

An Analysis of Oral Cancer Interventions in Mississippi

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PPAD 786-Uraban Problems and Non-Traditional Option

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**Oral Cancer
Awareness
Month**



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Introduction

- What is oral cancer?
 - It is the largest group of cancers which fall into the head and neck cancer category. Oral cancers usually start in the squamous cells, the ones that line the mouth (also called oral cavity).
 - The oral cavity includes the front two-thirds of the tongue, the gums, the inner lining of the cheeks, the bottom of the mouth, the roof of the mouth, and the area behind the wisdom teeth. This part of the body is instrumental in the ability to breathe, speak, chew, and swallow.
 - More than 80 percent of such cancers are linked to tobacco use. Initially, oral cancer may appear as white patches in the mouth called areas of leukoplakia.

Oral Cancer Facts

- **April** is Oral, Head, and Neck Cancer Awareness Month
- **Anyone** can be affected by mouth cancer.
- About **51,540** people will get oral cavity or oropharyngeal cancer in 2018.(American Cancer Society Key Statistics).
- An estimated 10,030 people will die of these cancers.



**A 10-MINUTE SCREENING
COULD MAKE ALL THE DIFFERENCE.**

UMMC is offering **FREE** oral cancer screenings as part of national Oral, Head, and Neck Cancer Awareness Month in April. It's quick, it's easy, and early detection is the key to fighting cancer.

Risk factors for these cancers include alcohol and tobacco use, sun exposure, and HPV.

WEDNESDAY, APRIL 11 • 8 AM-NOON

State Capitol Building • 400 High Street • Jackson, MS 39201



Walk-ins welcome or call **601.984.6885** to schedule an appointment.

Risk Factors For Oral Cancer

- Most cases of oral cancer are linked to **tobacco** and **alcohol**.
- Alcohol increases the risk of oral cancer, and if **tobacco** and **alcohol** are consumed together the risk is even **greater**.
- **Human papillomavirus infection** (HPV-16)
- **Sun Exposure**-lip cancer

- 
Tobacco Use:
Risk increases with use
- 
Alcohol Use
- 
Exposure to the
HPV-16 virus
- 
The risk is
15X greater
for people who both
smoke and drink

Problem Statement

- Oral cancer or cancer of the mouth (e.g., throat, larynx, nose, sinuses, and mouth) is a worldwide and chronic health problem. (Sethi S 2009, 104-108).
- From 2010-2015, **733** people died by oral cancer in Mississippi, most of them were related to tobacco smoking (Mississippi Cancer Registry).

Literature Review

- **Jitender, Solanki; Sarika, Gupta; Varada, Hiremath, R.; Omprakash, Yadav; & Mohsin, Khan (2016). *Journal of Experimental Therapeutic and Oncology*, Vol, 11. 303-307.**
 - Over the past 3 decades, the 5 year survival rates of oral cancer have improved, but remain in the range of **50-60%** which is one of the lowest in all major types.
 - In the past 20 years there has been little or no change in the detection of oral cancer at early stages. Most patients are diagnosed with advanced stage disease (2).
 - To overcome this, **early detection** of oral cancer plays an important role.

Cont.

- **McQuillan, G et al. Prevalence of HPV in Adults 18-69: United States, 2011-2014 (2017), NCHS Data Brief, No. 280, 1-8.**
 - **During 2011-2014, prevalence of any oral human papillomavirus for adults aged 18-69 was 7.3%; high risk HPV was 4.0%.**
 - **Overall prevalence of any high-risk oral HPV was lowest among non-Hispanic Asian adults; any oral HPV was highest among non-Hispanic black adults.**
- **Moyer, Virginia. "Screening for Oral Cancer: U.S. Preventive Services Task Force Recommendation Statement." *Annals of Internal Medicine*, 2014: 55-60.**
 - **Research supports that tobacco and alcohol use are major risk factors for oral cancer. A total of 20% to 30% of cases of oral cancer worldwide are attributable to cigarette smoking (Olson, et al. 2013)**

Research Question

- Do comprehensive tobacco control programs have any impact on oral cancer incidence?

Oral Cancer Interventions

- Don't use tobacco in any form
- Oral Cancer Screenings
 - Visual examination
 - Photodynamic
- Drink **alcohol** only in **moderation**
- Use **sun protection** on your lips, such as lip balm w/sunscreen.
- Get **dental checkups** twice a year so that signs of oral cancer can be detected early.
- Practice safe sexual hygiene.

Mississippi's Intervention Program- Comprehensive Tobacco Control Program

- In 2007, the Mississippi State Legislature responded to the growing health and financial crisis associated with tobacco use with definitive action by mandating a comprehensive statewide education, prevention, and cessation program in §41-113-1 of the Mississippi Code of 1972.
- **Mission:**
 - The mission of the Office of Tobacco Control is to promote and protect the health of all Mississippians by reducing tobacco-related disease and death. OTC utilizes a systemic approach to achieve this end as outlined in the Centers for Disease Control and Prevention's (CDC) and Best Practices for Comprehensive Tobacco Control Program. Components include:

Mississippi
tobaccoQUITLINE
1.800.QUITNOW
WWW.QUITLINEMS.COM 1.800.784.8669

Components

- **State and Community Interventions**
 - Mississippi Tobacco- Free Coalitions
 - Community based coalition that work to prevent the initiation of tobacco use among youth, reduce exposure to secondhand smoke, promote cessation services, and eliminate tobacco-related disparities.
 - Statewide Partners
 - Youth Programs
- **Tobacco Cessation Interventions**
 - The **Mississippi Tobacco Quitline** is an evidence-based, tobacco cessation treatment program that has services available to adult residents of the state of Mississippi who are motivated to quit using tobacco products.
 - The **ACT Center** is an evidence-based, tobacco cessation treatment program that has services available to adult residents of the state who are motivated to quit using tobacco products.
- **Surveillance and Evaluation**
 - Monitor and provide short-term, intermediate and long-term interventions to influence program and policy direction, ensure accountability, and demonstrate effectiveness.
- **Administration and Management**
 - Engaging in strategic planning to guide program efforts and resources to accomplish their goals.
 - Developing and maintaining a real-time fiscal management system that tracks allocations and expenditure of funds.
 - Creating an effective communication system internally, across chronic disease programs, and with local coalitions and partners

Data Method

- Secondary data were collected from the following sources:
 - Behavioral Risk Factor Surveillance System (BRFSS) State Rankings of Current Cigarette Smoking, November 2017
 - The National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) registry public-use data, one identified person with oral and throat cancer between 2003-2015;
 - Mississippi Cancer Registry data, one identified oral cavity and pharynx patients, 2003-2014 (All Races, both sexes and ages 19-65+)

Cigarette smoking among adults: 2016

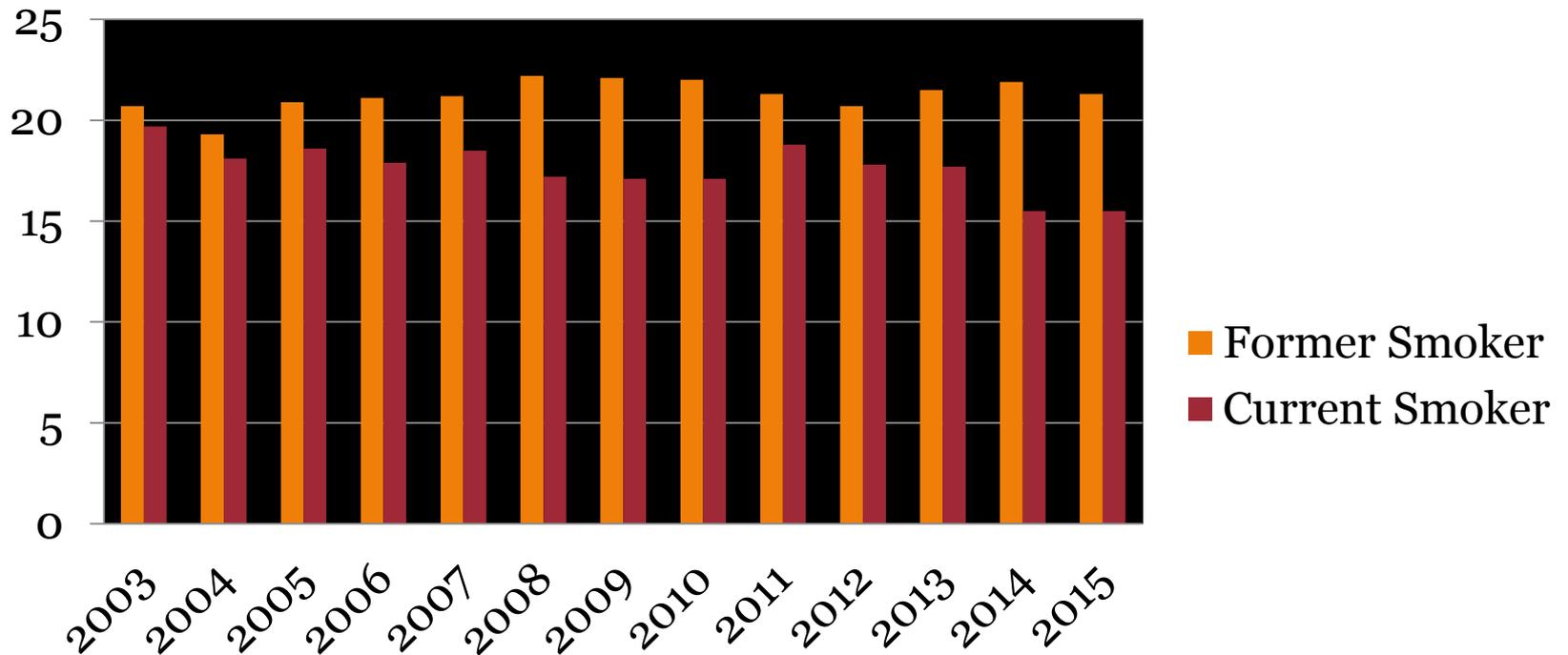
| Rank | State | Prevalence | Lower CI | Upper CI |
|------|---------------|------------|----------|----------|
| 1 | West Virginia | 24.% | 23.6% | 26.1% |
| 2 | Kentucky | 24.5% | 23.1% | 25.8% |
| 3 | Arkansas | 23.6% | 21.3% | 25.8% |
| 4 | Louisiana | 22.8% | 20.8% | 24.8% |
| 5 | Mississippi | 22.7% | 21.0% | 24.5% |

***CI-Confidence Interval**

Source: Behavioral Risk Factor Surveillance System (BRFSS) State Rankings of Current Cigarette Smoking, November 2017

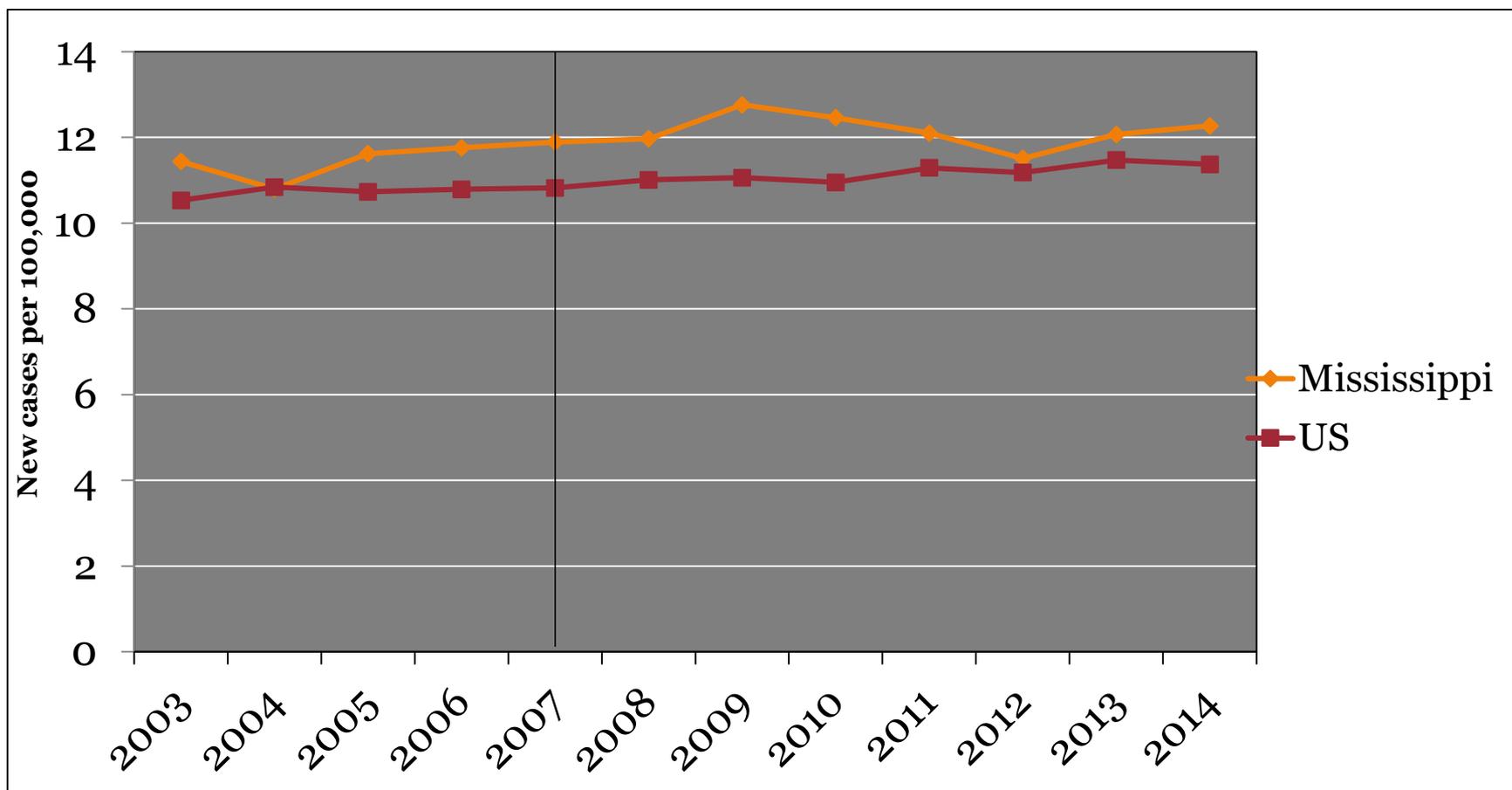
Tobacco & Nicotine Use

2003-2015 MS Level Smoking Status



Source: Behavioral Risk Factor Surveillance System

Data Analysis- Incidence of Oral Cavity Cancer, 2003-2014



Findings

- Do comprehensive tobacco control programs impact oral cancer incidence?
 - Before 2007, there was an average of 18.5% current daily adult smokers in Mississippi (MS). After 2007, there was only an average of 17.4% daily adult smokers shown only a 1.1% decrease.
 - Before 2007, oral cancer incidence rates in Mississippi was 11.4%. After the implementation of Comprehensive Control program in 2007, the oral cancer incidence rate was 12.1% in Mississippi showing a 0.7% increase in oral cavity cases. However, oral cancer incidence peaked in 2009, and has slightly decreased.

Discussion

- After the comprehensive tobacco control program passed in 2007, the number of active smoker has reduced in Mississippi (MS).
- Since 2009, the incidence of oral cavity cancer has slowly reduced in MS, while nationally the incidence is still on an increasing trend.
- If combined with increased tobacco tax, the combined impacts would be greater. Currently the state cigarette excise tax in MS is \$.68/20-pack, while the cigarette tax in NY is \$4.35/pack, as the highest tax rate among states.
- More scientific information, combined with economic incentive, the active smokers would quit more quickly, and society would get more benefits as a whole, by reducing medical expenditure in the public health –related to smoking.

Next Step...

- The current analysis will remain as a descriptive analysis.
- Continuously I will work on the project. For the next step, I will employ an interrupted time-series analysis to test the hypothesis:
 - “The 2007 comprehensive statewide tobacco education, prevention, and cessation law has been effective in reducing the active smokers and the incidence of oral cancer.”

