



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
PP150077

Project Title:
Media-Rich Mobile Dissemination of a Dysphagia Prevention Program for
Head and Neck Cancer Patients during Radiation

Award Mechanism:
Evidence-Based Prevention Programs and Services

Principal Investigator:
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Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

Nearly 19,000 pharyngeal and laryngeal cancer survivors are alive in the state of Texas and their numbers are rising rapidly due to the increasing incidence of human papilloma virus (HPV)-related oropharyngeal squamous cell carcinomas. Cancer of the throat is a relatively rare cancer and while it is highly curable, 39% of survivors experience serious permanent swallowing problems such as silent aspiration, strictures, or dependence on tube feeding. Dysphagia delays patients' return to work, leads to progressive malnutrition and increases risk of aspiration pneumonia. To prevent dysphagia, targeted swallowing exercises performed during radiation have been shown to be an effective in preventing radiation-induced fibrosis of the swallowing musculature (Paleri et al. 2014). NEED: Unfortunately, head and neck cancer patients treated at community practices rarely have the opportunity to learn swallowing exercise therapy, due to a national shortage of speech pathologists trained in adult dysphagia. For the proposed service area, head and neck cancer patients who are treated at the Texas Health Care Otolaryngology & Facial Plastic Surgery Associates in Fort Worth, a minority of newly-diagnosed head and neck cancer patients receive specialized speech pathology services. Approximately 12-15% of the patients seen at this high-volume oncologic and reconstructive surgical practice are uninsured and an additional 25% have Medicaid or Medicare insurance. Furthermore, even after receiving targeted swallowing exercises, patients find adherence to exercises extraordinarily difficult, due to significant side effects from extensive-field, high-dose radiation such as mucositis, skin desquamation, xerostomia, and fatigue. Past research from our group has shown that the rate of patients' nonadherence to swallowing exercises is high, 58%. Adherence to swallowing exercises at the proposed service area has not been previously measured. SPECIFIC GOALS: (1) To provide evidence-based speech pathology functional swallow evaluation pre- and post-treatment and targeted swallowing exercises to head and neck cancer patients during radiation. (2) To administer an effective adherence program via a mobile health technology application (GuideVue) to head and neck cancer patients during radiation. (3) To lay the groundwork for future dissemination of this prevention program. PROJECT STRATEGY: The proposed prevention program will provide in-person speech pathology services at the proposed site. This site was chosen due to its high-volume of newly diagnosed patients and commitment to providing evidence-based care to patients regardless of insurance status. To address nonadherence, we will deliver a 10-session weekly behavioral program which provides timely coping strategies, practical side-effect

information, and psychological skills training during radiation and during the four week post-radiation period. INNOVATION: We will use GuideVue, a mobile interactive medical software technology to deliver the behavioral adherence program. Once downloaded onto a user's smartphone, GuideVue is a complete technology that can be accessed and executed anywhere, anytime, even if there is no internet access. Thus, the patient is able to reliably access high-quality program images, audios, and video content from our efficacious adherence intervention program (called PREPARE) conveniently. To track patient engagement with the technology, the app can also record information about patient engagement with the mobile technology (e.g. whether the patient looked at the PREPARE content that week, how many minutes were spent looking at the PREPARE newsletters) and store this deidentified information on encrypted database servers. GuideVue is designed to be uploaded onto any smartphone, iPad, Android phone, or Android Tablet. IMPACT: Recent data from our randomized trial show that PREPARE is efficacious in improving adherence in patients compared to age-, sex-, and tumor-size matched controls ($p=.04$; $n=263$). PREPARE also resulted in significantly improved swallowing outcomes at 1 year (decreased dependence on tube feeding (6% of PREPARE patients vs 13% of the Controls) and increased ability to eat a normal diet 2 years after radiation ($p=.04$). These effect sizes indicate that the proposed Prevention program has the potential to lead to transformative outcomes in the prevention of dysphagia for at least 1000 underinsured and uninsured head and neck cancer patients treated in a Fort Worth community medical practice. Pilot testing of the PREPARE app demonstrated overwhelmingly positive patient response. We believe that the proposed program will significantly decrease the likelihood of devastating long-term dysphagia in Texan head and neck cancer survivors.