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### **Mischaracterizing U.S. Nuclear Deterrence Policy: The Myth of Deliberate Civilian Targeting**

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#### **Introduction**

As the debate over the proper role for nuclear weapons in U.S. national security strategy heats up, commentators and analysts continue to mischaracterize U.S. nuclear deterrence policy as one based on the deliberate targeting of cities and urban areas – consistent with the policy of “Mutual Assured Destruction” (MAD) espoused by former Secretary of Defense Robert McNamara in the 1960s. For example, one analyst recently wrote, “Today, MAD remains at the core of strategic deterrence,” noting that both the United States and Russia can “destroy at least 150 urban centers in each country.”<sup>1</sup>

In an attempt to determine the appropriate size and configuration of the U.S. nuclear arsenal vis-à-vis the Soviet Union, Secretary McNamara developed a series of quantitative metrics that were thought to be sufficient to ensure the effective and credible functioning of deterrence. Though the actual numbers varied over time in subsequent statements made by McNamara, the basic belief was that as long as the United States possessed the nuclear capacity to destroy 25-30 percent of Soviet population and 50-75 percent of the Soviet Union’s industrial capacity, deterrence would be assured, as no Soviet leadership would risk that level of destruction. To accomplish this goal, McNamara postulated that the United States required the equivalent of 400 megatons of nuclear destructive power. This would result in the “assured destruction” of



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the Soviet Union as a functioning, viable society. Anything beyond this would simply be “overkill” and was unnecessary for effective deterrence.<sup>2</sup>

McNamara’s Assured Destruction criteria became the basis for U.S. nuclear planning throughout the 1960s and formed the foundation of a theory of deterrence that came to be known as “Mutual Assured Destruction.” The principle of Mutual Assured Destruction (or “MAD” as it was called) assumed that because both the United States and Soviet Union could cause such massive devastation to each other’s society, neither side would ever contemplate striking the other first with nuclear weapons. The resulting “balance of terror” was therefore deemed sufficient to ensure the successful functioning of deterrence in perpetuity and became the definition of deterrence “stability.”

### **Lingering Misperceptions**

Over the subsequent decades, despite significant changes to U.S. nuclear strategy and targeting doctrine, analysts who have an insufficient understanding of the evolution of U.S. nuclear policy have continued to suggest that U.S. nuclear weapons strategy is still based on the principle of Mutual Assured Destruction – namely, that the essence of deterrence is the ability (and presumably willingness) of the United States to engage in “countervalue” strikes that target Russian “soft targets” such as urban areas and industrial capacity with its nuclear arsenal (as opposed to “counterforce” strikes that target military assets).

For example, a recent BBC commentary declared that mutual assured destruction is “[a] Cold War creation that still applies today: the assumption that if one side launches nuclear weapons, the other side will respond in kind and everyone dies.”<sup>3</sup> A retired Marine Corps officer and former Department of Defense employee recently wrote, “The US retains faith in the doctrine of mutual assured destruction (MAD). MAD contributed to its Cold War victory, and it is assumed to still be effective today.”<sup>4</sup> Another commentary explained, “It is this fear that our destruction would be mutually assured (MAD - mutual assured destruction - military doctrine), that has kept militaries in check throughout the Cold War up until today.”<sup>5</sup> Yet another analyst declared, “The U.S. has a huge nuclear stockpile...which is designed to deter nuclear attacks on America via the doctrine of mutually assured destruction, or MAD. Any country that launches a nuclear weapon at the U.S. can expect a swift and overwhelming response in kind, that it would find impossible to block.”<sup>6</sup> And, as yet another commentator suggested, “Deterrence stability...rests on the prospect of Mutually Assured Destruction (MAD), as explained by cold war nuclear strategist Schelling, ‘[If] two powers show themselves equally capable of inflicting damage upon each other by some particular process of war so that neither gains an advantage from its adoption and both suffer the most hideous reciprocal injuries, it is not only possible but it seems probable that neither will employ that Means.’”<sup>7</sup>



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The notion of Mutual Assured Destruction assumes that the United States *deliberately* plans to target cities in order to *maximize* the number of casualties in a nuclear exchange, thereby making such an exchange too horrendous to contemplate. Ironically, this notion – that the best way to prevent nuclear war is to make it as destructive as possible – was seen during the Cold War as the morally superior position. Any movement to reduce the level of potential destructiveness of a nuclear conflict or to develop effective defenses that could protect at least a portion of the American population in the event of a nuclear conflict, was considered to be “destabilizing” and morally repugnant, as it suggested to some that the United States could, and should, seek to fight and survive a nuclear war – a prospect too unthinkable for some.

Some believe that MAD is a fact of life, similar to an immutable law of physics – a reality that cannot be escaped. For example, Graham Allison, a political scientist and Harvard professor, stated, “We still live in what strategists called a MAD world, a world of mutual assured destruction. So if we ended up in a full-scale nuclear war between Russia and the U.S. both nations could be destroyed. That reality is constant across the spectrum.”<sup>8</sup>

### **The Evolution of U.S. Nuclear Targeting Strategy**

The reality, however, is that U.S. nuclear strategy since the mid-1970s has sought to deliberately *avoid* targeting cities – consistent with the Law of Armed Conflict and “Just War” principles that date back centuries and preclude the intentional targeting of civilian populations.<sup>9</sup> This has been evident in official bipartisan policy pronouncements from the Nixon to the Biden administrations. It is also a key principle behind the development of conventional precision munitions intended to minimize inadvertent civilian casualties.

For example, in 1974, *National Security Decision Memorandum (NSDM) 242* – dubbed the “Schlesinger Doctrine” – stated that “options should be developed in which the level, scope, and duration of violence is limited in a manner which can be clearly and credibly communicated to the enemy.”<sup>10</sup> NSDM-242 also called for “a wide range of limited nuclear employment options which could be used in conjunction with supporting political and military measures (including conventional forces) to control escalation.”<sup>11</sup> This policy guidance led to the development of limited nuclear options (LNOs) intended to provide the United States with credible response options short of all-out strategic nuclear war in order to limit the scope and extent of any potential nuclear conflict. The desire to control escalation and limit the damage caused by nuclear use was the antithesis of the mutual assured destruction policy that was predicated on maximizing potential casualties and the level of destruction.

*Presidential Directive (PD) 59*, signed by President Jimmy Carter in 1980, outlined U.S. nuclear weapons employment policy. This “countervailing strategy” called for flexible capabilities that could hold at risk “a full range of [Soviet] military targets,”<sup>12</sup> to include both nuclear and conventional military forces, with “the major weight of the initial response on military and



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control targets.”<sup>13</sup> The guidance explicitly stated that “Methods of attack on particular targets should be chosen to limit collateral damage to urban areas, general industry and population targets....”<sup>14</sup> This clearly represented a further repudiation of the notion that U.S. retaliatory forces should initially and deliberately target civilian population centers as part of a policy of Mutual Assured Destruction.

More recently, the notion of flexible response options that seek to avoid targeting civilian population centers and other “soft” targets has been embedded in various subsequent U.S. strategy documents approved by multiple U.S. administrations on a bipartisan basis. For example, the Obama Administration’s 2013 *Report on Nuclear Employment Strategy of the United States* explicitly notes:

The new guidance requires the United States to maintain significant counterforce capabilities against potential adversaries. The new guidance does not rely on a “counter-value” or “minimum deterrence” strategy.

The new guidance makes clear that all plans must also be consistent with the fundamental principles of the Law of Armed Conflict. Accordingly, plans will, for example, apply the principles of distinction and proportionality and seek to minimize collateral damage to civilian populations and civilian objects. The United States will not intentionally target civilian populations or civilian objects.<sup>15</sup>

Subsequently, the Trump Administration’s *Report on the Nuclear Employment Strategy of the United States – 2020* acknowledged, “The United States has for decades rejected a deterrence strategy based on purposely threatening civilian populations, and the United States will not intentionally target civilian populations.... U.S. nuclear weapons employment guidance directs minimizing civilian damage to the extent possible consistent with achieving U.S. objectives and restoring deterrence.”<sup>16</sup> And the Biden Administration’s recently released *Nuclear Posture Review* notes that “longstanding U.S. policy is to not purposely threaten civilian populations or objects, and the United States will not intentionally target civilian populations or objects in violation of LOAC [the Law of Armed Conflict].”<sup>17</sup>

Nevertheless, the myth that U.S. nuclear strategy – unlike conventional war plans – sanctions the deliberate targeting of vulnerable civilian populations endures.

### **A Double Standard**

For years, a double standard has existed regarding the desirability of minimizing civilian casualties in combat. When it comes to the employment of conventional forces in U.S. military operations, there is little debate or argument over the importance and necessity of reducing inadvertent civilian casualties and damage to property (often referred to as “collateral



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damage”) to the maximum extent possible. In wartime, innocent civilians often suffer as a result of military operations, but the United States has consistently sought to adhere to the law of armed conflict and avoid the deliberate targeting of civilians. Moreover, the United States has often refrained from taking military actions against an enemy if doing so would risk creating inadvertent civilian casualties.

During two decades of counterterrorism operations in Afghanistan, Iraq, and the Middle East, there are numerous instances where U.S. military forces withheld firing on enemy targets because of the risk of injuring or killing civilian noncombatants. Recognizing this, U.S. adversaries frequently sought to attack U.S. forces from locations that deliberately exposed innocent civilians to risk, expecting this would place U.S. forces at a disadvantage. Enemy combatants hiding behind “human shields” or operating from religious or cultural sites whose deliberate destruction could be considered a war crime under international law often placed U.S. forces in a situation where they could not engage militarily in accordance with the law of armed conflict. The damage to American credibility by inadvertently killing innocents was acknowledged by General David Petraeus, the commander of the International Security Assistance Force in Afghanistan, who issued a directive stating:

We must continue - indeed, redouble - our efforts to reduce the loss of innocent civilian life to an absolute minimum. Every Afghan civilian death diminishes our cause. If we use excessive force or operate contrary to our counterinsurgency principles, tactical victories may prove to be strategic setbacks.<sup>18</sup>

In addition to doctrinal guidance, the United States has also sought to develop technological solutions that would mitigate the risk of inadvertent civilian casualties. These include significant investments in more accurate precision munitions and conventional precision strike capabilities that are more discriminate, and which lessen the risk of collateral damage. They also include investments in non-lethal technologies that can be employed in a targeted manner to disrupt adversary operations without causing unwanted fatalities. Directed energy non-kinetic systems that use high-powered microwave and radio frequency technology to disrupt engine electronics, dazzling lasers, and acoustic hailing devices are some of the non-lethal capabilities have proven useful in military operations.<sup>19</sup> In addition, the millimeter wave Active Denial System (ADS) is one such technology that – if size, weight, transportability and power concerns can be successfully addressed – “could prove useful in a counterinsurgency operation where avoidance of civilian casualties is essential to mission success.”<sup>20</sup>

The development of these kinds of advanced conventional capabilities has enjoyed strong bipartisan support and is generally seen as consistent with the desire to limit unnecessary noncombatant casualties in U.S. military operations. When it comes to nuclear weapons, however, the approach taken by some, particularly those who still appear to endorse MAD, stands this paradigm on its head.



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Nuclear weapons are clearly the most destructive weapons ever invented by man, and it is that destructiveness that has fostered a belief in their disutility for military purposes; however, the magnitude of the consequences depends on a range of variables, including numbers, types, yields, targets, environmental conditions, and a host of other known and unknown factors.

While deterrence is the primary mission of the U.S. nuclear arsenal, recent events suggest the prospect of adversary use of nuclear weapons is not unthinkable. Indeed, both Russia and China have engaged in brazen nuclear threats against the United States and its allies, including the threat of nuclear first use, and have conducted military exercises simulating nuclear strikes against the West. Such events have exceeded in scope, magnitude, and frequency similar actions that occurred during the Cold War.

Russia poses a particularly worrisome challenge as it has sought to employ nuclear threats as a coercive tool to prevent stronger Western actions in support of Ukraine—a democratic, independent country whose sovereignty and territorial integrity was flagrantly violated by Russia’s occupation of Crimea in 2014 and its subsequent brutal aggression and invasion of Ukraine in February 2022. Consequently, in the face of Russian military setbacks in Ukraine, there is growing concern that Moscow may see the limited use of “tactical” nuclear weapons as a viable option to restore its military advantage on the ground and to further message the United States and NATO to stay out of more direct involvement in the conflict or, as Vladimir Putin himself warned, “the consequences will be such as you have never seen in your entire history.”<sup>21</sup> Indeed, President Biden has ominously warned that “We have not faced the prospect of Armageddon since Kennedy and the Cuban Missile Crisis.”<sup>22</sup>

Therefore, the question that needs to be asked is: If nuclear weapons are used by Russia and the United States must respond, shouldn’t that response be designed to minimize societal damage as much as possible rather than to execute a massive strategic-level strike that ensures cataclysmic results? This was the rationale behind the Trump Administration’s support for the low-yield ballistic missile warhead and the sea-launched nuclear cruise missile (SLCM-N). As then-U.S. Strategic Command head Adm. Charles Richard stated, “the current situation in Ukraine and China’s nuclear trajectory convinces me a deterrence and assurance gap exists.”<sup>23</sup> Yet, opponents of these programs argue that anything that seeks to close that gap or that reduces the level of destruction caused by nuclear weapons makes nuclear use more “thinkable” and nuclear war more likely. Such reasoning stands logic, and any commitment to limit damage in war, on its head.

### **Why Mischaracterize U.S. Deterrence Policy?**

Many who mischaracterize U.S. nuclear targeting policy as relying on massive countervalue strikes appear to do so in order to generate opposition to the U.S. nuclear modernization



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program. By focusing on the immense horror that the deliberate destruction of cities and urban populations would bring, the intent is to foster a belief in the minds of the public that the size and capability of the U.S. nuclear arsenal is excessive and that because the level of destruction that would result from any nuclear exchange is “overkill,” arms control is necessary to reduce the size of (and eventually eliminate) nuclear arsenals. Indeed, those who promulgate such misinformation appear to have a broader political agenda in mind; namely, to rally public opinion against continued reliance on nuclear weapons for deterrence and to undermine support for modernizing the ageing U.S. nuclear arsenal.<sup>24</sup>

For example, former Secretary of Defense William Perry and Tom Collina argue that “The US nuclear-armed submarine force alone is sufficient for assured deterrence and will be so for the foreseeable future.... just one boat can carry enough nuclear weapons to place two thermonuclear warheads on each of Russia’s fifty largest cities.” Therefore, they conclude, “The United States should build only the weapons it needs for second-strike deterrence and should not go beyond that for obvious reasons: the weapons are expensive and dangerous.”<sup>25</sup> In their view, this means that the U.S. ICBM force should be eliminated, as “ICBMs are simply not needed for an effective response, which would be carried out by submarine-based weapons.”<sup>26</sup> And it means that the low-yield ballistic missile warheads deployed on strategic submarines – an initiative undertaken by the Trump Administration and supported by the Biden Administration<sup>27</sup> – are unnecessary and “dangerous,” even though they would lessen collateral damage in the event of a nuclear exchange. As Perry and Collina state with unwarranted certainty, “The United States can deter the unlikely Russian use of its low-yield bombs with its current arsenal. There are no “gaps” in the US deterrent force, and there can be no doubt in Russia’s mind that the United States is serious about maintaining an unambiguously strong nuclear deterrent.”<sup>28</sup>

The International Campaign to Abolish Nuclear Weapons (ICAN) has also argued that a 100-kiloton airburst nuclear weapon, detonated over 10 international capitals—including Washington, DC, Beijing, Moscow, London, and Paris – would kill or injure more than 9 billion people.<sup>29</sup> As the study notes, “While modern nuclear weapon targets are not public information, de-classified targets from the Cold War indicate that major cities have been the target of nuclear weapons and so it is not unreasonable to conjecture that they may still be targets.”<sup>30</sup> Apparently, the authors of the study are either unaware or deliberately dismissive of the fact that U.S. nuclear targeting policy has since the middle years of the Cold War evolved away from intentional countervalue attacks against soft targets. However, the shock value of estimating casualties from such countervalue attacks is intended to generate support for the nuclear disarmament movement. As ICAN concludes:

It is clear that there is no mitigation strategy or response capacity that could adequately respond to a nuclear attack on a city: even a single moderately sized bomb over a single



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city would be a humanitarian catastrophe.... The only solution is to prevent the risk to any city by eliminating nuclear weapons.<sup>31</sup>

Such statements are clearly intended to increase public opposition to the nuclear modernization program of record—a program initiated by the Obama Administration and supported by both the Trump and Biden Administrations. Yet, despite clear evidence that U.S. deterrence policy is not based on intentional strikes against populated urban-industrial areas, such mischaracterizations endure—apparently for political purposes.

### Conclusion

There is no question that contemporary U.S. nuclear targeting policy has transitioned significantly away from the Cold War metrics outlined by then-Secretary of Defense Robert McNamara, who suggested deterrence could be assured through the capability to hold a certain percentage of the adversary’s population and urban-industrial capacity at risk. This “assured destruction” criteria, based on the ability to cause unacceptable damage to an opponent’s civilian population, contradicts basic principles in the Law of Armed Conflict and no longer serves as the basis for U.S. nuclear deterrence planning. Yet, it continues to be portrayed as such by those who oppose nuclear weapons in general, current plans for nuclear modernization, and theories of deterrence based on anything other than the “balance of terror” standard that was the hallmark of Cold War thinking.

Moreover, those who cite the “inhumanity” of nuclear weapons and the devastating human consequences of their use are also the most vocal opponents of any efforts to lessen their destructive potential based on a misguided belief that more accurate, more discriminate, and less destructive nuclear weapons capabilities make nuclear use more plausible and nuclear war more likely. Such views stand in stark contrast to the decades-long bipartisan support for more accurate and more discriminate precision-guided conventional munitions that are less likely to cause unintended collateral damage.

The issue of nuclear weapons and nuclear war is understandably an emotional one. However, those who seek to play on the abhorrence of nuclear war by deliberately mischaracterizing U.S. nuclear targeting policy in ways that suggest it is immoral are playing on fear to advance public support of their preferred disarmament agenda. Such mischaracterizations do a disservice to the need for informed public debate on such a critical issue.

<sup>1</sup> Tom Nichols “We Have No Nuclear Strategy,” *The Atlantic*, July/August 2022, available at <https://www.theatlantic.com/magazine/archive/2022/07/us-nuclear-strategy-cold-war-russia/638441/>.





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<sup>2</sup> As McNamara argued, “Such a level of destruction would certainly represent intolerable punishment to any industrialized nation and thus should serve as an effective deterrent.” *Draft Memorandum for the President*, December 3, 1964, cited in Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice From the Cold War to the Twenty-First Century* (Fairfax, VA: National Institute Press, 2008), pp. 96-108.

<sup>3</sup> Steve Rosenberg, “Putin pins Ukraine hopes on winter and divisive US politics,” *BBC News*, October 29, 2022, available at <https://www.bbc.com/news/world-europe-63414324>.

<sup>4</sup> Franz Gayl, “Note to the US – a nuclear war can be won by rivals,” *Global Times*, October 7, 2022, available at <https://www.globaltimes.cn/page/202210/1276613.shtml>.

<sup>5</sup> Alex Gatopoulos, “High stakes gamble: Putin’s tactical nuclear options,” *Aljazeera*, October 15, 2022, available at <https://www.aljazeera.com/news/2022/10/15/ukraine-war-russia-putin-turn-to-nuclear-weapons>.

<sup>6</sup> James Bickerton, “Is the U.S. Safe From Nuclear Attack?,” *Newsweek*, October 19, 2022, available at <https://www.newsweek.com/us-safe-nuclear-attack-1753288>.

<sup>7</sup> Arooj Fatima, “Analyzing the US-Russia Deterrence Stability,” *Global Village Space*, November 4, 2022, available at <https://www.globalvillagespace.com/us-russia-deterrence-stability/>.

<sup>8</sup> Interview conducted with Fyodor Lukyanov, “Graham Allison: ‘Time to Search for an Off-Ramp’ in Ukraine,” *Russia Matters*, October 21, 2022, available at <https://www.russiamatters.org/analysis/graham-allison-time-search-ramp-ukraine>.

<sup>9</sup> As the *Department of Defense Law of War Manual* notes, “The law of war has recognized that the population of an enemy State is generally divided into two classes: the armed forces and the civilian population, also sometimes called, respectively, ‘combatants’ and ‘civilians.’ .... However, because the ordinary members of the civilian population make no resistance, it has long been recognized that there is no right to make them the object of attack.” See *Department of Defense Law of War Manual* (Volume 1: Chapters 1-9, December 2016), Section 4.2, “The Armed Forces and the Civilian Population,” pp. 112-113.

<sup>10</sup> National Security Council, *National Security Decision Memorandum 242*, January 17, 1974, available at [https://irp.fas.org/offdocs/nsdm-nixon/nsdm\\_242.pdf](https://irp.fas.org/offdocs/nsdm-nixon/nsdm_242.pdf).

<sup>11</sup> Ibid.

<sup>12</sup> The White House, *Presidential Decision Memorandum/NSC-59*, July 25, 1980, p. 2, available at <https://nsarchive2.gwu.edu/nukevault/ebb390/docs/7-25-80%20PD%2059.pdf>.

<sup>13</sup> Ibid., p. 3.

<sup>14</sup> Ibid., pp. 3-4.

<sup>15</sup> Department of Defense, *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.*, June 2, 2013, available at [https://uploads.fas.org/2013/06/NukeEmploymentGuidance\\_DODbrief061213.pdf](https://uploads.fas.org/2013/06/NukeEmploymentGuidance_DODbrief061213.pdf).

<sup>16</sup> Department of Defense, *Report on the Nuclear Employment Strategy of the United States – 2020 Specified in Section 491(a) of Title 10 U.S.C.*, November 30, 2020, pp. 6-7, available at [https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/NCB/21-F-0591\\_2020\\_Report\\_of\\_the\\_Nuclear\\_Employment\\_Strategy\\_of\\_the\\_United\\_States.pdf](https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/NCB/21-F-0591_2020_Report_of_the_Nuclear_Employment_Strategy_of_the_United_States.pdf).

<sup>17</sup> Department of Defense, *2022 Nuclear Posture Review*, October 2022, p. 8, available at <https://s3.amazonaws.com/uploads.fas.org/2022/10/27113658/2022-Nuclear-Posture-Review.pdf>.

<sup>18</sup> Press Release, International Security Assistance Force – Afghanistan, “Afghanistan: GENERAL PETRAEUS ISSUES UPDATED TACTICAL DIRECTIVE: Emphasizes Disciplined Use of Force,” August 4, 2010, available at <https://reliefweb.int/report/afghanistan/afghanistan-general-petraeus-issues-updated-tactical-directive-emphasizes>.



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<sup>19</sup> A description of these technologies developed by the Department of Defense Joint Intermediate Force Capabilities Office as part of the DoD Non-Lethal Weapons Program can be found here: <https://jnlwp.defense.gov/Press-Room/Fact-Sheets/>.

<sup>20</sup> David J. Trachtenberg, "An Opportunity Missed," AEI Center for Defense Studies, August 30, 2010. Also cited in Rick Smith, *The End of Killing* (Vancouver, Canada, Page Two Books, 2019), p. 125.

<sup>21</sup> Max Fisher, "Putin's Case for War, Annotated," *The New York Times*, February 24, 2022, available at <https://www.nytimes.com/2022/02/24/world/europe/putin-ukraine-speech.html>.

<sup>22</sup> Justin Gomez and Elizabeth Schulze, "Biden warns Putin is 'not joking' about nuclear weapons," ABC News, October 7, 2022, available at <https://abcnews.go.com/Politics/biden-warns-putin-joking-nuclear-weapons/story?id=91157281>.

<sup>23</sup> Joe Gould, "US Strategic Command chief: Sea missile cancellation opens 'deterrence and assurance gap'," *DefenseNews*, April 5, 2022, available at <https://www.defensenews.com/pentagon/2022/04/05/us-strategic-command-chief-sea-missile-cancellation-opens-deterrence-and-assurance-gap/>.

<sup>24</sup> As one nuclear disarmament activist put it, "...a safe and secure world must rest on nuclear disarmament and not on deterrence through the possibility of mutually assured destruction." See Jody Williams, "Essay: Will Russia use tactical nukes? It's time to abolish nuclear weapons," *Houston Chronicle*, November 6, 2022, available at <https://www.houstonchronicle.com/opinion/outlook/article/Russia-tactical-nuclear-weapons-nobel-peace-prize-17558465.php>.

<sup>25</sup> William J. Perry and Tom Z. Collina, "The Atomic Titanic: an excerpt from "The Button"," *Bulletin of the Atomic Scientists*, June 19, 2020, available at <https://thebulletin.org/2020/06/the-atomic-titanic-an-excerpt-from-the-button/>.

<sup>26</sup> Ibid.

<sup>27</sup> As the Biden Administration's 2022 *Nuclear Posture Review* concluded, the low-yield submarine-launched ballistic missile warhead provides "flexibility" and is "an important means to deter limited nuclear use." See Department of Defense, *2022 Nuclear Posture Review*, October 2022, op. cit., pp. 11, 20.

<sup>28</sup> Ibid.

<sup>29</sup> International Campaign to Abolish Nuclear Weapons, *No Place to Hide: Nuclear Weapons and the Collapse of Health Care Systems*, February 2022, available at <https://d3n8a8pro7vhm.cloudfront.net/ican/pages/2544/attachments/original/1644334250/NoPlacetoHide-ICAN-Report-Feb2022-web.pdf?1644334250>.

<sup>30</sup> Ibid., p. 31.

<sup>31</sup> Ibid., p. 30.

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