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A Joint Initiative to Improve Dental Public Health Communication in Maryland

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ABSTRACT

Background: Plain language improves health communication and promotes understanding and positive behaviors. This paper describes the phases of Maryland's oral health campaign supported by legislative action, focusing on health literacy and plain language in evolving public health communication strategies.

The Maryland Department of Health (MDH), Office of Oral Health (OOH), refined educational materials based on brochure reviews collaboratively with three residents of the Dental Public Health Research Fellowship program at the National Institute of Dental and Craniofacial Research and the Horowitz Center for Health Literacy, School of Public Health, University of Maryland. Insights from a collaborative group, volunteer dentists, and dental hygienists emphasized concise formats and led to the creation of 12 plain-language one-pagers.

Discussion: The Plain Language Act 2010 emphasizes clear communication to improve health literacy and access to care. MDH, OOH set an example by updating materials, incorporating focus group insights, and creating digital resources like one-pagers, QR codes, and videos. These efforts highlight the importance of concise, modern communication strategies, integrated oral and medical health approaches, and continuous innovation to address population needs and health disparities and to enhance health outcomes.

PLAIN LANGUAGE SUMMARY

A Maryland state legislative bill requested the Maryland Department of Health, Office of Oral Health, to make oral health information easier for everyone to read and understand. The goal was to make existing materials for the public and for health care providers more useful by following federal plain language guidelines. These guidelines call for clear, well-organized, and easy-to-understand wording.

This project brought together dental and other state health staff, dentists, dental hygienists, dental public health research fellows from the National Institute of Dental and Craniofacial Research, and partners from the University of Maryland's Horowitz Center for Health Literacy. Working as a team, they reviewed and improved the wording and design of 12 existing educational materials about keeping teeth and mouths healthy.

The updated materials were supported by short videos and quick response (QR) codes to help more people find and use them.

This collaborative work shows how using federal plain language guidelines and feedback from dental professionals can help make health information clearer. This work also provides a model for other states that want to improve health communication. Plain language helps people understand and use health information better.

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Introduction


Good oral health and the prevention of oral disease depend on an individual's capacity to practice effective home care and consistently engage in preventive behaviors, and on their ability to be aware of, access and receive evidence-based professional health services. Individuals often look to health information brochures and websites, social media, family and friends, and health care providers, for guidance.¹ Nonetheless,

as highlighted in the 2004 Institute of Medicine (IOM) report "Health Literacy: A Prescription to End Confusion:"


"[N]early half of all American adults – 90 million people – have difficulty understanding and acting upon health information."²

Also noted was a mismatch between people's skills and the demands of health systems and the health context.³

The 2004 IOM report and subsequent studies unveiled the importance of health literacy and the need for clear

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communication and the use of plain language by health care providers and health systems. Healthy People 2010, 2020 and 2030 set national objectives for clear communication and health literacy, including oral health literacy.”^{4–6} States like Maryland, California, and others considered these recommendations when addressing their population’s oral health needs.^{7–9}

In October 2010, President Barack Obama signed the Plain Writing Act of 2010 (PUBLIC LAW 111–274 — October 13, 2010), which requires federal government agencies to provide transparent and clear communication to the public to facilitate better understanding and decision-making.¹⁰ The Plain Writing Act aims to ensure people can easily find, understand, and use the information provided by federal agencies. The use of plain language helps promote personal and organizational health literacy, the definitions of which have been recently updated according to Healthy People 2030¹¹ (Table 1). Government agencies use various tools to assess and enhance the clarity of existing and new public communications.

Effective communication is especially critical during public health emergencies for timely and accurate dissemination of information.¹² Plain language improves comprehension, enabling prompt public response and ensuring access for individuals with cognitive impairments and low literacy.¹³ Using less jargon and simpler language can help overcome the language barrier for non native English speakers with limited proficiency. By promoting understanding, plain language empowers individuals to make informed health decisions and fosters greater public engagement and compliance. It enhances the retention of health messages, supporting adherence to guidelines.¹⁴

The state of Maryland has a long-standing commitment to oral health education with strategic investments targeting oral cancer, childhood dental caries prevention, and other conditions. The tragic death of 12-year-old Deamonte Driver in Prince George’s County, Maryland, in 2007 due to consequences of an untreated toothache placed a national spotlight on the importance of clear communication and oral health literacy and accelerated a rapid response by the governor and the secretary of health.¹⁵ The Dental Action Committee (DAC) developed immediate action recommendations, including key enhancements to Medicaid and the dental public health program, preventive dental training for health care providers, and a unified oral health message grounded in health literacy principles.¹⁶ These initial enhancements were focused on children with recognition that additional efforts are needed to address oral health across all life stages.

This paper outlines the beginning of an ongoing statewide oral health education campaign in Maryland, focusing on using health literacy, plain language standards, and strategies

to guide the creation of clear communication assets. It highlights initial steps taken by the Maryland Department of Health (MDH), Office of Oral Health (OOH), in collaboration with the MDH Office of Communication (OOC) and the Maryland Medicaid Administration (MMA) in response to state legislation. Additionally, it provides an overview of state activities and details the critical actions and partnerships that have laid the groundwork for this initiative. The lessons learned from these efforts can provide valuable insights that inform revisions and updates of health education materials and communication strategies in various settings in a rapidly changing health information environment.

Background

The workflow of Maryland’s statewide oral health education campaign can be broadly described in four key phases as illustrated in Figure 1:

- (1) State Action
- (2) Brochure Review
- (3) Collective Planning
- (4) Initial Implementation and Outcomes

State Action

Despite ongoing improvements in addressing oral health needs for children, additional gaps in oral health needs were identified across other life stages in specific populations. To examine and recommend actions addressing these issues, an oral health task force was created by legislation during the 2021 Maryland General Assembly session (HB 368 and SB 100).^{17,18} The State Task Force on Oral Health was directed by Drs. Debonny Hughes, Maryland state dental director, and Mark Reynolds, dean of the University of Maryland School of Dentistry. The taskforce concluded its work in 2022 and offered a report providing an overview of barriers to oral health care for populations in Maryland and proposed strategies to address these issues and enhance access to oral care health services. Subsequent positive legislative actions included the introduction of adult dental Medicaid benefit, an increase in Medicaid dental reimbursement rates, and the expansion of Medicaid postpartum dental coverage to 12 months.^{19,20}

In 2023, Maryland House Bill 290 (Public Health-Dental Services-Access) was passed mandating the Maryland Department of Health to create and distribute “plain language educational materials related to dental services.”²¹ This bill defines “plain language” as “language that is clear, concise, and well-organized” and compliant with the federal Plain

Table 1. Health literacy - Healthy People 2010, 2020, and 2030.¹¹

Healthy People 2010 and 2020	Healthy People 2030
Defined health literacy as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”	Addresses health literacy as both personal health literacy and organizational health literacy and defines them as: <i>Personal health literacy:</i> the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others. <i>Organizational health literacy:</i> the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

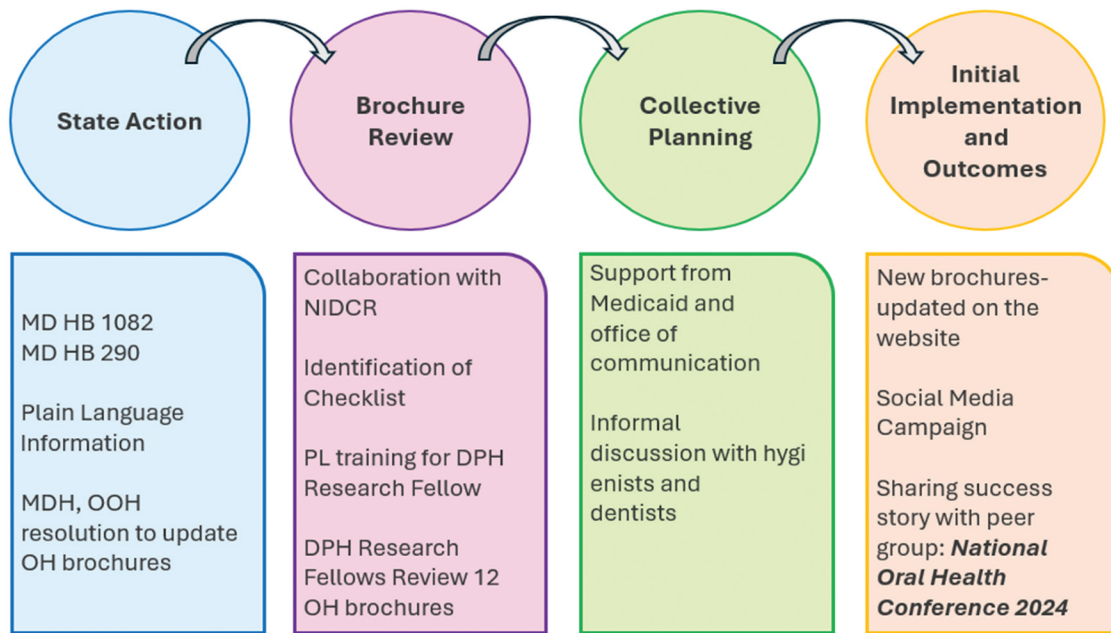


Figure 1. Maryland oral health education campaign workflow. Abbreviations: MD HB: Maryland House Bill; MDH, OOH: Maryland Department of Health, Office of Oral Health; OH: oral health; NIDCR: National Institute of Dental and Craniofacial Research; DPH: dental public health.

Writing Act of 2010 and other best practices.¹⁰ It specifically asks the Maryland Department of Health to create and distribute to dental practices plain-language materials on the importance of regular dental appointments for overall health and various dental procedures, as determined by the department. The bill also asked MDH to encourage dentists and

dental hygienists to distribute the plain-language materials created by the department (Figure 2).

Coincidentally, during the 2022 legislative session, Maryland House Bill 1082 (Public Health–Consumer Health Information–Hub) was passed recognizing the importance of public understanding and action to achieve health and well-

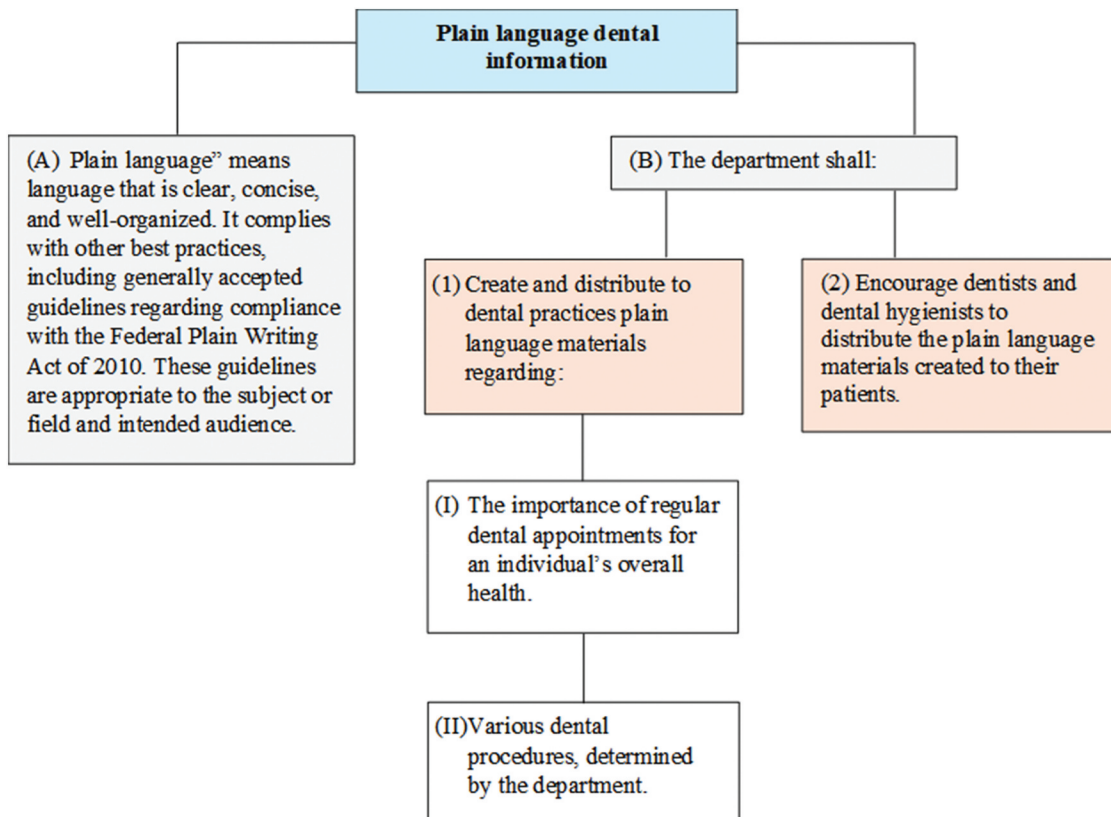


Figure 2. House Bill 290. Subtitle 23: Plain-language dental information.

Table 2. Brochure checklist and review.

Rating Clusters	Cluster Criteria	Yes/No/DK	Area for Improvement	Recommendation
Audience Focus	Content known at first glance Audience known at first glance Begins with most important message			
Literacy	Conveys sense that is inclusive Uses personal pronouns Uses active voice Uses short, simple sentences Avoids jargon and acronyms			
Calls to Action	Has one or more clear calls Describes importance of action Action in simple, easy steps Provides contact info for more			
Design PLUS	Simple fonts Uncluttered pages Limited use -italics/bold Images relate to text & audience			

Abbreviations: DK - do not know.

Source: Maryland Health Connection Clear Writing and Plain Language Checklist.

being. The bill designated the Herschel S. Horowitz Center for Health Literacy at the University of Maryland, directed by Dr. Cynthia Baur, as the “Hub” and directed the use of plain language in health, safety, and social service benefits communication for state and local agencies.²² The Hub provides guidance, training, and related services to Maryland’s agencies and has played a significant role in supporting this project.²³

Brochure Review

MDH, OOH routinely publishes educational brochures and materials containing information on a variety of oral health topics, ranging from oral disease and injury prevention to effective access of oral health care and the relationship between oral and overall health.²⁴ Since the content of the materials required by the legislative mandate, i.e. create materials about various dental procedures and the importance of regular dental appointments for an individual’s oral and overall health, already existed within the current OOH brochure library, the OOH reviewed this library of educational materials. The 12 selected brochures met all the legislative mandated criteria; they were in high demand with consumers and had exceptional educational content value for patients. Through a partnership with the National Institute of Dental and Craniofacial Research (NIDCR) Dental Public Health Residency program, the brochures were submitted to and reviewed by NIDCR for health literacy and plain-language standards based on federal guidelines.²⁵ The project was also a valuable training opportunity, as three NIDCR Dental Public Health (DPH) residents participated to fulfill residency requirements, gain hands-on experience in an applied setting, and support the health department’s priorities.

The residents completed standardized plain-language communication training modules and reviewed related plain-language educational resources available on the Herschel S. Horowitz Center for Health Literacy website as part of their preparation to execute this project.²⁶ They also consulted

with faculty experts in health literacy. Various approaches were considered, including use of the federal plain-language guidelines and a discussion on how best to calibrate and standardize the formal material review conducted by three reviewers.²⁵ A meeting with the director of the Maryland Consumer Health Information Hub provided a demonstration of a review and highlighted its qualitative nature. Ultimately, the Maryland Health Connection Clear Writing and Plain Language Checklist and its related criteria clusters were used to guide the review.²⁷ Each resident was assigned four brochures to assess with oversight by faculty mentors.

Brochure Review Findings

NIDCR residents created a review table for each brochure based on the Maryland Health Connection Clear Writing and Plain Language Checklist. With the checklist as the guide, the review table included columns to identify whether criteria were met, comments for improvement areas, and recommended actions for each criterion (Table 2).

Detailed findings of each resident’s review are summarized in the Appendix 1. Summary highlights of the review findings for each cluster of criteria include the following:

- **Audience:** Most brochures started with the most relevant message, but improvements are needed to ensure that both the target audience and content are immediately clear.
- **Literacy:** Half the brochures effectively used personal pronouns and active voice and avoided jargon. However, the brochures needed to simplify sentences and better convey comprehensive access.
- **Calls to action:** This was the most criteria-adherent area, with most brochures including clear calls to action with plain instruction and contact information.
- **Design:** Simple fonts were used consistently; however, the images used in the brochure were not relevant to the text

and audience, making image selection an area significantly needing improvement across all brochures.

- *Overall assessment:* Most brochures met the majority of the criteria, but a few required further enhancements in audience engagement, literacy, and design elements.

A report of the residents' review process, findings and recommended narrative, format and images was used to inform discussions with the OOH lead educators, the Horowitz Center for Health Literacy, and faculty collaborators and to ultimately guide future revisions of the brochures.

Collective Planning

Working in collaboration with the MDH Office of Communications and the state's Medicaid office, OOH strategized how best to modify and package the new educational content based upon the analysis and recommendations contained within the Brochure Checklist and Review Documentation Form. Prior to developing an implementation strategy, OOH reached out to the practicing community to fulfill the statute's request to "encourage dentists and dental hygienists to distribute plain language material . . . to their patients . . ." It was important to speak with the oral health professional community about their patient educational experience and determine how they could best use the not-yet-produced educational materials. Focus-group discussions with volunteer dentists and dental hygienists were scheduled. The purpose of the focus groups was to gain a better understanding of their processes for educating patients about oral health, as well as their information dissemination methods and preferences, so the content could be rewritten and developed in ways that best align with the experience and needs of the providers and patients.

The focus group meetings were voluntary. Two one-hour meetings were held, one with dentists and another with dental hygienists. A focus group discussion guide developed in advance of the meetings was used to conduct the conversation and included information on provider dissemination methods, preferences and timing in the dental setting. The discussion guide also ensured consistency of the questioning, discussions, and information obtained. Appendix 2.

Both groups felt that print brochures were generally ineffective and easily discarded by patients. They felt patient education information should be short and to the point, such as content that could easily be contained in a one-pager or infographic. The groups also felt that the one-pager should be easily accessible electronically to patients by scanning a QR code on a phone or accessing the information on a website. The dental hygienists group agreed that if encouraged, patients will use a QR code to access information during their dental visit, creating an excellent patient education opportunity. The groups also agreed that the information, once accessed, should be printable if desired. Both groups, especially the dental hygienists, felt the educational content communicated in short videos would also be extremely engaging and effective. These comments encouraged OOH, the state's Medicaid office, and the Office of Communications to consider creating short oral

disease prevention videos for the new materials that could be easily accessed via QR code.

Using the focus group information and the DPH resident findings and recommendations of summarized in the Brochure Checklist and Review Documentation Form (Table 2), the educational content was rewritten, creating 12 clear, concise one-pagers that met agreed-upon messaging and plain-language standards and provided dental educational content for that could be easily understood by patients to maintain and improve oral health behaviors.

Detailed review findings were summarized in a spreadsheet (Appendix 2) and included each resident's results in the four domains of the four brochures reviewed. The unmet characteristics were marked "No" and highlighted in dark gray, while characteristics that were met were marked "Yes" and highlighted in light gray. All the "Yes" and "No" responses for each characteristic were counted, and most had a mix of met and unmet answers.

Initial Implementation and Outcomes

With the help of MDH, OOC, the 12 one-pagers underwent extensive editing and design to refine the content and to ensure the use of plain language and appropriate photography, graphs, and/or illustrations as needed. While the 12 plain-language one-pagers formed the basis of the new educational content, MDH OOC took the lead in creating a complete OOH Wwebsite update. This included establishing a repository for a new "digital toolkit" that contained the one-pagers and other support educational content that could be easily accessed online by visiting the MDH, OOH webpage or by using a dedicated QR code with direct access to the digital toolkit. Together, OOC and OOH produced three short videos that met legislative content standards and were recommended communication assets during the focus groups. The topics included overcoming anxiety during the dental visit, the importance of dental care for pregnant women and newborns, and maintaining good dental care as part of good overall health. To support and bring attention to this new "digital toolkit," OOC created a comprehensive social media advertising campaign whose goal was to communicate to the general public the importance of regular dental visits and how dental visits are not only important for teeth but also for overall health. The ads ran on Instagram and targeted both the general public and dental providers. They encouraged the public to make their next dental appointment or their child's appointment, and urged dental professionals to access the "digital toolkit" and share the 12 one-pagers or videos with patients as appropriate.

All ads included QR codes and website addresses that linked directly to the "digital toolkit." The "Smile Your Way to Wellness" campaign ran from March 26 to June 30, 2024, and had both a general public and provider component. The general public campaign ran in both English and Spanish and achieved overall results of 8,681,465 impressions; 85,359 clicks; and an average click-through rate (CTR) of 83%. CTR is defined as the number of clicks that an ad receives divided by the number of times the ad is shown.²⁸ This CTR outperformed platform benchmarks, suggesting the ads

encouraged the target audience to learn more about how to improve their dental health.

Throughout the campaign, OOC received questions from constituents, in both English and Spanish, regarding how to contact affordable dental providers. This campaign allowed MDH to connect with these constituents to provide support. The provider campaign's engagement rate was also above the benchmark for government ad campaigns. MDH's goal was to encourage providers to speak to patients about dental health and utilize MDH's resources. The conversations, shares, and reactions indicate that providers were actively engaged with and interacting with the ads.

Discussion

Many health care providers use educational materials that may not have been developed with plain language, making them difficult for patients to understand and use.⁸ The Plain Language Act aims to enhance communication by ensuring that government documents are written clearly and concisely. This initiative promotes both personal and organizational health literacy, and demonstrates the benefits of organizations with common goals working together.²

Organizational health literacy is the degree to which organizations enable individuals to access, comprehend, and utilize health information and services. As the concept of organizational health literacy evolves, there is a pressing need for the research community to develop and test new interventions that can improve health literacy within organizations and to establish metrics for tracking progress at the systemic level.⁸ Central to these efforts is the promotion of plain language, which is essential for health literacy. Plain language ensures that health information is accessible and understandable, thereby empowering individuals to make informed health decisions and engage effectively with health services.²⁹

Horowitz et al. surveyed 1,258 Maryland dental hygienists and found that over 90% used simple language to explain science-based information for oral disease prevention.⁷ Maybury et al. surveyed 1,393 general dentists and 169 pediatric dentists in Maryland, revealing that nearly half of both groups used basic communication techniques.³⁰ This suggests that while oral health care professionals recognize the value of clear language, they may not be systematically trained or mindful of using proven communication methods, emphasizing the need for targeted education in communication principles.

MDH, OOH has set an exemplary standard by updating its brochures to reflect plain language principles. This effort, grounded in fundamental health literacy principles and built upon strong and committed partnerships between OOH, NIDCR, the Maryland Medicaid Office and OOC, not only demonstrates timely and appropriate action but also serves as a model for other health departments. By following its legislative mandate, this group identified key oral health content, targeted key audiences with specific messaging, held focus group to obtain valuable user insights, followed fundamental health literacy principles, and produced and promoted revised language educational assets that are easily accessed and understood as a basis for action and health care decision-making. By replicating this model, health

departments nationwide can significantly improve accessibility, health literacy, and patient engagement with essential health content.

Achieving the right balance between providing sufficient information and overwhelming the audience with too much information is a complex task. Clarity and brevity are paramount, requiring a thorough understanding of the audience's information needs. This project demonstrates the value of conducting user focus groups as a means of understanding audience information needs. It was during the focus groups that we learned traditional printed tri-fold brochures are often ineffective for educating patients. Both hygienist and dentist focus groups were clear in stating that while these materials may still hold value for a senior citizen population, they were widely unused and discarded by most patients. Both hygienists and dentists remarked that they would often see brochures strewn about the parking lot or thrown in the trash at health fairs. Some indicated that they no longer have self-serve brochure racks in their offices, noting that patients prefer to receive content while in the dental chair. Patients also prefer to access concise, relevant, and easy-to-understand information with plenty of images through YouTube, videos, QR codes, social media, or apps. This is where the idea of creating a "digital toolkit" consisting of one-pagers and short videos evolved, providing a key educational opportunity that is easily accessible for the patient and provider. It was also recommended that educational content be formatted, downloadable and printable for the patients to take with them.

Incorporating relatable visuals in educational materials is essential for enhancing comprehension. For instance, brochures designed to cater to a wide age range must ensure that the content resonates with both adults managing their oral health and parents responsible for their children's well-being. However, use of illustrations and images depicting human subjects by MDH, OOH was restricted to digital assets that had received approval from MDH or were previously utilized on a federal website.

Health literacy and the integration of oral and medical care are intrinsically linked. According to the World Health Organization (WHO), limited health literacy is associated with poor health outcomes, health disparities, reduced quality of care, and increased health care costs.³ Addressing these issues through education and awareness initiatives is crucial for improving the overall health of communities via an integrated approach involving both oral and medical health departments to improve health outcomes by addressing common risk factors.

The use of plain language guidelines across various communication platforms, including online platforms, websites, social media, and phone-based apps can help target a wide variety of populations and increase outreach. Governmental entities must stay current with the rise in social media use and adapt to new communication modalities to effectively engage the public. Ensuring that information is clear, understandable, and accessible is key to achieving the desired engagement and improving health literacy. Given the vast access to information and the prevalence of misinformation on the internet, it is imperative for federal and state agencies to maintain a presence on popular platforms to effectively raise public awareness and aim to improve both general and oral health literacy.

Moreover, achieving health literacy today depends on gaining the trust of a disaffected public and providing reliable sources of information aligned with the best scientific evidence. Resources such as libraries, Extension programs, faith and social service groups, and city and county councils can play significant roles in this effort by serving as venues for disseminating trustworthy health information.²⁹

In conclusion, the Plain Language Act and its implementation for health communication materials represent a crucial step toward improving health literacy. Maryland's experience demonstrates its commitment to health literacy by the actions taken by the state legislature, by MDH, OOH working with key MDH offices, and the partnership with NIDCR. By working together to adopt plain language principles, incorporate visual aids, and utilize modern communication platforms, health care organizations can better serve a wide variety of populations and enhance overall health outcomes. Continuous efforts in research, education, and innovation are essential to further advance organizational health literacy and reduce health disparities.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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connection between oral health and overall systemic health. He also provides subject matter expertise, actively participates in interagency scientific reviews and clearance requests, and represents NIDCR in numerous NIH and non-NIH working groups and committees.

Stacy Costello, MPH, CHES, is a public health professional with extensive experience managing oral health programs. Currently she oversees the statewide initiatives Maryland's Mouths Matter Fluoride Varnish Program and Maryland Dent-Care Loan Assistance Repayment Program. Prior to her work at the Maryland Department of Health she worked in clinical research, health promotion and tobacco cessation. Costello holds an MPH with a specialization in Community Health Education and is a Certified Health Education Specialist. She is active in professional public health and dental associations. Her publications include contributions to the Journal of Public Health Dentistry, guides for oral health education in Maryland, and training materials for the fluoride varnish and screening program. She has delivered numerous presentations and webinars on oral health programs, preventive services, and education strategies.

John Welby, MS, has worked for more than 40 years John has worked in healthcare and public health creating compelling and effective communications. He received his M.S. in Communication from Clarion University in Pennsylvania and is currently the Director of Communications for the Maryland Office of Oral Health and Chair of the Communications Committee for the Association of State and Territorial Dental Directors.

Debony Hughes, DDS, is the Director of the Office of Oral Health, Maryland Department of Health. Dr. Hughes received her DDS degree and certificate in Advanced General Dentistry from Howard University College of Dentistry. She is a fellow in the American College of Dentists and the International College of Dentists. Dr. Hughes has served on the board of the Maryland Dental Action Coalition and has provided testimony for oral health legislation to both the Maryland State legislature and the United States Senate.

Alice M. Horowitz, RDH, MA, PhD, is a research associate professor at the University of Maryland-College Park's School of Public Health, specializes in dental caries prevention and bridging the gap between research and practice. Her work focuses on educating the public, health providers, and policymakers on effective prevention methods. Over the past few decades, she has examined caries prevention through a health literacy lens, studying knowledge and behaviors among health care providers and low-income pregnant women.

Dushanka V. Kleinman, DDS, MScD, leads the School of Public Health's research development and public health and community engagement activities. As a senior faculty and management team member, she contributes to essential functions in support of faculty, student and staff members, participates in trans-campus projects and mentoring initiatives, and facilitates collaborations and partnerships across campus, with the University System of Maryland and the broader community.

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