

## Background

- The global impact of the novel coronavirus disease 2019 (COVID-19) has been immense and its effects have implications beyond individual infection
- Cancer care must be delivered in a timely and efficient manner
- The pandemic has challenged our model of delivering cancer care due to:
  - Delays in patient care
  - Alterations in treatment decision making
- Delays in cancer diagnosis, referral to oncologists, treatment initiation, delays in endoscopic exams and surveillance are amongst the reasons patient care may be compromised
- At the Medical University of South Carolina (MUSC) , protocols were instituted early in the pandemic to limit the impact on delivery of cancer patient care and minimize the risk of COVID transmission
  - Virtual and telemedicine physician/APP clinic visits
  - COVID testing prior to clinic visits/surgery
  - Virtual Head and Neck Tumor Board

## Objective

The purpose of this study was to compare pre-COVID and during COVID treatment times and examine the impact of the pandemic on timing of patient care, impact on treatment selection/delivery and the effect of instituting protocols on delivery of patient care.

## Materials and Methods

- All patients referred to the MUSC Hollings Cancer Centre with a new diagnosis of head and neck cancer (oral cavity, oropharynx, larynx, endocrine, cutaneous and nasal cavity/skull base) between January 2019 to December 2020 were included
- Primary endpoint was a time-to-event analysis to determine time points of delay for patients (January 2020-December 2020) compared to a cohort of patients treated during the preceding year (January 2019-December 2019)
- Secondary endpoint included an evaluation of treatment modalities

**Table 1.** Pathologic staging (TNM) of head and neck cancer (2019-2020).

|          |           | 2019<br>(n=318) | 2020<br>(n=271) | p-value       |
|----------|-----------|-----------------|-----------------|---------------|
| pT stage | Tx        | 143             | 139             | >.05          |
|          | <b>T1</b> | <b>53</b>       | <b>20</b>       | <b>0.0007</b> |
|          | T2        | 41              | 23              | >.05          |
|          | T3        | 28              | 30              | >.05          |
|          | T4        | 53              | 59              | >.05          |
| pN stage | Nx        | 162             | 160             | >.05          |
|          | N0        | 76              | 49              | >.05          |
|          | <b>N1</b> | <b>38</b>       | <b>17</b>       | <b>0.02</b>   |
|          | N2        | 22              | 21              | >.05          |
|          | N3        | 20              | 24              | >.05          |
| M stage  | Mx        | 35              | 234             | >.05          |
|          | <b>M0</b> | <b>83</b>       | <b>37</b>       | <b>0.0002</b> |

**Table 2.** Time-to-event analysis for head and neck cancer patients (2019-2020).

|                                         | 2019               |                      | 2020               |                      | p-value     |
|-----------------------------------------|--------------------|----------------------|--------------------|----------------------|-------------|
|                                         | Mean<br>Days (SD)  | Median<br>Days [IQR] | Mean<br>Days (SD)  | Median<br>Days [IQR] |             |
| Diagnosis to initial consultation       | 20.9 (33.1)        | 13 [7-24]            | 25.7 (46.9)        | 14.5 [9-26]          | 0.1         |
| <b>Diagnosis to primary treatment</b>   | <b>53.1 (41.5)</b> | <b>42 [30-61]</b>    | <b>59.1 (57.9)</b> | <b>47 [34-63]</b>    | <b>0.07</b> |
| Initial consultation to primary therapy | 38 (27.6)          | 31 [20-47]           | 39.9 (30.6)        | 33 [23-46]           | 0.46        |
| Surgery to adjuvant therapy             | 42.4 (19.9)        | 39 [34-50]           | 43 (32.3)          | 39 [32-49]           | 0.5         |

**Table 3.** Treatment modalities for HPV+ oropharynx cancer by stage (2019-2020).

|                    | 2019      | 2020      | p-value       |
|--------------------|-----------|-----------|---------------|
| Oropharynx (T1/T2) |           |           |               |
| <b>Surgery</b>     | <b>20</b> | <b>7</b>  | <b>0.0001</b> |
| <b>CRT</b>         | <b>5</b>  | <b>19</b> | <b>0.0006</b> |
| None               | 1         | 3         | >.05          |
| Oropharynx (T3/T4) |           |           | >.05          |
| Surgery            | 3         | 3         |               |
| CRT                | 11        | 9         |               |
| None               | 0         | 2         |               |

## Results

- Trend towards delay in median time from diagnosis to treatment (2019: 42 [30-61] days vs 2020: 47 [34-63] days; p=0.07), but no treatment related delays during pandemic with implementation of institutional specific protocols
- Early decline in clinic volume (Jan-May 2020: **8-52% reduction**) with delayed surge (June-September: **5-70% increase**)
- Fewer patients treated for early stage cancer during pandemic (pT- & N-category)
- Increased frequency of non-surgical treatment of early stage HPV+ OPSCC
- No significant difference in demographics (age, gender, ethnicity), tumor site, histologic diagnosis, overall treatment modality

## Discussion

- Institutional protocols limit the impact of COVID-19 on the delivery of cancer care
- Anticipate delayed presentation of advanced stage head and neck cancer
- Exploration of disease-specific alterations in treatment (i.e. early stage HPV+ OPSCC: patient preference vs recruitment to non-surgical de-intensification trials)

**Figure 1.** Frequency of patients seen in consultation prior to and during the COVID-19 pandemic

