

Time to Treatment and Cost of Workup in Head and Neck Cancer Patients Evaluated Through the Emergency Department

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Introduction

- Patients diagnosed with cancer through the Emergency Department (ED) have inferior clinical and patient-reported outcomes when compared to those in the non-ED setting¹
- The diagnosis of head and neck cancer (HNC) can begin in the ED or clinic setting
- Time to initiation of treatment (TTT) is an important predictor of survival in head and neck cancer (HNC) and TTT > 45 days shows reduced survival²
- Cost of ED vs. clinic workup of HNC is unknown³

Objectives

- Compare TTT between patients diagnosed with HNC in the ED vs. clinic
- Identify workup factors associated with difference in TTT
- Evaluate cost of workup between ED and clinic cohorts

Methods

- Consultation records and clinical records from adult patients diagnosed with HNC in ED vs. clinic from 2016-2018 were gathered
- The primary outcome was time to treatment (TTT) defined in days as the time between the first encounter and the day of treatment
- The secondary outcome was cost which was calculated from publicly-available Jackson Memorial Hospital chargemaster data in US dollars

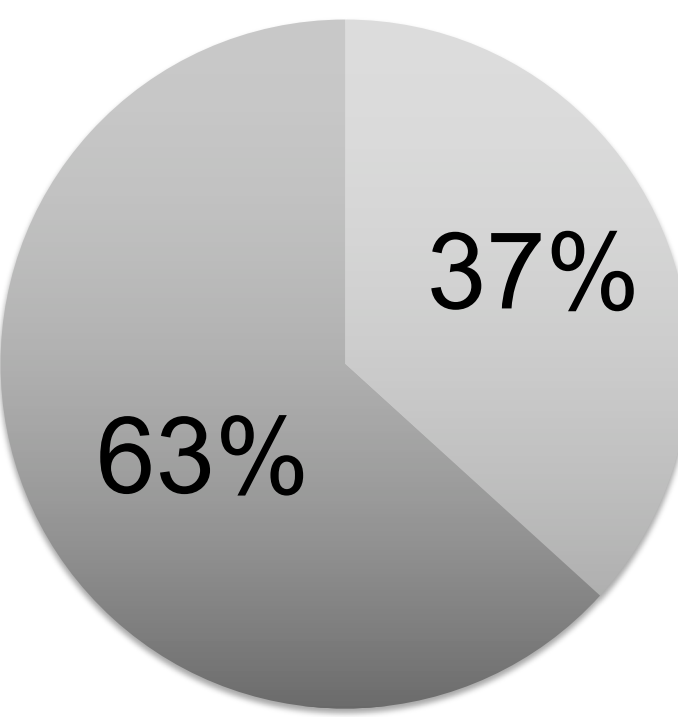
Results

- 81 patients, 49 in ED cohort, 32 in clinic cohort
- Time to treatment was similar (p=0.65)
 - ED Cohort - Median [IQR] TTT: 37 [41,67] days
 - Clinic Cohort - Median [IQR] TTT: 40 [26, 66] days
- Cost of workup was higher in ED cohort (p<0.0001)
 - ED Cohort: \$29,642/patient
 - Clinic Cohort: \$18,142/patient
- Cost of workup was highest in those admitted from ED, followed by ED only, followed by clinic (Figure 1)
- Extent of workup performed at time of ED encounter varied within ED cohort (Figure 2) and did not independently shorten TTT
- 25% of patients were lost to follow up

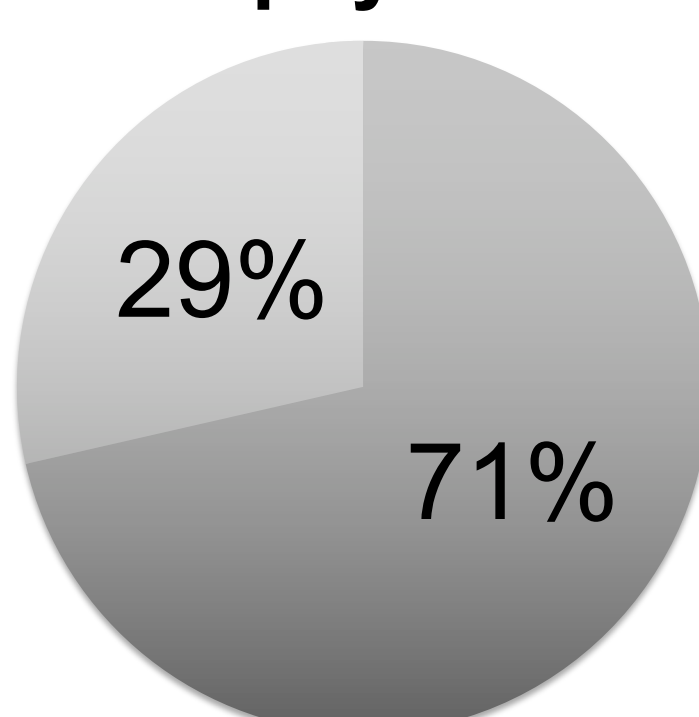
	ED -> Admission -> Clinic	ED -> Clinic	Clinic only
ENT Clinic Visit	\$ 552.00	\$ 552.00	\$ 552.00
ED Visit	\$ 1,338.00	\$ 1,338.00	\$ -
ENT Consultation in ED	\$ 552.00	\$ 552.00	\$ -
CT Neck with contrast	\$ 1,889.00	\$ 1,889.00	\$ 1,889.00
PET Scan	\$ 3,665.00	\$ 3,665.00	\$ 3,665.00
FNA	\$ 374.00	\$ 374.00	\$ 374.00
DL with biopsy	\$ 11,662.00	\$ 11,662.00	\$ 11,662.00
Basic ED labs	\$ 523.00	\$ 523.00	\$ -
Admission labs	\$ 1,569.00	\$ -	\$ -
Admission (3 day)	\$ 12,346.00	\$ -	\$ -
Total	\$ 34,470.00	\$ 20,555.00	\$ 18,142.00

Figure 1: Example of itemized cost of workup for those beginning head and neck cancer diagnosis in the ED vs. clinic

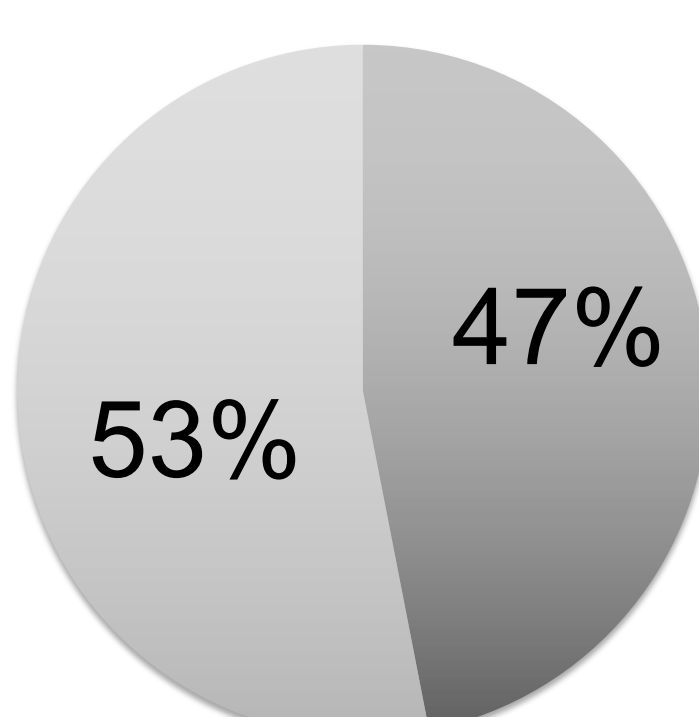
Staging imaging



Biopsy in ED



Admitted



■ Yes
■ No

Figure 2: Occurrence of imaging, biopsy, and admission in ED cohort

Discussion and Limitations

- ED imaging, biopsy and admission did not independently shorten TTT, however, they likely allow for decreased overall TTT as workup is expedited prior to clinic appointment
- Diagnosis of HNC in ED is more expensive as many patients are admitted or have ED-associated costs
- Study limited by retrospective nature, patients lost to follow up, and aggregate cost data

Conclusions

- TTT is similar for those diagnosed with HNC in ED as compared to clinic
- ED visit is seen as a “catch up” step and thus there is benefit to workup immediately in the ED
- Cost of ED-based workup is higher than clinic-based workup

References/Acknowledgements

1. Zhou Y, Abel GA, Hamilton W, et al. Diagnosis of cancer as an emergency: a critical review of current evidence. *Nat Rev Clin Oncol*. 2017;14(1):45-56. doi:10.1038/nrclinonc.2016.155
2. Murphy CT, Galloway TJ, Handorf EA, et al. Survival Impact of Increasing Time to Treatment Initiation for Patients With Head and Neck Cancer in the United States. *J Clin Oncol Off J Am Soc Clin Oncol*. 2016;34(2):169-178. doi:10.1200/JCO.2015.61.5906
3. Kligerman MP, Sethi RKV, Kozin ED, Gray ST, Shrimo MG. Morbidity and mortality among patients with head and neck cancer in the emergency department: A national perspective. *Head Neck*. 2019;41(4):1007-1015. doi:10.1002/hed.25534

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