Civil-Military-Police Coordination during National Responses to COVID-19

A CROSS-COMPARISON OF

AUSTRALIA
NEW ZEALAND
THE UNITED STATES

Acknowledgment

Executive Summary

COVID-19 was unique amongst national emergencies in that it affected all sectors of society simultaneously. Many nations have considerable experience in responding to domestic emergencies and events, which disrupt communities and cause harm. In contrast to the COVID-19 pandemic, events are often sectoral or geographical in nature. For example, an emergency response to a hurricane is typically focused in a particular geographical area and the event is not ongoing, as with a viral pandemic.

An overview of literature and discourse reflects that, in many cases, public health emergencies can be considered a distinct civil-military-police coordination setting.[1] This is explored early on to provide factors which inform coordination in these settings and is followed by literature on the influence of country and pandemic-specific context on public health responses and the need for a multi-sectoral approach that necessitated some level of military involvement. Until COVID-19, many nations did not have contemporary experience responding to an event that simultaneously affected all parts of the country and all sectors of society. However, it quickly emerged there is variance in the breadth and nature of civil-military-police coordination strategies used by nations, including those under examination in this project - Australia, New Zealand, and the United States (US) - and there's no single or exemplar response path.[2]

Applying 'whole-of-system' thinking and framing national responses as a 'complex adaptive system' enabled us to map and situate civil-military-police coordination in a real-world context and examine its parts and how they interact with each other to understand "emergent, system-wide patterns of behaviour for the whole."[3] In doing so, eight pillars of national responses were found to necessitate civil-military-police coordination. These are characterised as the threat, preparedness (readiness), planning, leadership and coordination, policy, support to public health, support to the economy, and support to social cohesion. Within these pillars, there is consideration of functions, capabilities, procedures, and behaviours. This approach has been taken to support our aim to generalise beyond country-specific COVID-19 responses and apply findings in future events which necessitate national or multi-sectoral mobilisation.

An overview of Australian, New Zealand and US national responses to COVID-19 is provided to build knowledge of how, when, and why civil-military-police coordination occurred in these nations. A cross-case comparison, aligned to the eight pillars of national responses, connects relevant and informative aspects of each nation's response, and deep dives into the unique characteristics of each nation's response. These are the national-level leadership and coordination adaptation occurring in New Zealand, the significant support to the economy by Defence in Australia, and Operation Warp Speed in the US that developed, manufactured and distributed COVID-19 vaccines.

A narrative is provided of how national responses happened (considerate that the response is ongoing), the effectiveness and efficiency of practices, processes, and approaches, and identifies factors that influence effective coordination.[4] Themes were generated to step beyond these factors to answer the question of 'what works' during public health

emergencies, and in some examples, we are re-learning lessons. The cross-cutting themes that emerged cover the connection between politics, science, strategy and decision-making, fitting resources to the problem at all levels, institutional adaptation and innovation, teaming, use of the military and National Guard in public health emergency functions, perceptions of military and National Guard, fatigue management, and organisational learning.

Looking to the future and strengthening systems at all levels to respond to 'whole-of-system' threats starts with the transfer of organisational learning and experience from the COVID-19 pandemic into organisational memory, procedures, and practice. Following on from this is proactive planning, knowing capabilities for possible 'whole-of-system' situations to have a system of allocating scarce or expert capability and putting in place a fatigue management system. Lastly is ensuring full consideration of civilian (public and private) and blended civil-military-police options in domestic settings to support known civil-military coordination principles of 'complementarity' to quickly bring to bear military expertise and 'last resort' to achieve effective and efficient use of military capability.

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Introduction

The domestic use of militaries during national responses to coronavirus disease (COVID-19) is a pivotal moment in civil-military interaction during public health emergencies.[5] Until COVID-19, much of the discourse and practice of civil-military-police coordination during outbreaks and public health emergencies has focused on the involvement of foreign military assets.[6] In contrast, COVID-19 necessitated the domestic use of militaries to assist nations response to the far-reaching effects of the disease on all parts of society, including health, social, and economic.

Emergent literature is starting to build a picture of trends in civil-military interaction in domestic (local) settings, as well as their impact on internal frameworks and doctrine which are increasingly being used as alternatives to humanitarian guidelines in health contexts.[7] The militarised language used to frame the pandemic and its conceptualisation as a 'national security threat' has normalised a health-military connection that points to a trajectory for increased global and local civil-military coordination.[8]

Drawing on a comparative analysis of national responses to COVID-19 in Australia, New Zealand (NZ) and the United States (US), the purpose of this publication is to contribute understanding on the use of law enforcement, militaries, and reserve forces (such as the US the National Guard) in a domestic public health response setting, and how they can be effectively integrated into broader national efforts. 'Civil-military-police coordination' in this sense is about the ways in which uniformed services work with the civil authorities to achieve national outcomes. Despite our focus on this angle, it is critical to note that many government departments across different states and jurisdictions, as well as many private sector organisations, had a role in the pandemic response.

Our intent is to transfer knowledge and experience gained from responding to COVID-19 to future events that necessitate a 'whole-of-system' response, as well as the use of militaries in public health emergencies. We recognise and respect that the COVID-19 response is ongoing, and that all perspectives could not be captured during this project. Its purpose is not to present a *fait accompli* but rather share the insight we have gained so far. The document draws on and complements the suite of publications developed through the Civil-Military-Police Coordination during National Responses to COVID-19 project undertaken by ACMC, Brown University and Massey University. These products were developed cognisant of existing literature and ANZSOG's suite of leadership publications[9] to add to the body of knowledge rather than repeat what we have a grasp of.

"The events of the past year will have profound effects on medicine, military medicine, for years to come in how we prepare for threats, how we organize, who we organize alongside of in making the system better for everyone."

US Defense Health Agency Director Army Lt. Gen. (Dr.) Ronald Place [10]

Research Methodology & Limitations

An inductive, descriptive research approach was used for this project because of the scarcity of literature on civil-military-police coordination during domestic public health emergencies. This aligns to the purpose of the project to build knowledge of how, when and why civil-military-police coordination occurred. A narrative approach uses literature and semi-structured key informant interviews to present a brief overview of civil-military-police coordination (mapped in detail in respective case study reports), conceptualise the coordination that occurred, and present a cross-case comparison based on the conceptualisation. This approach provides a picture of how the response happened (considerate that the response is ongoing), the effectiveness and efficiency of practices,

processes, and approaches, and identifies factors that influence effective coordination.[11] Themes were generated to step beyond these factors to answer the question of 'what works' during public health emergencies. These are the titled 'cross-cutting themes' and presented in Section 5

Limitations

In the Australian case study, invitations to participate in the project were declined or not responded to by key actors, and this is assessed to bias data collected during interviews towards a Defence perspective. Secondly, media reporting and commentary is included in this publication. It is recognised as a form of grey literature which contributes insight into broader perspectives and discourse on the roles of militaries in public health emergencies.

SECTION ONE: OVERVIEW OF THE LITERATURE

Civil-Military-Police Coordination during Public Health Emergencies

In general, studies on civil-military-police coordination during public health emergencies tend to focus on international contexts, in which humanitarians and international military actors are acting within a specific emergency.[12] Fewer studies consider domestic contexts, where civilian health actors are typically considered the 'first line of defence' in public health issues,[13] however there is a body of literature on civil-military interaction more broadly. Our knowledge is growing because within the first few months of the World Health Organization (WHO) declaring the COVID-19 outbreak a Public Health Emergency of International Concern, most nations mobilized some level of military and law enforcement involvement in their response.[14]

Nations across the world have integrated their militaries, to varying degrees, into their response to the COVID-19 pandemic. For example, in Spain and Italy frequently relied on their militaries, while Sweden had a comparatively low level of use.[15] In Serbia, Russia, and France, security forces set up military hospitals to address civilian needs, and in South Africa, the military enforced lockdowns, as it did in many nations. In Indonesia and the Philippines, the military managed their respective nations' pandemic response.[16] While these early studies show variance in civil-military-police cooperation strategies, three broad themes have been observed "1) Minimal technical military support; 2) Blended civil-military responses; and 3) Military-led responses."[17]

Existing discourse reflects that public health emergencies can be considered a distinct civil-military-police coordination setting in many nations,[18] although not in New Zealand, as the case study shows. Secondly, public health emergency responses are informed by national and pandemic-specific context, meaning there is "no single path" during a response. [19] Thirdly, in the context of global economic contraction, countries required multi-sectoral approaches to address the pandemic, including wide-ranging support from the military, security, and law enforcement sectors[20] which are aligned to categories of involvement.[21] These are explored below in-depth.

Public health emergencies as a distinct civil-military-police coordination setting

Pandemics, disease outbreaks and public health emergencies can be considered a distinct operational context for civil-military-police coordination in some settings, with communities and responders both facing the same immediate threat. The characteristics of these contexts may necessitate planning and resourcing activities, including use of military capabilities, that are not contained within current guidelines and practices on the use of military assets in natural hazards or complex emergencies. These characteristics are:[22]

> **Nature of the disease:** infectious pathogens have a protracted and unbounded nature that make a response timeline and geographical boundary both indeterminable and dynamic. This makes the allocation of resources and supplies challenging, especially if responders are away from their primary role (e.g., the military), and they are not preparing for this role which may impact their capability should they be needed for other tasks.

> **Legislation and policy for a domestic setting:** many nations, including those covered in this study, have legislation and policy on the activation and employment of militaries in domestic settings. In addition to domestic legislation, there are the Oslo Guidelines where the principle of 'last resort' means that if a civilian capability is

available and appropriate to use, this will be used, and the military will provide a supporting role. The reality (and politics) of COVID-19 meant that civilian capabilities were overwhelmed and required augmentation or operational capacity, drawing on the resources, skills, and expertise of the military and Natural Guard because they are a known entity and increase public confidence in most settings.

Operational capability of the lead or primary agency: public health emergency response integrates health expertise to develop and implement strategy and policy, and operational capability to apply this strategy, policy, and any further government direction. Health departments often don't have experience, procedures, or staffing levels to transition to crisis or emergency response and will need to be supported in management and operational roles, including rapid decision-making and resource prioritisation. Multi-agency or shared leadership is necessary when lead agencies have limited operational capacity and leadership experience, as emerged during COVID-19 responses. Alternatively, lead agencies need to be supported in translating political direction and policy into operational tasking.

'Whole-of-System' Approach: pandemics and large-scale public health emergencies, as COVID-19 showed us, require a multi-agency, joined-up response that in some cases, will activate all sectors of society. These models, also known as 'all-of-government' or 'Integrated Approach,' require leadership and coordination authority and responsibility because they bring together medical expertise, scientific advice, and policy (e.g., scientific institutes and health departments) with operational capability (e.g., police, military, and National Guard). These actors may not have trained or prepared together or have worked together previously.

Public Trust and Social Behaviours: pandemics are an invisible threat, and communities need to trust authorities to a greater degree. Misinformation and rumours have the potential to quickly spread, impacting compliance and uptake of public health measures. Additionally, when public health ordinances are perceived as politically motivated, certain societal groups may react with increased scepticism towards a response. This makes the provision of timely and accurate information, strategic policy and its messaging, and countering misinformation part of any response.

Public health responses are influenced by country and pandemic-specific context

Early studies on national responses to COVID-19 show variance in the breadth and nature of civil-military-police coordination strategies used in a domestic setting. Jung et al[23] present a "roadmap" to "form a concept of pandemic responses and better prepare a response to future public health emergencies."[24] This roadmap shows that national responses are informed by "pre-existing and structural" and "pandemic driven and dynamic" context. The first covers national context, including culture, geography, demographics, health systems, economic factors, politics and political institutions, legal frameworks and precedents, and governance. The latter reflects epidemiological profile, and governance approaches, control strategy, and public health and welfare interventions to counter the pathogen.[25]

The roadmap illustrates how "health and wellbeing are products of politics, polices, strong and empathetic leadership, coordination, and mechanisms of accountability at all levels and across all sectors," which means there is no single or exemplar response path.[26] Rather, nations need to acknowledge and consider both pre-existing and pandemic specific factors that will influence responses, and ensure multi-disciplinary scientific input at the highest level to ensure informed decisions and effective implementation.[27] Gibson-Fall (2021) also notes that a nation's approach depends upon context, including variables such as: "a

country's historical military legacy, the robustness of its civilian health system, and its public health approach (including pandemic preparedness models and delivery frameworks)."

Multi-sectoral Approach and Military Involvement

Early research shows six main themes in sources reporting on military involvement in national COVID-19 responses in the European context, which provide useful insight into the way in which militaries are being used by nations in a domestic setting.[28]

> "1) recognition of health security threat from COVID-19 spread, 2) detection and announcement of first military cases, 3) invocation of national crisis plans (including announcing of military involvement), 4) information on typologies of military support (how support was provided to specific interventions), 5) dealing with rumours and 6) modifying internal and external routine military activities to accommodate changes posed by the COVID-19 pandemic."[29]

While knowledge is starting to emerge, our preliminary conclusion from the literature review is that there is scant examination of civil-military-police coordination during Australian, New Zealand, and US national responses to COVID-19, although in all cases there is commentary and emerging academic literature. In terms of published analysis of the overall pandemic effort, there is more scholarly analysis, but in general, there is opportunity to explore civil-military-police coordination during national responses to COVID-19. With this foundation, this document goes on to map, conceptualise, and compare Australian, New Zealand and US national responses to COVID-19.

SECTION TWO: OVERVIEW OF NATIONAL RESPONSES

This section of the publication provides a brief overview of national responses to COVID-19, including national objectives and characteristics, and integration of law enforcement, militaries, and National Guard into respective responses. Context at all levels was found to inform responses, to the extent that experience dealing with COVID-19 can be considered an individual journey, with everyone having "a very different version of the pandemic."[30] This meant that nations had to consider public health options, measures, and access for communities across multiple levels and draw on capability, innovation, and coordination to meet them.

Australia

On 21 January 2020, Australia added COVID-19 to its biosecurity listing as a threat with "pandemic potential" which initiated the nation's emergency response. The first positive case was reported in Australia on 25 January 2020, with Australia putting in place border, isolation, surveillance, and case tracing mechanisms by 30 January 2020.[31] Australia's response was characterised by rapid restriction of travel through closing international and domestic borders, limiting personal interaction until wide availability of vaccines ('lockdown'), strong messaging and action to maximise vaccine uptake, and prioritising vulnerable populations before removing travel and personal restrictions. Australia learnt some hard lessons during the response, including breakdown of protocols in nursing homes and hotel quarantine that necessitated concentrated effort, such as the Victorian Aged Care Response Centre (VARC) and replacement of private guards with ADF personnel.

However, in general, "Australians displayed from the top of government to the hospital floor …: trust, in science and institutions, but especially in one another."[32] This was evident in adherence to social distancing guidelines, testing, contact tracing and isolation, which reached as high as 90 percent during early outbreaks.[33] Also in the uptake of vaccinations, with more than 95 percent of Australian adults being fully vaccinated and 85 percent of the total population having received two doses.[34] This was no easy feat and was the result of civilian and military personnel working together to achieve public health measures within broader national objectives. Compliance, uptake of vaccinations, and interpersonal trust became critical factors in Australia's response to COVID-19, with all founded on the "belief that others would do what was right for themselves and the community."[35]

Defence Response

Defence's assistance to the whole-of-government pandemic response has been extensive. It includes supporting the repatriation of Australians from overseas, reconnaissance, planning and contact tracing teams, frontline medical assistance and supporting mandatory quarantine arrangements. Defence is also noted as having the Defence Rapid Response Group led by Chief Defence Scientist Tanya Monro. The Australian Defence Force (ADF) was deployed in line with Defence's mission to 'defend Australia and its national interests,' which were supported through state-based efforts (Joint Task Groups), along ADF Lines of Effort:

- Support to Public Health
- Support to Economy
- Safeguard National Security (maintain the capacity to respond to other threats to national interests)
- Support Near Region

Much of Defence's internal response was civil-military teaming between uniformed members and public servants ('One Defence'), most notably at the operational/strategic levels in areas of Defence providing support to Australia's economy through the Service Delivery Division. The COVID-19 Taskforce is one example. The Taskforce enabled layers of leadership across the breadth of Australia (i.e., a geographically dispersed area) that had autonomy within their remit but remained connected to a strategic centre. The Taskforce also provided a forum for 'joined-up' and collaborative conversations to work through Defence options, however this was also an identified learning. A stronger 'One Defence' approach is needed to present Defence options to mitigate Services being individually reactive, and ensure their responses sit within the bigger picture.[36] A reflection of the overall achievements of the Taskforce was that it was "stood up on the fly and we were learning, the same time the rest of the world was learning. I don't think it would have worked much better … for the speed at which things would evolve … the advice on the pandemic and how to manage it."[37]

Where ADF members deployed in support of government agencies external to Defence, civil-military teaming also occurred, with the ADF integrating into their structures and providing planning and/or operational expertise, as occurred with the Vaccine Operation Centre (VOC) in support of the Department of Health and the International Freight Assistance Mechanism (IFAM) in support of Australian Trade and Investment Commission (AUSTRADE). ADF assistance in the VOC covered developing Standard Operating Procedures (SOPs) to assist with decision-making, advice in relevant areas, such as cold chain supply, and administrative operational support to bring order in high tempo, uncertain environments, such as labelling offices and developing orientation packages (orderly room duties). Mindset and approach were important in these environments, with ADF personnel recognising and adhering to the fact that COVID-19 response was not a Defence operation, and they were in a supporting role.[38] In an example, a Band Member took on vaccine checking responsibilities of his own initiative, providing data management to the VOC.

ADF leadership and vaccination outreach teams worked closely with civilian counterparts to coordinate essential components of vaccination administration, including working in First Nation communities, Aged Care facilities, and Disability service organisations. As some vaccines had reduced efficacy after three days, planning and close communication and coordination was critical for effective vaccine distribution, storage, and dispensing. Early and ongoing engagement by vaccination teams with communities and facilities ensured they were ready for vaccinations (e.g., identification and documentation completed). The enthusiasm, seriousness, and commitment of Defence vaccination teams saw one doctor "jumping fences …to make sure … every single person [was] vaccinated … who needed to be vaccinated."[39]

While Defence was observed to be proactive at meeting identified or requested requirements ('leaning in'), it was also observed to be clear when it was not well placed or suited to provide requested support ('pullback'). For example, providing advice that the proposal for quarantine facilities on Defence bases was not feasible and other options were preferable, especially when hotels were empty. In addition to the accommodation being unsuitable, there were also implications for ADF training in proposed locations.[40] Overall, Defence was forward leaning in areas where they could make a genuine impact, and where other options were better suited, providing opportunities to partners or evidence-based advice on what was achievable and the impact and risks of using Defence and ADF capability. In most cases, Defence was able to demonstrate what it can achieve in a proactive manner, not wait to be tasked at is traditionally or historically the practice.

The existing process of requesting ADF assets in line with Defence Assistance to the Civil Community (DACC) policy was noted as effective and not needing change, however its

interpretation and implementation does require effort to optimise the use of ADF assets. This includes conducting a thorough assessment of the need for ADF assets, achieved by deploying a small forward team in the first instance, and state liaison officers (JOSS) working closely, ideally co-located, with ADF force elements conducting operations. In this way, internal checks and balances support the efficient and effective use of ADF capability within a broader Defence strategy, that will need to be tailored to state and territory jurisdictions.[41] Senior ADF leaders play a role here by managing expectations of ADF availability and resourcing of domestic responses. The strategic approach of the ADF being able to "do anything at anytime" needs to match the seriousness of the threat faced and nature of the response situation, weighed against the impact of being involved.

Working with the Police

ADF personnel worked closely in support of Police in many states, with coordinated effort occurring to apply public health measures. As described above for civilian settings (VOC and IFAM), the ADF rigorously applied the philosophy of being in a supporting role when working with Police. This placed focus on inputting expertise and providing a workforce in a collaborative way to support other agencies to achieve their objectives.[42] While engagement between the ADF and Police existed at all levels, there is a greater level of detail around the operational and tactical level engagement that occurred.

These tasks covered Police-ADF teams which conducted border enforcement, 'assurance and welfare' activities in communities which coupled together checking people were home if they were under a close contact order and delivering food packages for welfare needs, and enabled planning and implemention of rapid contact tracing methods to achieve a quicker decision-making cycle on containment measures.[43] One specific example, highlighting the breadth of activities undertaken by both the Police and ADF, was at

> "very remote outposts in the Northern Territory, there was one outpost we went to where there was one policeman and one Navy person. Flat red sand as far as you could see in every direction, one car on average per morning and one car on average in the evening"[44]

In many examples, the ADF provided operational capability (personnel and expertise) that complemented the strategy and policy expertise of civilian agencies and actors. This was observed to contribute to Australia's ability to connect all levels and aspects of its response, from political direction and guidance, into strategy and application at operational and tactical levels.

New Zealand

The initial aim of the New Zealand response was 'elimination' of the virus, with a 'keep it out' approach supported by a national lockdown. When that failed, as was inevitable due to the epidemiological nature of COVID-19, the approach moved to one of risk minimisation through 'stamp it out' approaches with local lockdowns and travel restrictions between regions to control the spread of the virus until a 'safe' level of vaccination had been achieved. The aim of this second phase was to buy time to acquire vaccines and to ensure that the health system would not be overwhelmed, either in terms of demand for general hospital beds or, more worryingly, for intensive care support. Initial planning, based on the *Influenza Pandemic Plan* led to 10 activity areas, which notably, did not include NZDF leading any. Instead, the NZ response was structured across different functions as such:

- Health: Ministry of Health (MoH);

- Supply **Chains** & Infrastructure: Ministry of Business, Innovation and Employment (MBIE);
- Welfare: National Emergency Management Agency (NEMA);
- Education: Ministry of Education (MoE);
- Civil Defence and Emergency Management: NEMA;
- Economic: Treasury;
- Border: Customs New Zealand;
- International: Ministry of Foreign Affairs and Trade (MFAT);
- Law & Order: NZ Police;
- Workplaces: MBIE.

This is reflective of police and the armed forces' ability to integrate into a national response for any issue, almost as a matter of course. The government has the authority to direct support as required and to the extent that emergency powers are required, these are quite easily acquired either through standing legislation such as the Health Act or through special purpose legislation, as was developed for the pandemic response.

NZDF and Police Involvement

The NZDF response, Operation Protect, was directed by the Chief of Defence Force as the highest priority for resources. For the NZDF, the response was mostly in terms of planning, logistic and liaison staff at the operational centres, staff to support Customs NZ and NZ Police to manage their workstreams and, eventually, to take (shared) operational control of and provide much of the staffing for the Managed Isolation and Quarantine (MIQ) system. A senior leadership team held weekly meetings to manage requests for support from across the government and to find resources. NZDF managed the operation with a senior officer responsible and task group HQ element reporting to the Commander of NZDF Joint Forces to manage all personnel involved.

The NZDF only had a limited role in ensuring national life continued, and absent any critical military security threat, their personnel were available for tasking. This was reflected in the department not having lead agency responsibility in initial planning. For the NZDF, their utility in any emergency or abnormal situation is based on having a workforce trained in operational planning and with organisational capabilities, a workforce with specialist skills, and a workforce with 'surplus' capacity.[45] NZ Police were in a slightly different situation, as the pandemic response was considered 'just another operation' for them. NZ Police had lead agency responsibility for law and order, but that is an enduring responsibility and present in any case. The NZ Police are by their nature reactive and they are readily able to redeploy staff according to operational needs.

Both NZ Police and NZDF support and the forms it took, was more to do with the policies and procedures developed for the pandemic response rather any public health measures around the pandemic. In turn, the resources provided were those that, could only or most easily be provided by NZDF or NZ Police and were necessary if the national response was to function effectively. Overall, NZDF and NZ Police involvement in the response had nothing to do with health security and more to do with the law-and-order issues surrounding the response, different from or additional to those normally required in day-to-day operational activities. Support could be given in the same way for non-health security reasons if necessary.

United States

Despite being the global top-spender in health care, the US faltered in its early response to the COVID-19 pandemic.[46] 20 January 2020 marked the first known case of COVID-19 in the US; the following day the CDC transitioned out of a Center-led management structure to activate its Emergency Response System.[47] The country did not commence its lockdown – which differed from state to state - until 15 March 2020. As of June 2022, there have been over 86 million confirmed cases and over 1 million COVID-related deaths in the US. In addition to the hindering role that domestic politics played in the response, a key challenge unique to the US context has been providing testing and care to millions of uninsured citizens.[48]

Even though the US's health system was ranked as the most prepared for an infectious disease outbreak such as the COVID-19 pandemic, it did not ramp up capacity in hospitals or medical manufacturing of personal protective equipment quickly enough.[49] This led to many states facing critical shortages of medical equipment and in mid-April 2020 – when the US was reporting the highest number of cases and deaths in the world – President Donald Trump invoked the Defense Production Act (DPA) to increase domestic production of these supplies.[50]

In the US, government responses to public health emergencies are civilian led. The National Response Framework (NRF) "establishes broad lines of authority for federal government agencies to prepare for and respond to any terrorist attack, major disaster, or other emergency."[51] The Secretary of the Department of Homeland Security (DHS) is the "principal federal official for domestic incident management" and "coordinates with federal entities to provide for federal unity of efforts for domestic incident management."[52]

Typically, the Department of Health and Human Services (HHS) is the primary and coordinating agency for Emergency Support Function (ESF) #8. ESF #8 provides the mechanism for coordinated Federal assistance to supplement state, local, tribal, and territorial resources during public health and medical emergencies.[53] Through the Office of the Assistant Secretary for Preparedness and Response (ASPR), the Secretary of HHS coordinates all ESF #8 actions regarding preparedness, response, and recovery with supporting agencies, such as the Department of Defense (DOD).[54]

However, on March 19, 2020, the White House Coronavirus Task Force directed the Federal Emergency Management Agency (FEMA, within DHS) to take over the coordination and management role from HHS as part of its "whole-of-government" approach to the pandemic. The National Response Coordination Center (NRCC) that had been established in Washington, D.C. became the Unified Coordination Group (UCG), co-chaired by the ASPR and the FEMA Administrator. FEMA's ten Regional Offices activated their own Regional Response Coordination Centers (RRCC).[55] Especially in the early part of the US response, a lack of national strategy meant that responses were pushed out to the states, with each state's response different.[56] Within states, emergency responses were locally driven, with counties defining and describing their requirements.[57]

Military, National Guard and Law Enforcement Involvement

The first COVID-19 related death in the United States shortly followed on 6 February 2020 in California, and two days later the Vice Chairman for the Joint Chiefs of Staff created the COVID-19 Crisis Management team. On February 28, the Department of Defense (DOD) established the DOD COVID-19 Task Force. In terms of institutional relationships, the Defense has worked with the Federal Emergency Management Agency (FEMA), the Department of Homeland Security (DHS), the Department of Health and Human Services (HHS) and the Department of State.

In Executive Order 13912, issued on 27 March, up to one million members of the Army, Navy, Air Force, and Coast Guard (when not operating within the Navy), in addition to members of the Ready Reserve, were ordered into active duty for up to 24 months following Proclamation 9994 and the national emergency declaration of the threat of COVID-19 on the US healthcare system.[58]

The military response to addressing the COVID-19 pandemic occurred at all levels of government in the US and was wide-ranging in terms of scope and focus. The DOD, the US National Guard, and the US Coast Guard (Department of Homeland Security) all played critical roles in the US's national pandemic response. In terms of institutional relationships, the Department of Defense has worked most closely with the Federal Emergency Management Agency (FEMA) in the Department of Homeland Security (DHS), the Centers for Disease Control and Prevention in the Department of Health and Human Services (HHS) and the Department of State. The national response was led by DHS with the Department of Health and Human Services as a co-lead.

There is a long historical precedent in the US that links public health to the military.[59] For example, World War II accelerated wartime medical innovations with enormous lifesaving capabilities amongst civilian populations, such as the US Military Committee on Medical Research's development of anti-malarial chloroquine treatments.[60] As a general matter of force protection, the US military medicine possess a "deep expertise" on exotic diseases and the ability to develop vaccines to combat them.[61]

In terms of Defense Support of Civil Authorities (DSCA) in times of national emergencies, the DOD defines such activities as "support provided by US Federal military forces, DOD civilians, DOD contract personnel, DOD Component assets, and National Guard forces (when the Secretary of Defense, in coordination with the Governors of the affected States, elects and requests to use those forces in Title 32, U.S.C., status) in response to requests for assistance from civil authorities for domestic emergencies, law enforcement support, and other domestic activities, or from qualifying entities for special events."[62] DSA during the national response to COVID-19 mainly included medical augmentation, logistical and administrative support, rapid contracting capabilities, and the vaccine developement campaign called Operation Warp Speed.[63]

The **National Guard** is a unique US organization meant to serve both its community as well as the country. Its ranks are comprised of individuals who work civilian jobs or attend college and undergo part-time military training. As part of the reserve components of the US Army and Air Force, members of the National Guard can be deployed with very little notice. The National Guard is under dual control of the state and federal government.

Federal deployment of the National Guard to support states' COVID-19 response was extended first through 31 May, 2020, then 21 August, 2020, then 31 December, and finally through 31 March, 2021 under the Trump Administration.[64] Highlighting the National Guard's work in mitigating COVID-19 outbreaks in congregate care settings such as nursing homes and assisted living facilities, the Trump administration continued to mobilise the National Guard to protect vulnerable populations from COVID-19.

These Presidential Memos also addressed the role of the National Guard in mitigating local outbreaks and in maintaining compliance with public health orders and protocols issued by federal agencies such as the CDC, the HHS, the FEMA, DOD (*Extension of the Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery*, 2020a). The Memos further suggested that the National Guard may contribute to economic recovery in states where COVID-19 had been mitigated.[65]

The National Guard has played a longstanding humanitarian response element in national emergencies, such as Hurricane Katrina and Superstorm Sandy.[66] Generally, the state is responsible for funding the deployment of the National National Guard. However, with the approval of the President or the Secretary of Defense, governors can invoke Title 32 so the federal government absorbs the cost while the governor maintains operational control. HR 748 (CARES Act) appropriated $1.4 billion for the deployment in March 2020 (NCSL, n.d.). The extent to which the National Guard was mobilised as part of a state's pandemic response depended on the severity of the state's infections rates.

During the COVID-19 crisis, governors activated the National Guard under Title 32 in all 50 US states and four territories. They played a multiplicity of roles depending on the state context, mainly logistical and administrative until civil partners could fulfill the need. They engaged in activities such as building field hospitals, enforcing quarantine policies, educating the public, operating testing sites, facilitating logistics, ensuring supply chains, vaccinating the public, disinfecting public spaces, etc. [67]

The National Guard and law enforcement agencies have worked together closely in many states' pandemic responses. For example, the Rhode Island National Guard helped police stop cars with out of state license plates and interview the occupants to determine if they should be granted entry into the state.[68] The Rhode Island National Guard was particularly public in its partnering with law enforcement. For example, both troopers and National Guard members surrounded the State House in Smith Hill with heavy materiel like Humvees to "deter" civil unrest connected to the January 6 insurrection in Washington DC.[69] This specific use of the National Guard was criticised as having negative optics and being overly militarised.

As critical infrastructure workers, Law enforcement officers in the US were on the frontlines of the pandemic. They often served as the face of public health policies and sometimes acted to enforce public health mandates. US law enforcement institutions were involved in four broad aspects of the national COVID-19 response: 1) preventing further community spread, 2) reducing jail populations, 3) enforcing social distancing ordinances and 4) maintaining public order.

SECTION THREE: CONCEPTUALISING NATIONAL COORDINATION DURING COVID-19

COVID-19 was unique amongst national emergencies in that it affected all sectors of society simultaneously. Many nations have considerable experience in responding to emergencies and disasters, events which disrupt "the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources."[70] However, these events are often sectoral or geographical in nature. For example, an emergency response to a hurricane is typically focused in a particular geographical area and the event is not ongoing, as with a viral pandemic. Until COVID-19, many nations did not have contemporary experience responding to an event that affected all parts of the country and all sectors of society, simultaneously.

Much of the existing literature considers military involvement during COVID-19 responses in terms of traditional roles such as logistics, personnel (workforce), security, policing and enforcement, engineering, and coordination and planning. [71] There is increasing recognition of broader efforts in research, vaccine development, and manufacturing,[72] as well as military support to national health systems and military support to wider public systems.[73] Taken together with the mapping from this study and existing understanding of public health emergency contexts, nations were observed to respond in a 'whole-of-system' manner characterised by broad themes based on how the threat of COVID-19 was messaged, preparedness (or readiness), leadership and coordination, planning, public health and economy, social cohesion. This is conceptualised using the 'Pillars of National Responses to COVID-19' Framework (Figure 1 below).
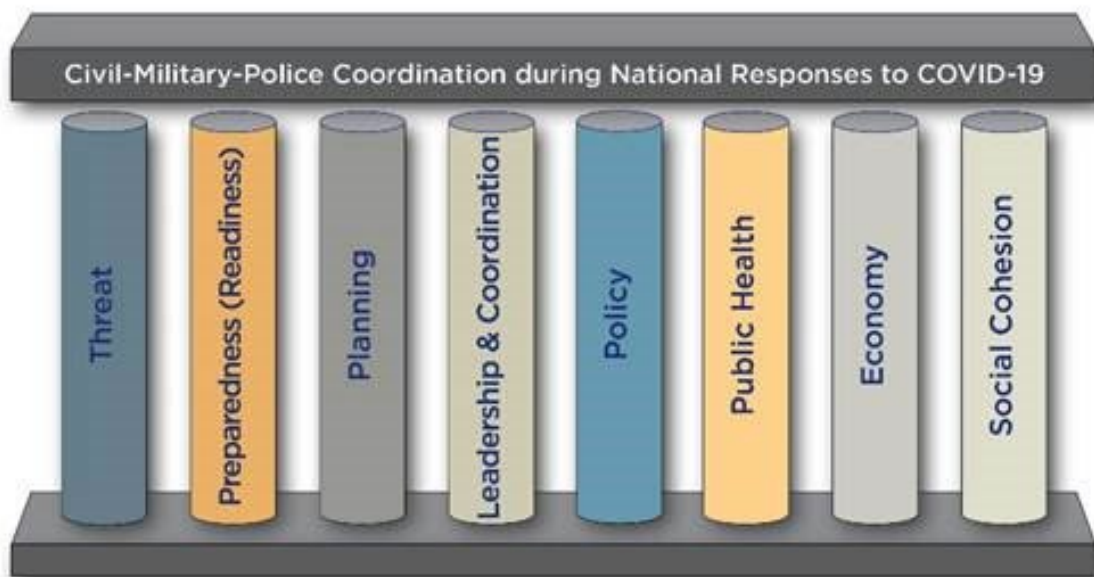
Figure 1: Pillars of National Responses to COVID-19

- **Threat:** nature of the threat that was faced, how it was articulated and messaged by nations and any influence this had on use of law enforcement, militaries and the National Guard.

- **Preparedness (Readiness):** public emergency response plans, relevant training, education and exercising, and the application of organisational experience in preparation for COVID-19 or a pandemic event.

- **Planning:** Police and/or Defence involvement in policy, strategic, operational or tactical planning in support of other actors.

- **Leadership and Coordination:** Police and/or Defence leadership involvement in operational aspects of the response, including military input into situation assessment (risk assessment and management), situational understanding, reporting systems, procedure development, and logistics and administration support.

- **Policy:** Police and/or Defence involvement in all-of-government policy and decision processes.

- **Public Health:** Defence involvement in health related activities, including medical services and care, health surveillance, research, and information management and analytics.

- **Economy:** Police and/or Defence involvement in efforts to counter the effect of COVID-19 on the national economy.

- **Social Cohesion:** Police and/or Defence involvement in education, compliance and welfare activities, including enforcement of public health measures, support to the population, and countering misinformation to support positive social behaviours.

Using 'whole-of-system' thinking and framing national responses as a 'complex adaptive system' enables us to situate civil-military-police coordination in a real-world context to examine its parts and how they interact with each other to understand "emergent, system-wide patterns of behaviour for the whole."[74] This covers application of strategy, policy, procedures, and behaviours within the context of a broader system. In this way, we can generalise beyond country-specific COVID-19 responses and apply findings in future events which necessitate national or multi-sectoral mobilisation, including how nations can prepare and respond to complex national security challenges, and expectations for militaries and the National Guard if there are non-traditional security threats like biosecurity and climate adaptation.

"System level leadership requires an understanding of the complex systems shaping the challenge to be addressed".[75]

SECTION FOUR: EXPLORING NATIONAL RESPONSES TO COVID-19

Characterising the Threat

Many nations, including Australia and the US, surrounded their national responses with war or battle-like rhetoric, which was found to influence the policy and practice of using militaries during the pandemic.[76] At the commencement of lockdowns in August 2021, then New South Wales state premier Gladys Berejiklian stated, "This is literally a war and we've known we've been in a war for some time, but never to this extent." [77] The statement came with the deployment of hundreds more military personnel to enforce the lockdowns.[78] Then Prime Minister Scott Morrison used similar language, stating that "We all know that the world is in a serious battle with the Delta strain of COVID-19. This has been a long war against this virus, and there have been many, many battles, and this is a fierce one when it comes to the Delta strain."[79]

Political rhetoric in the US context framed the COVID-19 pandemic in a similar manner, akin to a military struggle and thus an emergency that necessitated a whole-of-government response. Politicians and experts have publicly made strong war analogies, calling the pandemic response a "battle" against an "unseen enemy."[80] Haddard (2020) articulates the impact of characterising a pandemic response as 'war' -

> "war framing is easy - it provides a linguistic shortcut for the solidarity and sacrifice needed to move through a crisis—but it's lazy, it limits our imagination and it denies us the opportunity for a more sophisticated and inclusive framing for how we meet complex security challenges."

Many experts have pointed out the complicated nature of equating a pandemic response with a war, especially in domestic contexts. Under the Trump Administration, for example, the virus was not the only enemy in this wartime framing but also the Chinese government for its alleged failing in containment. The types of "other-ing" language that tends to appear during traditional wartime contexts occurred in the Administration's framing of the "battle" against COVID-19, seen in its usage of terms such as the "China Virus" or "Kung Flu."[81] This wartime "other-ing" rhetoric has enduring and measurable effects within the US, which not only violates the rights of citizens but also engages police forces that are already strained. For example, - more than 9,000 anti-Asian hate crimes have occurred in the US since the start of the pandemic.[82]

Interviews conducted in the US identified that characterisation of COVID-19 also showed a "lack of an appreciation early on how deadly this disease could be." The perspective of COVID-19 as "just the flu" did not acknowledge health expertise ('the science') and impacted the immediacy and urgency placed on some responses. Because of this perspective and bias, some responses failed to draw on areas of expertise that could effectively contribute, such as the military planning approach of framing the problem and planning for the worst case. The absence of an immediate response that drew on relevant expertise was observed to impact the US on state, national and global levels.[83]

Gibson-Fall (2021) notes that responding to the pandemic as a security threat influenced policy and practice, which links health and military spheres now and into the future for all types of responses. More broadly, how nations characterised COVID-19 may set a precedent for future security challenges, potentially placing militaries under greater pressure to respond.

Preparedness (Readiness)

This section considers capacity to respond to COVID-19 based on the existence of response plans, relevant training, education and exercising, and the application of relevant organisational experience. As noted by Gibson-Fall's (2021), the approach adopted by nations were informed by their pandemic preparedness models.[84]

Preparedness starts with planning for system-wide contingencies and exercising those plans at respective levels of the system, including at individual agency and collective responsibility levels. Now in retirement, a previous New Zealand chief executive provided the following insight - "pre-existing strategic planning documents are a start, not the solution for the specific situation." An interviewee in the US noted that one of their big lessons learned was "assume that nobody's going to read the plan, and even if they do read the plan, that [they're] just going to 'shut it… just because' you have a plan doesn't mean anybody is gonna follow it."[85]

But the fact that plans often won't survive in detail or aren't followed are not reasons to neglect preparedness and developing contingency plans. Through prior planning, leaders and managers become aware of the issues they will have to address for real, even if the plans do not meet their needs when real incidents occurs.

Australia

An Australian Health Management Plan for Pandemic Influenza (AHMPPI) was released by the Australian Government Department of Health in August 2019, with the original version being April 2014. The AHMPPI is a national framework for preparedness to manage an influenza pandemic and minimise its impact on the health of people and the health care system. Defence health services are listed as part of the Australian Health Protection Principal Committee, which is the key advisory body to health ministers and the strategic decision-making committee for planning for and response to health emergencies. A parliamentary inquiry found that "the government did not have adequate plans in place either before, or during the pandemic."[86]

Media reporting reflected that Australia last conducted a large-scale exercise in 2008, with it assessed that failing to continue the conduct of pandemic exercise contributed to "confusion in the early days of Australia's response to COVID-19, including contradictory public messaging from national and local leaders and delays in launching communication tools."[87] There was also confusion on decision-making responsibility, including "who may have had responsibility for making the final decision."[88] Subsequent literature has identified a different position, in that "Australia's planning and preparedness for a health emergency response has served us well in the response to the COVID-19 pandemic,"[89] which has stemmed from a framework of "effective utilisation of existing public health committees, whole of government leadership and responsiveness at all levels and community support."[90]

New Zealand

New Zealand had a national plan for an influenza pandemic, the *New Zealand Influenza Pandemic Plan,* in place since 2017.[91] The Plan is one of a number of action plans developed under the auspices of the *National Health Emergency Plan*,[92] which sets the health response to emergencies within the wider context of national emergency planning. Although the Plan was developed as an influenza plan, it notes that the '"approach in the plan could reasonably apply to other respiratory-type pandemics (such as severe acute respiratory syndrome – SARS),"[93] making it applicable the epidemiological profile of COVID-19.

However, this planning was primarily done by officials from the Ministry of Health and there is no indication of the level of political input or rigorous input from senior levels of other agencies. Of note, there was no specific role for the New Zealand Defence Force (NZDF). Instead, the NZDF, as with most government agencies, was required to identify its ability to provide staff and other support to the workstreams as required. For the NZ Police, the Law and Order workstream was a continuation of routine activities, with consideration given to what might be different in the pandemic. In essence, the Pandemic Plan was a system response plan without the whole system contributing to it, supporting it or even necessarily being aware of it.

The Plan acknowledged that the "actions to be undertaken in response to a pandemic needs [sic] to be reviewed as the nature and impacts of the pandemic change."[94] With the benefit of hindsight, this was a prescient insight and many changes were needed as the situation evolved. Almost as soon as the COVID-19 response began, it was apparent that significant parts of the plan were not workable in the circumstances of COVID-19 or in a situation where there was a lack of prior preparation by some agencies. The most pressing issue was that the Ministry of Health was not in a position to manage the operational nature of the response in an all-of-government manner, as well as focus on the public health component of the response. How the system adapted to this is a Deep Dive in the Leadership and Coordination section.

Notwithstanding, other aspects of prior planning worked well. The establishment of workstreams and designation of responsibility led the Ministry of Foreign Affairs and Trade (MFAT) to prepare its own agency response plan for the 'external' workstream it was allocated. MFAT's plan was enacted at the beginning of the pandemic, with the establishment of an MFAT Emergency Operations Centre on 29 January 2020. Some 400 staff were rostered on a full-time basis, and a senior official appointed to lead MFAT's response and ensure its responsibilities were met. Most importantly, enacting their agency plan saw MFAT establish coordination and relationships with other agencies necessary to meet its responsibilities. Ultimately, MFAT's external workstream had some 17 subordinate workstreams, of which MFAT led eight and supported the remainder. Other agencies had similar preparatory responses.

This is a key example of system leaders following preparatory guidance, distilling higher-level plans to apply within their own area of responsibility through identifying and clearly defining what was essential, developing a team to achieve individual and collective responsibilities, and remaining focused on the aim.

One element of the Plan that should not have been a surprise, which appeared to be, was the need for Managed Isolation and Quarantine (MIQ). This was a specific section within the Pandemic Plan, and it was noted that if the virus were especially virulent (as it turned out to be) '"exclusion measures coupled with facility-based quarantine…would be introduced." However, it was silent on how that would or should work other than to note that this was a Ministry of Health responsibility. The use of the NZDF in managing MIQ became an expedient solution to what was an Unprecedented situation during New Zealand's response.

Preparedness requires senior leader commitment and engagement during exercises that practice contingency plans. As with most exercises, the value is much more in the process than in the conclusions drawn from the specific scenarios used. Some of the issues surrounding the lack of detail within the Pandemic Plan could, and probably should, have been discovered when it was exercised in preceding years. One interviewee observed that this did not happen because "we could not get senior leaders to take the time necessary to work through the full implications of a pandemic and how the plan would be implemented" and "the exercises were cut to the minimum in length so that we could get anyone at all to

attend." While preparedness existed, there is little doubt it would have been more effective if senior leadership had not only scheduled preparatory exercises, but had also participated and critically considered the outcomes.

United States

In line with Gibson-Fall's (2021) variables that are purported to inform a nation's response, the US military was positioned and prepared to participate in a national pandemic response. In this case, preparedness was measured in factors such as militaries takeing part in training activities including disease simulation exercises.

There have been two well-known simulations around public health emergencies in the US domestic context. Both games had ominous results regarding US capacity to respond to a domestic viral outbreak. For example, the 2001 "Dark Winter" tabletop exercise modeled a biological attack on the US, and purportedly ended with no solution.[95] More recently, the 2019 joint strategic exercise "Crimson Contagion" simulated an infectious disease outbreak in the US. The simulation resulted in a rapid outstripping of response capacity and a system-level failure.

Informed by the lessons learned from tabletop games and the Ebola response, the Obama Administration's National Security Council created a "Pandemic Playbook" to leave for the next presidential administration, titled "Playbook for Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents." The Pandemic Playbook outlines that the National Security Council should monitor and make the government aware of infectious disease threats and to consult with federal agencies like DOD about these concerns. It also describes how key support DOD may provide includes "bio-surveillance, biosecurity, mil[itary]-mil[itary] or mil[itary]-civ[il] capacity building efforts, or relevant countermeasures research and development" and guidance on policy coordination and decision-making rubrics.[96] However, interviews identified that this playbook wasn't used (to their knowledge), which would have helped in the early days and months of the national response to provide a checklist for how government agencies should work together and enable risk-informed decisions. Much of the preparedness and plans in place were also for localised responses, with existing plans not anticipating a global pandemic.[97]

Medical Emergency Distribution System Point of Dispensing

In the aftermath of 9/11 with the threat of anthrax and concern for anthrax attacks, it was recognised that immediate access to entire populations is needed in a short period of time to protect them. The Medical Emergency Distribution System Point is in place to support this discourse, which is a plan and system updated annually and exercised through the State Department of Health that includes all municipalities. Plans would be updated from exercise outcomes. When applied to COVID-19 vaccine clinics, planning assumptions proved unrealistic and in hindsight, there would not be enough supply to vaccinate or provide a medication to 180,000 within four or five days as the plan anticipated. This discourse existed at local, state, and federal levels, and it reflects the importance of flexibility in systems and thinking to apply what's relevant to the situation being faced.[98]

Planning

This pillar considers Police and/or Defence involvement in policy, strategic, operational or tactical planning in support of other actors based on their doctrine and ability to plan for operations, covering mission analysis, scoping and framing, likely tasks and the resources required to meet these tasks. It also covers ability to consider and progress the desired objectives from the outset of activities, as well as articulate a possible end state.

Australia

Defence, and the ADF, supported civilian agencies with planning expertise, covering application of planning doctrine and processes, and supporting 'problem-framing' whereby they assist to articulate the problem being faced and put in place strategic plans, linking all aspects of a response. One specific example identified was support to Emergency Management Australia-led (EMA) planning for the National Communicable Disease Incidence of National Significance Plan in response to COVID-19.

New Zealand

For the NZDF it is noted that their support to national planning requirements in an emergency are similar to those that can be applied in any situation such as the response to and recovery from a major natural disaster. For example, as was provided following the earthquakes in the Canterbury area (2010-2012) or following a major natural disaster in Wellington, or to support to another lead agency for security at an international event held in New Zealand.

United States

The military and National Guard planning approach was repeatedly noted in interviews as a good model to support the uncertainty that surrounded COVID-19 responses, as planning is often accompanied with the self-support, self-sufficiency and logistics to enact the plans. One example was the reception of approximately 30 passengers from a cruise ship that was stranded of the west coast of California. The task to transport passengers to their homes back to Wisconsin was planned and overseen by the National Guard, with people arriving into a National Guard airfield and teams in Personal Protective Equipment (PPE) transporting them directly to their homes prior to transferring them to local health districts for monitoring and further action.

Leadership and Coordination

This pillar gives insight into interagency aspects of the response, including law enforcement and Defence involvement to provide coordination or operational capability in support of 'whole-of-system' approach. This includes input into situation assessment (risk assessment and management), situational understanding, reporting systems, procedure development, and logistics and administration support. It also considers the interplay of politics.

Australia

Defence established a COVID-19 Taskforce, with a purpose to coordinate Defence's internal response to COVID-19 and contribution to the whole-of-government response and ensure departmental resilience and preparation to continue to defend Australia and its national interests. Under Operation COVID-19 ASSIST, Defence provided tailored support to state and territory authorities using Joint Task Groups (JTG). The Australian Government established Operation COVID Shield, led by Coordinator General LTGEN Frewen, as the National COVID-19 Vaccine Taskforce (NCVTF). The goals of the NCVTF were to ensure public confidence in the vaccine rollout and ensure that as many Australians were vaccinated as early as possible.[99]

At the operational and tactical levels, the ADF supported responses with operational capability covering development of standard operating procedures to support civilian agency decision-making, reporting processes to monitor and respond to outbreaks in Residential Aged Care Facilities, and tracking tools to monitor vaccine delivery. The ADF

was also called upon to significantly scale up its responses, especially in Sydney, when Australia was responding to the Delta variant. The Joint Task Group had drawn down to around 200 people but scaled-up to approximately 2000 thousand in a few weeks. Their significantly increased presence was able to be integrated into the NSW response because of existing relationships with the Police, and together being very clear about what needed to be collectively achieved.[100]

New Zealand

At the highest levels of New Zealand's response, there was a constant interplay between political and official leaders, with decisions debated robustly and officials having considerable input into shaping the system's agenda. Of course, responsible Ministers had the final say on decisions but this engagement ensured decisions were informed and balanced. On issues of system structure and process, officials were dominant, while on others such as constitutional issues, Ministers made the decisions. This was unsurprising given that information was emerging on the epidemiological profile of COVID-19, and the decision structures around the response were even newer, there were many practical issues around decision making and an impulse for the political leadership to micromanage.

At the next level down there were there were "differences of approach from different agencies" observed, with "no common understanding of priorities...we could talk issues through, but it takes time, trust, understanding of competence" and "trust comes from joined and shared history." Initially, there was some disquiet at the Ministry of Health's ability to operate within the all-of-government setting in an emergency, with it noted that the department is not culturally adept at making quick decisions because their focus is policy, not operations or emergency response. More broadly, it was clear that "the situation was too complex for a single lead agency" and needed to combine medical expertise with operational planning and capability.

There was no integrated command system adopted during the New Zealand response, with agencies supporting the response rather than being commanded within an organisational structure. As one police official note "I had to make the point that the Police belonged to the Police not to the MIQ system." This again reinforces the importance of relationships across agencies when there is no formal command and control system.

Overall, what was found to be necessary is that people understood that 'their' approach to issues is not necessarily the only one, the best one and may actually not be a good one. Together with 'unity of effort' and 'responsive to community needs,' this principle of 'flexible' underpins New Zealand's all-of-government approach to coordinate emergency management, known as CIMS, the Coordinated Incident Management System. While not specifically used during the pandemic as many personnel were not aware or trained in its process, the principles informed police and military activities. This is because CIMS is not itself a plan but more a handbook defining how organisations should and did work together.

United States

Leadership and coordination existed at and across multiple levels and jurisdictions, with the fuller details of these aspects contained with the US Case Study. Any attempt to distil or shorten knowledge provided in the Case Study risks losing necessary and valuable context. A public health deep dive was conducted on Operation Warp Speed (OWS), which was an example of dual civilian-military leadership and coordination which brought together civilian and military personnel in a 'civil-military partnership' to develop, manufacture, and distribute a COVID-19 vaccine on an accelerated timeline. In place, brief insight is provided

into how a 'joined-up' effort occurred to Florida which saw the Florida National Guard complement the Department of Health.

Florida

A unique characteristic of the COVID-19 response, and something that had never been practiced before by the Florida National Guard, was that the Department of Health was the lead agency for the emergency response. Almost right away it was realised that the Director of Emergency Management had "all of the muscle memory and the skills in managing emergencies."[101] From a health perspective, the Department of Health obviously had the expertise for pandemic response, and so a joined-up effort was undertaken which resulted in a joint leadership role with the Department of Emergency Management. In this case, "the National Guard really becomes almost like the Swiss army knife"[102] to provide operational capability in support of agencies leading and coordinating the response.

Leadership and Coordination Deep Dive - Adaptation in New Zealand's National Security Structure

In New Zealand, not since World War II had the nation felt the effects of an event that necessitated adaptation of the nation's overall operating system. Almost as soon as the COVID-19 response began in New Zealand, it was apparent that significant parts of the Pandemic Plan were not workable in the circumstances of COVID-19 or in a situation where there was a lack of prior preparation by some agencies. The most pressing issue was that the Ministry of Health (MoH) was not in a position to manage the operational nature of the response in an all-of-government manner, as well as focus on the public health component of the response. The MoH had been designated as lead agency for the response without considering the issues around a policy agency trying to manage a whole-of-society operational response. It is important to note here that the MoH is not a core member of the national security system, meaning senior leaders are less exposed to the culture and structure of the system to 'get it done.' The system had to adapt.

New Zealand activated the National Security System in support of the COVID-19 response in January 2020. A bespoke national response structure was developed out of necessity, and it was adapted as the situation changed and evolved. An explicit 'all-of-government' approach, it had various structures developed for the purpose of operational management, international coordination, and management of isolation and quarantine. As the response progressed, it became clear that initial assumptions about a lead agency acting in line with plans and experience akin to a localised emergency response (either by geography or sector) was not adequate for a threat that impacts all aspects of society and necessitates the consideration of them all.

The New Zealand system adapted at least three times to the changing situation and new decisions being made by political leaders. While we explain this adaption below, it was not as clear cut or structured as this explanation makes it out to be:

1. **Ministry of Health lead (February - March 2020)** - Initial planning had the Ministry of Health as the lead agency for a pandemic response. This was not successful, mainly because the Ministry was a policy rather than an operational agency.

2. **The 'Quint' (March 2020)** - the Quint was led by a senior official, known as the 'all of government controller', but without the powers or authority of a 'controller' appointed under the Civil Defence and Emergency Management Act 2002. The controller was supported by an operational commander (the Commissioner of Police who was soon to retire from the NZ Police but remain in the response role), the Director NEMA (who had wide statutory powers), the Director-General of Health

(also with statutory authorities) and another senior official appointed in the role of Strategy and Policy lead.

From the perspective of some observers, the Quint was not an effective structure. Its staff did not have adequate skills, especially in terms of planning skills, there was no accountability and, critically, it had no resources. Initially, there was no Minister responsible for the overall response and the lack of a single ministerial focus led to a vacuum that was filled by other ministerial voices. A responsible Minister was eventually appointed, with a Covid parliamentary committee also established to give parliamentary oversight.

3. **Department of Prime Minister and Cabinet (DPMC) coordination (late 2020 - early 2022)** - When the Quint was found to be ineffective as an operational coordinating group, responsibility for central coordination was transferred to a new Covid Unit within DPMC. The focus of DPMC was the distribution of activities, with lead agencies working within their own remit and on their own issues and coordinating and cooperating as necessary. Reflection on this approach identified that there was 'no single official voice' to engage with the Minister responsible for COVID-19 response. Again, this was not completely satisfactory because the approach was not sufficiently responsive to achieve timely decision making and DPMC was not able to deal with the operational complexity of the issue and still continue with its other functions.

4. **Chief Executive of the COVID-19 Response (early 2022)** - Appointment of an experienced departmental Chief Executive as the Chief Executive of the COVID-19 Response.

The system was also able to adapt in response to the changing situation and to new decisions being made by political leaders. A National Action Plan specifically focused on the pandemic was produced in mid-March 2020, with a second edition on the 1 April and a third on the 22 April. Updates were made to the overall command and control, the base pandemic plan and the initial more focused plans, which reflected both the speed of events and the flexibility of the system leadership in being able to alter its planning in response new events. Towards the end of the response, the system had developed "a different kind of ethos" with people "no longer fighting a departmental line" and instead working "to come to an all-of-government solution." Interagency operations are clearly enabled by the transfer of military planning and operational culture (e.g., hierarchical leadership) to 'whole-of-system' approaches to support effective leadership and coordination.

COVID-19 responses reflect that we may not know the type of national leadership best suited to an event until it threatens us, instead what we can learn is how to adapt and bring together multi-sectoral actors and their expertise to ensure we consider relevant factors, including national context and the profile of the threat faced.

Policy

New Zealand

NZDF staff were integrated into all-of-government policy and decision processes. Military involvement spanned a range of the response, from overarching policy issues to minor detail surrounding specific aspects of the response. Staff were involved in policy development at every level, normally as part of wider teams. Several issues arose for uniformed policy makers. Firstly, they had mostly only worked within the NZDF system and were generally unaware of different policy development models and cultures within the public sector, as well as the range of interests that need to be consulted and the ways

resolutions can be delayed through bureaucratic inertia or obstruction. Secondly, most military policy officers have only limited experience in the policy role as they move between 'professional' roles in operational or training units and only moving into headquarters roles once in every two or three (maybe more) postings. They are not as practised in policy development as are their civilian counterparts who may be in policy roles for their full career.

There were lessons for the NZDF from this aspect of their integration into the pandemic response. It opened the eyes of many to the diversity of the policy sector within the government, and for some individuals reinforced the value and benefits of a military approach to decision making in developing policy and concepts. For others, it raised questions of their own knowledge of the wider government system. For situations necessitating the integration of NZDF personnel into interagency policy development teams, the NZDF needs to ensure its personnel have a wider knowledge of the government and its processes than many of them currently have. This can be achieved through a systematic programme that gives experience outside the armed forces to uniformed members from a relatively early time in their careers.

United States

In Wisconsin, the Head of the National Guard was part of the Governor's policy group because of their emergency management purview. One of the biggest advantages of being in the policy group with other state agencies during the COVID-19 response was that both sides could be accessed in terms of resources and requests from the state could be balanced. Requests would come to and be managed by Wisconsin emergency management, as like other types of responses such as flood or fire. Requests were evaluated by the emergency management division, with the best-suited state resources provided to local communities to assist. As needed, this was the National Guard. In this way, the state was using its existing emergency management division and processes as a coordinating and triage function, which already had the National Guard integrated. When required, the state would bring in external consultants from the education and corporate sector, who are specialists to advise on how to achieve community requests. [103]

Public Health

Under this section is Defence and National Guard involvement in public health measures implemented by respective nations. It covers health related activities identified as being functions of public health emergencies, including medical services and care, health surveillance, research, and information management and analytics both domestically and internationally. Some has been covered in the national case study narratives above, with this section providing additional insight or amplifying aspects.

Australia

The Department of Defence, and within it the ADF, supported many aspects of the public health measures implemented in Australia, including testing, case and contact management, deploying vaccination outreach teams, decontamination (cleaning) of sites, manufacturing of medical equipment, support to Aged Care Facilities, and management of quarantine facilities. At the start of the COVID-19 response, Defence (Service Delivery Division) stood-up 'mothballed' sites such as Howard Springs, turning them into quarantine facilities covering all quarantine requirements such as catering, accommodation, and security. These facilities were reception centres for repatriation flights, and they became fully operational within 72 hours.[104]

One aspect of public health that necessitated ADF-Police teaming, was dealing with conspiracy theorists and anti-vaccine movements who were spreading misinformation in First Nation communities that the ADF would forcibly vaccinate people and likening the vaccine to genocide [105] . While openly being found to be false, misinformation was a barrier to engagement, especially when engaging with First Nation communities to enable access by ADF vaccination outreach teams.

New Zealand

New Zealand's conceptual approach to the pandemic was health-led in that the health perspective was the starting point for consideration of any pandemic response issue, with other agencies then adding their factors and perspectives. Practical solutions were developed by the workstreams and for specific projects not originally considered in the Pandemic Plan. Such additional projects included the management of people departing and returning to the country with international travel restrictions in place, the enforcement of regional travel restrictions during local lockdowns, the quarantine procedures known as Managed Isolation and Quarantine (MIQ) and support to the Pacific Islands for vaccine delivery. The NZ Police and the NZDF were both involved in these initiatives.

However, the activation of both NZ Police and the NZDF had little to do with the fact that the emergency was a health emergency or a health security threat. The NZ Police and NZDF support to public health, and the forms it took, was more connected to the policies and procedures developed for the pandemic response than it was to do with public health measures or issues surrounding the pandemic. In turn, the resources provided were those that could only or most easily be provided by NZDF or NZ Police, and were necessary for the national response to function effectively. In practice, neither the police nor the armed forces supported the health sector specifically to any more than token levels.

Support to the Pacific

Both Australia and New Zealand provided assistance to the Pacific region, including an NZDF medical officer working in an Australian-led response to a surge in COVID-19 in Fiji. The NZDF also supported the repatriation of non-New Zealanders to their home countries in the Pacific, transported vaccines to Tokelau and Cook Islands, and provided logistics and planning support to Papua New Guinea as part of a wider New Zealand mission to that country.

More specifically, the NZDF delivered vaccines to Tokelau, Niue and the Cook Islands.[106] For example, HMNZS Wellington undertook a 5,000 nautical mile round trip to delivering Pfizer COVID-19 vaccines to the Fakaofo, Nukunonu and Atafu atolls of Tokelau, as well as the remote Northern Cook Islands. New Zealand support to Tokelau, Niue and the Cook Islands reflected that domestic health policy has significant implications and consequences for Pacific neighbours. The Polynesian Health Corridors programme led by the Ministry of Health was established to strengthen existing linkages between New Zealand and Polynesian health systems. The delivery of vaccines to the Pacific were contactless and reflected an extraordinary logistical effort between the Immunisation Advisory Centre (Imac) in Auckland, NZDF personnel and local health authorities, including online training sessions via Zoom practicing on equipment airfreighted to Tokelau, Niue, and the Cook Islands.

United States

There are historical precedents in the US that link public health to both the military and law enforcement.[107] For example, World War II accelerated wartime medical innovations with

enormous lifesaving capabilities amongst civilian populations, such as the US Military Committee on Medical Research's development of anti-malarial chloroquine treatments.[108] As a general matter of force protection, the US military medicine establishment possesses a "deep expertise" on exotic diseases and the ability to develop vaccines to combat them.[109]

All 50 US states and territories have a public health act, which allows for the state to mandate preventative measures like quarantines, vaccines, social distancing, and lockdowns to protect the public from infectious diseases.[110] Law enforcement agencies often serve as the face of these public health policies to the public, articulating and enforcing them.[111] Some authors extend this, stating that law enforcement officers are meant to be "the voice of authority, calm, and guidance" while public health officials spearhead the national pandemic response.[112]

More broadly, and relatedly, national security and domestic public health has been closely tied conceptually since the 1990s in the US,[113] with the policy approach of 'biodefense' framing global diseases as threats to homeland security.[114]

In supporting public health, members of the military, including the National Guard, were called into service to increase vaccination and vaccinator capacity on 16 February 2021 by the Acting Secretary of Health and Human Services (HHS). The military was deployed to support the national COVID-19 vaccination program. The Acting HHS Secretary anticipated an increase in vaccine supply and aimed to limit further strain on "health care system capacity and the [existing] vaccination workforce" by mobilising members of the federal workforce, including the military.[115]

While it recognised that the US healthcare system was not sufficiently integrated during COVID-19, there was adaption at local levels that brought civilian and military medical practitioners together as integrated teams. In Wisconsin, Volunteer Service Members were trained and certified as nursing assistants to assist with the staffing shortage across the state medical community. COVID-19 both highlighted and placed pressure on limited resources, with many communities needing and vying for the same resources. Early on during the pandemic, as a creative way deal with resource limitations, military medics were trained to act in supervised roles in medical facilities and nursing homes and subsequently, receiving nursing assistance certification to work as nursing assistants in state and private facilities. In addition to becoming an integral part of medical teams in these organisations, these medics received a useful skillset that they can continue to use.[116]

Public Health Deep Dive - Operation Warp Speed

Operation Warp Speed (OWS) was an interagency initiative of the US federal government with the aim to deliver 300 million doses of a vaccine for COVID-19 by January 2021.[117] It was led by the Department of Health and Human Services (HHS) and Department of Defense (DOD). To achieve its purpose, OWS brought together civilian and military personnel in a 'civil-military partnership' to develop, manufacture, and distribute a COVID-19 vaccine on an accelerated timeline. Along with the focus on a preventative vaccine, OWS aimed to develop diagnostic tools and therapeutics for COVID-19,[118] and more broadly, better prepare and equip the US government and private sector partners to respond to future pandemics and public health emergencies.[119] The OWS deep dive shows us how military capabilities and functions were integrated in support of broader US national public health objectives.

Defence Involvement

In July 2020, military officials held 60 of the 90 leadership positions within OWS. These officials were seasoned logisticians, skilled in procuring vaccine materials from around the

world and in distributing vaccines across the US.[120] Specific DOD divisions involved included the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND), the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)), and the Defense Health Agency (DHA).[121] The US Army's Logistics Civil Augmentation Program (LOGCAP) offered logistics and program management support to OWS.[122]

Leadership and Coordination

OWS was modeled off a dual-leadership structure, drawing on experience of the Zika Leadership Group at the National Institutes of Health (NIH), the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), and the Manhattan Project. Dr. Moncef Slaoui, a pharmaceutical executive, served as Head of OWS, and General Gustave F. Perna of the US Army was appointed Chief Operating Officer (COO). General Perna is an experienced logistician who managed global supply chains for the US Army.

Within OWS, General Perna led the manufacturing and distribution efforts for COVID-19 vaccines.[123] Reporting directly to the Secretary of Defense, General Perna employed the US military's expertise in operational planning, supply chain management, and logistics to "[build] manufacturing capacity, [map] supply chains, [share] technology, and [implement] the Defense Production Act, [and to lead] project management, logistics, [and] guaranteed demand."[124]

The framework for OWS was primarily a partnership between DOD and HHS. Specifically, the primary HHS agencies involved included the CDC, NIH, and the Biomedical Advanced Research and Development Authority (BARDA). OWS involved coordinating existing HHS efforts, a public-private strategy coordinated by the NIH to innovate and speed-up COVID-19 testing, and general work by BARDA. BARDA was originally created by the 2006 "Pandemic and All-Hazards Preparedness Act" to work with industry partners to develop medical countermeasures. During COVID-19 it supported and provided private companies with the funds necessary for OWS, having a portfolio of 98 different medical countermeasures against COVID-19.

Leadership and coordination by Army General Gustave Perna, the Chief Operating Officer for the COVID-19 vaccines/therapeutics OWS, contributed to achieving these activities. OWS harnessed the US military's pre-existing extensive research and development (R&D) capabilities, as well as their rapid contracting capabilities and logistics expertise and integrated them within a "whole-of-government, public-private logistics operation"[125] which ensured "every eligible American had ready access to the newly developed vaccines."[126] The DOD was instrumental in the federal government's initiative to partner with CVS and Walgreens to administer the COVID-19 vaccine at long-term care facilities.[127] Later, DOD and HHS facilitated partnerships with 19 retail pharmacies to increase the capacity for COVID-19 vaccination.[128]

Manufacturing the COVID-19 Vaccine and Key Supplies

DOD and HHS were key facilitators of manufacturing contracts to increase the production, and timely and early delivery of key supplies and key manufacturing equipment for COVID-19 vaccine development and distribution.[129] Through OWS, manufacturing of key supplies, including raw materials, and equipment for vaccine development, manufacturing, and distribution was increased at more than 23 manufacturers.[130] Smaller biotech firms like Moderna were permitted to maintain contracts with existing vaccine manufacturers.

DOD's expertise and experience in quick contract negotiations was highlighted when finalizing contracts with the six final vaccine candidates, Pfizer, Moderna, AstraZeneca,

Janssen, Novavax, and Sanofi. With DOD's expertise, OWS identified key contacts that led to long-term contracts.[131] DOD capabilities ensured that supplies and equipment were delivered "months earlier[,] . . . [accelerating] . . . vaccine manufacturing timelines."[132]

The US Army Corps of Engineers assisted manufacturers in increasing their production capacity, offering project management, regulatory strategy, and additional individuals to staff the plants.[133] The Corps increased domestic vaccine manufacturing through site assessments, and through oversight of contracts to increase manufacturing capacity at existing sites. Additionally, the Army Corps of Engineers provided oversight of the construction of two new vaccine production suites at an existing manufacturing site.[134] Supplies for COVID-19 vaccine administration were also procured through DoD's Joint Acquisition Task Force (JATF) and HHS as part of efforts to add critical medical supplies and resources to the Strategic National Stockpile.[135]

Distributing the COVID-19 Vaccine

Logistics and operational efforts within OWS created systems so that vaccine doses could be distributed to administration sites within 24 hours of receiving Emergency Use Authorisation from the US Food and Drug Administration.[136] The COVID-19 vaccine distribution infrastructure and distribution plan stemmed from DoD's logistics expertise and existing global supply chain networks. Increasing the domestic manufacturing capacity of ancillary supplies such as needles and glass vials that are needed to both store and then administer vaccines was another key DOD contribution to OWS.[137]

Military experts from the Army, Navy, and Air Force collaborated with CDC regional directors on vaccine prioritisation and delivery plans, offering both new technologies and contingency planning to support public health experts.[138] As military liaisons, these officers held daily conversations with other agencies to discuss vaccine prioritisation, packaging, and shipping. These daily exchanges offered opportunities for information exchange about logistics like ultra-cold chain storage.[139] The military also offered contingency planning for OWS, including plans for the approval of multiple COVID-19 vaccines that used science and research to determine which population should receive which vaccine.[140]

In addition to logistics, military officials remained accountable for each dose of the COVID-19 vaccine in all three stages of development, from development, to manufacturing, to distribution. The military managed the physical security of the COVID-19 vaccine. Officials were present at all manufacturing and distribution sites, and the military also facilitated cybersecurity to protect OWS from foreign interference and theft.[141]

In closing, this deep dive demonstrates how the simultaneous vaccine development by selected pharmaceutical companies and augmentation of vaccine manufacturing capacity and vaccine distribution infrastructure by DOD facilitated the development, distribution, and administration of a COVID-19 vaccine before the initial January 2021 target.

Economy

This pillar considers Police and/or Defence involvement in efforts to counter the effect of COVID-19 on the national economy, which occurred in Australia and the US. This pillar was not applicable to the NZ Case. In Australia, the nature of COVID-19 as "a health crisis and an economic crisis"[142] was recognised early and became part of Defence's strategy, even though it wasn't an obvious line of effort.[143]

Australia

One of Australia's national framework principles is "support confidence to allow economic activity to continue and/or restart"[144] which includes to support economic activity through community and consumer confidence. Stemming from this was the second ADF Line of Effort "Support to the Economy." An early example was the ADF assisting to produce masks during the early stages of the pandemic. A Defence team was established that assisted in making surgical mask making machines operational.[145] While it wasn't an obvious line of effort, it was the area in which much of the innovation was observed to occur, ranging from Defence providing support to increase mass production, the early or immediate payment of Defence invoices to assist business to remain solvent, bringing on workforces for cleaning Defence facilities or employing or re-training Reservists where their civilian employment was impacted (e.g. airline pilots).

Economy Deep Dive - Support for Defence Industry

One of the stated Australian Department of Defence's contributions to wider national efforts was "support for the economy."[146] This was explored using available literature and in an interview with the Deputy Australian Government Freight Controller, an ADF position in the International Freight Assistance Mechanism (IFAM) in support of the Australian Trade and Investment Commission (AUSTRADE). The Defence COVID-19 Taskforce also established the Industry Support Cell to respond to issues impacting defence industry, lessen the impact of restrictions on businesses, and ensure safe freight movement. Examples were identified of Defence support to employment, including agile and responsive contracts and finances to limit unemployment within Defence, working with contractors to divert people to roles that need a greater workforce (e.g., extra cleaning), and the advertisement and promotion of opportunities to do defence work, especially in regional remote locations. Overall, the Department of Defence implemented several policies which provided financial relief or income flow into the economy. This supported Defence industry, particularly small and medium-sized businesses, to remain operational throughout the COVID-19 pandemic.

International Freight Assistance Mechanism

A small team of Air Force personnel, with expertise in logistics, enabled the IFAM within AUSTRADE. The objectives of IFAM were to reconnect Australia's broken supply chains, particularly for high value perishable freight exports that need air freight such as coral trout, pork, beef, dairy, and vegetables. Due to the almost immediate cessation of flights (up to 90% of flights stopped), these products would perish, and action was taken to ensure both the export and import of goods that were in the national interest.[147]

The ADF got involved after the project was jointly established by the Department of Infrastructure and Transport and AUSTRADE and hosted at AUSTRADE. The ADF's contribution was organised at the highest-levels, and it supported the program by providing a management role through assigning personnel with knowledge and skills "to organise the freight, to understand the freight problem."[148] A shared leadership approach was adopted with two principles, an ADF member (Air Vice Marshall) and a civilian (International Freight Coordinator General).

In integrating into AUSTRADE, there "was a little bit of a culture shock" and time was spent gaining confidence in each other through understanding respective strengths and areas of expertise, including that Defence personnel are considered Commonwealth officers and have delegations akin to Public Servants. Without policy for ADF personnel to exercise these delegations, there was double handing of expenditure, leave and travel. For future activities, the integration of ADF personnel into other government agencies can be supported by policy that enables them to exercise delegations, such as procurement and leave applications. However, it was noted that this needs to be balanced with the question -

are the ADF likely to work with these agencies again and in a similar manner? What's clear is that people need to know the legal framework they are operating within to enable them to work with it or find alternatives to make it better.[149]

Overall, IFAM (together with other economic measures, such as JobKeeper) contributed to the maintenance of 35,000 jobs which directly relied on air freight, as well as an additional 120,000 jobs which were indirectly reliant on air freight.[150] IFAM had not existed before, it was specifically raised in response to border closures that were part of Australia's response to COVID-19. From a Defence perspective, it drew on the experience and expertise of uniformed logistics officers and load masters, as well as some civilian specialists in procurement, contracting and project management to write the program closure plan.

One type of expertise provided to the Department of Health was when they were importing PPE, with an Air Force Sergeant Load Master translating number of gloves and mask into volumetrics and plane loads, quickly identifying how all the items weren't going to fit on one plane. Other elements of expertise provided were procurement. The ADF team was built based on Air Force leadership understanding the needs of the program early on and the assignment of expertise. This was an enabler of effective civil-military teaming, and broader civil-military coordination to achieve national objectives within the context of public health measures.

Other Measures

Another measure supported by the Department of Defence was the implementation of the Australian Government's Rent Relief Policy on 7 April 2020, which saw a reduction in rent for tenants on Defence estates to zero for not-for-profit and niche experts experiencing financial hardship due to COVID-19, and proportional reductions for operators and entities with a degree of COVID-19 impacts.

Social Cohesion

In this context, social cohesion is law enforcement and Defence contribution to education, compliance, and welfare activities, including enforcement of public health measures, support to the population, and countering misinformation, to encourage positive social behaviours. This pillar is included to recognise the breadth of activities undertaken by uniformed personnel in communities because, as we saw social behaviours such as trust and compliance impacted a nation's ability to contain COVID-19. Many of the public health measures implemented, including compliance with restrictions on movement and uptake of vaccinations, required cooperative social behaviours that law enforcement and Defence were involved in influencing.

Australia

Examples throughout this document show how the ADF worked closely with other agencies to implement public health measures, in doing so supporting positive social behaviours. A few additional points are made here. At the Joint Task Group leadership level, the ADF was cognisant and had to manage the narrative that came with their presence, such as "boots on the ground" and "ring of steel." This was particularly critical in areas with migrant and multi-cultural communities and, as noted above, in dealing with misinformation that reached First Nation communities.

The ADF approached this in several ways, firstly by getting ahead of the narrative using public affairs officers, messaging, and avoiding any politicisation of their contribution (e.g., staying away from media and cameras at politically fraught events, such as Cabinet crisis meetings and press conferences). Secondly, was remaining in uniform but staying out of

view when providing support to the population, including meeting welfare needs by providing food. This was the case in Melbourne, where the ADF supplied the food distribution point out of sight of community members. Food was subsequently distributed by state workers, meaning the ADF was never public facing in consideration of community needs.[151]

Interviews conducted for this project reflect every effort was made by the ADF to be considerate of community needs. More broadly, there was public commentary noting how social cohesion was impacted by the contrast of military presence to enforce lockdowns and deliver public health messages, where success relies on community engagement and trust.[152] A connection was also made between lockdown enforcement by police and military personnel in south western Sydney with low vaccination rates, which points to the potential impact of a militarised pandemic response.[153] The characterisation of Australia's response as a 'battle' was also noted to gender the response and risked alienating other parts of the community, such as LGBTQI+ and people with disability.[154] All of these points provide beneficial insight into the use of militaries in public facing roles during public health emergencies to support social cohesion, and more importantly, uptake of public health measures such as vaccinations.

New Zealand

To maintain national cohesion in times of emergency and rapidly changing policy, system-level leadership needs to provide consistent messaging. National cohesion in times of emergency and rapidly changing policy was underpinned by consistent messaging founded on *what is staying the same, what is changing, and how it is changing in the context of the response.*

New Zealand was not immune to the social response to the pandemic rules experienced by other countries. In February 2022 a 'freedom convoy' started to drive towards the capital of Wellington. The convoy was protesting the perceived loss of freedoms relating to the national response but attracted a diverse range of protesters with agendas ranging from anti-vaccine, anti-mandate, conspiracy theorists, fascist ideology, frustrations with the Treaty of Waitangi, through to abortion rights and the legalisation of various drugs. Disinformation fuelled the protests, seemingly bridging the political and ideological differences between the protesters.

Up to 1,000 protesters, including a number with children, occupied the New Zealand Parliament grounds for approximately three weeks disrupting businesses and schools in the vicinity. National patience with the protest quickly diminished and NZ Police's initial light-handed approach to watch and educate the protesters was replaced with active measures to remove them. The approach changed when it became clear that the occupation was threatening national social cohesion. The removal of the protesters required 600 officers to be directly involved and was accomplished expeditiously although with some injuries to both police officers and protesters. There were smaller protests in other centres also, but none at the level of the Wellington event.

United States

US law enforcement also enforced public health mandates, though to a lesser degree and more sporadically when compared with other nations. For example, the San Francisco Bay Area police department adopted an "education over enforcement" approach, which warns people rather than arresting them for breaking quarantine or gathering in too large of

groups.[155] On the topic, the chief of the New York Police Department stated that: "If we see large groups, we'll go and talk to them, educate them about it and try and get compliance."[156]

However, the types of public health enforcement activities undertaken by Police were opposed by some police unions, who saw the enforcement of social distancing guidelines as beyond their mandate.[157] For example, the president of the New York Police Department's union stated via tweet: "As the weather heats up & the pandemic continues to unravel our social fabric, police officers should be allowed to focus on our core public safety mission. If we don't, the city will fall apart before our eyes."[158]

The wider political context surrounding policing and race in the US likely played an important role in how domestic law enforcement agencies responded to COVID-19. This is because the pandemic has intersected with pre-existing issues of race, policing, and healthcare in complicated ways. For example, COVID-19 has disproportionately affected black communities in the US, who already face a broader public health emergency related to police brutality and killings.[159] The police shooting deaths of Breonna Taylor and George Floyd sparked one of the largest waves of protests in US history during the summer of 2020.

Support to the Population

In Florida, the National Guard supported communities akin to natural hazard response, following an approach of being "a good partner" through figuring out how gaps in the state's response could be assisted with National Guard resources and personnel.[160] Tasks completed during a natural hazard response, such as providing water and food supplies, were easily translated to receiving PPE because they are similarly logistics-based activities managed through a state emergency operation centre which co-locates leaders, decision makers, and expertise.

SECTION FIVE: CROSS-CASE COMPARISON AND CROSS-CUTTING THEMES

Across the case studies, militaries and the National Guard were found to conduct similar tasks, which are themed below under response pillars. This begins to give a clearer picture of the response activities and functions necessary during pandemics, and where military or National Guard capability has been used to fill these functions. It gives insight into the use of military capabilities in domestic public health settings, as well as how they can be used to complement or provide surge support at times of critical need or where there are gaps in civilian capability.

	Theme	Aus.	NZ	US
PREPAREDNESS/ READINESS	Pandemic Plan or 'Playbook'	X	X	X
	Clear legislation, policy, roles and responsibilities for military and National Guard during a Pandemic	X	X	X
	Maintenance of readiness for other activities / events	X		
THREAT	Classification of COVID-19 as a national security threat	X	X	X
	Announcement of national crisis	X	X	X
	Announcement of military involvement in crisis planning and response	X	X	X
	Use of war/battle rhetoric to characterise COVID-19	X		X
LEADERSHIP & COORDINATION	Blended Military Leadership	X	X	X
	Operational capability	X	X	X
	Metrics and reporting systems for situational awareness	X		X
	Integration of civilian agencies and military personnel	X		
	Complementarity of capabilities and personnel (teaming)	X		X
	Organisational Learning	X	X	X
PLANNING & POLICY	Organisational planning	X		X
	Involvement in policy development and decisions		X	
	'Problem-framing' and planning expertise	X		
PUBLIC HEALTH	Research & Development	X		X

	Vaccine development			X
	Vaccine, associated supplies and/or PPE manufacturing	X		X
	Vaccine and associated supplies distribution			X
	Vaccine delivery teams and sites	X	X (minor)	X
	Establishment of hospitals (field or overflow)			X
	Sourcing and transportation of medical supplies and PPE	X		
	Scaling-up responses during different variants			
ECONOMY	Activation of defence industry capability, production, and partnerships	X		X
	Rapid contracting capabilities	X		X
	Freight management	X		
	Providing employment or re-rolling personnel into other jobs	X		
SOCIAL COHESION	Community Engagement			
	Countering Misinformation	X		
	Education of public health measures			X
	Messaging of role of military or National Guard			
	Welfare support (food distribution)	X		X
	Enforcing compliance of public health measures	X		X
	Support to overwhelmed civil capabilities and systems	X		
	Cultural and Linguistic Diversity considerations	X		X
	Overall positive public perception/public confidence in military and National Guard	X	X	X

Table 1: Cross-case comparison of use of military capabilities against public health emergency functions

Cross-Cutting Themes

Politics, Science, Strategy, and Decision-Making

The importance of valuing and listening to the "science" and "data" of the COVID-19 pandemic was identified in the roadmap presented by Jung at al (2021) and cases within this project. However, at times, politics appeared to be at the forefront of decision-making and allocation of resources rather than scientific advice and data, which led one interviewee reflect that it was "about politics and priorities." [161] While it is important to note that national operating and emergency response systems, particularly in the US, were not designed or experienced in national-level responses, some states and actors needed more support than they received because of the politicisation of the response.

Politics were observed to be mitigated in two ways - the "get the job done" attitude that many demonstrated at all levels and across all agencies of national responses, and "leadership that values science and follows the checklist" to support their society to "follow the science and trust the science." [162] The latter, for example, requires advocacy and resources on all levels starting at the federal level, to support consistent scientific discourse and the mobilisation of communities to get vaccinated.[163] A US interviewee contrasted the US, Australia, and New Zealand as such - "when you are talking about New Zealand, and even Australia how you run a disaster right, you have [a] passionate empathetic leader who listens to the science and makes the decisions and communicate[s] them clearly." [164]

Decision-making had to happen quickly, and COVID-19 responses merged culturally different agencies and professions to become cooperative, but not without time spent understanding each other. Health and medical professions can be hesitant to make decisions without all information at hand and COVID-19 necessitated quick decisions[165] and using operational capability that was outside the norm or experience of health departments. On the other hand, militaries and the National Guard were much more assertive at making decisions and managing any consequences. Both had to be politically attuned and astute, and navigate a complex space.

Data quickly emerged as a critical input to support decision-making, allocation of resources, and mitigating uncertainty, especially where modelling was predicting significantly large numbers of deaths.[166] In March 2020, New Zealand conducted a tabletop exercise to work through possible scenarios and the assumptions within the *Influenza Pandemic Plan.* The table top exercise revealed issues that seemed almost insoluble. For example, one early planner noted: "no one was prepared to face up to the issue of how to deal with the possibility of 10,000 deaths in short order" as envisaged for planning purposes by the *Influenza Pandemic Plan.* As now known, the reality was dramatically less, and this reflects the importance of the flow of information and data to inform strategy and decision-making. Early control of information by state departments in the US exacerbated the unknowns of COVID-19,[167] making one of the greatest challenges from the beginning of the response accessing data to inform decision-making.

A US local emergency management responder in New England noted the nature and connectedness of information needed to achieve community-based and tailored responses is:

> "we needed to be making decisions based on the demographics and associated economic situation of residents of the city which was not necessarily the same information or decisions that needed to be made state-wide I was plugging in our census data and our demographics and our percent [of] non-English speaking and over age 65 factors [that] will decrease fatality rate that we were seeing in Italy."[168]

Fitting Resources to the Problem at all Levels

In a national emergency such as COVID-19, the response system is so complex that disruptions in one area or workstream can have significant consequent effects throughout the whole system. A key role of leadership, in the words of one New Zealand chief executive, is to ensure that "resources follow the need, rather than the system following the resources." Drawing on the New Zealand case study, their need was the availability of vaccines followed by the availability of rapid testing kits. Neither were available when the public expected them, which highlights how system planning and leadership needs to be ahead of issues to focus on resources that will be needed in weeks ahead, rather than tomorrow.

This contrasts with the US case where this need was recognised and Defense capability was involved in supporting vaccine development, manufacturing and delivery. There was concern in the US about the trajectory of COVID-19 and the ability needed to vaccinate at scale, however "the advantage of the military was that scale we needed to scale immediately in trying to bring down [cases] and poverty rates in the city," there is "no other entity that has that type of capacity at the ready and I felt like that was the only pathway in trying to mitigate the impact when we did have a vaccine that could be making a difference."[169] Notwithstanding differences in national context, both New Zealand and the US reflect how nations need a system, and corresponding capability and resources, prepared and ready to get ahead of a threat.

Institutional Adaptation & Innovation

The case studies covered in this project are replete with examples of adaptation and innovation, at all levels and between different actors. Institutional adaption, stemming from a variety of reasons such as recognising and dealing with barriers to accessing health measures and the integration of culturally different expertise and personnel, emerged as integral to effective civil-military-police coordination. Mobile vaccination efforts in the US are one key example of adaptation to support culturally and linguistically diverse community access to vaccinations. These efforts focused on communities with low vaccination rates that had barriers to access, such as language, documentation status or nability to take time off work, and were conducted in locations that were largely outdoors in open public spaces where people could see what was happening and felt safe to approach, such as a church parking lot or basketball court. [170] These community-based efforts complemented the official, large, and regulated vaccination sites to maximise implementation of public health measures.[171]

The breadth of innovation that occurred led one US interviewee to note that "the tenacity and the ability of the majority of people to actually innovate and be super responsive and work across other stakeholders was the most inspiring thing of all."[172]

Equally, if something is working and there is an emergency, a different approach may not be needed. Where operational models, frameworks, and playbooks, at any level, have been tested and proven, it is good practice to use them and not try and change anything during a crisis. In the US, this could be seen in the Political disregard of the Obama Administration 'Pandemic Playbook' which was developed by the National Security Council for the incoming administration. Titled "Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents," the playbook was based on simulations and aggregated expertise and contained suggestion for policy coordination. It contained lessons learned from real world examples and strategic games conducted prior to the COVID-19 pandemic, but it was disregarded by the following administration and not applied.

Established Relationships

Much of the literature on disaster and emergency response reflects the importance of pre-established relationships as a critical enabler of effective coordination, and COVID-19 was no different in this regard. [173] One interviewee noted a fundamental philosophy in emergency management "you definitely don't want to have to exchange business cards during the emergency."[174] The existence of liaison officers at state-level ensured cross-agency information sharing , especially between the National Guard and Emergency Management. In some cases, informal communication flow, from procurement of resources to data acquisition, based on pre-existing relationships was the only way that responses ran. In addition to knowing each other's capabilities, prior connections meant people were friendly, with "no political or jurisdictional hang ups so everything went very smooth." [175] Where there was not established relationships, the system was observed to force interaction that ended up being effective but took longer as was seen during IFAM in Australia.

At higher organisational levels, established relationships support knowing key personalities, and understanding how to shift the approach or nature of a team based on the task and environment. This covers understanding current priorities and challenges (theirs and yours), and means "someone you can call late at night when something is urgent ... or to cut through any of the other bureaucracy."[176]

Teaming

Recognising and employing the strengths of personnel and their expertise was observed to make many COVID-19 response activities, across all levels, successful. A teaming example across all case studies was militaries and the National Guard supporting health agencies and actors with operational capability, such as developing procedures, and managing policy issues, information flows, priorities and decision-making because many had not faced these issues before. This was articulated by one interviewee as "we played to the strengths of the parts of the whole."[177]

Many interconnected elements for effective teaming were identified, including federal or military actors engaging with local jurisdictions to understand system capacity, ensuring colleagues or stakeholders understand and leverage the strengths of respective groups within the context of the operation, understanding communication that formally and informally needs to occur, the attitude of team members, and enabling others rather than taking the credit. Recognising the strengths of civilian and military stakeholders was noted as particularly important because it contributes to optimising resources and the interplay/complementarity of resources.[178] One of the critical pieces of knowledge for civilian agencies is military capability to conduct strategic planning and problem-framing, which supports the delivery of coherent and joined-up response. A 'translator' or 'translation' may be needed to support this, such as a liaison officer, because a lack of knowledge distracts sides from achieving their goals and broader national objectives.[179]

An interesting example that emerged in US in Boston was the employment of people with experience in organisng the Boston Marathon to work at vaccination sites. These personnel were observed to be strong and well organised, bringing their expertise in event organisation and "marketing" to encourage public health measures and achieve efficiency at sites. The comparison made by an interviewee was that counterparts in New York and Norfolk had "no way to market" and they were only putting through about 1,000 to 2,000 people a day versus the approximate 7,000 people a day consistently for six weeks at the Boston site.[180] Another example was the discharge of patients being achieved through coordination and real-time communication between medical professionals, National Guard and police with information flowing when a patient was being discharged to support pick-

up and traffic coordination. Overall, there are many examples of teaming in the US, demonstrated how "it was amazing how different people from different walks doing different things came together for one goal."[181]

One of the teaming characteristics of the Australian response was support provided by Department of Defence public servants. These teams formed through uniformed personnel working alongside their public servant counterparts and/or Defence public servants augmenting other government agencies, such as Services Australia where approximately 200 personnel supported the processing of income support payments, call centre enquires and JobSeeker claims.[182] In the COVID-19 Taskforce, which focused on coordination within the Department of Defence, the leadership team included a civilian deputy who brought expertise in policy, and ministerial engagement and communication. Again reflecting the importance of leveraging individual and agency capabilities and expertise to support effective coordination, specifically through ensuring the translation of political direction into operational tasking.

Another interface of teaming in the Australian context that needed consideration was police and military use of PPE, and close consultation on decisions to ensure consistency and equal access based on separate logistics systems and pressures on each to protect their respective workforces.[183] Delving into this, while simple on the surface and at the tactical level, it is about accepting operational risk, communicating decisions, and managing human emotions because of the risk posed by COVID-19 to first responders.

Use of the Military and National Guard in Public Health Emergency Functions

In the early days of Australia's COVID-19 response, calls for Defence assistance were observed to be "unrestrained based on misunderstanding of what capabilities are available and what can be achieved."[184] This was observed to be driven by uncertainty and worry at local jurisdiction levels that local health capacity would be overwhelmed. The implementation of a Defence strategy, including the articulation of "support" against all lines of effort, contributed to the integration of military capability (workforce and expertise) to take pressure off the civilian agencies and partners.

In the example of public health, civil-military efforts were enabled as knowledge of ADF's medical capabilities were shared with other agencies, including that it did not have the necessary expert medical staff or capabilities to provide a full health response, such as respiratory intensive care. More broadly integration, not replacement, appears to be the philosophy of Defence efforts across national responses, making the key to coordination being effective and efficient employment of military and National Guard capability in public health emergency functions. Part of this theme is recognising what is in the realm of possibility and considering the big (strategic) picture of what is and needs to be achieved, as well as having context of what is occurring and realistic on the ground. For example, at vaccination sites recognising that military utility and effectiveness isn't connected to the number of vaccines delivered, rather how they integrate into broader national efforts.[185]

Some literature and commentary notes how public health emergencies take the military away from their core role, and lead to a reduction in internal and external military activities.[186] Drawing on experience from Australia, this appears to be linked more to their efficient and appropriate use rather than their use more generally. This philosophy emerged in senior military leader interviews, who noted the direct application of involvement in the COVID-19 response to other operations:

> "breaking down problems, coming up with solutions, issuing orders looking after their people and then managing people they're communicating long distances by radios, they're running logistics convoys skills that Defence, and in most cases, the ADF very specifically are good at, but they are practicing, and while they are practicing them they are getting better at those skills and they will be really important when the time comes again for those forces to be redirected"[187]

The second part of this is optimising the use of military and National Guard assets, in terms of appropriateness, efficiency, and effectiveness. In other words, it is acknowledging the skillsets of uniformed personnel beyond being a workforce for resource-intense tasks, such as quarantine management, and ensuring proper and efficient utilisation. This contributes to positive morale and welfare.

Perceptions of Military and National Guard Personnel

Perceptions that come with the use of military capability, including perceptions that the military or National Guard was displacing local workers, had to be effectively managed. This accompanies the question of whether militaries and the National Guard should be conducting public health emergency functions, and if so, what the most appropriate and best-suited functions are. While resolved over time, overcoming negative or hesitant perceptions necessitated effort by civilian and military actors to ensure public health measures were achieved. For example, in the US, military involvement was part of broader national considerations Such as the January 6 insurrection in DC and the Black Lives Matter movement. Some people refused vaccinations from uniformed personnel or weren't accepting of the military delivering vaccinations.[188] Other community members were hesitant to be around military or National Guard personnel because of their documentation status, heritage or language barriers and this created a barrier in accessing mass vaccination sites.[189] A reversal of an initial decision to leave personnel in uniform, one solution was the National Guard purchasing and wearing scrubs to conduct testing in areas where the community specifically requested it. Testing teams did not hide the fact they were in uniformed personnel, however their scrubs assisted them to quickly assimilate into the community and build trust.[190]

In some cases, ADF personnel faced similar issues but more specific to certain situations, such as hesitancy for military personnel to be working in the Northern Territory due to historical experience with the Northern Territory National Emergency Response, and directly with refugee communities in the Melbourne public housing towers. Requests were made for the ADF not to wear uniforms.[191] Two points emerged in the Australian context - firstly, military personnel don't have work clothes to substitute their uniform and it was a military task, and secondly, it became a leadership issue to effectively manage the presence and visibility of uniformed personnel in line with activities being undertaken. One point arose in the New Zealand case study, with the reflection made that "We are required [by NZDF] to wear uniforms but it can create barriers." [192]

However, for the most part in Australia and in other examples in the US, the military and National Guard come from communities and their engagement and visible activities contributed to public confidence. In some cases, ADF activities in support of the COVID-19 response built on support provided during the Bushfire response of 2019/2020, and there was "a very genuine sense of contributing back into communities that we are from."[193] National Guard presence also supported increased public confidence, with soldiers in uniform in and around the state house and other key locations in Providence, Rhode Island. In general, at vaccination sites there was a "very positive perception" of the military delivering vaccinations. Some of the reasons this occurred was that people had to wait for their vaccination, and the time was spent talking and interacting, so by the end of the

waiting period, uniformed members and community members had a better understanding of each other.

Fatigue Management

While no recommendations emerged on how to manage fatigue or health worker burnout, the theme of fatigue management emerged as needing to be considered in any future comparable responses, especially where expertise is held by a small or concentrated group of people. In response to COVID-19, everyone was activated at the same time, there were concurrent commitments for actors, including militaries, and for many, it was a stressful environment that necessitate lifesaving decision-making.

Messaging - Public Affairs, Strategic Communications and 'Crisis Communication'

There were often two parts to strategic communication adopted by actors - on one hand, the conveyance of science by a medical professional, and on the other, the specifics of what was going to be done and why in response. One US National Guard interviewee noted that this engagement was "not advocacy" on their part. Rather, it was "educating the media and therefore the public on what is actually happening this is what we're doing, and this is why we're doing it and you have to be very honest. It's different than politicians, you were obligated to give accurate information."[194] This type of messaging was also seen in New Zealand, as noted as part of messaging to achieve national social cohesion.

Communication was also used by medical professionals to call for military engagement or the National Guard in terms of needing resources due to health disparities and the impact of COVID-19. This gave them a voice to advocate for logistics and human resources which proved challenging to access throughout the Pandemic. [195] Across civilian and military actors, and at all levels, messaging and communication proved instrumental in all pillars of national responses.

Organisational Learning

Many tactical activities conducted during the COVID-19 pandemic were ad hoc, such as vaccination sites, management and layout in the US, the MIQ in New Zealand, and hotel quarantine in Australia. There was no guidebook or protocol in place however activities were documented, in both the US and Australia as a vaccination site playbook or operational compendium. A large amount of organisational learning occurred at this level, specifically between the US National Guard and local/state health departments, while Australia was observed to learn at multiple levels and formally through the production of Lessons Learned documents with the support of Defence Science and Technology Group. There were also examples within both case studies of learning from the COVID-19 experiences of other nations, including Italy, Canada and Russia, particularly to prevent the spread of COVID-19 into First Nation communities.

In Australia, within a month of the COVID-19 Taskforce standing up, a 'lessons learned' collecting lessons across tactical, operational and strategic levels which were reported back to the strategic command group so the Department of Defence was learning during the response.[196] Australia also drew on its experience from the Bushfires of 2019/2020, where it learnt that nations "put a uniform on to solve everything," but there is not an "endless number of uniforms" and no "need to solve every problem with the uniform." [197] Instead, it should find and apply alternative ways to meet national objectives, such as leveraging industry partnerships.

In New Zealand, the lessons drawn from the contactless delivery of vaccines to Tokelau, Niue, and the Cook Islands were critical in informing NZDF's response to the Tongan volcanic eruption and tsunami in 2022.

The Next 'Whole-of-System' Threat

Both national context and the epidemiological profile of COVID-19 informed how nations responded, with many attempting to balance the health, social and economic effects of the pandemic. The nature of the COVID-19 pandemic as all-encompassing meant nations needed a joined-up, 'whole-of-system' response across levels and jurisdictions. But pandemics are random events, and efforts to predict when or where they may originate are impossible even with attempts to map known emerging infection incidents.[198] National mobilisation of the nature seen during COVID-19 responses means we have much to learn, or re-learn in some examples, though not all learnings are pandemic or public health emergency specific. Coordination is very clearly about many things, covering preparation, procedures, behaviours, advocacy, and adaptation.

Many national, state, and local systems were stressed during the COVID-19 pandemic, with some reaching breaking point and others going beyond. Nations now have lived experience in dealing with situations of this nature. To assist into the future, we propose that systems are strengthened through the following:

- Transfer of organisational learning and experience into organisational memory, procedures, and practice.

- Proactive planning that tests agencies and confirms their roles, responsibilities and contributing functions and capabilities.

- Fully engaged and committed leadership during preparedness activities to ensure agencies contribute and are aware of preparedness documents, including plans and playbooks.

- Application of existing frameworks and playbooks, only adapt them if they aren't working, so the system starts with known, practiced, and proven efforts and changes aren't being made in the middle of crisis clouded by stress, fatigue, and uncertainty.

- Knowing capabilities for possible 'whole-of-system' situations, such as pandemic response or climate adaptation, to have a better system of allocating scarce or expert capacity. This includes military capability to plan and 'frame the problem' in uncertain and rapidly changing environments.

- Consider civilian (public and private) and blended civil-military-police options before turning to military and National Guard. To applicable national degrees, this is consideration of well-known coordination principles of 'complementarity' and 'last resort' but with a quicker decision-making cycle based on practiced plans and known capabilities and acknowledgement that while Defence has a workforce, it needs to be effectively and efficiently employed.

[1] See Outbreak Working Group Report

[2] Ibid

[3] Eoyang, G.H., Yellowthunder, L., Ward, V., A Complex Adaptive Systems (CAS) Approach to Public Policy Decision Making, Society for Chaos Theory in Psychology in the Life Sciences August, 1998, The Union Institute Postdoctoral Associate Community Faculty, Chaos Limited Department of Anthropology Metro
State University, University of Minnesota: 4

[4] https://systematicreviewsjournal.biomedcentral.com/articles/10.1186/s13643-016-0337-y

[5] Gad et al

[6] Boland ST, McInnes C, Gordon S, *et al*. Civil-military relations: a review of major
guidelines and their relevance during public health emergencies. *BMJ Mil Health* 28 2021;167:99–106.

[7] Gad et al

[8] ibid

[9] See ANZSOG 'Leading in a Crisis Series', https://www.anzsog.edu.au/resource-library/resources-tlss/leading-in-a-crisis

[10] US Defense Health Agency Director Army Lt. Gen. (Dr.) Ronald Place

[11] https://systematicreviewsjournal.biomedcentral.com/articles/10.1186/s13643-016-0337-y

[12] Boland et al, 2021

[13] Roepke and Thankey, 2019

[14] Gibson-Fall, 2021

[15] Gad et al, 2021).

[16] (Gibson-Fall, 2021).

[17] Gibson-Fall, 2021: 1

[18] See Outbreak Working Group Report

[19] Jung et al

[20] Graham, 2020

[21] Gad et al, 2021

[22] These characteristics have been drawn from discussions during the Outbreak Working Group. See also
https://www.acmc.gov.au/news/interview-towards-integrated-approach-civil-military-operations

[23] Jung at al pg.

[24] ibid

[25] ibid

[26] Ibid

[27] Ibid

[28] These themes are based on an open-source grey literature review by Gad et al (2021) that gathered sources through systematic Google searches focused on the UK, Italy, Spain, France, Germany, and Belgium.

[29] Gad et al, 2021 [numbering added for clarity]

[30] Interview_H

[31] Damien Cave NYT quoting Mr. Greg Hunt

[32] Damien Cave, NYT

[33] Based on modelling from the University of Sydney.

[34] Damien Cave, NYT

[35] ibid

[36] Ibid

[37] Interview_H

[38] Interview_B

[39] Interview_B

[40] Interview_H

[41] Interviews_Y+DS_M

[42] Interview_Y

[43] Interview_y

[44] ACMC Interagency Taskforce Leadership Project_Interview LTGEN Frewan

[45] Surplus in this context means that they are not required for their primary role in defence of the realm or to support other national initiatives.

[46] Tikkanen and Abrams, 2020

[47] https://www.cdc.gov/museum/timeline/covid19.html

[48] Maizland and Felter, 2020

[49] Leatherby et al, 2020

[50] Siripurapu, 2021

[51] Kapp and Ott, 2020

[52] NRF, p. 34

[53] HHS, n.d.

[54] Kapp and Ott, 2020

[55] Gaynor, 2020

[56] Interview_R

[57] Interview_E

[58] *National Emergency Authority To Order the Selected Reserve and Certain Members of the Individual Ready Reserve of the Armed Forces to Active Duty*, 2020)

[59] Michael, 2020; Gibson-Fall, 2021

[60] Barr and Podolsky, 2020; Quail, 2015).

[61] (Morrison and Cullison).

[62] (DoD Directive 3025.18; DSCA, 2013).

[63] Cancian and Saxton, 2021).

[64] (*Extension of the Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery*, 2020a; *Providing Continued Federal Support for Governors' Use of the National Guard To Respond to COVID-19 and To Facilitate Economic Recovery*, 2020).

[65] ibid

[66] Allen et al, 2020

[67] NCSL, n.d.

[68] (Allen et al, 2020).

[69] (White, 2021).

[70] ICRC definition

[71] See 2021 Civilian Military Humanitarian Response Workshop pg 15

[72] Ibid

[73] Gad et al

[74] Eoyang, G.H., Yellowthunder, L., Ward, V., A Complex Adaptive Systems (CAS) Approach to Public Policy Decision Making, Society for Chaos Theory in Psychology in the Life Sciences August, 1998, The Union Institute Postdoctoral Associate Community Faculty, Chaos Limited Department of Anthropology Metro
State University, University of Minnesota: 4

[75] Lisa Dreier, David Nabarro and Jane Nelson, *Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change*, Corporate Responsibility Initiative, Harvard Kennedy School, 2018.

[76] Gibson-Fall

[77] Aljazeera, 2021

[78] ibid

[79] Prime Minister of Australian, 2021

[80] Barr and Podolsky, 2020

[81] Sered, 2020).

[82] Associated Press, 2021

[83] Interview_P

[84] Gad et al, op cit

[85] TBI

[86] Senate Select Committee on COVID-19, 2020

[87] Welch and Blucher, 2020

[88] Kamradt-Scott quoted in ibid

[89] Sonya Bennett

[90] ibid

[91] Ministry of Health, *New Zealand Influenza Pandemic Plan: a framework for action*, Wellington: Ministry of Health, 2nd ed., 2017.

[92] Ministry of Health, *National Health Emergency Plan: A framework for the health and disability sector*, Wellington: Ministry of Health, 2015.

[93] *New Zealand Influenza Pandemic Plan,* p.1.

[94] Ministry of Health, *National Health Emergency Plan: A framework for the health and disability sector*, Wellington: Ministry of Health, 2015.

[95] O'Toole et al, 2002; Perry, 2020

[96] https://s3.documentcloud.org/documents/6819268/Pandemic-Playbook.pdf

[97] Interview_KN

[98] Interview_EM

[99] https://www.health.gov.au/initiatives-and-programs/operation-covid-shield

[100] Interview_Y

[101] Interview_E

[102] Interview_E

[103] Interview_KN

[104] Interview_H

[105] https://www.reuters.com/article/factcheck-coronavirus-australia-idUSL1N2SN1OE

[106] Tokelau is a dependent territory of New Zealand; Niue and Cool Islands are self-governing in free association with New Zealand.

[107] Michael, 2020; Gibson-Fall, 2021

[108] Barr and Podolsky, 2020; Quail, 2015

[109] Morrison and Cullison

[110] CDC, n.d.

[111] Rothstein, 2015

[112] Brito et al, 2009: p 1

[113] 'National Intelligence Estimate on the Global Infectious Disease Threat' (2000); 'SARS: Down But Still a Threat' (2003)

[114] Lakoff, 2017; Gibson-Fall, 2021

[115] *Sixth Amendment to Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures Against COVID-19*, 2021)

[116] Interview_KN

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[118] Siddalingaiah, 2021

[119] U.S. Department of Health and Human Services, 2020

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[124] Adler, 2021; Military Health System Communications Office, 2020; U.S. Department of Health and Human Services, 2020)

[125] HJF president and CEO, Dr. Joseph Caravalho

[126] HJF president and CEO, Dr. Joseph Caravalho

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[128] Joint Base San Antonio, 2020; U.S. Department of Defense, 2020, 2020h

[129] United States Government Accountability Office, 2021; U.S. Department of Health and Human Services, 2020

[130] Azar, 2020; U.S. Department of Defense, 2020d

[131] Military Health System Communications Office, 2020

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[136] Military Health System Communications Office, 2020

[137] Bertuca, 2020; Stokols & Bierman, 2020

[138] U.S. Department of Defense, 2020g

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[141] Martin, 2020; Sowels, 2021

[142] Interview

[143] ACMC_LTGEN Frewen

[144] (Australian Government, 2020),

[145] (Beck, 2020).

[146] Senate Select Committee on COVID-19, Department of Defence Written Submission May 2020

[147] https://news.defence.gov.au/national/keeping-international-freight-moving

[148] Interview_LB

[149] Interview_B

[150] Interview_LB

[151] Interview_m

[152] Pocket, 2021

[153] Ibid

[154] Ibid

[155] Dewan et al, 2020

[156] Ibid

[157] Axelrod, 2020

[158] ibid

[159] Jean, 2020

[160] Interview_E

[161] Interview_EM

[162] Interview_P

[163] Interview_H

[164] Interview_EM

[165] Interview_KN and Interview_ SO

[166] Interview_E

[167] Interview_EM

[168] Interview_EM

[169] Inteview_H

[170] Interview_H

[171] Interview_H

[172] Interview_

[173] Interview_KN and ACMC Interagency Taskforce Leadership Project Interview_LTGEN Frewen

[174] Interview_TBI

[175] Interview_S

[176] ACMC Interagency Taskforce Leadership Project Interview_LTGEN Frewen

[177] Interview_H

[178] Interview_P

[179] Interview_M

[180] Interview_C

[181] Interview_S

[182] TBI

[183] ACMC Interagency Taskforce Leadership Project Interview_LTGEN Frewen

[184] ACMC Interagency Taskforce Leadership Project Interview_LTGEN Frewen

[185] Interview_S

[186] Gad et al p. 239

[187] ACMC_LTGEN Frewen

[188] Interview_C

[189] Interview_H

[190] Interview_KN

[191] Interviews_B + M

[192] Interview_MO

[193] ACMC_LTGEN Frewen and Interview_H

[194] Interview_P

[195] Interview_H

[196]

[197] Interview_H

[198] https://www.chathamhouse.org/2022/02/next-pandemic-when-could-it-be