

Merrimack Kidney Cancer Study - Summary

In a 2023 report responding to community concerns about environmental toxins, the New Hampshire Department of Health and Human Services (NH DHHS) reported more kidney cancers than expected in the town of Merrimack during 2013-2018. During 2024-2025, NH DHHS and Dartmouth College worked together to examine kidney cancer rates across additional years and to determine if it would be possible to do a larger study in the future to discover the cause.

Using twenty-seven years of recently updated cancer registry data, the study team confirmed that the town of Merrimack has higher numbers of kidney cancer cases than expected. There is also a possible excess of kidney cancers in the city of Manchester.

The study team talked to community members, analyzed cancer data, and gathered information from New Hampshire residents. The goals were to lay the groundwork for a future, large-scale study to find the cause of the observed excess of kidney cancer and to prevent kidney cancer in the future. Here is a short summary of the findings. A detailed report is available on the New Hampshire State Cancer Registry website at

<http://bit.ly/4n9nW1R>



Listening to our Community

WHY DID WE DO THIS?

- To understand in detail the community's concerns about kidney cancer and the environment in the Merrimack area.
- To enable community members to have a say in the direction of a future study.

WHAT DID WE DO?

- Formed a community advisory board of seven local residents to help guide the study team.
- Invited residents to join discussion groups, so that the team could learn about their concerns and summarize their ideas in a report.

WHAT DID WE LEARN?

- The community is concerned about how the environment is affecting people's health.
- People would like a research study to be done and many are willing to take part, but some had concerns about sharing medical information.
- Community members desire information about kidney cancer prevention and how the environment may influence people's health.



Research Feasibility Survey

WHY DID WE DO THIS?

- To assess the best way to conduct a larger study, balancing community interest and available resources, the team used a state-wide online survey to learn whether people living in New Hampshire are open to taking part in a public health research study.
- To understand people's concerns about health and the environment in our state.

WHAT DID WE DO?

- Conducted a population survey and summarized the findings in a report.

WHAT DID WE LEARN?

- Participants (84%) would be willing to take part in a future research study, and would provide health and lifestyle information, drinking water, urine, or blood samples.
- Participants are concerned about the impacts of environmental pollution on health. Two-thirds of participants (64%) were worried about developing health problems in the future because of environmental toxin exposure.

What can people do to reduce the risk of kidney cancer?

The earlier a cancer is diagnosed, the better the chances of successful treatment. Some risk factors for kidney cancer are outside our control (e.g., genetic risks), but other risk factors can be managed:

- Stopping smoking is one of the most important ways to prevent kidney cancer.
- Exercise, healthy diet, and healthy weight can reduce kidney cancer risk.
- Check blood pressure regularly with a physician (and treat if it's high).
- Avoid exposures to known cancer-causing agents such as trichloroethylene (TCE), cadmium, or per- and polyfluoroalkyl substances (PFAS), also known as "forever chemicals." Some occupations involve these chemicals, so follow all recommended safety precautions to reduce exposure at work.
- Seek medical help promptly if symptoms such as blood in the urine, pain or a lump on one side of your back, or unusual symptoms of tiredness or weight loss occur.



Analysis of Cancer Registry Data

WHY DID WE DO THIS?

- To understand the patterns of kidney cancer in Merrimack, NH, and surrounding areas.
- To confirm the excess of kidney cancer, using updated cancer registry data.
- To determine what subtypes of kidney cancer might be responsible.

WHAT DID WE DO?

- Analyzed cancer registry data from 1995 to 2021.
- Worked with a pathologist to make sure that data from more than 25 years ago could be compared with more recent data.
- Analyzed the kidney cancer subtypes at different points in time and summarized the findings in a report.

WHAT DID WE LEARN?

- Found more kidney cancers overall than expected in Merrimack.
- Some kidney cancer subtypes were observed more often than expected (e.g., clear cell renal carcinomas and oncocytic tumors), while for renal pelvis cancer, the observed and expected number of cases were similar.
- The city of Manchester also had slightly more kidney cancers than expected.

To learn more, access the full report on the New Hampshire State Cancer Registry website at <http://bit.ly/4n9nW1R>



Pilot Study

WHY DID WE DO THIS?

- To show that people are willing to enroll and participate in a public health research study is a critical step toward conducting a larger, definitive study that would require more time and funding.
- Conducting a pilot study, even one that is too small to identify the causes of kidney cancer in the Merrimack region, helps researchers generate clearer ideas about potential risk factors for kidney cancer to explore in a future study.

WHAT DID WE DO?

- Enrolled 105 people and collected information about cancer risk factors.
- Collected blood samples from a subset of participants and sent them to a lab to measure environmental toxins.

WHAT DID WE LEARN?

- Residents completed the pilot study survey showing that the study methods can be scaled up for a larger study.
- It is feasible to collect biological samples, but more time is needed to work with participants on sample collection.
- The Dartmouth team can use the findings of the pilot study in a grant application to justify the need for a bigger study in the future through sponsors such as the National Institutes of Health (NIH).

Merrimack Kidney Cancer Study – Key Findings

- Kidney cancer rates in Merrimack, NH remain higher than expected. In Manchester, NH rates also seem higher than expected.
 - The reasons for higher rates are not yet clear.
 - Additional examination of environmental or lifestyle factors driving the higher rates are needed.
- Community members are generally willing to take part in research, including surveys, drinking water sampling, and blood tests, to help understand the causes of kidney cancer in southern New Hampshire.
 - There are challenges to conducting a larger study, including community concerns about sharing medical information with researchers and the need to obtain funding.
 - The proposed White House budget includes large cuts for scientific research through the National Institutes of Health (NIH), which may reduce the chances of securing funding for a future study.



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