

## **How Can a National Disaster Affect Our Voting Systems?**

Jack Biscupski

[jack-biscupski@uiowa.edu](mailto:jack-biscupski@uiowa.edu)

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### **Introduction**

Following the outbreak of COVID-19, our current 2020 presidential election is up-in-the-air in regards to specific voting implementations, and as to how individual states will respond to federal measures. The electorate find themselves in a precarious situation - risk their health and safety to vote, or lose out on the chance to help shape this country's path forward in an especially formative year. COVID-19 has rendered most of the U.S. immobile, including our current election(s). In an unprecedented move, the New York Board of Elections cancelled the Democratic Primary for June 23rd. This move has instilled uncertainty for our presidential election and elections beyond. This situation we find ourselves in isn't totally unprecedented, however. Our country has been able to weather natural disasters in the past and move forward with important elections; namely, the 1918 midterms during the Spanish flu, and the midterms during World War 2. This paper aims to look at the governmental and local responses to these past disasters and how we can take what we learned then and apply it to our situation today; as well as look at the options we have available currently, and how secure those

options can be. With the vast amount of technological advancements made since the aforementioned disasters, it is important to ensure the electorate can vote as safely and securely as possible; there is high potential for abuse concerning remote voting options.

### **The 1918 Spanish Flu Epidemic**

The most apt analogy to our current situation would be the response to the 1918 flu epidemic. Much like the current situation with COVID-19, not much was known about either virus when these outbreaks started. The pertinent election would be the 1918 midterms, where Republicans took a two seat lead during the Woodrow Wilson presidency [4]. While the outbreak was incredibly deadly, the midterm elections did still happen. It took a huge effort on the part of local governments to overcome the challenges that took a hold of the country - a bulk of the national response came from local governments. This, along with the lack of data/reporting we had at the time, make it hard to extrapolate this out to a national response. The federal government did meter out some preventative measures, though. Based on prevailing scientific opinion at the time, they decided that the best way to combat large groups of people getting sick was to recommend fresh air and decent ventilation, promoting the avoidance of large crowds - a more elementary version of the social distancing order we are trying to adhere to right now. The severity with which these regulations were enforced depended heavily on the state of the disease in a certain locality, and how 'kindly' the constituency took to regulations of that kind. The Committee of the American Public Health Association ordered that any type of gathering with groups of people were dangerous, and that all

nonessential meetings be banned. This included things like saloons, dance halls, cinemas, and public funerals. More sacred gatherings, like church or synagogue, were limited to minimum services, and that closeness and intimacy be minimized [5]. No matter the severity of the disease in whatever locality, this heavily hampered the ability of the electorate to go out and vote. Of the voting-eligible population in 1918, only 40% voted. This is a huge downturn from the previous two midterms, which were at 52% and 50% respectively. In San Francisco, it is assumed that approximately 40,000 people were kept away from the polls because of the pandemic. There were newspaper accounts in New Mexico and Arizona of potential voters staying away from the polls because of scheduled disinfections, and the stigma that comes along with it [7]. It is hard to gather exact numbers from that long ago, as well as parsing out the number of voters that didn't vote because of the pandemic and/or World War 1 being difficult. Needless to say, voting numbers were down across the board. Of course, the pseudo-federal bans on most social gatherings can also be to blame - partially, at least. Jason Mirisam, of Harvard Law School, explained that this was the first 'masked election' due to most constituents wearing protective equipment to the polls. A safe move, but not a move everyone could afford to make, which may have also contributed to an additional decrease in voter turnout [7]. This decrease is even more pronounced in the face of the unrelenting American war machine. Civic pride was at a boiling point during the elections, namely due to World War 1, but a national disaster such as a deadly epidemic also has the ability to bolster nationalism. Suffice it to say, patriotism and the Spanish Flu were at odds during the 1918 election. The Committee of Public Information helped

spread propaganda encouraging Americans to take part in war efforts, as well as go out and vote for war efforts [6]. Quarantining orders were even lifted in early November of 1918 to support healthy midterm voting numbers. Infections and deaths immediately rose. Kristin Watkins, an expert in the study of pandemics, wrote in her dissertation that, “the political machine disregarded the health and safety of its citizens”. The quarantining orders imposed didn’t just affect the electorate at large, though. They affected political campaigns, as well. Since, at the time, there was no readily available technology to widely distribute information, campaigns relied on drawing crowds in large, open, public spaces to deliver raucous speeches in order to sway potential voters. Quarantine and isolation efforts made these impossible - except for a five day period before polls opened back up where politicians were allowed to campaign again. Politicians looking to be (re)elected were creative in how they would go about campaigning, though. According to Dr. Watkins, favors were agreed to between campaigns and local governments to do things like open up a public space for plays if the local government would open polling places early. Her niche research of small-town Nebraska showed that one candidate went to such lengths as driving around town with a cornet-player and drawing crowds with music before heavier restrictions were placed on social gatherings [6]. It was difficult for politicians to sway from their usual forms of communicating their presence, so quite a few of them got flak for leaving their posts in Washington to campaign. Campaign tactics were re-thought; besides loud horns and low-down deals with local governments, the most common method of elector-electorate communication was mailing and op-ed columns in newspapers. This remote method of

communication proved worthwhile - it was easier to be more personal in regards to the needs of constituents, and paved a way forward for communicating to populaces en masse [6]. There are a lot of analogies to make with our current situation.

Shelter-in-place orders have proven to be beneficial in both eras, as well as wearing protective equipment while being out in public. It is stark, though, the increase in infected persons that coincided with the opening of public spaces to vote; even with proper protective measures in place. It is important we note this going forward, and devise a more remote method of voting that can reach populations at large.

## **World War 2**

The Spanish flu wasn't the only disaster the United States experienced during a large election. The 1942 and 1944 elections during World War 2 were marked by depressed voter turnout. The reasons for lowered turnout were much different than the epidemic, though. There was no 'invisible agent' repelling people from the polls. A massive amount of soldiers, and therefore voting-eligible population, were sent overseas to partake in the war. Approximately 16 million people, or about 11% of the population of the United State, were commissioned. These soldiers, initially, weren't able to remotely partake in the elections. The government attempted to rectify this problem by enacting the Soldiers Voting Act, which assisted states in sending federal ballots to soldiers across the world. A good idea in theory, but poorly executed in practice, this act didn't do much to boost voting numbers of those fighting. Only approximately 30,000 ballots were sent back to the states, which didn't help sway any states' elections. The overall turnout that year was

extremely poor. Only 34% of the voting-eligible population voted - which happened to be the second lowest voter turnout in American history since the ratification of the 19th Amendment [7]. Looking forwards towards the next election in 1944, Congress wanted to enact something that would do more practical good than their previous attempt at getting soldiers to vote. This time around, they passed a comprehensive set of bills referenced by the name, 'the soldier vote' or 'the service vote'. These bills did not get passed without controversy, though. Though the popular opinion of the nation at the time was to allow soldiers to vote, the opinions of Congress members didn't necessarily align. There were questions of whether or not there was constitutional precedent to be able to send federal ballots to service members overseas, as well as questions of significant political importance. During Franklin D. Roosevelt's presidency, A Gallup Poll announced on December 4th, 1943, that the soldier vote could, "break the apparent even division of the electorate between the two parties and assure Roosevelt of reelection." [3]. Even with these issues looming behind the soldier vote, the bills necessary to support it did get passed. The bills helped approximately 2.6 million soldiers vote - a resounding success, especially compared to the previous Soldiers Voting Act. This bill assisted in Roosevelt overcoming the civilian vote in at least one state (New Jersey), and paved the way for his overall victory [7]. The amount of legislative and logistical precedent set during this time period could be a useful case-study in how we transition to a more remote form of voting concerning 2020's upcoming presidential election.

## **Remote voting**

It is crucial we recognize the importance of being able to vote remotely for this 2020 presidential election. As seen from the 1918 midterm elections, laxing social distancing laws to reopen polls for a short period of time can lead to devastating consequences.

There exist two popular ideas for voting remotely - voting by mail, and voting via mobile phone apps. The first option - voting by mail - sounds like a simple enough endeavor on the surface. However, some election experts warn that a sudden surge of scale in vote-by-mail systems in states that aren't well-equipped could cause new types of risks for disruption. Some of these risks are purely logistical. For instance, some states would have to change their election laws to accommodate for more labor time to process mail-in ballots. A lot of states don't currently have laws in place allowing most of their constituency to vote by mail. There are even challenges regarding stamps and envelopes - the virus could be spread by someone coming into contact with a licked envelope or stamp. There is legislature being created to alleviate some of these issues, though.

Senators Ron Wyden and Amy Klobuchar have championed the Natural Disaster and Emergency Ballot Act, which gives all voters the ability to cast a ballot by mail under certain conditions. It also provides federal funding for states to buy equipment to handle the increased printing and mailing load. The bill even stipulates that ballots sent to voters via mail would include self-sealing return envelopes so voters don't have to lick

their envelopes. For voters who don't want to receive their ballot by mail, ballots can be sent in an email attachment or downloaded from the Internet, and then sufficiently marked for return. However, sending ballots via email introduces a variety of security concerns. Attackers could infect emails being sent out with malware, or the emails themselves could be intercepted and be casted in place of the assumed voter. Sending all ballots via physical mail isn't necessarily the perfect solution, though. If a majority of voters receive their ballots through the mail, a logjam could be created, and would tax mailing systems that otherwise don't have the resources to function under such high stress. There are many elections that have had problems with voters not receiving their ballots before the day of election comes around, and this would exacerbate that [9].

The other remote voting option - using a mobile app to vote - sounds quite enticing, especially compared to the logistical nightmare that absentee ballots would create. Electronic communication means there aren't vast amounts of county workers processing ballots manually, UI/UX architects can design apps to have easier-to-use interfaces than mailing back a ballot would, and the counting and auditing of ballots can happen automatically. This wish-list of features comes at a hefty cost, though - security. Any Internet connected device used for voting could become a hazard. There are examples of mobile voting apps being used in the real world, however. In 2018, West Virginia became the first state to try its hand at mobile voting - albeit, only for military and overseas voters. The app has been successful so far, but the user pool is so small, it's not worthwhile to try to extrapolate results to a national scale. Larger-scale efforts are underway, though. Sheila Nix, president of Tusk Philanthropies - the company



responsible for the voting app used in West Virginia, says her company is funding efforts to create a mobile voting solution for voters with disabilities to dissuade those same people from going out to the polls. They want to expand out their solution to six other states, which would be a very large jump in participants [2]. At the heart of this technology lies Voatz - a blockchain based voting solution that has received more than \$9 million dollars in venture funding [1]. Security concerns about Voatz have been mounting. Novel research from a team of engineers at MIT found a whole host of security concerns with the app. This research paper spells out Voatz claims of security, some of which are: “immutability via a permissioned blockchain”, “end-to-end vote encryption”, “voter anonymity”, “voter verified audit trail”, and “device compromise detection”. In order to do their analysis, they set up a ‘cleanroom’ environment, meaning every connection made was made only to their proprietary servers, as doing a cybersecurity audit on a system connected to an election server would raise innumerable amounts of legal concerns. Then, they decompiled the app, and re-implemented a minimal server that performed election processes, which includes things such as: device registration, voter identification, and vote casting. The specifics and minutia as to how the team went about reverse engineering the app are outside the scope of this paper, but are quite fascinating. Their findings, though, reveal many problems with the app. Their analysis showed that a passive network adversary (a system that is solely monitored for data; no data on the system itself is changed) can view a user’s vote, while an active adversary can disrupt the transmission of the vote itself. An attacker that gains control of a device can wholly control that user’s vote. And, the individual that controls the

server the votes are stored on has all the power to, “observe, alter, and add votes as they please.” [8]. The paper closes out with recommendations to scrap any plans that are being made to use this technology for voting, and that future iterations of such a technology (as well as the threat models that surround the technology) be made totally transparent and open to the public.

## **Conclusion**

Chiefly, it is important that the 2020 presidential election not be delayed and/or cancelled. Such an event would be unprecedented, and would challenge the democratic foundations of our country. The country needs to move forward with a remote voting solution so as to not risk the health of its citizens. While it is enticing to be able to use a mobile app to vote, there are too many legitimate security concerns regarding the current available technology. It would also disenfranchise voters that don't have access to the app. I personally believe that absentee ballots are the way forward for the country. Yes, there are still security concerns with mail-in voting, but they are much less urgent than the security concerns put forth by mobile voting. The country also has a precedent set for voting by mail, which would help to guide legislature and supply chains. However, the logistical problems that come with having to send out mass produced ballots cast a shadow over the whole process. If the country had begun a more unified effort in tackling this issue earlier, I believe there could be a streamlined system in which the maximum number of voters possible could be voting.

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