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U.S. Presidents Grapple with the Sole Authority to Launch Nuclear Weapons

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A Report of the CSIS Project on Nuclear Issues

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Introduction

In August 1945, after U.S. military forces dropped two atomic bombs on Japan, first on Hiroshima and then on Nagasaki, they planned to deploy a third implosion device on August 19.[1] Upon learning this information, President Harry S. Truman, whose knowledge of this novel capability was months old, told military leaders not to use another atomic weapon without his explicit approval.[2] Within a year, Congress passed the Atomic Energy Act of 1946, assigning control of nuclear material and nuclear weapons to the civilian-led Atomic Energy Commission. The president was given the authority to transfer material and weapons to the military "for such use as he deems necessary in the interest of national defense."[3] On the use of such weapons, Truman's National Security Council set forth guidance in September 1948, declaring, "The decision as to the employment of atomic weapons in the event of war is to be made by the Chief Executive when he considers such a decision to be required."[4]

In taking these steps, the Truman administration established that nuclear weapons were different from other armaments: The president would have sole authority over the deployment of U.S. nuclear weapons.[5] That policy has continued to this day, though it faces criticism. For instance, some in Congress support legislation to limit the first use of nuclear weapons by the president.[6] The public is leery of this situation as well, with a majority indicating in a 2023 poll that they are concerned about the president solely possessing this power.[7] Majorities of the public would like to see military leaders and Congress have a greater role in the decision to authorize the use of nuclear weapons.[8]

Given the renewed salience of nuclear weapons amid Russia's aggression against Ukraine and the buildup of China's nuclear arsenal, this project examines the history of U.S. presidential experience with sole authority. As far as the authors are aware, comparative and systematic research on each president's response to having the responsibility for sole authority of U.S. nuclear weapons does not exist. Engaging with primary and secondary sources, this project fills that gap by exploring several research questions to interrogate how the policy of sole authority has worked in practice since 1945, from President Truman to President Joe Biden. For each of the 15 presidential administrations during the nuclear age, the authors researched the following questions:

- What prior knowledge or experience did the president have with nuclear weapons?
- What prior ideas did the president have about the utility of nuclear weapons? Did those ideas shift in office?
- Did the president ever consider using nuclear weapons? If so, in what circumstances and for what purpose? What did the president say about nuclear weapons and their usage?
- What did the president think about the nuclear command and control system, including the responsibility of sole authority?
- Were there any security lapses with the nuclear command and control system?

Drawing on these empirical findings, along with factual information about command and control in the United States, the report offers insights to frame current debates over the U.S. policy of sole authority.

The report begins by describing how the U.S. system of sole authority works in theory, based on Department of Defense (DOD) guidance. It then explores seven themes derived from the authors' research on each presidential administration's experience with the use or potential use of nuclear weapons, based on the above research questions. The seven themes are as follows:

1. Presidents had varied previous experience working on nuclear issues.
2. Presidents were horrified by plans for total nuclear war.
3. Presidents sought nuclear options short of total nuclear war.
4. Presidents issued nuclear threats, but sought to avoid nuclear use.
5. Presidents consulted advisers, but did not always follow advice.
6. Mishaps undermined the command and control system.
7. Presidents altered the nuclear command, control, and communications (NC3) system to address evolving threats.

The report concludes with a discussion of the debate over the policy of sole authority, providing insights for this topic based on the authors' findings.

U.S. Nuclear Command and Control

According to the Department of Defense's *Nuclear Matters Handbook* (an "unofficial handbook"), Department of Defense Instruction S-3150.07, *Controlling the Use of Nuclear Weapons*, is the guidance document that makes clear that the president is "the *sole* authority for employing U.S. nuclear weapons."[9] *Controlling the Use of Nuclear Weapons* is unavailable to the public, but the *Nuclear Matters Handbook* and other government documents provide open-source information about the system that would support the president if he or she were to launch a nuclear weapon.

How would this authorization process work in practice? First, in a circumstance in which the president determines the need to use nuclear weapons, he or she would be briefed on the likelihood of achieving national or military objectives using nuclear weapons as well as the diplomatic, strategic, operational, and legal implications of such use. The president would base this decision on many factors and likely would consider the advice and recommendations of senior advisers, to include the secretary of defense, the chairman of the Joint Chiefs of Staff, and relevant combatant commanders. Depending on the crisis, the president might consult with U.S. allies during the decisionmaking process.[10]

If the president were to decide to deploy nuclear weapons after engaging in the above consultations, he or she would authorize and communicate this decision through the White House's situation room or, if away, from the Presidential Emergency Satchel, better known today as the "nuclear football." Originating during the Eisenhower and Kennedy administrations, the football is a 40-plus-pound bag with equipment for communicating the president's deployment decisions and a

booklet with nuclear attack plans. President John F. Kennedy was the first executive to keep an aide with the football near him at all times, a decision arrived at after Kennedy posed logistical questions including, "What would I say to the Joint War Room to launch an immediate nuclear strike?"[11]

Historian William Manchester provides a colorful account of the nuclear satchel in his tome on the Kennedy assassination. Of the satchel and its travels to Dallas in November 1963, Manchester writes,

> [Warrant Officer Ira D.] Gearhart, or Shadow, had been assigned the most sinister task in the Presidential party. No one called him by his Christian name, his surname, or even by his code name. He was "the man with the satchel" or, more starkly, "the bagman." The bag (also known as "the black bag" and "the football") was a thirty-pound metal suitcase with an intricate combination lock. Within were various bulky Strangelove packets, each bearing wax seals and the signatures of the Joint Chiefs. Inside one were cryptic numbers which would permit the President to set up a crude hot line to the Prime Minister of the United Kingdom and the President of France on four minutes' notice. A second provided the codes that would launch a nuclear attack. The rest contained pages of close text enlivened by gaudy color cartoons. They looked like comic books–horror comics, really, because they had been carefully designed so that any one of Kennedy's three military aides could quickly tell him how many million casualties would result from Retaliation Able, Retaliation Baker, Retaliation Charlie, etc. Taz Sharpard had prepared these Doomsday Books. No one liked to think about them, much less talk about them, and on trips the man with the football was treated like a pariah. . . . Yet both he and his ghastly burden were necessary.[12]

The president is able to assure those on the other end of the communication channel of his or her identity through the unique codes on the nuclear "biscuit." The biscuit is a small laminated piece of paper with these codes. Once the president's identity is confirmed, launch orders would be transmitted via the National Military Command Center to Strategic Command in Omaha, Nebraska, the nation's combatant command in control of the launch of nuclear weapons. Nuclear command and control, or NC2, refers to the process by which the president effectively communicates orders for nuclear use through the established chain of command. To be effective, this system must be "assured, timely, secure, survivable, and enduring."[13]

The president's decisionmaking process and ability to launch nuclear weapons is supported by the U.S. NC3 system. NC3 is an architecture of various systems that are in constant operation, employing land-based, airborne, and space-based assets to detect and assess the operational environment and facilitate communication across the enterprise.[14] Several aspects of the NC3 system are undergoing modernization, though some in Washington worry this system is not receiving sufficient priority.[15]

Presidential Authority in Context

Sole authority places decisionmaking responsibility for the use of nuclear weapons in the hands of the president, rather than military officials, reflecting a long-standing principle of civilian control over the military.[16] Yet military officials, civilian government employees, and elected officials all play roles in directing nuclear policy, including in the event of a crisis. For example, the president relies on officials at the DOD to set details of his or her nuclear employment options and to maintain a functioning NC3 system. The president also relies on military officers down the chain of command to execute his or her decision. Historically, presidents have relied on advisers to aid them in the decisionmaking process on issues of nuclear policy and crisis management. Understanding the roles of these parties in directing U.S. nuclear policy, strategy, and forces sheds light on how presidential sole authority has operated in practice for the past three-quarters of a century. While the president has the sole authority to order the use of nuclear weapons, he or she cannot accomplish this task alone.

Targeting and Employment Options

According to the most recent *Nuclear Matters Handbook*, planning for the employment of nuclear weapons involves a combination of presidential guidance, departmental guidance, and military guidance, along with direction from various other strategy and posture documents.[17] The president sets planning, posture, and strategic objectives for the secretary of defense to flesh out and implement; then, the chairman of the Joint Chiefs of Staff sets guidelines for the U.S. combatant commanders to develop and coordinate nuclear operations plans. U.S. Strategic Command and the Joint Chiefs of Staff work together to create the "family of plans" for nuclear war.[18] From 1960

to 2003, they developed a Single Integrated Operational Plan (SIOP). These operational plans provide the basis for the president's nuclear employment options as detailed in the "black book." This book resides in the nuclear football and outlines the president's options for targets, delivery systems, and timings of a nuclear attack or response. As the *Nuclear Matters Handbook* explains, all nuclear planning conducted by the Department of Defense should align with the president's initial guidance. Yet history shows that entrenched interests and bureaucratic processes have sometimes been obstacles to presidential guidance regarding nuclear weapons employment policy and planning. Later sections of this report detail how several U.S. presidents requested a greater range of nuclear options, especially those short of an all-out nuclear attack, only to be stymied by these obstacles.

Forces and Funding

The choices predecessors make on nuclear policy issues such as force structure and posture, workforce investment, and even alliance management affect the decisionmaking space afforded to the sitting president. In addition to targeting and employment options, investments that past presidents made in different types of forces, their host locations, and the personnel that support and operate them all function on longer timescales. Serving presidents can make nuclear policy decisions that dictate the inheritance of their successors by investing resources in (or choosing to divest resources from) certain priorities. The legislative branch also plays a role in dictating these investments, as it is charged by the Constitution with raising and supporting the U.S. armed forces, along with making rules for governing and regulating those forces.[19] Congress may choose to deny funding for nuclear weapons, for example, therefore directly limiting the president's options for nuclear use. Changes in the size and dispersal of the U.S. nuclear arsenal can affect the structure of command and control and presidential authorization.

Command, Control, and Communications

The president's ability to execute options through a reliable system of command, control, and communications substantiates the very principle of sole authority. An incident of a system malfunction or malign actor triggering the denotation of a U.S. nuclear weapon without presidential authorization, for example, would violate this principle. In what is referred to as the "always-never" dilemma, the U.S. government must ensure the president always has the ability to authorize the use of nuclear weapons, while ensuring U.S. nuclear weapons never detonate in any other situation.[20] While the DOD is responsible for ensuring the consistent reliability of the NC3 system, U.S. presidents have historically exerted influence on these procedures to align with their priorities. Later sections of this report outline several historical missteps involving NC3 at the presidential level, along with how past presidents helped shape this system in accordance with changing security priorities. While outside the scope of this report, the DOD has reported 32 historical "broken arrow" accidents—the Department's term for accidents resulting in the accidental launch, firing, detonation, or loss of U.S. nuclear weapons—since the start of the Cold War.[21]

Crisis Consultations

Advisers play a unique role in informing presidential decisionmaking with regard to nuclear weapons, especially in crisis scenarios. In the event that the DOD's NC3 system detects an incoming nuclear attack, the president would hold an emergency meeting with the secretary of defense, the chairman of the Joint Chiefs of Staff, various legal advisers, and other officials.[22] During this conference, military advisers would offer the president information, options, and assessments to enable him or her to make decisions during the crisis, including decisions related to nuclear weapons. At this time, advisers would also take the required steps to authenticate and verify presidential orders.[23] On a phone call with Speaker of the House Nancy Pelosi two days after rioters stormed the U.S. Capitol on January 6, 2021, chairman of the Joint Chiefs of Staff General Mark Milley outlined his role as a military adviser in a nuclear crisis:

> By Presidential Directive and SecDef Directives, the Chairman is part of this process to ensure the President is fully informed when determining the use of the world's deadliest weapons. By law, I am not in the chain of command. However, by Presidential Directive and DoD Instruction, I am in the chain of communication to fulfill my statutory role as the President's primary military advisor.[24]

While the president is not legally required to consult with advisers before initiating an order, in practice, the emergency conference would necessarily precede presidential authorization. This de facto requirement to consult provides space for advisers to offer counsel and present alternative courses of action. Nonetheless, the president can always choose to ignore the advice of his or her advisers, so long as the decision falls within parameters of U.S. and international law.

Legal Parameters

If the president chooses to order a nuclear attack, military advisers would be responsible for communicating and implementing the order down the chain of command. Yet military members are also required to question and refuse illegal orders, such as those issued from unauthorized individuals or orders that violate U.S. or international law.[25] The U.S. military adheres to international humanitarian law resting on principles of military necessity, distinction, and proportionality when conducting its operations.[26] These same principles apply to the list of preplanned nuclear response options in the president's black book, which the U.S. military develops in consultation with legal counsel. If the president issues what his or her advisers deem to be an illegal order, top military officials charged with carrying presidential decisions through the chain of command are obligated to refuse the directive. As General Robert Kehler, former commander of U.S. Strategic Command explains:

> I shared the responsibility with . . . other senior military and civilian leaders to address and resolve any concerns and potential legal issues on behalf of the men and women in the nuclear operating forces during the decision process. It was our duty to pose the hard questions, if any, before proceeding with our military advice.[27]

General John Hyten, another former commander of U.S. Strategic Command, stated that in the event of a president issuing an illegal order, senior military officials would offer the president an alternative list of legal options to achieve U.S. objectives in the given situation.[28]

Key Themes

In researching each presidential administration's experience with nuclear weapons since Truman, the authors identified seven key themes that help better understand the implications of the U.S. policy of sole authority.

1. Presidents had varied previous experience working on nuclear issues.

Before becoming president and assuming the responsibility of the sole authority for deployment and use of the U.S. nuclear arsenal, many U.S. executives had experience with nuclear technology, operations, and policy. President Truman, like most of the world, had little idea about atomic weaponry when he became president in April 1945, following President Franklin D. Roosevelt's death. Some subsequent presidents, however, possessed substantial technical and policy experience related to nuclear issues on entering office, having served in the military, legislative branch, and other parts of government.

Many U.S. presidents since 1945 had experience working with the military and its chain of command. Nine out of the fourteen presidents from Truman to Biden served in the U.S. military prior to taking office. Most served in junior officer positions for the Reserves or National Guard, with the exception of Dwight D. Eisenhower, who rose to supreme allied commander of Europe and general of the U.S. Army. Military experience provided future presidents with experience in the chain of command and, for some, knowledge of nuclear weapons.

When it came to education combined with experience, President Jimmy Carter was unique among presidents. He was educated in reactor technology and nuclear physics as a U.S. naval officer.[29] He then worked on nuclear-powered submarines as the Navy was first establishing its nuclear power program and served on a temporary duty assignment with the Naval Reactors Branch of the U.S. Atomic Energy Commission in Washington, D.C.[30]

Other executives had experience with nuclear weapon issues on the political side, including knowledge of the inner workings of sole authority. Since the start of the Cold War, several U.S. presidents, including Lyndon B. Johnson, Richard Nixon, Gerald R. Ford, George H. W. Bush, and Joe Biden, served as vice president before assuming the executive role. These individuals had access to top intelligence, attended high-level briefings and meetings, and helped direct executive policy related to nuclear weapons. For example, during the Cuban Missile Crisis in 1963, Vice President Johnson attended 37 of 42 meetings held by President Kennedy's Executive Committee to navigate the nuclear emergency.[31] Immediately before Ford transitioned from vice president to president in 1974, he told the *New York Times*, "I think I know as much, if not more, about the government than any vice president" and cited a series of briefings on U.S. nuclear capabilities he received from leadership at Los Alamos National Laboratory, Strategic Air Command, and the Joint Chiefs of Staff.[32] During the 2010s, President Barack Obama charged Vice President Biden with coordinating ratification of the New Strategic Arms Reduction Treaty (New START). According to the treaty's chief negotiator, Rose Gottemoeller, Biden's congressional experience and extensive knowledge of nuclear weapons policy was "vital to the success of the [ratification] process."[33] Previously, Biden had decades of experience working on nuclear arms control and nonproliferation as a senator for Delaware, including as chairman of the Senate Foreign Relations Committee, which involved leading delegations to meet with Soviet and Russian leaders on various nuclear arms control agreements.[34]

In 1967, ratification of the 25th Amendment of the U.S. Constitution established procedures for the vice president to assume executive powers if the president was ever "unable to discharge the powers and duties of his office," including responsibility for the use of U.S. nuclear weapons.[35] While discussions around presidential succession were circulating in the 1950s and 1960s, the assassination of President Kennedy in 1963 brought new urgency to the issue. Then-Vice President Nixon remarked in 1963 that "with the advent of the terrible and instant destructive power of atomic weapons, the nation cannot afford to have any period of time when there is doubt or legal quibbling as to where the ultimate power to use those weapons resides."[36] At the start of their terms as vice president, Ford, H. W. Bush, and Biden all received briefings on the system that authenticates a nuclear order, as they would inherit nuclear launch authority if the president were ever incapacitated, including in the event of medical sedation.[37] As vice president, Nixon was provided with his own nuclear satchel, though this did not become standard practice; as vice president, Johnson did not want a football trailing him; and President Carter made sure his vice president, Walter Mondale, had one.[38]

Aside from those who served as vice president, other executives had political experience with nuclear issues from their time serving in other parts of the executive branch or Congress. Since 1945, over half of U.S. presidents served in Congress before assuming their executive role. The

majority of these individuals worked on committees related to national security and defense, including Armed Services, Foreign Affairs/Relations, Homeland Security and Government Affairs, and Appropriations. Though these leaders would understand nuclear issues broadly, their time in Congress did not necessarily lead to specific expertise with the U.S. command and control system for nuclear weapons.

In addition to Biden's work on nuclear arms control and nonproliferation from 1973 to 2009, the legislative careers of Kennedy and Obama stand out in this respect. While senator and during his run for presidential office, Kennedy warned of the threat posed by Soviet missile capabilities, as the surprise launch of the Sputnik satellite in 1957 demonstrated Soviet progress in ballistic missile technology.[39] Kennedy also voiced support for a nuclear test ban treaty during this time.[40] During Obama's time as senator from 2005 to 2008, he sponsored several bills related to nuclear security, waste management, and nonproliferation.[41] He also spent time working with Senator Richard Lugar on nuclear, chemical, and biological weapons security issues, which involved meeting with counterparts in Russia, Ukraine, and Azerbaijan.[42]

2. Presidents were horrified by plans for total nuclear war.

While their experience and knowledge of nuclear weapons may have differed as they entered office, available evidence indicates that many presidents were chastened or even horrified by nuclear war, nuclear attack plans, and the awesome responsibility of sole authority. Most presidents were briefed on nuclear command and control early in their presidency or before taking office. Other presidential briefings covered existing war plans and the consequences of nuclear war.

Many presidents were chastened or even horrified by nuclear war, nuclear attack plans, and the awesome responsibility of sole authority.

Several presidents were reported to be deeply affected by the briefings they received on U.S. and Soviet (or Russian) nuclear capabilities and the potential aftermath of a nuclear exchange. Reports of Eisenhower's July 1956 briefing indicate the commander-in-chief was "visibly shaken" by the information presented.[43] Later in his diary, he described what he had learned, including that in one scenario "the United States experienced practically total economic collapse."[44] He went on that after a Soviet attack, "it would literally be a business of digging ourselves out of ashes, starting again."[45] After receiving a similar briefing, Kennedy famously stated, "And we call ourselves the human race."[46] Carter recounted that as president, the horror of nuclear war "was constantly on my mind."[47] When President H. W. Bush received his briefing he was "stunned at the amount of destructive power" and stated, "I had no idea we had so many weapons. . . . What do we need them for?"[48]

Presidents also received briefings on U.S. nuclear war plans. Cold War executives were shocked by the extensive targeting plans created by military leaders. After his briefing on the topic, Eisenhower

told an aide that the information "frighten[ed] the devil out of me."[49] When military leaders briefed Nixon and then-National Security Adviser Henry Kissinger on the SIOP, the most limited option available at the time meant attacking with 1,750 nuclear weapons. Nixon was "visibly horrified."[50] Nixon and Kissinger sought to change the SIOP, calling it "a horror strategy."[51] Ronald Reagan reflected in his diary about progress on the SIOP in 1983 during his first administration, writing that the briefing on the plan "was a scenario for a sequence of events that could lead to the end of civilization."[52]

Several presidents also expressed a heavy weight of responsibility in serving as the sole individual able to authorize the use of the U.S. nuclear arsenal. During a discussion of European security in 1962, Kennedy noted, "From the point of view of logic there was no reason why the president of the United States should have the decision on whether to use nuclear weapons," but "history had given him this power."[53] At a different meeting, he told participants, "It is insane that two men, sitting on opposite sides of the world, should be able to decide to bring an end to civilization."[54] In a speech during his reelection campaign in 1964, Johnson explained to the crowd the danger of nuclear weapons and the grave responsibility of possessing sole authority:

> Make no mistake. There is no such thing as a conventional nuclear weapon. For 19 peril-filled years no nation has loosed the atom against another. To do so now is a political decision of the highest order. And it would lead us down an uncertain path of blows and counterblows whose outcome none may know. No president of the United States of America can divest himself of the responsibility for such a decision. Any man who shares control of such enormous power must remember that "He that is slow to anger is better than the mighty; and he that ruleth his spirit is better than he that taketh a city."[55]

In his autobiography, President Carter wrote about sole authority, explaining, "This is a sobering duty of the chief executive of our country, and every serious candidate for this office must decide whether he is capable of using or willing to use nuclear weapons if it should become necessary in order to defend our country. Under those circumstances, I was ready to perform this duty."[56] He also notes that the nuclear football following him around was "a constant reminder of the threat of a horribly devastating war."[57] Carter made sure Mondale received all of the same briefings to ensure the vice president was prepared to assume the role of commander-in-chief, should Carter ever be incapacitated and unable to perform this duty.[58]

Indeed, in terms of assessing what he would do and what would happen in the grave possibility of nuclear conflict, Carter appears to have been one of the most diligent presidents. He ran exercises to practice communication protocols in instances of detection of a nuclear attack against the United States. Carter was also the first president to participate in a nuclear war game. The game, on October 6, 1977, simulated an incoming intercontinental ballistic missile (ICBM) attack against the United States.[59] Based on the exercise, much of which remains classified, Carter appears to have made changes to protocol, including decreasing the number of people involved in the secure phone conversations in cases of attack. He also asked for the U.S. attack options—known as the "Decision Handbook"—be streamlined into a single sheet of paper within the nuclear football, as he realized he would need it to be simple and quick in the case of an actual attack. It remains classified whether

Carter retaliated in the war game and, if so, whether he rode out the initial ICBM attack on the United States or if he launched on warning, deploying U.S. ICBMs before they were destroyed by the incoming Soviet missiles. Carter continued his commitment to nuclear responsibility until the end of his presidency, emphasizing to President-elect Reagan in their first post-election meeting that the new president should do as much as possible to learn about the plans and protocols for nuclear use before inauguration day.[60]

In later years, when asked about whether he could have retaliated with nuclear weapons as president, his reply indicates the deep challenge posed by nuclear weapons for Carter:

> The most difficult issue I've ever had to face as a human being is what to do if a nuclear threat materialized when we were in the midst of the Cold War. I prayed constantly that I would not be faced with this decision. I didn't see the rationality—it is difficult for me to talk about it. I couldn't sit acquiescently and let the Soviet Union destroy my country without a response when we had the capability to do so. I had been a submarine officer and military professional. I was ready to take action that would take human life to protect the integrity of my country. At the same time, I did everything I could to avoid it.[61]

In line with Carter's advice, President Reagan received briefings on the existing SIOP and White House emergency plans prior to his inauguration.[62] William Burr speculates that the assassination attempt against Reagan on March 30, 1981, may have delayed additional briefings until much later. In February 1982, military leaders briefed Reagan on the SIOP in the lead-up to a military exercise called "Ivy League 82," which involved a nuclear exchange and a test of procedures to maintain the continuity of government in such a circumstance. Reagan would sit in on some of the sessions of the exercise, though he would not be a participant. The briefers reported to the president that in the case of a Soviet surprise attack, 80 million Americans could be killed and that the president's emergency locations likely would be targeted.[63] While Reagan's response to this briefing is unrecorded, he was known to have deep concerns about the possibility of nuclear war, and a strong aversion to nuclear weapons that appears to have increased over the course of his presidency. This aversion initially led to policies aimed at strengthening the U.S. nuclear deterrent, including the controversial MX system –an ICBM capable of carrying 10 independently targetable nuclear warheads.[64] Reagan's early nuclear buildup, however, may have in fact led to an increase in fear of nuclear war among the U.S. public.[65]

In April 1981, while reportedly in the hospital recovering from the attempt on his life, Reagan wrote a letter to Soviet leader Leonid Brezhnev about controlling nuclear weapons.[66] He later recounted, "Perhaps having come so close to death made me feel I should do whatever I could in the years God has given me to reduce the threat of nuclear war; perhaps that was the reason I had been spared."[67] After watching a pre-screening of the ABC film *The Day After* in October 1983, Reagan wrote in his diary, "My own reaction: we have to do all we can to have a deterrent and see there is never a nuclear war."[68] Reagan believed those in the Pentagon who thought nuclear war was "winnable" to be "crazy."[69]

Reagan's concerns about nuclear war led him both to seek the protection of his proposed missile defense system, the Strategic Defense Initiative (SDI), and to try to negotiate with the Soviet Union over nuclear arms. These two goals worked against each other, however, as the Soviet leaders saw SDI as a means for the United States to safely execute a first strike (even if they were also skeptical of the technology). Eventually, despite the SDI issue, Reagan would find an arms control negotiating partner in Soviet Premier Mikhail Gorbachev. Reagan spoke about nuclear disarmament many times during his presidency, though he is not always remembered for this commitment.

Post-Cold War presidents continued to feel the weight of the responsibility for sole authority of U.S. nuclear weapons even as these weapons became less salient to the public. Recounting President Bill Clinton's briefing on U.S. nuclear capabilities, Chief of Staff Thomas McLarty remembers, "I could quickly sense from [the president's] body language and his expressions to the briefing that we were pretty much thinking the same thing as we caught each other's eye there. We knew this was going to be a heavy responsibility and boy were we ever right."[70] Similarly, after a nuclear briefing in 2008, President Obama told a close adviser that it was perhaps one of the most sobering experiences of his life. He said, "I'm inheriting a world that could blow up any minute in half a dozen ways, and I will have some powerful but limited and perhaps even dubious tools to keep it from happening."[71]

Given his long tenure in the Senate and his eight years as Obama's vice president, President Biden entered the White House in 2021 with a great deal of knowledge about nuclear weapons, nuclear policy, war plans, and nuclear arms control. As vice president, and before his inauguration as president, Biden promoted a declaratory policy of "sole purpose"—the idea that the only purpose of nuclear weapons is to deter nuclear attacks.[72] This idea was contrary to existing policy, which indicated that nuclear weapons could be used in instances of chemical, biological, or large conventional military attacks, including those against allies.[73] During his presidential run, Biden released a statement asserting that "the use of even one nuclear weapon would be catastrophic, cause significant casualties, and result in enduring radiation that could affect millions of humans, as well as the environment."[74] After the administration's review of nuclear weapons doctrine, however, President Biden did not make significant changes to reflect these sentiments, and the 2022 Nuclear Posture Review remained largely the same as Obama's in terms of declaratory policy.[75]

3. Presidents sought nuclear options short of total nuclear war.

Before the creation of SIOP, each branch of the U.S. military had its own nuclear war plan, and they only had one option: massive destruction.[76] Arguing for greater allocation of resources in support of the Air Force's nuclear mission and to cover growing target estimates, the Strategic Air Command (SAC) started to gain disproportionate influence over nuclear planning, despite the protestations of the Navy.[77] Naval leaders worried that SAC's plan for targeting and destroying Soviet nuclear capabilities would lead to a growing target list and an arms race.[78] The Navy sought to target the smaller number of government and industrial complexes in the Soviet Union that would have the effect of "immediately paralyzing the Russian nation."[79] Eventually, in February 1960, the Joint Chiefs of Staff split the difference and recommended Eisenhower approve an "optimum mix" approach to targeting, whereby the United States military would target

1. the critical components of Soviet long-range nuclear delivery capability;
2. government and military control centers;
3. war-sustaining resources; and
4. population centers.[80]

In 1960, President Eisenhower approved a plan proposed by Air Force Chief of Staff General Thomas White to integrate each service's war plan under what became known as the SIOP. While the proposal framed the development of the SIOP as an interservice endeavor, in reality, this process fell under the control of the head of the Air Force's SAC, General Curtis LeMay. Once put into place, the SIOP proved very resistant to change under the direction of political leadership.

President Kennedy, building on efforts at the end of the Eisenhower presidency, stipulated that the SIOP should contain multiple plans for attacks of different sizes to provide the president with more response options.[81] When Kennedy asked about possible military options during the Berlin Crisis in 1961, Secretary of Defense Robert McNamara said that after some initial conventional attacks, it would escalate to "general war," meaning all-out nuclear war. As a result, Kennedy asked adviser Dean Acheson for more options.[82] This request was consistent with Kennedy's "flexible response" strategy, which concurrently sought many options for countering the Soviets and to avoid Eisenhower's plan of "massive retaliation," whereby the United States would prevent conventional or nuclear attacks on U.S. allies by threatening to inflict damage "outweighing any possible gains from aggression."[83] Eventually, LeMay capitulated by adding options short of total war to SIOP-63, but few took these options seriously.[84] LeMay did not want to see SAC constrained in the case of nuclear war, and the new options' allowance for "military necessity" gave the SAC general ample flexibility.[85]

President Nixon and Secretary Kissinger also sought more flexible options for the use of nuclear weapons. As one scholar explains, "Henry Kissinger believed that the White House needed 'politically plausible' threats that did not involve appalling outcomes. As he put it a few months later, how can 'one rationally . . . make a decision to kill 80 million people?'"[86] Many Pentagon officials were skeptical of limited nuclear war options for a variety of reasons including concerns over escalation, relations with allies, and lowering the threshold for use.[87] In January 1974, Nixon signed National Security Decision Memorandum 242, "Policy for Planning the Employment of Nuclear Weapons," which called for the military to establish "limited employment options" for nuclear weapons.[88] As a result, Secretary of Defense James R. Schlesinger released a new nuclear weapons employment policy (NUWEP) in April 1974, requiring limited and regional nuclear options.[89] This guidance was meant to instruct SIOP-65, but the updated SIOP, released in 1976, did not include limited options. As explained by the National Security Archive in its description of Schlesinger's NUWEP, "Presidential guidance notwithstanding, nuclear strike options remained massive for years."[90]

This pattern continued with President Carter, who also sought more flexible nuclear plans. In Presidential Directive 59, "Nuclear Weapons Employment Policy," issued in July 1980, Carter directed the SIOP to be "developed with flexible sub-options."[91] This guidance resulted in new NUWEP guidance just as Carter's administration was ending. It was then replaced by Reagan administration guidance.

Reagan's secretary of defense, Caspar Weinberger, requested a year-long moratorium on the creation of a new SIOP in 1981 during Reagan's first year in office. This year would provide more time to assess existing plans and make any changes sought by the new administration. The new plan would emphasize the ability to engage in a "protracted nuclear conflict."[92] Reagan approved the new plan for targeting with National Security Decision Directive 13, "Nuclear Weapons Employment Policy," in October 1981; the new SIOP would be based on this guidance.[93] Like presidents before him, Reagan continued to seek options for nuclear war, including surprise attack, all-out nuclear exchange, and limited and protracted nuclear war.[94]

Franklin Miller, who served as director of strategic forces policy within the Office of the Secretary of Defense beginning in October 1981, recognized that presidential guidance regarding nuclear employment was not reflected in targeting policies. In short, there was a disconnect between the military and the civilian leadership with the authority for nuclear use. Though Miller and others recognized this problem, it was not until 1985, when the nuclear targeting portfolio shifted to Miller's office, that his team was able to assess this gap between guidance and plans.[95]

As the evidence above indicates, throughout the Cold War, presidents of both parties, in part because they were the sole individuals responsible for nuclear use, asked the military to develop nuclear options short of total war. Though there were several different motivations for seeking less destructive options, one can imagine that presidents were hesitant to be responsible for killing millions of people. This idea is consistent with what Secretary Weinberger wrote in 1985 about targeting: "The general proscription against targeting civilian population per se, which results in guidance not to target deliberately residential areas, is intended primarily to cause our nuclear war-plans to conform with Western morality."[96] The military, especially SAC, was not entirely sympathetic to these presidential requests and focused their energies on total nuclear war. In administration after administration during the Cold War, this request went unheeded. Miller later explained the bureaucratic obstacles faced by civilian leaders:

> For decades, the military authorities who controlled access to the SIOP target base and the protocols employed in its construction thwarted every effort by the OSD officials responsible for formulating nuclear weapons targeting policy to gain the insight necessary for overseeing the translation of that policy into the nuclear war plan. Requests for specific information about the plan had to be signed out by the Assistant Secretary of Defense for International Security Policy to the Director of the Joint Staff, who in turn sent a memo to the Vice Director of the JSTPS at SAC Headquarters in Nebraska. The answer back up that chain was invariably that OSD has "no need to know," a process made to take months.[97]

With painstaking work, Miller and his team ensured that truly limited options (those short of total nuclear war) would be available to President Reagan.[98]

Miller continued his work during the George H. W. Bush administration, with the support of Secretary of Defense Dick Cheney. This time he examined targeting, finding that the number of nuclear weapons in the U.S. arsenal far exceeded targeting requirements. Approved to conduct

a "zero based review of the SIOP target base," Miller and his team determined that based on requirements, the United States required 3,500 strategic weapons, far below START I limits.[99]

The fall of the Soviet Union in 1991 again prompted U.S. leadership to reexamine its nuclear planning to ensure alignment with the global threat environment. Yet as officials contended with the possibility of facing multiple nuclear-armed powers around the world, this realization only served to reinforce existing trends toward greater flexibility in the president's nuclear options. In 1992, U.S. Strategic Command set up a Strategic Planning Study Group to develop a new method of "adaptive" nuclear planning.[100] Through the resulting Strategic War Planning System, the command developed a set of options with generic targets, based on generic regional dangers, which could be tailored in a matter of months to meet specific threats that emerged.[101] According to then-Commander of Strategic Command General Lee Butler, these options considered the employment of both nuclear and conventional weapons.[102] In 1997, the Clinton administration also rewrote nuclear guidance that had existed since the early 1980s, in Presidential Decision Directive 60. No longer would U.S. guidance state "that the military must be prepared to win a protracted nuclear war"; rather, the new guidance emphasized the intent to deter nuclear use at any level.[103] These two changes to nuclear planning and policy by the DOD and President Clinton's National Security Council provided the president with a greater range of options short of total nuclear war.

Following the entry into force of New START in 2011, President Obama requested an assessment of the U.S. nuclear arsenal and the number of weapons required. The Pentagon came back months later and said the United States could fulfill its guidance with 1,000 deployed nuclear warheads, down from 1,550 in New START.[104] This number worked in part because of "treaty math," by which bombers would only count as having one assigned nuclear bomb, though in practice they could carry many more. Obama did not make this change to the U.S. arsenal, however, as Russia did not take up his 2013 offer to negotiate to this level.[105]

4. Presidents issued nuclear threats, but sought to avoid nuclear use.

Most presidents during the Cold War employed nuclear threats in attempts to compel or deter adversaries, but also sought to do whatever was possible to avoid nuclear attacks. Some U.S. presidents considered use in the course of their administrations, but the number of these considerations waned throughout the nuclear age.

As the only president to approve a nuclear attack in conflict, Truman knew of the dire effects of these novel weapons following their use in Hiroshima and Nagasaki. In the years after World War II, he often used nuclear-capable aircraft to signal nuclear threats to adversaries, while also warning the public of the terrible effects of nuclear weapons. For instance, after the Soviet Union blockaded Berlin in 1948, Truman sent two squadrons of B-29s to Western Europe, though these particular aircraft were not configured for dropping nuclear weapons. In July 1950, Truman directed SAC to send B-29s to Great Britain. This time, the bombers were nuclear capable and had assembled bombs inside, but the bombs did not have fissile cores and thus were not in fact nuclear weapons.[106] Soon

after, the president ordered B-29s to Guam to serve as a signal of U.S. strength in the context of the Korean War, which began June 25, 1950—but again, the bombs were missing their fissile cores.[107]

While these signals did not seem to affect the Korean War or preclude Chinese intervention, Truman continued to publicly demonstrate a willingness to use nuclear weapons. At a press conference in November 1950, Truman did not rule out nuclear use in the Korean War when asked by a reporter what authorizations General Douglas MacArthur had in Korea.[108] Truman stated, "We will take whatever steps are necessary to meet the military situation, just as we always have."[109] When asked if that included the atomic bomb, he responded, "That includes every weapon that we have." In a follow-up question, the reporter asked if there was "active consideration" of nuclear use; in response, the president explained, "There has always been active consideration of its use. I don't want to see it used. It is a terrible weapon, and it should not be used on innocent men, women, and children who have nothing whatever to do with this military aggression. That happens when it is used."[110] Later the same day, the White House issued a press release stating that "consideration of the use of any weapon is always implicit in the very possession of that weapon." It went on, "However, it should be emphasized that, by law, only the President can authorize the use of the atom bomb, and no such authorization has been given. If and when such authorization should be given, the military commander in the field would be in charge of the tactical delivery of the weapon."[111] Truman's nuclear signaling in the Korean War continued into 1951. In April, the president directed nine nuclear bombs with their fissile cores to be placed in Air Force custody in Okinawa, Japan, along with nuclear-capable B-29s.

In addition to signaling, Truman prepared for a possible nuclear attack during the war, but ultimately decided against it. In April 1951, Truman replaced General MacArthur with General Matthew Ridgway after the president and MacArthur differed on war plans for Korea. With Ridgway, Truman provided "qualified authority" for nuclear use, but they never determined a need.[112] The Korean War continued as Truman left office and Eisenhower was inaugurated in 1953.

As a presidential candidate, Eisenhower had pledged to end the Korean War. According to Secretary of State John Foster Dulles, writing about the armistice a few years later in *Life* magazine, Eisenhower decided in December 1952 to use nuclear weapons against China if they could not negotiate an end to the war.[113] Eisenhower talked about this possibility several times in National Security Council meetings and worked to persuade his British counterpart of the value of attacking China with nuclear weapons if it broke the armistice.[114] But even with South Korea's leader complicating negotiations to end the conflict, China continued cooperating. Eisenhower explained in his memoir that Chinese leaders were willing to continue these negotiations because his administration "let the Communist authorities understand that, in the absence of satisfactory progress, we intended to move decisively without inhibition in our use of weapons, and would no longer be responsible for confining hostilities to the Korean Peninsula."[115] Eisenhower's assumption that the threat of nuclear weapons led to negotiations—though unproven—would be a lesson that he would rely on again, and that he would pass on to later presidential administrations, including that of his vice president, Nixon, and in advice given to Johnson.[116]

In 1954, some in the Eisenhower administration considered nuclear attacks on Vietnam's Dien Bien Phu region to aid France in its war against communism in Vietnam. Eisenhower disagreed. "You boys must be crazy," he said. "We can't use those awful things against the Asians for the second time in ten years. My God."[117] It is unclear from the archival record whether Eisenhower's statement meant he regretted nuclear use against Japan during World War II, did not think the situation in Vietnam warranted nuclear use, or both. Additionally, depending on his intended meaning, his statement appears to offer doubt as to whether or not Eisenhower seriously considered using nuclear weapons in the Korean War, as he previously threatened.

The Eisenhower administration also considered using nuclear weapons to stop a Chinese attack on the islands of Quemoy and Taiwan during the Taiwan Strait Crises of 1954–55 and 1958.[118] The U.S. government had prepared targets and conferred over this possibility with Taiwanese leaders. Several members of the administration, including Vice President Nixon, explicitly threatened nuclear use. China did not invade, leading Nixon and Eisenhower to again conclude that the nuclear threats were successful in achieving their desired outcome.[119] The historical record, however, indicates that these threats may not have been relevant to Chinese decisionmaking at all.[120]

Following Eisenhower, over the course of the Kennedy administration, the question of nuclear use was most relevant during the 1962 Cuban Missile Crisis. Kennedy's careful approach to the conflict over Soviet nuclear-armed missiles in Cuba—ordering a blockade of the island nation and conducting diplomacy with Soviet Premier Nikita Khrushchev—sought to avoid nuclear use. During the crisis, Kennedy spoke to the public on the evening of October 22, 1962, communicating an explicit deterrent threat to the Soviet Union by stating, "It shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western Hemisphere as an attack by the Soviet Union on the United States, requiring a full retaliatory response upon the Soviet Union."[121] The U.S. military raised the alert level to DEFCON 3 that evening. Diplomacy prevailed, with the Soviet Union removing the missiles and the United States promising not to invade Cuba and secretly vowing to remove U.S. Jupiter missiles from Turkey.

A few weeks after the crisis ended, Kennedy told Danish Foreign Minister Pir Haekerrup, "Once one resorts to nuclear weapons one moves into a whole new world. There is no way to prevent escalation once the decision is made to employ nuclear weapons."[122] Similarly, he stated that a "decision to use any kind of a nuclear weapon, even the tactical ones, presents such a risk of it getting out of control so quickly" and that using nuclear weapons, rather than conventional armaments, is "socially circumscribed."[123]

Holding very different ideas about nuclear arms than Kennedy, President Nixon appears to have considered nuclear use to solve foreign policy challenges more than any other president.[124] Years after he left office, Nixon reported to *Time* magazine that he "considered using nuclear weapons" four times as president: (1) to end the war in Vietnam, (2) during the 1971 conflict between India and Pakistan, (3) during the Yom Kippur War in October 1973, and (4) regarding border disputes in China.[125] In the case of Vietnam, in October 1969, Nixon increased the alert level of the U.S. nuclear arsenal to try to scare the Soviet Union into persuading North Vietnam to negotiate.[126] He explained to his assistant, H.R. Haldeman, "I call it the Madman Theory, Bob. I want the North Vietnamese to

believe that I've reached the point that I might do anything to stop the war. We'll just slip the word to them that 'for God's sake, you know Nixon is obsessed about Communism. We can't restrain him when he's angry—and he has his hand on the nuclear button'—and Ho Chi Minh himself will be in Paris in two days begging for peace."[127]

Since the Nixon administration, there have been far fewer concrete examples of presidents seriously considering nuclear use. Instead, most "use" beyond nuclear deterrence over the past several decades has taken the form of nuclear signaling—that is, using nuclear capabilities, most often nuclear-capable aircraft, to remind adversaries of U.S. nuclear options. For instance, during tensions with Iraq in 1997 and 1998, President Clinton sent several nuclear-capable aircraft to the region as a signal to Saddam Hussein.[128] In 1998, the United States conducted conventional airstrikes on Iraq with B-2 bombers.[129] In 2013, President Obama sent two B-2 bombers to the Korean Peninsula; the bombers dropped inert weapons in the ocean near the Republic of Korea's eastern coast. According to a U.S. government statement at the time, the deployment of the two bombers "demonstrates the United States' ability to conduct long range, precision strikes quickly and at will."[130]

In addition, presidents have issued veiled threats to foreign leaders that promise serious consequences but do not explicitly mention nuclear weapons. In the context of Iraq's invasion of Kuwait in the early 1990s, H. W. Bush wrote to Saddam Hussein, stating that if Iraqi forces used chemical or biological weapons in Kuwait or destroyed Kuwait's oil infrastructure, "the American people would demand the strongest possible response. You and your country will pay a terrible price if you order unconscionable acts of this sort."[131] Similarly, President Clinton threatened North Korea in 1993, stating that if Pyongyang developed nuclear weapons, "we would quickly and overwhelmingly retaliate. It would mean the end of their country as they know it."[132] In the aftermath of the September 11, 2001, attacks, some in the Bush administration alluded to nuclear weapons in the context of the wars that followed. In speaking in 2002 about his assumption that Iraq possessed weapons of mass destruction (WMDs), President Bush threatened: "All options are on the table. But one thing I will not allow is a nation such as Iraq to threaten our very future by developing weapons of mass destruction."[133] Similarly, in 2003, Bush's chief of staff told the press that the Iraqi leader "should anticipate that the United States will use whatever means necessary to protect us and the world from a holocaust." When a reporter asked him whether those means included nuclear weapons, he stated, "I'm not going to put anything on the table or off the table."[134]

President Trump is anomalous among recent presidents for the number of nuclear threats he has issued. These threats were common against North Korea during his first term. Examples include warning North Korea that if it continued making threats, it would be "met with fire and fury and frankly power, the likes of which this world has never seen before."[135] A month later, in September 2017, while speaking at the UN General Assembly, Trump threatened to "totally destroy" North Korea.[136] In 2018, the back and forth between the two leaders escalated on Twitter, with President Trump posting:

> North Korean Leader Kim Jong Un just stated that the "Nuclear Button is on his desk at all times." Will someone from his depleted and food starved regime please inform him that I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my Button works![137]

President Trump apparently considered going beyond nuclear threats. A 2023 book claims Trump talked about using nuclear weapons against North Korea in 2017 and blaming the attack on another country.[138]

5. Presidents consulted advisers, but did not always follow advice.

Presidential advisers can play influential roles in presidential decisionmaking with regard to nuclear weapons. Presidents seek the counsel of their advisers for all types of decisions related to domestic and foreign policy, but the nuclear realm is unique for at least two reasons. First, the deeply secretive nature of nuclear strategy means presidents may come to office with far less knowledge of plans and capabilities than those advising them. This asymmetry of knowledge and experience could make presidents rely more deeply on advisers, especially those with longer military experience. Second, there is limited empirical evidence when it comes to nuclear use and nuclear escalation dynamics. Nuclear strategists thus rely on theories about the way nuclear threats operate or the way in which certain actions may lead to nuclear escalation. The reality is that there is little certainty about how nuclear conflicts would play out. Consistent with research in psychology, one would expect that in an area of such great uncertainty, advisers who appear more certain or more confident about their own theories of nuclear weapons may have more influence on a president.[139]

In the event of a nuclear crisis, the president has the opportunity to consult with military, legal, political, and other advisers to inform his or her chosen course of action. As outlined previously, the president would also consult with advisors immediately before authorizing nuclear use through an emergency conference. Historically, many presidents have sought the counsel of their advisers in crisis scenarios and for nuclear policy decisions writ large. Yet the president is not obligated to follow the advice of their advisers, absent any legal restrictions on the president's actions, including in the event of a crisis. Several historical examples reveal instances when presidents leaned on their advisers for direction on nuclear policy issues, along with instances when presidents decided against the courses of action recommended by members of their inner circle.

Advisers can play a role in escalation management through consulting with the president over a range of options, including the merits and potential drawbacks of different courses of action. A famous example of these consultations is the Executive Committee that brought together a number of cabinet-level officials from across the interagency, military, and judiciary to aid President Kennedy in navigating the 1962 Cuban Missile Crisis.[140] Kennedy sought to avoid the pitfalls of groupthink by facilitating a full and thorough debate over possible courses of action with his advisers to address the threat of Soviet missiles stationed in Cuba while preventing the situation from spiraling into a nuclear war. Advisers helped problematize the situation, developed options for a range of U.S. responses, and to some extent debated the risks and potential benefits of each response.[141] Separate from this advising process, however, Kennedy was still free to make final decisions in terms of managing the crisis. While the Joint Chiefs unanimously recommended conducting a surprise bombing attack on Soviet missile sites in Cuba, Kennedy insisted on going ahead with a naval blockade and back-channel diplomacy to de-escalate the situation.[142]

In other cases, advisers played roles in nuclear crisis management separate from their consultations with the president. Near the end of President Trump's first term, amid turmoil surrounding the 2020 election and Capitol riot on January 6, 2021, U.S. officials received intelligence that Chinese leadership feared Trump would launch an attack on China in his final days in office. In October 2020 and January 2021, General Milley called Chinese military officials to assure them that Trump was not planning such an attack.[143] General Milley relayed these events to the Senate Armed Services Committee in October 2021, stating "I know, I am certain, that President Trump did not intend to attack the Chinese, and it is my directed responsibility, and it was my directed responsibility by the Secretary, to convey that intent to the Chinese. My task at that time was to de-escalate."[144] As General Milley explained in his testimony, ongoing military-to-military communications with U.S. adversaries sought to deconflict military activities, manage crises, and prevent war between nuclear-armed powers.[145]

In another example, leading up to President Nixon's resignation from office, Secretary of Defense Schlesinger directed military officials to halt on "any emergency order coming from the president" without informing himself or Secretary of State Kissinger.[146] Schlesinger lacked the legal authority to enforce this order, however, and any practical implications in the event of a nuclear crisis remained unclear.

Given the specialized nature of nuclear weapons policy, many presidents relied on advisers to inform their nuclear policy decisions, including in crisis scenarios. In the first few months of his administration, President Eisenhower and Secretary of State Dulles initiated the top-secret "Project Solarium," which convened U.S. government personnel and nongovernmental experts to identify force, budgetary, alliance, and other requirements to wage a major military campaign against the Soviet Union.[147] Eisenhower sought to fulfill a campaign promise to reduce national spending on the Cold War, and he relied on the outcomes of expert deliberations to develop options for implementing that goal. He asked George Kennan, former ambassador to the Soviet Union, to chair one of three task forces alongside two high-ranking military officers.[148] Project Solarium's findings helped shape Eisenhower's central strategy of massive retaliation.[149]

During his time in the executive office, President Obama prompted his advisers to present a range of policy options for him to consider, including with respect to nuclear weapons policy and sole authority. According to John Wolfstahl, a former special assistant to the president, Obama tasked his advisers with developing several courses of action for the United States to reduce its reliance on nuclear weapons as part of his Prague Agenda.[150] Wolfstahl explained this process: "We presented the president with a number of options . . . and without saying, 'you should do this,' or 'you shouldn't do this,' . . . [we explained,] 'here are the ways you can achieve each of these.'"[151] Wolfstahl and his colleagues also wrote several discussion papers on nuclear policy options for deputy secretaries in the administration to consider, who in turn passed the papers to the president's cabinet for deliberation, then up to the president himself to make the final judgements.[152] Some of these options included adopting a no-first-use policy, making a "sole purpose" commitment, and de-alerting portions of U.S. nuclear forces. In the end, the Obama administration reportedly

ran out of time and bandwidth to move forward on these options once the cabinet presented them in 2016.[153]

6. Mishaps undermined the command and control system.

A command and control system with a policy of sole authority puts significant pressure on the executive. Some presidents have, as a result, been quite eager to quickly turn over the nuclear football to their successor.[154] Several times, presidents have had mishaps that undermined the system in some capacity. Though nothing dire resulted from these occurrences, it is worth considering the lapses, most of which revolve around the nuclear football and the so-called nuclear biscuit. Of course, any system that relies on human beings is sure to experience mistakes at times, but such mistakes matter more within the command and control process because of the involvement of nuclear weapons.

Several mistakes have involved the laminated card known as the biscuit. Presidents use this card to identify themselves if they need to use the nuclear football to connect to the Pentagon. According to reports, Presidents Carter and Clinton both lost these cards for periods of time—months, apparently, in the case of Clinton.[155] Carter's biscuit took a trip to the dry cleaners in one of his suits.[156] When Reagan was shot, his biscuit ended up in the plastic bag with his clothes at the hospital.[157]

Presidential assassinations put a significant stress on protocols providing for the continuity of government, especially those related to nuclear command and control. The attempt on Reagan's life resulted in confusion and conflict within the White House. Vice President Bush was on a trip to Texas, leaving Secretary of State Alexander Haig and Secretary of Defense Weinberger competing for influence. Weinberger "gave orders to the chairman of the Joint Chiefs that alert crews at Strategic Air Command (SAC) bases be restricted to their alert areas, a small but significant change."[158] In other words, he increased the alert posture for SAC. The two secretaries argued over Weinberger's action, with Haig worried that the defense secretary had increased the DEFCON alert level. That same day, without Weinberger's knowledge, Haig hurried to an in-process press conference to explain that he had taken control of the government.[159] Haig explained, *incorrectly*, in fact:

> Constitutionally, gentlemen, you have the president, the vice president, and the secretary of state, in that order, and should the president decide he wants to transfer the helm to the vice president, he will do so. As for now, I am in charge here, in the White House, pending the return of the vice president and in close touch with him. If something came up, I would check with him, of course.[160]

The following day, Weinberger had DOD Directive 5100.30 sent over to the White House. This guidance explains the "World Wide Military Command and Control System" in which the National Command Authority "consists only of the President and the Secretary of Defense or their duly deputized alternates or successors. The chain of command runs from the President to the Secretary of Defense and through the Joint Chiefs of Staff to the commanders of Unified and Specified

Commands."[161] Weinberger wanted to remind Haig of nuclear command and control guidance after the previous day's chaotic press conference.

On other occasions, presidents have inadvertently left the nuclear football, or more accurately, the aide carrying it, behind. President Ford once left the football behind on Air Force One when he arrived at an economic summit.[162] President H. W. Bush once left his aide with the football behind after finishing a tennis match.[163] President Clinton left the football behind after quickly departing in his motorcade from a NATO meeting, and the aide walked back to the White House.[164]

After the January 6, 2021, attack on the Capitol, members of Congress were concerned about how close rioters came to Vice President Pence's nuclear football. As a result, the DOD Office of Inspector General issued a report in 2022 (which is still mostly classified) indicating that there is a procedure to ensure presidential authority even in instances of a lost or stolen nuclear football.[165]

Because of the devastation wrought by nuclear weapons, even seemingly small mistakes within the command and control system are significant. Fortunately, the above incidents did not lead to any serious danger, according to public information. Instead, the anecdotes about left-behind nuclear footballs and lost biscuits are a reminder that nuclear command and control is a system developed and maintained by humans, who are not immune from making mistakes. Particularly given the taxing mental stress of serving as president, it is not surprising that mishaps have occurred.

7. Presidents altered the NC3 system to address evolving threats.

While the DOD is responsible for maintaining the NC3 system, U.S. presidents have approved changes to this system to keep pace with the changing threat landscape. Some measures that enhance force readiness, such as the president empowering military commanders to authorize the use of nuclear weapons in specific circumstances through the practice of "pre-delegation," can increase risks of accidental or unauthorized nuclear use.[166] Over time, presidents balanced the always-never dilemma differently as they perceived their threat landscape as requiring greater force readiness for nuclear deterrence, or viewed greater risks from potential nuclear accidents. Professor Peter Feaver explained this dynamic to the Senate Foreign Relations Committee during a 2017 hearing on presidential sole authority:

> The history of nuclear command and control is a history of civilian and military leaders debating the proper balance between always and never. It is a history of occasional discoveries that the risks on one side or the other side of the ledger were greater than originally understood. And it is a history of improvements . . . that may have helped forestall disaster.[167]

In the 1950s, fears over the Soviet Union launching a surprise nuclear attack on the United States—something akin to the Pearl Harbor attack just a decade earlier—led President Eisenhower to adopt certain pre-delegation practices. These fears became acute once North Korea's surprise invasion of South Korea in 1950 put the United States on a wartime footing. Eisenhower authorized the U.S. Armed Forces to use nuclear weapons in certain scenarios, like an attack on the U.S. homeland, where "time and circumstances do not permit a decision by the President or other person

authorized by law to act in his stead."[168] Eisenhower's own experience as a military leader may have also made him more comfortable with delegating authorities down the chain of command.[169] While Eisenhower set the precedent, Kennedy and Johnson also pre-delegated this authority to their top six or seven military commanders under conditions such as a communications blackout.[170]

Later in the 1960s, new fears of a "rogue general" initiating nuclear war without authorization of the president, as reflected in the seminal film *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (1964), spread among the public and U.S. officials.[171] The experience of the Cuban Missile Crisis was also fresh in the minds of U.S. officials at this time. Additionally, as the United States established new nuclear-sharing arrangements with NATO allies in the 1960s, which included stationing nuclear forces in Europe to counter the Soviet threat, U.S. officials sought to establish additional measures to retain command and control over the arsenal.[172]

Just eight months after the Cuban Missile Crisis, President Kennedy directed U.S. agency chiefs to install permissive action links (PALs)—coded switches designed to obstruct the employment of nuclear weapons by unauthorized actors—over U.S. nuclear weapons dispersed to NATO commands. According to Kennedy, PALs would safeguard U.S. nuclear weapons against unauthorized use by an "individual psychotic," foreign malign actor, or by the United States' "own or allied military forces under conditions of high tension or actual military combat."[173] The Kennedy administration also set up the Personnel Reliability Program (PRP) to vet individuals working on or near U.S. nuclear weapons and established the "two-person rule," which requires multiple PRP-certified individuals to be present when they have access to nuclear weapons.[174] Subsequent presidents built upon these programs throughout the twentieth century and beyond—for example, by improving PALs and adding them to a wider set of nuclear systems.[175] In the late 1990s, the Clinton administration settled agreements with Russia and China to mutually "de-target" their nuclear forces, meaning each country's strategic missiles were by default aimed at the open ocean.[176] According to President Clinton, this step would "completely eliminate the prospect of accidental launch [against a target]," show "mutual confidence" with Moscow and Beijing, and "signal as a counterweight" to recent nuclear tests in India and Pakistan.[177]

Through these policies, presidents sought to balance the need to improve the responsiveness and dispersion of U.S. nuclear capabilities with the need to guard against accidental or unauthorized nuclear use. In a 2007 campaign speech, President Obama argued that nuclear weapons needed to be removed from high alert status while reiterating the need to maintain a strong nuclear deterrent. He said, "we cannot and should not accept the threat of accidental or unauthorized nuclear launch. We can maintain a strong nuclear deterrent to protect our security without rushing to produce a new generation of warheads."[178] As the security environment evolved, presidents balanced this dilemma differently, sometimes modifying the nuclear command and control system to support their chosen approach. In some cases, these modifications came in the form of measures to improve the control piece of NC3, such as the Kennedy administration's two-person rule to guard against unauthorized use. These measures also built upon one another over time, especially as U.S. officials identified additional (sometimes compounding) threats to the control of U.S. nuclear weapons. Other modifications came in the form of measures to change the command piece of NC3, such

as when the Eisenhower administration adopted specific pre-delegation practices in the 1950s. While presidents from Eisenhower to Reagan adopted pre-delegation practices in some form or fashion, President Clinton reportedly rolled these back after the fall of the Soviet Union, as his administration judged a diminished need for high force readiness.[179] Thus, modifications to the U.S. command and control system have historically followed a swinging pendulum in accordance with perceived threats of the security environment, though the general trend is toward more stringent control of nuclear weapons over time.

Current Policy Debates

Some activists, scholars, and elected officials have called for changing the U.S. policy of sole authority.[180] Most of these proposals seek to prevent the president from being able to decide to use nuclear weapons first in a crisis, while allowing for sole authority in instances of an incoming nuclear attack on the United States or its allies. Recent efforts in this direction come from members of Congress. For instance, in 2021, several members of Congress wrote to President Biden requesting that he "consider modifying the decision-making process the United States uses in its command and control of nuclear forces."[181] The letter, signed by 31 members, notes several possible ways to amend sole authority including involving more elected leaders in the decisionmaking process, requiring certifications of the nuclear strike's legality or a congressional declaration of war, or creating of a congressional council to work with the executive branch on nuclear issues, including deliberations over nuclear first use.[182] Several of the congressional members who signed this letter have also sponsored legislation to end sole authority for the first use of nuclear weapons.[183] Noting that the Constitution grants Congress the responsibility to declare war, the Restricting First Use of Nuclear Weapons Act of 2023 (H.R.669) calls to change the policy so that "no first-use nuclear strike should be conducted absent a declaration of war by Congress."[184] This bill was reintroduced in the House in 2025.

The authors' research demonstrates that thus far, no president has seriously contemplated nuclear first use against another nuclear-armed state. Moreover, after the Cold War ended, it became clear the Soviet Union never seriously considered ordering the type of "bolt from the blue" attack long feared by U.S. nuclear strategists.[185] But were a president to consider nuclear first use in the future, the grave nature of such a decision, Congress's constitutional responsibility for declaring

war, and the time available to make the decision (assuming it was not a response to an imminent threat) suggest that it may improve decisionmaking and provide a more constitutionally sound check on presidential nuclear power to have more individuals involved in the final decisionmaking process. One option would be to include a small number of select members of Congress to weigh in on deliberations regarding the costs and benefits of nuclear (and nonnuclear) courses of action in the event of such a crisis. As Kennedy explained, it could be considered "insane" that a single individual has this much latent power. And though past presidents have indicated limited desire to authorize first nuclear use on a nuclear-armed nation, the fact that it has not occurred does not mean it is impossible, nor that the law should allow a single individual in the United States to start a potentially society-ending nuclear war.

Given the unknowns about the approach future presidents will take with regard to nuclear weapons and sole authority, U.S. officials, experts, and the public should continue to engage in debates over the merits and drawbacks of this policy. Further, more work should be done to apply insights from research on psychology and decisionmaking in this space. This report aims to place the practice of sole authority in historical context and clarify how presidents have engaged with this critical responsibility to date. Therefore, it does not weigh in on policy debates over sole authority but rather offers a broader context within which U.S. officials, experts, and the public can advance these important debates.

Conclusion

Early in the nuclear age, U.S. policymakers established a policy of sole authority because they deemed these new weapons unique from existing instruments of power. Today, the policy of sole authority continues to reflect the uniquely destructive nature of these weapons compared to other U.S. military capabilities. The histories of presidents from Truman to Biden shed light on how executives have grappled with this reality over the past three-quarters of a century, and how the long-held policy of sole authority has played out in practice.

The authors' research on sole authority demonstrates that presidents have felt the grave weight of shouldering this responsibility. They have been chastened by briefings illustrating how millions of citizens would perish in a matter of minutes as a result of a nuclear exchange. It is not a coincidence that the word "horror" is frequently used in descriptions of presidential responses to these briefings. Indeed, there appears to be a sobering effect of having a single person bear the burden of decisionmaking regarding nuclear use. The responsibility for nuclear use residing with the president may have supported the nuclear taboo, or the norm against nuclear first use.

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Over the past 80 years, U.S. presidents have been intricately involved in U.S. nuclear policy. It is presidents who have developed many of the innovations in nuclear authorization, as these leaders had to imagine and plan for what it would be like to make the gravest of presidential decisions. Kennedy's question about how he would transmit a nuclear launch order when away from Washington led to the development of the nuclear football. Carter's determination to practice responding to a nuclear attack led him to revise protocols for communication. While presidents had varied experience working on nuclear issues prior to taking office, most of them had at least some previous involvement with nuclear technology, operations, or policy. Many had worked within the military and its chain of command; others worked on nuclear issues through prior roles in Congress and the executive branch, and some even had knowledge of the inner workings of sole authority by previously serving as vice president.

In part to deal with this weighty charge, time and again presidents have sought more limited options to deter adversaries at various levels of conflict. While these efforts were likely intended to increase the credibility of nuclear use and bolster deterrence, they may have also allowed presidents to reconcile with their responsibility for a capability that could wipe out entire societies. Indeed, many presidents raised questions over casualty estimates in their briefings. Within the attack options laid out in the nuclear football, presidents wanted to know quickly and clearly how many people would die depending on the option they selected. While bureaucratic barriers caused many presidents' requests for options short of total war to go unheeded through much of the Cold War, the search for limited nuclear options nonetheless remained.

During a period of heightened nuclear competition in the Cold War, most presidents employed nuclear threats to attempt to compel or deter certain actions by adversaries. Yet, historical evidence suggests that these same presidents sought to avoid nuclear use as the highest priority. Furthermore, it is worth noting that there is little evidence that presidents, or their close advisers, were confident in being able to control further escalation following an instance of nuclear use. Time and time again, evidence indicates that leaders most familiar with U.S. nuclear policy perceived that any nuclear use could lead to far-ranging and unpredictable consequences. This knowledge likely imbued executives with caution and may have served as a factor that dissuaded them from nuclear use.

While presidents often consulted their close advisers to explore possible options and outcomes, including during crisis situations, executives did not always follow their guidance. Groups of experts and officials, such as Eisenhower's Project Solarium and Kennedy's Executive Committee, allowed presidents to consider multiple perspectives and approaches to mitigate potential pitfalls of groupthink. In some cases, advisers attempted to move the president away from nuclear options, while others pushed for greater consideration of nuclear use. While the president can always choose to ignore the advice of his or her advisers (so long as the decision falls within parameters of U.S. and international law), a de facto consultation would take place before any presidential authorization of nuclear use. Advisers would need to communicate necessary information such as the state of play and available options, likely accompanied by their recommendations on how to proceed.

Finally, each president's experience with sole authority in practice was by nature intertwined with the state of the United States' NC3 at the time. Sometimes, mishaps made by the president himself undermined the system in some capacity, thereby restricting his available (executable) options. U.S. presidents also approved changes to the NC3 system to keep pace with the changing threat landscape, some of which sought to strengthen the principle of sole authority by mitigating risks of unauthorized or accidental use.

As debates over sole authority continue to play out among U.S. officials, experts, and the public, the authors' hope is that this report presents a fuller picture of how sole authority has functioned to date. Of course, policymakers should consider how existing laws and policies could enable future scenarios, just as fears of a rogue general in the 1960s led to improvements in control measures for the nuclear arsenal to guard against potential disaster situations. Yet just as these laws and policies should be forward-looking, they should also be cognizant of the historical practices, norms, and context surrounding their implementation. Further, in examining how past presidents have shouldered the responsibility to preside over these destructive weapons, the authors hope the report's conclusions will help guide readers in determining the qualities and qualifications of future presidents, who will likely shoulder the same enormous responsibility.

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