Supplementary Online Content

Youssef I, Yoon J, Mohamed N, et al. Toxicity profiles and survival outcomes among patients with nonmetastatic oropharyngeal carcinoma treated with intensity-modulated proton therapy vs intensity-modulated radiation therapy. *JAMA Netw Open*. 2022;5(11):e2241538. doi:10.1001/jamanetworkopen.2022.41538

eFigure. Percentage of Patients Receiving Dose by Treatment Modality
eTable 1. Univariable and Multivariable Analyses for Factors Associated With the Development of Grade 3 or Higher Acute Adverse Events
eTable 2. Univariable and Multivariable Analyses for Factors Associated With the Development of Grade 1 or Higher Chronic Adverse Events
eTable 3. Univariable and Multivariable Analyses for Overall Survival and Progression-Free Survival

This supplementary material has been provided by the authors to give readers additional information about their work.
Percent of Patients Receiving Dose by Treatment Modality

P = 0.46

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Table 1: Univariable and Multivariable Analyses for Factors Associated With the Development of Grade 3 or Higher Acute Adverse Events

| Variable             | UVA [Confidence Interval] | P value | MVA (Confidence Interval) | P value |
|----------------------|---------------------------|---------|---------------------------|---------|
| RT Modality          |                           |         |                           |         |
| IMRT                 | 1 [Reference]             |         |                           |         |
| IMPT                 | 0.20 [0.015-0.55]         | .004    |                           |         |
| Sex                  |                           |         |                           |         |
| Female               | 1 [Reference]             |         |                           |         |
| Male                 | 1.66 [0.34-8.1]           | 0.534   |                           |         |
| Age                  | 0.96 [0.89-1.03]          | 0.214   |                           |         |
| Smoking History      |                           |         |                           |         |
| No                   | 1 [Reference]             |         |                           |         |
| Yes                  | 1.42 [0.39-5.1]           | 0.595   |                           |         |
| KPS                  | 0.998 [0.89-1.12]         | 0.977   |                           |         |
| T-Stage              |                           |         |                           |         |
| T1-T2                | 1 [Reference]             |         |                           |         |
| T3-T4                | 0.799 [0.22-2.9]          | 0.733   |                           |         |
| N stage              |                           |         |                           |         |
| N0-N1                | 1 [Reference]             |         |                           |         |
| N2-N3                | 1.92 [0.42-8.82]          | 0.40    |                           |         |
| HPV/P16 status       |                           |         |                           |         |
| Negative/UK          | 1 [Reference]             |         |                           |         |
| Positive             | ---- ^a                   | NA      |                           |         |
| Concurrent systemic therapy |                |         |                           |         |
| Yes                  | 1 [Reference]             |         |                           |         |
| No                   | ---- ^a                   | NA      |                           |         |
| Type of Chemotherapy |                           |         |                           |         |
| Cisplatin            | 1 [Reference]             |         |                           |         |
| Other                | 0.76 [0.16-3.69]          | 0.73    |                           |         |

Abbreviations: UVA: Univariable Analysis, MVA: Multivariable analysis, IMRT: Intensity Modulated Radiation Therapy, IMPT: Intensity Modulated Proton Therapy, HPV, Human Papilloma Virus

^a-OR and CI could not be computed for HPV/p16 status and Concurrent systemic therapy due to zero values

*MVA cells empty since only 1 variable was significant on UVA
**Table 2: Univariable and Multivariable Analyses for Factors Associated With the Development of Grade 1 or Higher Chronic Adverse Events**

| Variable                        | UVA [Confidence Interval (CI)] | P value | MVA* [Confidence Interval] | P value |
|---------------------------------|--------------------------------|---------|----------------------------|---------|
| RT Modality                     |                                |         |                            |         |
| IMRT                            | 1 [Reference]                  |         |                            |         |
| IMPT                            | 0.32 [0.14-0.72]               | .006    |                            |         |
| Sex                             |                                |         |                            |         |
| Female                          | 1 [Reference]                  |         |                            |         |
| Male                            | 0.55 [0.20-1.47]               | 0.23    |                            |         |
| Age                             | 1.01 [0.96-1.05]               | 0.80    |                            |         |
| Smoking History                 |                                |         |                            |         |
| No                              | 1 [Reference]                  |         |                            |         |
| Yes                             | 1.15 [0.54-2.5]                | 0.72    |                            |         |
| Karnofsky Performance Status    | 1.02 [0.95-1.09]               | 0.63    |                            |         |
| T-Stage                         |                                |         |                            |         |
| T1-T2                           | 1 [Reference]                  |         |                            |         |
| T3-T4                           | 0.82 [0.37-1.8]                | 0.63    |                            |         |
| N stage                         |                                |         |                            |         |
| N0-N1                           | 1 [Reference]                  |         |                            |         |
| N2-N3                           | 1.45 [0.54-3.9]                | 0.46    |                            |         |
| HPV/P16 status                  |                                |         |                            |         |
| Negative/Unknown                | 1 [Reference]                  |         |                            |         |
| Positive                        | 1.79 [0.48-6.6]                | 0.39    |                            |         |
| Concurrent systemic therapy     |                                |         |                            |         |
| Yes                             | 1 [Reference]                  |         |                            |         |
| No                              | 0.88 [0.11-7.21]               | 0.91    |                            |         |
| Type of Chemotherapy            |                                |         |                            |         |
| Cisplatin                       | 1 [Reference]                  |         |                            |         |
| Other                           | 1.6 [0.46-5.54]                | 0.46    |                            |         |

Abbreviations: UVA: Univariable Analysis, MVA: Multivariable analysis, IMRT: Intensity Modulated Radiation Therapy, IMPT: Intensity Modulated Proton Therapy, HPV, Human Papilloma Virus

*MVA cells empty since only 1 variable was significant on UVA*
## eTable 3: Univariable and Multivariable Analyses for Overall Survival and Progression-Free Survival

| Variable                        | Overall Survival | Progression Free Survival |
|---------------------------------|------------------|---------------------------|
|                                 | Univariable      | Multivariable             | Univariable      | Multivariable |
|                                 | HR[CI] P value   | HR P value                | HR[CI] P value   | HR P value    |
| Radiation Modality              |                  |                            |                  |               |
| IMRT                            | 1 [Reference]    | 1 [Reference]             | 1 [Reference]    | 1 [Reference] |
| IMPT                            | 0.28 [.04-2.1]   | .21                       | 1.23 [.54-2.82]  | .62           |
| Sex                             |                  |                            |                  |               |
| Male                            | 1 [Reference]    | 1 [Reference]             | 1 [Reference]    | 1 [Reference] |
| Female                          | 1.25 [.36-4.28]  | .73                       | .83 [.29-2.34]   | .72           |
| Age                             | 1.04[0.99-1.1]   | **.07**                   | 1.04[1.08]       | **.06**       |
| Smoking History                 |                  |                            |                  |               |
| No                              | 1 [Reference]    | 1 [Reference]             | 1 [Reference]    | 1 [Reference] |
| Yes                             | 1.76[0.69-4.5]   | .226                      | 1.68[0.89-3.28]  | .163          |
| Karnofsky Performance Status    | 0.9[.86-.95]     | **<.001**                 | .92 [.86-.98]    | .006          |
| HPV/P16 status                  |                  |                            |                  |               |
| Negative/Unknown                | 1 [Reference]    | 1 [Reference]             | 1 [Reference]    | 1 [Reference] |
| Positive                        | .15 [.06-.39]    | **<.001**                 | .14 [.05-.38]    | **<.001**     |
| Concurrent systemic therapy     |                  |                            |                  |               |
| No                              | 1 [Reference]    | .56                       | 1 [Reference]    | 1 [Reference] |
| Yes                             | 21.2[0-12]       | 21.2[0.01-65]             | 0.46             |               |
| Type of Chemotherapy            |                  |                            |                  |               |
| Other                           | 1 [Reference]    | 1 [Reference]             | 1 [Reference]    | 1 [Reference] |
| Cisplatin                       | 4.05[1.63-10.1]  | **.003**                  | 2.05 [.76-5.55]  | .158          |
| Abbreviations: UVA: Univariable Analysis, MVA: Multivariable analysis, IMRT: Intensity Modulated Radiation Therapy, IMPT: Intensity Modulated Proton Therapy, HPV, Human Papilloma Virus |

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