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Care eliminates racial disparity in colon cancer survival rates, study finds

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For the past two decades, the National Cancer Institute has documented a persistent racial disparity in colon cancer survival rates in the United States.

African-American patients have consistently had lower survival rates when compared with white patients, despite a nationwide decline in colon cancer deaths overall.

Now, a study by researchers at the Stanford University School of Medicine shows that more equitable delivery of evidence-based care can close this gap. Furthermore, the investigators found that evidence-based care was delivered at higher rates within integrated health-care organizations - those in which one organization provides all the patient's health-care services, hospital care and insurance. The study reports that five-year death rates were lower for all colon cancer patients treated in an integrated health-care system, and the differences in survival by race were eliminated.

The study's findings, to be published online Jan. 26 in the *Journal of Clinical Oncology*, support the idea that providing equitable, high-quality, evidence-based care is a powerful tool in eliminating cancer-treatment disparities.

"Historically, we've taken less than a critical eye on our own health-care system in terms of how we can take the lead in addressing disparities," said lead author Kim Rhoads, MD, MPH, assistant professor of surgery.

"The big takeaway in this paper is that it's treatment, not necessarily patient factors, but following evidence-based guidelines that gives all patients the best chance for survival. Our work also suggests a real opportunity to equalize these racial differences."

Comparing massive amounts of data

Evidenced-based treatment guidelines for most cancers have been developed by the National Comprehensive Cancer Network. Recent studies suggest that minorities tend to receive cancer care from hospitals that adhere to the network's guidelines at lower rates. Other studies show a clear relationship between the location of care, cancer deaths and racial disparities in survival. However, many cancer registries have no details about the types of treatment a patient receives. Rhoads and her fellow researchers combined cancer registry data, California hospital characteristics and patient-discharge data to compare details about patients' cancer and survival rates with the hospitals' financial and structural characteristics and details about the treatments the patient received.

"There was a unique opportunity to link data sets in such a way that you can look at this problem in a really different way," said the study's senior author, Laura Schmidt, PhD, MPH, professor of health policy at the University of California-San Francisco. Schmidt said Rhoads was one of the first to compare massive amounts of data about the patients' cancer survival rates with hospital treatment records for all their patients.

"It's kind of a smoking gun," said Schmidt.

The study compared colon cancer treatment and outcomes across races for patients receiving care within integrated and nonintegrated health-care systems. The study considered 33,593 white, black, Hispanic, Asian and Pacific islander patients who, between 2001 and 2006, were

diagnosed with colon cancer and began treatment at any of 348 California hospitals. The researchers followed the patients' progress for five years. For example, patients diagnosed in 2003 were followed until 2008. Among the hospitals included in the study, 35 percent were part of an integrated system and treated 19 percent of the patients.

The study relied on a combination of databases. The first was the California Cancer Registry, which includes information on all California patients diagnosed with all cancers, except for non-melanoma skin cancers. This database provided the patients' demographic data and their treatment history, including surgeries and chemotherapy; the number of lymph nodes examined after surgery; and how long they lived after being diagnosed. The data allowed the researchers to track whether patients received care recommended by the National Comprehensive Cancer Network guidelines.

The other data was from the California Office of Statewide Health Planning and Development. It contained discharge information, including patients' additional medical problems and treatments received while in the hospital. The office also provides information about all California hospitals, including details about their location, size and other characteristics. This allowed the researchers to identify whether a patient was treated in an integrated or a nonintegrated organization.

Treatment and outcome differences

The researchers directly compared similar groups treated in an integrated system with those treated in a nonintegrated system. Each patient received a propensity score that included their age, gender, race, cancer stage, socioeconomic status and presence of other diseases, called co-morbidities, which might affect their survival. The researchers matched patients with the same propensity scores across the two systems so that the only differences between them were where they were treated and the

type of treatment they received.

"We spend a lot of time in medicine framing the question as: What's wrong with the patient? Is the patient poor? Is the patient uninsured or presenting with more advanced disease?" said Rhoads, who is also director of the Stanford Cancer Institute's Community Partnerships Program, which coordinates outreach for minority communities in the Bay Area. "This is an opportunity for health-care systems to look at themselves and ask: How can we impact disparities? What can we do differently to close the gap?"

The study found that, in general, minorities treated in integrated systems received higher rates of evidence-based care for colon cancer than those minorities treated in nonintegrated systems. It also found that all patients in integrated systems survived at higher rates overall, and that there were no racial disparities in survival rates within the system.

"In integrated systems, there's already a big push to thinking about following evidence-based guidelines, so everyone within that system is in the same mindset," said co-author Manali Patel, MD, MPH, instructor of medicine in Stanford's Division of Oncology. "It's easier to do the right thing when you have the system-level support to do so."

Integrated health-care systems are well-suited for coordinating care among several specialists, which is another advantage for colon cancer patients because the treatment of the disease requires different types of therapies and different types of specialists, the study said. The majority of colon cancers will require surgery and, depending on the stage of disease, the patient may also require chemotherapy, which involves an additional doctor, a medical oncologist.

"Outside an integrated system, where the health care is fragmented, a patient must become his or her own advocate to piece together

appropriate treatment," Rhoads said.

'It's about access to high-quality care'

"The paper's findings go a long way in reinforcing the notion that it's not just about access to care, but it's about access to high-quality care. And for colon cancer care, one of the tenets for high-quality care would be well-coordinated care," said Sandra Wong, MD, associate professor of surgery at the University of Michigan, who was not involved in the study. "We know it's not just about getting insurance coverage, but actually getting people into health-care systems that coordinate cancer care well."

The researchers' next step is to compare outcomes for patients with other types of cancer, such as breast and lung cancer, across races. The findings of the colon cancer study are likely to be consistent across other cancer types, said Rhoads. While the racial disparities may not be completely eliminated, the study's findings suggest that equitable care delivery reduces the differences. The results also support policies that drive the development of integrated health-care models as envisioned by the Affordable Care Act.

"With health-care reform, millions more patients are coming into the system, and we're going to need to become more integrated in order to meet the demand. We're going to need to work more closely together, decrease variations in care and standardize what we do," Rhoads said. "In this paper, we have a model that shows that when you do this, you get better colon cancer outcomes for everyone."

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