

# 2022 Carnegie International Nuclear Policy Conference

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## Tick, Tick, Boom? Presidential Decisionmaking in a Nuclear Attack

### Speakers

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### Moderator

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*New Yorker*

[silence]

[drill starts]

**President:** Thanks for that update, Richard. As you just heard in the previous segment, the situation in Europe does not appear to be improving. We will continue to closely follow developments **[inaudible 00:00:33]**

[siren]

**Female Speaker:** Mr. President, we have a national emergency. Please follow the military officer right away. We have to get you to be the bunker.

[siren]

**President:** Tell me what's going on and turn off this alarm.

**General Doyle:** Mr. President, this is General Doyle of the Pentagon's Command Center. We need to convene a nuclear crisis conference as soon as possible.

**John Myers:** Hello, can you hear me? This is John Myers, Head of the Secret Service. The helos are en route with an ETA of seven minutes. When they arrive, we will be evacuating the President.

**Strategic Command:** Mr. President, this is strategic command. You don't have much time to make a decision. It's important that you focus on that clock to your right. It's counting down the time from the last chance for a decision. If you don't make a decision before that clock hits zero, we'll lose our entire ICBM force.

**General Doyle:** We've detected 299 incoming missiles launched from Russia. We have high confidence they're inbound and they will destroy the ICBM locations and the Air Force bases at Maelstrom, Minot, and Warren. [unintelligible 00:01:55] estimates casualties in the range of 2 million.

**President:** 2 million casualties? Can we use the missile defense system?

**Strategic Command:** You should assume the missile defense system provides little or no protection against ICBMs.

**General Doyle:** The cities of Great Falls, Minot, and Cheyenne will be destroyed with significant impact from fallout in Montana, North Dakota, Minnesota, and Nebraska, this includes the cities of St. Paul, Minneapolis--

**President:** How sure are we of this attack?

**General Doyle:** NORAD and Strat have high confidence that this attack is underway, but Russian missiles have [unintelligible 00:02:33] technology, and that makes it difficult for us to determine the precise lean points.

Right now, we can only confirm that the incoming missiles appear to be aimed at US ICBM locations. We should receive radar confirmation of the attack in 49 minutes. Our current assessment is that the attack comes from Russia and includes ICBMs only. We've not yet detected launches from known submarine locations, and as of right now, we have not detected incoming bombs.

**Strategic Command:** Hold on. This morning's intel brief mentioned that our beam use early warning system repelled a cyber attack this morning. This could be related.

**General Doyle:** We have not yet established attribution for that attack. We don't know who is responsible.

**President:** Do we have Russia on the phone? Can we speak to them?

**General Doyle:** We've been unable to establish contact, sir.

**President:** Why is that? Can you get them on the phone?

**Strategic Command:** Mr. President, we must focus on the decision at hand. There isn't much time.

**General Doyle:** The [unintelligible 00:03:33] will now present the options we recommend. Each option spells out the targets and the capabilities used versus those retained. [crosstalk]

**Strategic Command:** Mr. President, I need to know your guidance. I can modify these options at your request. Tell me what you want to do.

**General Doyle:** We've just received confirmation from radar, 300 incoming missiles, we have high confidence that our missiles estimate was correct and missiles are heading for our ICBMs and associated air force bases.

**Secret Service:** Secret Service tier, the President will be leaving in less than three minutes.

**President:** All these options have this high number of casualties, is this all targeting only military targets?

**General Doyle:** We do not target civilians specifically, but many military targets are located in close proximity to civilian populations. Collateral damage is unavoidable.

**President:** What is your recommendation?

**Strategic Command:** If you want to retain a secure second strike, I recommend you use only a portion of the sub-base force plus all of our ICBMs. If you don't use our land-based missiles, they'll be destroyed.

**President:** What do we know about Russia's intentions for this attack? Why is this happening?

**Secret Service:** They've always been hostile, but I know of no specific provocation.

**Strategic Command:** I have to stress the importance of making a decision. We don't know if Russia has also launched from the Atlantic. We would have no warning of a cruise missile attack on Washington. You could be killed at any time. This conference could end at any time.

**President:** I hope you know where the Vice President is. Can we get other advisors here on the screens?

**General Doyle:** We've tried to contact a variety of people, we're still trying to find them. They'll join the conference when they're located and moved to a secure facility.

**President:** Do this quickly.

**Strategic Command:** Sir, we have to execute soon. I need to know your guidance.

**Narrator:** In situations like this, the US president has only 15 minutes to make a decision. Do you know what questions you would ask? Do you know what option you would choose?

[applause]

[drill ends]

**Susan Glasser:** All right. Well, thank you. I'm not sure if we should clap or cry. That is quite an apt and chilling introduction to our conversation today, Tick, Tick, Boom Presidential Decision-Making in a Nuclear Attack. I'm delighted to be joined by one of the authors of that scenario that we've just looked at, Sharon Weiner, who's a senior resident fellow at the Carnegie Corporation of New York, and associate professor at American University.

In a second, she'll explain what we've just seen on the screen. Let me just quickly introduce our other two panelists, who are joining us remotely as well today.

Alexey Arbatov, I saw him at one point on the screen there. He is a member of the Russian Academy of Sciences, head of the Center for International Security at the Primakov National Research Institute of World Economy and International Relations. We're happy to have him with us today, Dr. Arbatov.

Chris Ford is also joining us, he served as Assistant Secretary of State for International Security and Non-Proliferation, as well as Senior Director for WMD at the National Security Council during the Trump administration. Thank you, Chris Ford as well for joining us.

I'm Susan Glasser from the New Yorker, and I'm glad to be with you although I'm very sad to say that this is a much too well-timed and timely conference this year, I'm afraid. We can have our conversation about theoretical scenarios that seem slightly less theoretical than we would like them to be. Sharon, tell us what we just saw.

**Sharon Weiner:** Sure. You just saw what you would see if you were actually in the virtual reality headset. You're seeing what the person is seeing, and you saw, at the end, my colleague Moritz Kutt, who's with the Institute for Peace Research and Security Policy at the University of Hamburg, he's sitting right here. He was actually wearing the headset, and we were recording a very short version of his interaction with the program. Needless to say, 2D is a pale version of what you can actually see in a virtual reality headset.

**Glasser:** What did you hope to evoke with this exercise? Certainly, the quick takeaway is three options, none of them acceptable, basically, non-unacceptable level of information that the President has dealt with, no real counsel on what to do. It seems like a recipe for disaster.

**Weiner:** What we're trying to create is a realistic situation, or over the last several years, Moritz and I, I think have experienced about 200 nuclear crises. Before I explain a little bit about what those crises tell us, let me just point out that my comments here today are my own, they don't reflect any of the institutions I'm affiliated with, but in terms of waging these nuclear crises, we've experienced nuclear crises with members of Congress, European defense officials, American policymakers, and national security officials.

We've presented this on Capitol Hill to congressional staffers, members of Congress, Munich Security Conference to policy practitioners in Washington DC, and to students at Princeton University.

This began as a research project between Moritz and myself when we were with the Program on Science and Global Security at Princeton University. The idea was how can we create a realistic situation for a nuclear crisis to better understand how people will behave.

Realistic comes in two forms in this crisis. In one, we've experienced, like I said, this nuclear crisis with lots of people, and there have been a couple of policymakers who have said, "Oh, well, that wasn't realistic. I've been in the situation room and that's not the sit room." Like, "Yes, dude, I've been in the sit room too, and it's not the sit room, it's the PEOC."

The majority of people who have commented on the realism and there have been a number of them, especially with experience in dealing with nuclear crises have said, "That's really realistic, and it's realistic in terms of how the characters behave in terms of the choices that would have to be made under time pressure, and especially in terms of the competing stresses that people are under.

It's those competing stresses that constitute the second reality. This is why we try and use virtual reality because there's a long history of using VR, and especially high-end VR like this is to immerse people in another situation, usually to deal with phobias or other problems. We're using it to try and create a realistic emotional state where people think they're in a crisis.

We have a fair amount of evidence that people do think they're in a crisis. I mean, we clean the headset after every use, because lots of people sweat, you'll see people who will look at the options and they'll be muttering back and forth to themselves back and forth, reading them over and over and over again, people will tap their foot for 10 minutes, they'll clasp and unclasp their hands, the table that actually exists in the real and virtual world, people will pound on it.

It's an innocent table, but it's pounded on consistently. I've heard people swear at me, people cry, a whole variety of things, which indicate that people actually feel like they're present in a crisis where they have to make a choice.

This is the purpose of the experience, it's to understand the degree to which a decision maker conforms to the expectations of deterrence. Deterrence assumes that whatever choice that person makes, whatever choice the President makes, it will be the result of some weighing of costs and benefits, that it will conform to some extent to rational decision-making.

But of course, the literature on behavioral psychology, foreign policy decision-making, is littered with examples of how people use emotional shortcuts of how it matters, your formative experience, the last experience you had whether you liked someone, whether you dislike someone, I think there was even an experience where it mattered what temperature the drink was that you had.

The idea is to see to what extent in a crisis where people really feel like they have to make a decision. How close do they come to what we assume was deterrence?

**Glasser:** Well, that's right. Of course, it doesn't matter just whether the nuclear crisis happens after lunch or before breakfast. How realistic is that scenario as well? Obviously, the world doesn't have a lot of real-world experience with leaders making nuclear launch or not-launch decisions. But I'm curious whether you thought about how you might revise that scenario, in the context of the heightened concerns that we have right now.

This is, unfortunately, not as much of an academic conversation as we'd like to be having given the nuclear saber-rattling that we've seen from Vladimir Putin in connection with the war in Ukraine.

**Weiner:** One thing I can say is the limited experience we've had showing this since Russia started its invasion of Ukraine, is it actually seems to influence how people respond.

**Glasser:** Interesting.

**Weiner:** I would say this, and this is anecdotal, but there seems to be a heightened level of stress. I think people may be selecting slightly different options or selecting slightly different decisions.

You saw three options in the experience but actually, you can modify the options, we can create any option you want. Most people don't mask, but it can be modified. Now, in terms of modifying the experience, it would be great if we could modify it to deal with a limited nuclear attack. Then to mimic the dynamics of escalation. If anyone here wants to give me a quarter of a million dollars, we will do just that scenario.

[laughter]

**Glasser:** Well, I personally am not going to be able to write a check, but I look forward to the results of that.

Dr. Arbatov, I'd like to bring you in now because of course, this is a virtual reality scenario that is simulating what would happen for an American president faced with this decision. I'm curious if you can help us understand what you believe would be President Putin's experience in a similar scenario, but set with an American attack on Russia.

How do you think President Putin who would be in the room with him, how would he decide? Help us to understand if this American process as we've seen here would be similar to one that would unfold in Russia.

**Alexey Arbatov:** Well, thank you for inviting me first of all. Now with respect to Russian situation, I think that is very different from the American one.

Several main differences are like follows. First of all, just the **[unintelligible 00:14:54]** of Russia different, American tactics on nuclear weapons deployed in Europe has strategic importance for Russia, they are well within reach of Russian territory, could strike into Russian territory.

Secondly, American ballistic missiles on submarines have counter-force capability that is capable of attacking Russian hardened missile silos, which is not the other way around. They can be deployed very close to Russian shores and their flight time would be much shorter than the time that was mentioned for the alleged Russian ICBM attack in the scenario that we have just seen.

Certainly, a much larger portion of Russian Strategic Forces is deployed on land compared to the United States 70% of Russian strategic nuclear warheads are deployed on intercontinental ballistic missiles on land. That is why they made the target for counter force strike with the United States. I will not continue listing the differences. The conclusion is that the decision-making time for President Putin or

whoever is Russian president would be much shorter than that for the American president that was shown in this short movie.

Secondly, the incentive to launch missiles on the basis of information about the incoming attack would be much stronger. Because for Russia, it's not just a question of losing ICBM force as it was mentioned with respect to the United States.

For Russia, it's a question of potentially losing all its second-strike capability to an American counter-force attack. That is why I think that situation for Russia would be much worse. President Putin on many occasions described the principle Russian concept for nuclear deterrence at a strategic level, and that is precisely launch on warning, which leaves a very short time for decision-making, it's probably a few minutes. Once Putin said a few seconds. I think that's a bit of an exaggeration but certainly is not 15 minutes, like the case of the United States probably several minutes and that's all.

Let me make another observation. I think that in case of the American president, a reasonable person in that scenario, would not launch any strategic weapon, because apparently, what happened is a false alarm. Missile attack would never come just because the situation in Europe is not improving. That was the first trace of the movie.

The question of strategic exchange would come most probably only in the course of already heavy fighting on the ground, air, at sea between conventional forces, possibly after the use of tactical nuclear forces. In this sense, the situation would be much worse because cyber attacks, attacks against space assets, a lot of interaction between conventional and nuclear forces, a lot of interaction between regional and global forces would be already going on.

From this point of view, a very realistic scenario would be much worse than that shown to us in that short movie.

**Glasser:** Yes, Dr. Arbatov, I think that's an excellent point that it wouldn't just come out of the blue, that in fact, even in the scenario we're looking at here, it would have been after some period of extremely heightened tensions and the world already being in some form of an enormous crisis.

One question I have for you before we bring in Chris Ford as well, is in the Russian system do you think that President Putin or any president right now has roughly similar unilateral powers to make the decision? What factors if any, aside from Putin's own determination would guide the outcome?

**Arbatov:** In the Russian system this procedure and the technology is much greater secret than in the United States, much less is known about how it all works in Russia. What is known is that in principle if the top command, President, minister of defense and the head of the general staff, those are the three persons that are supposed to come into conference when something like that happens and make a decision, but this decision is only that of president. He is the supreme commander in chief. The other two can advise him but they are not to make a decision.

The three terminals which we call [Russian language] is part of this command and control Kazbek system. The three terminals if they are out of command centers for some reason they are not together in command center or they are not connected being in separate command centers which are hardened deep underground or air command centers, in that case, the other two that is minister of defense and the head of the general staff probably, I say probably because it was never officially disclosed, probably have authority to authorize use of nuclear weapons if the president is incapacitated or out of communication.

It's basically a backup procedure for them to have their own terminals which we call football, we call it nuclear suitcase or nuclear briefcase, but the decision is that the president if he is capable of making this decision.

**Glasser:** Well, I'm not sure that answer is going to be reassuring to many people in the audience today, the idea that there is also backup launch capability in the Russian system.

Chris Ford, I want to bring you in as well to discuss this very question of the enormous power that both the American and the Russian systems vest in a single individual. This is obviously a scenario of individual decision making that we're looking at here and one of the clear takeaways for anyone looking at it is the extent to which this almost unbelievable power has been vested in a single person who has limited information, advice and capabilities in the moment of decision.

Chris, can you walk us through a little bit your view of how much who is in the chair matters, how different an outcome would be on the basis of a different American president?

**Chris Ford:** Well, I guess what I would say to start off with after thanking you of course for having me be a part of this really interesting event and conveying my apologies for the instability of my internet connection here, I did not anticipate that would be the case, so thanks for your flexibility and that of team in getting me on through the audio circuit here.

I guess what struck me most was actually those issues of information that you just described rather than-- in the scenario as it was played in the video, there aren't a lot of obvious to use a sort of a virological term, there aren't a lot of receptor sites for individual character except just in the sense of how risk averse one might be.

What struck me as being most important in this scenario is actually I'm going to have to say how poorly staffed this particular president seems to have been by his military apparatus.

**Glasser:** [laughs]

**Ford:** This is the president who though being president seems to actually think that it might be a question as to whether or not he can use ballistic missile defense against 300 incoming missiles and Lord knows how many reentry vehicles.

There's no talk of survival of second strike options. There's no acknowledgement that launch on warning is simply an option in the way that the US nuclear posture is

set up. Every bit of this makes it feel as if it is the only available option, "Oh, by the way, you have to decide now," because apparently this president thinks he can only launch missiles from the basement of the White House rather than from the helicopter or the airborne command post or some bunker under a mountain someplace.

This is a very poorly prepared president and I don't mean in terms of advance preparation, I mean in terms of what his staff and his briefers are telling him at that moment about what his options are. To hear them talk, "You have to make a decision now, Mr. President. You have to decide. If you don't decide now, you will lose your whole force," there is no discussion even about the theoretical availability of second strike option.

There is no discussion of the possibility of either launch under attack, which is to say, "No just wait until see if something is actually going off before you fire." Gee, could the beam-used cyber attack, could that be related to why there are incoming radar bogeys and maybe you want to wait and see whether something actually starts to go up and fine out before you tell your submarine commanders to fire? There's no discussion of a pure ride out option. The information here is very, very poor.

In that context, I think that's much more important than the question of-- I would say, the individual human personal character in a commander-in-chief in these kinds of scenarios is probably more important in the run up to this kind of a situation whether or not you get into a crisis in the first place, how it develops, how the other side perceives, how each side perceives how threatening the other is.

I think character can be very important there, but if it comes down to just the sort of five minutes before you get thrown onto a helicopter I wonder if that distillation makes a lot of aspects of character that one here is worried about in the press less important. Run through risk aversion, sure, maybe that's a thing.

Whether one freezes, the fight, flight or freeze kind of reptilian brain reaction cycle, how you are on that continuum maybe makes a difference, but for purposes of these five minutes it's much more important, I would say, what they are telling you about what your options are and whether that is accurate information, that's much more important than whether you're a malignant narcissist and sexual predator or you're elderly and senile or you're a blood-soaked war criminal. Those things are important in the lead up to a crisis probably more so than in those terrifying crucial five minutes in the basement.

**Glasser:** Well, Chris, I can see that you've already strayed a little bit from the purely hypothetical nature of this conversation.

[laughter]

**Ford:** I have no idea what you're talking about.

[laughter]

**Glasser:** I kind of appreciate that you're not on video for us. [laughs] No, Sharon wants to jump in with just a quick point, and then I think we will move a little bit away from the hypothetical and to the real world situation we live in right now, but--

**Weiner:** Sure. I have just a little trouble hearing Chris quick because of the audio, but I think he was mentioning all these things that are missing. All these things are in the experience, I mean this was distilled as a short clip, it's also an interactive experience.

The idea is to confront someone with uncertainty that is difficult to resolve in the moment, and so that's why for example, this attack 299 incoming ICBMs, it kind of sounds like a bolt out of the blue, the sort of thing well that we normally didn't talk about for the last couple decades, and because the experience is interactive, part of the question is, do people ask about that? Do they cue in on the notion that, "Wait a minute, this doesn't quite make sense," and what do they do with that uncertainty?

Does that uncertainty resolve itself in, "Wait, gather more info. I know I have a secure second strike. I don't have to act now," or is it the sense that people feel like they actually have to make a choice and do something? In the experience, when we've done this, we do it as demos, but we've also done a formal experience in controlled observation and when we actually collect data about this, 90% of people launch.

**Glasser:** 90% of people--

**Weiner:** It's about 90%.

**Glasser:** 90%. Well, again a less than reassuring data point here. Lets move a little bit away from hypothetical considering that the urgency of the current crisis has made this-- as you said, it would have been kind of unthinkable for the last several decades in any iteration. Many of the conversations that we're having today would have been unthinkable just nine months ago, yet here are.

I want to ask both Alexey Arbatov and Chris Ford to help us understand how nuclear risks and nuclear decision-making have changed since the end of the Cold War, because really frankly since I was a kid in high school was the last time that this would have been a very realistic discussion about a potential US and Russia nuclear exchange and yet here we are where we are in 2022.

Dr. Arbatov, what has changed in terms of nuclear decision-making in the Russian system versus the Soviet system that proceeded it? Are there more checks and balances, are there less checks and balances, has the doctrine changed in a way that makes it more possible for Vladimir Putin to use nuclear weapons?

**Arbatov:** Well, in the Soviet Union, there were no checks and balances. The only check and balance was the collective leadership of Politburo, which allegedly had to take collective decision in situations like this, but as the Cuban Missile Crisis showed, not all members of the Politburo agreed on which decision to take and basically Krushchev made his own principal decisions with support of Anastas Mikoyan, who was also a member of the Politburo and played a very positive role in resolving the Cuban Missile Crisis peacefully.

From technical point of view, of course, situation changed a lot compared to the Soviet Union because the technological foundation changed. Russia has very different strategic forces than the Soviet Union did. First of all, they are much, much smaller.

Secondly, they are much more stable because of arms control agreements. Since the Cold War ended, we have signed about a dozen very important damage control treaties and agreements and now the counter-force capability, that disarming strike ability is smaller than was the case during the Cold War, and which both sides Russia, Soviet Union, United States, were very much concerned about.

The decision-making process as far as I know, and I repeat this is a very closely kept secret but from what I know, the top decision-making system is the same as it was in the Soviet Union. Three principal people are authorized to make such decisions.

The Soviet unlike the American football mechanism was created in the early eighties and the three-terminals, three [Russian language] are nuclear briefcases were then created, then given to the three persons that I mentioned.

As far as I know, situation is pretty much the same now but as I repeat that, by constitution and by all the procedures, it's only President of the Russian Federation who can make a decision to authorize the use of nuclear weapons, whether tactical or strategic. In fact, in Russian military doctrine, there is no distinction made between tactical and strategic, because Russia is in a different geopolitical situation, which I mentioned in the beginning of this panel.

With respect to strategic forces, large part of Russian ICBM force is ground normal. If there is enough warning time, if there is strategic warning as they call it, not missiles already launched, but the threat of nuclear exchange is considered to be high, then most of those ground-based, ground mobile ICBMs would be out and would be relatively invulnerable.

This is much better than during Soviet times when most all the missiles were in silos and there was great possibility of America disarming strike that could take out all these principal element or lack of this for the strategic drive.

I do not think that President Putin is-- I would say he has people around him, like Khrushchev had, those who are members of Politburo, who allegedly more or less equal, they took collective decisions. In Russian system, it's the President of the Russian Federation, who makes the decision allegedly upon consulting with Minister of Defense, head of the general staff, possibly with other members of the Russian Security Council but him, he is authorized to make this decision only.

**Glasser:** Can I just clarify, given the situation that we're in the moment, would this apply to any launch of any nuclear weapon so that would possibly include tactical nuclear weapons as well?

**Arbatov:** Of course. That is something which you can consider to be absolutely assured any use of any nuclear weapon can be exercised only by direct order of the president.

It doesn't mean the communication system is the same. With tactical nuclear weapons, the command and control system is very different from strategic ones, strategic ones are designed, there is much greater elements of automatic systems with respect to strategic forces, because they are supposed to react quickly.

This is not the case with tactical nuclear systems, which are intertwined with conventional forces and in case of war or very high risk of war will be probably deployed together with conventional forces, but certainly every single warhead may be deployed only upon the decision of the president.

**Glasser:** Chris, can you tell us what changes if any have been made to the way in which the American nuclear arsenal is handled, and especially the decision and how that decision would be made since the end of the Cold War, and whether you think there are sufficient safeguards in place to guard against the kind of bad information that is clearly a part of this scenario?

**Ford:** One of the things that intrigues me, assuming that you can still hear me, is actually that we are in some ways at a really important technological threshold point, not in terms of bad information, but even in terms of good information. I think one of the things that would have been most relevant in the discussion in the video, and I take your point that maybe there are much more elaborate versions of this but one of the things that struck me as being extremely important that wasn't part of the discussion was any an awareness of or discussion with advisors about the robustness and resilience of other options.

Second strike, survivability of the Submarine Force, whether the national command and control architecture for nuclear weapons, the NC3 capability, how robust was it? Were there options that you could actually use later? Was there a ride-out option at all?

Those issues of actual technological, those are technical and systems engineering challenges of a sort, and questions of your strategic posture, but in both of those respects, second strike forces and national nuclear command and control, those are in the US system right now, we are at a threshold point between systems.

The last time the MC3 system was modernized in the United States was in the early 1980s, we had a full recapitalization in the early 1980s. That's a long time ago in technological terms. The Submarine Force is about to begin a process of recapitalization which existing boats will be gradually swapped out for a new class.

Those are important actual points, in part precisely because whether or not those assets are vulnerable, and whether or not those communications links can stand up to the demands of making sure that no matter what in the heck is going on, the right sorts of information are able to get through back and forth between whoever has the football and forces in the field.

We are in the middle right now of a swapping out and recapitalization of both of those things. In an era of dramatic technological change, cyber threats, issues of potential vulnerability of assets at sea, and during the Cold War everyone certainly it was almost a cartoon caricature of people worried about, well, geez, what happens if

someone can make the seas transparent and all of a sudden, at sea submarine, ballistic missile forces are vulnerable.

Thankfully, no one ever cracked that nut during the Cold War but is that an uncrackable nut in this era of big data crunching and quantum sensing and ubiquitous unmanned vehicles and things of that sort this era that is daunting? I don't know the answer but I would say that those technological questions go to-- leaving aside that information in the [unintelligible 00:09:42] I worry about what the actual structural real information will be.

I think the video to me points as to the importance of making sure that all that recapitalization works properly and results in us having for our Commander in Chief the kind of robust and resilient maximal suite of options so that you don't have to have a discussion like that when all of a sudden Strat Com says, "Hey, we're not entirely sure our subs will survive. We're not entirely sure we can actually communicate with them if things start to go off."

That strikes me being much more unstable and much more dangerous and more likely to push a commander-in-chief to use the launch onboarding capability than the mere fact that the clock is ticking down.

This points me in the direction at least of making sure that our posture is resilient and second-strike capable in the ways that we have tried to make sure it has been for many, many years now. Because we're a technical threshold the challenges there are considerable and we need to make sure that gets done right.

**Glasser:** Sharon, I know you wanted to respond to what they said and then we'll move--

**Weiner:** Just a couple of really quick things. The technological changes or the weapons changes, or even the procedural changes in many ways are beside the point of what we're trying to understand.

My guess is the Nuclear Posture Review is supposed to be released soon. Maybe it was released just a few minutes ago. My guess is the document doesn't talk about two things which are actually consistent and which exist independent in many ways of the technological fixes, of the weapon systems of the procedure.

One is, the situation is always going to be uncertain. There's always going to be a level of things you don't know that you wish you knew, and you can't get those things probably before you have to make a decision. Even if your decision is, you know what? I'm going to wait. That uncertainty is always going to be there and you can't resolve it with a technical fix. Sorry.

The other uncertainty is, well, it's not an uncertainty because it's associated with people. People do crazy things. There's a vast literature about how people make decisions on the basis of gut responses, on the basis of whether or not they feel they're winning or losing. We know the adage go for broke. That's based on decision-making heuristics, and it's not rational. If you're losing, you shouldn't go for broke, you should play it safe.

These things run as constants throughout the nuclear command and control history, the architecture, how we deal with nuclear weapons. And my guess is if you look at the Nuclear Posture Review, there's not a paragraph that says, "Oh, here's how the president plans to deal with this uncertainty."

**Glasser:** That's right. In fact, this is once again, not really even a theoretical conversation, but it strikes me that we are-- been spending the last eight months talking about the psychology of Russia's leader, trying to understand whether the use of nuclear rhetoric from the President of Russia and some of his advisors in the current context is in and of itself a nuclear crisis.

President Biden recently was quoted as saying the risks of Armageddon are greater than they have been since the Cuban Missile Crisis, which we're observing the 60th anniversary of this week. I want to ask both Alexey Arbatov and Chris Ford number one, do each of you consider that we are in fact right now in a nuclear crisis?

**Arbatov:** Me first?

**Glasser:** Yes.

**Arbatov:** We are not in a nuclear crisis, but we are in a very serious crisis, which could turn nuclear, unfortunately.

**Glasser:** Which would turn nuclear.

**Arbatov:** Not yet at the stage in which Soviet Union and the United States were exactly 60 years ago, because on October 27th was the most dangerous, the most acute situation, exactly 60 years ago.

We are not yet at this stage, fortunately. We have a chance to back away from it but certainly situation is a matter of great concern.

**Glasser:** Do you believe that it is responsible? What is the role of making nuclear threats in a world like this?

**Arbatov:** Say it again?

**Glasser:** Why would President Putin be using nuclear threats in the middle of this war in Ukraine?

**Arbatov:** Well, I'm not advocate of Putin, but to make the record straight because he has never mentioned nuclear weapons in various threats that he made. He made hints in direct talks, double-talk, but he never said nuclear. He never said tactical nuclear.

He expressed it in different way but what is the rule? There are no rules but what is the purpose? For me it's clear. The purpose is deterrence, deterrence of NATO involvement into what is happening in Ukraine and deterrence of starting to implement strikes against Russia.

**Glasser:** Do you find that to be an effective deterrent?

**Arbatov:** Well, up to now it has been effective deterrent because NATO is not directly involved. NATO is not providing Ukraine with long-range offensive missiles that could strike deep into Russian territory.

Russia, on the other hand, is not hitting NATO countries, is not hitting NATO communication-wise depot. In Poland, the Baltic States from which the arms and other technologies transferred to Ukraine. Up to now it was working, but this is certainly not reason to rest assured. It may, it may stop working any moment. That's why we have to urgently take some measures to back off from this break.

**Glasser:** Chris, I want to ask you the same question. Do you agree with President Biden that we are in a crisis in which Armageddon is a possibility right now?

**Ford:** I would say that we are in a nuclear crisis of a sort, but I think it's a somewhat different type of nuclear crisis, and I don't think we're in, hopefully won't be, but we're not yet, at least in an edge of Armageddon situation.

We are in a different type of nuclear crisis, and it revolves around what I sometimes refer to as the offensive nuclear umbrella. We get accustomed in the West, at least in thinking about nuclear weapons as providing a defensive umbrella and they do and I think Alexey's correct, that some of that actually is still is working on both directions.

Russia is in fact deterred from going after Article 5 NATO countries in this conflict. We are deterred from going directly-- there is not a no-fly zone over Kiev or there was not. This is not going to be enforced by the US Air Force against Russian aviation asset. There is operative deterrence that is still functioning reasonably well. That's not a guarantee that it will continue. Past performance is not a predictor of future behavior as the investment folks say but so far deterrence is actually working in terms of direct confrontation between the military alliance of NATO and the Russian Federation at this time.

The kind of crisis we are in is this offensive nuclear umbrella context in which the Putin regime in Russia has attempted to use the threat of nuclear war to deter, well to create space, I should say, in which it feels apparently free to try to invade a neighbor of it and annex. **[unintelligible 00:48:00]** they tried to make that neighbor disappear in a literally genocidal fashion.

It's trying now to settle for simply grabbing chunks of it and pretending that those chunks are chunks of Russia but that this is a tactical opportunity that is in some sense created by nuclear saber-rattling. As with the Crimea invasion, when Russia first started to go after Ukraine a few years ago and much more vehemently in recent months, the use of nuclear threats has been very deliberately and expressly made in order to create opportunities for tactical and theater-level aggression.

That is a different type of nuclear crisis than the Cuban Missile Crisis, thankfully qualitatively and quantitatively. It's a crisis nonetheless, but it's a different thing and we don't really know very-- it is difficult to deal with that kind of crisis.

This is an opportunity that Xi Jinping probably wishes he were able to create for himself with respect to Taiwan, and that he may in fact be trying to create for himself

with Taiwan through the construction of all those hundreds of new missile silos out in the desert [unintelligible 00:49:04].

This is a playbook now that is being developed not for defensive purposes, but to use strategic arsenals to create opportunities for aggression against one's smaller neighbors. That's a really worrying challenge and we're making up the response to it on the fly. This is something that needs to be thought about extremely carefully.

This is a different type of crisis than I think we have in the strategic weapons community traditionally thought about trying to deal with.

**Glasser:** I want to remind everybody. We're going to get to your questions and if you have more, you can submit them through the app right now and do that right now, because we're going to try to get through as many as we can.

Quickly, Alexey Arbatov, I'd like to ask you to respond to that framing by Chris Ford. Do you agree that this is in fact the use by Russia of a new kind of nuclear playbook in which you're using the, president of Russia is using nuclear threats as a way to carve out space for a conventional offensive in Ukraine?

**Arbatov:** The President of Russia is talking about such things in order to deter NATO from intervening in what is happening in Ukraine, intervening to oppose Russian special military operation in Ukraine. He openly said it.

You may interpret it in the way you have mentioned in a theoretical way. There is a great theory of nuclear deterrence, which counts many decades of libraries of books and seas of conferences.

He was quite open about such warnings, I would say from the beginning, from March 24th when he declared the start of the special military operation. He said, "I want to bring the attention of everybody that if somebody will try to intervene and prevent us from doing what we want to do or to threaten, to threaten Russian nation and Russian State, then we will retaliate in a way that would be very terrible." Something like that. That's what he said.

**Glasser:** Sharon, what conclusions do you draw from Vladimir Putin's use of nuclear rhetoric? Do you think he is in effect expanding the Russian military playbook by using this threat?

**Weiner:** I think this is a good example, again, of the uncertainty and the role of perception and deterrent threats. We just heard a disagreement about the answer to this question, and there are probably more nuanced disagreements in the audience about this. If we can't agree on the role of nuclear weapons and what they've enabled here, add on a nice coating of trying to manipulate this for political and other reasons, and all we've done is increase the uncertainty that was inherent in nuclear weapons, in nuclear threats to start with.

For me, the issue isn't what Putin has used this nuclear threat for because people will write dissertations about this, right? There'll be huge disagreements back and forth in the community of people that deal with these things.

The important thing for me is the manipulation of uncertainty in a situation that is already fraught with uncertainty and what that does to the robustness or lack thereof of deterrence itself.

**Glasser:** Well, it strikes me that even having this conversation in anything other than a purely theoretical way is, in some sort of a new crisis that we haven't had certainly since the end of the Cold War.

**Weiner:** It's interesting to me that if we can't agree on the role of nuclear weapons in this crisis, then how are both Putin and Biden determining what it takes to deter the other?

**Glasser:** Right, exactly.

**Arbatov:** Let them meet in Indonesia.

**Glasser:** Did you say, let them meet?

**Arbatov:** Let them meet in Indonesia and Bali and discuss it.

**Weiner:** Do you think that'll help resolve the uncertainty, Alexey?

**Glasser:** What would come out of a meeting between Putin and Biden right now?

**Arbatov:** They could start their conversation. They've never had one except in Geneva.

**Ford:** If I could offer a--

**Glasser:** Isn't this a form of blackmail? Sorry, I just want to finish up with Alexey. How is this anything other than blackmail when you look at it in this way? I mean, why would, why would you meet with someone who's threatening to blow you up? Why would you do that?

**Arbatov:** Well, during the Cuban Missile Crisis, that was exactly what was done by Khrushchev and Kennedy, and they reached a compromise. So thank God they were so wise as to do that. Although they never liked each other.

It's now people are remembering that after the Cuban Missile Crisis, they developed real respect towards each other. But before that, they hated each other. They despised each other. But having been wise to avoid the nuclear war, they changed their attitude towards each other.

**Glasser:** Is the anniversary of the end of the Cuban Missile Crisis, is this something that's talked about do you believe in Moscow? Do you think the same lessons are drawn inside the Kremlin as our being discussed here at the Carnegie Nuclear Conference, about the Cuban Missile Crisis?

**Arbatov:** You bet. During the last month, that was on top of everything, academic discussion, TV shows, memoirs of some of the still-living participants. It was in the center of Russian public opinion and mass media, I would say even much more than in the United States, where certainly domestic politics plays a much greater role.

**Glasser:** Chris, sorry, I cut you off. Please go ahead.

**Ford:** No problem. I guess two comments if I might. First, I guess I should probably amend my earlier comment about the offensive nuclear umbrella being used to create space for aggression against a neighbor. It's that, but it's also apparently the use of nuclear threat to facilitate the diplomatic rehabilitation of an aggressor and apparent war criminal.

The use of these kinds of saber-rattling threats didn't have lots of-- there are some interesting innovations being used right now. The comment I wanted to make though was to push back a little bit on your point about uncertainty, and that is, I think at some level there, President Biden and Vladimir Putin both, there isn't that much uncertainty about the role of nuclear weapons in this crisis.

I think they both understand exactly what the other is doing and why the other is doing it. That doesn't mean that we know how it plays out, but I think the issue here isn't uncertainty. In a way, it's certainty, it's quite clear.

It has been clear all along that NATO wasn't going to fight directly against Russian forces. It's been quite clear all along that, that Russia was not going to go directly after the forces of Article 5 NATO states. These things could still break down, but I think that's been a pretty well-understood foundation for the interactions through this big global theater so far.

I think it's also been pretty well understood that on both sides, the Russian nuclear threats are designed precisely to deter-- there is a threshold beyond which NATO supports the Ukrainians. The Russians want us to think that the world will end if we do too much, and they want us to think too much is a very small amount that the Biden administration is betting so far, quite correctly that too much is a very large amount that we haven't gotten near yet.

They're both playing a strategic game theoretical encounter here, but I don't think it revolves a lot around uncertainty. I think they have a pretty good idea of the other side's play. We're just waiting to see how the damn thing works out.

**Glasser:** Well, I like to look forward to the moment when this is a historical conversation. Sharon, we're getting a lot of questions about your scenario and people are very interested in particular certainly when you said that 90% of the people launch in the simulation, lots of questions about it, can you explain to us what the sample was? Who is making the decision, and also what, if anything, you've learned?

This is a question from Scott Sagan. Can you tell us about the characteristics of users that influence their different choices? For example, is there a gender difference? Is there a difference in personality types? Help us to understand a little bit.

**Weiner:** First of all so let me set the stage for the sizes of the sample, et cetera. We used a group of Princeton students who were very kind to come participate in this, and half of them got a version of the scenario you saw here, which we consider the standard scenario and half of them got a scenario where we removed the references

to time pressure, and we're still in the process of analyzing this data. I can only give you first impressions, but it seems to be the case that that didn't really make much of a difference.

In terms of gender, personality characteristics and everything else, we have some data on that. Again, we haven't looked at it yet, but the real issue was instead to ask people, "Well, why did you make the choice? What were you trained to do when you made the choice of whatever option you chose?" and then look at the conversation they had and the pros and cons they weighed about making that choice.

For example, we have a cohort of people who said proportionality was important to me. It was important that we did a proportional response, had to respond, felt like I had to respond. This comes up a lot. I had to do something, but I didn't want to provoke I didn't want to go over the top.

The scenario is 2 million dead Americans and the response they would choose was, I don't know, 15 million dead Russians. Then in interviews afterwards, you would ask them, "How do you think Russia will respond to what you did?" There's a fair amount of evidence that they think Russia will respond and up the ante. If you're concerned about proportionality and controlling things, that doesn't match with the notion that the response you picked was actually extremely escalatory.

What we're trying to do is to look at the choices people made and then say what does this say about the pros-- and making no presumption about what values they should have weighed, but saying what was valuable to you and did you actually correctly weigh that thing? Is it related to the choice that you made and we're finding there's a fair amount of space between those things.

**Glasser:** Again a number of questions around the idea of your participants. Were they asking for different options rather than just look at one, two and three, how many of them are saying wait a minute, I don't like any of these options and is there any way that I could delay it or to the point that we discussed earlier? Why do I have to decide right now? Can't I decide on the helicopter what--

**Weiner:** All these things are possible. It's an interactive experience and there are multiple different possible responses. People can ask these questions. The interesting thing for me is the number of people who don't.

**Glasser:** Who don't.

**Weiner:** Partially because, let me emphasize that in this experience everybody's trying to do their job. They're all trying to do their role in nuclear crisis to the best of their ability. They're relying on the president to coordinate and orchestrate all this information.

The problem is first of all the president may have never trained realistically for a situation like this. To the best of our research, Jimmy Carter's the last one we know, I don't know about the current one. They rely on someone who may have been woken up at two o'clock in the morning who just had a bad day the night before. They're plunked down in a chair and they're supposed to coordinate all of this information. The question is, can they do it?

One of the things that we're finding including when we did this with policy practitioners in DC with nuclear experience is there's a very limited number of people who are able to sit in that chair and coordinate all of this information in a way that allows them to own the process and to make a decision that they want to make.

**Glasser:** Dr. Arbatov, there's a question for you here. You mentioned that the situation of decision-making on launching nuclear strikes doesn't really come out of the blue, but there's already been some significant tension presumably.

The question is but can there also be some cases of malfunction of equipment or an accidental launch from one side or the other? Is the Russian president being somehow prepared to respond in a nuclear way for scenarios such as that one?

**Arbatov:** My opinion, my assessment is that there will be no launch on warning in case there is accidental launch because accidental launch by definition will be a single missile. Nobody would start massive retaliation in response to a single missile.

Whether there is possibility of malfunction, as reliable as command and control systems are made, certainly there is a possibility like that. You cannot create 100% reliable technological system. That's the law of physics. From this point of view I think that launch on warning is a bad idea.

If I may comment to something that was already discussed here, I think that the impressive thing for the so-called president of the United States in the film was that 2 million Americans would be killed in an incoming attack and emotionally that made 90% of the people to say respond immediately.

The thing that should be explained to people and to presidents as well that responding immediately would not save a single life of your citizens. It will kill a lot of citizens of the other side, but will not save your own citizens. That is why waiting and making sure that the attack really happened and assessing the results of this attack is the only reasonable way to deal with such situation situations.

Because the risk of an advertent nuclear war because of political miscalculation in a crisis, because of malfunctional systems is so great that it should be always considered much higher risk than the risk of failing to kill a few dozen or millions of the other site if you do not launch your missiles immediately.

**Glasser:** Do you want to react? That's interesting. We know how Alexey Arbatov would respond to this scenario.

**Weiner:** I would say that his--

**Ford:** I would like to too at some point.

**Weiner:** Alexey's response, I would say we see very rarely because part of the issue is to try and understand how people deal with the notion of the 2 million casualties. Do they see them as a likelihood and unlikelihood? People that-- forgive the phrase, are a sunk cost and what do you do with that? Very few people pause to say, there's nothing I can do about those 2 million people if the attack is real. The only thing I can do is engage in a process that will determine probably how many more people will live or die.

**Glasser:** Chris, I'm going to give you the last word because we're just about out of time.

**Ford:** Oh goodness. That's a heavy responsibility. Two very quick comments. One is that with respect to Alexey's comment about an accidental launch, I just wanted to add an additional gloss to that and point out that one of the ways in which a at least limited ballistic missile defense system could and does contribute to strategic stability is precisely in giving a little extra buffer against that kind of an accidental launch threat.

It cannot and will likely never be able to handle the kind of significant attack that this scenario poses. There are at least some error buffers around the margins when it comes to small inadvertent accidental release or some of sort.

The broader point is that while I continue to believe this, I've argued for many years that not having a launch on warning option probably undermines deterrence. I do want to stress the idea that it's an option. I think it's terrible to have it as policy as the default assumption. I think being able to at least have an intelligent conversation and by the way as I said before be well briefed in making that decision is really critical. But to have it as a policy is bad and to have launch on warning as the only option is also bad. If anything it's worse.

That's why I'm still very focused upon the importance of making sure that people don't get the issues of NC3 resilience and robustness and issues of second strike survivability. If you get those wrong, you back yourself into a situation where launch on warning becomes really the only available option and that is a very bad place to be.

**Arbatov:** If I may make a short additional comment, I think that launch on warning may be preserved purely for deterrence, but should not be considered an operational concept.

**Weiner:** This is one of the things that we're concerned about that I would just say in the experience, the data shows us that most people, even though it's an option, do not see launch warning as an option. They see it as a requirement.

**Glasser:** That again is the question of, can you really include something just as a deterrent and not make the assumption that it might be used in a real life scenario, which brings us back to the beginning of this panel.

I'm afraid to say that we might have ruined your lunch. I hope we haven't. I

hope you can contemplate Armageddon and then go straight to that.

First of all I do want to thank Alexey Arbatov and Chris Ford for being with us. I think this has been a very provocative and important conversation. Sharon, thank you for being here with me.

I'm tasked with making a little announcement which is that lunch will be held now in Regency BCD. Note though that if you're part of the young professionals track or a young professional's mentor, your lunch will take place in Regency AB.

Right now I just want to thank all of our panelists for a very provocative and important conversation that we all hope will be purely theoretical.

[applause]

**Speakers:** Thank you.

**[01:09:05] [END OF AUDIO]**