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ARTICLE

How COVID-19 is reshaping U.S. national security policy

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Abstract

In the wake of the COVID-19 pandemic, the United States is actively reshaping parts of its national security enterprise. This article explores the underlying politics, with a specific interest in the context of biosecurity, biodefense, and bioterrorism strategy, programs, and response, as the United States responds to the most significant outbreak of an emerging infectious disease in over a century. How the implicit or tacit failure to recognize the political will and political decision-making connected to warfare and conflict for biological weapons programs in these trends is explored. Securitization of public health has been a focus of the literature over the past half century. This recent trend may represent something of an inverse: an attempt to treat national security interests as public health problems. A hypothesis is that the most significant underrecognized problem associated with COVID-19 is disinformation and the weakening of confidence in institutions, including governments, and how adversaries may exploit that blind spot.

Keywords: biosecurity; bioweapons; deterrence; disinformation; pandemics; infectious diseases; national security; securitization

Introduction

The experience of COVID-19 is actively reshaping parts of the U.S. national security enterprise that are meant to reduce the threat of biological weapons and bioterrorism. This article explores the underlying politics, including rhetoric, that are driving change in the conceptions of military and civilian biodefense and deterrence. The point of the article is not to analyze how the specific virus responsible for COVID-19, or any other individual microbe responsible for emerging infectious disease, might affect bioterrorism or biodefense. Nor is it to suggest implicitly or explicitly that emerging infectious diseases are not serious national-level interests. Rather, it is to unpack how major security policies, such as national-level security strategy, defense budgets, and policies that directly affect military forces, are changing or responding to the experience of the COVID-19 pandemic and its likely impacts in the context of national and international security.

Historically, the process of shifting conceptualization and response to infectious disease from health policy, public health, or science policy to the domain of security has been studied extensively by scholars. This process is called "securitization." The response to COVID-19 has been to accelerate the conceptual amalgamation of emerging infectious diseases and public health with biodefense and biosecurity explicitly in national security and military contexts, particularly in context of defense or military programs. What is being observed is not specifically the exact inverse of securitization of public health—that is, a "public healthization" of biodefense programs—but rather, it is an intermingling of the two, especially in the context of critical aspects of politics and warfare.

This article begins with an overview of the securitization of disease. Then it moves on to an analysis of shifts in defense policy in response to the experience of COVID-19 and discusses the potential implications of that in the context of international security. It then considers an alternative hypothesis

in the context of how the experience of COVID-19 can be conceptualized, largely being observed in parts of the domestic law enforcement community in Europe and the terrorism scholarly community.

Securitization of disease

This section provides an overview of the scholarly concept of securitization and helps situate this article in the broader scholarly field, serving to highlight the change in directionality that will be explored in detail in the following section. The process and consequences of conceptualizing disease or other public health concerns as national security issues is referred to as "securitization." The conceptual move from health or science policy to security has been studied extensively by scholars (Davies, 2008; Elbe, 2009; Enemark, 2007; Evans, 2010; Peterson, 2002; Price-Smith, 2009; Rushton, 2011). Efforts to limit the emergence, spread, and effects of diseases are cited as national or, to a lesser extent, international security risks, for a variety of reasons. Two of the most significant ones are the potential morbidity and mortality that could weaken or decrease a population, including potential effects on political stability and increased armed conflict (Elbe, 2002), and threats to the economy of a state (Garrett, 1994). The inability of a state to adequately respond to an epidemic is seen as having the potential to undermine confidence in a government and affect the political order (Enemark, 2009). The potential to interrupt military operations and deployments—that is, to "throw into disorder military capabilities" (Oshewolo & Nwozor, 2020, p. 271)—or to limit the ability to project and generate military power are examples of direct national security threats posed in the context of COVID-19 and other emerging infectious diseases. The immediate threats to national and international security of COVID-19, specifically, have been examined by other scholars substantively and in detail (Albert et al., 2021; Gronvall, 2020).

There are multiple reasons why public health challenges and responses to infectious diseases may benefit from the process of securitization. Identifying infectious disease as a potential national or international security threat raises the prominence of concerns around health issues, which often corresponds to those issues being prioritized and receiving additional funding (Katz & Singer, 2007). There is also frequently a perception that awareness of a disease and its potential effects will be elevated by identifying it as a national security issue (Elbe, 2006). For example, in 2006, Sam Nunn, a former U.S. senator and elder statesman of counterweapons of mass destruction policy, is cited as having asserted that "the fight against infectious diseases around the world must become a key component of America's national security" (Cook, 2010, p. 19). Conceptions of what are tolerable risks are an important aspect of securitization. This differs from the epidemiologist's approach to risk, which considers how risk associated with disease can be socially constructed and "as society changes so does the perception of risk" (McInnes, 2005, p. 11).

While much of the current context of securitization of disease traces back to the widespread recognition of HIV/AIDS in the Global North in the 1980s (Ostergard, 2005; Price-Smith, 1998), one of the earliest examples of the securitization of domestic public health responses to disease has a direct connection to responding to the perceived threat of an attack against the United States using biological weapons. At the start of the Cold War, President Harry S. Truman ordered all nondefense budgets be reduced and redirected to defense spending in order to meet "the compelling demands of national security" at the start of Korea War (Truman, 1952). The Communicable Disease Center of the U.S. Public Health Service, the predecessor of the U.S. Centers for Disease Control and Prevention, rebranded and expanded its traditional process of public health investigation and reporting as the Epidemic Intelligence Service (EIS), and the activity was considered a national defense expenditure (Fee & Brown, 2001). This was justified by citing the EIS as the "first line of defense" against "biological warfare sabotage" and "needed to counter biological warfare attacks" (Langmuir & Andrews, 1952). Members of the EIS are commissioned officers and part of the U.S. uniformed services, along with the officers and enlisted personnel in the U.S. Army, Navy, and Air Force (10 U.S.C. § 101(a)(5)), with uniforms modeled after those worn by sailors in the U.S. Navy. Not only is the securitization part of EIS history: members literally don it as a uniform when they serve.

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A review of the first 50 years of EIS investigations found that less than 0.7% of the cases involved terrorism or intentional injury (Thacker et al., 2011). The vast majority of EIS deployments and cases investigated are natural outbreaks of infectious disease, chronic disease, occupational conditions, environmental problems, or accidents. Yet the arguments for the need and funding categorization as part of the budgeting process were made in the context of national security broadly and responding to the perceived threat of biological weapons specifically. More recently, securitization of public health and disease has been explored in the context of a perceived increased risk of bioterrorism since the 1990s (Burci, 2014; Burck, 1996; Enemark, 2005). Conceptually, the threats of bioterrorism or biological weapons have long been intertwined with the securitization of public health programs and policies.

Securitization is not without criticism. Concerns and arguments against the securitization of public health and disease largely come from two positions: ethical/normative and medical/public health/epidemiological. The two critical views overlap in many aspects and are often consistent. From a normative political science critique, "framing the issue as a security issue pushes responses to the disease away from civil society toward the much less transparent workings of military and intelligence organizations, which also possess the power to override human rights and civil liberties" (Elbe, 2006, p. 120). There is also concern that in political contests, health, particularly that of nonelite members of a group, may not be prioritized if those issues are entangled with more traditional security and economic priorities (Elbe, 2010). Another critique is that treating infectious disease as a security issue risks it being "treated as a monolithic process," (Curley & Herington, 2011, p. 142), especially in the context of international politics. Security issues are often about power, human will, and territory; disease is not.

National security interests and priorities may not align well with the practices and customs of the medical and public health communities. In some cases, they may drive practices that run directly counter to or undermine the goals of the medical and public health communities. The co-option of a vaccination effort in rural Pakistan to obtain genetic information (DNA) to confirm the location of al-Qaeda leader Osama bin Laden illustrates this potential conflict (Shah, 2011). In the wake of the revelation, vaccination efforts in Pakistan stalled and, since resuming, dozens of people have been killed during vaccination efforts (Roberts, 2012) and polio has again become endemic in parts of the country. One study quantitatively found that the incidence of polio was higher in states with Islamist insurgencies in the wake of the military operation against Bin Laden's walled compound in the north of Islamabad, Pakistan (Kennedy et al., 2015).

Historians also point out that disease, including pandemics, has not necessarily resulted in political instability (de Waal, 2010; Wever & van Bergen, 2014). There are broad historical transformations in which infectious disease is asserted to have led to beneficial outcomes, such as the rise of new economic structures and the modern European world in the wake of the *Yersinia pestis* pandemic, better known as the Black Death (Belich, 2022; Cantor, 2001; Jedwab et al., 2022).

The long-term effect of securitization has also been studied. Past responses by the United States to securitize responses to infectious disease outbreaks did not persist in maintaining disease as part of security policy (Cook, 2010). In the case of HIV/AIDS and the influenza pandemic, this is attributed to it not being perceived as outside the national security community. The larger public never accepted or responded to either infectious disease outbreak as a national security threat. In a third case of an infectious disease outbreak reviewed, the 2003 SARS (severe acute respiratory syndrome) pandemic, it was found that efforts to securitize the response were limited and likely due to the disease having limited effect domestically in the United States. How the broader U.S. public perceives of COVID-19 varies significantly (Funk et al., 2022). No group was found to cite it as an example of a security threat.

U.S. policy shifts in response to COVID-19

Rather than arguing for or against the securitization of responses to disease outbreaks and public health, this article argues that the response to COVID-19 within the U.S. national security community is the inverse of securitization: an attempt to treat national security interests as public health problems,

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specifically in the context of biosecurity policies. This has not previously been observed or analyzed in the context of national security responses to the threats of bioterrorism and biological weapons. The subsequent section explores the potential implications of that shift in the context of international security.

The U.S. government and national security experts appear to be taking a lesson from the experience of COVID-19 that conflates it with biological warfare or suggests that U.S. military and biological defense programs, such as the Chemical and Biological Defense Program (CBDP) of the U.S. Department of Defense (DoD), should refocus on emerging infectious diseases like COVID-19 (Lehrfeld, 2022).

In the United States, the National Defense Strategy sets the DoD's strategic direction and priorities for the armed services for the next four years, including identifying ways and means to address threats and maintain security. It is the highest-level strategy document produced by the DoD and signed by the secretary of defense. The most recent National Defense Strategy was issued in October 2022. It asserted that "COVID-19 also spotlights the costs and risks of future biological threats, whether natural or human-made, for the Department and the Joint Force" (U.S. Department of Defense [DoD], 2022) Also released in the fall of 2022, the National Biodefense Strategy echoes similar ideas: the "COVID-19 response has illuminated both long-standing and newly discovered limitations in local, national, and international biodefense capabilities. It has also resulted in the unparalleled mobilization of citizens, nations, and diverse sectors, and galvanized innovation to address a global biological threat" (White House, 2022). COVID-19 is cited as the motivating impetus at the highest levels of U.S. national security policymaking.

The first lines of the U.S. Secretary of Defense's November 2021 memo on the subject of "Biodefense Vision" assert,

> Since taking office, President Biden has emphasized the importance of bold approaches to defeat the current coronavirus disease 2019 (COVID-19) pandemic, as well as transform the Nation's approach to biodefense. We must prepare to operate in a biological threat environment and support the National biodefense enterprise, both at home and abroad. To support that vision, the Department of Defense (DoD) will prioritize biodefense across the full spectrum of biological threats, from naturally occurring to accidental and deliberate biological incidents. (Austin, 2021).

That is a clear articulation of the priorities for the military. The COVID-19 pandemic is credited with inspiring the DoD to pursue its first biodefense posture review (Magnuson, 2022). Initially anticipated for release in the fall of 2022, rumors of its imminent release continue to appear .

The DoD's CBDP (2022) explicitly names "lessons learned from the coronavirus disease 2019 (COVID-19) pandemic" (p. 1) as a driver of a major change in its approach to research, development, and acquisition of medical countermeasures. That high-level guidance document also asserts that "the threat landscape now also includes the emergence of novel infectious disease pathogens" (CBDP, 2022, p.1). The DoD's CBDP has oversight of the basic scientific research through advanced technology development programs across the entire U.S. military.

Programmatically, a broad-spectrum rather than a specific "one bug, one drug" approach predates the COVID-19 pandemic by at least a decade. In 2005, the CBDP initiated an effort that became known as the Transformational Medical Technologies Initiative to "develop broad-spectrum medical countermeasures against advanced bio-terror threats, including genetically engineered, intracellular bacterial pathogens and hemorrhagic fevers" (DoD, 2008). What is significantly different is that earlier effort specifically identified "the possibility that future state or nonstate adversaries could develop and deploy new genetically engineered biological threats for which current countermeasures would be ineffective and the time needed to develop defense would be insufficient" as a driver of the major policy endeavor as part of science and technology efforts to respond to national security threats that the military might have to face in future years rather than a response to emerging infectious diseases.

Beyond the DoD, other government agencies are making similar assertions:

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> The COVID-19 pandemic has demonstrated how emerging biological threats can cause catastrophic loss of life, sustained damage to the economy, societal instability, and global insecurity. Biological threats can include naturally occurring outbreaks of pathogens, such as Ebola; biotechnology, such as gene modification and genetic data; and bioweapons, such as anthrax. (U.S. Government Accountability Office, 2022).

While this shows some consistency across the U.S. government, it also shows more broadly how the thinking and conclusions drawn from the COVID-19 pandemic were determined and what it was expected to mean for broader U.S. national security. In responding to emerging and persistent public health threats, biological weapons are explicitly linked with emerging infectious diseases and technological developments.

This emphasis and blending can also be seen in the funding choices made. Looking to budgets to understand how governments prioritize and implement strategy is well established in political science and security studies (Adams & Williams, 2010; Williams, 1989). The fiscal year 2022 defense budget request highlighted COVID-19 as the "greatest proximate threat to our nation's security" (Office of the U.S. Under Secretary of Defense (Comptroller)/Chief Financial Officer, 2021), even before the "pacing challenge" from the People's Republic of China in the context of great power competition. While there were economic predictions early in the pandemic that COVID-19 might drive cuts in defense spending and budgetarily "very well might drive a reprioritization away from the DoD" (Egel et al., 2020), the most recent presidential budget request included an increase of $26 billion over fiscal year 2023 levels and $100 billion more than fiscal year 2022 for the Department of Defense (DoD, 2023).

Other arguments, including by a former assistant secretary of defense for nuclear, chemical, and biological defense, have asserted explicitly that the United States should change its deterrence posture (which currently relies heavily on the threat of retaliatory nuclear weapons use) in response to COVID-19 and other potential emerging infectious diseases:

> The U.S. should include a sole-purpose doctrine in the forthcoming Nuclear Posture Review, sustain over time the investments in addressing biological threats that have brought new technologies into use, and formally adopt plans to move toward a deterrence by denial strategy for biological weapon threats. (Parthemore & Weber, 2021)

To be explicit, they do not suggest that the United States should threaten to use nuclear weapons in response to infectious disease, but rather that U.S. national security policy should shift—or expand—from relying on deterrence by punishment, as it has for more than 75 years, to deterrence by denial (Dobson & Marsh, 2006; Gates, 2009; Wirtz, 2005). It is not clear how deterrence by denial will apply, if it is even possible, to infectious disease versus traditional biological weapons. It certainly is an area ripe for scholarly investigation.

Historically, vaccines have been considered part of deterrence by denial strategies, in that they make an attack with such an agent unsuccessful, thereby reducing the incentives for an attacker to do so (Kosal, 2020). Previous work has explored how approaches to bioterrorism deterrence, which focus on pathogen security and defensive control of epidemics, have largely been translated from passive measures used in nuclear deterrence and point to the need for more active bioterrorism deterrence strategies to deal with disease outbreaks such as polio and Ebola (Kosal, 2014). Other work has looked at how deterrence by denial in the context of biological weapons can extend to other modalities of warfare (Koblentz & Mazanec, 2013). At the same time, other scholars have asserted that the offensive threat of biological weapons is more suitable for use as a strategic deterrent than nuclear weapons because "effective deterrence requires only a small possibility of great destruction" (Martin, 2002). Historically, however, that has not been a widely shared conclusion.

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Biological weapons and emerging infectious diseases are different

This article asserts that removing or subsuming recognition of the important distinction of political decision-making implicitly or tacitly in the context of policy around the response to emerging infectious disease and biological weapons is fundamentally problematic. Development, stockpiling, and the use of biological weapons are inherently political decisions with critical connections to warfare and conflict. They are not a lesser included set of emerging infectious diseases. They are different in ways that are important, most significantly in the context of political decisions surrounding identification, countering, and responding when threatened with such weapons or attempting to address development, employment, or other pursuit by an adversarial actor, whether a traditional nation-state or an individual or group espousing violent, extremist ideologies.

Within the nuclear weapons realm, there is a robust literature on the role of political will and the political choice to pursue nuclear weapons (Debs & Monteiro, 2016; Hymans, 2006; Jo & Gartzke, 2007; Lavoy, 1993; Meyer, 1984; Narang, 2017; Sagan, 1996; Solingen, 2007). Theories of why states or nonstate actors pursue biological weapons programs are comparatively less well developed than in the nuclear realm (Chevrier, 1993; Koblentz, 2003, 2013; Martin, 2002). A particularly notable work advancing a political calculus on why states pursue acquisition of biological weapons capabilities comes from one of the most detailed examinations of why the United States chose to renounce its offensive biological weapons program (Tucker, 2002). While the specific motives and driving factors for a state to pursue an offensive weapons program have variability and are subject to internal domestic politics, it is recognized that whether it is a nuclear weapons program or a biological weapons program, it is ultimately a political decision. Choosing to pursue the development, production, and stockpiling of biological weapons is a significant political decision that prompts costs and trade-offs in terms of resources, personnel, intelligence, military options, and standing within the international community. It has implications across multiple aspects of foreign and national security decision-making and the inherently governmental processes that support those policymaking processes.

This matters because the drivers and causes of proliferation are fundamentally different from the causes of emerging infectious diseases. As states seek to reduce the threat of proliferation, recognizing the root and proximal causes, as well as indicators and warnings, is part of identifying and developing programs to support nonproliferation as well as programs to counter proliferation. While this is not the only difference between biological weapons or bioterrorist weapons and emerging infectious disease, it is one of critical importance in the context of politics and national security.

By conceiving of biological weapons and bioterrorism in a public health context of emerging infectious diseases, it lessens the focus on political will and strategic choices that are fundamental to decisions by a state about pursuing, developing, implementing, and or employing in conflict biological weapons or use as a bioterrorist tactic.

These observations reinforce the importance of capacity and capability to prevent and counter biological weapons use and terrorist incidents, including those that employ traditional, improvised, or emerging bioterrorism agents. Policies to prevent include activities and operations to deter or dissuade states or nonstates from pursuing the development, acquisition, or use of weapons of mass destruction (Joint Chiefs of Staff, 2019). Policies to counter include activities and operations to interdict or stop a chemical terrorism plot or attack that is an immediate threat or underway/being executed. These include reducing incentives to pursue, possess, or employ such agents; increasing barriers to acquisition, proliferation, and potential use; and denying the effects of biological agents, whether used by a state or terrorist, through integrated defenses. Preventing and responding to emerging infectious diseases require different strategic approaches and policies.

How the response of COVID-19 will affect potential adversary decision-making is yet to be observed. There is a rich literature on efforts to prospectively simulate the impact of major events, including truly unprecedented ones ("black swans"), on geopolitics (Barma et al., 2016) and specifically considering biological proliferation (Zhang & Gronvall, 2020). More empirical and analytical research and strategic

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thought is needed in biological and bioterrorism weapons-specific context. This is in contrast with the focus of the next section.

The missing affect: Misinformation and disinformation

Perhaps the most significant underrecognized problem associated with the U.S. (and arguably global) response to the COVID-19 pandemic is disinformation and the weakening of confidence in institutions, including but not limited to governments. This is a missing aspect of the current discussions about U.S. policies to reduce biological threats, whether from states or terrorists, in the wake of the COVID-19 pandemic.

Conversely, most terrorism experts—both scholars and operationally oriented—are highlighting how the political discourse around COVID-19 is being exploited by terrorist groups, not for anything related to bioterrorism but to further erode and degrade trust in governments, institutions, and expertise. At the same time, states are using disinformation about biodefense programs to further their political aims. While many of these arguments are beyond this article, the scope and scale of the broader impact on public confidence is important enough to highlight as a trend with impacts on the ability to identify, counter, and respond to emerging infectious diseases and to biological agent threats.

Misinformation and disinformation are powerful tools that have been used throughout history by rulers and regimes. Writings attributed to the sixth-century BCE Chinese general Sun Tzu emphasize the importance of deception and disinformation. Soviet training manuals trace the "science" of disinformation back to 1787, when mock villages were built in Ukraine to give an impression of prosperity as Catherine the Great, empress of Russia, passed through the countryside. Traveling throughout Russia in the 1700s, France's Marquis de Custine noted in his journals, "Russian despotism not only counts ideas and sentiments for nothing but remakes facts; it wages war on evidence and triumphs in the battle" (de Custine, 1987). The intentional use of misinformation and disinformation to erode the legitimacy of foreign governments (Libicki, 2017; Morrell & Kosal, 2021; Richey, 2018) and to increase options for pursuing objectives traditionally achieved through overt military actions (Giles, 2016; Thomas, 2001; Thornton, 2015) by some states is well documented and studied.

The use of misinformation and disinformation about emerging infectious diseases and biological weapons by states and other groups to advance a political agenda or specific ideology is not new. The use of disinformation during the Cold War has been well documented (Romerstein, 2001), including in relation to false accusations of biological weapons development or use (Leitenberg & Zilinskas, 2012) and the origin of emerging infectious disease (Bates, 2009; Boghardt, 2009; Geissler & Sprinkle, 2013; Selvage, 2019; Spetrino, 1998). Internally and externally spread disinformation surrounding the origin and transmission of Ebola in West Africa during the 2014 epidemic complicated response (Vinck et al., 2019). Disinformation about polio vaccines in northern Nigeria in 2003 led to the reestablishment or importation of the poliovirus to 14 countries that were previously disease-free (Butler, 2004; Centers for Disease Control and Prevention, 2006; Nasir et al., 2014).

In the wake of its illegal war against Ukraine, the Russian state has intentionally disseminated misinformation and disinformation about U.S. cooperative threat reduction programs, including civilian-led efforts in Ukraine (Leitenberg, 2020; U.S. Department of State, 2023), and other fantastical allegations, like Ukraine deploying super-soldiers who were subject to genetic modifications or drugs that "completely neutralize[d] the last traces of human consciousness" and turned them into "cruel and deadly monsters" (Sborov, 2022). These allegations have not just been rhetorical but have been made under processes of an international arms control treaty. In 2022, Russia brought allegations that the United States was funding a network of biological weapons laboratories in Ukraine to the United Nations multiple times (Quinn, 2022). Russia demanded a formal consultation pursuant to Article V of the Biological Weapons Convention, which was rejected during a UN Security Council meeting in November 2022 (United Nations, 2022a). In addition to leveraging misinformation and disinformation for use via formal international treaty mechanisms, increased Russian use of diplomatic channels and

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ministerial-level vehicles for disinformation about biological weapons has also been reported (National Academies of Sciences, Engineering, and Medicine, 2022).

From a public health perspective, the misinformation and disinformation surrounding the COVID-19 pandemic and its effects, resulting in increased morbidity and mortality, have been well documented in the United States and globally (Akintobi et al., 2023; Farooq & Rathore, 2021; Gisondi et al., 2022; Islam et al., 2020; Naeem & Boulos, 2021; Pian et al., 2021). Unlike prior pandemics, such as the 1918 influenza outbreak or even the resurgence of polio in 2003–2004, social media is a new, complicating, and potentially escalating factor in addressing the challenges of emerging infectious diseases (Bernard et al., 2021; Gottlieb & Dyer, 2021; Johnson et al., 2022). Jennings and colleagues (2021) found a significant correlation between those who obtain information from relatively unregulated social media sources that employ content-generating algorithms, such as YouTube, Facebook, and TikTok, and lower willingness to be vaccinated. Allington and colleagues (2021) found a positive relationship between the use of social media for information about the virus and belief in misinformation about COVID-19 in the form of "conspiracy theories." They also observed a negative relationship between belief in COVID-19 misinformation and willingness to follow public health recommendations. Other research has looked at the dynamics of situations in which misinformation and disinformation may completely prevent the suppression of an epidemic (Sontag et al., 2022). And all of this is before the use of fraudulent or intentionally manipulated simulation technology enabling impersonations of public figures—that is, "deep fakes"—is widely available (Jacobeen, 2021). Technology is contributing to the increasing complexity and challenges of misinformation and disinformation.

Previous scholarly work has found that susceptibility to misinformation correlates with lower trust in government (Kim & Cao, 2016)—and exposure to misinformation has a strong negative effect on trust in government services and institutions, including those unconnected to the misinformation (Einstein & Glick, 2015)—and with lower trust in scientific institutions and science (Iyengar & Massey, 2018; Lewandowsky & Oberauer, 2016; Stephen et al., 2013). Even when misinformation and disinformation has been corrected, beliefs often persist (Thorson, 2016).

Directly tying disinformation to the erosion of trust in government and weakening of confidence in institutions, "the spread of the narratives that underpin Covid-related extremism poses a threat to democratic institutions by eroding the factual basis that democracies need in order to function properly" (van Dongen, 2021). Freeman and colleagues (2022) found that belief in COVID-19 conspiracies was associated with lower trust in domestic government institutions, including those associated with health care and the military, and in international institutions, such as the World Health Organization. They also found that belief in misinformation about COVID-19 correlated with being significantly less likely to follow recommendations from those institutions. Pickles and colleagues (2021) reported similar findings in Australia, where stronger agreement with COVID-19 misinformation correlated with reduced institutional trust and greater rejection of official government statements and guidance on how to respond. Roozenbeek and colleagues (2020) found that lower trust in scientific institutions and scientists, along with lower numeracy, correlated with higher susceptibility to COVID-19-related misinformation. Notably, this was observed across multiple nation-states.

In the context of the broader threat of terrorism and violent extremism, terrorism scholars and law enforcement agencies in Europe have highlighted the critical lesson of better addressing misinformation and disinformation in context of response to the COVID-19 pandemic. With the headline "Terrorists Attempted to Take Advantage of the Pandemic," Europol's *European Union Terrorism Situation and Trend Report 2021* noted that "terrorists use any opportunity to erode democratic structures, spread fear and polarise society. In 2020, terrorist organisations attempted to take advantage of the global pandemic to spread hate propaganda and exacerbate mistrust in public institutions." In addition to those findings, Europol "also assessed that the COVID-19 pandemic 'accelerated' the polarization of political discourse in the European Union. Terrorists often exploit polarization to spread their ideologies" (Gates, 2021). The report highlighted how the perceived inability of governments to respond, including those outside the United States, has affected terrorist groups. They note that "for those advocating extremist ideologies, the crisis has emerged as an opportunity to advance their narrative" (Europol, 2022, p. 15).

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Specific examples have been offered in which "the impact of the COVID-19 pandemic on terrorism was particularly visible in terms of shaping extremist narratives" (Europol, 2022). For example, an al-Qaeda affiliate in the Maghreb and West Africa, Jama'at Nusrat al Islam wal-Muslimin, attributed the pandemic to supernatural causes directed at the United States and France (Al-Lami, 2020). As part of a 17-minute video message, the group's leader described COVID-19 as "a hidden soldier sent by God to help fight his enemies—specifically referencing France and the United States" (Bulama & Bryson, 2022). Similarly, the leader of the Nigerian Salafi-jihadi group Boko Harem explicitly asserted that the COVID-19 pandemic was "divine punishment for the world for indulging widespread fornication, sodomy, usury, non-payment of mandatory charity (zakat)" (Bukarti, 2020). ISIS's weekly Arabic-language newsletter, *al-Naba*, cited the COVID-19 pandemic as an opportunity for the violent extremist group to demonstrate that the existing government was fragile and, implicitly, that ISIS would be better in control (Bukarti, 2020). In 2022, a UN sanctions team reported that terrorist and violent extremist groups in West Africa had "successfully exploited local grievances and weak governance to command growing numbers of followers and resources" (United Nations, 2022b) in the wake of the COVID-19 pandemic. There is concern that economic hardship and other distress due to the impacts of the pandemic will make it easier for violent extremist groups to recruit new members and supporters (Scheffer, 2020). For states such as Liberia, Guinea-Bissau, Mali, and Gambia, the COVID-19 pandemic led to temporary pauses or cessation of reconciliation, reforms, and other peace-building efforts.

Terrorism scholars have observed that violent extremists will capitalize on crises: "These events [COVID-19] open up the political space for them to fill with misinformation or exacerbate people's fears of the other" (Bloom, 2020). Terrorists and other extremists have been observed to leverage and exploit "uncertainties, anxieties and disruptions caused by the pandemic—as well as a newly captive online audience—in order to feed into and, they hope, broaden the appeal of their narratives" (Ackerman & Peterson, 2020, p. 61). These actions are seen as being ripe for exploitation by violent extremist and other groups recently involved in conflict or sectarian divisions (Edu-Afful, 2020).

While targets of violent extremist rhetoric have included elected officials, politicians, government workers, police, public health officials, and personnel serving at testing and vaccination facilities, it also has not been just rhetoric. Bombing or arson attempts by terrorists in Italy and the Netherlands were reported against COVID-19 vaccine facilities (Europol, 2022). Multiple arsons at cellular telephone towers in the United Kingdom were connected to misinformation connecting 5G mobile technology to COVID-19 (BBC News, 2020). Flaherty and colleagues (2022) found that misinformation linking 5G and COVID-19 was distributed and received attention on alt-right social media sites. In the United States, an engineer employed at the Port of Los Angeles, Eduardo Moreno, caused a train to crash because he was suspicious of the U.S. Navy hospital ship that had docked there and "believe[d] it had an alternate purpose related to COVID-19 or a government takeover" (Zaveri, 2020). Moreno later pleaded guilty to a terrorism charge, acknowledging his role in the incident (U.S. Department of Justice, 2021).

To be explicit, the suggestion is not that COVID-19 or the experience of the pandemic is directly causing terrorism in few, if any, cases. Specifically, the challenges of grappling with the consequences by governments are likely to exacerbate existing social and economic grievances, and that opportunity is likely to be exploited by violent extremists, whether terrorists, insurgents, or lone actors. Disinformation is a part of those groups' rhetoric used against existing governments and institutions.

Confidence in government institutions "has been identified as a cornerstone of the political system, particularly in crises such as natural disasters, economic crises, or pandemics" (Han et al., 2023). An investigative report, led by the executive director of the 9/11 Commission, Philip Zelikow, found that "the leaders of the United States could not apply their country's vast assets effectively enough in practice" (*Washington Post*, 2023). Public and expert concerns about the ability of United States to respond effectively or adequately have been heightened in context of the initial response to the COVID-19 pandemic (Deslatte, 2020; Goldstein & Wiedemann, 2020; Hamilton & Safford, 2021; Latkin et al., 2020; Pollard & Davis, 2021) and the rise in domestic partisanship (Funk et al., 2020; Gadarian et al., 2021; Milligan, 2020; Roberts, 2020; Van Green & Tyson, 2020), which may be especially impactful in working across levels of government—that is, among cities, counties, states, tribal authorities, and the federal

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government—as trust in government correlates positively with effective response in emergency situations (Han et al., 2023; Lau et al., 2020). The public's response in the United States was not mirrored in all states; some nation-states saw trust in government increase, including dramatic rises (Goldfinch et al., 2021; Gotanda et al., 2021).

These observations reinforce the importance of capacity and capability to respond to terrorist incidents, including those that employ traditional, improvised, or emerging bioterrorism agents. The effectiveness of the U.S. National Response Framework and other strategies implicitly relies on a robust capacity to respond, which includes immediate actions to save lives, protect property and the environment, and meet basic human needs and actions to support short-term recovery. This is not a part of the current policy discussion surrounding how U.S. biodefense policy should act in response to the COVID-19 pandemic.

A lesson that the U.S. government is not fully appreciating is that misinformation and disinformation have the potential to be the most impactful aspect of not being able to respond to an emerging infectious disease. As new emerging infectious diseases threaten populations, it is within U.S. national security interests to prepare for—and counter—the threats posed by misinformation and disinformation, including those aided by new technologies.

Conclusions

The goal of this article has not been to document or speculate on how the specific virus COVID-19 or any new emerging microbe might affect bioterrorism or biodefense, but to unpack how major security policies such as national-level security strategy, defense budgets, and security policies are changing or responding to COVID-19 and the missing effects in the context of national and international security. This may be more pronounced in consequences in the context of the U.S. strategic shift to focus on great power competition and to de-emphasize violent extremism/terrorism.

Most importantly, this research asserts that removing or subsuming recognition of the important distinction of political decision-making implicitly or tacitly in the context of policy around response to emerging infectious disease and biological weapons is fundamentally problematic. Development, stockpiling, and use of biological weapons are inherently political decisions with critical connections to warfare and conflict. They are not a lesser included set of emerging infectious diseases. They are different in ways that are important, most significantly in the context of political decisions surrounding identifying, countering, and responding when threatened with such weapons or attempting to address development, employment, or other pursuit by an adversarial actor, whether a traditional nation-state or an individual or group espousing violent extremist ideologies. By conceiving of biological weapons and bioterrorism in a public health context of emerging infectious diseases, it lessens the focus on political will and strategic choices that are fundamental to decisions by a state about pursing, developing, implementing, and or employing in conflict biological weapons or use as a bioterrorist tactic. This will affect policies to prevent and counter biological weapons and bioterrorism.

A significant underrecognized problem associated with COVID-19 is disinformation and the weakening of confidence in institutions, including but not limited governments. The critical need for clear and consistent information is recognized at the federal level in responding to bioterrorism incidents; how to deal with misinformation and/or disinformation is often not included. The United States and other states would benefit from investing more in efforts to address and counter misinformation and disinformation and confidence in government. These types of efforts are particularly challenging structurally given the federal nature of the U.S. system, which pushes much of the policies and authority for the basics of government to the state, county, tribal, and local levels. And they are challenging because of the current high levels of partisanship. In 2022, the U.S. Department of Homeland Security (DHS) attempted to establish an advisory board with the aim of "disseminating guidance to DHS agencies on combating misinformation, malinformation, and disinformation" (U.S. Department of Homeland Security, 2022). It was derailed due to domestic politics, hyperpartisanship, and attacks on the

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head of the board (Dunleavy, 2022; Garver, 2022; Getahun, 2022; Johnson, 2022; Myers & Kanno-Youngs, 2022). Notably, the office would not have explicit policymaking capabilities, but rather would have been advisory in nature. A validated need remains (Office of Inspector General, 2022); this is a fundamentally political challenge, and it is not new. Nonetheless, the United States needs to continue to invest in efforts to counter misinformation and disinformation.

These findings have implications for deterrence and arms control/nonproliferation efforts related to biological weapons, bioterrorism, and reducing the risk of technology, such as advanced genetic engineering and artificial intelligence, being misused to create, weaponize, and deploy biological weapons. This should be of particular interest to scholars in security studies, especially in the area of biodefense. Scholarship on the potential for emerging technologies, like artificial-intelligence-enabled "deep fakes," to further the problems of misinformation and disinformation, and the role rhetoric about emerging technologies, such as advances in genetic engineering, nanobiotechnology, and synthetic genomics, have in geopolitics. The scale of dissemination of new technologies is an important factor in these distinctions: a potentially disruptive technology is one that has been widely adopted and employed.

Further work on understanding and analyzing the role that misinformation and disinformation surrounding biology and advances in the life sciences have played in geopolitics historically and epistemic groups and institutions, like scientists, public health practitioners, physicians, and associated institutions and the implications the future, including in context of changing technology and levels of trust in those groups and institutions, is also needed. Another topic worthy of more attention is why there is so much more misinformation and disinformation about biological weapons in comparison to chemical and nuclear weapons. The first-order hypothesis is that biological species have greater uncertainty, or perceived uncertainty, surrounding them, but that needs to be investigated empirically. At the same time, there is a need for better analytical frameworks to understand the implications of emerging technologies on conflict and cooperation. Following from that how can policymakers thread the needle metaphorically between exaggerating the threat and encouraging misinformation and disinformation and ignoring indicators of emerging threats? Effectively countering misinformation and disinformation on an international political scale will require dedicated effort by the United States and allies to counter effectively efforts by competitors, adversaries, and others.

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