Enhancing Health Security Intelligence within the National Security Council

Executive Summary

1. The COVID-19 pandemic has brought into stark relief the disjointed nature of health and security processes governing UK responses to diverse biological threats. Failures to effectively synthesise current capabilities in health and biosecurity, with intelligence processes and integrated decision-making has revealed the fragile machinery upon which the UK’s pandemic preparedness and response systems are built. Although described as a world leader in bio- and heath security prior to the pandemic, the UK has failed to leverage its significant capabilities to effectively protect its own population during this entirely predictable (and predicted) pandemic event. The recently published Integrated Review of Security, Defence, Development and Foreign Policy outlined the government’s desire to become a world leader in health security, which provides an opportunity to address both domestic and international lacuna in pandemic preparedness and response. However, this requires a significant rethink regarding how health security intelligence is embedded in NSC.

The Evolution of Health Security

2. Health Security is a broad and relatively novel field of praxis and policy encompassing multiple disciplines and issues of concern. As a domain relevant to security-centric audiences, health security emerged in response to rising public anxieties and political pressure relating to the HIV/AIDS pandemic in the early 2000s. It was given further impetus by converging events such as 9/11, the 2001 anthrax attacks, and the SARS epidemic. The core doctrine of this approach is that across multi-vector trajectories, health issues can, alongside their immediate public health consequences, compromise the prevailing fabric of state-based and global security regimes. The US administration under former President Barack Obama further reinforced the momentum of this approach during the West African Ebola Epidemic (2014-16) by instituting the Global Health Security Agenda. At the heart of this agenda is the understanding that high consequence health security threats do not remain siloed within their ‘home’ disciplines of public health, epidemiology, or security operations. Instead, contemporary health threats encompass an array of dependencies requiring broad-based expertise across the

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1 Dr Bowsher and Professor Sullivan are clinicians with significant experience in global health security and in the latter case, biological weapons, and Ms Bernard is a cyber security professional with particular interest in global health – all work as global health security academics based at the King’s College London, Department of War Studies, Conflict & Health Research Group. Their expertise encompasses policy and practice relating to diverse health security issues from pandemics, to biological weapons, and their implications within security and intelligence regimes.

2 The UK is ranked 2/195 countries in the Global Health Security Index – although it has become plain during the pandemic that the GHSI model over-privileges the possession of capabilities, which does not universally translate into effective pandemic responses without robust integration within national decision-making and policy structures.

3 The assumptions underpinning this paradigm are not without critique (See Rushton 2010 & Wenham 2019). However in practice, the logics of securitisation have emerged as a de facto operating model for national governments and transnational actors during COVID-19, and the UK government has explicitly stated its commitment to this approach in the Integrated Review, and through its continued participation in the Global Health Security Agenda.
‘traditional’ security apparatus, public health, biosecurity, cyber security and clinical sciences. While events such as the 2018 Novichok attacks in Salisbury, the 2017 WannaCry impacts on the NHS, vaccine disinformation campaigns, and the COVID-19 pandemic have repeatedly illustrated our vulnerabilities in this domain, the lessons of events such as Operations Cygnus have consistently failed to translate into a coherent health security governance landscape within UK systems.

3. COVID-19 has demonstrated the grave risks of health insecurity writ large. It has become evident that a singular pathogenic threat entity also opens up pathways for accompanying threats targeting critical national infrastructures, be it cyber systems or health services. Population behaviour is strongly modulated by both the perception and the reality of health security threats, parsed through social media and other threat-modulating dependencies to generate a highly complex operating space for actors working across public health and security networks. Our own work at KCL for example, has identified how disease disinformation campaigns emerging from Ebola, Measles and COVID-19 can function as ‘second order’ biowarfare.

Health Security Intelligence and Fusion Doctrine

4. Health security risks and hazards are included at various points in the national security and intelligence apparatus. At present the Joint Intelligence Organisation supports the National Security Council from within the Cabinet Office. Its remit has recently been expanded to encompass the health security portfolio. Other agencies such as the National Cyber Security Centre, part of GCHQ have worked on health security issues such as vaccine disinformation. The National Security Strategy has referenced pandemic influenza since the early 2000s – David Omand has described the perceived threat of such an event; “During my time as UK Intelligence and Security Coordinator after 9/11, a mutated flu pandemic occupied the top right-hand corner of the strategic notice risk matrix — of all the threats and risks, it posed the most lethal potential combination of impact and probability.” Plainly, the integration of health security risks and threats within the national security machinery is not a novel phenomena. COVID-19 has however exposed opportunities to better embed health security intelligence into the day-to-day operations of the NSC machinery.

5. Scientific advice is fed into government through a range of advisory groups, government departments and executive agencies. The newly instituted UK Health Security Agency has expressed a focus on “cutting-edge health security science capabilities, data analytics and genomic surveillance with at scale testing and contact tracing capability”. Groups such as the Scientific Advisory Group for Emergencies (SAGE), convene expertise from

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6 David Omand, former UK and Intelligence Coordinator, now visiting Professor at KCL, wrote about the role of intelligence agencies responding to natural risks and hazards in a piece for The Article: https://www.thearticle.com/will-the-intelligence-agencies-spot-the-next-outbreak

7 This is a fairly narrow remit, that does not entirely align with the broader implications of a health security operational group. In particular the published literature on DHSC indicates a narrow focus on data analytics approaches which excludes extant UK HUMINT capabilities in this sphere.
the Independent Scientific Pandemic Insights Group on Behaviours (SPI-B), and the Independent Scientific Pandemic Insights Group on Modelling (SPI-M). Other multi-agency groups such as the Human Animal Infections and Risk Surveillance (HAIRS) Group provide a surveillance reporting, horizon scanning and risk assessment group. The Defence Science and Technology Laboratory (DSTL) also provides significant scientific input, which is fed into as required to health agencies and advisory groups. No groups provide a comprehensive data analysis for these specialisms integrated with other national security threats aligned with health security, such as cyber security.

6. There remains a significant opportunity to better align the current patchwork approach with the coordinated objectives outlined in the Fusion Doctrine. By integrating capabilities from respective advisory and statutory silos across health and security domains, an operational health security intelligence cell can be established that draws together the high-level capabilities of UK security and health sectors around diverse threats, and which reports directly to the NSC.

7. Structured intelligence processes and parameters should be applied to a fully integrated health security intelligence cell reporting to the NSC (which is not presently an explicit function of the Department of Health-led UK Health Security Agency).

Avoiding Pitfalls: Thinking Differently About Health Security Intelligence

8. Pandemics cannot simply be conceptualised as biological weapons attacks at scale, nor as heightened instances of a seasonal disease. Furthermore, the national security implications of pandemics cannot be derived simply from traditional civilian-led epidemiology or public health. Health security events occur at the nexus of unique biological and political convergences that determine risks unique to 21st Century societies. Such risks demand a specialist cadre of practitioners with familiarity across public health, security and governance domains, accompanied by tailored processes and policy-networks in order to most effectively amplify technical and strategic messages across government networks.

9. Recent strategic decisions risk engendering overconfidence in our emerging health security intelligence systems and capabilities. The establishment of the UK Health Security Agency following the merging of the Public Health England, NHS Test and Trace and the Joint Biosecurity Centre, does not fundamentally alter the nature of the UK’s concrete activities in this domain. Indeed, in its present form, the UKHSA appears insufficiently connected within security-centric systems, in particular with the NSC. The capabilities developed in genomic surveillance that are facilitating variant identification are rightly lauded as an important component of future health security efforts. However, caution must be employed to ensure that such tools form part of a much wider integrated intelligence approach able to generate nuanced situational awareness and strategic notice, rather than a single-capability enterprise.

10. The government’s recent decision to reduce the funds available for Overseas Development Assistance (ODA) has effectively halved the contribution to UK Research and Innovation (UKRI), and consequently the global health research budget dispensed by

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the Global Challenges Research Fund⁹. Such funding cuts run directly counter the stated objectives of the government’s Integrated Review, published in the same week as the UKRI announcement. In this newly constrained funding environment, it is unclear how the Review’s objective of “combining the resources of our Union and pooling the expertise of our citizens in areas such as science and health [such] that we are able to respond to global challenges and project our influence overseas” [Pg. 12], will square with its assertion that the government will “prioritise supporting health systems and access to new health technologies using our Official Development Assistance” [Pg. 21], when such activities have fallen under the purview of value-for-money global health research. Health security intelligence fit for the 21st century, requires the feed-in of insights at the leading edge of global health research – a field in which the UK is rightly proud of world-leading status and influence. The Integrated Review’s assertion that “our foreign policy rests on strong domestic foundations” should be well illustrated by the example of global health security, which collapses the notion that threats elsewhere can be kept at a distance from domestic audiences. COVID-19 has highlighted the interconnectivity of foreign policy and global health research to protect UK populations from diverse biological threats. Research funding in this domain should be better ringfenced in order to assure the rigour of intelligence insights reliant on the most advanced available data.

Priority Areas for Health Security Intelligence

11. Health Security Intelligence requires a robust underpinning machinery to generate high quality early warnings and indicators of diverse threat profiles. Innovation in bio-surveillance approaches and real-time data gathering must be partnered with rigorous intelligence processes. Artificial intelligence and big data tools do have utility in this developing domain, however the current governmental preoccupation with these tools risks ignoring the essential, and irreplaceable integration of human intelligence (HUMINT) that has yet been under-exploited within national health security intelligence communitiesⁱ⁰. The priority is how best to integrate varied capabilities¹¹ to provide early warning and indicators, threat identification and assessment, and strategic notice to provide timely dissemination to the NSC and ministerial colleagues.

12. Species-neutral health security intelligence is a neglected domain within the existing health security apparatus. Almost invariably, pandemics initially emerge within animal populations, and the assumption that zoonotic spillover events of concern occur only in the wet markets of Wuhan, or the tropical rainforests of equatorial Africa neglects the evidence emerging from a poorly monitored domestic domain. Outbreaks such as Monkeypox, transferred to the USA via the illegal pet trade, West Nile Virus transferring from birds to human in New York City, the mass culling of SARS-CoV-2 infected mink species in Scandinavia, and documented human-feline SARS-CoV-2 transmission in the UK emphasises the fragility of our current protections within existing national machinery.


¹¹ In addition to the previously described health intelligence cell work, we have considered the role of SIGINT and OSINT in epidemic intelligence - Bernard R, Bowsher G, Milner C, Boyle P, Patel P, Sullivan R. Intelligence and global health: assessing the role of open source and social media intelligence analysis in infectious disease outbreaks. Z Gesundh Wiss. 2018;26(5):509-514
There is a dearth of systems capable of providing indicators and warnings for zoonotic diseases beyond livestock management (e.g. bovine TB, foot & mouth, etc)\textsuperscript{12}. At present there exist no systems for monitoring of urban wildlife or companion animals, nor do real-time systems for paired human-animal surveillance exist to detect emerging outbreaks at the earliest possible moment – such absences in bio-surveillance neglect a significant contact surface for epi-/pandemic risk in the domestic sphere.

Regular training and testing of health security intelligence systems should emerge as a priority across the national security machinery. Failures to adequately heed the lessons of Exercise Cygnus have haunted the UK response to COVID-19. Engagement across national and international partner networks is one of the only mechanisms by which we can simulate as-close-to-real-world conditions as possible. Wargaming, simulation and table-top exercises are indispensable – recent UK engagement with partner organisations has demonstrated the promise of such tools. The UK recently participated in ‘Exercise Resilient Response 2020’, a pan-European pandemic wargame led by the European Medical Command/Multinational Medical Coordination Centre, which aimed to ‘train the whole of government response’ to a SARS-CoV-2-like pandemic event\textsuperscript{13}. Adherence to Fusion Doctrine necessitates intense focus on rehearsing integrated whole government and NSC practices during the complex crises produced by pandemics and other high consequence biological events. Our own work at KCL is heavily focused on developing systems for wargaming and simulation of diverse health security events, as well as delivering training in health security intelligence and governance.

Red and purple teaming for pandemic response would highlight the key aspects of system vulnerabilities, encompassing physical system limitations such as supply chain, capacity, and resource, with network vulnerabilities to cyber-attacks and disinformation. The use of a red-teaming framework would additionally professionalise the analysis and evaluation process, by providing a minimum security and system requirement level for operation.

The Five Eyes partnership also merits greater attention in the space of health security intelligence. The benefits are twofold; 1) the range of health security capabilities and intelligence gathering systems and processes is vast, yet under-exploited across this network; 2) The geographical distribution of Five Eyes nations assures a strongly distributed high-capability focus. Consideration must be given in this case to ensure that the public health dividends are distributed across populations beyond the partnership, especially in low and middle-income countries. Health security intelligence sharing protocols are well documented to lag behind other threat paradigms, however diverse partners (eg. World Health Organisation) are required to benefit from, and contribute effectively to the evolving health security operating space, in line with the stated objectives of the Integrated Review.

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\textsuperscript{12} This is a critical vacuum in UK and other high-income health security frameworks. For an illuminating example of missed zoonotic early warning signal at the early stages of the US West Nile Virus Outbreak see; Wilson JW & McNamara T (2020) \textit{The 1999 West Nile virus warning signal revisited}, Intelligence and National Security, 35:4, 519-526

\textsuperscript{13} Dr Bowsher was the research lead and an official evaluator for this wargame.