

The Imminent Threat of Nuclear Weapons – And What We Can Do About It

by Bill Durston, MD

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Introduction – The Nuclear Sword of Damocles

According to a Greek parable, in the fourth century BCE, a fawning courtier named Damocles¹ sought favor with the king of Syracuse, Dionysius,² by continually flattering him and commenting on how wonderful it must be for the king to enjoy such incredible power and wealth. Dionysius got fed up with this flattery and offered to let Damocles sit on the throne in his place. Damocles jumped at the chance, but his bliss was short lived, for in addition to experiencing great power and wealth while sitting on the throne, he noticed that there was an enormous sword dangling above his head, suspended by a slender thread. Upon seeing the sword, Damocles immediately begged Dionysius to trade places back with him. The parable ends here, and we don't know what eventually happened to Damocles, Dionysius, or the sword. It's probably safe to say, though, that it wasn't a happy ending.

On September 25, 1961, 13 months before the Cuban missile crisis, President John F. Kennedy made reference to this parable in a speech he delivered to the United Nations General Assembly concerning the threat of nuclear weapons. Kennedy warned:

Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident or miscalculation or by madness. The weapons of war must be abolished before they abolish us.¹

We may not be sitting on a throne, but as we're gathered here today on this beautiful island, the parable of *The Sword of Damocles* and President Kennedy's words are more relevant than ever. In my talk today, I'd like to address just how lethal the nuclear sword is that hangs over all of us, how fragile the thread has become, and what we must do in the immediate short term to strengthen the thread and what we can do in the slightly longer short term to abolish the nuclear sword altogether.

¹ Accent on first syllable

² Pronounced Die-oh-Nice-ee-us with major accent on Nice, minor accent on Die

I'm going to begin with the disclaimer that anything I say today represents my own point of view and not necessarily the point of view of the national Physicians for Social Responsibility organization or our Sacramento chapter.

How Lethal is the Sword, and How Fragile is the Threat?

Let's talk first about the nuclear sword. The occasion for our event today is the eve of the 73rd anniversary of the US atomic bomb attack on the city of Hiroshima, Japan, on August 6, 1945, followed three days later by the attack on Nagasaki. Nobody knows for sure how many people were killed in the immediate aftermath of these attacks, but estimates range from 90-150,000 deaths in Hiroshima and 40-80,000 deaths in Nagasaki, with most of these deaths occurring on the days that the bombs were dropped. Many thousands more people died in the ensuing days and months as a result of injuries, burns, and acute radiation sickness, and many thousands more died in the ensuing years as a result of radiation induced cancers and leukemia.

The destructive power of the single atomic bombs dropped on Hiroshima and Nagasaki was small by today's standards, in the range of the equivalent of 15-20 thousand tons of TNT. Modern nuclear weapons are up to 3,000 times more powerful, with their destructive power measured in the equivalents of millions of tons of TNT, or megatons, instead of kilotons.² You may have seen one of those diagrams with concentric circles illustrating what kind of damage you can expect depending on how close you are to ground zero of a nuclear blast. I find such diagrams very depressing. If you're in the inner circle surrounding ground zero, you'll be vaporized. A little farther out, you'll be blown to bits and/or incinerated. Still farther out, you'll die more gradually of blast injuries and burns. And so on. At my age, if there's a nuclear attack in my area, I think I'd prefer to be in the inner circle.

Believe it or not, a US federal agency called the Defense Threat Reduction Agency recently awarded a grant of \$450,000 to an organization called the Center for Social Complexity to develop a computer model to predict what the effect would be if two medium sized modern nuclear weapons were detonated over Manhattan.³ I can tell you for free that there's no complexity here. The effect would be unbelievably horrific.

And if we were to ever engage in an all out nuclear war with Russia, it would likely result in the end of human civilization as we know it. A 1986 report by the national Institute of Medicine concluded that if the United States were attacked with just 100 one megaton nuclear weapons, which is well within Russia's capability:

Virtually the entire U.S. urban population would be killed by blast and burns.
Much of the rural population would die of fallout-caused radiation illness, and
most of the remainder would die of starvation and disease.⁴

Similar devastation would undoubtedly also occur in Russia. And as a result of the soot released into the atmosphere, the reduction in the amount of sunlight reaching the

Earth's surface would result in global temperature drops to the coldest point since the last ice age 18,000 years ago. Global food production would be drastically reduced, possibly resulting in the extinction of the human species due to mass starvation.⁵ Even a so-called a "limited nuclear exchange" between two countries such as India and Pakistan would produce enough atmospheric pollution to lower global temperatures to the point that as many as 2 billion people would be at risk of dying as a result of "nuclear famine."⁶

In summary, President Kennedy's warning to the United Nations General Assembly that every man, woman, and child in the world lives under a nuclear sword of Damocles capable of wiping out the entire human race is not an exaggeration. Let's now turn to the thread by which the nuclear sword hangs.

The theoretical reason that is most commonly advanced for countries to possess nuclear weapons is that these weapons provide deterrence against attack by another country. Some pundits claim that the fact that many countries now possess nuclear weapons is the main reason why there hasn't been a third world war⁷ or why border skirmishes between neighboring nuclear rivals like India and Pakistan haven't evolved into all out wars.⁸ To listen to some of these pundits, you'd think that the more nuclear weapons there are in the world, the less likely there is that there'll be a nuclear war.

For the leaders of countries like Iran and North Korea, which President George W. Bush and his UN Ambassador, John Bolton, included on their 2002 "axis of evil" list along with Iraq and Libya, the deterrence theory may make sense, at least as far as deterring an attack by the United States goes. The United States attacked Iraq and Libya, which had nuclear weapons programs, but gave them up. We didn't attack North Korea, though, which has nuclear weapons. Contrary to the claim made by Donald Trump after his summit meeting with Kim Jong Un in June that, "There is no longer a nuclear threat from North Korea,"⁹ it's recently been reported that North Korea is currently building new nuclear missiles.¹⁰ Iran must be having second thoughts about giving up its nuclear weapons program now that Trump has withdrawn the United States from the Iran nuclear deal and has threatened Iran with "Consequences the likes of which few throughout history have ever suffered before," if Iran leaders were to even make verbal threats against the United States.¹¹

For other countries that aren't on a US President's "Axis of Evil" list, the deterrent value of nuclear weapons is much more debatable, and the argument that nuclear weapons prevent war is counterfactual. The principle of nuclear deterrence is dependent upon all foes, and particularly nuclear ones, being both exceedingly rational, and exceedingly careful. As we'll discuss, neither of these conditions exists. And as far as preventing conventional war goes, the United States and the former Soviet Union, which is now largely comprised of Russia, never threatened war against one another before they both had nuclear weapons. The same is true of the United States and China. And nuclear weapons certainly didn't prevent the Korean War, the Vietnam War, the Soviet invasion of Afghanistan, wars between Israel and its neighbors in the Middle East, the U.S.

invasions of Afghanistan and Iraq, or other US military interventions, either directly or by proxy, in Lebanon, Panama, Granada, Somalia, Haiti, the Balkans, and throughout Central and South America.

World Wars I and II were both started in Europe. The two nuclear European nations, Britain and France, haven't gone to war with each other since the Anglo-French war of 1212. The fact that Germany hasn't gone to war with any of its neighbors since World War II is not due to the fact that Britain and France have nuclear weapons, but rather due to lessons learned by all the European countries in World Wars I and II and the formation of the United Nations and European Union.

Let's return to the slender thread by which the nuclear sword of Damocles is suspended and discuss the kinds of "accidents, miscalculations, or madness" that President Kennedy referred to as threatening to cut that thread.

There are two main types of potential nuclear accidents, the first being the accidental detonation of a single nuclear weapon or a small group of nuclear weapons; and the second being the accidental launch of a nuclear weapon – or something mistaken for a nuclear weapon - by one nuclear power that is perceived as an intentional nuclear attack by another nuclear power, triggering an accidental nuclear war. We would like to think that the chance of such accidents is infinitesimally small. In fact, accidents involving nuclear weapons, including false alarms that could lead to all out nuclear war, occur with surprising frequency.

There have over a hundred accidents involving US nuclear weapons.¹² Fortunately, none of these accidents has resulted in a full nuclear explosion. In a number of cases, though, a full nuclear explosion was narrowly averted.

To understand how an accident could result in a conventional explosion even if the nuclear core doesn't explode, I'd like to divert briefly to a discussion of how nuclear weapons are constructed. In very simplified terms, modern nuclear warheads consist of an outer shell of conventional explosive material and an inner core of radioactive material (uranium or plutonium).¹³ To initiate the chain reaction that results in a high energy nuclear explosion, the outer shell is detonated first, driving the inner radioactive core into itself to achieve the critical mass that leads to a nuclear chain reaction. Nuclear weapons are designed with safety features to prevent them from discharging accidentally. For the purpose of this discussion, we'll describe the safety features as being like the safety on a gun. When the safety is switched on, the gun won't fire. When nuclear weapons are stored or transported, the safety on the nuclear core is supposed to be in the "on" position. The safety is intended to be switched off at the last possible moment if the weapon were to be used in warfare. Switching the safety to the off position is also referred to as "arming" the weapon.

In most of the nuclear accidents to date, the nuclear core safety switch has been in the "on" position, and as a result, the chain reaction leading to a full nuclear explosion has not occurred. We should not find this fact terribly reassuring, however, as in at least one

case, four nuclear warheads carried by a B-52 bomber in a training mission that were thought to be in the safe mode were actually in the armed mode as a result of an electrical malfunction.¹⁴ Had the plane crashed or had the bombs been accidentally released, four explosions each approximately 200 times as powerful as the ones that destroyed Hiroshima and Nagasaki would have occurred. And there have been plenty of crashes and accidental releases of nuclear bombs involving US warplanes. Here are some examples.

On May 27, 1957, a B-36 bomber inexplicably released a nuclear bomb as it was approaching Kirtland Air Force base near Albuquerque, New Mexico.¹⁵ The bomb landed in a field and the conventional explosive portion of the warhead detonated, creating a crater 12 feet deep and 25 feet wide, but the nuclear core didn't explode. Only a cow was killed in the accident.

On February 5, 1958, a B-47 bomber collided with an F-86 fighter over Savannah, Georgia, badly damaging both aircraft. Anticipating a crash landing, the pilot of the bomber dropped the 4 megaton nuclear bomb his plane was carrying into the Savannah River. The bomb didn't explode. The Air Force searched for the bomb for six weeks and couldn't find it. Fifty years later, a couple on vacation from Canada who were scuba diving in Wassaw Sound near the mouth of the Savannah River came across the bomb and notified military authorities who salvaged it.

On March 11, 1958, a B-47 bomber accidentally dropped a nuclear bomb over the rural community of Mars Bluff, South Carolina.¹⁶ The bomb landed in a garden and the conventional explosives detonated, creating a crater 30 feet deep and 70 feet in diameter. The explosion destroyed a playhouse in which children had been playing just hours before, but the nuclear core didn't detonate. Five houses and a church were also damaged, and six people suffered minor injuries. Other residents carted off bomb fragments as souvenirs before military personnel arrived.

On January 23, 1961, a B-52 bomber carrying two 4 megaton nuclear bombs crashed as a result of a fuel leak that led to an explosion inside the plane.¹⁷ As the plane was going down, the two bombs were accidentally released and fell to the ground near Faro, North Carolina. Neither bomb exploded. Three crew members were killed in the crash.

On January 17, 1966, a B-52 carrying four nuclear bombs was involved in an accident with a refueling tanker over the Spanish village of Palomares on the Mediterranean coast, leading to the disintegration of both planes in midair.¹⁸ Seven crew members were killed while four ejected safely as the nuclear bombs fell toward the village below. The conventional explosives in two of the bombs detonated on impact. There was no nuclear explosion and no one on the ground

was hurt by the conventional explosions, but radioactive plutonium from the bombs' nuclear cores was dispersed in a one mile radius. A third bomb landed in soft soil near the beach and did not detonate. The fourth bomb couldn't be found until six weeks later when a large US military search team, tipped off by Spanish fishermen who had seen the bomb fall, found it lying intact on the floor of the Mediterranean Sea, half a mile below the surface.

In April of 1979, a technician working in the cockpit of a B-52 at Carswell Air Force Base near Fort Worth, Texas, accidentally opened the bomb bay doors and dropped a nuclear bomb onto the tarmac 7 feet below.¹⁹ The bomb didn't explode, but when an explosive ordnance disposal team arrived, it found that as the bomb was lying on the tarmac, a red indicator in a casing window on the bomb indicated that it was fully armed. Before the bomb was moved, the team disarmed it by removing a panel from the casing and manually rotating the safety switch.

There have also been accidents involving ground based nuclear missiles. Here are a few examples.

On May 24, 1962, a Titan missile exploded in an underground silo in Chico, California as a result of a fuel leak.²⁰ Workers who had been performing routine maintenance on the missile noted the leak and barely escaped before the explosion occurred. The nuclear warhead did not detonate.

On December 5, 1964, as an airman was replacing a fuse in the launch system during routine maintenance of a Minuteman nuclear missile in an underground silo near Vale, South Dakota, an explosion occurred causing the nuclear warhead atop the missile to pop off and fall 80 feet to the floor of the silo. The warhead did not explode or damage the missile enough to cause a fuel leak. The incident was attributed to the fact that the airman used a screwdriver instead of a fuse puller to remove the fuse and in so doing, caused a short circuit that triggered the firing of one of the retrorockets that normally separates the warhead from the rest of the missile after the booster rockets have cut off.

On September 19, 1980, a repairman dropped the ratchet fitting from a ratchet wrench while working near the top of a Titan II nuclear missile in an underground silo in Damascus, Arkansas.²¹ The tool punctured the missile's fuel tank as it fell to the bottom of the silo, leading to a leak of highly combustible fuel and an explosion hours later that killed one serviceman and injured 21 others. The nuclear warhead was ejected from the silo by the blast, but a nuclear explosion did not occur.

There have also been multiple accidents at facilities that make and design nuclear weapons resulting in some cases in deaths and injuries to involved workers but fortunately not to large scale nuclear catastrophes. Finally, there have been multiple accidents involving nuclear submarines - the third leg in the nuclear triad - including

accidents in which entire submarines, their crews, and the nuclear missiles the subs carried have all been lost at the bottom of the sea.²²

The types of nuclear accidents that I've been talking about so far, should they lead to the detonation of a nuclear warhead, have the potential to kill large numbers of people within many miles of the location in which the accident occurs. There's another kind of accident, though, that has the potential to start a nuclear war that could kill millions of people around the globe and even lead to the extinction of the entire human race. Here in Hawaii, you're quite familiar with this type of accident - an accident that leads to a false alarm that one country is attacking another with nuclear weapons. And these types of accidents, like the others we've just discussed, are also terrifyingly common.

The false alert of an incoming ballistic missile that was sent out to the cell phones of Hawaii residents on the morning of January 13 was attributed to human error on the part of an employee who misinterpreted a phone call from an Emergency Management Agency supervisor announcing a drill as a real warning about an incoming missile.²³ Military personnel did not receive any message from their commanders instructing them to prepare for an incoming missile, and no preparations were made for a retaliatory attack. You know better than I do the panic that the false alarm caused among civilians before a second message was sent 38 minutes after the initial alert announcing that there really was no incoming missile, but the chance of this particular false alarm leading to an accidental nuclear exchange was relatively low. Donald Trump was golfing at the time the initial false alarm was sent out, and he was not told of the alarm until it was already known to be false.²⁴ Trump didn't comment publicly on the false alarm in Hawaii until the evening of the next day, when he said to a reporter, as he was walking to dinner at one of his golf resorts:

"Well, we hope it won't happen again. But part of it is that people are on edge, but maybe, eventually, we'll solve the problem so they won't have to be so on edge."

There have been numerous other much more serious false alarms that could easily have led to a full scale nuclear war between the United States and the Soviet Union.

On November 9, 1979, computers at the North American Air Defense Command (NORAD) headquarters deep inside Cheyenne Mountain in Colorado warned that the United States was under attack by Soviet nuclear missiles launched from submarines off the West Coast and from sites within the Soviet Union.²⁵ The missiles would begin hitting their targets within 5 minutes. Computers at the Pentagon and other military command centers flashed the same warnings. Strategic Air Command crews were ordered to prepare for takeoff, civilian aircraft were alerted to prepare to land at the nearest airport, and ground based nuclear missile crews were ordered to prepare to launch a retaliatory attack. Strangely, though, no radar station or satellite reported any incoming missiles. Then it was discovered that a technician had mistakenly placed a training tape into a NORAD computer, generating the nationwide false alarm. When

Soviet leader Leonid Brezhnev learned of the incident, he wrote to U.S. President Jimmy Carter concerning the “tremendous danger” that such a false alarm presented.²⁶

On June 3, 1980, another computer glitch nearly lead to a full scale nuclear war.²⁷ About 2:30 in the morning, Zbigniew Brzezinski, President Carter’s national security advisor, received a phone call notifying him that NORAD had just detected that Soviet submarines had launched 220 nuclear missiles at the United States. As Brzezinski was preparing to wake up President Carter to order a retaliatory attack, he received an update from NORAD. Instead of 220 missiles, 2,200 missiles had been launched, nearly every missile in the Soviet Union’s entire nuclear arsenal. Once again, crews scrambled to ready for a retaliatory attack by America’s nuclear triad. But as with the previous false alarm, radar installations and satellites didn’t detect any incoming missiles. The Pentagon concluded this must be another false alarm, and Brzezinski let Carter sleep. But no one could figure out what triggered the false alarm, and a few days later, the exact same false alarm occurred. It was at this point that someone discovered that there was a faulty chip in a NORAD computer. To be sure that its communication lines were working, NORAD sent frequent test messages between its command posts announcing a nuclear attack, but the number of incoming missiles in these test messages was always a string of zeroes. Beginning on June 3, though, a faulty chip in one of the computers started randomly placing the number 2 in the string. The defective chip, which cost 46 cents, was replaced, and this kind of false alarms ended.

False alarms of incoming nuclear missiles don’t happen only in the United States.

On September 26, 1983, Soviet satellites warned that five nuclear missiles had been launched in the United States and were headed for the Soviet Union.²⁸ Lt. Colonel Stanislav Petrov, who was in command of the Soviet satellite monitoring bunker, knew that the satellite system was prone to mistakes. He also reasoned that if the United States were going to launch a pre-emptive attack on the Soviet Union, it wouldn’t launch just five missiles. Petrov didn’t report the warning to his superiors, and it was subsequently determined that Soviet satellites had mistaken the reflection of sunlight off of clouds over Montana to be the launch of nuclear missiles. Petrov was subsequently honored by the United Nations for his decision not to initiate a chain of events that probably would have led to a Soviet counterattack, and the incident was memorialized in a motion picture entitled, *The Man Who Saved the World*.

On January 25, 1995, Russian president Boris Yeltsin was notified that Russian radar had detected an incoming nuclear missile, presumed to be of US origin. Yeltsin was brought the Russian nuclear command suitcase in preparation for a retaliatory attack. Before he could initiate the counterattack, however, the missile veered away from Russia, and the alarm was canceled. Norway and the United States had launched a rocket from an island off the northwest coast of Norway, near the Russian border, to study the aurora borealis. Russia had been notified in advance about the launch, but somehow, the notification didn’t get up the chain to Yeltsin and the Russian radar command.²⁹

There have been many other cases in which accidental nuclear war was narrowly averted, but let's turn now to the category of "miscalculation," to which President Kennedy referred in his speech of September 25, 1961, at the United Nations. If you ask the question, "What was the closest we ever came to nuclear war as a result of miscalculation?" most people familiar with the topic would probably answer, "the Cuban missile crisis," which took place over the course of 13 days in October of 1962, during Kennedy's second year as president. You may be surprised to learn, though, that on September 20, 1961, five days before he delivered the speech at the United Nations, and 13 months before the Cuban missile crisis, Kennedy met with military advisors to discuss the possibility of a pre-emptive surprise nuclear attack on the Soviet Union.³⁰ At the time, the United States held a large nuclear weapons advantage over the Soviet Union, but military leaders knew that this advantage would not last for long. At least one senior military advisor, General Thomas Power, strongly advised a pre-emptive nuclear strike. Fortunately, Kennedy decided against such an attack.

After a U.S. spy plane obtained photographs on October 16, 1962, demonstrating that the Soviet Union was placing nuclear missiles on the island of Cuba, 90 miles off the U.S. coast, the military leaders who comprised the Joint Chiefs of Staff unanimously advised Kennedy to order a military invasion of Cuba, believing that if the United States didn't attack immediately, the Soviets would have time to make the missiles fully operational.³¹ What no one except the Cubans and the Soviets knew at the time, though, was that there were already fully operational nuclear weapons in Cuba, and that the Soviets had given the Cubans approval to use them if the United States attacked. Had Kennedy followed the advice of the Joint Chiefs of Staff, it's highly likely that an all out nuclear war with the Soviet Union would have ensued. Fortunately, Kennedy decided on a naval blockade instead. He also made a secret deal with Soviet Premier Nikita Khrushchev to remove U.S. nuclear missiles from Turkey and Italy if Khrushchev removed the nuclear weapons from Cuba. On October 28, Khrushchev publicly announced that the Soviet Union was removing the nuclear missiles from Cuba, without mentioning the deal about the U.S. missiles in Turkey and Italy. For his part, Kennedy publicly accepted Khrushchev's offer as a satisfactory resolution of the crisis, without claiming that the United States had won the upper hand in the standoff.

Let's turn now to the third and final category to which President Kennedy referred in his speech to the UN as being capable of severing the delicate thread by which the "nuclear sword of Damocles" hangs. This is the category of "madness."

I'll include nuclear terrorism in the category of madness. When we think of terrorism in the United States, we usually think of someone coming from a foreign country and committing a terrorist act on our soil. Since the September 11, 2001 terrorist attacks, though, nearly all the attacks in the United States that have been classified as terrorist related or possibly terrorist related have been committed by individuals who were either born and raised in the United States or who became radicalized after arriving in the United States. Moreover, all the terrorist attacks, including the September 11, 2001

attacks, have been committed with weapons acquired in the United States, not weapons that were smuggled into the country.

It is possible that foreign terrorists could smuggle a nuclear weapon into the United States from a country like Pakistan that both has nuclear weapons and that is politically unstable and prone to terrorist attacks. In fact, in 1987, one member of a group of nuclear weapons experts commissioned to estimate the likelihood of such an attack concluded, "...a nuclear terrorist attack on America in the decade ahead is more likely than not."³² Fortunately, that expert has been proven wrong – so far, at least.

It's also possible that terrorists, either foreign or domestic, could gain control of US nuclear weapons remotely via a cyberattack. A recent report by the respected British thinktank, Chatham House, rated this possibility as "relatively high."³³ The report notes that the military often depends on private computer experts to assist in developing software and components used in nuclear weapons systems, opening the systems to vulnerability from a largely unregulated number of potentially malicious actors. The report criticizes both the US and British military as not taking the nuclear cyberthreat seriously, and it warns that the ground based US Minuteman nuclear missile systems are particularly vulnerable to attack.

If and when a nuclear terrorist attack does occur in our country, though, it may well follow the same pattern as other terrorist attacks since September 11, 2001 – an attack committed by someone already living in the United States, using weapons available in the United States. If you think that all of our country's nuclear weapons and the components required to make them are closely guarded, I'll give you a couple of examples to demonstrate that this is a false belief.

In August of 2006, the top secret nose cone fuse assemblies for four Minuteman nuclear missiles were mistakenly shipped from Hill Air Force Base in Utah to Taiwan in the belief that they were helicopter batteries. They sat in unopened boxes for two years before Taiwanese officials discovered the error.³⁴

On August 29, 2007, six cruise missiles armed with nuclear warheads were mistakenly loaded onto a B-52 bomber at Minot Air Force Base in North Dakota.³⁵ The plane sat unguarded on the tarmac overnight. The plane flew 1500 miles to Barksdale Air Force Base in Louisiana the next day, with the crew completely unaware that they were transporting nuclear missiles. The plane sat unguarded on the tarmac in Louisiana for another 9 hours before a maintenance crew noticed the missiles. The most amazing – and terrifying – aspect of this incident is that until that time, no one in the United States Air Force had noticed that six nuclear missiles had been missing for a day and a half.

A terrorist wouldn't necessarily have to cart off nuclear weapons or nuclear weapon components, though, to commit a nuclear terrorist attack. A very small group of domestic terrorists who are already members of the US military or who are working for the US military could gain control of a nuclear missile silo, an aircraft containing nuclear

weapons, or a nuclear submarine, much the way that the September 11 terrorists hijacked the airliners that flew into the World Trade Center and the Pentagon, and initiate the launch of a nuclear weapon or weapons. If the weapons were directed toward targets in the United States, they could kill millions of people. If they were directed toward Russia, they could precipitate a nuclear exchange that would threaten the entire human race.

Other than a terrorist attack, under the category of “madness,” I believe that the single greatest threat for the initiation of a nuclear war may well be the current President of the United States, with North Korea’s Kim Jong Un coming in a close second. I’m not alone in this belief. The Bulletin of the Atomic Scientists has recently moved its “Doomsday Clock” to two minutes to midnight, the closest the clock has ever been to the moment of extinction of the human species through nuclear war, specifically noting the contributions of Donald Trump and Kim Jong Un to the heightened risk.³⁶

I, like many other health care professionals,³⁷ and like many other critically minded people who are not in the medical profession, believe that Donald Trump is seriously mentally ill. Trump exhibits features of extreme narcissistic personality disorder, anti-social personality disorder, delusional disorder, paranoia, sociopathy,³ and dementia. According to the so-called “Goldwater Rule” adopted decades ago by the American Psychiatric Association (APA), it’s unethical for a health care professional to publicly state that someone has a mental disorder unless one has personally examined the patient and obtained the patient’s consent to release the diagnosis.”³⁸ On the other hand, we know much more about the workings of Donald Trump’s mind as a result of his daily “tweets” and other unfiltered utterances than many psychiatrists know about their regular patients. Moreover, health care professionals have a duty to warn when a public official has a mental disorder that poses a threat to public safety. In the case of Donald Trump, given his ability in his current position as President of the United States to singlehandedly order the launch of nuclear weapons that could lead to the end of human civilization, the importance of the duty to warn far outweighs the importance of the antiquated “Goldwater Rule.”

Whether or not you’re willing to openly state that Donald Trump is seriously mentally ill, his public statements and demonstrated behavior should preclude him from having any leadership role in our country, much less the authority to singlehandedly order the launch of a nuclear weapon.

He cannot distinguish fantasy from reality, particularly when reality doesn’t affirm his own grandiose impression of himself. (Example: his false claim that the crowd at his inauguration was the largest ever and his refusal to acknowledge that Russian interference was a factor in the outcome of the 2016 presidential election.)

³ Psychopathy, sometimes considered synonymous with **sociopathy**, is traditionally **defined** as a personality disorder characterized by persistent antisocial behavior, impaired empathy and remorse, and bold, disinhibited, and egotistical traits.

He habitually makes false, misleading, or contradictory statements (6 times a day, according to a study by the Washington Post) and never retracts them.³⁹

He believes he is the main source of credible information. (Example: his statements to an MSNBC reporter that “I’m speaking with myself, number one, because I have a very good brain, and I’ve said a lot of things; my primary consultant is myself”)⁴⁰

He believes that he alone has the ability to make things right (Example: his statement that “I alone can fix it,” at the Republican National Convention.)⁴¹

He believes that he’s immune to the laws and principles that govern others. (Example: his statement, “I could stand in the middle of Fifth Avenue, shoot somebody, and I wouldn’t lose any voters.”)⁴²

He’s paranoid. (Example: his statement, “Hire the best people, and don’t trust them,” in his book, *Think Big: Make it Happen in Business and Life*).⁴³

He has no concept of diplomacy. (Examples: his performance at the recent NATO summit at which he managed to offend all our NATO allies, followed by his cozy meeting with Vladimir Putin; and his bellicose threats to annihilate North Korea and Iran).

He lacks empathy. (Example: his statement about Senator John McCain: “He’s not a war hero. He’s a war hero because he was captured. I like people that weren’t captured.”)⁴⁴

He’s sadistic. (Example: his statement concerning a peaceful protester at a campaign rally: “I’d like to punch him in the face....You know what they used to do to guys like that when they were at a place like this? They’d carry them out on a stretcher.”)⁴⁵

He expresses admiration for brutal dictators and disdain for democratically elected leaders. (Examples: his statement about Kim Jong Un, “You gotta give him credit...when his father died, he goes in, he takes over these tough generals and he’s the boss. It’s incredible. He wiped out the uncle, wipes out this one, that one. It’s incredible;” Trump’s comparison of Syrian dictator Bashar al-Assad with President Obama, “I think in terms of leadership, [Assad’s] getting an “A” and our president is not doing so well,”⁴⁶ and Trump’s comparison of Putin and Obama, “[Putin]’s really very much of a leader...very strong control over his country...and look, he has an 82% approval rating... [Putin] has been a leader far more than [Obama] has been.”)⁴⁷

He surrounds himself with individuals who support his grandiose notion of his own abilities, and he’s vindictive and impulsive in dismissing anyone who he perceives as challenging him (Examples: the innumerable number of people in his campaign staff and cabinet who he initially lauded and villainized and fired, with most recent examples including replacing Secretary of State Rex Tillerson with Mike Pompeo and replacing national security advisor General McMaster with John Bolton.)

Trump is rambling and incoherent. (Example: a recent public speech in which Trump states, “You know what irks me, look, having nuclear. My uncle was a great professor and scientist and engineer, Dr. John Trump at MIT. Good, good genes, very good genes, OK, very smart. Wharton School of finance, very good, very smart. You know if you’re a conservative Republican, if I were a liberal, if, like, OK, if I ran as a liberal Democrat, they would say I’m one of the smartest people anywhere in the world. It’s true. But when you’re a conservative Republican, they try, oh do they do a number. That’s why I always thought of, went to Wharton, and was a good student. Went there, went there, did this, built a, you have to get my credentials all the time because we’re in a little disadvantage, but you look at the nuclear, the thing.”)⁴⁸

With specific regard to the issue of nuclear weapons, Donald Trump has demonstrated an alarming lack of understanding concerning the US nuclear arsenal and the dangers of the proliferation and use of nuclear weapons.

In a Republican presidential debate in December of 2015, when asked which leg of the nuclear triad (land based nuclear missiles, submarine based nuclear missiles, or nuclear warheads carried by aircraft) he felt was most important, he appeared to have no understanding of the term, “nuclear triad.”⁴⁹

Trump has stated in interviews that he believes Japan, South Korea, and Saudi Arabia should develop nuclear weapons to defend themselves.⁵⁰

Trump regularly contradicts himself, sometimes in the same sentence, concerning whether or not he would use nuclear weapons. In a presidential debate with Hillary Clinton, when asked if he agreed with a policy that President Obama was considering adopting of never ordering a first strike nuclear attack, Trump replied, “I would certainly not do first strike,” but then added, “At the same time, we have to be prepared; we can’t take anything off the table.”⁵¹ During an interview with MSNBC host, Chris Matthews on March 30, 2016, when asked if he would use nuclear weapons in Europe or the Middle East, Trump replied, “I am not going to use nuclear, but I’m not taking any cards off the table.”

When he was told by a commentator that other countries are alarmed when they hear a U.S. presidential candidate talk aloud about using nuclear weapons, he responded, “Then why are we making them?”

Trump “tweeted” in December of 2016, “The United States must greatly strengthen and expand its nuclear capability until such time as the world comes to its senses regarding nukes.” When he was questioned about whether such statements could stimulate a new arms race between the United States and Russia, Trump replied: “Let it be an arms race. We will outmatch them at every pass and outlast them all.”⁵²

During a Pentagon nuclear policy briefing in on July 20, 2017, at which then Secretary of State Rex Tillerson was also present, when Trump was shown a graph depicting how the size of the U.S. nuclear arsenal had dropped from 32,000 nuclear weapons at the

height of the Cold War to the current number of 4,000, he pointed to the peak and stated he wanted the United States to have “that many.”⁵³ Others at the meeting had to explain to Trump that the United States had reduced the number of nuclear weapons in its arsenal as a result of treaties we had entered and the fact that it was too costly and too dangerous to maintain a huge nuclear arsenal. It was immediately after this meeting that Tillerson called Trump “a moron.” Trump subsequently denied asking for an increase in nuclear weapons during the meeting.

Some analysts have tried to make sense out of Trump’s multiple counterfactual and contradictory statements concerning nuclear proliferation and the use of nuclear weapons. I believe that the only sense that can be made of them is that they are the irrational ramblings of someone who is suffering from a serious mental disorder.

Similarly, many pundits have claimed that Trump’s response to a false alarm of a nuclear attack similar to the ones that I’ve previously described would be unpredictable. Trump has himself stated in interviews that he wants to remain unpredictable with regard to any decision on whether or not to use nuclear weapons.⁵⁴ Given what we know about the type of mental disorder that Trump exhibits, however, including his belief in his own infallibility, his paranoia, his impulsiveness, his vindictiveness, and his inability to distinguish fact from fiction, I believe his response to a nuclear false alarm is very predictable. I believe that he would jump at the chance to order a nuclear counter-attack without first considering the possibility that alarm might be false or that a counterattack would probably result in all out nuclear war. Moreover, if Trump were to feel cornered and on the verge of being humiliated as a result of an entirely unrelated matter, such as the Mueller probe or the coverup payments for his illicit affairs, I believe that he is likely to act in a manner similar to cult leaders like Jim Jones of Jonestown “drink the kool aid” infamy and David Koresh, the leader of the Branch Davidians in Waco, Texas, who suffered from similar mental disorders, and who led their followers into mass suicides rather than being publicly disgraced. In Trump’s case, if he feels that he’s about to lose face, I believe that he’s entirely capable of ordering a nuclear first strike against a country like Korea in order to divert attention from his own personal disgrace.

In concluding the discussion about the threat that Donald Trump’s mental illness poses to severing the delicate thread that suspends the nuclear sword of Damocles, I’d like to quote from Joseph Cirincione, who is currently president of the Ploughshares Fund, and who has spent over 35 years working on the nuclear issue. In his 2007 book, *Bombscare: The History and Future of Nuclear Weapons*, Cirincione was optimistic. He wrote that as a result of international treaties, the breakup of the Soviet Union, reductions in nuclear arms stockpiles, and improved détente between the United States and Russia, “The threat of a global thermonuclear war is now near zero.”⁵⁵ He believed that a nuclear terrorist attack posed the greatest ongoing threat, and he outlined ways to reduce that threat.

In his chapter in the 2018 book, *Rocket Man: Nuclear Madness and the Mind of Donald Trump*, Cirincione struck a very different tone. The chapter is entitled, “The Greatest Danger to America is Her Commander in Chief.” Cirincione concluded the chapter by stating:

Such a temperament, such a mental state in a president is enormously dangerous on many fronts. When it comes to nuclear weapons, it is horrifying. An irrational, impulsive decision by Donald Trump taken in a manner of minutes could threaten the survival of all that humanity has constructed over the millennia.

This cannot stand.

Strengthening the Thread and Abolishing the Nuclear Sword

Now that I’ve got you all profoundly depressed, I’d like to share one more quotation with you – one from the famous (or infamous, depending on your point of view) American philosopher Woody Allen. He said:

More than any other time in history, humankind is at a crossroads. One road leads to utter hopelessness and despair. The other leads to complete extinction. Let us hope that we have the wisdom to choose the right road.

Our challenge here today is to find a third road, one that leads to peace and security, and to embark upon that road with all due haste.

Let’s talk first about strengthening the thread that suspends the nuclear sword. The first step, in the opinion of Joseph Cirincione, myself, and many others, is to urgently remove the authority of Donald Trump to order the launch of a nuclear weapons.

The 25th Amendment provides a mechanism for removing a US President from office if he is “unable to discharge the powers and duties of his office.” Donald Trump is clearly unable to carry out the duties of President in a rational manner. The trouble is, in order to invoke this provision in the 25th Amendment, the Vice President and either a majority of the President’s cabinet heads or a “body” established by Congress must initiate the removal of the President. This is exceedingly unlikely to happen given the current vice president, Trump cabinet, and makeup of Congress. Furthermore, if Trump were removed from office, Pence would immediately take his place, which probably wouldn’t be much of an improvement.

There are currently two bills in Congress, S.200 in the Senate and H.R.669 in the House of Representatives, that would prohibit the President from initiating a first strike nuclear attack without first obtaining a declaration of war from Congress, unless the President has first determined that an enemy has launched a nuclear attack against the United States or an ally. These bills are a good start, but neither goes far enough. As we’ve discussed, Trump cannot be trusted to make a factual determination concerning

whether a nuclear attack has actually been launched against the United States. Trump has already shown that he has no qualms about abusing his presidential power in the case of singlehandedly invoking billions of dollars of tariffs on imported goods without Congressional approval by claiming that he did so as a matter of "national security." He could just as easily order the launch of a nuclear weapon without a declaration of war by Congress based on a claim that he thought another country had launched a nuclear attack against us. In order to prevent Trump from getting us into a nuclear war, his ability to order the launch of a nuclear weapon without a declaration of war by Congress must be completely removed under any and all circumstances.

The next step in strengthening the thread that suspends the nuclear sword of Damocles is to take all nuclear weapons off of hair trigger alert. Hair trigger alert is the term used for nuclear weapons that are ready to be launched within a matter of a few minutes. Such weapons are the ones most likely to lead to an accidental nuclear war. It's estimated that the United States currently has about 450 ground based nuclear missiles and few hundred more submarine based nukes on hair trigger alert.⁵⁶ Unlike nuclear bombers, once launched, these missiles can't be recalled. Both George W. Bush and Barack Obama campaigned on promises to negotiate international treaties to take all nuclear weapons off hair trigger alert, but neither followed through on these promises. The United States should begin immediate negotiations with Russia and the other nuclear powers to take all nuclear weapons off of hair trigger alert. In order to further reduce the risk of a nuclear attack, treaties to take nuclear weapons off of hair trigger alert should be followed by treaties to further reduce nuclear stockpiles.

The definitive step, of course, to reduce the threat a nuclear weapon ever being used again is to abolish nuclear weapons altogether. The same people who claim that nuclear weapons are a necessary deterrent to world war and who point out that the parable of *The Sword of Damocles* is only fiction also usually add, "And by the way, the genie is already out of the bottle." The origin of this phrase is a story from *The Thousand and One Arabian Nights*. In the story, a fisherman discovers an oil lamp and removes the cork, upon which a large, malevolent genie comes out. When people use the term, "The genie is out of the bottle," they usually mean that something bad has occurred that can't be reversed. In the story from *The Thousand and One Arabian Nights*, though, the clever fisherman tells the large genie that he can't believe that he could actually fit inside the lamp, and he tricks the genie into showing him how he does it. As soon as the genie goes back into the lamp, the fisherman sticks the cork back in, sealing the genie inside forever.

There are clever people all around the world working toward the abolition of nuclear weapons. An international opinion poll conducted by the Nuclear Age Peace Foundation in 21 countries in 2008 showed that 76% of respondents, including 77% of respondents in the United States, were either somewhat in favor or strongly in favor of the complete abolition of nuclear weapons.⁵⁷ On July 7, 2017, 122 of the 193 member countries in the United Nations General Assembly voted to completely ban nuclear weapons.⁵⁸ Only one

country, the Netherlands, voted against the treaty. The United States boycotted the vote and the negotiation conferences that preceded it, and it strong-armed many of its allies into doing the same. The vote to ban nuclear weapons in the UN General Assembly was due in large part to the work of the International Campaign to Abolish Nuclear Weapons, founded in 2007. ICAN currently has over 450 partner organizations in 101 countries. Physicians for Social Responsibility and International Physician for the Prevention of Nuclear War are among those organizations. ICAN was awarded the Nobel Peace Prize in 2017.

There are many actions that you and I can take at the grass roots level to advance the movement to abolish nuclear weapons. These actions include informing one another about issues related to nuclear weapons, as we're doing here today, and informing friends, families, and colleagues after we leave this event about the imminent threat of nuclear weapons and the need to work urgently to reduce that threat.

Another specific action that I'd like to invite everyone here to join in taking with the Sacramento Chapter of Physicians for Social Responsibility is what we call our "1,000 Call Campaign." Every year around the time of the anniversary of the atomic bomb attacks on the Japanese cities of Hiroshima and Nagasaki, inspired by the story of *Sadako and the Thousand Cranes*, children in the Sacramento area and around the world fold paper cranes in memory of those who perished in the atomic bomb attacks and in the hope that nuclear weapons will never be used again. I'd like to invite you to join us in taking action to help make this hope a reality by [contacting your state, federal, and local elected officials](#) and urging them to openly advocate and do everything within their power to accomplish the complete abolition of nuclear weapons. We would appreciate your help in keeping track of how many calls and other contacts we're making collectively by [clicking on the link](#) on the PSR/Sacramento website to complete a simple online form documenting you're the contacts you make.

I look forward to hearing your ideas during the discussion period that follows my talk about other actions that you're taking or that we can take together to help reach our goal of abolishing nuclear weapons.

Conclusion

In conclusion, it's not naïve to believe that we can abolish nuclear weapons. On the contrary, it's naïve to believe that if we don't abolish them, there won't be some day be another nuclear attack - or other attacks, including attacks on U.S. soil - far more horrific than the ones that our country launched in Hiroshima and Nagasaki 73 years ago. We are the country that invented the nuclear weapon. We're the only country to ever use a nuclear weapon on human beings. The president of our country, who lost the 2016 presidential election by almost 3 million votes, is probably the greatest single threat in the world today to start a nuclear war that could end human civilization. Contrary to his repeated claims about how smart he is, I have no doubt that everyone in this room is far

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more intelligent and far more sane. Despite the fact that more than three quarters of Americans favor the complete abolition of nuclear weapons, our current federal leadership is currently one of the greatest obstacles in the world to the international effort to abolish nuclear weapons. We are not powerless. We owe it to ourselves, to our offspring, and to the rest of the world to take back control of our country on a wide range of issues, with the issue of taking control of - and eventually abolishing - the nuclear weapons that threaten our very existence being at the top of the list.

Thank you very much.

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