

# Improving America's oral health literacy

*Leveraging lessons from health literacy to elevate  
America's understanding of oral health*

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## Key insights:

- Oral health literacy empowers individuals to make informed decisions about their oral health care, improving oral and overall health.
- While Americans recognize the connection between oral health and overall health, a discrepancy in health outcomes remains, due in part to low levels of health literacy.
- Training dental practices to address communication needs across the continuum of care can increase oral health literacy and translate into improvements in their patients' health.

## Executive summary

Improving the oral health of all Americans is a goal shared by patients, health professionals, employers, policymakers and dental insurers, and health literacy contributes to that goal. The Institute of Medicine (IOM) states that health literacy is important to all these groups because nearly half of Americans have difficulty obtaining, processing, understanding and using health information (IOM 2004). A health-literate practice prioritizes clear and interactive communication with all patients. This enables patients to access care and manage their home care, thus the practice provides patient-centered dental care. There is training available to practitioners and their staff to improve their health literacy and ability to communicate in plain language. Medical-dental integration can also improve overall and oral health, but there are barriers, including the lack of an established electronic system to conduct a referral to a dentist and establish relations with other health care professionals.

The purpose of this white paper is to examine how health literacy contributes to 1) patients making informed decisions about their oral health, dental services and dental insurance; 2) oral health providers' communications with patients, staff, and the community; and 3) dental insurance companies in developing and providing dental insurance plans.

A research-based, data-driven and financially practical reframe is required to look beyond the individual clinical encounter to fundamentally change the dental profession's approach to improving oral health. Recommendations include: 1) Developing a provider network of health-literate dental homes; 2) Improving the capacity for integrating dental practice by adapting a structured referral guide within a dental provider network and physician colleagues; and 3) Creating and testing patient and employer educational materials that are in plain language on topics such as the oral-general health relationship or on understanding dental insurance.

## Introduction and purpose

Improving the oral health of all Americans is a goal shared by many people—patients, health professionals, employers, policymakers and dental insurers. Each plays a different yet significant role in improving the oral health of the nation. Achieving this goal requires a concerted effort by all parties, and effective communication is imperative. It is well documented that oral health is an integral component of overall health. Furthermore, a vast majority of U.S. adults possess a positive attitude toward oral health, with 97% stating they value keeping their mouth healthy (American Dental Association 2015). However, more than one in four U.S. adults have untreated tooth decay (CDC 2019), signifying a discrepancy between patient beliefs and actual oral health outcomes. Health literacy may play a critical role in closing this gap, as helping Americans make informed decisions about oral health is a key tenet of health literacy.

A review of health literacy in dental practice, health insurance and health care suggests that health literacy facilitates patient selection of appropriate personal preventive regimens and insurance plans. Health literacy enhances employers' ability to optimally plan for and implement the contents of their compensation and benefits packages, as well as wellness initiatives for their employees. Health literacy impacts effective dentist-patient communication, which has a direct consequence on the acceptance and execution of appropriate oral health services. A health literate practice prioritizes clear and interactive communication with all patients, which enables patients to access care and manage their home care, thus providing patient-centered dental care. The purpose of this white paper is to examine how health literacy is involved at many levels, in the role of 1) patients making informed decisions about their oral health, dental

services, and dental insurance; 2) oral health providers' communications with patients (providing appropriate personal preventive and treatment options), staff (patient education and counseling), dental insurers, and the community (considering programs that can improve the public's oral health; and 3) dental insurance companies' development and provision of dental insurance plans.

## Key findings: health literacy in dental practice and health literacy training

### *Definitions of literacy and health literacy*

The first U.S. legislation regarding literacy defined functions such as "The ability to read, write, speak and compute and solve problems at levels of proficiency necessary to function on the job and in society" that clearly linked literacy with employability (PL National Literacy Act 1991). Literacy and health literacy are also strongly linked. The World Health Organization (WHO) first defined health literacy as the "ability of individuals to gain access to, understand and use the information in ways which promote and maintain good health" (Nutbeam 1998). Health literacy means more than reading pamphlets and successfully making dental appointments. By improving people's access to health information and their capacity to use information effectively, health literacy is critical to empowerment (Nutbeam 1998).

Oral health literacy was first defined in Healthy People (HP) 2010 as "the degree to which individuals have the capacity to obtain, process and understand basic oral health information and services needed to make appropriate health decisions" (USDHHS 2000). This definition parallels the Ratzen/Parker definition which has been criticized for appearing to focus on the individual patient or person (Ratzen and Parker 2000, Parker and Ratzan 2019). The Institute of Medicine (IOM) report, however, strives to point out that health literacy is not limited to individuals, but

rather encompasses health providers, policymakers, and health facilities (IOM 2004). The oral health literacy definition is included in the first Surgeon General's Report on Oral Health and in the subsequent national call to action as well as in numerous studies.

The National Call to Action provided a number of implementation strategies to help change perceptions about oral health among the public, health care providers, and policymakers and is foundational to this white paper (USDHHS 2003) (Box 1).

### **Box 1**

Strategies to change perceptions about the importance of oral health are needed at local, state, regional, and national levels for all population groups. All stakeholders should work together and use data to:

#### **Change public perceptions:**

1. Enhance oral health literacy.
2. Develop messages that are culturally sensitive and linguistically competent.
3. Enhance knowledge of the value of regular, professional oral health care.
4. Increase the understanding of how the signs and symptoms of oral infections can indicate general health status and act as markers for other diseases.

#### **Change policymakers' perceptions:**

1. Inform policymakers and administrators at local, state, and federal levels of the results of oral health research and programs and of the oral health status of their constituencies.
2. Develop concise and relevant messages for policymakers.
3. Document the health and quality-of-life outcomes that result from the inclusion (or exclusion) of oral health services in programs and reimbursement schedules.

#### **Change health providers' perceptions:**

1. Review and update health professional educational curricula and continuing education courses to include content on oral health and the associations between oral health and general health.
2. Train health care providers to conduct oral screenings as part of routine physical examinations and make appropriate referrals.
3. Promote interdisciplinary training of medical, oral, and allied health professional personnel in counseling patients about how to reduce risk factors common to oral and general health.
4. Encourage oral health providers to refer patients to other health specialists as warranted by examinations and history. Similarly, encourage medical and surgical providers to refer patients for oral health care when medical or surgical treatments that may have an impact on oral health are planned.

(Adapted from USDHHS 2003)

Public health literacy has been defined as: "the degree to which individuals and groups can obtain, process, understand, evaluate, and act upon information needed to make public health decisions that benefit the community" (Freedman et al. 2009).

The public, including policymakers and employers, must be informed, educated, and empowered to promote the community's health (IOM 2013). Thus, investments in health education and health promotion are necessary.

Considering health literacy through a public health lens is the opportunity to evaluate community-based interventions that can enhance public health literacy through health promotion and education. As respected members of their community, dental providers are expected to be knowledgeable about and foster such public health measures. For example, dental providers' role in their community could include speaking out against soda/candy in school vending machines, or populating the location of more cariogenic items in less obvious locations within the vending machine; to educating about and supporting the use of community water fluoridation; and to advocate for human papilloma virus (HPV) vaccination.

Providers also need to partner with their local and state oral health departments and be supportive and involved in oral health coalitions. Provider support for school-based dental sealant programs for children enrolled in schools that have a higher level of free and reduced cost lunches is an example. In addition, providers should be proactive in integrating their treatment of diabetic patients with the patients' other health providers (family practitioners, internists, pediatricians, and ophthalmologists) because health literacy is urgently needed by both providers and patients to help diabetics control their blood sugar. Collectively, these provider partnerships

are important for all community members and for policymakers.

We propose an additional definition based upon a reasonable interpretation of the literature on a health care provider's roles and responsibilities in establishing and supporting a health literate facility. Health provider literacy is "the degree to which providers obtain, process, understand, evaluate, and act on information needed to address a patient's needs using current evidence-based practices as described in plain language to ensure the patient understands." For example, the health provider, as team leader, selects appropriate preventive procedures for patients, as indicated by recommended guidelines. Considering a health literacy definition for policymakers or employers who develop public or private health insurance plans is beyond this first approach, but we suggest certain aspects will be pertinent, such as understanding the interplay between the patient's cost, quality, and satisfaction, and recognizing the social determinants of health of the insured patients. The policy maker or employer will also support the provision of information about patient plans in plain language to ensure patients understand their benefits.

Health insurance literacy (HIL) is defined as "the degree to which individuals have the knowledge, ability, and confidence to find and evaluate information about health plans, select the best plan for their own (or their family's) financial and health circumstances, and use the plan once enrolled" (Quincy 2012). Poor health insurance literacy was identified as a factor in whether consumers delay or avoid seeking care due to cost (Morgan et al. 2008). Appropriate HIL measures can identify groups that need additional outreach or support when enrolling in a health insurance plan and when using the plan benefits to pay for health services once enrolled.

Dental insurance differs significantly from health insurance, and that difference leads to confusion for patients. A health literate message includes explaining that 'dental insurance' is a benefit to defray the cost of procuring dental care. The Patient Protection and Affordable Care Act of 2010 attempted to make health insurance more understandable through standardizing the plan benefits (requiring a comprehensive package of 10 essential benefits); improving preventive care coverage; and restricting the annual dollar limits insurance companies can impose on essential benefits such as hospital stays. It also required public outreach and education programs to inform consumers about their health insurance choices and created navigator roles to support consumers (PPACA 2010). It did not offer similar guidelines for adult dental insurance.

The literature suggests that consumers struggle with medical terminology and financial terms (Quincy 2012); that consumers do not understand how to weigh risk tradeoffs associated with deductibles and copays against premiums (Tennyson 2011); and that their understanding of their health plans is not complete (Greene & Peters 2009).

"Insurance counselors reported that consumers fail to understand the purpose of health insurance as a hedge against major medical costs; cannot fully assess their own needs or the services the plan covers, and what are the cost-sharing expenses beyond the monthly premium. Figuring out their share of medical costs and the insurance share and navigating deductibles are problematic for consumers" (Paez et al. 2014).

### *Types of health literacy*

There are several types of health literacy. The following explanations demonstrate the breadth of health literacy relative to oral health.

Functional literacy is having reading and writing skills to enable an individual to function fully in society, both economically and socially, and be able to exert a degree of control over everyday events (Nutbeam 2000). Functional health literacy is critical for patients to be able to complete a health intake form and to be capable of fully understanding informed consent. Dental facilities have the responsibility to ensure all print materials are in plain language and that their staff are trained to help patients with forms when needed.

Interactive health literacy is having the capacity to combine functional health literacy with cognitive skills to act on information and communicate with others such as when patients interact with health providers and their staff. Health providers demonstrate interactive health literacy skills when using recommended communication techniques like teach-back, which is designed to check the patient's understanding by asking the patient to state, in their own words, what they need to know or/and do. Providers demonstrate interactive health literacy by demonstrating current knowledge and understanding of which preventive regimens to recommend for patients.

Critical health literacy is having advanced cognitive skills which enable individuals to analyze information, thus exerting more control over one's health/life's events. Gathering information about which dental options are best (implant for a missing tooth or a fixed bridge) and then finalizing a decision to accept a treatment is an example of critical health literacy. A provider's critical health literacy is helpful in determining when patients need counseling and how to approach the



patient, especially in challenging situations, such as the need to counsel a patient about quitting use of tobacco products. A similar challenging scenario might be when providers recommend parents have their child vaccinated against HPV. Determining how receptive a patient is to counseling and what messages to share are pivotal in helping patients make an informed decision.

It is important to point out that the construct of health literacy is relatively new. Some have suggested the definition of health literacy needs to be modified. A major recent contribution to this effort is part of Healthy People 2030 activities. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2030 (2019) developed an expanded definition: "Health literacy occurs when a society provides accurate health information and services that people can easily find, understand and use to inform their decisions and actions." However, attempting to replace or modify

the Parker and Ratzan (2019) definition has created extensive debate.

#### *Health literacy in dental practice*

Just as with definitions of health literacy, the application of health literacy reflects the type of practice considered. A health literate dental practice fosters health literacy among patients, staff, and community. A health literate dental practice enables patients to evaluate and accept recommendations, increases adherence to healthy behaviors, enhances patients' understanding of the oral-systemic connections, and improves oral health. System barriers to recommended behaviors have to be removed if the messages are to be effective. Additionally, a health literate dental practice can increase patient satisfaction, reduce no show rates, and decrease health inequities. Creating a health literate dental practice requires planning, involved staff, sustained dedication, and a very supportive dentist (Box 2).

### **Box 2**

Create a Health Literacy plan that includes the following:

1. Per Universal precautions, develop training that will bring all staff to a common, high level of oral health literacy, (e.g., preventive measures, communication techniques used).
2. Ensure adequate signage for the practice, including inside and outside of the practice's door. Ensure that the dental practice location is readily apparent (i.e., if the practice is an independent building, can the fact that it is a dental facility be determined from pedestrian or car vision?).
3. Review all print materials, including educational brochures and information sheets, informed consent form (informed choice), health intake form, and website. The assessment should determine whether the document is written in plain language, scientifically correct, designed for the defined audience, and has been tested on the intended audience.
4. Review the availability and adequacy of videos: Are they in plain language, culturally sensitive, scientifically correct, and free of advertisement?
5. Examine the telephone practices: Does a live person answer phone? Is there an emergency number left when the office is closed? When a message is left, how long does it take for staff to return a call?

## Box 2 (cont.)

Create a Health Literacy plan that includes the following:

6. Per Universal precautions, develop training that will bring all staff to a common, high level of oral health literacy, (e.g., preventive measures, communication techniques used).
7. Ensure adequate signage for the practice, including inside and outside of the practice's door. Ensure that the dental practice location is readily apparent (i.e., if the practice is an independent building, can the fact that it is a dental facility be determined from pedestrian or car vision?).
8. Review all print materials, including educational brochures and information sheets, informed consent form (informed choice), health intake form, and website. The assessment should determine whether the document is written in plain language, scientifically correct, designed for the defined audience, and has been tested on the intended audience.
9. Review the availability and adequacy of videos: Are they in plain language, culturally sensitive, scientifically correct, and free of advertisement?
10. Examine the telephone practices: Does a live person answer phone? Is there an emergency number left when the office is closed? When a message is left, how long does it take for staff to return a call?
11. Assess texting practices: What is texting used for? Is texting two-way or one-way? Are messages in plain language and scientifically correct? How long does it take for a patient to get a response?
12. Examine patient portal: Is portal two-way? Is information in plain language and scientifically correct? Are response messages provided in a timely manner?
13. Integrate employer wellness programs and employee communications.
14. Assess the outreach of the office; determine where members of the team are involved in the community health and oral health initiatives.

The pivotal ingredient is to identify the champion in charge. This champion could be any interested member of the team but will often be a dental hygienist because of their training focus in education and prevention.

### *Medical-dental integration*

Oral health is an important part of overall health (e.g., HPV and oral cancer, the reciprocal nature of periodontal disease and diabetes) and the mention of medical-dental integration in the Surgeon General's Report of 2000 (USDHHS 2000) brought attention to the possibility of

improving access to care and improved care by closing the gap between medical and dental care.

As dentists interact more actively with other health professionals in managing patient care, it will be important that their health literacy includes the skill of completing a structured referral form with a physician (NASEM 2019). A structured referral is a bidirectional communication between two health care providers in which one refers a patient for care, explaining the reason for referral, and any needed information, such as medications.

The accepting provider returns a communication describing what care was provided and any future planned treatment (Safety Net Medical Home Initiative 2016). An American Dental Association study of physicians reported that 52% of responding physicians believed there was not an appropriate system used when accepting a referral from a dentist (Miloro and Vujicic 2016). Examples of deficiencies included not having an established electronic system to conduct a referral to a dentist; not having established professional relations, thus having to allow the patient to select the dentist; not having pamphlets or website information to make the referral; and a lack of knowledge about what type of oral lesion or observed finding should be referred. Thus, health education materials need to be directed at developing a satisfactory dentist-physician referral process and accompanying training, possibly using the Qualis Health Structured referral process, including developing a referral network and agreement, referral support, and coordination (Safetynet Medical Home Initiative 2015).

Electronic health records (EHR), even in small- and medium-sized private clinical settings, enable the use of data-driven oral health practices, beyond traditional measures, that assess caries and periodontal health outcomes. Continued advances in EHR interoperability hold the promise of private-public partnerships, interprofessional education and collaboration, and efficient provider-patient communication, all in the unified effort to achieve gains in health equity. Technological advancements, such as EHRs, can assist medical-dental integration and offer a way to assess those social determinants of health that influence oral health outcomes. Digital data on social determinants can be collected, organized, and analyzed in accordance with both established and innovative frameworks.

Recently, interest has grown regarding the potential for achieving reduction in the cost of health care or improvements in health by integrating medical and dental services. Prospectively, a demonstration program in Oregon established integrated Coordinated Care Organizations to attempt to reduce overall health care costs in public programs (McConnell 2018, Atchison 2017). Further, integrated Accountable Care Organizations, such as Kaiser Northwest, report improvements in standardized medical performance measures by asking dentists to identify patients who are not up to date on their medically-recommended prevention services (Mosen 2016). Retrospective research using existing data from insurance claims provides examples where the number of preventive dental cleanings among enrollees with select chronic diseases or pregnancy were associated with a positive impact on overall health and associated medical costs (Nasseh et al. 2016, Jeffcoat 2014, United Healthcare 2013).

Between 2000 and 2010, the percent of dental visits that occurred in the emergency department (ED) for nontraumatic dental conditions increased by a greater percentage than for office visits (Wall and Vujicic 2015). Use of the ED has been linked with patient low health literacy (Henderson et al. 2018), a lack of urgency for treatment, and with seeking care after hours (Wall and Nasseh 2013). Several groups have explored the use of educational programs to educate dental patients on how to seek care when having a dental emergency to avoid their going to the emergency room. Health literate messaging to both government funders and to dental providers is important. Topics could include: the importance of participating dentists (or the dental plan) offering accommodation for after hour emergency care; information about preparing patients on what to do in an emergency, including what constitutes a



dental emergency; and following up with patients who went to the ED to invite patients to develop a dental home.

### *Health literacy training*

Training in health literacy is critical for dentists and their staff. Training is especially critical for dentists in dual roles as team leader and employer. It should be noted health literacy training includes a focus on cultural competency. Although there are no comprehensive training programs that are specific to dental care providers, there are many

health literacy courses available that provide education and guidance on developing and maintaining a health literate health care facility or practice.

Box 3 provides a partial list of trainings offered by government, academic, and health institutions. The CDC training is comprehensive and can be used both as an introduction to health literacy and a refresher course.

## **Box 3 – Health literacy training**

### **Federal government**

Centers for Disease Control and Prevention (CDC updated 2019)

- Seven online health literacy courses for health care providers

Agency for Healthcare Research and Quality (AHRQ updated 2019)

- Two interactive training modules and implementation guide to teach health care professionals about effective communication strategies
- A number of resources to train health care professionals/organizations in delivering health information in a clear and comprehensible manner for patients

### **Academic institutions**

University of Minnesota, School of Public Health (updated 2019)

- Health literacy modules that aim to bridge the gap between communities of varying socioeconomic status and culture

University of New Mexico, Health Sciences Library and Informatics Center (updated 2019)

- Five modules based on information sharing and effective communication techniques for health care professionals

University of Albany, Center for Public Health Continuing Education

- Four-part health literacy training to educate health care providers about low health literacy and the consequences it has on an individual's health outcomes

### Box 3 – Health literacy training (cont.)

#### Educational organizations and health associations

National Education Academy (educational) (updated 2011)

- Ninety-minute workshop created to introduce and improve the concept of health literacy to students

International Foundation of Employee Benefit Plans (educational)

- An online course that aims to spread awareness regarding health literacy and how to help individuals with low health literacy in a health-related setting

Kentucky Hospital Association (health)

- Free webinars and training modules regarding the topic of health literacy

#### Video resources

VCH Primary Care (2014)

- Seven steps to improve patients' health outcomes

### Social determinants of health and oral health

An individual's oral health may have more to do with where one lives and works than it does with his/her dental visits (i.e., clinical, genetic, and/or biological determinants), and this matters at a societal level, and across various subpopulations nationwide.

Epidemiologists state that a zip code is a stronger predictor of individuals' health than peoples' genetic codes (City Health Dashboard 2019).

A healthy community requires consideration of both a socioecological *and* individual approach to disease prevention, health promotion, and effective intervention. Complex inter-relationships among personal, social, economic, and environmental factors influence the health status of both individuals and populations. Among the broad categories of policymaking, social factors, health services, individual behavior, and biology/genetics that affect health

outcomes at the public health level (USDHHS HP 2010), *social* determinants of health reflect the various "... *social factors and physical conditions of the environment in which people are born, live, learn, play, work, and age.*"

No one would argue against the importance of seeing a dentist and maintaining oral health. However, in its strictest sense, clinical care may be a relatively weak determinant, making up as little as 20% among all general determinants of health (Hood 2016). Social determinants matter more than do clinical ones. The dental profession acknowledges the role of some social determinants of oral health, including water safety and fluoride exposure and the interplay between diet, excessive sugar intake, and dental caries. Prioritizing health literacy can help dental professionals educate patients using simple messages regarding social determinants. Consider fluoride and caries prevention: understanding zip code factors (i.e., do my patients live in a town with fluoridated public water?) and

common misconceptions (i.e., do my patients believe fluoride is harmful for their health?) enables clinicians to conduct a relevant conversation about water safety/quality and dental outcomes. Furthermore, practitioners may apply health literacy techniques to educate patients about sugar consumption and oral health. Rather than simply asking patients to limit sugar consumption, clinicians may review brief dietary recalls with patients and tailor individualized recommendations (e.g., frequency of snacking, sugary/starchy content of food choices) and help them develop attainable, healthier snacking options and timing goals. In all such examples, dental professionals reinforce such efforts using teach-back and other communication methods; to do so, providers must understand the relationships among social determinants of health, dental outcomes, and health literacy.

When considering the oral health literacy of patients as well as their employers, a survey found that 28% of young adults believe their teeth and mouth appearance affected their ability to interview for a job (American Dental Association 2015). Undoubtedly, employment status and employability are important social determinants of oral health. Stable work enables income, insurance benefits, childcare, and/or supportive hours (e.g., sick days), all of which enhance oral and systemic health. However, work conditions, risks, and hazards also may indicate higher-than-average rates of smoking (e.g., miners, construction workers, food service employees); alcohol use (e.g., bartenders, employees in arts and entertainment); dentofacial injuries (e.g., transportation workers, athletes); and even dehydration (e.g., workers in mining, forestry). Dental care affects one's ability to obtain employment, and employment in turn affects oral health outcomes. Other examples of social determinants of oral health include the role of transportation

and the ability to access dental care for the elderly and/or those with physical/mobility limitations, as well as those in rural provider-shortage areas. The effects of housing and substance use (e.g., tobacco, alcohol, opioids, vaping) are other areas of consideration. Each determinant provides opportunities for the dental community to collaborate with both public and private sector stakeholders across various industries. Low health literacy is associated with poorer health outcomes and lower-than-average use of healthcare services (Berkman 2011, Sheridan 2011).

Language, culture, and literacy are intimately related, and limited English proficiency is a potential barrier to accessing dental services and understanding health information. In accordance with Section 1557 of the Affordable Care Act, some dental insurers provide interpreter services for patients with limited English proficiency, thereby benefitting both patient and provider. However, the oral health knowledge of language interpreters varies widely. Lack of adequate dental knowledge alongside culturally competent health care providers may adversely affect those with low literacy competency and limited English proficiency. Recognizing the importance of training, as of 2016, the CMS requires health care insurers to include language assistance programs for enrollees and cultural competency training for all participating health care providers (Federal Register 2016).

In summary, an expanded approach that considers social determinants of oral health and dental outcomes must move past the traditional, individualistic model involving the dentist-patient dyad (i.e., a dentist or hygienist reminding the patient to brush and floss better, during twice yearly visits) (Secretary's Advisory Committee 2019). A research-based, data-driven, and financially practical reframing looks beyond the individual clinical

encounter to fundamentally change our profession's approach to improving oral health. Specific advancements are possible at all levels, from high-level policy changes in financing and delivery models to community and grassroots efforts to affect neighborhood-based changes (i.e., attracting oral health providers well-versed in health literacy and culturally-appropriate health communication in relation to health disparities).

## Recommendations

This review of health literacy in dental practice, health insurance, and health care points to the following recommendations: develop a provider network of health literate dental homes, improve capacity for integrating dental practice, and create and test educational materials for dental practice.

### 1. Develop a provider network of health-literate dental homes

*A. Develop and test a guide for dentists to assess their practice and develop a health literate practice, including comprehensive health literacy training modules for dental providers and staff. The Joint Commission resources on health literacy (2007) for a health literate facility could serve as a guide. Assess who among the staff is messaging with the patient, on what topics, and how this is delegated. Modules could include aspects required to deliver high quality, patient-centered care that is based on effective communication and seeks to improve oral and general health and reduce the complexity of navigating the health care system.*

Health literacy is an essential component of an effective patient-centered, team-based practice. The dental practice supports the staff and patient's understanding by using clear, appropriate, and repetitive messages. Numerous resources were developed under federal funding to support the patient-centered

medical home, which can be adapted to an oral health literate practice. Early work regarding the components of a health literate dental practice was prepared by Horowitz, et. al (2014), but it is incomplete. Evaluating the components of dental practice, developing, testing, and making available dental health literacy training modules that would apply to a health literate dental practice would be a major step ahead to increase health literate dental organizations. The Joint Commission offers accreditation and certification for health care organizations in the U.S. As part of their 2001 public policy initiative, the Joint Commission developed a report on how health literacy is an important aspect of providing safe and high-quality care (2007). The report organized the whitepaper around three topics: making effective communications an organizational priority to protect the safety of patients; incorporating strategies to address patients' communication needs across the continuum of care; and pursuing policy changes that promote improved practitioner-patient communications.

*B. Develop and assess the potential value of the "AfterVisit Summary" for dental use in clarifying and explaining Treatment Plans, next appointments, and patient expectations.*

An "AfterVisit Summary" (AVS) is an important component of the Patient-Centered Home and can improve the doctor-patient mutual understanding of the patient's existing health, oral conditions, treatment needs, health literacy, and proposed program of treatment (Hummel and Evan, 2012). Adaption of the medical AVS to a dental use and tested in a dental network has not been conducted (Horowitz 2014b).

Interviews of implementation of the AVS found many problems in use, although general agreement of the need to confirm patient understanding of the patient condition and treatment need was clear

(Federer 2018). An adaptation for dental use would be novel and could move dental practice forward in health literacy as it attempts to clarify for patients the treatment needed, rationale, and required patient personal responsibilities.

## **2. Improve capacity for integrating dental practice**

*A. Adapt and test the use of a Structured Referral Guide within the dental provider network and physician colleagues.*

Testing of a referral process between physicians and dentists showed problems in effective referral and provider satisfaction. As integration of health moves forward for patients with chronic diseases, patients who are pregnant, and for complex patients, health plans with developed referral networks between medical and dental professionals will be ready to implement. Dental insurance companies could work with select employers to develop a referral network between physicians and dentists in larger population areas where providers may not have established networks. This could then lead to opportunities for integrated care models for select populations.

*B. Develop a standardized, EHR-based, social needs screening tool for use in the dental setting.*

While validated screening tools of social determinants do exist, research is minimal on their transferability and applicability to social determinants of oral health. A standardized, oral health determinants screening tool that can be fully integrated into an electronic health record will enable a more robust data collection, benefitting both clinical and non-clinical outcomes. As an example, reconciling a patient's hometown with data involving food access maps (Economic Research Service 2019 a & b) enables an informed discussion with the patient about oral health-related diet recommendations (e.g., snacking

frequency, sugary/starchy content of food choices).

## **3. Create and test patient and employer educational materials that are in plain language for dental practice**

*A. Develop and test patient and employer educational materials on the oral health - general health relationship that are accurate, in plain language, and culturally appropriate.*

Determine what health information is most sought after by patients of network dentists and make available to all empaneled dentists accurate and in plain language, clinical and health benefits educational information in written format or on provider website. Numerous print materials on a variety of preventive dental topics are available, including at the American Dental Association's Mouth Healthy website (<https://www.mouthhealthy.org/en>). Oral health information on prevention also offers opportunities to engage in translational research looking at access barriers to fresh, healthy foods and the potential role for interventions within a dental network. Fewer materials are available about the oral-general health association nor are they all written in plain language and tested on the intended practice-based audience. Having educational materials on both topics could reinforce preventive messages conveyed by dental staff and help increase staff and patient oral health literacy.

*B. Develop and test patient and employer educational materials on the use of dental health benefits.*

Develop materials that clearly explain how to evaluate various dental insurance programs, including copayments and deductibles, and how to evaluate what program is best for an individual or family. Creating a dental insurance education program on how to assess and use one's



benefits would be novel and very useful to patients.

*C. Assess the use of preventive evidence-based guidelines in dental practice.*

Emphasizing the use of preventive evidence-based guidelines by network providers helps to improve provider health literacy, informs patients about the importance of needed care and that the care provided is the standard of care, and may lower cost to a patient and/or dental health insurer. Integrated accountable care organizations publish and market their philosophy of evidence-based guidelines and simultaneously improve practitioner education and consistency in practice through practitioners' participation in the process of review, selection, and development of clinical practice guidelines (PDA 2019, Guideline Central 2012).

The call for use of evidence-based guidelines is growing, and implementation and compliance is especially problematic in non-group practices. Dental provider networks that include private practices offer the opportunity to develop and promote use of clinical practice guidelines and health literate training guides. It could also be used to develop partnerships with federal agencies, such as CMS or CDC, to enhance the public's health. For example, the 2003 CDC updated infection control guidelines advised practices to have an infection control/sterilization coordinator, but an early survey of information uptake showed little knowledge or implementation by dentists (Cleveland et. al. 2012). Large networks could spur acceptance of the complete set of infection control guidelines nationwide.

*D. Study the impact of various modes of language support (e.g., tablets, telephone guidance) and facilitated provider- and community-based language access efforts for persons of limited English proficiency.*

The small-business dental practice model inhibits many providers from ensuring 'meaningful access' for individuals with limited English proficiency. Study the impact (e.g., reduced no-shows, accepted treatment plans, lost patients) of quality English translation assistance support that maintains plain language principles.

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## About the Delta Dental Institute

The [Delta Dental Institute](#) is putting a new spotlight on oral health. We are dedicated to advancing America’s oral health in partnership with Delta Dental member companies and other leading partners across the country. With expertise rooted in Delta Dental’s rich history of oral health leadership, the Delta Dental Institute engages in and supports oral health research, community outreach, and advocacy, striving to ensure all Americans can have the healthy smile they deserve and live their healthiest lives.

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## Sources

Agency for Healthcare Research and Quality. Health Literacy Modules.

<https://www.ahrq.gov/topics/health-literacy.html>.

Accessed November 6, 2019.

American Dental Association. Health Policy Institute. Oral health and well-being in the United States. 2015.

<https://www.ada.org/-/media/ADA/Science%20and%20Research/HPI/OralHealthWell-Being-StateFacts/US-Oral-Health-Well-Being.pdf?la=en>.

Accessed December 18, 2019.

Atchison KA, Rozier RG, Weintraub JA. 2017, Integrating oral health, primary care, and health literacy: Considerations for health professional practice, education, and policy. Commissioned by the Roundtable on Health Literacy, Health and Medicine Division, the National Academies of Sciences, Engineering, and Medicine,

<http://nationalacademies.org/hmd/-/media/Files/Activity%20Files/PublicHealth/HealthLiteracy/Commissioned%20Papers%20->

[Updated%202017/Atchison%20K%20et%20al%202017%20Integrating%20oral%20health%20primary%20care%20and%20health%20literacy.pdf](http://nationalacademies.org/hmd/-/media/Files/Activity%20Files/PublicHealth/HealthLiteracy/Commissioned%20Papers%20-Updated%202017/Atchison%20K%20et%20al%202017%20Integrating%20oral%20health%20primary%20care%20and%20health%20literacy.pdf) . Accessed

February 23, 2018.

Berkman N, Sheridan S, Donahue K, et al. Health Literacy Interventions and Outcomes: An Updated Systematic Review. Evidence Report/Technology Assessment No. 199. (Prepared by RTI International–University of North Carolina Evidence based Practice Center under contract No. 290- 2007-10056-I. AHRQ Publication Number 11E006. Rockville, MD. Agency for Healthcare Research and Quality. March 2011.

Centers for Disease Control and Prevention. Health Literacy Training. Updated October 17, 2019.

<https://www.cdc.gov/healthliteracy/gettraining.html>.

Accessed November 6, 2019.

Centers for Disease Control and Prevention. [\*Oral Health Surveillance Report: Trends in Dental Caries and Sealants, Tooth Retention, and Edentulism, United States, 1999–2004 to 2011–2016\*](#). Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2019.

City Health Dashboard. City Health Dashboard Data. New York City: City Health Dashboard; 2019.

[www.cityhealthdashboard.com](http://www.cityhealthdashboard.com). Accessed December 2, 2019.

Cleveland JL, Bonito AJ, Corley TJ, et al. Advancing infection control in dental care settings: factors associated with dentists' implementation of guidelines from the Centers for Disease Control and Prevention. *J Am Dent Assoc.* 2012;143(10):1127-1138. PMID: 23024311.

Economic Research Service (ERS), U.S. Department of Agriculture (USDA). [\*Food Access Research Atlas\*](#).

<https://www.ers.usda.gov/data-products/food-access-research-atlas/>. Last updated October 31, 2019. Accessed January 27, 2020.

Economic Research Service (ERS), U.S. Department of Agriculture (USDA). [\*Food Environment Atlas\*](#).

<https://www.ers.usda.gov/data-products/food-environment-atlas/>. Last updated August 27, 2019.

Accessed January 27, 2020.

Federman A, Sarzynski E, Brach C, et al. Challenges optimizing the after visit summary. *Int J Med Inform.* 2018;120:14–19. PMID: 30409339.

Freedman DA, Bess KD, Tucker HA, Boyd DL, Tuchman AM, Wallston KA. *Am J Prev Med.* 2009;36(5):446-51. PMID: 30409339.

Greene J., Peters E. (2009). Medicaid consumers and informed decision making. *Health Care Financ. Rev.* 30 25–40.

Guideline Central. HealthPartners Dental Group and Clinics oral cancer guidelines. Revised Nov. 9, 2012.

<https://www.guidelinecentral.com/summaries/health-partners-dental-group-and-clinics-oral-cancer-guideline/#section-society>. Accessed January 10, 2020.

Henderson E, Dalawari P, Fitzgerald J, Hinyard L. Association of oral health literacy and dental visitation in an inner-city emergency department population. *Int J Environ Res Public Health.* 2018;15(8):1748. Published 2018 Aug 15. doi:10.3390/ijerph15081748. PMID: 30111688.

Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: Relationships between determinant factors and health outcomes. *Am Prev Med*. 2016;50(2):129-135. PMID: 26526164.

Horowitz AM, Maybury C, Kleinman DV, et al. Health literacy environmental scans of community-based dental clinics in Maryland. *Am J Public Health*. 2014;104(8):e85-e93. PMID: 24922128.

Horowitz AM, Robinson LA, Ng MW, Archarya A. After visit summaries: A tool whose time has come for use in dentistry. Discussion Paper, Institute of Medicine, Washington, DC. July 9, 2014. <https://nam.edu/perspectives-2014-after-visit-summaries-a-tool-whose-time-has-come-for-use-in-dentistry/> Accessed January 27, 2020.

Hummel J, Evans P. Providing clinical summaries to patients after each office visit: a technical guide. July 2012: <https://www.healthit.gov/sites/default/files/measurement-tools/avs-tech-guide.pdf>. Accessed January 9, 2010.

Institute of Medicine. *Oral health literacy: Workshop summary*. Washington, DC: The National Academies Press; 2013.

Institute of Medicine of the National Academies. *Health literacy: A prescription to end confusion*. Washington, DC: National Academy Press. 2004.

International Foundation of Employee Benefit Plans. Health Literacy: Online Health Literacy Training. <https://www.ifebp.org/education/elearningcourses/Pages/Health-Literacy.aspx>. Accessed November 6, 2019.

Jeffcoat MK, Jeffcoat RL, Gladowski PA, Bramson JB, Blum JJ. Impact of periodontal therapy on general health: evidence from insurance data for five systemic conditions. *Am J Prev Med*. 2014;47(2):166-174. PMID: 24953519.

Joint Commission. What did the doctor say?: Improving health literacy to protect patient safety. 2007. [https://www.jointcommission.org/-/media/deprecated-unorganized/imported-assets/tjc/system-folders/assetmanager/improving\\_health\\_literacy.pdf?db=web&hash=32078FE2F92B09026044BEA48ABC14BE](https://www.jointcommission.org/-/media/deprecated-unorganized/imported-assets/tjc/system-folders/assetmanager/improving_health_literacy.pdf?db=web&hash=32078FE2F92B09026044BEA48ABC14BE). Accessed December 18, 2019.

Kentucky Hospital Association. Health Literacy - Online Training Resources. <https://www.kyha.com/health-literacy---online-training-resources>. Accessed November 6, 2019.

Macek MD, Atchison KA, Wells W, Haynes D, Parker RM, Chen H. Did you know Medicare does not usually include a dental benefit? Findings from a multisite investigation of oral health literacy. *J Public Health Dent*. 2017;77(2):95-98. PMID: 28079917.

McConnell KJ, Charlesworth CJ, Meath THA, George RM, Kim H. Oregon's emphasis on equity shows signs of early success for black and American Indian Medicaid enrollees. *Health Aff (Milwood)*. 2018;37(3):386-393. PMID: 29505371.

Miloro MB, Vujicic M. Physicians dissatisfied with current referral process to dentists. Health Policy Institute Research Brief, American Dental Association. March 2016. [http://www.ada.org/-/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief\\_0316\\_5.pdf](http://www.ada.org/-/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_0316_5.pdf). Accessed January 14, 2020.

Morgan , R. O. , Teal , C. R. , Hasche , J. C. , Petersen , L. A. , Byrne , M. M. , Paterniti , D. A., & Virnig , B. A. Does poorer familiarity with Medicare translate into worse access to health care? (2008). *Journal of the American Geriatrics Society*, 56, 2053-2060.

Mosen D, Pihlstrom D, Snyder J, Smith N, Shuster E, Rust K. Association of dental care with adherence to HEDIS measures. *Perm J*. 2016;20(1):33-40. PMID: 26580145.

Nasseh K, Vujicic M, Glick M. The relationship between periodontal interventions and healthcare costs and utilization. Evidence from an integrated dental, medical, and pharmacy commercial claims database. *Health Econ*. 2017;26(4):519-527. PMID: 26799518.

National Education Academy. Health Literacy Program. Updated April 2011. <http://neacademyondemand.frameworker.com/>. Accessed November 6, 2019.

National Academies of Sciences, Engineering, and Medicine. 2019. *Integrating oral and general health through health literacy practices: Proceedings of a workshop*. Washington DC: The National Academies Press. Doi: <https://doi.org/10.17226/25468>. (Schillenger)

Nutbeam D. Health promotion glossary. *Health Promot Intl*. 1998;13:349–364.

Nutbeam D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promot Int*. 2000;15(3):259–267.

Paez KA, Mallery CJ, Noel HJ, et al. Development of the Health Insurance Literacy Measure (HILM): conceptualizing and measuring consumer ability to choose and use private health insurance. *J Health Commun*. 2014;19(sup2):225-239. PMID: 25315595.

Parker RM, Ratzan S. Re-enforce, not re-define health literacy—moving forward with health literacy 2.0. *J Health Commun*. 2019;24(12):923-925. PMID: 31752603.

Public Law 102-73: National Literacy Act of 1991. Accessed from <https://www.govinfo.gov/content/pkg/STATUTE-105/pdf/STATUTE-105-Pg333.pdf#page=1>. Accessed – January 15, 2020.

PDA Permanente Dental Associates – Our Vision. <https://www.pda-dental.com/our-foundation/our-vision/>. Accessed January 12, 2020.

Qunicy , L. (2012). *Measuring health insurance literacy: A call to action*. Retrieved from <http://consumersunion.org/research/measuring-health-insurance-literacy-a-call-to-action>. Accessed December 11, 2019.

Ratzan SC, Parker RM. Introduction. In: *National Library of Medicine Current Bibliographies in Medicine: Health Literacy*. Selden CR, Zorn M, Ratzan SC, Parker RM (editors). NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services; 2000.

Safety Net Medical Home Initiative. Implementation guide. Organized, evidence-based care: oral health integration. <http://www.safetynetmedicalhome.org/sites/default/files/Guide-Oral-Health-Integration.pdf>. October 2016. Accessed January 27, 2020.

Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2030. Issue briefs to inform development and implementation of Healthy People 2030. November 2018. [https://www.healthypeople.gov/sites/default/files/H2030\\_Committee-Combined-Issue%20Briefs\\_2019-508c.pdf](https://www.healthypeople.gov/sites/default/files/H2030_Committee-Combined-Issue%20Briefs_2019-508c.pdf). Accessed January 27, 2020.

Sheridan SL, Halpern DJ, Viera AJ, et al. Interventions for individuals with low health literacy: a systematic review. *J Health Commun*. 2011;16(Suppl 3):30-54. PMID: 21951242.

Tennyson SL. Consumers' Insurance Literacy. Networks Financial Institute Policy Brief No. 2011-PB-06. July 27, 2011. Available at SSRN: <https://ssrn.com/abstract=1896316>. Accessed January 15, 2020.

U.S. Department of Health and Human Services. *A National Call to Action to Promote Oral Health*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention and the National Institutes of Health, National Institute of Dental and Craniofacial Research. NIH Publication No. 03-5303, May 2003.

U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. Washington, DC: U.S. Department of Health and Human Services; 2000.

U.S. Department of Health and Human Services. *Healthy People 2020: An Opportunity to Address Societal Determinants of Health in the United States*. Washington, DC: U.S. Department of Health and Human Services; 2010. <https://www.healthypeople.gov/2010/hp2020/advisory/SocietalDeterminantsHealth.htm>. Accessed January 27, 2020.



U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research. National Institutes of Health. 2000.

United Healthcare Services. Medical Dental Integration Study.  
[https://www.uhc.com/content/dam/uhc.com/en/Private%20Label%20Administrators/100-12683%20Bridge2Health\\_Study\\_Dental\\_Final.pdf](https://www.uhc.com/content/dam/uhc.com/en/Private%20Label%20Administrators/100-12683%20Bridge2Health_Study_Dental_Final.pdf).  
Published March 2013. Accessed August 18, 2019.

University at Albany, Center for Public Health Continuing Education. Health Literacy & Public Health: Introduction. <https://phtc-online.org/learning/>.  
Accessed November 6, 2019.

University of Minnesota, School of Public Health. Culture and Health Literacy Modules.  
<http://cpheo1.sph.umn.edu/healthlit/#a>. Updated November 6, 2019. Accessed November 6, 2019.

University of New Mexico Health Sciences Library and Informatics Center. Health Literacy: Online Health Literacy Training Programs.  
<https://libguides.health.unm.edu/c.php?g=238059&p=1582649>. Updated October 24, 2019. Accessed November 6, 2019.

VCH Primary Care. Health literacy basics for health professionals [video]. YouTube.  
[https://www.youtube.com/watch?v=\\_8w9kdcRgsl&feature=emb\\_logo](https://www.youtube.com/watch?v=_8w9kdcRgsl&feature=emb_logo). Published June 19, 2014. Accessed December 6, 2019.

Wall T, Nasseh K. Dental-related emergency department visits on the increase in the United States. Health Policy Resources Center Research Brief. American Dental Association. May 2013.  
[http://www.ada.org/-/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief\\_0513\\_1.ashx](http://www.ada.org/-/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_0513_1.ashx).  
Accessed February 2, 2015.

Wall T, Vujicic M. Emergency Department Use for Dental Conditions Continues to Increase. Health Policy Resources Center Research Brief. American Dental Association. April 2015.  
<http://mediad.publicbroadcasting.net/p/wusf/files/201802/ADA.pdf>. Accessed January 14, 2020.

