cross-government Biothreats Radar to increase early warning and coordinate monitoring and responses to emerging biothreats.
- Created an integrated 'all source' threat assessment product for chemical, biological and radiological security to drive coordinated policy development across government.
- Fostered a culture of unhindered data sharing to respond to live crises, such as through:
  - The rapid operationalisation and sharing of data between the Animal and Plant Health Agency (APHA), the core Department for Environment, Food and Rural Affairs (DEFRA) and the United Kingdom Health Security Agency (UKHSA) in response to the detection of a case of influenza of avian origin in a sheep in England allowed the Human Animal Infections and Risk Surveillance (HAIRS) group to create joint risk assessment and respond to the incident successfully.[2]
  - The development of a data-sharing platform for genomics as part of the Genomics of Animal and Plant Disease Consortium (GAP-DC2). This includes a website for best practice, and will link into the National Biosurveillance Network to support data sharing, modelling and technology roll-out.[3]
- Launched the Government's 'Prepare' website which provides the public with advice on how to prepare for and mitigate biological threats, including animal and plant health, AMR and infectious disease outbreaks.[4]

2 https://www.gov.uk/government/publications/hairs-risk-statement-avian-influenza-ah5n1-in-livestock/hairs-risk-statement-avian-influenza-ah5n1-in-livestock
3 https://www.gapdc.org/
4 https://prepare.campaign.gov.uk/

- Issued specific public facing risk assessments and communications for High Consequence Infectious Diseases (HCIDs), including awareness campaigns on mpox and Marburg Virus Disease at UK airports and health advice to those returning on flights from affected countries.[5]
- Carried out focused awareness campaigns on animal and plant health:
  - The fifth National Plant Health Week - co-designed with a range of industry partners - took place in May, where officials updated professional operators on topical pests and diseases, legislative requirements and practical actions.[6]
  - APHA won gold medals and best in show for their category at the 2024 and 2025 Chelsea Flower Show for their exhibits on the yellow legged hornet and the Colorado beetle respectively.
- Delivered a series of exercises to test our preparedness against a range of biological threats, including with the devolved governments:
  - A pandemic preparedness tabletop exercise involving local and national responders and the devolved governments was held in May as part of our wider Pandemic Preparedness planning under Exercise Pegasus, the Tier 1 pandemic exercise planned for the autumn.
  - Exercise Whitebeam was held in October 2024 to test our response to African swine fever, following on from the UK-wide exercise that simulated an outbreak of African swine fever in July 2021 (Exercise Holly).

In the next 12 months the Government's ambitions include:

- Full operationalisation of the Biothreats Radar across the four nations of the UK, ensuring its integration into risk monitoring, response and decision-making processes.
- Continued focus on removing barriers to data sharing - both domestically and internationally - including through the standing up of a dedicated data brokerage service within government to facilitate data sharing.
- Delivery of a Tier 1 pandemic exercise in the Autumn to provide direction and establish cross-cutting activity to assess the UK's preparedness, capabilities and response arrangements in the context of a pandemic arising from a novel infectious disease.
- Enhancement of our preparedness for priority biological security risks by running a regular schedule of exercises focused on testing capabilities and response plans for animal diseases. This includes running a regular schedule of exercises focused on testing our capabilities and response plans for animal diseases, including African Horse Sickness and foot and mouth disease.
- Engagement of partners internationally, through new bilateral partnerships and via platforms such as the G7, to encourage other countries to pursue a holistic, One Health and national security approach to biological threats.

5 https://www.gov.uk/government/publications/viral-haemorrhagic-fever-algorithm-and-guidance-on-management-of-patients/risk-assessment-and-immediate-management-of-viral-haemorrhagic-fevers-contact-high-consequence-infectious-diseases-in-acute-hospitals

6 https://planthealthportal.defra.gov.uk/latest-news/national-plant-health-week-2025/

Case Study

Biothreats Radar

Over the past year, a dedicated team in the Cabinet Office's National Situation Centre has built a prototype of a Biothreats Radar to provide a comprehensive overview of high-priority biosecurity threats from across the world to support ministers' and senior officials' decision-making process.

(Image Source: Cabinet Office)

A flagship commitment of the BSS, and the first outcome of the 'Understand' Pillar, the Radar brings together open-source intelligence and official assessments on threats to human, animal and plant health - including from the forthcoming One Health National Biosurveillance Network - to inform central government response to emerging biothreats.

The first iteration of the Radar was released to key stakeholders across government in mid-may 2025. It included an event-based surveillance page displaying all biothreats currently being monitored, standard threat pages providing real-time updates from a range of government monitoring sources, and resilience and capability pages showing the state of the human health system and its capacity, with plans to extend this to cover animal and plant health.

Building on the lessons learned from visualising health data during COVID-19, and from the recommendations of the COVID-19 Inquiry's Module 1 Report on the timely collection, analysis, secure sharing and use of reliable data for informing emergency responses, the Radar creates a powerful, near real-time view of emerging risks and the impact they could have.

Prevent Pillar Outcomes

Outcome 5 ~ The UK is a world leader in responsible innovation, shaping international norms and standards

Outcome 6 ~ Prevent state and non-state actors from developing, producing, acquiring, transferring, stockpiling and using biological weapons

Outcome 7 ~ Reduce the spread of infectious diseases, pests and invasive species, including drug-resistant infections, in the UK and overseas

Outcome 8 ~ A UK border which maintains biological security and creates prosperity

Since publishing the BSS in June 2023 we have achieved the following:

- Launched the Responsible Innovation Advisory Panel (RIAP), chaired by Lord Vallance, creating a two-way dialogue on responsible innovation with sector experts in engineering biology.[7]
- Published voluntary screening guidance for providers and users of synthetic nucleic acids to deliver on the UK's commitment to fostering responsible innovation in engineering biology technologies.[8] There is the option to put guidance on a statutory footing if it is deemed necessary and appropriate.
- Established a standing capability to evaluate how advanced AI could assist chemical and biological misuse, and worked with companies to address risks and develop their own thresholds.[9] The UK has driven the international conversation on AI governance and shaped how companies and other governments are navigating the technology.
- Delivered a comprehensive survey of 3,000 UK adults aged between 18-65+ to determine perceptions of engineering biology, which will be useful to inform future policy development. Most respondents believed that engineering biology will generally be a good thing for society.
- Played a leading role in global counterproliferation efforts through multilateral export control regimes such as the Australia Group and UN Security Council Resolution (UNSCR) 1540.
- Funded a new, robust electronic platform for annual reporting of Confidence Building Measures under the Biological and Toxin Weapons Convention (BTWC).[10]
- Funded and delivered biological threat reduction projects under the Ministry of Defence's International Biosecurity Programme and the Counter Proliferation Fund, including training for the United Nations Secretary General's Mechanism for the Investigation of Alleged Use of Chemical and Biological Weapons (UNSGM), universalisation of the BTWC

7 https://www.gov.uk/government/groups/engineering-biology-responsible-innovation-advisory-panel
8 https://www.gov.uk/government/publications/uk-screening-guidance-on-synthetic-nucleic-acids/uk-screening-guidance-on-synthetic-nucleic-acids-for-users-and-providers
9 https://www.aisi.gov.uk/
10 https://bwc-cbm.un.org/

(including in Africa), and supporting the G7-led Global Partnership's Signature Initiative to Mitigate Biological threats in Africa (SIMBA).

- Funded overseas projects to bolster in-country global health and security initiatives through commitments like the Coalition for Epidemic Preparedness Innovations (CEPI). The impact of these initiatives has been maximised through better strategic coherence across HMG, reducing the excessive bureaucracy associated with delivering aid.
- Led contributions to the Global Alliance for Vaccines and Immunization (GAVI) and have been instrumental in establishing the African Vaccines Manufacturing Accelerator Mechanism.
- Published the UK's second 5-year National Action Plan for antimicrobial resistance, which contains outcomes and commitments that will make progress towards the 20-year vision for AMR to be contained, controlled and mitigated.[11]
- Expanded the dedicated inspectorate to oversee the continued implementation of the Invasive Non-Native Species Strategy for Great Britain and protect Britain's borders from invasive species.[12]
- Agreed and implemented updated policies for sanitary and phytosanitary checks at the UK border as part of the Border Target Operating Model.
- Developed the Passenger Locator Form (PLF), a Covid-19 initiative, to be a more flexible tool which can now be deployed for a wide range of scenarios requiring public health interventions at the UK border. The PLF aligns with the revised International Health Regulations which became binding in 2025.
- Swiftly responded to the outbreaks of foot and mouth disease in Germany, Hungary and Slovakia throughout 2025 by suspending trade in live animals and products of animal origin of susceptible species from these countries and temporarily restricting the personal passenger allowance of meat and dairy items from the EU.
- Took robust action to contain or eradicate quarantine pests and diseases, including the Colorado beetle, *Phytophthora pluvialis*, the oak processionary moth, sweet chestnut blight and the eight-toothed spruce bark beetle.

In the next 12 months the Government's ambitions include:

- Development of proportionate policy solutions to address the risks associated with biodata, the convergence of engineering biology and emerging technologies and to promote a culture of safe innovation. Utilise quarterly meetings of the Responsible Innovation Advisory Panel for horizon scanning and to support policy development.
- Implementation of the UK screening guidance on synthetic nucleic acids, including putting it on a statutory footing if deemed necessary and appropriate.
- Implementation of the commitments in the second AMR National Action Plan to further our understanding of trends and population differences, and develop interventions to help redress potential increases in the number of drug-resistant infections.
- Continued leadership of international efforts to counter the proliferation of biological weapons and materials, including in the Australia Group, UNSCR 1540 and the G7 Global Partnership.

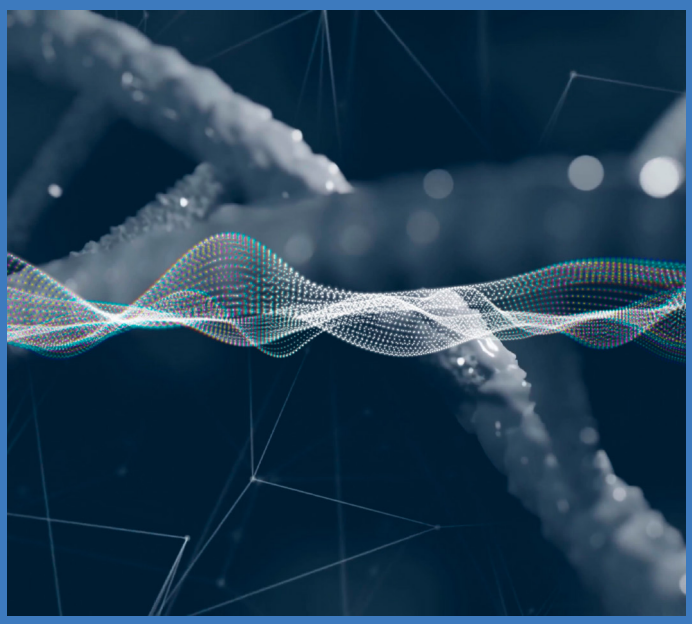
11 https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2024-to-2029
12 https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy

- Work to strengthen the BTWC, including through a science and technology review mechanism and an international cooperation and assistance mechanism.

Case Study

Responsible Innovation Advisory Panel (RIAP)

The Department for Science, Innovation and Technology (DSIT) established the Responsible Innovation Advisory Panel (RIAP) in 2023 - a key deliverable of the responsible innovation commitments set out under Outcome five of the "Prevent" pillar. The panel meets on a quarterly basis, and at the point of publication has met six times.



(Image Source: Adobe Stock)

The panel is a diverse group of experts from across industry, academia and think tanks. The panel provides a permanent feedback loop between policymakers and experts, directing and shaping priorities across responsible innovation. Supported by discussions at the Panel, DSIT has identified the following responsible innovation policy priorities: gene synthesis screening; convergence of engineering biology and emerging technologies (e.g. AI, automation and cyber biosecurity); the culture of safe innovation; biodata security; and horizon scanning.

The RIAP is supporting policy development for responsible innovation and biosecurity, engaging the UK Biotech and Life Science sectors on emerging risks and contributing to our vision of the UK as a world leader in responsible innovation, shaping global norms and standards. For example, DSIT has recently published voluntary screening guidance for providers and users of synthetic nucleic acid on the recommendation of RIAP.

Detect Pillar Outcomes

Outcome 9 ~ A National Biosurveillance Network engendering a One Health approach

Outcome 10 ~ Enhanced capability to rapidly roll out diagnostics for population use in response to new or existing biological threats

Outcome 11 ~ A strengthened national microbial forensics capability

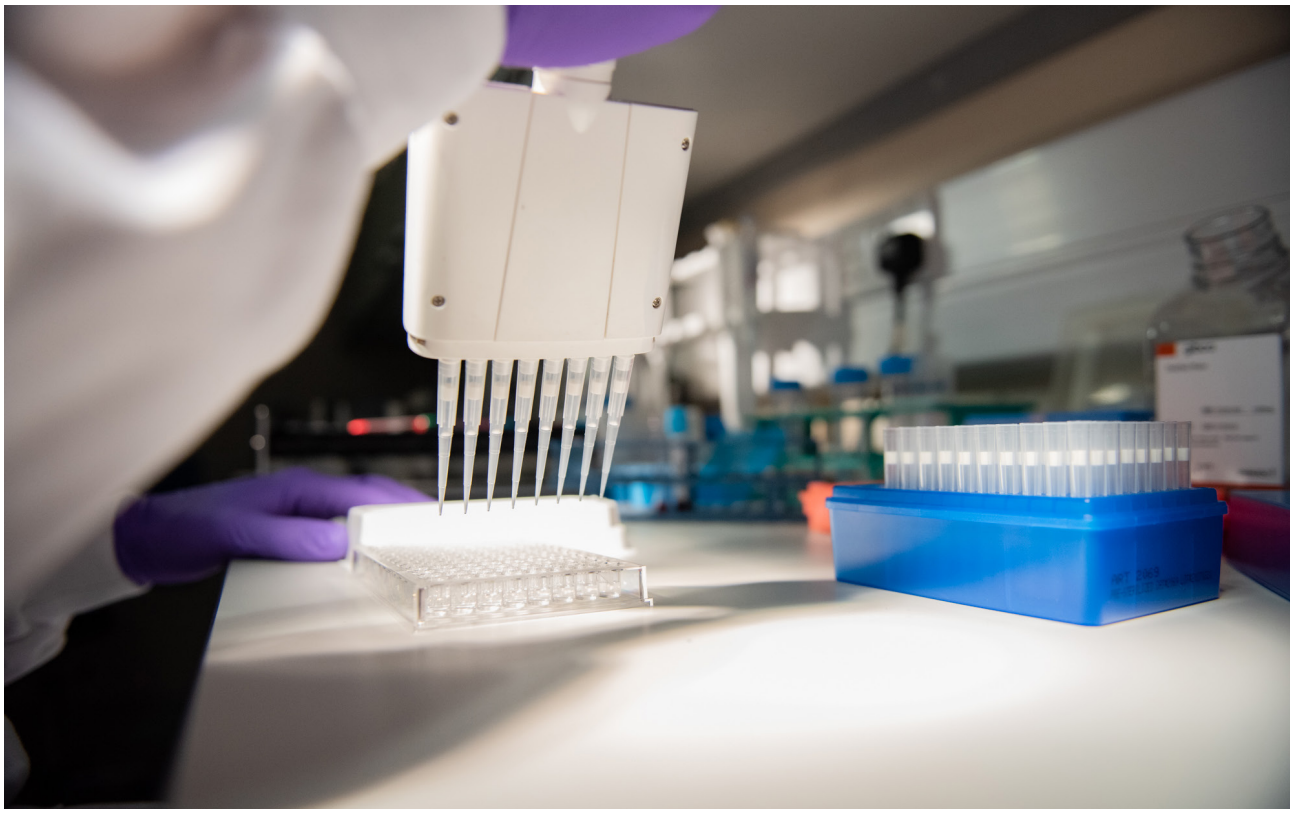
Since publishing the BSS in June 2023 we have achieved the following:

- Consulted, scoped and completed a suite of pilot projects to develop the National Biosurveillance Network, promoting a coordinated approach to surveillance across government.
- Launched the UK Microbial Forensics Consortium (UKMFC), a national effort led by the Defence Science and Technology Laboratory to build new tools, capacity and skills (across ten laboratories) in the detection and attribution of biological incidents and attacks, taking a One Health approach.[13]
- Launched the Diagnostics Accelerator, a specialist team created to rapidly boost the UK's ability to diagnose and test for new and emerging infectious disease threats. The Accelerator will improve the speed at which new and existing types of tests can be made ready at rapid scale for a wider range of different pathogens.[14]
- Piloted and expanded the use of novel surveillance to improve our ability to detect and monitor biological risks and outbreaks, including:
  - Metagenomics for respiratory disease detection at the bedside in NHS intensive care units, meaning diseases are detected in hours rather than days. Led by Guys and St Thomas' Hospital Trust, the programme is linked to the UKHSA's metagenomics Surveillance Collaboration and Analysis Programme (mSCAPE).[15,16]
  - The PATH-SAFE programme, completed in March 2025, used the latest DNA-sequencing technology and environmental sampling to improve the detection and tracking of foodborne human pathogens. Evaluation of the programme concluded that its achievements and outputs have shown progression towards achieving long-term impact.[17]
  - Development of new animal and plant disease detection capabilities through the Genomics for Animal and Plant Disease Consortium (GAP-DC2), a multi-million pound research programme which unites the UK's leading organisations in pathogen detection and genomics to enhance the UK's capacity for early pathogen detection, rapid response and effective disease control.

13 https://www.gov.uk/government/groups/uk-microbial-forensics-consortium
14 https://www.gov.uk/government/news/diagnostic-accelerator-launched-to-speed-up-pandemic-preparedness
15 https://www.gov.uk/government/news/uk-to-create-world-first-early-warning-system-for-pandemics
16 https://www.gov.uk/government/news/ukhsa-launches-new-metagenomic-surveillance-for-health-security
17 https://www.food.gov.uk/our-work/pathogen-surveillance-in-agriculture-food-and-environment-path-safe-programme

In the next 12 months the Government's ambitions include:

- Operationalise the foundational capabilities for a National Biosurveillance Network in the National Situation Centre, including new software and systems to bring together existing surveillance data, processes and community, facilitate data sharing more quickly and provide input to the new Biothreats Radar.
- Through the Biosecurity Integrated Security Fund (ISF) Portfolio, enhance our existing surveillance systems, develop novel environmental biosensors, and transition capabilities like wastewater monitoring into operational functions.
- Increased international collaboration on Microbial Forensics and developing a formal, standard operating procedure, integrating new approaches and methods to detect, characterise and attribute engineered pathogens between laboratories.
- Rollout of the Respiratory Metagenomics Project from 10 to up to 30 NHS Trusts to enable disease detection in hours rather than days.
- Delivery of year 1 of the National Food Surveillance Programme alongside building on PATH-SAFE and other FSA-funded surveillance programmes.
- Increased scope and utility of surveillance data to improve real-time detection of pathogens and accurate location of outbreaks via the enhancement of the PATH-SAFE genomic data platform, source attribution modelling and an exploration of AI-driven analytics and onsite diagnostic tools.
- Improve resilience through a dedicated project on assessing onshoring UK manufacture of point-of-care tests and remove the major bottleneck in scalable molecular testing through improved sample collection kits with sample inactivation.



(Image Source: Defence Science and Technology Laboratory)

Case Study

UK Microbial Forensics Consortium

Technological developments such as engineering biology are providing increasingly sophisticated ways for generating new and/or modified biological materials. The misuse of these technologies is a concern from a biosecurity perspective. The creation of the United Kingdom Microbial Forensics Consortium (UKMFC) represents a step change in preparedness for the UK and acts as a deterrent against the misuse of biological hazards by being able to differentiate between natural events (i.e. outbreaks), accidental or intentional releases. This new capability for the UK is One Health in approach, attributing pathogens identified within the human, animal, plant, aquaculture or food sectors, and spans all four UK nations.

The UKMFC is strengthening the microbial forensics capability across government and clinical laboratories with support and engagement from academia, other government laboratories, small-medium enterprises and industry as appropriate. This has been achieved through the launch of the UKMFC Laboratory Network involving organisations at the frontline of biosurveillance via an initial investment of over £1m. The shared working practices in microbial forensics being developed here will create a new alert system for the UK that can identify the misuse of biological materials irrespective of the sector targeted. In doing so the UKMFC is also generating a critical mass of expertise in microbial forensics within each sector and across the UK. Finally, a baselining activity designed to test the effectiveness of current working practice to detect anomalies such as signatures of genetic engineering is underway through an external quality assurance exercise developed in collaboration with the Public Health Agency of Canada.

(Image Source: Defence Science and Technology Laboratory)

The UKMFC held its first in-person event, opened by Minister Oppong-Asare, in November 2024. The event included presentations from leaders in the Microbial Forensics and Biosurveillance communities, including international representation from the FBI.

The impact of this pioneering cooperative One Health approach to biosurveillance has already been recognised at various International fora (i.e. BTWC and the United Nations Secretary General's Mechanism Designated Laboratories Annual Meetings). Further research is planned – through a £1m innovation microbial forensic-themed competition that will enable the wider S&T supplier base to help evolve the current capability and maintain the UK as a World Leader in this field.

Collectively, through the UKMFC, we will further strengthen UK capabilities to detect and attribute engineered pathogens, and continue to play a leading role in supporting partner countries to develop their biosafety and detection.

Respond Pillar Outcomes

Outcome 12 ~ A coordinated international response to a natural outbreak, accidental release or deliberate attack affecting humans, animals, plants and the environment

Outcome 13 ~ A comprehensive set of tested response plans which are ready to guide UK responses to a spectrum of biological threats

Outcome 14 ~ Capability to scale up discovery and development of therapeutics and vaccines underpinned by targeted R&D programmes across the range of biological threats

Outcome 15 ~ The ability to efficiently remediate a scene or area within the UK as soon as possible that has been contaminated by hazardous biological material in a small or medium-scale incident

Since publishing the BSS, we have achieved the following:

- In collaboration with international partners, responded to contain the impacts of mpox, Marburg virus disease, foot and mouth disease and Highly Pathogenic Avian Influenza.
  - Following increased transmission of mpox clade 1 in Central and East Africa, 12 cases of mpox clade 1b have been detected in the UK. Isolation, contact tracing and ring vaccination were implemented and no sustained onward spread has been detected to date. We also bolstered the African-led response to mpox in the Democratic Republic of the Congo (DRC), Uganda and other affected countries, providing up to £9m in support and deployment of UK-based experts to the region.
  - A Marburg virus disease outbreak occurred in Tanzania in early 2025, with 10 cases detected. The UK provided technical assistance to the Tanzanian authorities and WHO teams and strengthened local preparedness in case of an imported case. The UK also supported the Rwandan government to respond to Marburg virus disease, deploying the UK Emergency Medical Team and the UK Public Health Rapid Support Team, and providing up to £2m in support.
  - Following the spread of Highly Pathogenic Avian Influenza in birds, a human case was detected in a worker on an infected poultry premise. Intensive contact tracing did not identify further cases.
- Adoption of the WHO Pandemic Agreement by the World Health Assembly in May 2025, a new, legally-binding international agreement designed to strengthen global pandemic prevention, preparedness and response and better protect the British people, our National Health Service and the economy:
  - The UK played a leading role in negotiating the Agreement, championing critical issues such as pandemic prevention, financing and equitable access to medical countermeasures.

  - The Agreement lays the foundation for a new 'Pathogen Access and Benefit Sharing' (PABS) system, enabling faster and more efficient access to pathogens for vaccine development.

- Continued support to the WHO in epidemic and pandemic preparedness and outbreak response, including through technological collaboration.
- In October 2024, the UK Public Health Rapid Support Team deployed experts to DRC to support Africa CDC in its regional response to the mpox epidemic.[18]
- Significantly improved our response and contingency plans for a range of biosecurity risks, including:
  - Undertaken additional work on planning against biological risks assessed to have catastrophic impact by the National Risk Register. This supplements the Amber Book - published on 28 April 2025 - which provides a national framework for crisis response, including where coordinated action across government is critical.[19] To support this, the Cabinet Office also works with departments, devolved governments and local partners to plan and prepare for the cascading impacts of catastrophic biological risks.
  - Generic contingency plans for invasive non-native species across terrestrial vertebrates, terrestrial plants, freshwater animals, freshwater plants and marine species.[20] An additional contingency plan, covering invasive non-native terrestrial invertebrates, is in development.
  - Published new pest-specific contingency plans - bringing the total to forty - covering twenty one of the twenty three priority pests and helping to mitigate the economic, social and environmental problems they can cause.[21]
- Furthered the UK's contribution to progressing the '100 Days Mission' goal to speed up access to safe and effective diagnostics, therapeutics and vaccines in a future public health emergency, including:
  - Published the first iteration of the new Priority Pathogen Family Research and Development Tool, and used it to inform our development of medical countermeasures and pandemic preparedness R&D.
  - The completion of the Biomanufacturing Fund (BMF) which provided up to £38m in capital grants to incentivise investment in the manufacture of vaccines and biotherapeutics to improve the UK's resilience against future pandemics.[22]
  - Up to £520m for life sciences manufacturing over five years - through the Life Sciences Innovative Manufacturing Fund - investing directly in building UK capabilities across Medicines, Diagnostics and MedTech to respond to any future health emergency.[23]

18 https://www.gov.uk/government/collections/uk-public-health-rapid-support-team-uk-phrst
19 https://www.gov.uk/government/publications/the-central-government-s-concept-of-operations
20 https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy#:~:text=The%20strategy%3A,managing%20invasive%20non%2Dnative%20species
21 https://planthealthportal.defra.gov.uk/pests-and-diseases/contingency-planning/#
22 https://www.gov.uk/government/publications/biomanufacturing-fund
23 https://www.gov.uk/government/publications/life-sciences-innovative-manufacturing-fund-lsimf

- Launch of the NIHR competition for pandemic preparedness platform clinical trials in hospital and community settings. In the event of a pandemic being declared, the baseline platform clinical trials will rapidly "pivot" to address the research need to evaluate the efficacy/ effectiveness of any potential existing interventions, as well as incorporating promising novel interventions as they are developed.[24]

In the next 12 months the Government's ambitions include:

- Delivery of the UK's largest ever 'Tier 1' national pandemic exercise, and the first since 2016.
- Publication of a new pandemic preparedness strategy.
- Completion of a UK-wide Respiratory Pandemic Response Plan for health and adult social care, to be followed by work to adapt the plan to other routes of transmission (oral, touch, blood and sexual, and vector-borne).
- To continue to play a leading role in the WHO's Pandemic Agreement - including in potential follow-up negotiations - and begin implementation of obligations.
- Constructive engagement in, influence and agree the details of the Pathogen Access and Benefit Sharing System (PABS) which supports the swift sharing of biological samples in a pandemic as part of the Pandemic Agreement.
- Consider further developments and updates to the Priority Pathogen Family R&D tool, and update it as required to consider emerging threats and changes to the countermeasure landscape.
- Continued investment in UK life sciences manufacturing and epidemic and pandemic prevention, preparedness and response R&D through the Life Sciences Innovation Manufacturing Fund, NIHR, UKRI and Foreign, Commonwealth & Development Office investments and national and international partnerships.

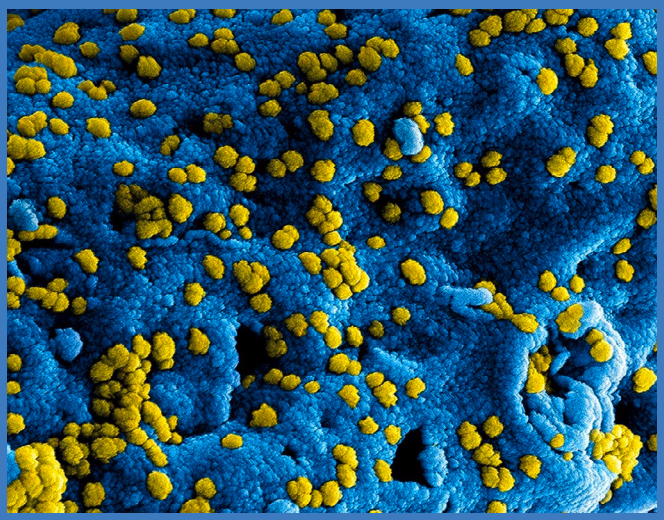
(Image Source: Ministry of Defence)

24 https://www.nihr.ac.uk/funding/pandemic-preparedness-platform-clinical-trials-hospital-and-community-settings/2025311#tab-414621

Case Study

Priority Pathogens Family Research and Development Tool

UKHSA published the first iteration of a new Priority Pathogen Family R&D Tool. The Tool outlines 24 pathogen families using a relative high, medium or low categorisation of pandemic and epidemic potential to help inform where investment into R&D of diagnostics, therapeutics and vaccines (DTVs) may be most needed.



(Image Source: United Kingdom Health Security Agency)

The purpose of the Tool is to guide industry organisations, academic institutions and other parts of government on where funding may be prioritised. The list of 24 pathogen families has been created to drive scientific investment and research, helping to strengthen the UK's ability to respond to pathogen families that may impact on national biosecurity. It's the first list designed to focus on both global public health threats and the diseases most relevant to our population.

Middle East respiratory syndrome coronavirus (MERS-CoV) viral particles, located on the surface of a Vero E6 cell. Source: UKHSA

Cross-Cutting Strategic Enablers

SE1: Formalised UK leadership, governance and accountability for biological security, to strengthen collective decision making and improve preparedness and response for incidents affecting the UK

SE2: A world-class science base, resilient S&T capabilities against a spectrum of threats, and a thriving Health and Life Sciences sector, increasing trade and stimulating growth and investment across the UK

SE3: International engagement and leadership to improve global health security and future pandemic prevention, preparedness and response, shape international biosafety and biosecurity norms, standards, practices and strengthen non-proliferation instruments and mechanisms

Since publishing the BSS in June 2023 we have achieved the following:

SE1

- Established a dedicated taskforce of officials and external experts in the Cabinet Office to coordinate delivery of the BSS as a core part of National Security, and to drive forward policy development, implementation and capability building.
- Created robust accountability and governance structures with oversight of biological security - working with the devolved governments - through the formation of a Directors General-level implementation group.
- Created an internal BSS Impact Monitoring Framework to provide a quantitative account of progress using a range of metrics across each Pillar and Outcome.
- Carried out a detailed assessment of all biosecurity spend across government and a strategic analysis of spending priorities out to 2030.

SE2

- Established a Subgroup of the Departmental Chief Scientific Advisors focused on Chemical, Biological and Radiological Security, to provide expert advice and assurance to the senior responsible officer and lead minister.[25]
- Launched a Cross-Government Research Funders R&D Framework for Pandemic Preparedness, Prevention and Response to ensure a strategic approach to pandemic preparedness research investment.
- Accessed £15m via the ISF to de-risk the transition of novel and emerging biosecurity capabilities into operational functions. The Portfolio will deliver a range of innovative measures, including surveillance and detection capabilities, integrating and improving the use of data across government and with industry, strengthening gene synthesis security and championing responsible innovation.

25 Departmental CSAs work together under the leadership of the Government Chief Scientific to support each other and to resolve cross-departmental problems. https://www.gov.uk/government/groups/chief-scientific-advisers

SE3

- Launched the US-UK Strategic Dialogue on Biological Security to synchronize and coordinate ongoing collaborations and global leadership in biosecurity, reflecting our shared ambition to protect against a growing and diverse spectrum of biological threats.[26]
- Agreed that health security, biological security and chemical security should be part of regular exchanges at all levels, as part of the UK-EU Summit Common Understanding agreed by the Prime Minister and European Commission President von der Leyen on 19 May 2025.[27]
- Worked with international partners to secure stronger commitments in the 2024 G7 Leaders Communique on AMR, pandemic preparedness and medical countermeasures, responsible innovation of engineering biology, protection against misuse of dual-use technologies and counter-proliferation of biological weapons.
- Agreed cooperation on biological security under the UK-Norway Strategic Partnership, with collaboration across the full range of areas pertinent to biological security.[28]
- Provided funding and expertise to support the development of and access to 'Confidence Building Measures' for BTWC states parties. These measures aim to both reduce misunderstandings, and foster international cooperation around the BTWC, increasing the effectiveness of international engagement in this area.
- Provided thought leadership through a series of seminars on the UK Biological Security Strategy delivered to other nations including Scandinavian, Indo-Pacific and 'Five Eyes' partners, encouraging the adoption of a holistic, One Health and national security approach to biological security.
- Hosted a dialogue on biosecurity and engineering biology innovation with South Korea, as part of our bilateral 'Defending Democracy, Cybersecurity and Economic Security' Dialogue.
- Worked with international partners and continued to provide thought leadership to secure an ambitious and comprehensive Political Declaration on AMR at the UNGA High-level Meeting on AMR in 2024 to ensure collective action against the global threat of AMR and reduce death associated with bacterial AMR by 10% by 2030.

In the next 12 months the Government's ambitions include:

- To continue our UK-wide approach to biosecurity with a regular pattern of engagement with the devolved governments and collaboration on relevant areas of policy delivery.
- Annually updating the BSS Impact Monitoring Framework with refreshed data sets.
- Establishment of a Network of National Biosecurity Centres with investment of over £1bn to bolster the UK's defences against biological incidents, accidents and attacks. This includes the transformation of the Animal and Plant Agency Health Facility at Weybridge, which combines world-leading science expertise with specialist scientific facilities

26 https://www.gov.uk/government/news/joint-statement-us-uk-strategic-dialogue-on-biological-security
27 https://www.gov.uk/government/publications/ukeu-summit-key-documentation/uk-eu-summit-common-understanding-html
28 https://www.gov.uk/government/publications/joint-declaration-of-the-norwegian-uk-strategic-partnership

to support the UK's ability to respond to the full spectrum of biological threats, especially those posed by animal and zoonotic diseases.

- To maintain progress on design for the new UKHSA National Biosecurity Centre, procurement of main suppliers and site clearance for construction.
- To take forward the tangible steps identified for co-operation on biological security under the UK-Norway Strategic Partnership.
- To continue to provide thought leadership on the global stage by promoting a holistic approach at international events, multilateral fora and bespoke sessions.