Patients with locally advanced head and neck cancer (HNC) treated at medical centers with historically low patient enrollment in HNC clinical trials are more likely to die from their disease compared to those treated at centers with high patient enrollment in HNC clinical trials, according to the results of an NRG Oncology study published online last week in the *Journal of Clinical Oncology*. The investigators used medical centers’ patient accrual volume from 21 HNC clinical trials conducted by the Radiation Therapy Oncology Group (RTOG), now conducting research as NRG Oncology, as a surrogate for institutional expertise.

“We sought evidence to test the perception that patients—especially those with more complicated cancer types—have better outcomes when they receive care at large, tertiary centers that typically offer more resources and sub-specialized care,” says Evan Wuthrick, MD the article’s lead author and an assistant profession of radiation oncology at the James Cancer Hospital-Ohio State University Medical Center, in Columbus. In the retrospective analysis of 471 patients with advanced head and neck cancer who participated in RTOG 0129 (a phase III, randomized trial of concurrent radiation and chemotherapy), outcomes were significantly worse for patients treated at the historically low- as compared to high-volume accruing centers for both overall survival (51.0% vs. 69.1%) and progression free survival (42.7% vs. 61.8%).

“The magnitude of difference in patient outcomes is impressive,” says Wuthrick, “Patients treated at low accruing centers had a 91% increased risk of cancer progression or death after adjusting for age, T and N classification, performance status, smoking, and human papillomavirus status.” Three hundred and twenty-one patients were treated at one of 88 low-accruing centers and 150 at one of 13 high-accruing centers.

Deviations from protocol-prescribed radiotherapy were reported to be more common at low- compared to high-volume accruing centers and, although this factor independently increased risk of death, it did not entirely explain the survival benefit of treatment at high-volume accruing centers. “We are left wondering about other key components that resulted in such a large discrepancy in outcomes. Is it specialized nursing, a more experience physics staff, or perhaps an uncollected factor regarding patients’ socio-economic status,” says Wuthrick.

All patients in the RTOG 0129 trial received three-dimensional conformal radiotherapy (3D-CRT) and Wuthrick suggests an especially sobering issue is the difference observed in adherence to protocol-specified therapy in the setting of 3D-CRT could be significantly more pronounced in the era of intensity modulated radiotherapy (IMRT). “Given the radiotherapy planning and target delineation are considerably more complicated with IMRT, our analysis may underestimate the impact of provider expertise,” says Wuthrick.

The authors’ suggestions for improving patient outcomes at low accruing centers include increased use of contouring atlases, auto-contouring software programs, and continuing medical education that is focused on target delineation and treatment planning for HNC.

“These compelling results add to the growing body of evidence about the importance of treating more complicated cancer cases at centers with comprehensive multidisciplinary teams providing care for high volumes of patients,” says senior author Maura Gillison, MD, PhD, a professor in the College of Medicine at Ohio State University, “We must recognize, however, that many patients have significant constraints as to where they may choose to receive their cancer care.”

“This is very important work and suggests that the evaluation of outcomes by centers’ accrual volume as a proxy for treatment center expertise should be pursued for other disease sites says,” Walter J. Curran, Jr., MD, an NRG Oncology Group Chairman and Executive Director of the Winship Cancer Institute of Emory University in Atlanta.
NRG Oncology conducts practice-changing, multi-institutional clinical and translational research to improve the lives of patients with cancer. Founded in 2012, NRG Oncology is a Pennsylvania-based nonprofit corporation that integrates the research strengths of the National Adjuvant Breast and Bowel Project, the Radiation Therapy Oncology Group and the Gynecologic Oncology Group. The research organization seeks to carry clinical trials with emphases on gender-specific malignancies including gynecologic, breast, and prostate cancers and on localized or locally advanced cancers of all types. NRG Oncology’s extensive research organization is comprised of multidisciplinary investigators including medical oncologists, radiation oncologists, surgeons, physicists, pathologists, and statisticians and encompasses more than 1300 research sites located world-wide with predominance in the United States and Canada. NRG Oncology is supported primarily through grants from the National Cancer Institute (NCI) and is one of five research groups in the NCI’s National Clinical Trials Network.