ENHANCING **SOVEREIGN CBR DEFENCE** AND **HEALTH CAPABILITIES**

PREPAREDNESS

Steps taken before an incident to boost resilience and ensure effective response and recovery

PREVENTION

Actions to reduce or eliminate the likelihood or impact of a threat

HEALTH SECURITY SYSTEMS AUSTRALIA

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RESPONSE

Planned and stress-tested actions to contain, control or minimise threat impact, incidents or outbreaks

RECOVERY

Steps to minimise disruption and expedite recovery

HEALTH SECURITY SYSTEMS AUSTRALIA (HSSA)

Health Security Systems Australia (HSSA) leads and manages collaborative programs and projects to develop products and decision-support systems for the protection of military and civilian personnel against Chemical, Biological and Radiological (CBR) threats, emerging infectious diseases and pandemics.

The Preparedness, Prevention, Response, and Recovery (PPRR) Model is an integral element addressing threats. Used widely among Australian emergency management and national security agencies, the PPRR Model is a comprehensive risk and disaster management framework.

Though not a new concept, PPRR models have specific and important applications to Australia's CBR threat preparedness and national health security resilience. In this context, PPRR models establish structures for preventative activities; responses to, investigation of, and recovery from CBR events, emerging infectious diseases and pandemics; and inform preparations that support these countermeasures.

Rather than focussing narrowly on a single aspect, HSSA pursues activities across all four phases of the PPRR framework to develop capabilities that enhance preparedness for, prevention of, response to and recovery from threats to Australian and regional health security.

PREPAREDNESS

Effective surveillance and measurement of the risks posed by CBR threats is essential to Australia's national security preparedness. HSSA is working to develop and curate information systems approaches that enable horizon scanning for development of a comprehensive, best-practice PPRR strategy against priority CBRN threats. This system will identify gaps within existing PPRR plans against a target threat, and determine how organisations can address identified gaps.

As part of the CBR Sensing System Program, HSSA is investing in projects focused on the development of sensing technologies that alert the wearer to chemical and biological threats, allowing more time for interventions such as medical countermeasures, and supporting rapid operational decision making. Hazard-prediction models could be used to provide time-critical information to decision-makers.

What are we doing?

One example of HSSA's work is a collaborative project with the University of Sydney and Defence Science and Technology Group. "Guwara" is a suite of faster than-real time urban wind and plume transport models that aim to enhance atmospheric transport and dispersion modelling and simulation tools used to predict the spread of airborne hazards in urban environments.

PREVENTION

Risk management is essential to threat prevention. HSSA is supporting advances in personal protective equipment (PPE) including products such as masks, respirators, ventilators, and CBR personal protective clothing. Progress in these areas is key to managing and reducing hazards that result from CBR threats and disease outbreaks.

What are we doing?

The manufacture, production and deployment of vaccines can effectively mitigate the impact of infectious diseases and pandemics. HSSA is currently working to progress vaccine technologies against bacterial and parasitic infections common to the Indo-Pacific region, including against malaria and Q Fever.

RESPONSE

Preventing or minimising loss of life is central to the CBR threat response. HSSA's Medical Countermeasures (MCM) Program is focused on the development of vaccine, therapeutic and diagnostic technologies for the protection of military and civilian personnel. With a shared focus on capability and capacity, the Program seeks to develop leading-edge, advanced countermeasures technologies, as well as enhance Australia's sovereign manufacturing capabilities.

What are we doing?

Currently, HSSA is partnered with a multi-institutional team of experts from BioCifer Pty Ltd, CSIRO, The University of Queensland and University of the Sunshine Coast to develop and refine a readily deployable molecular genetics platform diagnostic technology, for the rapid and accurate point of care detection of critical biological threats. Initially designed to detect pathogens common to South-East Asia, this platform technology was pivoted during the COVID-19 pandemic and proved capable of inactivating the SARS-Cov-2 virus.

RECOVERY

Coordinated recovery efforts are critical following public health emergencies or CBR attacks. HSSA monitors and provides expert advice to Government and international partners on Australia's health security capacity and capability in areas of relevance to CBR threat preparedness, prevention, responses and recovery, in addition to enhancing Australia's contributions to global partnerships combating antimicrobial resistance and other priority infectious diseases.

What are we doing?

HSSA is already undertaking analysis that may be used to inform public policy initiatives and strategic investments to enable Australia's capacity to rapidly recover and rebuild its national health security posture. By taking a leading role in the National Security Health Resilience Assessment, the division has shown a commitment to strengthening Australia's capacity for research, development, manufacturing, and threat recovery.

Established on 1 July 2021, Health Security Systems Australia (HSSA) is led by Dr Leigh Farrell, with Dr Felicia Pradera in the role of General Manager, HSSA.

As a division of DMTC Limited, HSSA is underpinned by DMTC's credibility in the defence and national security sectors; its internationally-accredited systems for quality management, program management and collaboration; and flexible collaboration, engagement and contracting mechanisms. Fundamental to the success of the division is the support received from industry partners, research organisations, and Defence and Government customers.

HSSA periodically seeks expressions from interest for collaborative proposals from prospective industry and research partners, as well as hosting webinars and conferences, and engages with government and other stakeholders to catalyse activities aligning with national health security priorities.

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