




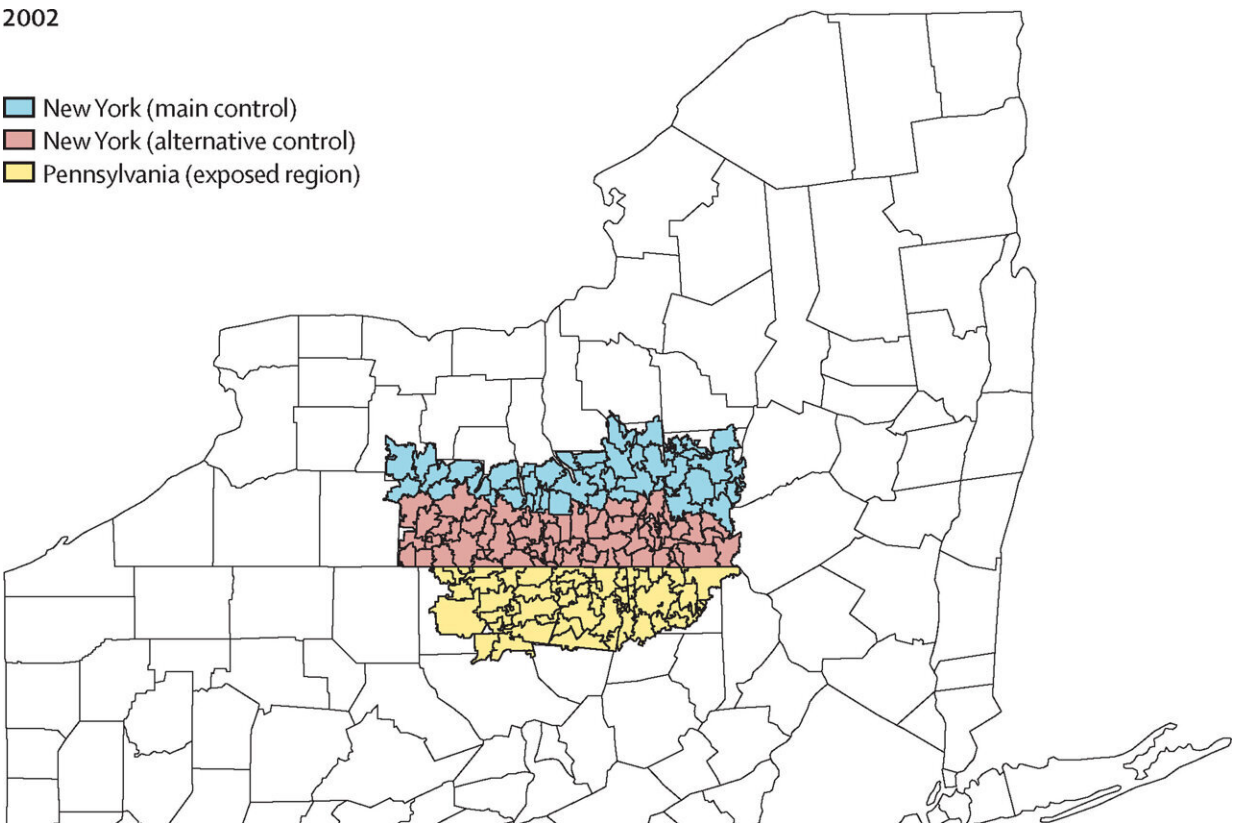
# Increased hospitalizations for heart attacks, heart failure seen in older adults living near fracking sites

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2002

-  New York (main control)
-  New York (alternative control)
-  Pennsylvania (exposed region)



UNGD wells by region, 2002 and 2015. Maps of Pennsylvania and New York show the locations of drilled UNGD wells (red dots) in Pennsylvania by the end of 2002 (one total well) and by Dec 31, 2015, the end of our study period (9596 total wells). The southernmost group of ZIP codes in Pennsylvania (yellow) were all exposed to UNGD activity and the 36 of these that started UNGD between 2008 and 2010 were included in the study. The two northern groups, labeled the

main (blue, further north) and alternative (red) control regions, were UNGD-free, due to a statewide ban on UNGD, although the alternate control might have experienced air pollution-related exposure due to proximity. Credit: *The Lancet Planetary Health* (2023). DOI: 10.1016/S2542-5196(23)00009-8

A new University of Chicago study examining Medicare claims found older adults living near fracking sites in Pennsylvania were more likely to be hospitalized for cardiovascular diseases than those who lived in nearby New York state, where fracking is banned. The research was published in *The Lancet Planetary Health*.

Prachi Sanghavi, Ph.D., Assistant Professor of Public Health Sciences at UChicago and senior author on the paper, said she first became interested in studying the potential [health](#) impacts of fracking in the early 2010s. This was during the peak of the unconventional natural gas development (UNGD) boom, colloquially known as "fracking."

"There was a lot of buzz about the environmental effects of UNGD, and several documentaries were produced on the subject," she said. "I do a lot of work with Medicare claims data, and I realized that we could use that approach to determine if there was a measurable effect on population health based on what the stories were suggesting."

Her team collected Medicare claims data for tens of thousands of patients generated between 2002 and 2015 in both northern Pennsylvania, which experienced a fracking boom, and next-door New York state, where UNGD was banned. They found an association between the development of new fracking sites and increased rates of hospitalization for [health conditions](#) such as [acute myocardial infarction](#), heart failure and ischemic heart disease.

"Although we can't point to one specific part of fracking operations as the culprit, folks living near fracking sites could be affected by exposure to things like air or [water pollution](#) that often come with fracking activity," said Kevin Trickey, first author on the study and a former research analyst in the Sanghavi lab.

"Our study connects nearby fracking activity to real, serious human health outcomes, suggesting it's not just a matter of economics or [environmental sustainability](#)—but that policymakers and residents alike should start prioritizing the health of citizens, whether drilling new wells or plugging old ones."

Researchers have previously found elevated levels of airborne hydrocarbons and other pollutants near fracking sites, but a clear relationship between those pollutants and negative health outcomes has not yet been established. While prior studies have indicated a likelihood of this connection, this study applies [statistical analysis](#) to economics data for causal inference analysis to more directly connect UNGD to specific negative health outcomes in older adults.

In the current study, the team determined there were an additional 11.8, 21.6 and 20.4 hospitalizations for acute myocardial infarction, [heart failure](#) and [ischemic heart disease](#), respectively, per 1,000 Medicare users than would be expected if there were no fracking in the area.

"We don't find strong associations easily in the world," Sanghavi said. "We've heard a lot of anecdotes, seen the documentaries, but it's usually very difficult to find the connection, even when it exists. Even in cases where an individual might have an experience that seems to have a direct relationship to something like fracking, that doesn't necessarily translate to a [population health](#) effect, and here we find that—yes, there is a measurable association with people's health."

The effects were not just limited to the initial phases of UNGD. The study found that the risk continued even after drilling ended, indicating that the health impacts could be connected to the byproducts of the regular functioning and production of the well.

The researchers say these results should be a call to action for communities and policy makers affected by fracking development. "This study provides additional evidence for those who think they may be experiencing exacerbated [health issues](#) as a result of [fracking](#) in their communities," Sanghavi said. "I hope that these results can help communities and governments—who have an interest in protecting people's health—by equipping them with more information for making an informed decision about UNGD."

"Natural gas is an important source of energy in our current infrastructure," she continued. "One could do a cost/benefit analysis and determine that the benefits of gas extraction outweigh the health effects on local populations. But who is bearing the cost of those decisions? The communities that are most affected by this should have all of the information and be a part of the conversation."

The study, "Hospitalizations for cardiovascular and respiratory disease among [older adults](#) living near unconventional [natural gas](#) development," was supported by the University of Chicago and Argonne National Laboratories. Zihan Chen of the University of Chicago is also an author on the paper. The authors declare no conflicting interests.

**More information:** Kevin S Trickey et al, Hospitalisations for cardiovascular and respiratory disease among older adults living near unconventional natural gas development: a difference-in-differences analysis, *The Lancet Planetary Health* (2023). [DOI: 10.1016/S2542-5196\(23\)00009-8](#)

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