

UKHSA Advisory Board

Title of paper National Biosurveillance Network Update
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1. Purpose of the paper

- 1.1. To provide the UKHSA Advisory Board with a briefing on progress to implement HM Government's National Biosurveillance Network programme.

2. Recommendations

- 2.1. The Advisory Board is asked to **NOTE** the intent and risks to the National Biosurveillance Network Programme and **ADVISE** on scope and mitigations.

3. Problem Statement

- 3.1. Biological threats do not recognise or respect political or geographic boundaries. Naturally occurring and self-replicating, they pose a unique threat to global security.¹
- 3.2. Zoonotic spillover of pathogens from animals to humans is recognised by the World Health Organization (WHO) as the predominant cause of emerging infectious diseases and as the primary cause of recent pandemics.² The UK's Biological Security Strategy argues there is a reasonable likelihood that another serious pandemic could occur soon, possibly within the next decade, and that the risk of exotic notifiable animal and plant disease outbreak is also increasing.³
- 3.3. No nation has an operational One Health⁴ Biosurveillance system in place today. Biosurveillance cooperation across the UK Government is partial and threat-specific. There are areas of long-standing and high-quality engagement, for example, between UKHSA at Porton Down and the Department for Farming and Rural Affairs (DEFRA) on vector-borne diseases and the National Security community and Radiation, Chemical and Environment teams.
- 3.4. Improving Government capacity to collaborate better on biosurveillance has the potential to be a principal component of the UK's pandemic preparedness.

¹ UK Biological Security Strategy (<https://www.gov.uk/government/publications/uk-biological-security-strategy>)

² World Health Organisation Prevention of zoonotic spillover position paper (Prevention of zoonotic spillover (who.int))

³ UK Biological Security Strategy (<https://www.gov.uk/government/publications/uk-biological-security-strategy>)

⁴ HMG describes its response to the relationship between human, animal, plant, climate, and environmental health as 'One Health'.

4. The Solution

- 4.1. As part of the UK Biological Security Strategy (BSS) 2023 'Detect Pillar', UKHSA is leading the pilot of a National Biosurveillance Network (NBN) to *enhance protection in the UK from known and emerging high-consequence biological threats to national security*. 'One Health' first, the programme supports existing teams to improve and unify HMG surveillance data on the health of people, animals, plants and the environment, bringing teams together to improve how Government assesses and characterises biosurveillance threats and trends for decision-makers.
- 4.2. NBN's early focus is supporting the integration of data, insight and analytics across the UKHSA, DEFRA, Cabinet Office, Animal and Plant Health Agency (APHA) and Veterinary Medicines Directorate (VMD), drawing in relevant industry and academic partners.
- 4.3. A fully operational NBN could:
 - a) Provide earlier warning and greater confidence of biosurveillance risks and trends, to enhance how we mitigate their impact to national security, our health and our economy.
 - b) Drive data standardisation, improve data quality and incentivise data sharing across government, academia and industry.
 - c) Improving preparedness for emergencies and enable Government to react quickly.
 - d) Improve the biosurveillance evidence base for policy and resource decisions.
- 4.4. Examples in practice will include: developing new cross-domain analytical insights drawing on commonly held shared data; platforming over-the-counter prescription data for infectious disease teams; making available new plant and animal health data to UKHSA Field Services; to developing common wastewater approaches to animal, plant and environmental threats.
- 4.5. NBN is not intended to underwrite single Departmental priorities, such as on AMR or infectious diseases, but aid in better integrating expertise and capability. It is part of a wider set of Government-wide transformations both within and outside the UK's Biological Security Strategy, including:
 - Food Standard Agency PATH-SAFE (AMR)
 - APHA Genomics of Animal and Plant Health Disease Centre 2.
 - Cabinet Office BioRadar.
 - Ministry of Defence Microbial Forensics.
- 4.6. It is expected that this programme will enhance UK-led global health security policy and diplomacy. Work is already underway to look at collaboration models between NBN and US, Australia, New Zealand and Canada CDCs (5PHIs), the Pandemic Preparedness Hub in Berlin and WHO Global Outbreak Alert and Response Network programme.

5. History and Finance

- 5.1. In autumn 2022, UKHSA were commissioned by the Cabinet Office to run a NBN Discovery sprint. This culminated in a successful HMT Shared Outcomes Fund

FY23/25 of £19.44m, ending in March 2025 (£2m in FY 23/24 and £17.44m in FY 24/25).

- 5.2. Spend in FY23/24 for NBN totaled £1.2m, including a core NBN team of 18 roles and consultancy services, resulting in an £800k underspend. This was due to slow recruitment, delaying external evaluation work into 24/25 and a competitive commercial process, which secured tender outcomes below the estimated cost. Alpha Phase 2 starts in May 2024. The NBN team is now fully recruited.
- 5.3. Future discussions for beyond FY 24/25 are to be confirmed as part of spending review discussions with HMT.
- 5.4. See Annex 2 for the programme timeline and milestones.

6. ALPHA Phase 1 Outcomes: January to April 2024

- 6.1. ALPHA Phase 1, which ran from 17 January to 31 March 2024 delivered four of six outcomes.
 1. NBN Definition and Vision Summary (Annex 1): Bringing together Government Departments around a single vision.
 2. Strategic Outline Plan for FY24/25: Detailed and agreed project map for accountabilities and deliverables in the next period.
 3. Target Experience: A visual demonstration of the future potential of the NBN and how it will work in practice.
 4. Stakeholder Engagement and Communications Plan

Further work is underway on:

5. Business Case for FY25/26 Funding Bid: evidence to support NBN prioritisation as part of UKHSA/DEFRA departmental business planning for FY25/26 and beyond.
6. Target Operating Model for a sustainable NBN: Framework for a cross Government NBN, including design of a future One Health model office.

7. ALPHA Phase 2 Outcomes: to March 2025

- 7.1. ALPHA Phase 2 will run from May 2024 to March 2025. It trials Government's response to Tick Borne Encephalitis (TBE) as a principal use case, providing a cross-government data environment and analytical framework, new environmental monitoring and specific engagement with industry. It will develop the target operating model for future One Health biosurveillance and data sharing.
- 7.2. TBE affects or is affected by humans, animals, plants, and the climate. Using TBE in ALPHA Phase 2 will test ways of working across boundaries in a simpler use case than infectious diseases for example, and act as a proxy for other vector-borne high-consequence pathogens, such as Tularemia. This use case will help bring the NBN to life and demonstrate its value. Whilst TBE falls below National Security interest - a key test of NBN - the risk is increasing across Europe and within the UK due to changes in climate, increased human outdoor activity and the increased consumption of unpasteurised dairy.

7.3. With UKHSA and DEFRA colleagues, NBN is currently evaluating several other high-consequence pathogens to be included as additional use cases.

8. Principal Issues and Risks

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| Issue | Underspend in FY23/24 c. £800k due to a competitive tender process, internal recruitment delays and delays to onboard external evaluation partner. |
| Mitigation | Reprofiling of two-year spend with HMT. NBN core team recruitment nearing full complement. In-year financial management with CPMO oversight. |
| Issue | Gap in ALPHA Phase 1 and 2 commercials. There has been an imposed three-month break in between ALPHA phase 1 and 2 with a severe impact anticipated on cross-government programme performance/momentum and UKHSA reputation. |
| Mitigation | Reduced gap to three weeks. NBN Programme Board informed. Phase 1 contract extended by 10%. Commercial accelerated Phase 2 commercials with earlier contract award. Three-week gap accepted. |
| Risk | Scale and impact of biosurveillance. Due to the size and complexity of biosurveillance activity underway in HM Government, there is a risk that NBN fails to integrate or be relevant to Departmental objectives. |
| Mitigation | <ul style="list-style-type: none"> • Proactive communications. • Clear and agreed vision. • Identifying senior champions within departments through the programme board to integrate NBN activity within existing priorities. • Identifying NBN added value beyond existing Departmental capabilities. |

9.0 Annex 1 – Vision and Definition

Vision

We are building an essential capability that will help protect the UK from known and emerging high-consequence biological threats to national security.

The National Biosurveillance Network will use a One Health approach to improve and unify surveillance data on the health of people, animals, plants and the environment making insights accessible to a multidisciplinary group of experts who will assess and characterise threat level for decision-makers.



Definition



The National Biosurveillance Network (NBN) will be a national capability that will embed a **One Health approach and a culture of collaboration** across government, industry, and academia.

NBN will facilitate the sharing of both existing and new detection and analysis data on human, animal, plant and environmental health to identify known and emerging high-consequence biological threats **faster and more effectively.**

NBN will provide collated data to a multidisciplinary group of experts, consisting of representatives drawn from relevant government departments, academic institutions, and private sector organisations with the right expertise, who will analyse that information to **assess and characterise the threat level.**

Based on that assessment and their wider expertise, NBN will recommend the scaling up, cessation or implementation of new targeted surveillance activities to further understand the potential threat. NBN will then **alert and provide decision-makers with the information they need, when they need it,** to respond to the threat confidently, quickly, and effectively on an ongoing basis while the threat is live.

10.0 Annex 2 – Programme Timeline

