PROGNOSTIC FACTORS OF MUCOEPIDERMOID CARCINOMA WITHIN THE HEAD AND NECK: A NATIONAL CANCER DATABASE ANALYSIS

Sebastian Respicio[1], Danny Ryan[1], Christopher Bine[1] Stone Zhang[1], Peter Silberstein[1], **Marco DiBlasi[1]**

[1]Creighton University School of Medicine, Omaha, NE

INTRODUCTION

- Mucoepidermoid Carcinoma (MEC) is a malignant neoplasm of the salivary glands that arises from secretory cells and involves squamous and mucinous cellular morphologies.
- The epidemiologic characteristics of head and neck Mucoepidermoid Carcinoma (MEC), especially the factors influencing prognosis, are not well understood. To date, research into the demographic profile and prognosis of all MEC in the head and neck is incomplete.
- Our goal was to leverage National Cancer Database (NCDB) data in evaluating head and neck MEC demographic and prognostic factors in whole.
- With the larger patient population and additional demographic capabilities provided by NCDB, this study aims to provide a complete and thorough demographic analysis of all patients with MEC in the head and neck and assess how these factors influence survival.

METHODS

- The NCDB is a joint database that is sponsored by both the American College of Surgeons and the American Cancer Society. It was established in 1989 and comprises approximately 70% of all malignant cancers diagnosed in the United States within a hospital-based cancer registry, containing patient anonymized data spanning from 2004-2021. To refine the Cohort for MEC histology, only cases with the specific ICD-O-3 histology code 8430 were retained, while all other histological subtypes were excluded.
- We evaluated many demographic factors, including age, sex, race, ethnicity, insurance status, and healthcare setting (urban or rural).
- Age at diagnosis was grouped into five categories: 0–19, 20–39, 40–59, 60–79, and 80+ years.
- Race categories included White, Black, and Other, with the "Other" category encompassing subpopulations such as American Indian, Aleutian or Eskimo, Chinese, Japanese, Filipino, Hawaiian, Korean, Vietnamese, Kampuchean, Asian Indian or Pakistani, Asian Indian, Micronesian, Other Asian, and Pacific Islander.
- Ethnicity was categorized as Hispanic or Non-Hispanic.
- Insurance status was grouped into five categories: uninsured, private, Medicare, Medicaid, and other.
- Healthcare setting was split into five categories: Counties in metro areas of ≥ 1 million population, counties in metro areas < 1 million population, urban population of ≥ 20,000, urban population of 2500-19,999, and rural or less than 2500.
- Kaplan-Meier survival analyses were conducted to estimate overall survival across various variables, and log-rank tests were used to compare survival curves.
- Cox Proportional Hazards Regression Models provided hazard ratios to assess the independent effects of prognostic factors while adjusting for covariates.
- All statistical analyses were performed using IBM SPSS Statistics and GraphPad Prism Software Programs.
- Creighton University Institutional Review Board (IRB) has determined that this study only includes deidentified patient data, deeming it exempt from IRB approval.

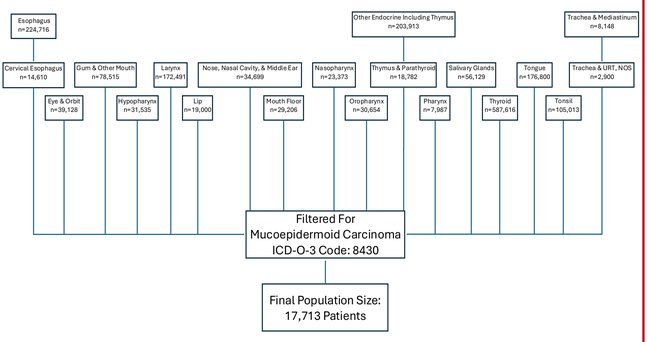


Fig 1: Inclusion Criteria for Patient Selection

OBJECTIVES

We aim to characterize the demographic and prognostic profile of Mucoepidermoid Carcinoma in the Head and Neck.

RESULTS

Survival Hazard Ratios

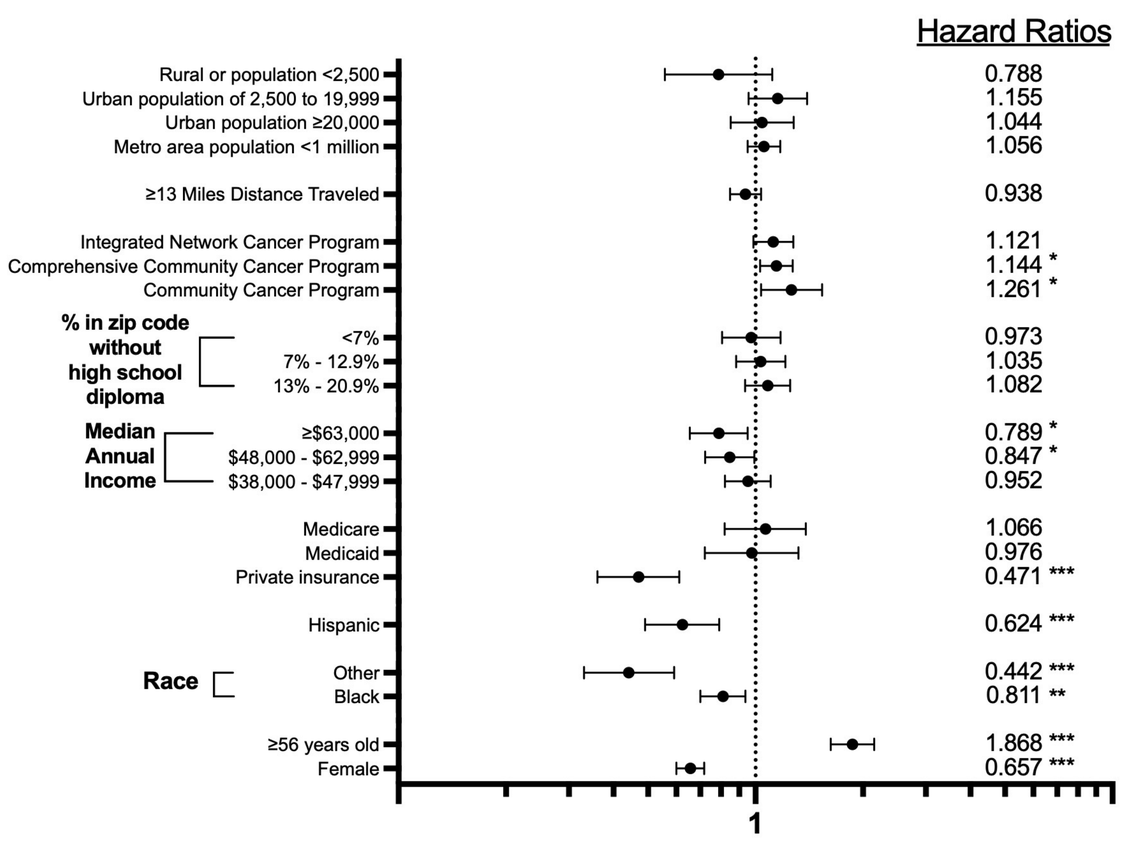


Fig 2. Cox Regression of Demographic Factors amongst MEC patients. * represents p-value <0.05, ** represents p-value <0.01, and *** represents p-value <0.001. References variables from top to bottom: metro area population >1 million, <13 miles traveled, Academic / Research Facility, 21% without HSD, income <$38,000, uninsured, Non-Hispanic, White, <56 years old, and male sex.

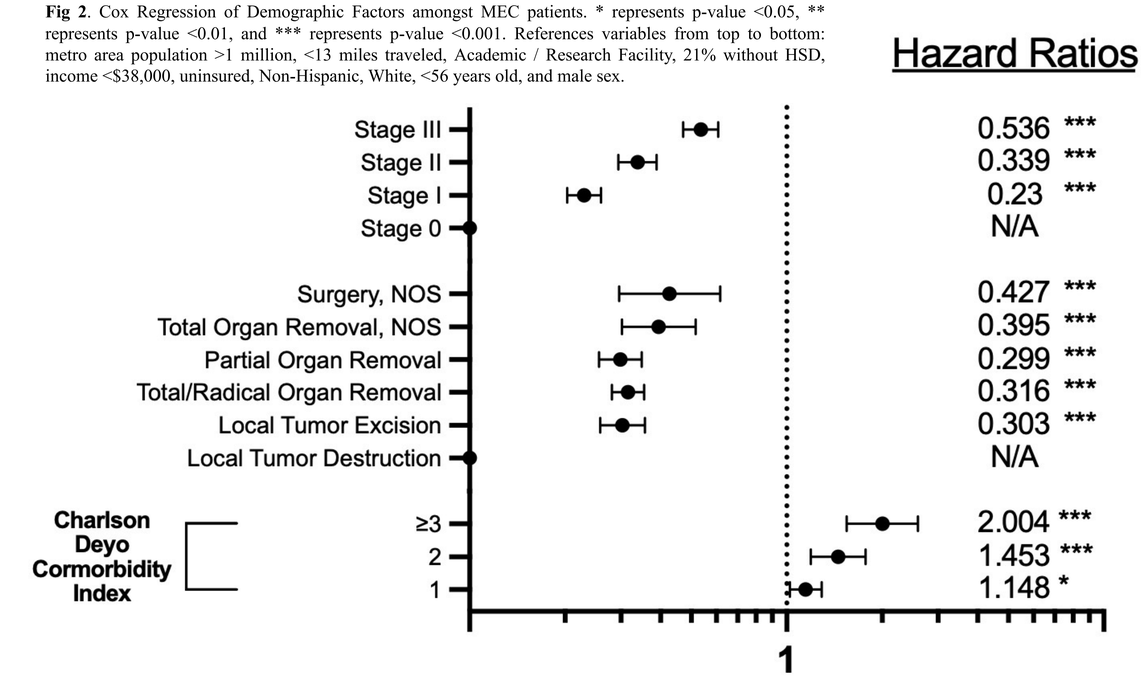


Fig 3. Cox Regression of Prognostic Factors amongst MEC patients * represents p-value <0.05, ** represents p-value <0.01, and *** represents p-value <0.001. References variables from top to bottom = Stage IV, No Surgical intervention, and 0 comorbidities.

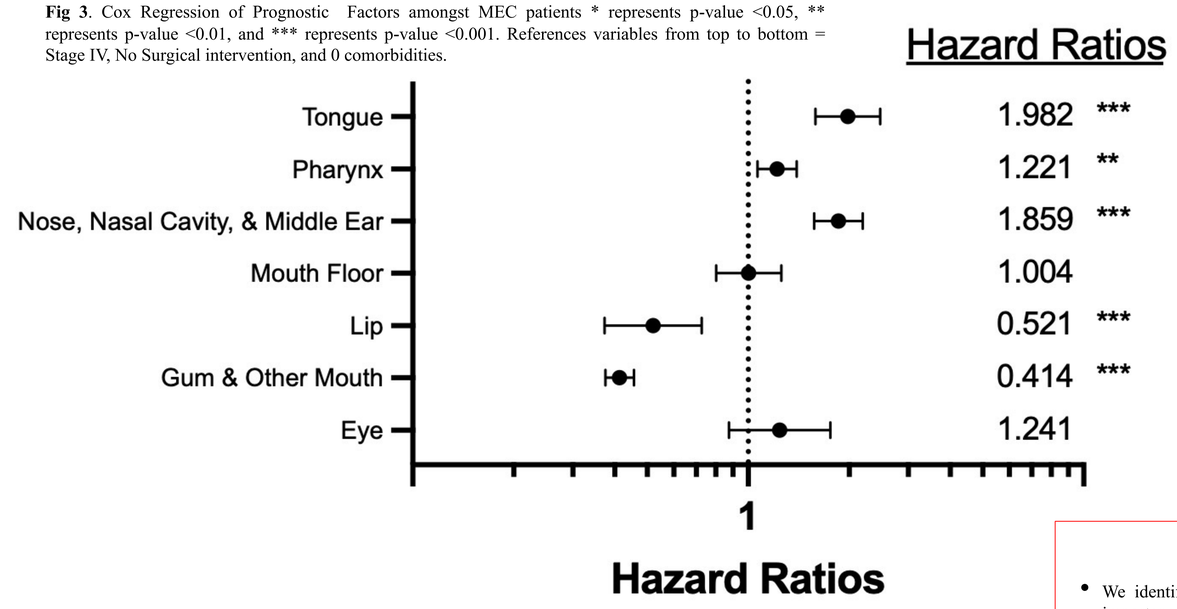
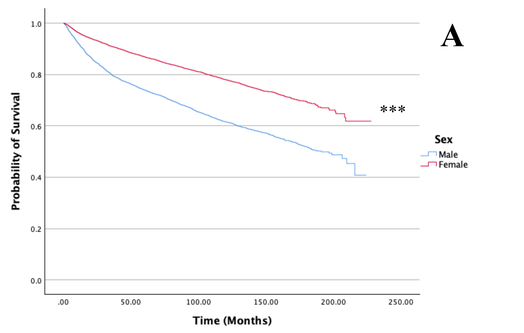
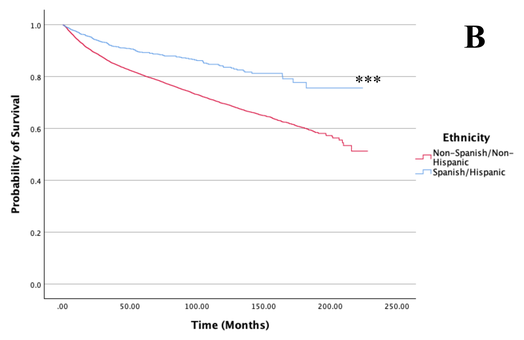
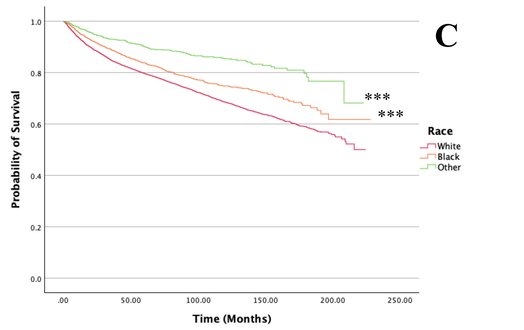


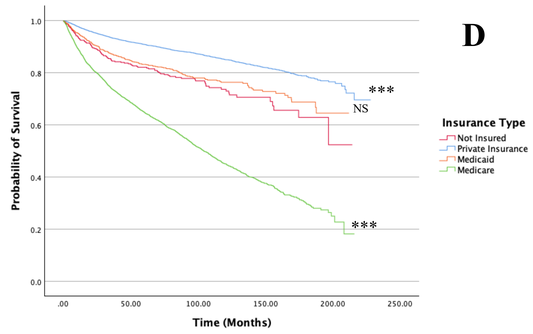
Fig 4. Cox Regression of all MEC Primary Sites. * represents p-value <0.05, ** represents p-value <0.01, and *** represents p-value <0.001. Reference group = Salivary Glands.

Overall Survival Times









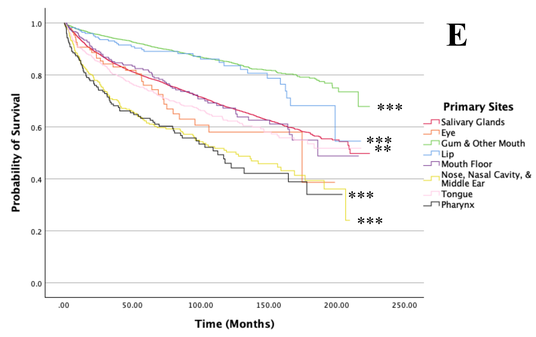


Fig 5. Significant Overall Survival Time Curves. Log Rank Test Comparisons use the first variable (in red) as the reference group. NS represents p-value >0.05; * represents p-value <0.05, ** represents p-value <0.01, and *** represents p-value <0.001.

CONCLUSIONS

- We identified key determinants of survival within head and neck MEC, and the data emphasizes the importance of accessibility of surgical healthcare. It provides valuable clinical insight for demographic disparities and prognostic factors.
- Further studies are needed to better understand race as a prognostic factor, and future effort must be made to mitigate socioeconomic and geographic barriers that result in decreased access to care and survival.

Contact:
MarcoDiBlasi@Creighton.edu