

2021 NPCR MONTANA SUCCESS STORY

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The Statewide Voter File Proves Useful to Obtain Physical Address for Cases with Only P.O. Box Reported

National Program of Cancer Registries SUCCESS STORY

SUMMARY

Physical address is essential to correctly geocode and assign cancer cases to the correct census tract for sub-county analysis. However, many rural communities do not get mail delivery at their home and instead use a PO Box for mail. This has led to 15% of cases reported to the Montana Central Tumor Registry (MCTR) to be reported with only a PO Box for address at diagnosis and no physical address. The publicly available statewide voter file contains both the mailing and physical address for all registered voters in Montana. Linking cancer cases to the statewide voter file resulted in 4,311 cancer cases diagnosed from 2008 to 2019 to have a physical address added where they previously only had a PO Box. The increased proportion of cases with a valid physical address resulted in increased precision for geocoding so that 91% of cases diagnosed in 2019 were able to be geocoded to the street level or better.

CHALLENGE

Physical address is a required field for reporting cases of cancer in Montana. However, many rural areas don't have mail delivery at their home and instead use a PO Box for mail. Hospitals and other cancer reporters may only have the mailing address in these cases. This resulted in about 15% of cancer cases being reported to the tumor registry with only a PO Box and no physical address. Physical address is used to geocode cases and assign them to the appropriate census tract. PO Box only cases are assigned to the center of their zip code when geocoded and have a high likelihood of being classified to the wrong census tract.

Additionally, the zip code of a person's PO Box is not necessarily the same as the zip code where they live. Census tract designation is useful for analysis of sub-county areas in response to cancer cluster concerns raised by the public or in response to known environmental contamination. One such investigation revealed a census tract that appeared to have significantly higher incidence of cancer but upon further investigation it was clear that all the excess cancer cases were assigned to the census tract based on zip code alone. The higher incidence was only a result of census tract misclassification.

SOLUTION

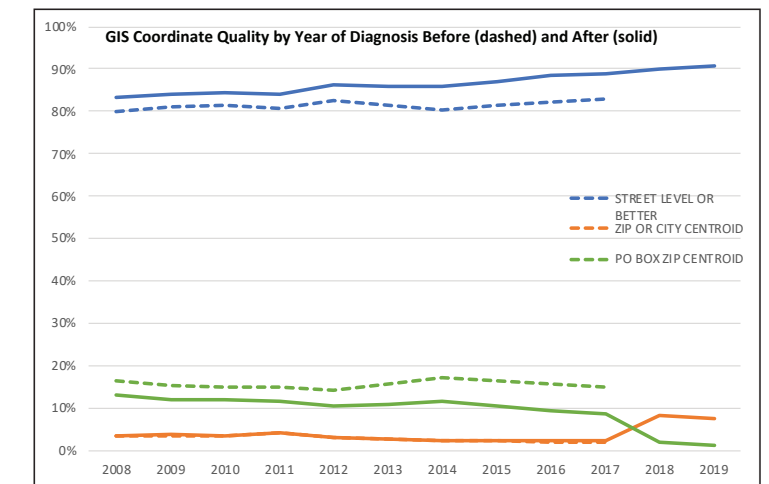
The Montana Secretary of State's office maintains a database of all registered voters in Montana which includes the voter's name, date of birth, mailing address, physical address, and voter eligible date (the date when that person is eligible to vote at the given physical address). This data, the statewide voter file, is publicly available for purchase. The MCTR had some unspent funds due to travel cancellations through 2020 and decided to purchase the statewide voter file and assess its usefulness to obtain physical address for cases that were reported with only a PO Box for address at diagnosis. MatchPro software was used to match all cancer cases reported to the MCTR as of November 2, 2020, and diagnosed from 2008 to 2019. Cases were matched to voters based on first, middle, and last name and full date of birth using the default MatchPro settings for cut off values and blocking. Cases with only a partial match of first name, last name, or date of birth were manually reviewed to weed out false positive matches. If only one of those three variables didn't match exactly AND the mismatched variable was close (i.e., only one digit difference in the date or a common nickname for the first name listed in other file) than the case was considered a true match.

As the voter file provides current address at the time of download and does not provide address history, the linkage needed to not only assess whether it was linked to the correct person but to also determine whether the person lived at that address at the time of their cancer diagnosis. All matching cases with only a PO Box for address at diagnosis or with GIS coordinate quality of 6 or higher (zip code centroid or less precise) were manually reviewed to assess whether the mailing address in the voter file matched the reported address in the tumor registry. If the mailing address wasn't at least within the same town the case was eliminated, then cases with matching mailing addresses were assessed to compare date of diagnosis to the voter eligible date. If the voter eligible date was prior to their date of diagnosis their physical address in the voter file was imported into the registry. This ensured that the case must have been eligible to vote at the physical address in the voter file before they were diagnosed, and they had not registered to vote at a different address up until the time of the linkage.

RESULTS

Linkage with the statewide voter file resulted in 4,311 cases having a physical address added to their record where there was previously only a PO Box for address at diagnosis. The proportion of PO Box only cases that were able to be matched increased as year of diagnosis became more recent. About 20% of PO Box only cases diagnosed in 2008 to 2011 had a physical address added, while over half (54%) of PO Box only cases diagnosed in 2019 were able to be linked. The additional physical addresses led to a significant improvement in the GIS coordinate quality for all diagnosis years and the magnitude of the improvement increased as the year of diagnosis became more recent (Figure). Ninety-one percent of cases diagnosed in 2019 were able to be geocoded to the street level or more precisely. There was a corresponding decrease in the proportion of cases geocoded to the PO Box zip centroid, less

than 2% of cases diagnosed in 2018 and 2019. The proportion of cases with a physical address that were still geocoded to the centroid of their zip code did not change for diagnosis years 2008 to 2017. However, there was an increase in the proportion of cases geocoded to the zip code centroid diagnosed in 2018 and 2019 indicating that some of the physical address imported from the voter file could not be geocoded precisely.



SUSTAINING SUCCESS

MCTR will continue linking to the statewide voter file annually. MCTR will also work with Alias tables and reviewing uncertain matching addresses to improve the precision of non-standard physical addresses.

REGISTRY CONTACT INFORMATION

406-444-2832

<https://dphhs.mt.gov/publichealth/cancer/tumorregistry>



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