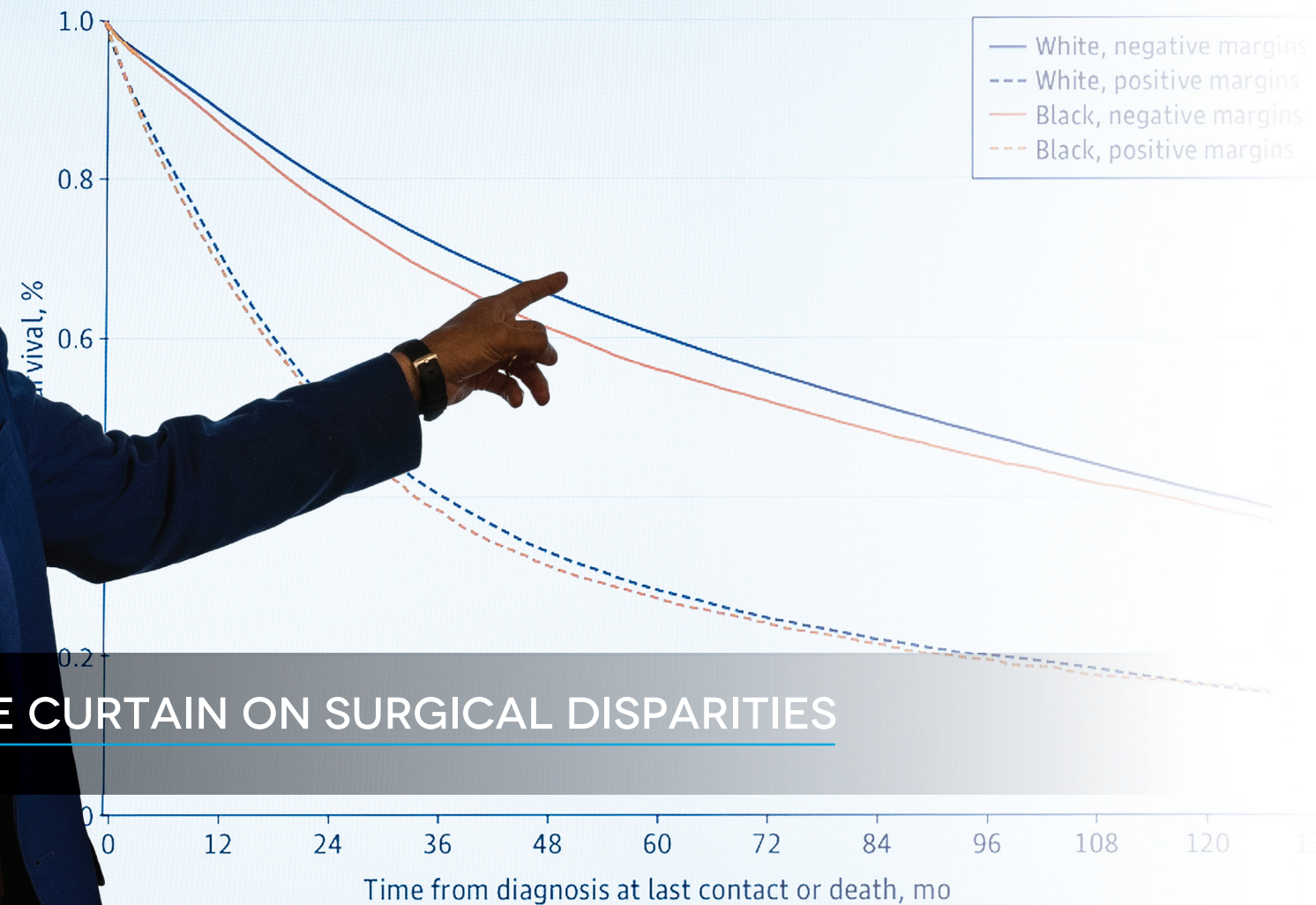


## Survival Functions by Outcome Metric of Interest and Race

l margins



## PULLING BACK THE CURTAIN ON SURGICAL DISPARITIES

Sajid Khan, MD

The COVID-19 pandemic resulted in the surfacing of the best and the worst of the healthcare system and many developments and discoveries, one being confirmation of what many in the field have known for decades: that when it comes to serious illness in the United States, non-white patients are more likely to die than white patients.

Buoyed by the strong foundation of the Center for Gastrointestinal Cancer at Smilow Cancer Hospital and Yale Cancer Center and the Yale Department of Surgery, Sajid Khan, MD, Associate Professor of Surgery (Oncology) and Section Chief of Hepatopancreatobiliary & Mixed Tumors, took a deeper dive into the surgical care of gastrointestinal (GI) cancers to see what he could uncover within his own field. Utilizing the National Cancer Database, he sought to evaluate racial disparities in quality of care for patients with GI cancers treated with surgery. What he found was both expected, and shocking. His results were published in *JAMA Network Open*.

“The motivation for our study was to understand potential drivers behind worse survival outcomes among Black patients with gastrointestinal tract cancer and determine whether variations in quality of surgical and perioperative care are underlying,” explained Dr. Khan. His clinical practice specializes in the surgical management of patients with benign and malignant tumors of the liver, pancreas, bile ducts, gallbladder, stomach, and colon.

The National Cancer Database is a nationwide oncology outcomes database that is representative of 70% of the population diagnosed with an invasive cancer. GI cancer accounts for 26% of cancers globally and 35% of all cancer-related mortality, representing a large cancer burden nationally. Black patients have a disproportionate burden compared with white patients, with a 19% excess risk of cancer death for men and 13% for women. His team began by analyzing over

550,000 patient samples from adults with gastrointestinal cancer undergoing surgical resection between 2004 and 2017 looking for three main findings: rates of negative margins, adequate lymphadenectomy, and delivery of post-operative adjuvant therapy.

The results Dr. Khan did anticipate from his retrospective cohort study titled *Evaluation of Racial Disparities in Quality of Care for Patients With Gastrointestinal Tract Cancer Treated With Surgery*, were that Black patients were less likely than white patients to have ‘negative surgical margins,’ in which no cancer cells are found in the border of tissue removed during surgery (29% lower in surgeries on the esophagus and rectum and 25% in the bile ducts), and they were also less likely to have adequate lymph node removal during surgery (29% lower in the small intestine, 28% in the esophagus, 11% in the colon, and 10% in both pancreas and rectosigmoid). The study also showed similar disparate outcomes for American Indian patients compared to white patients.

“What I did not anticipate and found alarming, is that if chemotherapy is indicated after surgery, Black patients were less likely to be referred for chemotherapy, or to receive it, compared to white patients. This was also the case for radiation therapy,” said Dr. Khan. “This is a striking finding considering there was no difference between Black and white patients in their desire to have adjuvant chemotherapy or radiation therapy. In other words, both patient populations were equally likely to want or not want adjuvant care after surgery. Seeing no obvious difference in patient desire, it begs the question, why are Black patients not being administered standard of care postoperative treatment? Especially when we know that adjuvant therapies can prolong cancer survival.”

Dr. Khan sees this study as a jumping off point for further research into why exactly this is happening, and what can be

done. Is it an inherent and unconscious bias among medical providers that can be addressed with more training and communication, or is this something that can only be fixed with funding of more research and assuring clinical trials and the workforce reflect the diverse population?

“We are currently looking at our own catchment area taking advantage of our expertise and large patient volume to try and answer some of these questions. Tumor biology cannot be ignored, and we (Dr. Khan’s lab is working in collaboration with Caroline Johnson, PhD, Associate Professor of Epidemiology, and Jun Lu, PhD, Associate Professor of Genetics) have found differences exist in tumor biology based on ethnicity/race and sex. However, the disparities in cancer outcomes for underrepresented minorities is not simply a matter of tumor biology, but also a breakdown in our healthcare system and how we see patients.”

According to Dr. Khan, Yale has a great opportunity to be a leader in this research that can then be extrapolated to a national level. While the focus of this study was GI cancers, that is not to say this isn’t the case in other disciplines and cancers as well. “Research universities and healthcare systems need to engage community leaders of underrepresented racial and ethnic groups in quality improvement campaigns, including calling out evidence of the disparate treatment of patients of color, as well as work to recruit and maintain underrepresented minorities.”

“While these findings are important, they are just the start of a much larger conversation. This study brings awareness to the topic and backs it up with data. However, more investigation is needed to really pinpoint the multifactorial causes. As of now, a great start is learning to listen and respond to what patients actually say. This could be a simple, yet powerful, antidote to bias.”