

# BRIEFER

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## Beyond Weapons of Mass Destruction: Time for a New Paradigm?

*Natasha E. Bajema*

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### Introduction

The term weapons of mass destruction (WMD) represents more than just the chemical, biological, radiological, and nuclear (CBRN) weapons that it commonly indicates. It also represents a threat paradigm. There is a longstanding, bipartisan agreement about the U.S. security environment dating back to the end of the Cold War that CBRN weapons in the hands of certain states and violent non-state actors pose one of the greatest threats to U.S. national security. Use of such weapons, though often viewed as having a low probability, have been given high priority due to their potential for significant impact.

And yet, both the term and threat paradigm may no longer be an ideal fit for the threats of the 21st century. CBRN weapons can be used in ways that cause very limited effects to world-changing destruction, and everything in between. The term WMD therefore may not be helpful in thinking about the cases of their use in recent decades, in which both state and violent non-state actors have seemed to favor tactical use of CBRN with tailored effects. Most recent attacks have involved the use of chemical weapons for assassination attempts (by Russia and North Korea) or for use in civil war in attacks on targeted neighborhoods (in Syria's case), and to drive disproportionate psychological damage.

Meanwhile, the common use of the term WMD today neglects the mass-destruction potential and actual, ongoing damage by systemic risks such as climate change, cyberattacks, and global pandemics. Though demonstrating their tangible potential for causing widespread and devastating effects for U.S. national security, these threats have still not achieved the same policy priority. There are many more potential scenarios on the horizon. New technologies such as drone swarms and offensive cyber weapons have the potential to generate mass effects, rising to the level of a notional WMD. The convergence of multiple technologies in unexpected ways could generate even higher levels of destruction and casualties. Indeed, nuclear arms control experts are pondering whether in the future such cooperative security solutions should be limited to the nuclear realm, given how strategically important most countries consider these other types of weapons. Moreover, CBRN and other weapons can certainly hold strategic effects even when the destruction by their use is not of mass scale.

Given the limited resources for shoring up U.S. national security, and the diverse and dynamic changes that are influencing the international strategic environment, it is important to consider whether the threat paradigms that influence security solutions are fitting and useful, or should be modified. Should CBRN weapons continue to remain the only components of what is considered WMD? Are there new types of technologies and scenarios that rise to the level of WMD that should also be considered just as threatening and rising to what we consider strategic threats? If so, what are the implications for how the U.S. government should organize to meet the national security challenges of the 21<sup>st</sup> century?

The international legal and warfare histories that have shaped what we today consider WMD go back well over a century. Addressing national security threats effectively requires reexamining such paradigms from time to time. The threats and uses of WMD have evolved in recent decades, pointing to the timeliness of such a reexamination. This is the first in a three-part briefer series that will deconstruct the concept of WMD and its role in U.S. national security policy in an effort to answer these important questions.

This briefer explores the potential implications of the different treatment of two deadly chemicals by the U.S. national security community—fentanyl and novichoks. Though there are other examples (e.g., the HHS and USDA’s Select Agents and Toxins List), this case illustrates just how narrowly the boundaries for the term WMD have been drawn,.

It concludes with a brief discussion about the need to move beyond the current WMD paradigm and think more broadly about *mass effects* as a framing to help navigate national security strategies and resource allocation.

### **The Triple Threat: Is Fentanyl an Addictive Pharmaceutical, an Illegal Drug, and a Potential WMD?**

The opioid crisis—caused by growing addiction to prescription drugs, heroin, and synthetic opioids such as fentanyl—has reached cataclysmic levels in the United States, causing about 130 deaths per day and costing the economy about \$78.5 billion per year in health costs and loss of

productivity.<sup>1</sup> Already considered a major public health emergency, does misuse of fentanyl rise to the level of a national security threat? Within the U.S. government bureaucracy, the answer to that question largely depends on whether fentanyl and its analogs should be designated as a WMD.

Fentanyl is a pharmaceutical drug, medically prescribed as shots, patches, or lozenges for anesthesia and severe pain management. It is a synthetic opioid considered about 50 to 100 times more potent than morphine, according to the National Institute on Drug Abuse.<sup>2</sup> In addition, it is available in numerous analog forms, including some that are considerably more potent than the original version. Carfentanil, for example, is about 100 times more potent than fentanyl.<sup>3</sup>

Synthetic fentanyl and its analogs are street drugs, produced and sold illegally as powders and often mixed as additives with other drugs such as heroin, cocaine, and methamphetamine. Produced in China in mass quantities and available for purchase on the Dark Web, fentanyl analogs offer cheap additives for other drugs since only a little amount produces a powerful high, increasing profit margins for drug dealers. The marginal difference between a lethal and nonlethal dose (less than a milligram) makes it extremely dangerous for drug users, who may be unaware of the additive and accidentally die of an overdose.<sup>4</sup>

In April 2019, the military news publication *Task and Purpose* reported that the Department of Homeland Security and Department of Defense were considering designating fentanyl and its analogs as a WMD “when certain criteria are met.”<sup>5</sup> The news report spurred a contentious debate amongst experts about whether or not fentanyls should constitute WMD and the various implications for classifying a pharmaceutical-based agent as such under U.S. law.

Despite their lethality, fentanyls are not considered chemical warfare agents under the Chemical Weapons Convention (CWC), unless they are used as weapons. Under the so-called general purpose criterion, the CWC considers riot control agents like fentanyls as chemical warfare agents only if used as a weapon of war. Thus, under existing international law, fentanyls can be considered WMD, but only when used in contravention of the CWC. The treaty also specifically allows member states the use of certain incapacitating agents for riot control and law enforcement purposes. According to the James Martin Center for Nonproliferation Studies, the U.S. government evaluated opiate derivatives as incapacitating agents as part of its chemical

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<sup>1</sup> National Institute on Drug Abuse, <https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-crisis>; U.S. Department of Health and Human Services, <https://www.hhs.gov/opioids/about-the-epidemic/index.html>

<sup>2</sup> National Institute on Drug Abuse, <https://www.drugabuse.gov/publications/drugfacts/fentanyl>

<sup>3</sup> “Carfentanil: A Dangerous New Factor in the U.S. Opioid Crisis,” Officer Safety Alert (Drug Enforcement Administration, n.d.). <https://www.justice.gov/usao-edky/file/898991/download>

<sup>4</sup> Department of Homeland Security, *Proceedings from the 2017 Fentanyl Working Meeting*, Washington D.C.: DHS, 2018. <https://www.dhs.gov/sites/default/files/publications/ochco-dhs-proceedings-from-fentanyl-working-meeting-20180501.pdf>

<sup>5</sup> Paul Szoldra, “DHS is considering classifying fentanyl as a ‘weapon of mass destruction,’” *Task and Purpose*, 15 April 2019. <https://taskandpurpose.com/dhs-fentanyl-wmd>

weapons research during the Cold War.<sup>6</sup> However, the U.S. government rejected them due to the tiny difference between incapacitating and lethal doses, which made them unsafe for military or law enforcement use.

Demonstrating the dangers of using fentanyl as riot control agents, Russian law enforcement officers undertook a rescue operation in 2002 and freed about 800 hostages held by armed Chechen terrorists by pumping the aerosol of fentanyl analogs into Moscow's Dubrovka theater. They ended up killing the terrorists along with 117 of the hostages.<sup>7</sup> Despite the tragic outcome, the international community offered no objections. In fact, some embraced it, offering words of congratulations to Russian President Vladimir Putin on his handling of the crisis.<sup>8</sup> The international reaction appears to have legitimized the employment of fentanyl under the CWC's law enforcement exemption.<sup>9</sup>

From a national security perspective, the debate about classifying fentanyl as WMD revolves around the potential threat of state or violent non-state actors developing, acquiring, or using fentanyl as weapons to cause mass harm and destruction. Andy Weber, former Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs and a Senior Fellow at the Council on Strategic Risks, has suggested that fentanyl is “disturbingly” easy to weaponize—i.e., easily prepared for delivery to a target in order to kill people.<sup>10</sup> There is a growing black market for fentanyl with large quantities available for purchase, making it easy for nefarious actors seeking to cause harm with them.

Other experts such as Dan Kaszeta, former Chemical Officer in the U.S. Army, disagree with this assessment, arguing that the use of fentanyl as weapons would be a “fringe scenario.”<sup>11</sup> He argues there are many toxic chemicals that could easily be weaponized with minimal expertise. Fentanyl is more likely to be sold by violent non-state actors to fund the purchase of weapons or other activities given their high value as a street drug.<sup>12</sup> Moreover, the widespread availability of an effective antidote (albeit one that can be difficult to effectively employ) might make fentanyl unattractive weapons to actors seeking to cause mass harm.

Some government officials argue against designating fentanyl as WMD due to significant budgetary and legal implications. For example, it would allow other agencies such as the

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<sup>6</sup> Chemical and Biological Weapons Nonproliferation Program, “The Moscow Theater Hostage Crisis: Incapacitants and Chemical Warfare,” 4 November 2002, Monterey, CA: James Martin Center for Nonproliferation Studies, 2002. <https://www.nonproliferation.org/the-moscow-theater-hostage-crisis-incapacitants-and-chemical-warfare/>

<sup>7</sup> James R Riches et al., “Analysis of Clothing and Urine from Moscow Theatre Siege Casualties Reveals Carfentanil and Remifentanil Use,” *Journal of Analytical Toxicology* 36, no. 9 (December 2012): 647–56.

<sup>8</sup> Steven L. Myers, “Hostage Drama in Moscow: Russia Responds; Putin Vows Hunt for Terror Cells Around the World,” *The New York Times*, October 29, 2002, <https://www.nytimes.com/2002/10/29/world/hostage-drama-moscow-russia-responds-putin-vows-hunt-for-terror-cells-around.html>

<sup>9</sup> Robin M. Coupland, “Incapacitating Chemical Weapons: A Year after the Moscow Theatre Siege,” *Lancet* 362, no. 9393 (October 25, 2003): 1346–1346.

<sup>10</sup> David Shortell, “Pentagon, DHS considering designating fentanyl a WMD, memo says,” *CNN*, 21 April 2019. <https://www.cnn.com/2019/04/21/politics/dhs-fentanyl-wmd/index.html>

<sup>11</sup> See Szoldra, “DHS is considering classifying fentanyl as a 'weapon of mass destruction’”.

<sup>12</sup> *Ibid.*

Department of Health and Human Services and the Department of Homeland Security to leverage resources typically reserved for managing national security issues. These resources may be redirected to address the broader risks associated with fentanyl. For example, U.S. policymakers would be able “to more effectively divert resources to building technology that could detect shipments of fentanyl” and help prevent any nefarious actors from using them as weapons.<sup>13</sup> In addition to reducing national security threats posed by fentanyl, such efforts might help to stem the opioid crisis and disrupt widespread availability on the black market. Some nongovernmental experts argue against the designation of fentanyl as WMD, claiming such a move merely represents a blatant attempt to assign greater priority to WMD in a tight resource environment.<sup>14</sup>

Others are concerned about blurring the lines between countering WMD and countering narcotics to the detriment of both missions. In some ways, the drug trade and opioid epidemic are far more complex problems than managing the risks of WMD. Whereas some WMD-related materials, equipment, and technology (especially nuclear and certain biological agents) are highly controlled and thus difficult to acquire by most actors, fentanyl is widely used by hospitals and doctors and produced illicitly in large quantities for sale on the black market. Ryan Marino, an emergency medicine physician and medical toxicologist at the University of Pittsburgh, warns that new national security-related restrictions could reduce availability of this medically important drug.<sup>15</sup> If the designation as a WMD leads to tighter control of fentanyl, doctors may have to seek less effective alternatives.<sup>16</sup>

The discussion about policy consequences of formally designating fentanyl as WMD under U.S. law are important, including for their medical and legal implications. However, the fentanyl--- and ongoing debate about their designation as WMD---shows the critical importance of a broader reexamination of how we classify and prioritize threats. Fentanyl has contributed to about 50,000 deaths per year in the United States over the past five years. This tragedy is fueling an important debate and highlights the need to reexamine the utility and scope of the “mass destruction” framing.

### **Russian Novichoks: Strange Tales about a Lethal, Old Newcomer**

Unlike fentanyl, novichoks have long been designated as WMD due to their development as chemical warfare agents in the 1970s and 1980s by the former Soviet Union. For decades, the new class of nerve agents, novichoks (meaning “newcomers” in Russian), remained both highly classified and greatly feared as the next generation of chemical warfare. Though considered several orders of magnitude more lethal than known nerve agents such as VX and sarin, novichoks have never been used on the battlefield.

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<sup>13</sup> See David Shortell, “Pentagon, DHS considering designating fentanyl a WMD, memo says”.

<sup>14</sup> Sarah Jones, “No, Fentanyl Isn’t a Weapon of Mass Destruction,” *New York Magazine*, 15 April 2019. <http://nymag.com/intelligencer/2019/04/fentanyl-isnt-a-weapon-of-mass-destruction.html>

<sup>15</sup> Shira Stein, “Labeling Fentanyl as Mass Weapon May Further Curb Medical Uses,” *Bloomberg Law*, 26 April 2019. <https://news.bloomberglaw.com/health-law-and-business/labeling-fentanyl-as-mass-weapon-may-further-curb-medical-uses>

<sup>16</sup> *Ibid.*

Novichoks burst onto the international political scene in 2018 when a Russian ex-spy Sergei Skripal and his daughter Yulia fell ill after being exposed to a novichok agent on the front door handle of Skripal's house.<sup>17</sup> They were found unconscious on a city park bench located in Salisbury, United Kingdom, immediately hospitalized, and treated for exposure to nerve agents. Although both recovered, along with a sickened police officer, a British couple, Charlie Rowley and Dawn Sturgess, were exposed to the same nerve agent from a discarded perfume bottle in Amesbury four months later.<sup>18</sup> Whereas Rowley recovered after treatment, Sturgess, who was believed to have received a higher dose from directly handling the bottle, died after several days in the hospital. Despite the implications of the choice of weapon and target, Russia denied any involvement in the assassination attempt on British soil.

Developed by the Soviets to circumvent detection by NATO troops, novichoks are a class of persistent chemical compounds. Like other nerve agents, they interfere with the proper functioning central nervous system by inhibiting the enzyme acetylcholinesterase.<sup>19</sup> Novichoks occur as liquids, in solid form (as a powder or thick paste), and also as binary weapons (stored as two separate toxic chemicals). Unlike some other nerve agents, novichoks do not take the immediate form of a gas and are therefore primarily a contact hazard, to be absorbed through the skin.<sup>20</sup> Though highly lethal, exposure to novichoks can be treated by the drugs atropine and oxime, which are used for treating exposure to other nerve agents, if they are administered rapidly enough.

Despite their origins as a chemical warfare agents, novichoks have been primarily used as an assassination weapon, most recently in the poisoning of Alexi Navalny in August 2020. Their use to target individuals is a strange irony according to Andy Weber. From his time at the Pentagon, Weber acknowledged that the Department of Defense expended significant resources to protect against the use of such agents against U.S. troops in warfare, given their designation as WMD, but neglected to consider their use for assassinations since they would be easily traced to Russia.<sup>21</sup> Experts suggest novichoks make useful assassination weapons since “the resulting deaths can easily escape scrutiny, appearing like nothing more sinister than a fatal heart attack.”<sup>22</sup> However, in both known cases, the use of such agents was quickly detected and

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<sup>17</sup> Ellen Barry and David E. Sanger, “Poisoned Door Handle Hints at High-Level Plot to Kill Spy, U.K. Officials Say,” *The New York Times*, April 1, 2018, <https://www.nytimes.com/2018/04/01/world/europe/russia-sergei-skripal-uk-spy-poisoning.html>

<sup>18</sup> “Novichok Nerve Agent Identified in Amesbury Poisoning, Police Say,” *Global Biodefense*, July 5, 2018, <https://globalbiodefense.com/2018/07/05/novichok-poisoning-amesbury/>

<sup>19</sup> Ellen Barry and Ceylan Yeginsu, “The Nerve Agent Too Deadly to Use, Until Someone Did,” *The New York Times*, March 13, 2018, <https://www.nytimes.com/2018/03/13/world/europe/uk-russia-spy-poisoning.html>; Peter R. Chai, Bryan D. Hayes, Timothy B. Erickson, and Edward W. Boyer, “Novichok agents: a historical, current, and toxicological perspective,” *Toxicology Communications*, Vol 2, No 1 (June 2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039123/>

<sup>20</sup> Ellen Barry and Ceylan Yeginsu, “The Nerve Agent Too Deadly to Use, Until Someone Did.”; see also Daniel Kaszeta, “What the Security Profession can Learn from the Novichok Crisis,” *The Professional Security Officer*, <https://theprofessionalsecurityofficer.com/what-the-security-profession-can-learn-from-the-novichok-crisis-by-dan-kaszeta/>

<sup>21</sup> Ellen Barry and Ceylan Yeginsu, “The Nerve Agent Too Deadly to Use, Until Someone Did.”

<sup>22</sup> Richard Perez-Pena, “What Is Novichok, the Russian Nerve Agent Tied to Navalny Poisoning?” *The New York Times*, September 2, 2020, <https://www.nytimes.com/2020/09/02/world/europe/novichok-skripal.html>

treated, implicating the Russian government and resulting in mass publicity, international controversy, and condemnation.

When novichoks first became public knowledge in 2018, the agents were not yet listed in the CWC's Annex on Chemicals. They were therefore not controlled by member states as chemical warfare agents.<sup>23</sup> The assassination attempt led several members to submit proposals to the Organization for the Prohibition of Chemical Weapons (OPCW) to amend the CWC's schedules.<sup>24</sup> After more than a year of negotiations, CWC members agreed to add four new classes of chemicals to Schedule 1, including novichoks.<sup>25</sup> The amendment entered into force on June 7, 2020.

Unlike fentanyl, novichoks are designated as WMD and were considered a national security with broad backing from the international community. These three incidents (Salisbury, Amesbury, and Navalny) involving novichok poisoning led to a total tally of one death and six hospitalizations. The UK's cleanup operation to decontaminate sites in Salisbury and Amesbury from any residual agent took as many as 355 days, thousands of test samples, and tens of thousands of hours of labor and cost as much as USD \$16 million.<sup>26</sup>

These bold attacks had strategic effects, to be sure. However, the lower casualty rates and response costs compared to those caused by the U.S. opioid crisis showcase the importance of reexamining whether traditional definitions of "mass destruction" weapons best instruct and serve the interests of national and international security.

What characteristics make fentanyl and novichoks so different? Both were considered as potential chemical warfare agents by international experts. Whilst novichoks were developed as such, fentanyl was redirected by the Russian government for employment as riot control agents and used as an assassination tool. In contrast to novichoks, which are highly controlled and difficult to produce, fentanyl is widely used in medicine, available for purchase on the open market. They are even more accessible on the black market and relatively easy to produce in a lab. When the impact of these two chemicals are measured side by side, fentanyl is today generating a more devastating effect and their misuse may offer a higher probability mass-devastation scenario due to accessibility. This begs the question: why does one have higher national security priority than the other? One is classified as a WMD, and the other is not.

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<sup>23</sup> Richard Stone, "Poison used in recent attack on Russian spy may soon be banned," *Science Magazine*, October 23, 2019, <https://www.sciencemag.org/news/2019/10/poison-used-recent-attack-russian-spy-may-soon-be-banned>

<sup>24</sup> Stefano Constanzi and Gregory D. Koblentz, "Controlling Novichoks after Salisbury: revising the Chemical Weapons Convention schedules," *The Nonproliferation Review*, Vol 26, Issue 5-6 (Sep 2019), <https://www.tandfonline.com/doi/full/10.1080/10736700.2019.1662618>

<sup>25</sup> Stefano Constanzi and Gregory D. Koblentz, "Updating the CWC: How We Got Here and What Is Next," *Arms Control Today*, April 2020, <https://www.armscontrol.org/act/2020-04/features/updating-cwc-we-got-here-what-next>

<sup>26</sup> "Salisbury declared decontaminated after Novichok poisoning," *BBC*, March 1, 2019, <https://www.bbc.com/news/uk-england-wiltshire-47412390>; Tom Wells, "Salisbury spy poison plot has cost the Ministry of Defence £18m on staff and specialist clean up gear," *The Sun*, June 24, 2019, <https://www.thesun.co.uk/news/9358411/salisbury-spy-poison-cost-ministry-defence-18million/>

## Conclusion

What makes a weapon of mass destruction a WMD? What are the criteria for designating a potential weapon as such? If policy priority is given to WMD over other threats with potential mass effects, then the answers to these questions have important implications for U.S. national security.

Despite the relative importance of WMD to U.S. national security policy, there are no satisfying answers to these questions. The specific characteristics of a WMD have not been adequately debated among policymakers in recent times, even while the designation of WMD or lack thereof conveys major policy implications. The criteria most often used to describe a WMD—i.e., the potential to cause mass destruction or mass casualties—are also not well elucidated. Although the originators of the term WMD in the 1940s intended for it to remain flexible, allowing for the addition of any other weapons with similar effects, we have rarely reconsidered how to leverage this flexibility to find best-fit threat paradigms given how technologies, geopolitics, and the character of conflict have been evolving.<sup>27</sup>

The similarities and differences between fentanyl and novichoks show the importance of considering *mass effects* more broadly than what has been captured in 20th century definitions. The fact that tens of thousands of people are being killed in the United States by fentanyl in recent years is sparking a critical debate about how we understand, classify, and prioritize threats. This points to broader questions for how we understand the greatest threats the United States and international community face.

Such threats evolve over time, as has always been the case. The quest for effective solutions must also entail regular reexamination of how we frame significant threats. The cases presented in this paper should serve as a starting point for such a quest, and they will be built upon in the forthcoming briefers in this series.

*Natasha E. Bajema is Director of the Converging Risks Lab, and Senior Fellow at the Janne E. Nolan Center on Strategic Weapons, at the Council on Strategic Risks.*

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<sup>27</sup> The term was first used in 1937 by William Cosmo Gordon Lang, the Archbishop of Canterbury, in his Christmas address. See W. Seth Carus, *Defining “Weapons of Mass Destruction”*, Occasional Paper No. 8, Washington D.C.: National Defense University, 2012.

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