Advancing Oral Health for Older Adults

Report for 90-day Innovation Cycle 2 of 2

July – September 2019

Institute *for* Healthcare Improvement

westhealth

Intent & Aim

In April 2019, the Institute for Healthcare Improvement (IHI) partnered with the West Health Institute (WHI) to conduct two sequential 90-day innovation cycles focused on optimizing oral health care for older adults. The first innovation cycle involved conducting a landscape analysis and developing a theory of change with respect to advancing oral health for older adults. The aim of the second innovation cycle was to advance the theory of change by developing a change package with suggested improvements that can be made within the delivery system to support dental practices and care teams to more effectively address the oral health needs of older adults so they can eat, speak, and smile with ease.

Background and Key Takeaways from First Innovation Cycle

The landscape analysis conducted during the first innovation cycle sought to elucidate opportunities to improve oral health care for older adults at the macro (related to policy and payment), meso (related to the capability of practices and providers to deliver oral health care), and micro (related to the individual beliefs and practices of older adults and their caregivers) levels. The full findings of the landscape analysis are described in the first innovation cycle report, *IHI Innovation Report: Advancing Oral Health for Older Adults* (April-June 2019), attached for your reference. A brief summary of the key insights relevant to the second innovation cycle is articulated below.

Summary of Macro-level Findings:

- **Older adults are a rapidly growing population and need access to oral health care:** The United States population is aging rapidly. By 2035 older adults will outnumber children for the first time in history. [1] At the same time, fewer than half of older adults have seen a dentist in the past year. [2] Older adults are also reaching age 65 with more of their natural teeth than previous generations creating an increased need for on-going oral health care.
- **Many older adults lack insurance coverage for oral health which limits access to care**: Lack of adequate insurance coverage and reimbursement mechanisms is frequently noted as a major impediment for the dental delivery system to optimally address the oral health needs of older adults. Specifically, Medicare does not provide a dental benefit, Medicaid coverage varies by state, and few older adults pay for private insurance.

Summary of Meso-level Findings:

- **Many oral health professionals feel unprepared to work with older adults:** Ensuring dentists are prepared and willing to address the oral health needs of older adults is ripe for improvement. Dental students report feeling unprepared to adequately care for older adults' oral health needs, and academic programs for geriatric dentistry are limited, with fewer than 25% of dental schools in the US offering postdoctoral geriatric

dentistry programs.[3] While the clinical delivery of care is similar across populations (i.e. interventions to arrest caries are similar for children, adults, and older adults), oral health professionals express concerns about complications related to older adults and the complexity of their needs (i.e. fear of complications related to comorbidities like diabetes, concerns about bleeding and clotting, and concerns related to medication reconciliation). Perhaps unsurprisingly, there is an associated shortage of current oral health providers who feel confident in their skills to care for older adults.[4]

- **Care guidelines are not widely available nor consistently used to inform care delivery for older adults' oral health care needs:** While some basic guidelines describing ways to evaluate an older adult's level of health and independence exist in dentistry, they do not provide adequate guidance related to the unique clinical needs of this population, such as how to care for teeth as they change as adults age and the relationship between periodontal disease and medical comorbidities.[5] [6] [7] Existing guidelines are useful as conceptual frameworks for understanding issues related to older adults (i.e. how a patient's physical and cognitive independence affects their ability to receive and maintain care). However, specific clinical guidelines to better inform oral health care providers in the clinical delivery of care are not widely available. As such, they are not utilized by a critical mass of oral health professionals.
- **Oral health professionals often expect to provide a "gold standard" of care which may not be the best care for older adults:** Oral health professionals are trained from the beginning of their academic programs, through their residencies, and in their continuing education to focus on exacting treatment and restorative care. For an older adult who prioritizes eating, speaking, and smiling with ease, controlling tooth decay may involve the application of silver diamine fluoride which is effective at arresting caries yet noticeably discolors the tooth as an unavoidable side effect. This intervention is likely in the best interest of some older adults to preserve tooth structure, and provide minimally invasive care, and would be contrary to the prevalent culture of treatment across dental professionals. Shifting this mindset towards a more patient-focused approach to older adult care where a functional standard is used over a gold standard emerged as an important area for improvement.

Summary of Micro-level Findings:

- **Older adults are retaining more of their natural teeth:** Tooth loss is not what was once considered an inevitable, normal part of aging. For older adults, advancements in population health management (i.e. water fluoridation) and improved dental care and maintenance (i.e. having access to dental benefits through employer-based, private insurance before age 65) have created a need for on-going oral health care not seen by previous generations. In earlier eras, older adult dental care primarily involved denture care. Now, older adults are reaching age 65 with more of their natural teeth than ever before, and they have oral health needs related to maintaining a healthier mouth.[8] This maintenance is complicated by the fact that many older adults are living with multiple comorbidities often involving several medications and treatment plans. For example, many medications increase the likelihood of experiencing dry mouth through limited

saliva production which increases the risk of advancing tooth decay and other oral infections.[9]

- **Home care and dental access make a difference:** At home oral care includes brushing, flossing, fluoride rinses as needed, and other strategies to address risk factors such as diet and nutrition, dry mouth, or presence of bacteria. As older adults age, declining health and mobility as well as increasing social isolation all play an important role in the individual's ability to care for themselves.[10] Dependence on family or other caregivers in the home or in assisted living and long-term care facilities is common amongst older adults. Older adults sometimes need support from others, such as family members, to help them maintain their oral health, and receive regular care. Difficulty in maintaining overall health at home or in community settings leaves many older adults with fear or embarrassment which may keep them from engaging with the oral health delivery system.[11]
- **Supporting older adults with complex medical conditions is aided by effective interdisciplinary care teams:** When older adults present to oral health providers, the care team must establish a clear understanding of their patient's overall health history – especially as it relates to chronic health conditions and medications – to establish a useful risk assessment before delivering care. Within dental settings, all members of the care team must be aligned to deliver the best possible care to older adults. In addition, dentists and dental hygienists need to work together with physicians to understand and support older adults with medical conditions that may be impacted by dental treatment.

The first innovation cycle provided an important baseline understanding of the challenges and opportunities in trying to optimize oral health care for older adults. The cycle also uncovered several organizations and practices with promising approaches to delivering oral health care to older adults.

IHI and WHI sought to focus the second innovation cycle on more deeply understanding how to effect change at the meso level (related to the capability of practices and providers to deliver oral health care).

Description of Work to Date

Between July and September 2019, the WHI and IHI teams collaborated to develop a change package that helps answer the following question:

- How might we create oral health practices and providers capable of delivering care that enables older adults to eat, speak, and smile with ease?

The IHI team engaged in the following activities in collaboration with WHI:

- A review of the peer reviewed and gray literature.

- Expert interviews with 20 individuals representing 16 organizations in various roles related to oral health (Table 1).
- The development of a driver diagram focused on the ways the delivery system can more optimally support oral health providers and practices to deliver preventive oral health care as well as older adults and their caregivers to complete routine care and maintain their oral health.
- Regular conference calls to check in on progress as well as discuss and refine evolving theories

Table 1. Expert Interviewees

Name	Organization
Stephen Schuman, DDS, MS *Associate Professor*	University of Minnesota School of Dentistry, Department of Developmental and Surgical Sciences
Jason Leitch, BDS, DDS, MPH *Clinical Director, Healthcare Quality and Strategy* **Thomas Lamont,** BDS, DDS *Clinical Leadership Fellow*	NHS Scotland
R. Bruce Donoff, MD, DMD *Dean*	Harvard School of Dental Medicine
Kristen Simmons, RDH, MHA *Chief Operating Officer* **Joanna Mullins**, BSDH, RDH *Director of Strategy and Service Operations*	Willamette Dental
Lynda Flowers, JD, MSN, RN *Senior Strategic Policy Advisor*	AARP Public Policy Institute
Irene Hilton, DDS, MPH *Dental Consultant (NNOHA)* *Dental Director (SFDPH)*	National Network for Oral Health Access (NNOHA) San Francisco Department of Public Health
Marcus Gustfason, DDS *Founder/CEO, Dentist*	ElderCare Dental
Elisa Chavez, DDS *Associate Professor*	University of the Pacific, Arthur A. Dugoni School of Dentistry
Talbot Fucci, DDS *Dentist*	Dental Aid
Ethan Kearns, DDS *Chief Dental Officer, Dentist*	Salud Family Health Centers (FQHC)
Christine Riedy Murphy, PhD *Chair and Associate Professor*	Harvard School of Dental Medicine, Oral Health Policy and Epidemiology
Lou Graham, DDS *Founder (UDP, CE)* *Dentist*	University Dental Professionals Catapult Education
Bob Russell, DDS, MPH *Bureau Chief*	Iowa Department of Public Health, Bureau of Oral and Health Delivery System
Michael Helgeson, DDS *CEO, Dentist*	Apple Tree Dental
Peter Fitzgerald, MSc *Executive Vice President of Policy and Strategy*	National PACE Association
John Whittington, MD *Senior Fellow* *Faculty* **Leslie Pelton,** MGA	Institute for Healthcare Improvement

Senior Director, Innovation *Lead, Age-Friendly Health Systems* **Karen Baldoza**, MSW *Executive Director* *Co-Lead, Improvement Science and Methods Portfolio*	

Key Takeaways from the Second 90-day Innovation Cycle

Insights from the first innovation cycle led IHI and WHI to delve deeper into opportunities and challenges in leveraging the dental delivery system to optimize oral health care for older adults. IHI and WHI supplemented the knowledge derived from the published literature around the meso level with expert interviews with practitioners delivering care in the field. Based on these interviews, several key areas emerged as areas of focus.

> ***Note:*** *For the purposes of this report, the term "oral health provider" is used to denote individuals who are licensed as dentists or dental hygienists and deliver dental care. And, the term "provider" is used to denote the wider network of care providers who support care delivery, such as home care aides, primary care providers, and other professionals who care for older adults.*

Leadership buy-in and motivation for organizational readiness

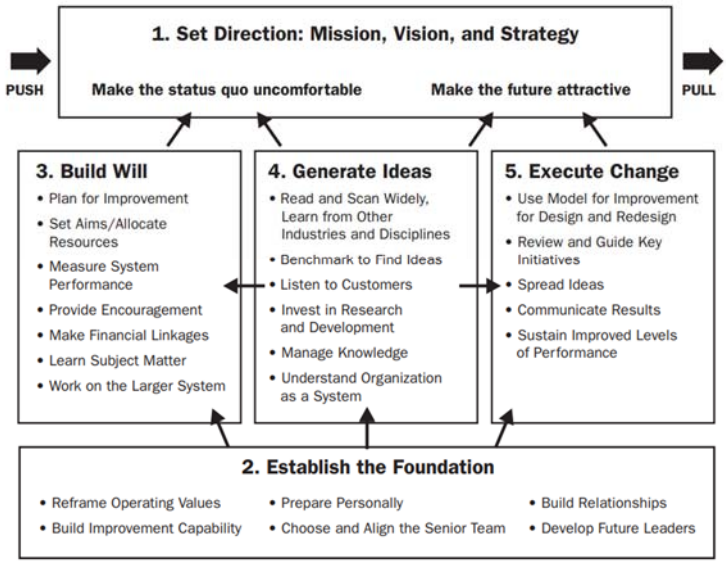
Throughout both innovation cycles, the IHI team consistently heard experts share their personal stories of what connects them to their work in caring for older adults. Nearly all shared stories of loved ones who experienced sub-optimal oral health care in a system not designed for the needs and expectations of older adults and this personal connection was frequently brought up as a motivating factor for many leaders. Similarly, many of the oral health professionals and academic leaders in geriatric dentistry describe their pathway to serving older adults as one of circumstance. As these leaders progressed in their careers, they saw the way the system was neglecting the needs of older adults and felt a calling to improve the experience and care received by this population. For example, Dr. Marcus Gustafson spoke of his experience building one of Minnesota's largest private practices – where he observed that dentistry was not serving older adults particularly well. He eventually sold his practice and committed the remainder of his career to working exclusively with older adults by founding a new practice called ElderCare Dental. Dr. Gustafson described this new chapter of his career as fulfilling a need in the community by caring for a population that "organized dentistry is nowhere near being prepared for." Of the group of leaders interviewed, this type of personal journey and sense of duty came up frequently, which suggests that tapping into the intrinsic motivation of leaders is an important lever for enhancing organizational focus to serve older adults.

At an organizational level, leadership buy-in and motivation stood out as contributing factors to ensuring an organization placed a strategic focus on serving older adults. Without a willing leadership team, organizations found it difficult to overcome the logistical challenges of providing care to a medically complex and almost always un- or underinsured population. Some

of these challenges relate to clinic design and the investments needed to create spaces that meet the needs of older adults (ie. spaces accessible to individuals with mobility issues; equipment or tools to help with transferring older adults in and out of the dental chair). Other challenges relate to operations and time resources as an effective consultation with an older adult may require more time with oral health care providers. Effectively communicating care and follow-up plans with older adults may also require more time and the development of new materials tailored to the older adult population and their caregivers. Additionally, supporting existing oral health providers with the time and resources necessary to be trained and engaged in continuing education is an important element of creating a dental practice that can effectively serve older adults.

The IHI Framework for Leadership in Improvement provides a roadmap for leaders to think about how they might approach their work in service of improving their organization's effectiveness. The center of this framework relies on *Will, Ideas, and Execution*.[12]

Figure 1. IHI Framework for Leadership for Improvement



Leaders must develop the organizational *will* to take on an improvement effort or new strategic direction, generate or find strong enough *ideas* for improvement, and then *execute* those ideas in a sustainable way over time. The framework (Figure 1) shows the relationship between the core concept of will, ideas, and execution and an organization's direction (i.e. mission, vision, and values), and their organizational foundation (i.e. culture, relationships, and future leadership). This approach may prove valuable in galvanizing and operationalizing a commitment amongst leaders to improve oral health for older adults in their practices and communities.

Enhancement to organizational workflow and operations

Making a dental practice more "age friendly" may require modifications to overall workflows and office operations as serving older adult older adults effectively may require more time and resources. For example, providers may need to provide hands-on assistance to safely move older adults in to and out of the dental chair. Patient intake (i.e. collecting health history and conducting a risk assessment) and patient outflow (i.e. providing care instructions and follow-up information) may also take longer given an older adult may have a more complex medical and dental history. For example, reviewing current medications and understanding the ways in which those medications might affect treatments during the current appointment as well as an older adult's oral health care/treatment plan requires dedicated time during an appointment

and on-going familiarity with risks associated with the use of certain medications. Similarly, having effective conversations about what matters most to an older adult in terms of their care needs and goals requires more time than is typically allocated during a dental visit. Additionally, the system is currently designed to bring everyone back every 6 months, regardless of their individual risk-status. The practice of 6-month recall for preventive cleanings and evaluations is likely inappropriate for all older adults. Older adult recall should be based on an individual's risk of disease, treatment needs, and their own health goals. Standard workflows will need to be updated to enable oral health providers to effectively evaluate the appropriate time between dental appointments based on individual risk. Other specific investments discussed by oral health providers who currently serve older adults, included investing in enhanced lighting, weight belts, walkers, and other devices to aide staff in safe patient transfer. These efforts require dedicated leadership willing to improve office operations in pursuit of providing better care for older adults.

Oral health provider and care team readiness

For individual oral health providers, readiness to work with older adults also relies on individual provider motivation and confidence. Experts currently treating older adults in their practice, or training providers to treat older adults, consistently agreed that the clinical skills necessary to treat older adults are similar enough to the rest of dentistry that most providers are fully capable of providing quality care to this population. However, these experts also recognized that many providers lack the confidence and consistent practice of applying their clinical skills to the older adult population. As each person is different, the most successful way to build confidence for providers is to increase their exposure to and practice of care delivery directly with older adults. These efforts can be enhanced through coaching and support from mentors and peers committed to providing care for older adults.

Developing provider confidence so that they are more ready and willing to work with older adults requires building skills and capabilities in the following areas:

- **Support for understanding complex health histories**: When older adults present for dental care, oral health providers must understand their physical and oral health history, as well as social support factors that may enhance or inhibit their care. Making decisions about the next steps in a treatment plan requires understanding a patient's health history, their current medications and diagnoses, and the ways previous treatments are affecting current health status. For example, concerns about an older adult's ability to clot while bleeding and whether they regularly use blood thinning medications consistently came up as an important health history element to understand. Experts also noted the importance of understanding the ways that chronic diseases like diabetes affect oral health status. Providers must develop their comfort in taking an older adult's health history and developing a nuanced care plan informed by what is learned.

- **Appreciation for current physical and cognitive abilities:** Older adults present with a wide range of physical and cognitive health statuses and levels of independence.

As discussed in the first innovation cycle report, there are frameworks to help providers understand the differences in older adult health status. For example, the Seattle Care Pathway describes five personas to aide providers in understanding an older adult's level of need and includes recommendations for assessment, prevention, treatment, and communication with differing approaches based on level of dependency.[13] Other approaches, like the FDI World Dental Federation's Chairside Guide for Managing Older Adults, describes three categories for general health condition: Robust, Frail (difficulties with instrumental activities of daily living), and Dependent (difficulties with basic activities of daily living; homebound or long term care).[14] In interviews, some oral health providers described a more fluid approach to this evaluation. Rather than rely on a specific framework or pathway, these providers based their approach to care on whether older adults are 1) relatively healthy and independent or 2) relatively unhealthy and dependent. There is an opportunity for oral health providers to take a patient-centered, risk-based care approach to deliver individualized dental care.

Developing oral health provider confidence in peer-supported learning environments: Experts agreed that dentists and dental hygienists receive adequate training for the clinical delivery of care. However, as academic training for geriatric care is limited, and hands-on time in practice is also limited (due to the small numbers of older adults served in dental practices), oral health providers have fewer opportunities to apply their skills to older adults and often do not develop their confidence. Gaining this confidence requires more exposure to older adults in clinical settings and is best developed while receiving peer support. Continuing education programs like the University of Minnesota's 'Miniresidency in Geriatrics and Long-term Care for the Dental Team' offer a learning environment that prioritizes hands-on training in a long-term care environment where oral health professionals learn in a cohort of approximately 20 other professionals to build their skills and capabilities to treat older adults. Among other areas, this program covers the fundamentals of geriatric medicine, risk assessment, treatment planning, communication, and designing and implementing dental programs for long-term care facilities and residents.[15] Some dentists described their participation in a this miniresidency as the confidence boost they needed to get started serving older adults. But ultimately, most said that experience and a willingness to take on the intellectual and clinical challenge of serving older adults generates the necessary confidence.

Interdisciplinary collaborative care

Given the unique challenges of caring for older adults, including recognizing functional and cognitive decline, understanding comorbidities, and recognizing the oral health impacts of medications, oral health providers need strong partnerships with their counterparts across the health care continuum. Dentists need to collaborate with their health profession colleagues — physicians, nurses, pharmacists, etc. — to consult with and educate them about oral health and its relationship to overall health. For example, if a person has a planned surgery, such as a hip replacement, they may need dental treatment before the surgery can occur because a dentist must check for and eliminate potential sources of infection, such as gum disease, tooth decay or

abscesses in the mouth. Conversely, if a patient has a history of heart disease, the dentist needs to understand the nature of the heart disease and what type of medicines they're taking to effectively manage their dental care. Left untreated, bacteria in the mouth can travel through the bloodstream, causing complications, or potentially life-threatening infections. Further, given the lack of access to dental services for older adults, primary care physicians play an important role in referring their older adults to dental care, helping them to navigate a system they may not currently know how to access, and elevating the importance of oral health in maintaining overall health.

Moving beyond isolated improvement – within single organizations or clinics or with small numbers of providers – to larger scale improvement for older adults will likely require engaging other care providers in community or home health settings. Older adults spend most of their lives outside of the dental clinic. And, a significant amount of their health care and well-being interactions take place in settings outside of the care of dental professionals. In assisted living facilities, skilled nursing facilities, and other forms of long-term care, various providers – from social workers and health technicians to nurses and physicians – are all capable of supporting improved oral health for older adults. These providers can evaluate older adults on a regular basis to identify oral health issues early in their development and relay this information to the appropriate oral health professionals. In many cases, these providers can deliver some oral health interventions like fluoride toothpaste and tooth brushing. Providers that are already assisting older adults with daily health and hygiene routines can also provide routine oral hygiene. Developing standards of care, establishing improved communication and shared goals between traditional oral health providers and community and home health providers may increase the ability of the delivery system as a whole to advance oral health for older adults.

Considerations for financial viability

Financial viability is an important consideration to engage new oral health providers and practices in this work. Issues related to the absence of reliable payment mechanisms for older adults (i.e. no dental coverage through Medicare and varied coverage by state in Medicaid) has been the most frequent challenge described by oral health professionals since the beginning of this research effort. Interestingly, some private practices in the United States provide their own care plans for purchase. University Dental Professionals (UDP) in Chicago, IL provides a preventive care plan for $395/year. With this plan, UDP generates revenue for their practice while providing care to older adults, largely delivered by well-trained auxiliary staff. Perhaps most promising, UDP began submitting reimbursement to private medical insurance carriers for treating conditions directly tied to medical conditions. For example, if an older adult living with diabetes experiences complications in their gum health as a result of their diabetes, UDP receives reimbursement for treating the gums through medical insurance. UDP has only practiced medical billing in the past two years and believes the effort could improve the financial outlook of treating older adults.

Other examples of business models for providing care to older adults include:

- Practices that provide a wide range of dental services to all populations while relying on reimbursement for delivering a large volume of care to insured populations to offset losses in delivering care to underinsured populations. For example, Willamette Dental Group (WDG) based out of Hillsboro, OR, is the largest multi-specialty group dental practice in the Pacific Northwest with locations in Oregon, Idaho, and Washington. Like UDP, Willamette Dental Group offers their own dental plans to older adults. Additionally, Willamette Dental Group's dentists are salaried employees and are not paid by fee-for-service reimbursement.[16] This elimination of production goals enables WDG's oral health providers to provide the right care at the right time for each patient. WDG also accepts traditional payment through private insurance. Operating at scale with payment from private insurance as well as WDG's own care plans allows WDG to generate enough margin on less complex patients to serve more complex patients like older adults.
- Practices that rely on grants and philanthropic support to cover operational costs of providing care. Apple Tree Dental (ATD) in Minnesota operates as a mission driven, non-profit organization that aims to improve oral health for all people, including those with special dental access needs. Revenue generated by providing dental services is the foundation of Apple Tree's financial viability. This is supplemented with federal, state, and foundation grants as well as corporate support and individual donations. Through these financing sources, ATP is able to provide high-quality care to the three most underserved populations in oral health: low-income children, adults with disabilities, and frail older adults.[17]
- Practices that work directly with organizations that primarily serve older adults and enter into business arrangements for reimbursement. For example, ElderCare Dental, based in Minnesota, works directly with the local Veteran's Administration hospital and other organizations that care for older adults like long-term care and assisted living facilities.

The research indicates that while financially viable approaches to delivering optimal oral health care to older adults exist, understanding which approaches work best in what contexts and which can be scaled, will be important considerations for future study and testing.

Describing the future state of the delivery system

A delivery system that can advance oral health for older adults needs practices where oral health professionals understand that serving older adults is within their skill set, training, and expertise. In an ideal state:

- Leaders of oral health practices feel a calling to serve older adults' oral health needs, recognize the feasibility of doing so, and welcome the challenge of overcoming the obstacles to providing high quality care to older adults. Leaders develop an appropriate older adult strategy for their practice and commit the necessary resources to operationalize effective care delivery for older adults.

- Oral health professionals are trained and supported to provide oral health care that is guided by "what matters" to the older adults and their families. They provide clinical care based on an assessment that takes older adult's needs, behaviors, and health status into account.
- Older adults experience an oral health care practice designed with their needs in mind, from making an initial appointment to interactions with front desk staff, to their care during and after their appointment. Attention is also paid to the practice's built environment – with adequate lighting, thoughtfully designed entrance ramps, doorways, hallways, and dental chairs, which are complimented by education materials and signs that make older adults feel welcome and important.
- Older adults are supported and encouraged across the continuum of care by their physicians, home care aides, and other community service providers to seek routine/regular dental care that protects their oral health and prevents periodontal disease and root caries, helping to improve their overall quality of life – so they can eat, speak, and smile with ease.

Applying Quality Improvement Principals to Advance Older Adult Oral Health

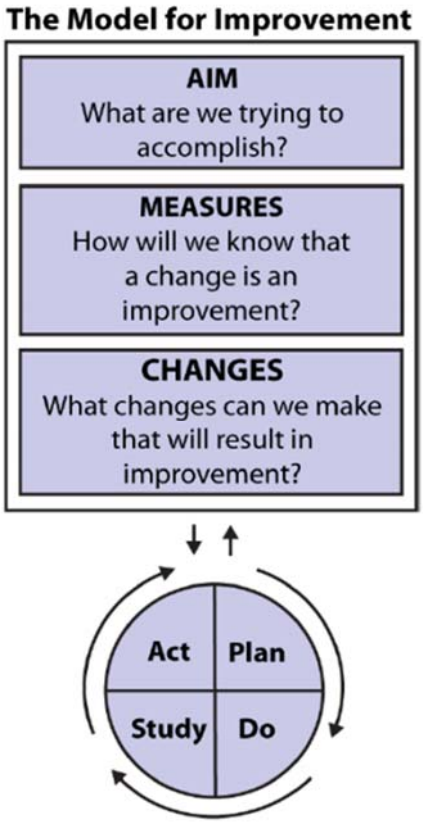
The Model for Improvement

IHI has utilized the Model for Improvement, developed by Associates in Process Improvement (API), as the basis of countless change initiatives for the past three decades. The model provides a simple framework for structuring improvement efforts with an organized theory of change and a process for testing changes.[18] The model starts with three fundamental questions:

1) <u>What are we trying to accomplish?</u>
   The first question establishes the aim of an improvement initiative. The best aim statements are specific and measurable in terms of results, expected timeline, and in what context.
2) <u>How will we know a change is an improvement?</u>
   The second question provides the opportunity to describe the ways in which an aim can be measured to know that the improvement effort is resulting in the desired outcome.
3) <u>What changes can we make that will result in improvement?</u>
   The third question begins the process of describing the elements of a system that can be changed in pursuit of the goal.

IHI's improvement methodology uses the Model for Improvement to articulate a theory of change which is tested using the second part of the model: The Plan-Do-Study-Act cycle where a specific test is planned, tried out, analyzed, and then refined based on what was learned.

Figure 2



The key takeaways from both innovation cycles informed the development of an aim and draft change package which articulates a collection of change ideas that may result in improvement. Early considerations for how these improvements may be measured are also included below.

Driver Diagram and Change Package

During this 90-day cycle, the IHI team developed a driver diagram focused specifically on the delivery system. This driver diagram compliments the initial driver diagram from the first innovation cycle which focused more broadly on the macro, meso, and micro levels related to oral health for older adults. To review, a driver diagram is a visual display of the theory of what "drives," or contributes to, the achievement of a project aim. Ideally, a driver diagram provides a useful visual to communicate a team's theory, where the team is placing their energies, and what they are working on.[19]

The aim of this driver diagram (figure 3) is to illustrate the primary drivers (the elements that contribute directly to improving oral health for older adults), secondary drivers (the components and natural influencers of the primary drivers), and change ideas (specific, testable ideas) that might create practices capable of delivering care that enables older adults to eat, speak, and smile with ease.

Based on the results of the second innovation cycle, three key areas emerged as important levers to achieve the stated aim:

1. Working with providers, practices, and care teams within clinics or dental practices
2. Working with older adults and their caregivers (i.e. family members, home aides, etc.)
3. Working with interdisciplinary care teams within and between care settings

The change package – an articulation of specific, testable change ideas related to the primary and secondary drivers of the driver diagram – is based on a theory of change developed by IHI and WHI over the two innovation cycles and consists of five primary drivers:

1. Dental practices are welcoming to and are designed to meet the needs of older adults;
2. Practice leadership commits to providing age-friendly dental care;
3. Oral health providers are trained and confident in working with older adults;
4. Individuals are supported to manage their oral health;
5. Interdisciplinary care teams support optimal health and health care for older adults across care settings.

Each primary driver is associated with one or more secondary drivers as well as several potential change ideas. This change package represents an initial theory that can be tested and refined by interested parties. Not all changes will be as easily applicable or as clearly relevant to all with local context, organizational readiness, and population level characteristic all playing an important role in adoption and adaptation.

To be clear, the driver diagram and change package below describes the best ideas most consistently shared by experts and practitioners in the field. When available, the primary and secondary drivers, as well as the change ideas, are supported with literature. Given the status of

older adult oral health, a robust collection of peer reviewed literature does not exist for all of these ideas. As such, the IHI team cannot provide an evidence-based prioritization or ranking of the listed drivers. While there is a high degree of belief that a subset of the drivers and change ideas listed can achieve the stated aim, testing and evaluation will be required to adequately understand which ideas are necessary and which ideas are sufficient to advance older adult oral health. As such, the driver diagram and change package presented below are not presented with the expectation that any one testing organization would take on every secondary driver at once. Instead, organizations would begin with the drivers and change ideas most relevant to their context. As the WHI and IHI team work with several organizations, each testing the drivers and change ideas most relevant to their organization, a clearer picture of the most effective drivers should emerge.

Figure 3


Primary Drivers
Secondary Drivers
Aim:
Create practices capable of delivering care that enables older adults to eat, speak, and smile with ease
D1. Dental practices are welcoming to and are designed to meet the needs of older adults
S1. Physical clinic is designed with older adults in mind
S2. Environment is age-friendly
D2. Practice leadership commits to providing age-friendly dental care
S3. Practice's strategic plan includes age-friendly care
S4. Leadership supports building improvement capacity and capability amongst staff
S5. Electronic Dental Record (EDR) supports data maintenance, queries, and reports for more effective quality improvement and monitoring
S6. Dental team uses diagnosis codes to capture data for improvement and billing
D3. Oral health providers are trained and confident in working with older adults
S7. Oral health providers are comfortable and capable of safe physical interactions with older adult patients
S8. Oral health providers engage older adults in "what matters" conversations
S9. Oral health providers conduct patient risk assessment and understand patient's oral, medical, and social health history
S10. Oral health providers are trained and comfortable providing common treatment for older adult oral health care needs.
S11. Recall visits are completed at evidence- and risk-based intervals
D4. Individuals are supported to manage their oral health
S12. Individuals are able or supported to brush and floss everyday
S13. Family and/or caregivers are supported to play an active and supportive role in ensuring optimal oral hygiene for older adults
D5. Interdisciplinary care teams support optimal health and health care for older adults across care settings
S14. Dental leadership engages leaders across the care continuum to develop shared goals and improved care delivery for older adult health management
S15. Dental leadership partners with providers across the care continuum to screen, triage, and communicate older adult health needs between care facilities
S16. Evidence-based behavior change techniques (i.e. dental Self-Management Goals) are shared and used across the care continuum to educate and motivate patients and families
S17. Daily oral health care practices are maintained across the continuum regardless of care setting (e.g. when patient goes into care facility someone still brushes their teeth)

Table 2: Draft Change Package: Advancing Oral Health for Older Adults

Aim: Create practices capable of delivering care that enables older adults to eat, speak, and smile with ease.		
1. Working with oral health providers, practices, and care teams within clinics or dental offices		
Primary Drivers	**Secondary Drivers**	**Change Ideas**
Dental practices are welcoming to and are designed to meet the needs of older adults	*Physical clinic is designed with older adults in mind*	• Partner with transportation services to bring older adults to clinics • Ensure built environments can safely accommodate the needs of older adults (i.e. doorways wide enough for walkers/wheelchairs, floor surfaces are smooth, hallways have handrails, waiting areas are comfortable for older adults, etc.)
	Environment is age-friendly	• Add images of older adults to branding materials • Revise educational materials for an older adult audience (i.e. larger fonts, age-appropriate information) • Adapt Age-Friendly Guidelines for the oral health environment[20]
Practice leadership commits to providing age-friendly dental care	*Practice's strategic plan includes age-friendly care*	• Include focus on older adults in operational strategy • Provide resources for staff to be trained on age-friendly care delivery • Encourage providers to participate in a peer-to-peer learning network about geriatric dentistry
	Leadership supports building improvement capacity and capability amongst staff	• Ensure all staff have a baseline knowledge of quality improvement (QI) • Identify senior leader(s) to lead team-based improvement efforts, including building will, allocating resources, monitoring progress, and removing barriers • Utilize measurement systems to drive improvement strategies[21] (i.e. define data entry, tracking, and maintenance processes, incorporate measures collection and review into daily standardized documentation methods.)
	Electronic Dental Record (EDR) supports data maintenance, queries, and reports for more effective quality improvement and monitoring	• Evaluate ability of practice's existing EDR to collect information related to quality measures to improve older adult oral health • Identify oral health providers and other team members who will use EDR for tracking progress of tested changes

	Dental team uses diagnosis codes to capture data for improvement and billing	• Understand applicable ICD10 codes for medical billing to commercial insurance when appropriate • Utilize appropriate diagnosis codes; set up smart codes that mirror the ICD10 codes (if needed)
Oral health providers are trained and confident in working with older adults	*Oral health providers are comfortable and capable of safe physical interactions with older adult patients*	• Train providers on safe interactions with older adults (i.e. physical therapists teach providers how to interact with older adults needing physical assistance) • Utilize assistance devices to make interactions safer and avoid falls[22] (i.e. providers wear weight belts, use transfer boards) • Ensure bedside manner takes into account unique considerations for older adults (effective communication: speaking volume and speed, amount and depth of information provided and questions asked, etc.)
	Oral health providers engage older adults in "what matters" conversations[23]	• Adapt "What Matters to You?" Conversation Guide for Improving Joy in Work to older adult oral health setting[24] • Align the care plan with what matters most to the older adult and utilize functional standards for care
	Oral health providers conduct patient risk assessment and understand patient's oral, medical, and social health history	• Develop workflow to efficiently conduct risk assessments relevant to planned treatment (i.e. Caries Management by Risk Assessment[25]) during the patient visit and re-evaluate risk status at each visit • Maintain oral health history in EDR and update in each visit • Screen for mental and functional health status (i.e. dementia, cognitive impairment, depression) and document the results to inform oral health professionals' treatment and care planning recommendations
	Oral health providers are trained and comfortable providing common treatment for older adult oral health care needs	• Apply fluoride according to the evidence[26] • Apply Silver-diamine fluoride according to the evidence[26] • Train providers in geriatric dentistry to include evaluation and adjustment of dentures • Conduct medication reconciliation at each oral health visit [27] (i.e. Review for high risk medication use,

		recognize common drug-related oral health problems, deprescribe when appropriate)
	Recall visits are completed at evidence- and risk-based intervals	• Establish treatment plan protocols based on risk status including guidelines for specific recall intervals • Set alerts to notify PCP when older adults are due for dental recalls
2. Working with older adults and their caregivers (i.e. family members, home aides, etc.)		
Primary Drivers	**Secondary Drivers**	**Change Ideas**
Individuals are supported to manage their oral health	*Individuals are able or supported to brush and floss everyday*	• Identify a family member or caregiver to share information regarding care (brushing/flossing) • Provide brushing reminders for patient to hang on bathroom mirror or refrigerator • Train providers to educate older adults on proper at home oral health care • Prescribe adaptive resources such as electric toothbrush and flossers to assist in home care
	Family and/or caregivers are supported to play an active and supportive role in ensuring optimal oral hygiene for older adults	• Identify family member/caregiver that can support older adult with their oral health needs • Train family member/caregiver to assist in oral health care of older adult o Remind or support to brush/floss o Assist in taking out and cleaning dentures/partials
3. Working with interdisciplinary care teams within and between care settings		
Primary Drivers	**Secondary Drivers**	**Change Ideas**
Interdisciplinary care teams support optimal health and health care for older adults across care settings	*Dental leadership engages leaders across the care continuum to develop shared goals and improved care delivery for older adult health management*	• Leaders across continuum agree to shared goals and measures for older adult oral health • Leaders across continuum provide resources for inter-disciplinary team quality improvement project • Use an integrated electronic health record (EHR), when available, to program alerts so the Primary Care Physician (PCP) will be aware of people who are due for a dental recall
	Dental leadership partners with providers across the care continuum to screen, triage, and communicate older adult health needs between care facilities	• Establish system for identifying oral health care issues in non-dental settings and assigning appropriate team/setting for follow-up • Develop oral health screening questions that can be asked in primary care and other care settings

		• Build relationships between providers and older adults through community outreach (ie. partner with senior centers) • Hold monthly debriefs with leadership from stakeholder organizers participating in efforts to advance oral health for older adults to report progress toward goals as well as share with and learn from one another
	Evidence-based behavior change techniques (i.e. dental Self-Management Goals) are shared and used across the care continuum to educate and motivate patients and families[28]	• Utilize effective SMG techniques and tools, supported by both medical and dental care teams • Train care team members on how to help older adults with SMGs • Establish a system to follow up on progress toward goals – identify an accountable staff member
	Daily oral health care practices are maintained across the continuum regardless of care setting (e.g. when patient goes into care facility someone still brushes their teeth)	• Designate a person to assist older adult patient with oral health care needs (brushing, flossing, assisting with dentures, etc.) upon transfer to each new facility • Explore opportunities to partner with care facilities to support daily brushing and flossing

Measurement

The change package listed above provides a proposed starting point for providers and practices to test ways to improve oral health care delivery for older adults. Practices and providers seeking to utilize the change package would benefit from undertaking a readiness assessment to more deeply understand their assets, opportunities, and contexts to determine the prioritization and sequence of testing proposed changes. Their readiness may be determined by previous efforts, existing will amongst leadership and team members, and/or other contextual considerations like the health status of the population they serve, flexibility of their electronic dental record, and relationships with other care facilities in their region. Regardless of which changes are tested and in what sequence, organizations will need to identify and track an associated set of measures to assess whether the proposed changes are leading to the desired outcome.

Based on guidance from experts consulted during both innovation cycles, evidence published in the literature, and reviewing previous work in oral health collaboratives, some potential measures for consideration are included below. This set of measures defines specific and quantifiable elements that can be tracked over time to demonstrate whether practices are improving their capability to deliver care that enables older adults to eat, speak, and smile with ease. The measurement set includes patient reported outcomes, improvements in health conditions associated with suboptimal oral health for older adults, and the delivery of specific clinical interventions associated with better oral health outcomes for older adults. It is important to note that this list serves as a sub-set of measures, as organizations testing the change package will likely need to develop contextually relevant process and balancing measures.

In addition, measuring the effectiveness of the overall aim requires measures that can capture the quality of life elements implied by "eating, speaking, and smiling with ease." The Geriatric Oral Health Assessment Index (GOHAI) provides a set of questions that evaluate overall quality of life for older adults based on the impact their oral health status has on their day-to-day comfort. GOHAI asks questions about physical function (i.e. How often did you limit the kinds of or amount of food you eat because of problems with your teeth or dentures? How often have your teeth or dentures prevented you from speaking the way you wanted?), pain or discomfort in the mouth (i.e. how often were you able to eat anything without feeling discomfort?), and psychosocial function (i.e. How often did you feel uncomfortable eating in front of people because of problems with your teeth or dentures? How often were you pleased or happy with the looks of your teeth, gums, or dentures?). GOHAI and similar assessments like the Oral Health Impact Profile (OHIP-14) provide an effective way of measuring overall quality of life and are assessment tools used around the globe.[29]

When evaluating the individual change ideas described above, more specific measurements can be used as the scope of the change is much smaller. Examples of more specific measurements are included below, organized around the three levers to achieve the aim.

Table 3: Draft Measurement Set for Pilot Test

Measure Name	Description	Numerator	Denominator
Measuring the Aim: Improving oral health for older adults so they can eat, speak, and smile with ease.			
Patient Quality of Life (i.e. Geriatric Oral Health Assessment Index/GOHAI or Oral Health Impact Profile/OHIP)[30]	Percent of older adults ≥65 years old who scored a ____ OHIP score	Number of the older adults in the denominator who scored a ____ OHIP score.	Number of all unique older adults ≥65 years old with a periodic or comprehensive exam in the measurement month.
Measuring improvements to providers, practices, and care teams within clinics			
Dental visits *adapted from SF DTI[31]	Number of older adults ≥65 years old with a periodic or comprehensive exam in the measurement month.	N/A – Count	N/A - Count
Caries risk assessment of dental older adults ≥65 years old *adapted from NNOHA Measure[32]	Percent of older adults ≥65 years old who have had a caries risk assessment and scored (CDT Codes: D0601, D0602, D0603)	Number of older adults in the denominator with completed caries risk assessment.	Number of all unique older adults ≥65 years old with a periodic or comprehensive exam in the measurement month.
Silver diamine fluoride (SDF) application	Number of older adults ≥65 years old with a caries diagnosis with appropriate SDF application.	N/A – Count	N/A - Count
Treatment plan completion including "What Matters"[33] conversations *adapted from NNOHA	Percent of older adults ≥65 years old who have Phase I treatment plan completed within six months.	Number of older adults in the denominator with Phase I treatment plan completed by the last day of the measurement month.	Number of unique older adults ≥65 years old with any dental visit in the measurement month.
Measuring improvements to working with older adults and their caregivers (i.e. family members, home aides, etc.)			
Self-management goal setting *adapted from NNOHA[34]	Percent of older adults ≥65 years old with a self-management goal established during the measurement month.	Number of older adults in the denominator with a self-management goal established by means of effective patient engagement.	Number of unique older adults ≥65 years old with a periodic or comprehensive exam or hygiene visit in the measurement month.
Measuring improvements to working with interdisciplinary care teams within and between care settings			
Medication reconciliation[35]	Percent of older adults ≥65 years old whose medication was reviewed during the visit.	Number of older adults in the denominator whose medical record was reviewed, during the visit, with a detailed list of medications.	Number of older adults ≥65 years old whose medical record or health history shows two or more medications.

Recommendation and Conclusion

After two innovation cycles researching strategies to advance oral health for older adults, the IHI team holds a strong degree of belief that the oral health provider community is primed for improvement. The commonly cited reasons for limited engagement and limited success in addressing the oral health care needs of older adults are surmountable when willing providers implement focused interventions and strategies to provide optimal care for older adults. Successful implementation is already happening in pockets of the dental delivery system. Some of these strategies are familiar practices and amount to minor deviations from the regular care provided daily by providers. Other ideas may require more significant changes to daily practice. None of them are consistently and widely applied in dental care settings.

IHI recommends the establishment of a learning community comprised of a small group of willing practices to pilot test the change package. These organizations would iteratively test and measure components of the change package, share and learn with one another, and contribute to refinements to the theory of change based on their contexts, insights, and experiences. Such an effort would serve to evaluate the usefulness of the drivers and the effectiveness of various change ideas, surface enabling or inhibiting conditions, and identify what changes may be ripe to scale.

For too long, oral health has been unnecessarily separated from the rest of the health and health care. IHI is grateful to the West Health Institute for their leadership on this issue and for providing IHI with the opportunity to explore mechanisms to advance oral health care for older adults. While the challenges facing the oral health care field are considerable, they can be met by galvanizing those with a commitment to optimizing care for older adults, leveraging practices that hold promise in creating meaningful and measurable improvements, and utilizing improvement science and methods that have successfully brought about improvement at scale in other parts of the health care sector. IHI stands ready and eager to support the West Health Institute in this noble pursuit.

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