Impact of Facility and Patient Demographics on Time to Treatment Initiation in Head and Neck Cancer

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ABSTRACT

Objective: To determine differences in time to treatment initiation in new head and neck cancer patients by treatment location: an assessment of a comprehensive cancer center verses a safety net hospital.

Study Design: Retrospective Chart Review

Method: Retrospective chart review of all new head and neck cancer patients presenting to Temple University Hospital and Fox Chase Cancer Center between 1/1/2012 – 12/31/2017. Patient demographics and time to treatment initiation (TTI) were compared between both sites. Delayed treatment was defined as initiation >28 days from the date of diagnosis. Commonly recorded reasons for delays in treatment were identified.

Results: 70 new head and neck cancer patients at TUH and 367 new patients at FCCC were included in this study. A total of 124 (33.8%) patients at FCCC had delayed initiation to treatment, compared to 64.3% at TUH (p < 0.001). At FCCC, for patients with delayed treatment, the average TTI was 39.8 days compared to 56.8 days at TUH (p < 0.001). When more than 1 provider was seen prior to treatment initiation, the average length of time at FCCC was 10.7 days, compared to 40.2 days at TUH (p< 0.001).

Commonly sited reasons for delayed treatment include dental, hospitalization, and medical clearance, however, more commonly there was no identifiable reason for delay. There was no difference in locoregional recurrence rate.

Conclusion: Clear demographic differences exist between comprehensive cancer centers and safety net hospitals. Time to treatment initiation was significantly longer at TUH (safety-net) when compared to FCCC (cancer center), as was the time until all oncology providers were seen. The only identified risk factor for delayed care at TUH was location of tissue diagnosis.

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INTRODUCTION

The prognosis for head and neck cancer remains poor despite many advances in diagnosis and treatment. Delays in treatment have been associated with worsened outcomes.[1,2] Delays over 46 days from the time of diagnosis have been associated with worsened outcomes.[1] A previous study established that the median time to treatment initiation at 62% of academic centers was 28 days.[1] However, resource availability varies widely between treatment facilities. In addition, non-medical patient-related factors such as transportation, financial limitations, and overall adherence to recommended treatment plans are just some of the many considerations which may also contribute to access to care and overall patient outcome.
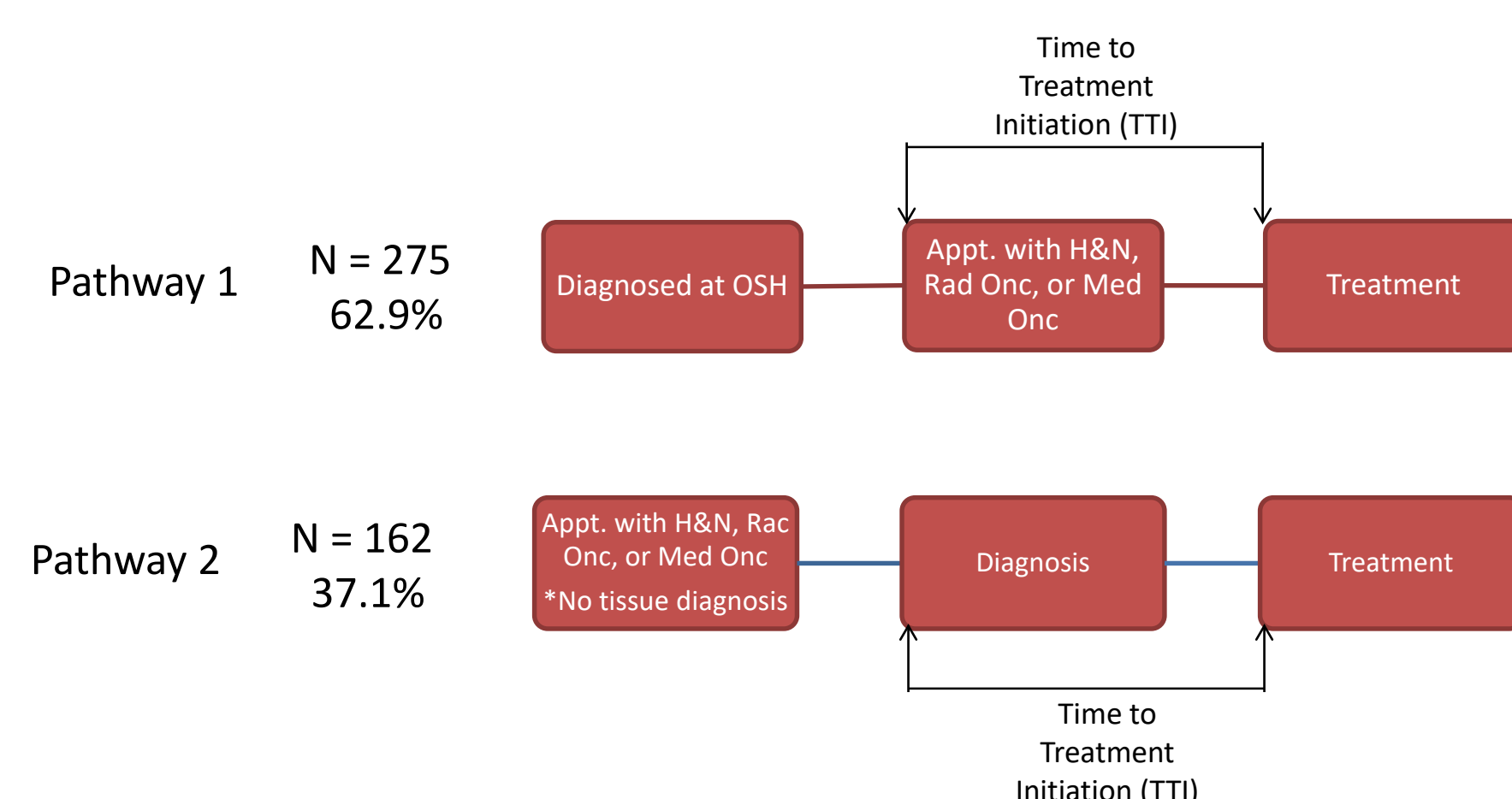
While treatment at academic centers has been identified as an individual risk factor for delayed treatment compared to community hospitals and comprehensive community hospitals, inherent differences between comprehensive cancer centers and academic safety-net hospitals likely also contribute to increased risk of delayed treatment.

OBJECTIVE

To determine what patient and facility factors are associated with delays in time to treatment initiation at a comprehensive cancer center and a safety-net hospital.

METHODS

- Retrospective Chart Review: 1/2012 – 12/2017

- Inclusion: Age > 18, New patients with squamous cell carcinoma of the head and neck presenting to Fox Chase Cancer Center (FCCC) and Temple University Hospital (TUH), Full patient chart available

- Exclusion: Previously established care, transferred care from Temple to FCCC and vice versa, palliative treatment, thyroid cancer, salivary gland cancer

- Calculation of Treatment Delay: Two Pathways

  > 28 days from the date of histologic diagnosis
  or
  > 28 days from the date of first appointment with a head and neck oncologist if diagnosed at OSH

- Chi-Square and Student's t-test used for analysis

RESULTS

Patient Demographics

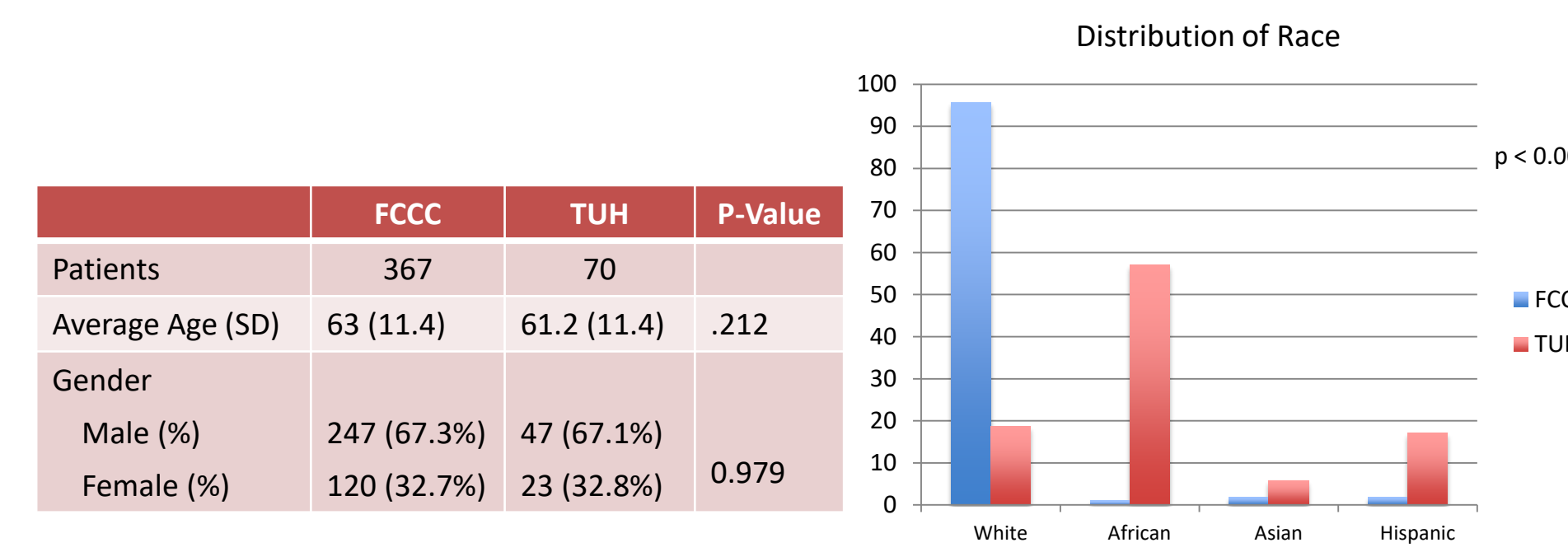|	FCCC	TUH	P-Value
Patients	367	70	
Average Age (SD)	63 (11.4)	61.2 (11.4)	.212
Gender			
Male (%)	247 (67.3%)	47 (67.1%)	
Female (%)	120 (32.7%)	23 (32.8%)	0.979

Figure 1: Comparison of patient demographics between FCCC and TUH. No significant difference in gender and ago. Statistically significant higher proportion of African Americans at TUH and of whites at FCCC (p < 0.001.)
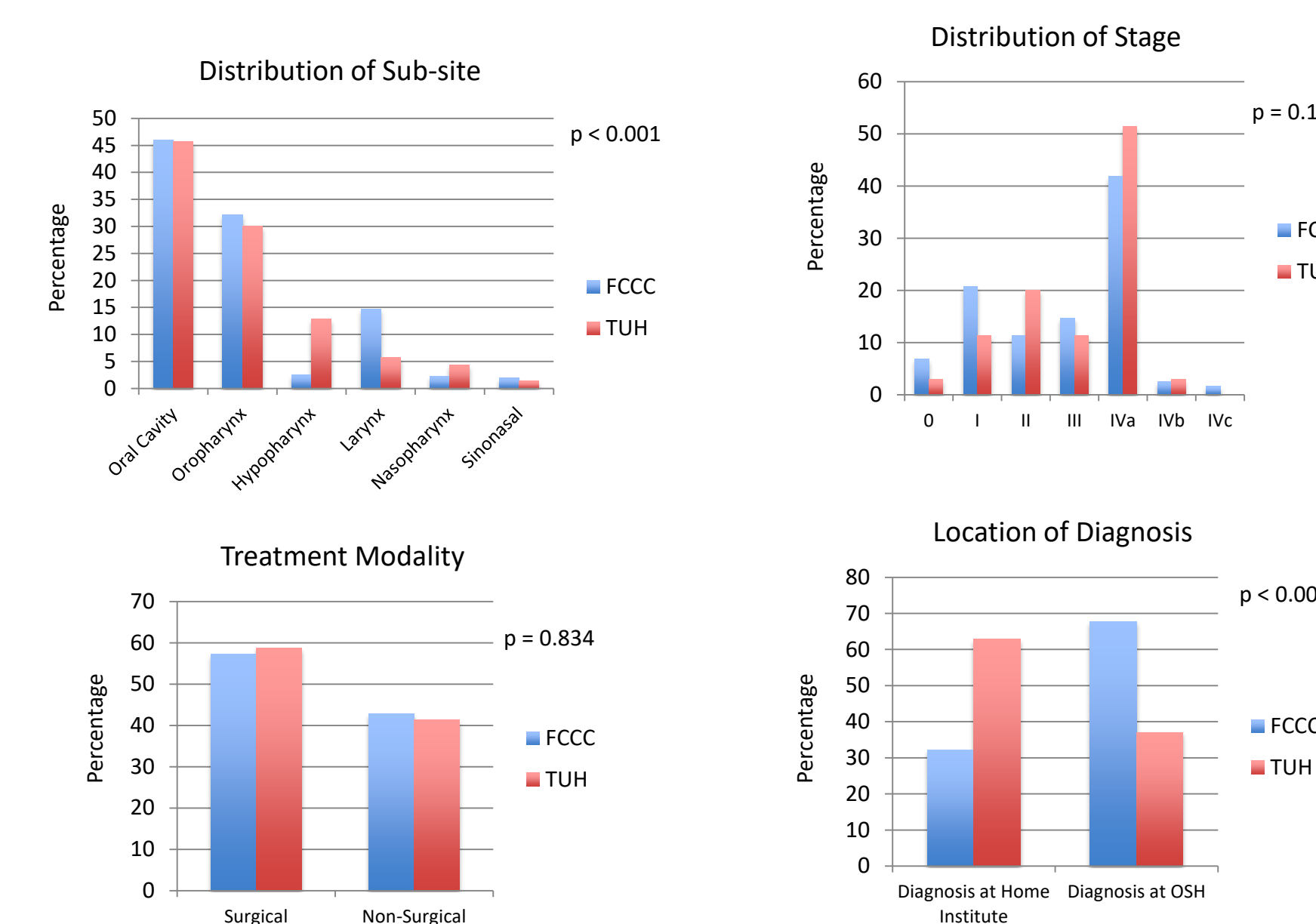
Disease Characteristics

Figure 2: Comparison of disease characteristics. Statistically significant difference in subsite and location of diagnosis. (p < 0.001.)
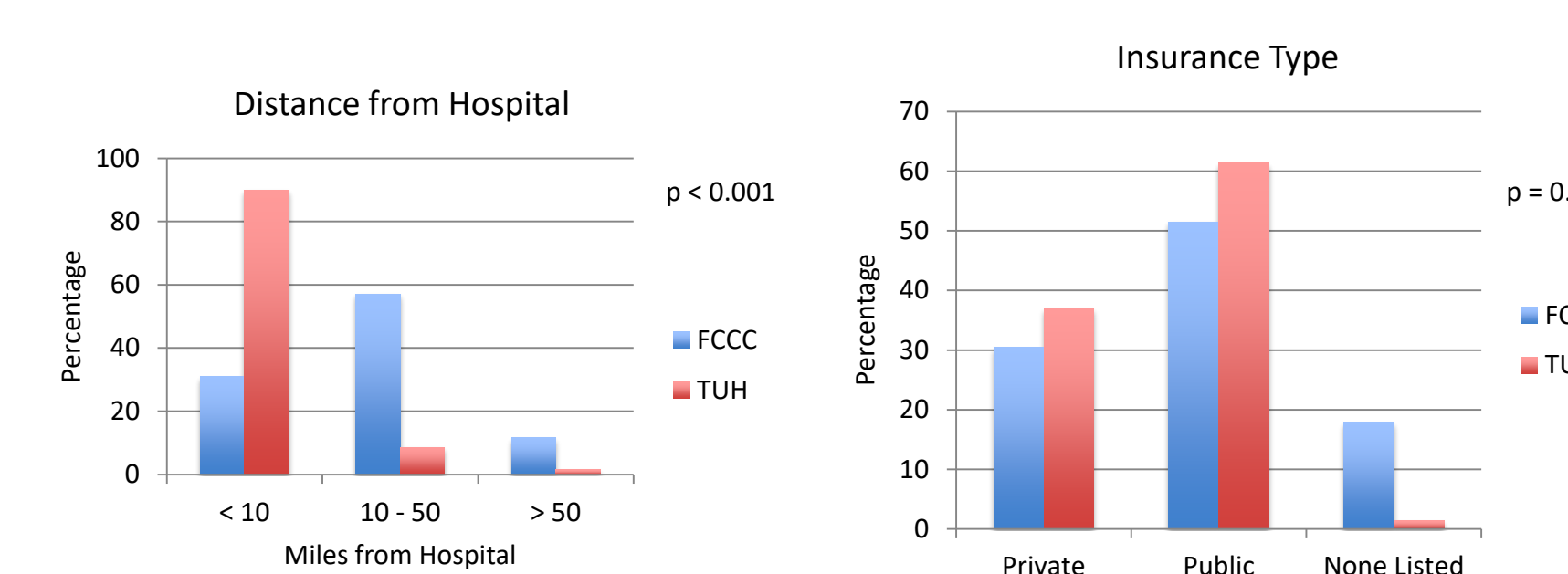
Non-Medical Factors

Figure 3: Comparison of non-medical factors. Statistically significant difference in distance from hospital and insurance type. (p < 0.001.)

Treatment Delays

	% DELAYED	Average TTI (SD)
FCCC	33.8	39.8 (11.3)
TUH	64.3	56.8 (27.9)

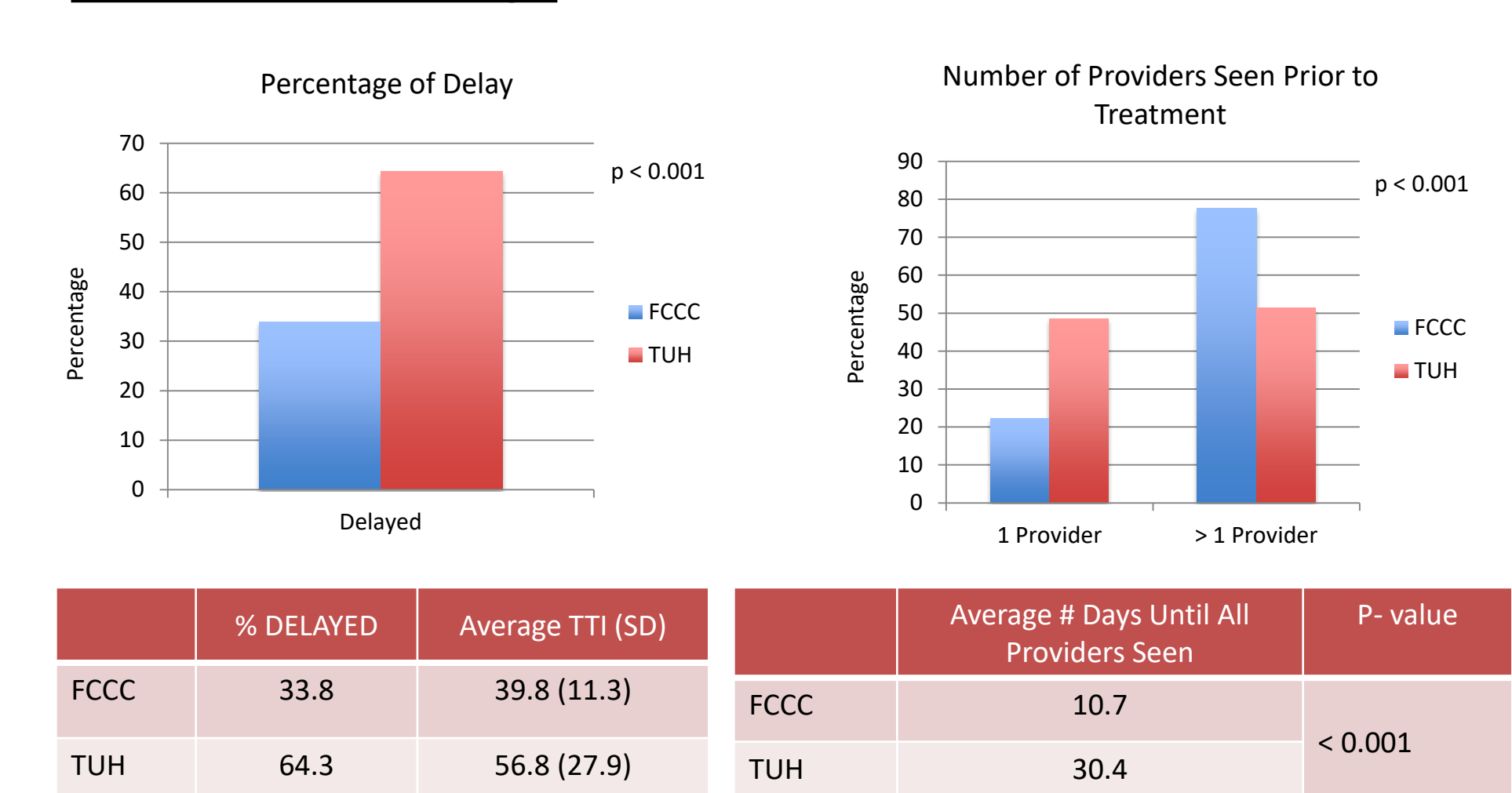|	Average # Days Until All Providers Seen	P- value
FCCC	10.7	< 0.001
TUH	30.4	

Figure 4: Comparison of delayed treatment at each site. Statistically significant higher percentage of treatment delays at TUH (p < 0.001). There is also a significantly higher number of days until all providers are seen when more than one is to be seen prior to initiation.
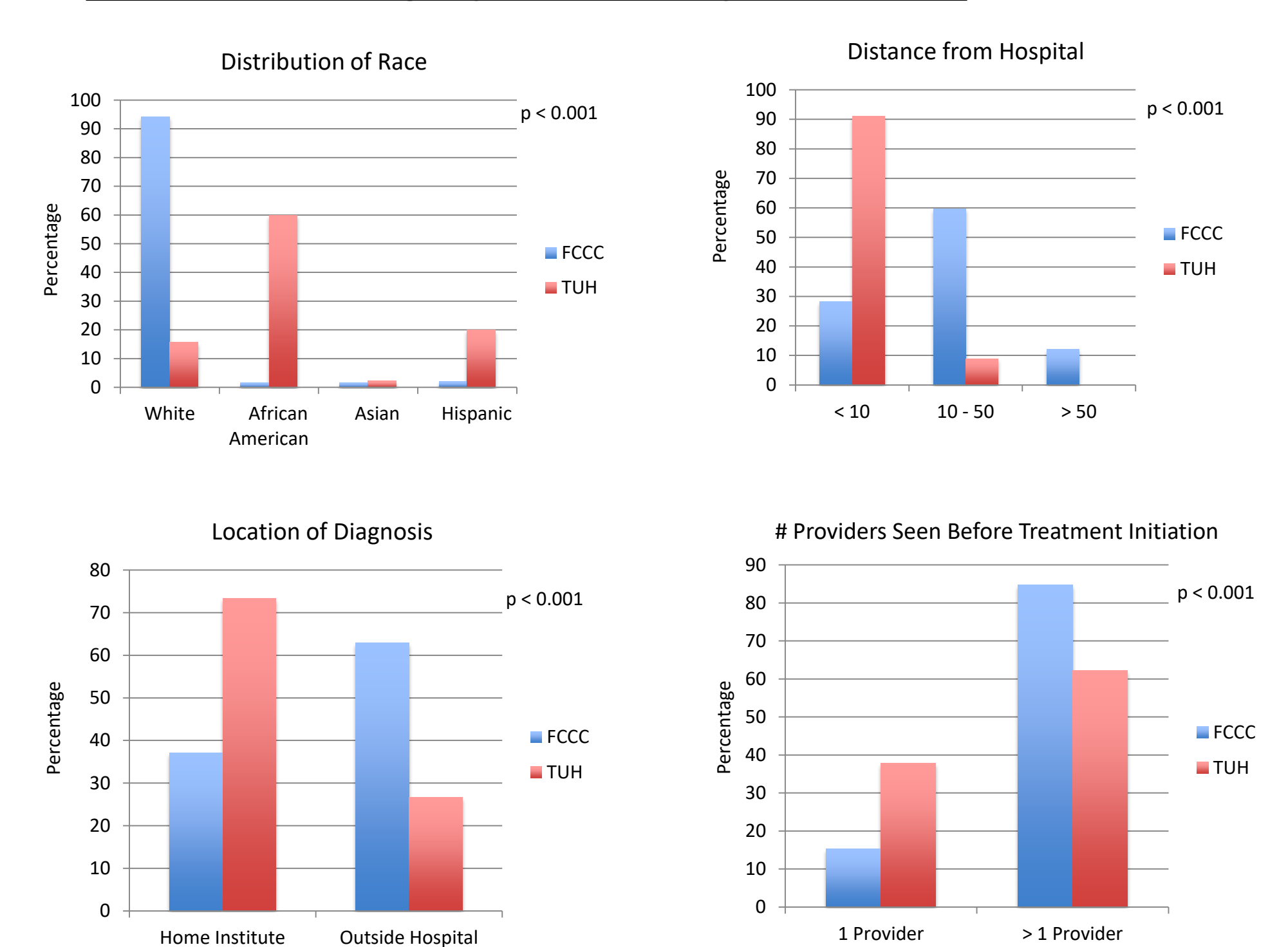
Patient Demographics: Delayed Cohort

Figure 5: Comparison of patient demographics within the delayed only cohort. Statistically significant difference in race, distance from hospital, location of diagnosis, and # of providers seen prior to initiation (p < 0.001).

CONCLUSIONS

Clear demographic differences exist between comprehensive cancer centers and safety net hospitals. Time to treatment initiation was significantly longer at TUH (safety-net) when compared to FCCC (cancer center), as was the time until all oncology providers were seen. For those presenting without an established diagnosis, there is a time span from the patient's first appointment to the time of their diagnosis that was not accounted for in this study, it is therefore possible that a subset of patients without delays from tissue diagnosis, did in fact have a delay from their initial appointment. Further, other social factors such as transportation, medical compliance, and social supports were identified as reasons for delayed care but are not typically well documented in the medical record. Other limitations include the retrospective nature of the study, the uneven sample sizes between the two institutions, and the use of a single health system. Future studies comparing care at safety-net hospitals with other academic centers nationwide will be needed to further identify differing risk factors between the two institutions.