

# Improving Short and Long Term Student and Participant Awareness About Head and Neck Cancer at a Cancer Screening Event

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## ABSTRACT

**Objectives:** To evaluate improvement of medical student and guest knowledge of the human papillomavirus (HPV) and head and neck cancer (HNC) through participation in medical-student-run head and neck screening fairs.

**Study Design:** Prospective cohort study of (1) medical students who volunteered at the screening event and (2) guests who were screened at the screening event; surveys were administered assessing baseline, immediate post-event and delayed post-event HPV and HNC knowledge.

**Setting:** Four screening fairs held at the University of Miami Miller School of Medicine during Oral, Head and Neck Cancer Awareness Week.

**Methods:** All medical student volunteers and guests completed a pre-event survey assessing baseline HNC awareness. During the event, each guest listened to a three-minute medical student present about head and neck cancer prior to going to the screening station. Guests completed post-event surveys at the check out desk and then via phone eight months after the event. Students completed post-event surveys one week and three months after the event via email. Pretest-posttest analyses were performed using McNemar's test for each question.

**Results:** Thirty-four ( $n=34$ ) students completed the pre and post event surveys. At baseline, 21% named HPV as a top risk factor, compared to 68% after the event and 69% at three month follow up ( $p=0.009$ ). 68% answered true that the same virus that causes cervical cancer can cause head and neck cancer prior to the event, whereas 97% answered correctly post-event. 211, 204 and 70 participants completed the pre-, immediate post- and delayed post-event surveys, respectively. At baseline, 7% named HPV as a top risk factor, compared to 51% after the event and 23% at seven month follow up. ( $p= 0.113$ ). 24% answered true that the same virus that causes cervical cancer can cause head and neck cancer prior to the event, whereas 78% and 67% answered correctly post-event ( $p<0.001$ ). At baseline, 8% answered true that a vaccine exists that may prevent some head and neck cancers, with 58% and 46% answering true at immediate and delayed follow up, respectively ( $p <0.001$ ).

**Conclusions:** Baseline knowledge about HPV and head and neck cancer is low among participants and medical student volunteers. Involvement in a combined health education-screening program increases immediate and longer-term awareness of important disease features. The increase was noted across multiple subgroups including socioeconomic groups for participants and preferred specialty groups for students.

## MATERIALS & METHODS

- Upon arrival to the event, participants completed a baseline demographics and the following knowledge survey, and then completed it again at the end of the event and 6-8 months later. Students completed this survey prior to orientation for the event and then again 3-6 months later. Orientation for the students involved a training session detailing the head and neck exam and facts for the patient presentation.
- During the event, medical students gave a three minute educational presentation focusing on HNC prevention and early detection to every participant. Main points covered included the top risk factors for HNC and prevention strategies.



Faculty demonstrating the HNC Screening Exam at the Medical Student Orientation



Medical student giving the educational presentation to screening participants.

### HNC Knowledge Survey

- (A) Over 80% of oral, head and neck cancers are caused by these top three risk factors: \_\_\_\_\_ and \_\_\_\_\_.
- (C) Head and neck symptoms lasting over \_\_\_\_\_ weeks could be a sign of cancer and should be evaluated by a doctor.
- Head and neck cancers always cause pain; if there is no pain, then there is no cancer.
- Early diagnosis improves the chance for cure from head and neck cancer.
- The same virus that causes cervical cancer can cause head and neck cancer.
- Most head and neck cancers cannot be prevented.
- There is a vaccine available that may protect against certain types of head and neck cancer.
- Head and neck cancer can be caused by a virus spread through oral sex.
- (B) \_\_\_\_\_ appears to be responsible for the rise in the numbers of tonsil cancers in young and middle-aged adults and can be acquired through \_\_\_\_\_.

## RESULTS

**Table 1. Participant Characteristics**

	n(%)		n(%)
# Who Completed		Race	
Pre-Event Survey	210	White	120 (57%)
Immediate Post	204 (97%)	Black	44 (21%)
Delayed Post	70 (33%)	Other/No Response	46 (22%)
Gender		Asymptomatic	
Male	65 (31%)	Yes	68 (32%)
Female	145(69%)	No	142 (68%)
Ethnicity		Visits a Physician Annually	
Hispanic	107 (51%)	Primary Care Provider	156 (74%)
Non-Hispanic	78 (37%)	Specialist Only	22 (10%)
Not Reported	25(12%)	No	17 (8%)
Risk Factor +		Follow up Recommended	
Current Tobacco	24 (11%)	Routine	148 (70%)
Ever Tobacco	82 (39%)	Further H&N ENT	55 (26%)
Heavy Alcohol	30 (14%)	Immediate referral for suspected neoplasm	7 (3%)
Family History	32 (15%)		
Household Income		Employment	
<\$20,000	54	Active	95 (45%)
<\$50,000	51	Self	28 (13%)
>\$70,000	29	Unemployed	23
≥\$70,000	36	Retired or Homemaker	46
No Answer	40	No Answer	13 (6%)
Savings		Visits a Dentist Annually	
≥ \$10,000	54 (26%)	Yes	137 (65%)
<\$10,000	112 (53%)	No	56 (27%)
No Answer	31 (15%)		
Health Insurance		Education	
Yes	164	Less than HS	8 (4%)
Employer/School	73 (35%)	HS Degree	36 (17%)
Medicaid	17 (8%)	Some College	55 (26%)
Medicare	21 (10%)	College Degree	40 (20%)
Marketplace	17 (8%)	Some Grad	8 (4%)
Private or Other	36	Grad Degree	46 (22%)
No	30 (14%)	No Answer	13 (6%)
No Answer	16 (8%)		

**Table 2. Medical Student Characteristics**

	n(%)		n(%)
# Who Completed		Specialty Interest: Otolaryngology	
Pre-Event Survey	34	Yes	10 (30%)
Immediate Post	34	No/Undecided	23 (70%)
Delayed Post	32		
Year of Education		Specialty Interest: Primary Care	
MS1	23 (70%)	Yes	14 (42%)
MS2	10 (30%)	No/Undecided	19 (58%)
Executive Board		Worked with an ORL Before	
Yes	8 (24%)	Yes	12 (35%)
No	26 (76%)	No	21 (65%)

**Table 3. Medical student scores on the HNC Pre, Immediate Post and Delayed Post Tests**

Question	Answer(s)	Pooled Results			p-value* (Pre vs. 3 Month Post)
		Pre-Test Correct (n=34) n (%)	Immediate Post-Test Correct (n=34) n (%)	3 Month Post-Test Correct (n=32) n (%)	
A	Alcohol	14 (41)	27 (79)	26 (81)	0.0275
	Tobacco	18 (53)	29 (85)	27 (84)	0.0586
	HPV	7 (21)	23 (68)	22 (69)	0.0009
B	HPV	7 (21)	21 (62)	21 (66)	0.0018
	Oral sex	7 (21)	21 (62)	19 (59)	0.0073
C	Symptom duration	7 (21)	24 (71)	25 (78)	0.0001

- The increase in overall score of the 3 month post-test as compared to the pre-test remained significant ( $<0.05$ ) after stratification for students who were not on the executive board, MS1 students, and students who were not interested in Otolaryngology.

## RESULTS

**Table 4. Participant Scores on the HNC Pre, Immediate Post, and Delayed Post Tests**

Question	Correct Answer	Pooled Results			p-values (Pre vs. Immediate Post)	p-values (Pre vs. Delayed Post)
		Pre-Test Correct (n=210) n (%)	Immediate Post-Test Correct (n=204) n (%)	6-8 Month Post-Test Correct (n=70) n (%)		
1a	Tobacco	73 (35)	155 (76)	51 (73)	<0.001	<0.001
b	Alcohol	48 (23)	149 (73)	26 (37)	<0.001	1
c	HPV	15 (7)	104 (51)	16 (23)	<0.001	0.113
2	2-3 Weeks	36 (17)	132 (65)	22 (31)	<0.001	1
3	False	119 (57)	156 (76)	65 (93)	<0.001	<0.001
4	True	182 (87)	197 (97)	70 (100)	0.236	----
5	True	51 (24)	159 (78)	47 (67)	<0.001	<0.001
6	False	95 (45)	158 (77)	60 (86)	<0.001	<0.001
7	True	17 (8)	118 (58)	32 (46)	<0.001	<0.001
8	True	49 (23)	168 (82)	54 (77)	<0.001	<0.001

- The increase in overall score of the immediate post-test as compared to the pre-test remained significant ( $<0.001$ ) even after stratifying by yes vs. no health insurance, high vs. low income, some college or less vs. more education, and positive vs. negative risk factor status.

## CONCLUSIONS

- HNC awareness was significantly improved during the event for participants, as evidenced by the significant improvement in immediate posttest scores. However, as only one question was answered correctly greater than 90% of the time, there is room for improvement.
- Results regarding longer term awareness are limited by loss to follow up. Participants appear to have maintained increased awareness for most concepts. Whether increases in awareness from this program have led to actual changes in behavior would be a meaningful future topic of study.
- Medical student participation in the HNC screening fairs successfully attracted and increased HNC knowledge among students planning on entering a variety of specialties. Students maintained increased awareness at delayed follow up for most concepts.

## CONTACT

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