



# Models of Collaboration for State Chronic Disease and Oral Health Programs in Maryland

*Hypertension Screening in the Dental Setting  
Sept. 1, 2016 – Aug. 31, 2018*

Through the Models of Collaboration for State Chronic Disease and Oral Health programs grant, funded by the Centers for Disease Control and Prevention (CDC), select dental providers throughout Maryland participated in a pilot program to provide hypertension screenings in the dental setting.

More than 36,000 Maryland residents were screened for hypertension and 2,691 residents were referred to primary care providers for further evaluation and treatment.



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# Acronyms

<b>CDC</b>	Centers for Disease Control and Prevention
<b>MDH</b>	Maryland Department of Health
<b>OOH</b>	Office of Oral Health
<b>CCDPC</b>	Center for Chronic Disease Prevention and Control
<b>CTPC</b>	Center for Tobacco Prevention and Control
<b>LHD</b>	Local Health Department
<b>FQHC</b>	Federally Qualified Health Center

# Acknowledgments

## Maryland Department of Health

### Office of Oral Health

Debony Hughes, DDS

*Director*

Amit S. Babra, MD

*Models of Collaboration*

*Program Manager*

Susannah Beckerman, MA

Stacy Costello, MPH, CHES

Jody Libit

Dina Stasik

John Welby, MA

*Data Analysis, Design, and  
Layout*

Teresa Burke

Olivia Straub, MPP

### Center for Chronic Disease Prevention and Control

Kristi Pier MHS, MCHES

*Director*

Marti Deacon, MPH

Gabriel B. Emmanuel, MA

Sadie Peters MD, MHS

### Center for Tobacco Prevention and Control

Dawn Berkowitz, MPH, CHES

*Director*

David Quinn, MPH

Sara Wolfe, MS

### Link Studio

Aline Lin

Michael Linkinhoker, CMI

## Advisory Panel

Karen Ann Garber, DMD

Director, Screening Clinic

University of Maryland School of Dentistry

Tristram C. Kruger, DDS

Maryland State Dental Association

Katy Battani, RDH, MS

Chair, Maryland Oral Health Association

Kathy Hayes, DMD, MPH

Interim Director, Maryland Dental Action Coalition

Kristen Blair, RDH

President, Maryland Dental Hygienists' Association

Catherine Cooke, PhD

Research Associate Professor

Department of Pharmacy Practice and Science

University of Maryland School of Pharmacy

Seth Martin, MD, MHS

Director, Lipid Clinic

Johns Hopkins Hospital

Jeanne B. Charleston, PhD

Senior Research Associate

Johns Hopkins Hospital Bloomberg School of Public Health

Brenda J. Johnson, DnP, CRNP-BC, ANVP

The Johns Hopkins Hospital

Department of Neurology Stroke Center

Brooks Woodward, DDS

Dental Director

Chase Brexton Health Care

David A. Williams, DDS, MS, MPH

Oral Health Program Manager

Carroll County Health Department

Sandra Garbely-Kerkovick, DMD

Senior VP and Chief Dental Officer

Choptank Community Health Systems

Monica Mukherjee, MD, MPH, FACC, FASE

Assistant Professor of Medicine

Johns Hopkins University Division of Cardiology

Russell Moy, MD

Deputy Health Officer

Harford County Health Department

# Introduction and CDC Models of Collaboration Grant Overview

## Background

Heart disease is the leading cause of death in Maryland, killing more than 11,400 Marylanders each year.<sup>1</sup> Hypertension, a risk factor for heart disease, affects more than one third (33.5 percent) of Maryland adults.<sup>2</sup> This same trend is evident across the United States as about one in three adults (75 million people) have high blood pressure.<sup>3</sup> In light of the nationwide prevalence, the American Dental Association suggests that dentists can play an important role in the

***Dental providers can help reduce the rates of hypertension by providing blood pressure screenings during dental visits.***

screening of patients for hypertension.<sup>4</sup> With the implementation of the Models of Collaboration for State Chronic Disease and Oral Health grant, funded by the Centers for Disease Control and Prevention (CDC), dental providers throughout the state of Maryland steadily increased screenings and referrals of dental patients, identified those with undiagnosed or uncontrolled hypertension, and referred them to primary care providers for treatment. The dental providers participating under the purview of this grant

significantly augmented the efforts to reduce hypertension and diseases associated with hypertension, such as heart disease, across Maryland.

Oral health is an integral part of overall health and well-being. Despite the links between poor oral health and a variety of chronic health issues, including shared risk factors, dental care is generally provided separately from other medical care. Currently, there is very little interaction between the dental and medical health care systems.<sup>5</sup> Dental providers typically limit their services to the prevention and treatment of diseases of the oral cavity and related structures.<sup>6</sup> However, dental providers have the capacity to provide care that extends beyond the oral cavity. Dentists today are in a unique position to screen for symptoms of chronic disease and refer patients to appropriate medical care resources where they can receive more comprehensive medical diagnosis and treatment. In Maryland, the majority of adults, an estimated 3.21 million people (68.6 percent), reported having visited a dentist in the past year.<sup>7</sup> Even among Maryland adults who have not seen a doctor for a routine checkup in five or more years, almost half (45.4 percent) have seen a dentist in the past year.<sup>8</sup> This illuminates a valuable opportunity for oral health systems and dental providers to impact chronic disease outcomes by intervening in a population that may not be reached through the medical health care system.

## Collaborating on a Systems Change Model

The goal of the CDC-1609 Models of Collaboration grant was to build relationships between state chronic disease and oral health programs, as well as to incorporate oral health care into chronic disease management systems. The grant provided funding for two years at \$250,000 per year, for a total of \$500,000, and each grant recipient selected one chronic disease or risk

behavior where collaboration efforts would be focused. Maryland was one of six states nationwide to be awarded the Models of Collaboration grant, and one of only two states implementing a hypertension screening program within dental settings.

Given that one in three Marylanders has undiagnosed hypertension<sup>9</sup> and 780,867 Maryland adults use some form of tobacco<sup>10</sup>, the Maryland Department of Health (MDH) Office of Oral Health (OOH), Center for Chronic Disease Prevention and Control (CCDPC), and Center for Tobacco Prevention and Control (CTPC) created a program to provide both hypertension and tobacco screenings within dental settings to enhance and expand the integration of oral health and chronic disease public health programs in Maryland. The OOH and CCDPC instituted systems level changes to integrate oral health and chronic disease prevention programs

and interventions. To accomplish program goals, the OOH, CCDPC, and CTPC purposefully collaborated to develop a framework and partner organizational capacity that permitted the implementation of hypertension and tobacco screenings during routine dental visits and referrals to primary care providers for follow up medical care. These inter-departmental collaborations were vital to the success of the program.

***An inter-departmental collaboration between the OOH, CCDPC, and CTPC shaped the integration of oral health and chronic disease program activities, thus leading to the creation of a program to engage dental providers to implement screenings for hypertension and referrals of patients with undiagnosed and uncontrolled hypertension to primary care providers for treatment.***

In addition to engaging dental providers to screen for hypertension during dental visits, the program also encouraged dental providers to perform tobacco screenings and referrals to cessation services such as the Maryland Tobacco Quitline as a means of further addressing the associated risks of tobacco usage with hypertension and heart disease. This program included standardized tools, skills training, data collection, and follow-up protocols for dental providers to screen and refer patients to appropriate primary care providers and community health resources. In addition, a three phase social marketing campaign was implemented to educate dental providers, medical providers, and patients on the important connection between oral health and overall health. This program created bidirectional mechanisms to integrate oral health and medical health systems to better identify those with undiagnosed hypertension and to more concretely include oral health in chronic disease prevention and management.

## Objectives and Long-Term Goals

### Objectives

- Develop a sustainable public health program that utilizes oral health infrastructure to impact chronic disease;
- Establish a program that integrates oral health and chronic disease program staff and activities and increases the utilization of dental providers in chronic disease prevention programs by increasing the engagement of dental providers in screening, counseling, and referring patients with undiagnosed hypertension;
- Integrate tobacco screenings and referrals during dental visits. Patients willing to cease tobacco usage were referred to tobacco cessation services, specifically the Maryland Tobacco Quitline, for additional resources; and
- Increase and improve messaging about the importance of oral health in chronic disease programs through media buys, integrated messaging, and the dissemination of program evaluation results.

### Long-Term Goals

- Develop a program to implement hypertension screenings and referrals in dental facilities across Maryland;
- Remove barriers and foster an integrated collaboration between medical and dental providers;
- Identify undiagnosed and uncontrolled hypertension patients during dental visits and refer those patients to primary care providers and community resources for diagnosis and follow up treatment;
- Reduce the prevalence of undiagnosed and inadequately controlled hypertension among Maryland residents; and
- Educate patients on the connection between oral health and overall health.

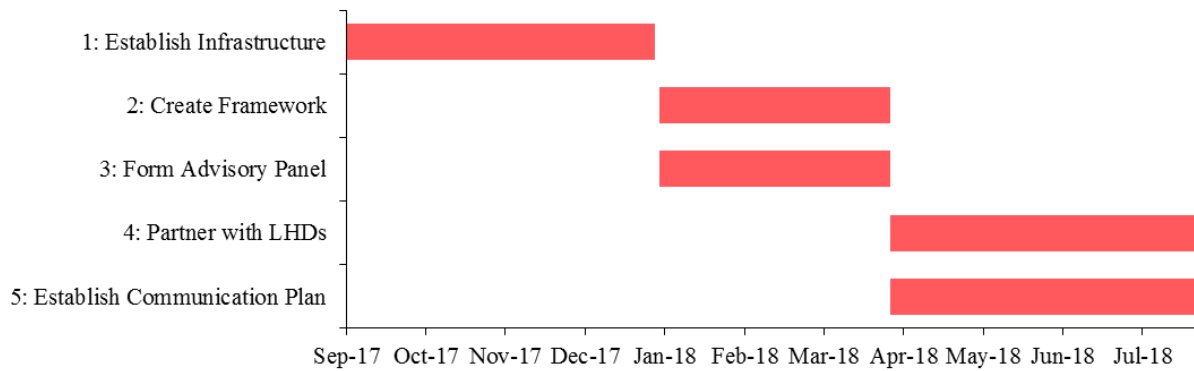
***One long-term goal is to develop a sustainable program that emphasizes collaboration between dental and medical providers through the establishment of a hypertension screening and referral program that strives to reduce the rates of hypertension in the Maryland population.***

# Steps to Creating the Program

The CDC Models of Collaboration grant supported a program that necessitated thorough preparation and coordination between the OOH and the CCDPC. The steps to prepare for and successfully implement this program were as follows:

- Establish program infrastructure between the OOH and the CCDPC, consisting of:
  - Identification of key staff in both the OOH and the CCDPC;
  - Development of communication, evaluation, sustainability, and budget plans;
  - Formation of partnerships with key stakeholders, organizations, and health care providers in the dental and medical fields;
  - Allotment of resources and finances between the OOH and the CCDPC; and
  - Implementation of data collection and analysis process.
- Create the framework to engage dental providers to screen for hypertension and refer identified patients to primary care providers during routine dental visits;
- Establish an Advisory Panel, comprised of members from various healthcare backgrounds, to provide guidance on establishing:
  - Hypertension screening guidelines based on CDC and American Heart Association recommendations; and
  - Protocols and standards for local health departments (LHDs) and dental providers to follow when implementing screenings for hypertension and referring patients to primary care providers for follow up.
- Partner with LHDs to recruit and train dental practices, Federally Qualified Health Centers (FQHCs), and dental clinics operated by LHDs in their respective counties; and
- Establish a communication plan to improve messaging about the importance of oral health as a part of overall health.

*Chart 1: Steps to Creating the Program*

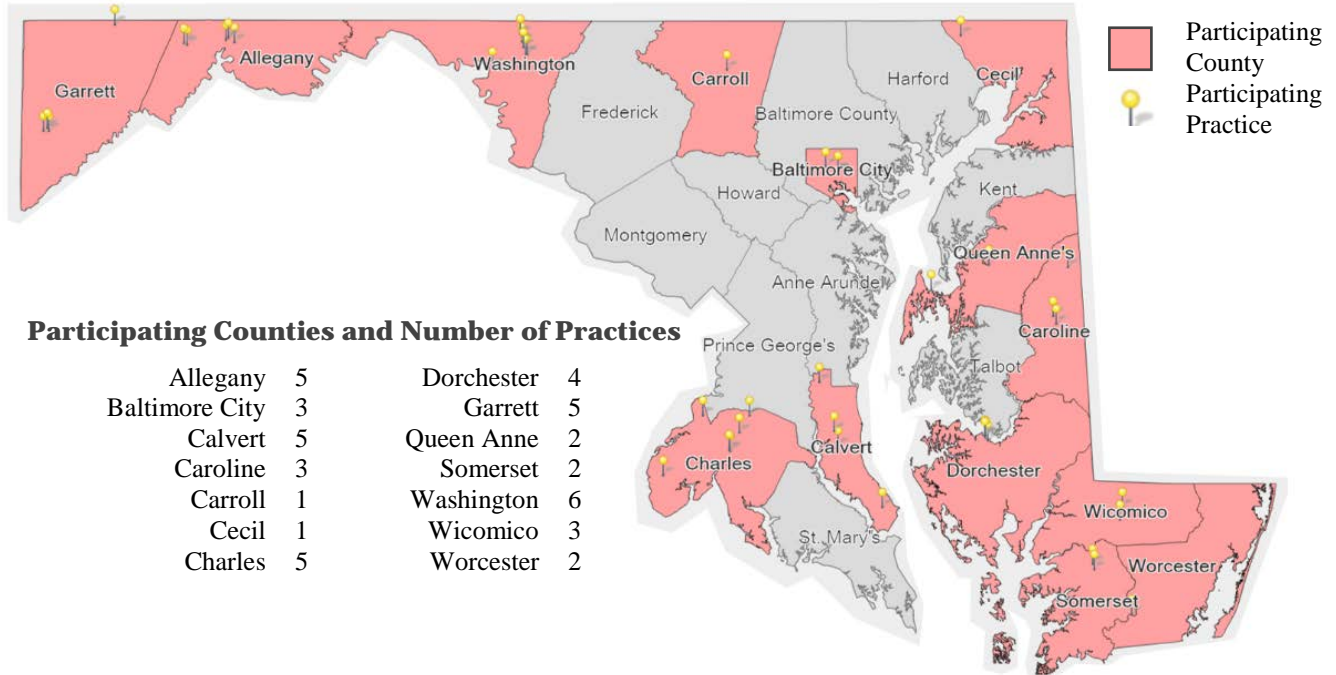




# Statewide Program Implementation

The OOH and CCDPC partnered with 14 LHDs throughout Maryland to implement program activities. These LHDs then recruited dental practices within their respective counties to take part in the program – the LHDs and participating practices are displayed in *Map 1*.

*Map 1: Participating LHDs and Dental Practices*



In order to ensure consistency through the various sites, a “Train the Trainers” approach was implemented with the LHDs. The OOH, CCDPC, and CTPC provided training sessions to LHD representatives who subsequently trained the participating dental practice staff in their respective counties. Training components included:

- **Workflow process mapping:** planning and management tool that visualizes the workflow in a way that facilitates improvements, ensuring an efficient and sustainable implementation of screenings for hypertension within dental practices;
- **Learning about the hypertension screening process:** review of the hypertension screening guidelines adopted by the Advisory Panel as well as standards and the procedures for taking accurate blood pressure measurements using the selected blood pressure monitoring equipment;
- **Data collection methods:** discussion regarding the proper methods of collecting and recording data, specific instruction on how to collect data from the participating dental practices so that LHDs could accurately enter it into the reporting template that would be submitted to CCDPC and OOH on a quarterly basis;
- **Dental referrals to primary care providers:** review of best practices when making referrals from dental providers to primary care providers by using the standardized Medical-Dental referral form; and



- **Referrals to the Maryland Tobacco Quitline:** review of best practices when using the fax-to-assist referral form to refer individuals to tobacco cessation services, specifically the Maryland Tobacco Quitline.

Additionally, the OOH and CCDPC provided LHDs a stipend to purchase the necessary blood pressure measuring equipment for participating dental practices to regularly conduct screenings for hypertension within their practices. Throughout the program, LHDs monitored, provided support, and addressed the challenges faced by the participating dental practices. This additional assistance throughout the program period was an important step in helping the dental practices strive towards program goals.

As dental practices, FQHCs, and dental clinics within LHDs initiated hypertension screenings, the data collected was reported to LHDs on a quarterly basis via specially designed data tracking sheets. In turn, the data was

submitted to the OOH and CCDPC for analysis and evaluation. Dental patient referrals to primary care providers were made with a medical/dental referral form developed by the OOH and CCDPC (*Image 1*). This form was completed by the dental practice and faxed to a medical practice where the patient would receive follow up care for an elevated blood pressure reading taken during the dental visit. After follow up, the medical practice would re-fax the referral form to the dental practice thus closing the referral feedback loop. In addition, patients who were identified as tobacco users interested in quitting were referred to the Maryland Tobacco Quitline using the fax-to-assist referral form.

*Image 1: Medical/Dental Referral Form*

 <b>MARYLAND</b> Department of Health	
<b>Referral Consultation Request Form</b>	
<b>SECTION A: DENTAL PRACTICE TO COMPLETE</b>	
<b>Patient Information:</b> Name: _____ DOB: ____/____/____ <small>mm dd yyyy</small>	<b>Practice Information:</b> Referring Practice: _____ Consulting Practice: _____
<b>Referral Consultation Reason:*</b> <small>(Please include any relevant diagnostic information available to assist with the consultation)</small> Patient presented for dental appointment with BP of: ____/____.	
Current diagnosis of hypertension. Yes: <input type="checkbox"/> No: <input type="checkbox"/> Patient is referred for follow-up with primary care. Yes: <input type="checkbox"/> No: <input type="checkbox"/> Patient was educated on tobacco cessation. Yes: <input type="checkbox"/> No: <input type="checkbox"/> Current tobacco user. Yes: <input type="checkbox"/> No: <input type="checkbox"/>	
<b>Additional Comments:</b> _____ _____	
<b>Referring Provider</b>	
Name: _____ Signature: _____ <small>(Please Print)</small>	
Date: _____ Contact #: ( ) - _____	
<small>*Please document relevant information regarding consultation referral in patient's chart.</small>	
<b>SECTION B: MEDICAL PRACTICE TO COMPLETE</b>	
 <b>MARYLAND</b> Department of Health	<b>Practice Information:</b> Consulting Practice: _____ Referring Practice: _____
<b>Referral Consultation Response:</b> ____ Was unable to make contact with patient (If applicable, list additional information below). ____ Patient seen in practice/clinic and evaluated. Current BP is ____/____.	
<b>Current recommendations and treatment:</b> _____ _____	
<b>Consulting Provider</b>	
Name: _____ Signature: _____ <small>(Please Print)</small>	
Date: _____ Contact #: ( ) - _____	

# Social Marketing Campaign

To promote hypertension screenings in the dental setting, MDH created a comprehensive state-wide social marketing campaign titled “Two Minutes with Your Dentist Can Save Your Life.” The campaign educated Marylanders about the vital role dentists can play in identifying undiagnosed hypertension; furthermore, it reminded dentists of their duty to each patient’s overall health. The campaign messaging encouraged patients to discuss hypertension screening with their dentist. Social marketing materials, such as posters, postcards, prescription pads, and movie theater and gas station advertising, further promoted the screening activities. The aim of the materials was to increase program awareness, ensure buy-in among dental staff, and educate patients about the importance of hypertension screening in the dental setting.

### Goals:

- Educate patients on the connection between oral health and overall health;
- Highlight that dental providers are concerned with a patient’s overall health;
- Create awareness of the importance hypertension screenings at dental visits; and
- Increase understanding for the importance of hypertension, its relationship to heart disease, and hypertension management and control.

### Audiences:

- Dental patients, especially those at risk for hypertension;
- Dentists, dental hygienists, dental assistants and dental office staff; and
- Primary care providers and respective office staff.

**View Social Marketing Campaign materials at:**  
<https://phpa.health.maryland.gov/oralhealth/pages/hypertension.aspx>.

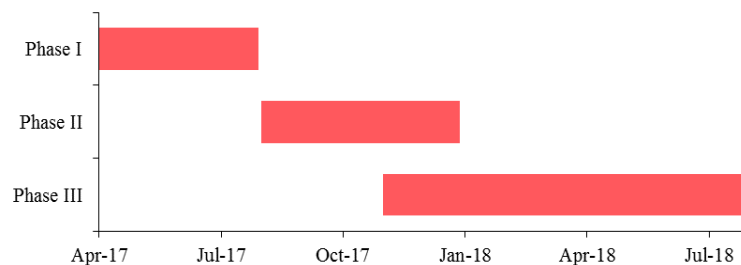
## Three Phase Campaign

The Social Marketing Campaign was developed, produced, and rolled out in three phases, detailed below and visualized in *Chart 2*.

### Phase I

- Creation of a comprehensive communication plan;
- Development of campaign messaging and creative approach;
- Development of a strategic implementation plan based on four geographic areas of Maryland with an emphasis on areas where dental practices were actively implementing the hypertension program;

*Chart 2: Graph Social Marketing Campaign*

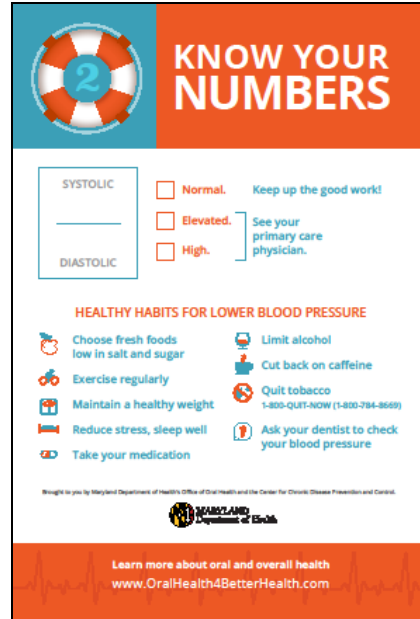


- Design of campaign materials, including posters (*Image 2*), banners, prescription pads (*Image 3*), postcards (*Image 4*), video and social media advertising, and a campaign website;

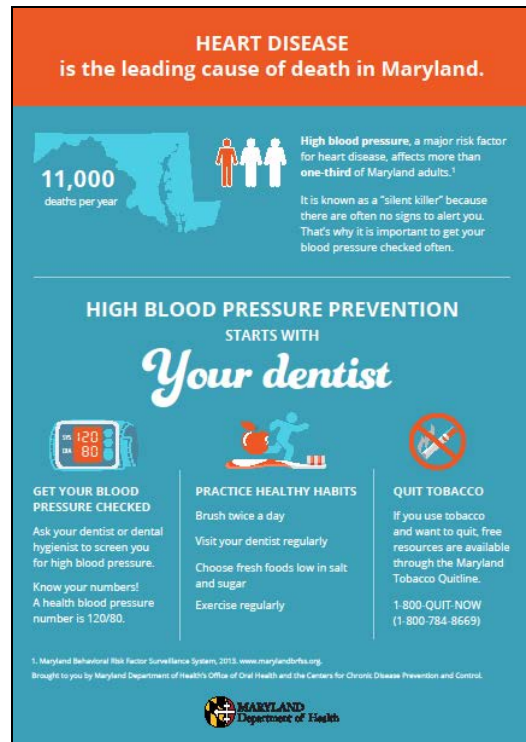
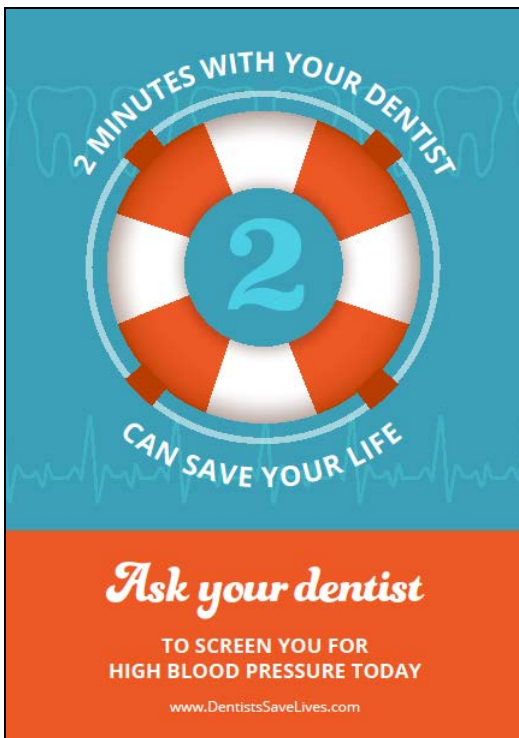
*Image 2: Social Marketing Campaign Poster for Dental Office*



*Image 3: Social Marketing Campaign Prescription Pad*



*Image 4: Social Marketing Campaign Patient Postcard – front and back*



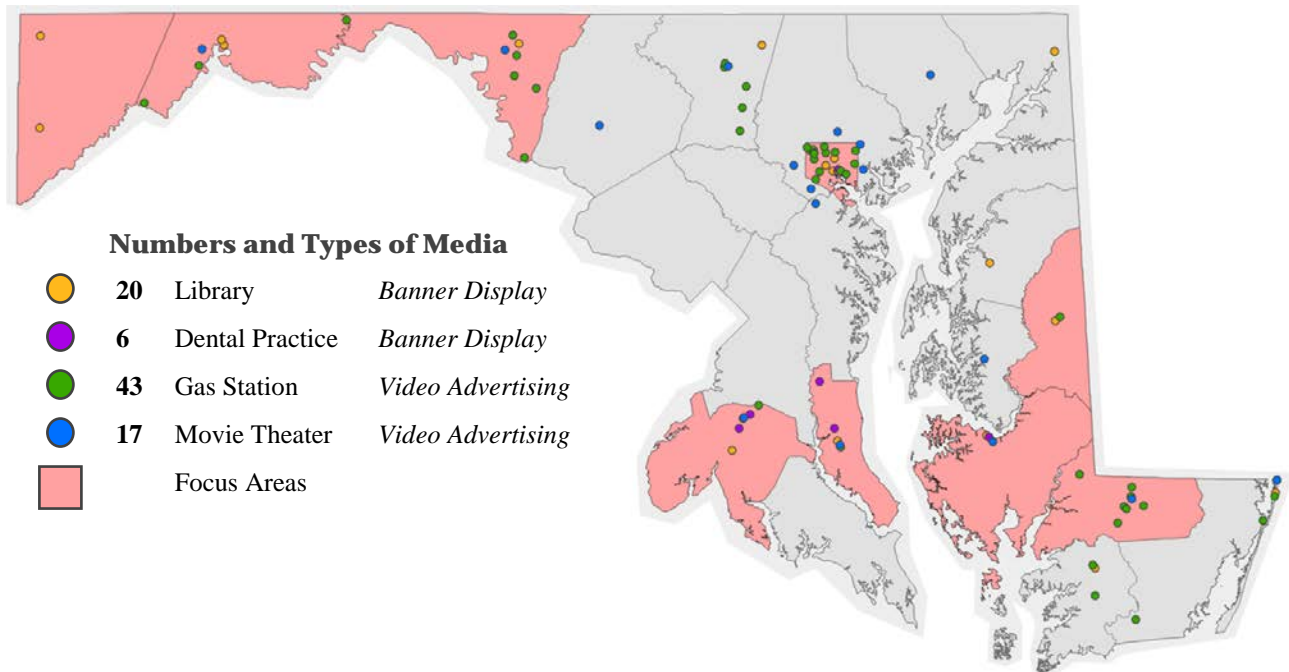
## Phase II

- Simultaneous production of all campaign materials, including advertisements and a website;
- Creation of media relations and advertising placement strategy;

## Phase III

- Placement and launch of video advertising: a 30-second video ad ran in movie theaters, on gas station pump TV screens, and on targeted cable TV stations in all targeted geographies throughout Maryland (*Map 2*);
- Placement and launch of online and social media advertising: a social media and an online ad was geo-targeted throughout four Maryland geographic zones;
- A supply of posters, postcards and prescription pads were distributed to all participating dental practices and clinics;
- A traveling banners display program was rolled-out in Maryland libraries near dental practices participating in the program (*Map 2*). At these libraries, displays were installed, and dentists were engaged as speakers highlighting the program and emphasizing the importance of oral and overall health; and
- A media relations plan was continued throughout Phase III of the campaign which included press releases, op-eds, television, radio, print and online news coverage as well as articles in oral health and medical trade publications and newsletters.

*Map 2: Placement of Campaign Media*

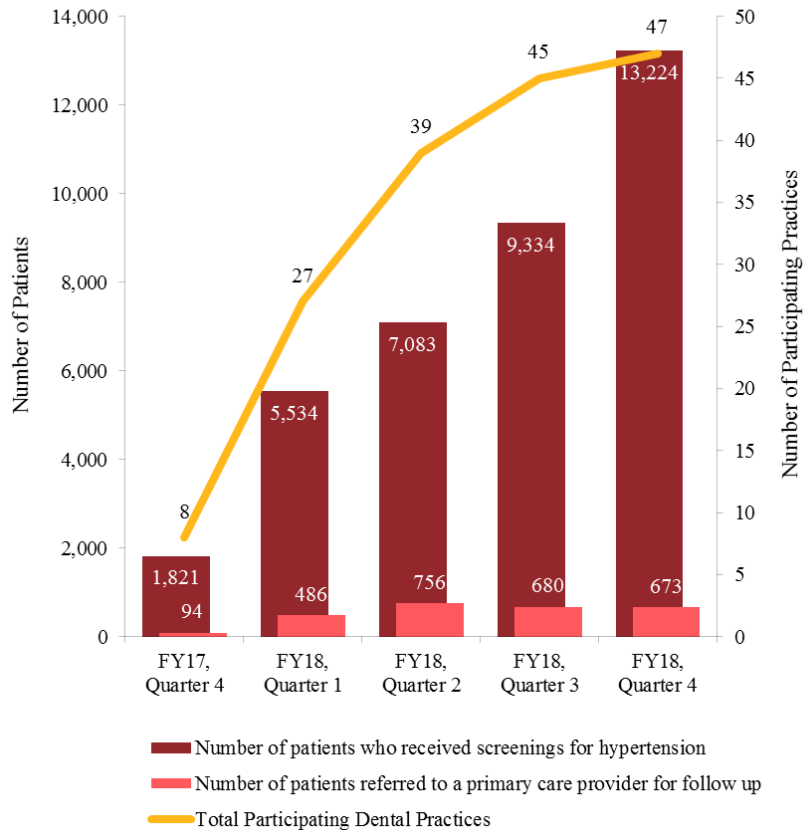




## Results and Analysis

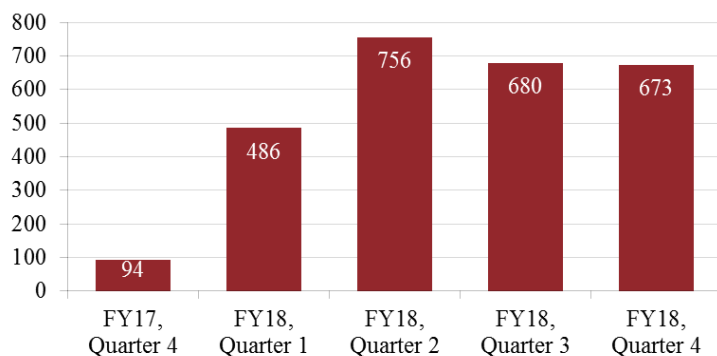
Chart 3 demonstrates the number of patients who were screened for hypertension during dental visits and the total number of dental patients who were referred to primary care providers for follow up due to elevated blood pressure measurements. The number of dental practices which participated in the program throughout the program period is also shown. As the program progressed, there was an increase in the number of participating LHDs (from 12 to 14) and dental practices (from 8 to 47) which led to an increase in hypertension screenings. The total number of patients who received hypertension screenings throughout the program period was 36,996. In addition, a total of 2,689 patients were referred to primary care providers for follow up treatment.

Chart 3: Patients Screened in Dental Offices



Patients were referred to primary care providers when a blood pressure measurement of 140/90 mmHg or greater was obtained. In 2017, as this initiative was being implemented, the American Heart Association and the American College of Cardiology issued new blood pressure guidelines based on updated medical research and accumulated evidence. The OOH

Chart 4: Patients Referred for Risk of Hypertension

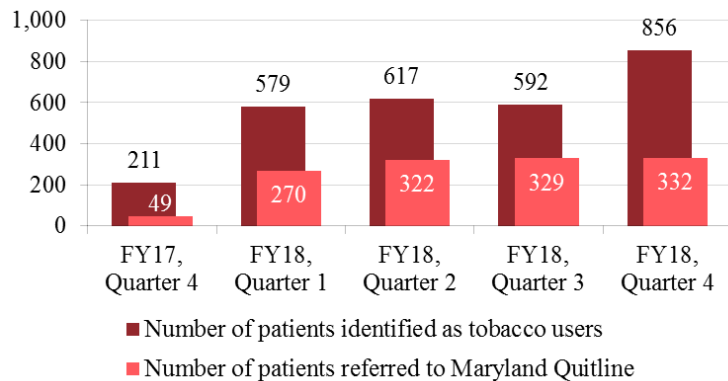


and CCDPC adopted the new guidelines and asked all participating dental practices to do so as well. The new referral measurement at which dental providers were to refer their patients was updated to 120-129 mmHg systolic and less than 80 mmHg diastolic. Chart 4 illustrates the

number of patients referred to primary care providers due to elevated blood pressure measurements. As dental practices began to screen more patients, the extra time and paperwork required to make referrals for those with elevated blood pressures proved onerous for some practices. Thus, compliance with the screening and referral guidelines declined in some of the participating dental practices. Integration of referrals into a shared electronic health record would streamline and significantly enhance this process.

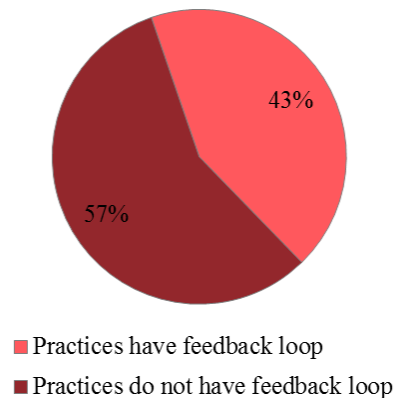
*Chart 5* shows the number of patients who identified as tobacco users during dental visits. Patients who were willing to consider stopping tobacco usage were referred to the Maryland Tobacco Quitline for cessation resources. The number of tobacco screenings decreased in the third quarter of FY18, and a query of participating practices indicates it was a result of workflow time constraints. Dental providers prioritized screenings for hypertension and some subsequently expressed they did not have time to question every patient about their tobacco usage. The total number of patients who identified themselves as tobacco users throughout the program period was 2,855, and the total number of patients referred to the Maryland Quitline was 1,302.

*Chart 5: Tobacco Screening and Referrals During Dental Visits*



Dental practices were asked to create partnerships with medical practices to create a feedback mechanism for patient referrals and follow up. Not all dental practices were able to establish this feedback loop. Some cited lack of medical practices in the dental practice area; others indicated that potential referral sites were unable to take on new patients. FQHCs were generally more successful in this endeavor than private dental practices as medical and dental services were often provided within the same facility. A method which proved effective in establishing feedback loops within private practices was to have a dedicated staff member in the dental practice follow up with the medical practice 30 days after the referral was made. *Chart 6* demonstrates how many dental practices were able to establish this kind of relationship with medical practices.

*Chart 6: Feedback Loop Between Dental and Medical Practices*



## Program Challenges

Multiple challenges emerged at the outset of the program while recruiting dental practices. Dental providers expressed a concern that the implementation of regular hypertension screenings would be challenging to practice workflow as it would take time away from staff to complete scheduled dental procedures. Additionally, the lack of insurance reimbursements for hypertension screenings caused concern for some. Dental providers stated that the time needed to screen each patient would add up to a considerable amount of time that could have been used to address oral health concerns. In addition, dedicating time to specifically address oral health concerns ensures that dental providers receive reimbursements, something that hypertension screenings do not provide.

Another challenge persisted throughout the program period. Referrals from dental practices to medical practices were low. Furthermore, dental providers were often unable to follow up on the referrals they made to primary care providers, and primary care providers were unable to connect with dental providers to confirm that patients had been seen for medical follow up. The feedback from dental providers as to why this referral process was not seamless indicated that inadequate communication channels between dental and medical practices were common and that the lack of a shareable electronic health record contributed to this lack of communication.

## Lessons Learned

Dental practices that received guidance and support from the OOH, CCDPC, and LHDs incorporated hypertension screenings into their workflow with little disruption. This success highlights the importance of proper guidance and support for maximum program integration. Moreover, once dental providers were able to detect patients with undiagnosed elevated blood pressures in their patient population, they began to view hypertension screenings as a vital service for their patients. The sense of providing this important service eased dental providers' initial reservations regarding the lack of time or financial reimbursements for hypertension screenings and potential workflow disruption.

***Hypertension screenings can be integrated into dental practice workflow with little disruption.***

When developing future collaboration programs, there should be a greater focus on creating and building a stronger referral network among medical and dental providers prior to program implementation. In addition, increasing communication and emphasizing shared program goals before program implementation can lead to an increase in bi-directional referrals between medical and dental providers. It is also important to note that both medical and dental providers agreed that referral integration into existing health records or the creation of a standalone electronic health referral application would increase referrals between practices. The current method of faxing a paper referral form between dental and medical practices has proved to be inefficient and difficult to track.



## **Success Story: Baltimore City Health Department**

In one remarkable case, a 41-year-old African American gentleman visited the Baltimore City Health Department Eastern Dental Clinic, a participating practice, for a comprehensive oral exam. As part of the recently initiated intake protocol, the dental assistant took the patient's blood pressure and found the initial reading to be 147/101. A second reading was taken with a similar finding. The patient was referred to his primary care provider since he had not reported a previous history of hypertension. Concerned about his health, the patient immediately went to a nearby hospital emergency room (ER). He later reported to the Eastern Dental Clinic staff that while at the ER, physicians determined that he had an undiagnosed heart condition. Today, the patient is doing well and gives credit to the Eastern Dental clinic staff for saving his life by taking the time to screen for hypertension during his dental visit.

### **Conclusion: Going Forward**

With the successes and the lessons learned from the Models of Collaboration grant, the OOH and CCDPC intends to continue the promotion of hypertension screenings in dental settings and to expand collaborations between medical and dental practitioners. For example, conditions such as diabetes and obesity are rampant throughout the United States, including the state of Maryland, and present an opportunity to continue collaboration efforts between dental and medical providers and address these deadly health conditions.

One important conclusion of the project was the need for an electronic health record system that would strengthen the feedback loop between dental and medical providers. Since dental and medical health records are not integrated, the OOH, in partnership with a select group of medical and dental professionals, is looking at new ways to develop a standalone electronic health referral application to provide to medical and dental practices that could be used as a framework for future collaboration programs. This would eliminate the inefficiency involved in faxing paper forms between dental and medical practices.

With the implementation of the Models of Collaboration Grant, it is apparent that dental providers across the country can have a significant impact on the reduction of hypertension by providing blood pressure screenings at dental visits. Going forward, MDH hopes that others in the dental field learn from the pilot project and find ways to work with their chronic disease partners to develop and implement similar hypertension and other chronic disease screening programs in dental settings. The OOH also hope to develop additional collaborative programs which will give dental providers in Maryland the ability to increase the number of health services offered to their patients and continue to reinforce the message that oral health is a vital part of overall health.

***Dental and medical providers both agreed that integration of hypertension referrals into existing electronic health records or the creation of a standalone referral application system would increase patient referrals between dental and medical practices.***

## Resources

For more information regarding the Models of Collaboration grant or for any of our media resources, please refer to the OOH website at <https://phpa.health.maryland.gov/oralhealth>.

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MARYLAND  
Department of Health

Prevention and Health Promotion Administration  
Cancer and Chronic Disease Health Bureau

Office of Oral Health  
Center for Chronic Disease Prevention and Control  
Center for Tobacco Prevention and Control

2 MINUTES WITH YOUR DENTIST

2

CAN SAVE YOUR LIFE

*Ask your dentist*  
TO SCREEN YOU FOR  
HIGH BLOOD PRESSURE TODAY

[health.maryland.gov/oral-health](http://health.maryland.gov/oral-health)