

# Surgeons investigate whether rural colon cancer patients fare worse than urban patients

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Colon cancer patients living in rural areas are less likely to receive an early diagnosis, chemotherapy, or thorough surgical treatment when compared with patients living in urban areas. Rural residents are also more likely to die from their colon cancer than urban patients, according to new research findings from surgeons at the University of Minnesota, Minneapolis, and the Minneapolis Veterans Affairs Medical Center. The study was presented earlier today at the American College of Surgeons 2012 Annual Clinical Congress.

[Colorectal cancer](#) is the third-leading cause of [cancer death](#) for both men and women. The [American Cancer Society](#) estimates that approximately 141,200 people were diagnosed with the disease in 2011. It's been previously determined that disparities in colon cancer outcomes already depend to some extent on race and insurance status, the researchers reported. These new study results show that patients' geographic locations can be added to the list.

"Often we will see patients from rural areas outside of Minneapolis. They've traveled hours to get to the university and they sometimes travel hours to get to their operations, radiation, and chemotherapy," explained Christopher J. Chow, MD, a categorical general surgery resident at the University of Minnesota. "We wanted to know if that factor was a barrier to receiving care. Early reports looking at this question tend to focus on [cancer screening](#). Research shows that rural patients don't get

screened for cancer as often as urban patients do, and this difference affects their outcomes. But no one had really looked at the full spectrum of diagnosis and treatment. We wanted to look at what happens with rural patients at various stages of the process."

Dr. Chow and colleagues analyzed data for this [retrospective study](#) on more than 123,000 patients from the California Cancer Registry, one of the nation's most demographically diverse registries. Between 1996 and 2008, these rural patients were diagnosed with colon cancer from stage 0—meaning one or more malignant polyps were removed—to stage IV whereby a large malignant tumor was detected and the cancer had spread to other organs.

About 15 percent of the patients in this study resided in rural areas, which were pre-defined by the registry. "Many registries simply classify patient rurality by the county they live in, but I could be sitting in suburbia on one side of a county and be considered as rural as someone else sitting on a farm on the opposite side of that same county," Dr. Chow explained. "Data sets that consider rurality by county alone may consider some people [as] living in urban areas even though they are rural."

The researchers looked at each patient's stage of diagnosis, whether cancerous lymph nodes were thoroughly removed, and whether stage-III patients received chemotherapy. They also compared the risk of death from colon cancer between the two groups.

After controlling for the influence of other factors including race, sex, age, marital status, [insurance status](#), and year of diagnosis, their logistic regressions revealed that rural residents had 4 percent higher odds than urban patients of receiving a stage III or IV diagnosis. Rural patients with stages I–III colon cancer also had 18 percent lower odds of receiving an adequate lymphadenectomy, meaning a substandard number

of lymph nodes were removed during the operation. Inadequate lymph node removal can be an indicator of the care team's quality. "It's a surrogate marker for how the different groups involved in the patients' care performed—the pathology technician, the pathologist, and the surgeon," he added.

The researchers also found that rural patients at stage III had 17 percent lower odds of receiving chemotherapy than urban patients, and they had a 5 percent higher hazard of cancer-specific death compared to those in the urban group, after adjusting for patient, tumor, and treatment factors.

"These findings do not mean that if you're a rural patient and you've been diagnosed with colon cancer [that] you should move," Dr. Chow cautioned. "What they mean is that, we as surgeons who treat both rural and urban patients, need to start targeting rural patients to ensure that they receive care that is as high quality as urban patients."

Dr. Chow added that the study's results indicate a need for deeper probing as to why patient rurality somehow impacts [colon cancer](#) care quality measures. "Future studies have to look at the reasons why," he said. "Are rural patients not traveling and missing appointments, or are they missing appointments because they are traveling? We have to address the underlying reasons, since we know from the start that these [patients](#) tend to fare worse," he concluded.

Provided by American College of Surgeons

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