

Using Practice-Based Learning and Improvement (PBLI) to Address Oral Health for Older Adults Living with Diabetes



Introduction

There is increasing evidence of a bi-directional relationship between oral health and diabetes, with chronic inflammation and metabolic stress as the most common links.¹ Older adults living with diabetes, particularly those with poor glycemic control (A1c >9%) have an increased risk for periodontal disease.¹⁻³ Conversely, individuals experiencing periodontal problems often have a more difficult time with blood sugar management.^{2,3} According to National Health Examination and Nutrition Survey (NHANES) data, adults over the age of 50 living with diabetes are more than twice as likely as non-diabetic older adults to have missing teeth.⁴ The initial signs of unmanaged diabetes may be first seen in the mouth where it can manifest as gum inflammation.⁵ Dry mouth (xerostomia) can also present as a common side effect of both diabetes and medications used to treat the chronic condition, which increases the risk of dental caries and infections,⁶ resulting in difficulty in speaking, chewing, and even wearing a dental prosthesis.

Understanding the association between oral health and diabetes can help to encourage early identification, management, and effective referrals. **The purpose of this brief guide is to provide practical information to interprofessional health center teams using a practice-based learning and quality improvement (PBLI) approach for assessing and continuously improving oral health and diabetes management of older adults.** The PBLI essentials described below are adapted from [SAMHSA's Core Competencies for Integrated Behavioral Health and Primary Care](#).

How Can Health Centers Improve Upon an Integrated Approach to Address Oral Health and Diabetes?

Practice-Based Learning and Improvement (PBLI) is a technique used to evaluate at both individual and interprofessional team levels to assist with the improvement of services delivered by incorporating the best available scientific evidence, strategies and interventions while fostering an environment of self-evaluation and reflection.⁷ This framework encourages critical thinking and effective communication to deliver more efficient and effective patient care.

Health center staff can use their personal and specific practice experience to improve and build on existing efforts to better serve their vulnerable patient populations, including older adults living with diabetes and oral health conditions. This process should begin with an initial examination of current practices and transition to the identification of areas for improvement.⁸ After determining the availability of relevant resources and guidance, health centers can work to translate ideas into action by implementing changes that will encourage positive diabetes and oral health outcomes. **The following questions can be used to guide conversations around the learning and quality improvement process within a health center focused on an integrated approach to care for older adults with chronic conditions:**

→ What is needed to create an environment that encourages continuous evaluation?

Examining individual and team-level adherence to clinical practice recommendations can provide insight into how chronic conditions like diabetes and oral diseases are being managed. A health center's interprofessional team may include primary care providers, nurses, pharmacists, dentists, dietitians/nutritionists, mental health professionals, and other disciplines that play a role in the health care for their older adult patients. The adoption of frequent didactic presentations and educational meetings can provide the appropriate context to accurately assess the delivery of care at multiple levels.

Measures and management strategies to control and improve patients' diabetes and oral health care involve important diagnostic and therapeutic considerations and practice modifications, including:

- Screening, testing and assessments for diabetes and prediabetes should be included for all patients age ≥ 45 years and those who are overweight or obese.⁹ Diabetes Risk Assessment Tests can be administered by dental providers with a glucometer and help identify prediabetic/diabetic patients and blood glucose levels from a patient's fingertip.
- Oral screenings administered in settings beyond the dental practice can promote early detection of caries and periodontal disease that could lead to poor diet and unmanaged diabetes due to oral pain.
- Glycemic control criteria for diabetes and prediabetes and self-monitoring of blood glucose (SMBG) should be used to inform patients and healthcare providers about the status of diet, physical activity and medication regimens.

→ What improvements can be made to policies or procedures?

It is important for health centers to identify and implement evidence-based clinical practice guidelines and treatment protocols. An integrated patient-centered program can improve the management of diabetes and oral health diseases and promote effective communication across disciplines. This type of program entails training other healthcare professionals (e.g. *students, residents, new team members, colleagues*) within your own specialty and across disciplines (e.g. *nurses, pharmacists, dentists, dietitians/nutritionists, mental and behavioral health, social workers, podiatrists, physical and occupational therapists*) to perform evaluations and/or screenings, risk assessments, and offer preventive interventions (e.g. *medical-diabetes, dental-oral health, and behavioral health*). Establishing a resource library that facilitates learning within the health center and beyond could include updated scientific literature and strategies, along with a relevant list of online courses or training opportunities that can enhance the delivery of integrated care.

Health centers can consider adjusting daily healthcare practices and interventions to implement updated evidence-based clinical practice guidelines to improve quality, efficiency, and healthcare outcomes of older adults. Testing changes on a small scale can assist leadership to set priorities for best clinical practice using a PDSA (Plan-Do-Study-Act) cycle.¹⁰ For example:

- ✓ Establish goal to incorporate new clinical workflow algorithm for an oral health screening during a primary care visit
- ✓ Monitor progress as a new risk assessment and screening tool is introduced at the health center
- ✓ Examine the development and use of the new algorithm and the number of provider referrals by healthcare discipline
- ✓ Adapt the tool as necessary and continue to provide necessary oral health education to patients and families during visits

→ How can care plans be adjusted to improve health outcomes?

When measuring and monitoring individual health outcomes, interprofessional health center teams should understand the medical, psychological, functional, and social domains of the older adult patient. Providers should discuss any recent changes in daily life regarding the above-mentioned domains, such as mobility, sleep, alterations in taste, presence of mouth odor (halitosis), looseness of teeth or dental prosthesis, and delayed wound healing with their patients in any part of the body. Monitoring medications and dosages (indications and contraindications) for treatment, as well as potential oral and systemic complications and side effects is essential as the ability to comfortably chew, eat, speak and swallow might be compromised.

Improved coordination of care with appropriate referrals across disciplines will allow an opportunity for more in-depth medical evaluations and early diagnosis.⁶ Depending on patient needs, implementation of strategies to improve behavior change into every point-

of care visit may be necessary, such as patient counseling on self-management, tobacco cessation, education on oral hygiene practices, diet and nutrition, and medication review for side effects on the mouth. For older adults, it may be appropriate to screen for cognitive impairment, functional impairment, and depression. Additionally, health centers can identify archived complex cases that may not have achieved ideal health outcomes to use as a practice to explore related competencies and review current evidence on interventions or strategies.

→ How can the use of data improve the current service delivery system?

Health centers can evaluate the quality of diabetes care for older adults and across populations by utilizing patient registries and electronic health records (EHRs). Aggregate data metrics taking the social determinants of health into consideration are important to examine health equity. Markers of social support, physical health, and oral health outcomes can be used to better understand health behaviors and observed disparities that could inform appropriately tailored approaches to alleviate symptoms and improve oral and overall health outcomes.¹¹ Cross-sector partnerships with local agencies can provide supplemental resources that improve patient-centered services and increase the availability of comprehensive wellness services for vulnerable populations.¹²

There are a variety of ways health information technology can be used to identify areas for improved care:

- Evaluate scheduling: Is the health center using a platform for same day medical-dental appointments? Are integrated medical history records being used?
- Evaluate utilization: What percentage of older patients with diabetes have completed a comprehensive periodontal evaluation within the last year?
- Evaluate the quality of care: How many older adults received an oral prophylaxis or periodontal maintenance visit at least two times within a 12-month period?
- Evaluate learning opportunities: Is the health center using chart stimulated recall (CSR) worksheets to maintain an ongoing learning commitment to enhance skills and medical knowledge for the review and delivery of patient care?¹³

→ What resources are available to directly address the unique needs of older adults?

Health centers should focus on the metrics that matter most to older adults. A person-centered outcomes approach identifies how well individual providers and interprofessional teams are helping older adults and their caregivers to achieve personalized health and quality of life goals. The underlying assumption is that a patient's health priorities and goals should guide the outcome measures that are used to evaluate care. This translates to the use of plain language (avoiding clinical and high-level terminology), expressing empathy for the challenges of chronic health conditions, and providing opportunities for the older adult patient to ask for clarification and to openly discuss their goals of care. Providers should adjust the care they provide based on the feedback they receive, as it will continue to build rapport and trust in the patient relationship.¹⁴

Patient satisfaction with their oral health can be assessed on a regular basis by observing their desire to smile or socialize, and their ability to eat or swallow with minimal pain. For a more formal evaluation of the patient experience, health centers can customize a Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey, which asks respondents to report on their access to information, coordination of care, and communication with staff.¹⁵ Connecting patients with enabling services both within the health center and in their community, such as case managers or medical transportation services, can address their unique social determinants of health and aid in the patient's successful self-management of their conditions.

Summary

As older adults are living longer with more complex medical conditions, managing chronic care entails a deep understanding of effective interventions, best practices, and newer models of care. Incorporating elements of a PBLI approach into healthcare systems and its providers' own practices increases accountability and better addresses the needs of vulnerable patients served at health centers, especially older adults living with diabetes and oral health disease. By critically assessing older adults' health and system practice patterns, healthcare providers could reduce morbidity and mortality by identifying areas for improvement, and thus provide more diverse and individualized treatment, including nutrition, glycemic control, oral health, lifestyle, and self-management.¹⁶

Staying current on how medical information is evolving and recognizing the importance of how the integration of dental, behavioral, medical and other disciplines can expand the horizons of treatment modalities is essential to promote quality improvement of healthcare services.¹⁷ Over time, these adaptations will allow healthcare providers to identify common or related clinical signs and symptoms to properly achieve a precise level of diagnostic and treatment elements, while being effective and efficient in delivering improved care, achieve more tangible healthcare outcomes and better quality of life for patients. Each of these key components will also assist with the control of healthcare-related costs, improve access to services, and overall patient satisfaction.

Resources

- [American Diabetes Association's Standards of Medical Care in Diabetes](#)
Evidence-based guidelines on diabetes care, treatment goals, and tools to evaluate quality of care.
- [National Diabetes Prevention Program](#)
Evidence-based lifestyle change program (registration required) that focuses on healthy eating and physical activity.
- [American Medical Association's Diabetes Prevention Toolkit](#)
Resources for the health care team, information on optimizing EHRs for diabetes prevention, and fact sheets on prediabetes.
- [American Dental Association's Clinical Recommendations for Diabetes Management](#)
Evidence-based information on identification, management and treatment of periodontal disease.

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