Community-Centered Screening Program in a High-Risk Underserved Population

Background:

West Virginia has one of the highest rates of tobacco related cancer in the nation, including oral cavity cancer. The rate of oral cavity cancer in West Virginia has increased by 3.5% since 2009 and currently West Virginia has the third highest rate of oral cancer per capita in the nation. The reasons for this disparity center on high rates of tobacco use, low health literacy, financial constraints, and difficult access to care. West Virginia residents on average start using tobacco products at age 12, 2 years younger than the national average. The rates of cigarette use are 26.8% and that of chewing tobacco is 8.5%; this is contrast with national rates of 15% and 3.6%, respectively. Access to care is limited by the significant poverty that plagues the state. While the national poverty level is 15%, the West Virginia statewide poverty level stands at 18.5% with more rural counties reaching as high as 35%. However, West Virginia is 7th in the nation for number of people who have health insurance, suggesting that while health care coverage is largely provided, access and knowledge about when to seek care are the main deterrents to treatment.

West Virginia University’s Ruby Memorial Hospital is the only tertiary care institution that provides advanced cancer care to West Virginia residents. However, the majority of the state’s population lives several hours away from the institution, making a screening program based out of Ruby Memorial impractical for residents for who cost and method of transportation is an important concern. This is particularly relevant to the counties with the highest rates of oral cancer: Hampshire and Roane counties, both located far from our institution, boast oral cancer rates of 20% and 18.5%, respectively. This is almost twice the national average of 11.3%. Screening programs in these areas are sporadic and largely non-existent for oral cancer. As such, little is known about the burden of oral cancer and barriers to care in this population, making interventions difficult to implement.

In brief, West Virginia is in an unfortunate situation of having high rates of tobacco use and high rates of oral cancer, but limited screening, education and access to care prevents early detection and treatment. We propose a unique community based screening program centered on 1) on-site outreach to eliminate transportation costs for residents in these underserved areas 2) health education and guidance in self-screening to improve early detection, and 3) surveying participants about the barriers to care in this high risk population improve overall access and future outcomes.

I. **Target Population**: We will be targeting West Virginia residents who live in Hampshire, Roane, and McDowell counties. These counties have been identified as having the highest rates of oral cancer in the state, as well as high rates of tobacco use and poverty. These counties have also been little-studied in terms of barriers to health care.

II. **Methods**: We will host a day-long oral cancer screening at sites in each of the three above-listed counties. Volunteers will travel to facilities at each county to provide screening for people in the area, as well as to provide health education.
   a. *Publicity*: Publicity will be through online efforts and via local news in each of the screening counties.
   b. *Transportation*: Volunteers will provide their own transportation to the remote sites. The furthest site is a 4-hour drive away. Carpooling will reduce transportation costs.
   c. *Education*: A one-page information sheet, written at a high school level, will be provided to participants and will the signs and symptoms of oral cancer both verbally and pictorially. High-definition color images will be used to show what concerning oral lesions look like. During the screening event, the screening volunteer will reinforce these signs and symptoms with the participants. Tobacco
cessation will also be discussed and resources provided via the West Virginia Quit Line, a free tobacco cessation resource to all West Virginia residents.

d. **Self-Screening:** Participants will be taught how to 'self-screen' for oral cancer using standard household items (a mirror and a light). Volunteers will also go over the signs and symptoms or oral cancer listed on the education sheet. Participants will be given information about how to seek further medical care through their local dentist or hospital.

e. **Addressing Barriers to Care:** A well-described survey assessing barriers to care for head and neck cancer patient will be given to screening participants. The survey will ask questions about demographics, barriers to care and current knowledge about oral cavity cancer.

III. **Expected Outcome/Impact:**

a. **Increased education:** The provided education materials coupled with conversations with screening volunteers will improve awareness about oral cancer and education about when to seek further care.

b. **Increased detection:** The education materials and the 'self-screening' teaching will improve detection rates of early oral lesions by our participants; we expect this will lead to earlier intervention and potentially improved overall treatment success for premalignant and malignant oral lesions.

c. **Improved access to care:** Survey measures of participants' barriers to care will give us new information about this high risk population and help us develop targeted measures to improve health care access for these underserved communities.

IV. **Estimated Cost:**

a. Cost estimates will be made based on an expected 50 participants at each of the three screening sites:

   i. **Facility Rental:** $600 ($200 per site for all day facility rental)

   ii. **Education Materials:** $200 ($1 per page for 150 participants with extras)

   iii. **Advertising:** $180 ($12 x 5 days at three sites, based on local newspaper advertising prices. Online advertising is free).

V. **Additional Funding:** There is no additional funding available for this project.

VI. **Contact Information:**

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References:

1. 2016 West Virginia Cancer Burden Report. WV Cancer Registry, WV Department of Health and Human Resources and West Virginia University Cancer Institute, Morgantown, WV, December 2016. Pg. 18
5. Incidence data provided by the National Program of Cancer Registries (NPCR). EAPCs calculated by the National Cancer Institute using SEER*Stat. Rates are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Population counts for denominators are based on Census populations as modified by NCI. The 1969-2014 US Population Data File is used with NPCR November 2015 data.
7. Barriers to early detection and treatment of head and neck squamous cell carcinoma in African American men. William R Carroll, MD,1 Connie L Kohler, PhD,2 Vivian L Carter, PhD,3 Lonnie Hannon, MS,3 Joni B. Skipper, MD,1 and Eben L Rosenthal, MD1 Head Neck. 2009 Dec; 31(12): 1557–1562.