

# 2021 NPCR NORTH DAKOTA SUCCESS STORY

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## North Dakota Cancer Data Mapping by Sub-County Level

### National Program of Cancer Registries SUCCESS STORY

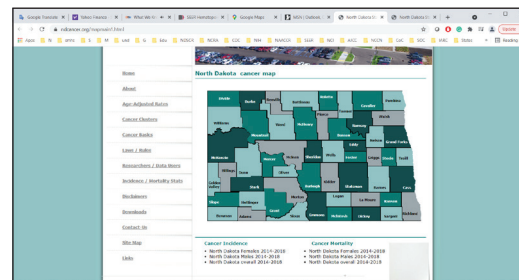
#### SUMMARY

The North Dakota Statewide Cancer Registry (NDSCR) reports the ND cancer incidence and mortality rates annually by gender and county level. Can this be done at the sub-county level, which is a small territorial division within a county such as a census tract or census block level, while still ensuring that patient confidentiality is protected, and data is reliable.

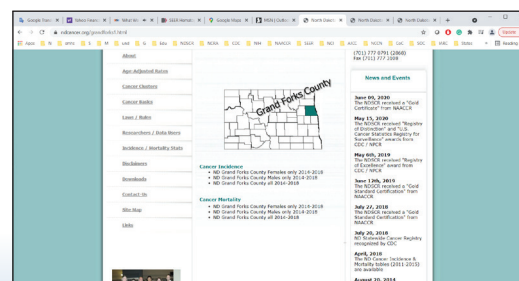
The NDSCR, along with 21 NPCR registries, collaborated with the "Sub-County Cancer Data" pilot project conducted by CDC's Division of Cancer Prevention and Control (DCPC) and the National Environmental Public Health (NEPH) Tracking Program. We believe local data such as sub-county data can highlight local variation, allow for a better understanding of environmental health processes and impacts, improve surveillance, and target interventions – all while ensuring patient confidentiality and data stability. At the end of the project, the project team was able to provide recommendations for the standard Nationally Consistent Data & Measures (NCDMs) for the spatial and temporal data aggregations for cancer display.

#### CHALLENGE

North Dakota is a small state with a population of 779,094 (2020). Reporting cancer data at the census tract-level or sub-county level has been a challenge as it can easily create data reliability and patient confidentiality issues. Previously, the NDSCR only provided the Cancer Incidence and Mortality data at the gender and county level (see below):

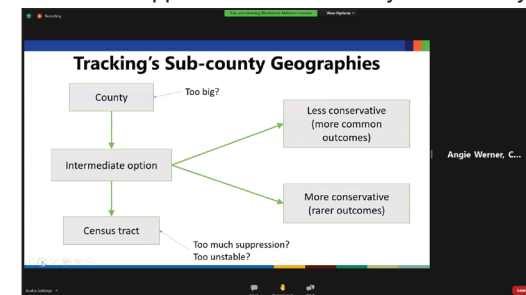


County	Incidence	Mortality
Adams	1.0	0.0
Barnes	1.0	0.0
Benson	1.0	0.0
Burke	1.0	0.0
Cass	1.0	0.0
Cavalier	1.0	0.0
Chapman	1.0	0.0
Chisago	1.0	0.0
Clark	1.0	0.0
Clay	1.0	0.0
Collins	1.0	0.0
Grand Forks	1.0	0.0
Grant	1.0	0.0
Hazen	1.0	0.0
Healy	1.0	0.0
Hidalguito	1.0	0.0
Jackson	1.0	0.0
Kimberly	1.0	0.0
Laurel	1.0	0.0
McLean	1.0	0.0
McIntosh	1.0	0.0
Minnehaha	1.0	0.0
Mountrail	1.0	0.0
North Dakota	1.0	0.0
Oliver	1.0	0.0
Rolette	1.0	0.0
Sargent	1.0	0.0
Shannon	1.0	0.0
Sioux	1.0	0.0
Sioux Falls	1.0	0.0
Steele	1.0	0.0
Towner	1.0	0.0
Walton	1.0	0.0
Ward	1.0	0.0
Wells	1.0	0.0
Wichita	1.0	0.0
Williston	1.0	0.0
Wynne	1.0	0.0
Yankton	1.0	0.0



( <https://ndcancer.org/mapmain1.html> )

However, small area data such as sub-county data has its advantages: it can highlight local variation, allow for a better understanding of environmental health processes and impacts, improve surveillance, and target interventions. But tracking the sub-county geographies and finding the correct balance between too much or too little suppression has been an unsolved task especially for a small state like North Dakota. Challenges include unstable statistics and therefore will be suppressed if the case counts are fewer than 10 cases – due to data reliability and patient confidentiality concerns. So, to find a balance that maximizes the number of geographic units and minimizes suppression and instability is necessary.



(Angie Werner: "Sub- County Cancer DVP\_Webinar.pdf")

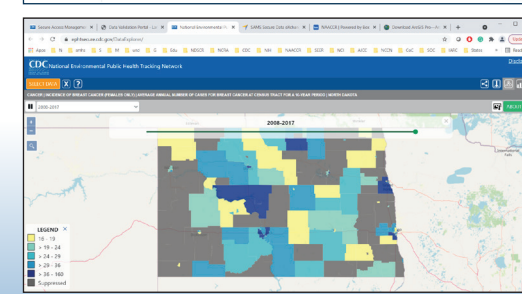
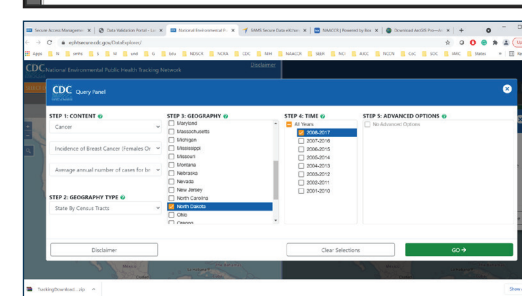
#### SOLUTION

In 2019, CDC's Division of Cancer Prevention and Control (DCPC) and the National Environmental Public Health (NEPH) Tracking Program conducted the "Sub-County Cancer Data" pilot project. The NDSCR participated in this project and worked on finding the best data level to display ND cancer data. The ND data are already geocoded to the census tract level, meaning the address information has been converted into geographic coordinates (latitude, longitude, and Census Tract value), so the NDSCR data meets the requirement for participation.

For this project, CDC provides each registry with information on the standardized sub-county geographies and guidance on how to test these geographies with cancer data. Each participating registry provided their cancer data with census tract information and tested various population thresholds to see how we could maximize the number of geographic units

(i.e., have finer resolution data) and minimize suppression and instability. After many meetings and discussions, the project team came up with the recommendations for the standard Nationally Consistent Data & Measures (NCDMs) on which population thresholds were used for aggregation based on the census tract-level median case count for the selected cancer sites (see table below). This aggregated dataset can be mapped to display local, focused cancer data. The table and map below are examples that display ND cancer data at the sub-county level. These measures can be applied across the nation.

Cancer Type	Census Tract	5k aggregation	20k aggregation
Lung Cancer	Not feasible to display	5-year period	5-year period
Lung Cancer Female	Not feasible to display	5-year period	5-year period
Lung Cancer Male	Not feasible to display	5-year period	5-year period
Prostate Cancer	100-Year period	5-year period	5-year period
Colorectal Cancer	100-Year period	5-year period	5-year period
Melanoma	Not feasible to display	5-year period	5-year period
Bladder and Hill Cancer	Not feasible to display	Not feasible to display	5-year period



[The original source of the data and maps above are from CDC and the National Environmental Public Health Tracking Network. (NEPHNTN). Web. Accessed: 05/03/2021. [www.cdc.gov/ephrtracking/](https://www.cdc.gov/ephrtracking/)]

#### RESULTS

Through participating in this project, the NDSCR has helped to test displaying cancer data at the sub-county level while still ensuring patient confidentiality and data stability. It can reliably map the ND cancer data at the sub-county level based on the recommendation of "standard spatial and temporal aggregations for display" for the future. It may increase the availability and accessibility of sub-county data to investigate organ specific cancer statistics and extend the use of the central cancer registry.

#### SUSTAINING SUCCESS

The NDSCR will continue to support cancer data usage projects, such as these kinds of collaborative projects, and to provide ND cancer data for research.

#### REGISTRY CONTACT INFORMATION

701-777-0791 (Ext. 2868)

<https://ndcancer.org/index.html>



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention