Are Dead People Voting by Mail: Evidence from Washington State Administrative Data*

Jennifer Wu[†], Chenoa Yorgason[†], Hanna Folsz[†],
Cassandra Handan-Nader[‡], Andrew Myers[§], Tobias Nowacki[‡],
Daniel M. Thompson[¶], Jesse Yoder[‡], and Andrew B. Hall[‖]

Democracy & Polarization Lab, Stanford University

July 11, 2024

Abstract

A common concern about vote-by-mail in the United States is that mail-in ballots are sent to dead people, stolen by bad actors, and counted as fraudulent votes. Studying Washington state's vote-by-mail program, we link counted ballots and administrative death records to estimate the rate at which dead people's mail-in ballots are improperly counted as valid votes, using birth dates from online obituaries to address false positives. Among roughly 4.5 million distinct voters in Washington state (2011-2018), we estimate that there are 14 deceased individuals whose ballots might have been cast suspiciously long after their death, representing 0.0003% of voters. Even these few cases may reflect two individuals with the same name and birth date, or clerical errors, rather than fraud. After exploring the robustness of our findings to weaker conditions for name-matching and the inclusion of deaths closer to election day, we conclude that counting dead people's ballots as votes seems extraordinarily rare in Washington's universal vote-by-mail system.

*For helpful information, the authors particularly thank Stuart Holmes and the Washington Secretary of State's Office. For advice, the authors thank Marc Meredith, Charles Stewart, and two anonymous reviewers. For research assistance, the authors thank Sarah Raza.

[†]Ph.D. Student, Department of Political Science, Stanford University

[‡]Ph.D. Candidate, Department of Political Science, Stanford University

[§]Predoctoral Research Fellow, SIEPR, Stanford University

[¶]Assistant Professor, Department of Political Science, UCLA

[‖]Professor, Department of Political Science and Graduate School of Business (by courtesy), Stanford University; Senior Fellow, SIEPR, Stanford University. andrewbhall@stanford.edu.

1 Introduction

One of the most common concerns raised about vote-by-mail in the United States, which became highly salient during the COVID-19 pandemic, is that ballots sent to dead people could be mailed back and counted as valid votes. In the weeks after the 2020 U.S. election, President Trump repeatedly claimed that dead people voted in the election,[1] echoing a long-running concern among certain conservative groups.[2] Claims like these about the security of vote-by-mail are important to assess because they call into question the legitimacy of the American electoral system and the 2020 election in particular. Attitudes towards the expansion of vote-by-mail are mixed and have polarized along partisan lines (Lockhart et al. 2020), and voter confidence in vote-by-mail is generally lower than in-person voting (Bryant 2020), which makes evaluating its security especially relevant.[3] Because who votes and who dies are both matters of public record in America, we can evaluate the general claim that dead people's mail-in ballots are regularly voted fraudulently in elections with data.

To do so, we link administrative data on deaths and voter turnout in the state of Washington, one of the most prominent states to administer elections entirely by mail. Among roughly 4.5 million distinct voters in Washington state between 2011 and 2018, when we focus on cases where records match on full name including middle name, we estimate that there are 14 deceased individuals whose ballots were cast suspiciously long after their deaths, representing 0.0003% of voters. Even these few cases may reflect two individuals with the same name and birth date, or clerical errors, rather than fraud. If we relax requirements for matching middle names to accommodate people who may not have middle names, we estimate that there are an additional 43 cases of potential fraud, but these are more likely to be false positives. When we investigate ways that our analysis may underestimate fraud—such

[1] See, for example, `https://twitter.com/realDonaldTrump/status/1328830381429288962?s=20` and `https://www.washingtonpost.com/politics/trump-raffensperger-call-transcript-georgia-vote/2021/01/03/2768e0cc-4ddd-11eb-83e3-322644d82356_story.html`.

[2] See, for example, `https://www.heritage.org/election-integrity/commentary/potential-fraud-why-mail-elections-should-be-dead-letter`.

[3] On the effects of universal vote-by-mail, see for example Gerber, Huber, and Hill (2013) and Thompson et al. (2020).

as failing to include out-of-state deaths or deaths that occur shortly before election day—we conclude that these are unlikely to contribute a large number of additional fraudulent votes. On the whole, the results suggest that it is rare for dead people's ballots to be counted as votes in Washington's universal vote-by-mail system at least between 2011 and 2018.

Our findings should not be surprising to people who follow election administration closely. Indeed, the state of Washington carries out a better version of our analysis on a regular basis, checking voter rolls against death records using additional data like the last four digits of individuals' social security numbers that we do not have access to (Washington State Legislature 2023*a*). The point of our analysis is to provide an independent verification of the state of Washington's process.

Our work adds to the large literature on voter fraud in American elections by quantifying the amount of voter fraud related to dead people's ballots specifically in the context of universal vote-by-mail, where concerns about this fraud have become particularly salient. In studying this form of voter fraud, we build directly on Hood III and Gillespie (2012), a study which combines automated and manual matching methods to quantify the rate of deceased voters' ballots being improperly counted in the 2006 general election in Georgia (not a universal vote-by-mail state), finding essentially zero cases of this form of fraud.[4] By directly linking administrative data to detect fraud, our study is also related to Goel et al. (2020), which performs a similar analysis to quantify rates of double voting, again finding minuscule rates. Beyond these studies, a much broader literature relies on other forms of data, like reported instances of fraud (e.g. Minnite 2010; Alvarez, Hall, and Hyde 2009; Levitt 2007) or suspicious statistical patterns in aggregate data (e.g Cottrell, Herron, and

[4]Our focus on a longer time period and on assessing a fast-moving debate relevant to the 2020 election comes at the cost of some depth; while Hood III and Gillespie (2012) presents a remarkably deep audit of suspicious cases, making public records requests and ruling out nearly all specific suspicious cases as false positives, we only rule out false positives based on publicly available online data. It is reassuring, then, that our broader analysis of universal vote-by-mail in Washington arrives at a similar conclusion to their deeper analysis for Georgia.

Westwood 2018; Alvarez, Hall, and Hyde 2009; Mebane 2008), again concluding that various detectable forms of voter fraud seem very rare.[5]

While our analyses suggest that the mail ballots of dead people were rarely completed, cast, and counted in Washington from 2011 to 2018, our results do not directly speak to rates of fraud in other states or other time periods and do not directly inform us about other forms of fraud. Washington has spent years developing and honing its process for securing vote-by-mail and may be especially skilled at preventing fraud. Still, our findings demonstrate that, at least in one high-profile case and over an extended period, the fraudulent use of dead people's ballots is rare.

2 Claims About Fraud Using Ballots of Dead People

Despite widespread viral claims about the fraudulent use of dead people's mail ballots, only a handful of proven instances of this kind of fraud have been reported in the press or been prosecuted out of more than one billion ballots cast nationwide since 2000, well over 150 million of which were mail ballots. Looking at cases where someone has been prosecuted for completing and casting a dead person's ballot, we see two distinct types of fraud. The first type of fraud is when the deceased individual has a family member or friend who completes their ballot after their death and returns it. For example, a resident of El Paso County, Colorado pleaded guilty to attempting to cast a mail ballot in her father's name twice in the years after his death.[6] Similarly, three people in Pierce County, Washington pleaded guilty to attempting to cast a mail ballot in the names of loved ones who had recently passed away.[7] The second type of fraud we observe is when a third party systematically uses the

[5]There is also a recent Washington Post/ERIC (Electronic Registration Information Center) analysis which relies on reported instances of fraud. See https://www.washingtonpost.com/politics/minuscule-number-of-potentially-fraudulent-ballots-in-states-with-universal-mail-voting-undercuts-trump-claims-about-election-risks/2020/06/08/1e78aa26-a5c5-11ea-bb20-ebf0921f3bbd_story.html.

[6]https://gazette.com/crime/golden-woman-pleads-guilty-to-voting-twice-for-deceased-father/article_0e852f84-0809-51be-8235-9d464d315257.html

[7]https://www.thenewstribune.com/news/local/news-columns-blogs/matt-driscoll/article253901758.html

ballots of deceased people to vote or even registers in their name. For example, an activist in rural Mississippi was convicted in 2011 of completing and returning four absentee ballots in the names of people who had passed away.[8] The Heritage Foundation maintains a database of voter fraud cases from across the country and including cases from 2005 to the present. Of the 24 cases where someone used an absentee ballot to vote in the name of a deceased person, 21 are cases of people using a dead family member's ballot and three are cases where a third party sought to vote in the name of a deceased individual.

Most public allegations of the fraudulent use of mail ballots do not distinguish between these two types of fraud. Instead, many claims point to findings that people with the same name as a deceased person are recorded as having voted without clearly stating whether this was organized fraud, casting a ballot for a dead relative, or simply some kind of clerical error. For example, Senator Lindsey Graham claimed that over 100 ballots had been cast in the names of dead people in Pennsylvania's 2020 general election without a clear statement about whether these were coordinated acts or one-off cases of fraud.[9] Following the 2020 election, President Trump also made similar claims about thousands of ballots being cast in the names of dead voters in Georgia and Michigan.[10] Most viral claims about dead people voting are similarly vague.[11] Still, while these claims do not clearly state that there is an organized effort to cast ballots in the names of dead people, a number of public officials claim without evidence that these ballots suspiciously favor Democratic candidates.[12]

[8] https://caselaw.findlaw.com/court/ms-supreme-court/1616823.html

[9] https://www.factcheck.org/2020/11/thin-allegations-of-dead-people-voting/

[10] https://www.washingtonpost.com/politics/trump-raffensperger-call-transcript-georgia-vote/2021/01/03/2768e0cc-4ddd-11eb-83e3-322644d82356_story.html

[11] See, e.g., https://web.archive.org/web/20201106015823/https://twitter.com/PhocaeanD/status/1324531466404044801.

[12] See, e.g., https://x.com/realDonaldTrump/status/1329459995893764102, https://www.youtube.com/watch?v=HO8v1pWygEU, and https://x.com/DonaldJTrumpJr/status/1294734395736236034.

3 Why We Study Washington State

We focus on Washington state because it employs universal vote-by-mail. Every registered voter is mailed a ballot which can be mailed back with pre-paid postage, dropped off at one of many drop box locations, or returned in person to County Elections Offices (Washington State Legislature 2023*b*). Since this is the specific policy that President Trump and others have suggested leads to widespread fraud related to deceased voters' ballots, it makes sense to focus on a state that employs this policy.

While a number of other states also employ universal vote-by-mail, Washington is ideal for our purposes because of the data it offers. Unlike many other states, Washington has made statewide voter file snapshots (voter rolls which include information about every registered voter at a particular point in time, such as unique Voter ID, name, county, and date of birth), as well as statewide voter histories (lists of Voter IDs who have cast a verified (non-rejected) vote, including local elections) since 2011, publicly available to researchers. The Secretary of State maintains nearly monthly voter file snapshots, which enables us to have a nearly-perfect portrait of who has voted in each election within our period of study.

4 Ballot Security in Washington

To ensure election security, Washington takes a number of steps. Together, these steps likely make it difficult to fraudulently cast a dead person's ballot.[13]

First, ballots are assigned unique barcodes which allows voters to track their ballots online. This also allows the state to confirm that the returned ballot corresponds to a specific entry in the voter registration database, and is intended as one of a number of countermeasures to prevent people mailing in fake ballots, as they cannot duplicate these unique barcodes. As a result, the first step a fraudulent actor would have to take to vote in the name of a dead person is to obtain their actual ballot. Doing this at any meaningful

[13]For more on Washington's process for securing ballots, see `https://www.sos.wa.gov/elections/voters/securing-your-vote`.

scale would require knowing when specific ballots have been mailed and where they have been mailed to. Concerns around this type of fraud—where an individual gathers, completes, and casts many mail ballots from deceased individuals—often focus on cases in which ballots are mailed to the wrong place, or are left somewhere where anyone might pick them up. Someone intending to commit fraud might be able to wait for random opportunities like these as another means for obtaining ballots, but they are unlikely to know in advance when or where such an opportunity might occur. So, the barcoding procedure suggests organized fraud should be exceedingly rare.

Like other states, after receiving a returned mail-in ballot, Washington compares the signature on the ballot envelope to the voter's signature in a government database in order to validate the identity of the voter. To successfully cast a dead person's ballot, a fraudulent actor would therefore need to forge the signature well enough to circumvent this process. While there is no doubt that signature verification is an imperfect filter, it is a real barrier, and ballots are regularly thrown out due to signature issues.[14]

Finally, the Elections division of the Secretary of State frequently purges newly-non-eligible voters such as felons, the dead, and individuals who have moved outside of the state. In the case of the recent registrants who have died, the Elections division uses Department of Health death records to match on name, date of birth, and the last four digits of one's Social Security number, which ensures a high confidence match that the purged voter is indeed recently deceased.[15] Furthermore, the state participates in the Electronic Registration Information Center, a consortium of 30 states that share voter file information in order to eliminate extraneous voter records by identifying cross-state movers, in-state voter updates and duplicates, and the deceased.

Therefore, after obtaining a dead person's ballot and forging their signature successfully, a fraudulent actor would then need to hope that the state has accidentally missed the death

[14]See for example `https://www-cdn.law.stanford.edu/wp-content/uploads/2020/04/SLS_Signature_Verification_Report-5-15-20-FINAL.pdf`.

[15]Some older voter records lack the last four SSN digits; for these, the Elections division examines possible matches based off of the decedent's name and date of birth.

record of the individual associated with the ballot—otherwise, when the ballot is received, it will be flagged as belonging to a deceased individual and will not be counted.[16] In addition, an audit process will begin, and if it is determined that the ballot was cast fraudulently, a criminal investigation could follow. If a person is found guilty of fraudulently casting a ballot in this manner, it is a class C felony in the state of Washington punishable by up to 5 years in prison.

Given these countermeasures, it would seem difficult to carry off organized fraud at the scale required to alter election outcomes meaningfully. Finding a large enough number of ballots, forging the signatures, and evading the validation countermeasures seem like daunting challenges to a would-be fraudster. It is also unlikely that a large number of people cast ballots in the names of their dead relatives. Since dead people are regularly removed from the roles and their ballots are not counted if the election official is certain that the person died before ballots went out, there are only a small number of circumstances where people could plausibly cast a ballot in the name of a family member. Given the large felony penalty if a person is caught, and the dim prospects for changing an election outcome through the fraudulent use of a dead person's ballot, it is perhaps not surprising that existing research concludes this kind of fraud is rare.

5 Using Death Records and the Voter File

To assess the rate at which dead people's ballots are counted in Washington elections, we gathered official death records from 1990 onwards from the Department of Health Death Index in the Washington State Digital Archives. For each death record, we have a unique reference number, first name, middle initial, last name, date of death, county of residence, and age at death.

[16] In Washington, a ballot cast by an individual who subsequently dies in the period between voting and election day is considered a valid vote.

We then use the complete voter file and vote history files from the Washington Secretary of State. The voter files contain records of people who voted from 2011 to 2018, with information including a unique state voter ID, first name, middle name, last name, and date of birth. The vote history files contain the state voter ID, county, and election for each counted ballot.

We focus on data from 2011 through 2018. Although we do have access to data from 2006 up through 2011 as well, we do not use this data for two related reasons. First, the state of Washington did not have statewide universal vote-by-mail until 2011. Second, in communications with the Washington Secretary of State's office, we were made aware of potential issues in the data for the period prior to full adoption of universal vote-by-mail. Consistent with the idea that the high-quality data starts in 2011, we found that the numeric ID in the voter file meant to uniquely link voters to their voter histories—critical for our analysis—are not fully unique until 2011. We are therefore unable to distinguish genuine potential fraud cases from database error in this earlier period. As such, we have removed this period from the analysis, and we report counts of potential fraud and their rate among all voters using only 2011-2018 data.

We use all federal races in our analysis, comprising all statewide primary and general elections during the time period we study.

6 Main Evidence: Minimal Fraud in Washington

We begin by presenting our most credible evidence on the rate of fraud related to deceased voters' ballots in Washington state.

We start by defining a "name match" as any death record that links to a counted ballot in the voter file under the following conditions:

1. Reflects a death that occurred more than 90 days prior to the election;
2. The death record and the voter record match exactly on first name, middle name, and last name;

Table 1 – Finding Potential Cases of Voter Fraud Related to the Casting of Dead People's Mail-in Ballots, Washington State, 2011–2018

	All Voters		Name Matches		Plausible Cases
# Cases	4,550,505	$\longrightarrow$	907	$\longrightarrow$	14 [11, 210]
Rate	–		0.000199		0.000003
Variables Used To Link		Last Name First Name Middle Init County Age Gender		DOB	

Unit of observation is a distinct voter. Manski bounds in square brackets.

3. The death record and the voter record match exactly on age (in years);
4. The death record and the voter record match exactly on county of residence;
5. The death record and the voter record match exactly on gender.

We restrict to deaths occurring more than 90 days prior to a given counted vote because, in the state of Washington, a ballot mailed in by a living voter who then dies prior to the election is a valid vote. Because voters can receive their mail-in ballots up to 90 days before the election,[17] any link we find between a deceased voter and a counted vote within 90 days of the election is likely to be legitimate.

After matching on full name, age, county, and gender, as Table 1 shows, we are left with 907 total name matches, out of roughly 4.5 million voters. Most of these are not fraud. Within a large county, a non-trivial number of people share the same name, age, and gender. As such, the vast majority of these possible cases actually reflect two different people, one of whom died, the other of whom cast a perfectly valid ballot. The state of Washington is able to rule out many of these cases because they have access to additional data, like dates of birth and the last four digits of Social Security numbers, that are not present in the public version of the death records.

[17] Confirmed in personal correspondence with the Washington Secretary of State's office.

To overcome this issue, we next collect data on dates of birth for these possible links, using online records. We conducted a manual search using FindAGrave.com, FamilySearch.org,[18] and other online sources[19] to look for obituaries that provide a date of birth for the deceased. When we find that a voter with a counted vote in the voter file shares the same date of birth as the one we find through this search process, we count that as a positive match. If we find that the two individuals have different dates of birth, we count that as a confirmed negative match. When we cannot find a date of birth for the death record, we leave this as unconfirmed.

After this process, we find 11 confirmed matches of potential fraud. We rule out 697 of the cases. This leaves us with 199 cases we cannot rule out. To produce a single estimate of the number of potentially fraudulent cases for this group, we use the rate of confirmed matches from the cases we are able to rule on decisively. This rate is 0.016, i.e., 11 confirmed matches divided by the 11 confirmed matches plus the 697 confirmed non-matches. Multiplying this rate by 199 gives us an estimated 3 additional plausible cases for the unconfirmed set, leading us to estimate a total of 14 plausible cases. This constitutes a rate of this form of fraud of roughly 0.0003%.

These estimated 14 cases, including the 11 confirmed matches, are still not necessarily cases of fraud—they may indicate clerical errors, or cases in which two individuals shared the same name and birth date—but they are the most plausible cases that exist in the data. Obviously, they constitute a tiny fraction of all voters in our sample, far too small to affect any major election outcome.

Next, we perform a Manski bounding exercise using the uncertain cases, by imagining that they are all false positives or false negatives. This means that the bottom bound is the total number of confirmed matches (11) and the top bound is the total number of

[18] FamilySearch.org has all records from the Social Security Death Index from 1962 until February 28, 2014, and the Social Security Death Index as made available by FamilySearch.org is one of our most common sources for the birthdates of people who died before March 2014.

[19] The most common other sources for obituaries are Legacy.com, DignityMemorial.com, local funeral home websites, and archives of local newspapers.

confirmed matches plus the number of cases we cannot rule out (11 + 199). These bounds are given in square brackets in the table. If we assume that all of the unconfirmed cases are actual matches, we arrive at 210 matches from 2011 through 2018. This is clearly a large overestimate of the total number of matches, but it is still a very small rate of possible fraud, a rate of roughly 0.0005%.

Our numbers are consistent with prior estimates of the rate of fraud substantiated by authorities. Drawing on data from the Heritage Foundation data which uses official court investigations into all types of fraud by mail, not just dead voters, the Brookings Institution estimates that of 7 out of 10,605,749 votes in Washington between 2004 and 2010 were cast fraudulently.[20] Local government officials report similar numbers as well, with Marianne Nichols, Pend Oreille Auditor, saying "I have not seen any new fraud since moving to the system... in my 14 years, we have only had two fraud cases, and one called to inform and apologize."[21]

Put together, in our most straightforward approach, we find that there are extremely few cases of dead people's ballots being counted as votes in Washington state elections.

7 Looking for Additional Cases of Fraud

Our baseline estimates reveal extraordinarily low rates of potential fraud related to deceased individuals' ballots in Washington. Still, our analysis is limited in four potentially important respects: 1) ballots may be illegally completed and cast in the names of people who died within 90 days of an election, 2) a person's name may be spelled differently in the death and voter databases, 3) someone may have illegally used the ballot of a registered voter from Washington who died outside of the state, and 4) a person may be listed as a resident of one county in the death records and another in the voter registration database. We address each of these concerns and confirm that this form of fraud is rare.

[20] See https://www.brookings.edu/articles/low-rates-of-fraud-in-vote-by-mail-states-show-the-benefits-outweigh-the-risks/.

[21] See https://wsac.org/election-security-how-votes-are-counted/.

7.1 Deaths Shortly Before an Election

One weakness of our main analysis is that we cannot count ballots cast fraudulently in the names of people who died fewer than 90 days before an election. We remove these cases from our main analysis because, according to staff in the Washington Secretary of State's office, a person could legitimately request a ballot and submit it as early as 90 days before the election. This means that any ballot received 90 days before the election or later could be presumed to be legitimate. But, if Washington is effective at removing deceased people from the registered voter list, people who die around the time ballots are mailed or later may present the greatest opportunity for fraud—the family member, housemate, or neighbor of a deceased individual may be more likely to still receive the ballot if the death occurs close to the election, and this gives someone the opportunity to complete and cast the ballot of the deceased individual.

We do not have direct evidence for whether ballots cast in the names of people who died fewer than 90 days before an election were cast fraudulently or legitimately. Instead, we present evidence that most ballots cast in the names of people who died fewer than 90 days before the election are cast prior to the time of death, suggesting that most are cast legitimately. We start with the assumption that ballots received over a week after an individual dies were likely mailed in by someone else and those received before that are more likely to have been mailed by the decedent.[22] We then collect data on the dates that ballots are received by Washington state officials, available for elections beginning in 2014, and we ask how many votes cast in the names of people who died shortly before an election were received by the government a week or more after their death.[23] We find that, among the

[22] We use one week as a benchmark because, according to Island County, Washington, the USPS recommends mailing ballots a week early (see `https://islandcountywa.gov/FAQ.aspx?QID=217`). Also, ballots must be postmarked by election day to be counted, so there is a limit to how long after a death a ballot could be received (see `https://www2.sos.wa.gov/elections/faq_vote_by_mail.aspx`.

[23] Washington does not have traditional polling places, but citizens can vote in person at an in-person vote center if they wish (see `https://www2.sos.wa.gov/elections/faq_vote_by_mail.aspx`). As far as we can tell, these votes are not recorded in the data on when ballots were received and processed by each county.

Table 2 – Finding Potential Cases of Voter Fraud Among Deaths Fewer than 90 Days before Election, Washington State, 2014–2017

	Deaths		Votes		Late Votes
# Cases	75,449	$\longrightarrow$	985 [359, 1,041]	$\longrightarrow$	54 [15, 75]
Rate	–		0.013058		0.000717
Limiting Criteria		Matched On Last Name First Name Middle Init County Age Gender DOB		Ballot Received Over 7 Days After Death	

Unit of observation is a deceased person. Manski bounds in square brackets.

relatively small number of ballots cast in the names of people who died shortly before an election, very few are received a week or more after death.

Table 2 presents our results. We estimate that, out of 75,449 deaths occurring fewer than 90 days before an election, ballots were cast in the names of approximately 985 decedents. Out of those 985 ballots, we estimate that the state received approximately 54 ballots (roughly 5%) seven days after the date of death. These 54 potential cases of fraud implicate only a very small fraction (0.07%) of all deaths within 90 days of the election. Across the six elections included in this analysis, 11,481,671 ballots were cast, making the 54 potential cases of fraud an extremely low rate of 0.0005% of all ballots.

As in our main analysis, we provide a range of potential values because we are only able to find birth dates for a subset of the death records in our analysis on FindAGrave.com. In braces below our main estimates we provide Manski bounds which capture the two extreme possibilities that either all of the cases where we cannot find a birth date are correct matches or that none of them are. Put together, Table 2 is consistent with a very low rate of fraudulent voting in the name of people who die close to Election Day.

It is important to note that Table 2 likely represents an overestimate of fraud. Washington law permits anyone to return a ballot on behalf of any other person.[24] This means that, as long as the decedent legally completed the ballot, they are permitted to give that ballot to someone else who mails it out later even after their death.

As additional check, we present evidence in the online appendix that the ballots of people who die many days before the election are on average received noticeably earlier than the ballots of those who die one or two days before the election. This suggests that most of the ballots of people who die shortly before the election could have been legitimately completed and even returned by the decedent.

Put together, these two pieces of evidence suggest that very few ballots are cast illegally in the names of people who die shortly before the election.

7.2 Name Spelling Differences between Death and Voter Records

Our main analysis relies on consistent name spelling in the voter records and death records. We expect this will generally be the case because both are government forms that request the same information. Still, we may under count the number of potential cases of fraud if the record linking procedure we used is overly conservative. For instance, there could be cases in which someone's full name differs in the two databases due to differences in middle names, such as if one record includes only a middle initial, or if one record has no middle name while the other does. Misspellings or alternative spellings of the first name are another potential source of false negatives.

To see if there are additional cases of fraud we might be missing, we conduct an automated evaluation of a much larger pool of possible cases. Our expanded pool of possible cases includes all instances where the age, county, gender, and first and last name of a voter match a death record but the middle initials in both records do not match or are missing. We also loosen the match on first name to permit differences in spelling by defining a match

[24] See `https://www.ncsl.org/elections-and-campaigns/table-10-ballot-collection-laws` and `https://www.whatcomcounty.us/4112/Elections-FAQ`.

for the first name as any case in which the Jaro-Winkler string distance between the first name in the two records is below 0.1. By loosening the match conditions in these ways, we significantly increase the likelihood of false positives, but it allows us to assess whether there many additional potential cases we've missed.

We conduct this automated evaluation by scraping FindAGrave.com and FamilySearch.org,[25] the two sources we most often used to confirm or disconfirm a case manually.

Casting this wider net, we find a total of 25 cases where we verify matching birth dates, from among 11,165 possible cases based on our fuzzy name match along with exact matches on county, age, and gender. Because these rely on weaker name-matching conditions, the likelihood of these being cases of two different people with similar names and the same birth date is higher than in our previous analysis. But the fact that we find only 25 potential cases even with this potentially high rate of false positives is informative.

Of the 11,165 name matches under this procedure, we are unable to find date of birth information for 6,418 cases. Using the same technique as before to impute a rate of true matches for this group, we arrive at an estimate of 59 total plausible matches.[26] We suspect many of these may be false positives, but even if these were all fraudulent cases, it is a very small number of voters among 4.5 million individuals we study.

7.3 Out-of-State Deaths for Washington Residents

Our analysis matches Washington death records with Washington voter records. If a registered voter dies outside of Washington, we would not observe their death and identify them as a potential case of fraud. How often do Washington residents die out of state? And should we expect fraud to be more likely in these cases?

[25] Our scraper of FamilySearch.org collects their cleaned and processed version of the Social Security Death Index.

[26] Since our automated procedure for validating links leaves many more cases unconfirmed, we evaluate the sensitivity of our estimate of plausible matches to alternative imputation strategies in the appendix. Our estimates of the rate of plausible cases is similar after adjusting for a large number of potential observable differences between confirmed and unconfirmed potential cases.

There are good reasons to expect that very few ballots are cast fraudulently in the names of Washington who die outside of the state. Only 2% of Washington residents die outside of the state according to the Washington State Department of Health's analysis of their death records and similar nationwide records from the National Center for Health Statistics.[27] This means that fraud would need to be 50 times as likely among out-of-state deaths just to double the number of cases of fraud we identify, leaving it still at a very low rate. But, in cases where a Washington resident dies elsewhere, Washington works with the Electronic Registration Information Center (ERIC) to identify people who should be removed from the voter roles.[28] The Social Security Administration's records are incomplete, so this process may not capture all out-of-state deaths. Still, the state should identify most out-of-state deaths and remove most of these voters, making it unlikely that fraud is much more commonly conducted in the names of people who died out of state than those who died in state. Given this, we expect the amount of fraud through this channel is substantially smaller than the fraud through the channels we can study in our main analysis.

7.4 Mismatches between County of Residence in Death and Voter Records

In our main analysis, we focus on matches where the death and voter records report the same county of residence. This could understate the rate of fraud if county of residence is recorded incorrectly in either database.

There are two reasons to expect that few ballots are cast fraudulently when the county of residence does not match in the death and voter records. First, Washington often uses the last four digits of a decedent's social security number to remove them from the list of registered voters meaning that the state should be able to identify cases where county of residence doesn't match in the two databases. Second, according to the state, the death

[27] See `https://doh.wa.gov/sites/default/files/2023-09/422-155-WADeathFileDataUsersGuide2022.pdf`.

[28] See `https://ericstates.org/security/`.

records typically record the same county of residence for a person at death and when they have a child.[29] Since residential mobility is low and declining,[30] this provides additional evidence that county of residence is recorded properly. Put together, we expect that this is not a major channel for fraud over and above the fraud we could identify in our main analysis.

8 Conclusion

With the massive increase in mail voting since 2020, the claim that fraudulent actors steal dead people's ballots and vote with them has become more widespread and salient. This became a central issue in contesting the 2020 election with President Trump and his supporters claiming that thousands of ballots had been cast in the name of dead voters across Georgia, Michigan, and Pennsylvania.[31] And these claims have persisted through the 2022 midterms. These claims are especially interesting because they are directly testable—who votes and who dies are both matters of public record in America, so we can see how many votes are cast in the names of dead people.

Using public records, we have found that dead people's ballots were rarely voted fraudulently and subsequently counted as valid votes in the state of Washington between 2011 and 2018. These results are likely to extend to other contexts where states take similar precautions to those taken in Washington.

[29] https://doh.wa.gov/sites/default/files/legacy/Documents/5300/TechnicalNotes.pdf

[30] See https://www.census.gov/library/visualizations/time-series/demo/historic.html.

[31] See https://www.washingtonpost.com/politics/trump-raffensperger-call-transcript-georgia-vote/2021/01/03/2768e0cc-4ddd-11eb-83e3-322644d82356_story.html and https://x.com/realDonaldTrump/status/1329459995893764102.

References

Alvarez, R Michael, Thad E Hall, and Susan D Hyde. 2009. *Election Fraud: Detecting and Deterring Electoral Manipulation*. Brookings Institution Press.

Bryant, Lisa A. 2020. "Seeing Is Believing: An Experiment on Absentee Ballots and Voter Confidence: Part of Special Symposium on Election Sciences." *American Politics Research* 48(6).

Cottrell, David, Michael C Herron, and Sean J Westwood. 2018. "An Exploration of Donald Trump's Allegations of Massive Voter Fraud in the 2016 General Election." *Electoral Studies* 51: 123–142.

Gerber, Alan S., Gregory A. Huber, and Seth A. Hill. 2013. "Identifying the Effect of All-Mail Elections on Turnout: Staggered Reform in the Evergreen State." *Political Science Research and Methods* 1(1): 91–116.

Goel, Sharad, Marc Meredith, Michael Morse, David Rothschild, and Houshmand Shirani-Mehr. 2020. "One Person, One Vote: Estimating the Prevalence of Double Voting in US Presidential Elections." *American Political Science Review* 114(2): 456–469.

Hood III, MV, and William Gillespie. 2012. "They Just Do Not Vote Like They Used To: A Methodology to Empirically Assess Election Fraud." *Social Science Quarterly* 93(1): 76–94.

Levitt, Justin. 2007. "The Truth About Voter Fraud." Working Paper. `https://www.brennancenter.org/sites/default/files/legacy/The%20Truth%20About%20Voter%20Fraud.pdf`.

Lockhart, Mackenzie, Seth J Hill, Jennifer Merolla, Mindy Romero, and Thad Kousser. 2020. "America's electorate is increasingly polarized along partisan lines about voting by mail during the COVID-19 crisis." *Proceedings of the National Academy of Sciences of the United States of America* 117(40): 24640–24642.

Mebane, Walter. 2008. "Election Forensics: The Second-Digit Benford's Law Test and Recent American Presidential Elections." *Election Fraud: Detecting and Deterring Electoral Manipulation* pp. 162–181.

Minnite, Lorraine C. 2010. *The Myth of Voter Fraud*. Ithaca, NY: Cornell University Press.

Thompson, Daniel M., Jennifer A. Wu, Jesse Yoder, and Andrew B. Hall. 2020. "Universal Vote-by-mail Has No Impact on Partisan Turnout or Vote Share." *Proceedings of the National Academy of Sciences* 117(25): 14052–14056.

Washington State Legislature. 2023*a*. "Revised Code of Washington: RCW 29A.08.510.".

Washington State Legislature. 2023*b*. "Revised Code of Washington: RCW 29A.40.091.".

Online Appendix

Intended for online publication only.

Contents

S.1 Sensitivity of Potential Case Rate Calculation

Throughout the paper, we estimate the number of potential cases of fraud using the rate of positive cases as a share of cases we can confirm either way and multiplying this by the number of potential cases. This calculation assumes that the cases we cannot confirm have a similar number of positives as the cases we can confirm. We cannot directly confirm this assumption. Still, we can rule out that the cases we fail to confirm are clearly different from the cases we can confirm in ways that would make them much more likely to be positive if we could confirm them.

To assess the possibility that the unconfirmed cases are different in important, observable ways, we estimate the rate of positive cases after accounting for observable characteristics of the case that may relate to the likelihood that the case is positive. We use logistic regressions of a flag for positive cases on a set of covariates, and calculate the average predicted probability of a positive for each potential case including the cases we cannot confirm either way. In each regression, an observation is a potential link, meaning that voters can be linked to multiple death records and some are in this analysis.

Table S.1 reports our estimates. In column 1, we report the positivity rate using the simple approach we use in the paper. In our regression framework, this is equivalent to on constant-only regression—assuming that all cases have an equal probability of being positive regardless of their characteristics. In column 2, we report estimates after relaxing this assumption, instead calculating a probability that a case is positive for each match type. We categorize the matches into five categories: exact name match; first and last name match but middle initial is missing in both records; first and last name match but middle initial is missing in one record; first and last name match but middle initials are different; last name matches but first name is slightly different. This adjustment does not meaningfully change our estimate of the positivity rate.

Column 3 accounts for the population of the county in which the person lived and voted. Since we are more likely to find positive—probably false positive—cases in counties with many people, adjusting for the county population could change our expected positivity rate if the unconfirmed and confirmed cases came from different counties. In column four, we adjust for the commonness of the decedent's last name, suspecting that common last names also increase the rate of false positives. We find that both of these adjustments are not consequential.

In column 5, we adjust for the availability of Social Security Death Index (SSDI). People born prior to 1936 or who died after 2014 may not be listed in the SSDI. When we adjust for this, our positivity rate goes up modestly. While we cannot directly translate this estimate

Table S.1 – Sensitivity of Plausible Case Rate Calculation.

	Plausible Cases/Potential Cases				
	(1)	(2)	(3)	(4)	(5)
	0.0048	0.0047	0.0046	0.0047	0.0061
Controls					
Match Type Dummies	No	Yes	Yes	Yes	Yes
Log(Deaths in County)	No	No	Yes	Yes	Yes
Log(Last Name Freq in Death Records)	No	No	No	Yes	Yes
SSDI Records Availability Dummy	No	No	No	No	Yes

Each cell reports an estimate of the share of plausible links that would be potential links. Estimates are average predicted probabilities from logistic regressions. Each regression regresses a dummy variable for a potential case on covariates expected to predict potential cases. Regressions are estimated using cases where the scraper finds definitive evidence of a potential case or rules the case out. The share of plausible links is estimated by using the regression to extrapolate to the cases the automated searching algorithm cannot classify.

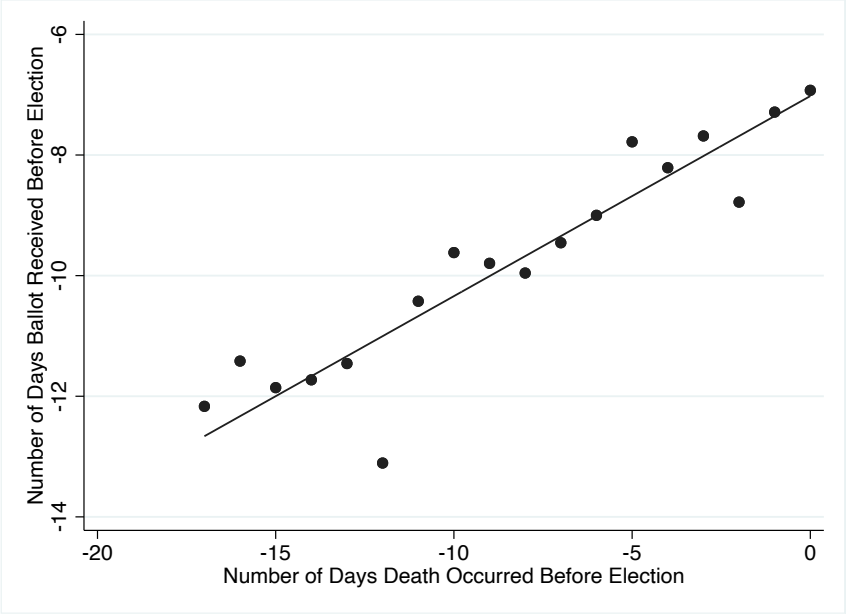
into a number of voters, we can approximate how these differences would change our main point estimate by inflating the rate we use for imputation by $\frac{0.0061}{0.0048}$ from columns 5 and 1. This would increase our point estimate from 53 to 68.

In total, Table S.1 tells us that our simple method of estimating the rate of plausible cases produces similar results as other methods that explicitly adjust for differences between the cases we can confirm and those we cannot.

S.2 Additional Results for Deaths Close to Election Day

If most ballots cast in the names of people who die shortly before an election are legitimate, then Washington should also receive the ballots of people who die earlier before those who die later. We check this using all deaths within 18 days of an election that match to a voter record.[32] We limit our analysis to death records that match a voter record on first name, last name, middle initial, county of residence, age, and gender. Figure S.1 confirms that ballots cast in the name of people who die two weeks before the election are received by the county much earlier on average than those cast by people who die closer to election day.

Figure S.1 – Ballots of People Who Die Earlier are Received Earlier. The horizontal axis plots the number days before the election that an individual dies. Each point represents the average of people who died a certain number of days before an election. The vertical axis plots the average number of days before the election that ballots are received from individuals who die on that day.



[32] We limit this analysis to the final 18 days before Election Day because that is the day that most voters begin to receive their ballots, and voting rates are very low before that.