

Title: *Expanding medical student education and access to head and neck cancer screening and preventive education within an uninsured population*

Authors: Raisa Tikhtman, MD; Adam McCann, MD; Alice Tang, MD
University of Cincinnati Department of Otolaryngology-Head and Neck Surgery

Objectives:

- 1) To enhance medical student education on head and neck cancer epidemiology and prevention, with a focus on upper aerodigestive squamous cell carcinoma and the impact of human papillomavirus-associated disease.
- 2) To improve the head and neck physical examination skills of medical students and to provide instruction on upper airway endoscopic examination.
- 3) To provide equitable and cost-effective care to uninsured patients by offering head and neck cancer screenings, preventive education, and medical referrals to subspecialists when indicated.

Target population(s): With regards to the medical education component of the program, the targeted audience is first-through fourth-year medical students. From a patient standpoint, our target population includes uninsured adults served by the SRFC. The SRFC operates a multidisciplinary clinic in collaboration with the Healing Center, a nonprofit community organization, based in Springdale, OH. The Healing Center uniquely serves a predominantly uninsured and Hispanic/Latino population who face barriers to adequate comprehensive social services elsewhere in Hamilton County, OH.

Methods:

Medical student education: A 25-minute lecture which includes an overview of head and neck cancer epidemiology and components of the head and neck physical exam has been created by the co-authors Tikhtman and McCann in collaboration with medical students involved in the SRFC. Following the otolaryngology resident-led lecture, medical students are provided with at least 45 minutes to practice their physical examination skills at stations facilitated by residents. Physical exam stations include oral cavity and otologic examination, neck palpation, and flexible laryngoscopy.

Surveys evaluating medical student knowledge about head and neck cancer were created by medical students involved in the SRFC and were reviewed by co-authors Tikhtman and McCann. These surveys were deployed amongst medical student attendees both prior to and immediately following the didactic sessions. The data analysis is ongoing and pending input from the most recent training session on 2/28/23.

Head and neck cancer screening and prevention: The patient-facing component of this initiative is focused on providing head and neck cancer screenings and preventive education. The first screening event occurred in October 2022, with approximately 20 medical student attendees and over 30 patients screened. Due to previous funding, we currently have a robust supply of tongue depressors, otoscopes, and speculums, as well as over 20 single-use flexible laryngoscopes and an Ambu scope tower available for use in patient screening events.

At the start of their encounter, patients complete intake paperwork which includes past medical and surgical history, prior substance use, and other head and neck cancer risk factors. Patients are then evaluated by a team of medical students and an otolaryngology resident. Depending on indications, a flexible laryngoscopic exam may be completed by the resident with faculty supervision. The patient plan is ultimately finalized with oversight from the faculty supervisor. Patients who screen positive for active substance use are offered educational documents and community resources. Patients who require further evaluation by a head and neck cancer specialist or primary care follow up are then provided with the appropriate contact information.

In the future and with the assistance of additional funding, we aim to expand our screening efforts to particularly emphasize HPV vaccination, with the goal of being able to administer catch-up HPV vaccines through the SRFC. The

SRFC has already demonstrated success at administering influenza vaccines through its clinics, so we anticipate that HPV vaccine storage and deployment would be feasible.

Anticipated outcomes:

Medical student education: We anticipate that attendance at the didactics and physical examination skills training session will increase medical students' knowledge of head and neck cancer and comfort performing a head and neck exam, regardless of their level of training. We are using our pre- and post-didactics session surveys to quantitatively assess the impact of our interventions. If our outcomes do not align with the anticipated impact, we will adjust our didactics with input from previous medical student attendees.

Head and neck cancer screening and prevention: We anticipate facilitating at least two community head and neck cancer screening events per year at the Healing Center with the current supply of resources. Based on the success of our first event and overall volume of individuals served by the Healing Center and SRFC, we expect at least 30-40 adult patients per screening event. Through the intake paperwork and thorough head and neck examination, we are able to identify patients with head and neck pathology and successfully refer them to the appropriate specialists as indicated. Our screening mechanisms also allow us to identify patients with risk factors for head and neck cancer and provide real-time education and didactic materials regarding risk reduction.

Anticipated community impact: One arm of this initiative endeavors to expand medical student awareness of head and neck cancer and comfort level identifying physical exam findings that may correspond with its diagnosis. Our didactics emphasize the rising incidence of HPV-associated oropharyngeal cancer with the goal of developing future clinicians aware of its impact.

The second arm of this initiative is dedicated to expanding access to head and neck cancer screenings and preventive education among an under-resourced and vulnerable population within our community. As our project evolves, we hope that our impact will evolve to include the provision of HPV vaccinations.

Estimated costs:

Medical student education: Over the next year, we anticipate minimal costs associated with additional didactics sessions, as the majority of the required supplies have already been purchased in bulk. With 3-4 sessions planned each academic year, we will require 6-8 single-use flexible laryngoscopes per year. Each scope costs approximately \$180.50, so we anticipate using approximately \$1,444.00 to purchase 8 scopes.

Head and neck cancer screening and prevention: The majority of the previous funding (see below) was utilized to purchase materials for the first head and neck screening event, including 25 single-use flexible laryngoscopes, an Ambu scope tower, and numerous otoscopes. Following this event, there were 22 remaining laryngoscopes. We do not anticipate needing additional scopes for screening events within the next academic year based on the current supply.

Additional funding obtained in support of these efforts would be primarily utilized to support the development of an HPV vaccination initiative through the SRFC. The current list price for a single dose of Gardasil 9 is \$268.02, however we anticipate that we may be able to purchase a bulk volume of vaccines at a lower price per unit. Funds would also be used to develop and print educational materials on HPV vaccination.

Current funding: The current efforts are supported by a \$14,000 Community Health Grant awarded to the UCCOM SRFC by the University of Cincinnati Center for Clinical & Translational Science & Training in spring 2022. The title of the project is "*Screening, education, and prevention: A multi-faceted approach to mitigate the burden of head & neck cancer in uninsured patient populations.*"