Exploration of Medicine

Open Exploration

Open Access Perspective

Overcoming challenges to integration of oral health into geriatric primary care

Alberto Enrique Varela[1†], Donna Baluchi[2†], Timothy W. Farrell[3,4†], José E. Rodríguez[5†*]

[1]Division of Special Care, School of Dentistry, The University of Utah, Salt Lake City, UT 84108-1213, United States
[2]Spencer S. Eccles Health Sciences Library, The University of Utah, Salt Lake City, UT 84132-0002, United States
[3]Division of Geriatrics, Department of Medicine, Spencer Fox Eccles School of Medicine, Salt Lake City, UT 84112, United States
[4]VA Salt Lake City Geriatric Research, Education, and Clinical Center, Salt Lake City, UT 84148, United States
[5]Department of Family and Preventive Medicine, Spencer Fox Eccles School of Medicine, Salt Lake City, UT 84132-0001, United States

[†]These authors contributed equally to this work.
***Correspondence:** José E. Rodríguez, Department of Family and Preventive Medicine, Spencer Fox Eccles School of Medicine, 26 S 2000 E, Salt Lake City, UT 84132-0001, United States. jose.rodriguez@hsc.utah.edu
Academic Editor: Giuseppe Minervini, University of Campania "Luigi Vanvitelli", Italy
Received: June 14, 2024 **Accepted:** December 24, 2024 **Published:** January 23, 2025

Cite this article: Varela AE, Baluchi D, Farrell TW, Rodríguez JE. Overcoming challenges to integration of oral health into geriatric primary care. Explor Med. 2025;6:1001277. https://doi.org/10.37349/emed.2025.1001277

Abstract

The Age-Friendly Health System movement has been a unifying factor in caring for older adults at the University of Utah Health. Despite progress, challenges to efficient healthcare collaboration exist, particularly between geriatric primary care and oral health. This manuscript presents four of those challenges (lack of communication between medical and dental providers, the distance between medical and dental services, patient discomfort with the inclusion of oral health in primary health care, and provider discomfort in requesting oral health information in medical encounters) with the solutions derived at the University of Utah Health. Leaders at University of Utah Health developed five interventions to address these challenges (participation in the development of EPIC Wisdom©, a fully integrated oral health record in the electronic health record (EHR), co-location in new centers and oral health consultation in existing centers, implementing a geriatric health assessment that included oral health, widespread adoption of the 4 Ms framework). Applying the lessons learned from these challenges can benefit all older adults and may help prevent the conditions associated with periodontal disease.

Keywords

Geriatrics, oral, systemic, interprofessional, collaboration, periodontal disease

Introduction

As health professionals, we have learned that working together can get us further than working in different silos. We know that when there is diversity among the team members, we make better decisions, and our

teams are more effective [1]. Our patients get better care when we consult across racial/ethnic/gender/professional lines.

At the University of Utah Health, we have embraced this position by exploring new ways of incorporating our commitment to high quality patient care in our broader initiatives [2]. We have initiated collaborations with the geriatrics division in becoming an Age-Friendly Health System and with dentistry in utilizing the Institute on Healthcare Improvement 4-M (What Matters Most, Mobility, Mentation, and Medications) model to improve our outcomes with older adults in a wide variety of conditions at the intersection of oral health and medicine [3].

Even knowing this, the journey has not always been easy. We initially attempted to integrate oral health into geriatric primary care carefully but encountered significant challenges. In this letter, we illustrate the integration challenges and present some solutions we found. We hope these ideas are helpful to other health systems as they attempt to integrate oral health into primary geriatric care further.

Of note, this work offers a unique contribution to the literature, as the University of Utah School of Dentistry is relatively new, and the incorporation of dental care into geriatric and primary care is also new in this area of the United States. Traditionally, oral health care has been considered entirely separate from medical care in the United States, and this article is among the first to challenge that notion and provide innovative solutions to reverse the silos of medicine and dentistry and to further integrate care for the benefit of all patients, especially older adults.

Challenges encountered and solutions implemented

First challenge

Difficult communication between oral and primary care providers due to the lack of a shared electronic health record (EHR) affected health care.

First solution

The University of Utah School of Dentistry administrators worked with our EHR provider [EPIC© (Madison, WI)] to design a fully integrated record where oral health visits are visible to the medical providers, and medical documentation is visible to the dentists. The result was EPIC Wisdom©, now widely used and improving provider communication [4]. In addition to information sharing, the unified record has facilitated bi-directional referrals to dental and medical specialists and has helped reduce some access to care barriers.

Second challenge

Oral health and geriatric primary care medical services are not co-located anywhere within the outpatient clinics at the University of Utah Health. Centers for Medicare and Medicaid Services (CMS) place of service codes (POSC) that have been in place long before the founding of the University of Utah School of Dentistry prohibited co-location of paid services.

Second solutions

Dental consultations

The University of Utah Health System's compliance officers determined that POSC restrictions prohibited the provision of the full range of dental services within the outpatient geriatric primary care setting. Compliance teams offered an alternative opportunity to provide non-reimbursable dental consultations as an option for patients. Dentists would be in the clinic and screen patients to determine the patient's oral health care needs and inform providers of the need for care referrals. These consultations are a temporary solution and have limited effectiveness.

New centers

The best solution came a few years after our integration efforts began. Our health system is expanding into an area of the city where many patients are underserved. Because our oral health teams are in the

conversation from day 1, we can finally co-locate services meaningfully at the new location. In addition, our health system was allowed to acquire the dental health services performed by the state Department of Health. Primary care services expanded into that space, and several other clinics with co-located services are now operational.

Third challenge

Patients were not used to being asked about their oral health in primary care visits and were not prepared to answer oral health questions for general medical appointments.

Third solution

Our health system included oral health in geriatric assessments as a part of an Age-Friendly Health System. While oral health may not always be at the top of every patient's priority list, patients must understand the bidirectional relationship between oral health and overall health and its influence on quality of life. For example, polypharmacy can lead to xerostomia, which increases the incidence of caries and can lead to tooth loss. Tooth loss, depending on severity, can compound problems for patients struggling with nutritional deficits, social isolation, and even sleep issues [3]. In addition, oral microbiota change with age and are associated with difficulty swallowing, Alzheimer's type dementia, and Parkinson's disease [5]. One study associated changes in oral microbiota with frailty in older adults [6]. Encouraging older adults to focus on oral health can open the door to successful collaboration between geriatric providers, dentists, and other health professionals. It can also lead to a better quality of life.

Fourth challenge

Medical providers are uncomfortable with the intersection of common oral health conditions in older adults and primary medical conditions.

Fourth solution

Our health system has been designated an Age-Friendly Health System Committed to Care Excellence by the Institute for Healthcare Improvement. As a part of this effort, we are sharing the wisdom of the 4Ms with our health providers across all disciplines. In addition, as a part of this effort to "geriatricize" our health system, we are drafting specific protocols for including oral health during the comprehensive geriatric assessment. As most older adults have Medicare, and Medicare requires an annual wellness visit, we are incorporating the 4Ms and specific questions about the patient's oral health to identify what could be early manifestations of medical diseases.

For example, periodontal disease has a prevalence of between 62% and 74% among individuals aged 65 and older across the United States [7]. For years, the association between periodontal disease and such conditions as cardiovascular disease [8], diabetes [9], and rheumatoid arthritis [10] has been well documented in the scientific literature. A study published in 2021 reports the presence of *Porphyromonas gingivalis* (*P. gingivalis*), the principal etiologic agent in periodontal disease, in the autopsied brains of Alzheimer's patients [11]. Some theories posit that periodontal pathogens, such as *P. gingivalis* and its virulence factors, can enter the brain via a leaky blood-brain barrier, eliciting a host immune response that leads to neuroinflammatory mechanisms within the brain [12, 13]. Periodontal disease's association with other conditions like neuropsychiatric disorders is of concern [5], as depression is a pandemic in the older adult population and difficulties with eating due to dental disease can also be a significant contributor to the problem.

Discussion

The four significant challenges we encountered as we attempted to integrate oral health into geriatric primary care taught us that the associations between oral and systemic diseases are too critical to a patient's health to ignore during geriatric primary care appointments. Providers should query their patients about their oral health during medical appointments to emphasize its role in healthy aging. These

questions can constantly remind clinicians about the interconnected nature of the mouth and body. These challenges and the lessons learned highlight the importance of working collaboratively across all disciplines to ensure the patient's health. The authors (a dentist, a geriatrician, a family physician, and a librarian) work by a principle that equity, diversity, and inclusion (EDI) leaders have recognized for quite some time: we can overcome any challenge if we work together.

Abbreviations

EHR: electronic health record

POSC: place of service codes

Declarations

Disclaimer

This article reflects the view of the authors and does not represent the views or policies of the University of Utah, the University of Utah Health, the University of Utah School of Dentistry, or any of its affiliates.

Author contributions

AEV: Conceptualization, Formal analysis, Investigation, Project administration, Writing—original draft, Writing—review & editing. DB: Data curation, Project administration, Resources, Writing—original draft, Writing—review & editing. TWF: Conceptualization, Data curation, Investigation, Project administration, Writing—original draft, Writing—review & editing. JER: Conceptualization, Formal analysis, Methodology, Project administration, Writing—original draft, Writing—review & editing. All authors were equally involved in writing and editing this work.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical approval

Not applicable.

Consent to participate

Not applicable.

Consent to publication

Not applicable.

Availability of data and materials

Not applicable.

Funding

Not applicable.

Publisher's note

References

1. Surowiecki J. The Wisdom of Crowds: why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations. 1st ed. Bantam Dell Pub Group; 2004. p. 296.
2. Office For Health Sciences Workforce Excellence [Internet]. University of Utah; [cited 2024 Dec 22]. Available from: https://uofuhealth.utah.edu/workforce-excellence
3. Varela AE, Rodriguez JE, Farrell TW. Oral health is an integral component of age-friendly care. J Am Geriatr Soc. 2022;70:2442–4. [DOI] [PubMed]
4. New software allows fully integrated patient record for School of Dentistry [Internet]. SALT LAKE CITY: The University of Utah; c2025 [cited 2024 Apr 1]. Available from: https://attheu.utah.edu/students/student-life-061118/#epic-wisdom-software
5. Hashimoto K. Emerging role of the host microbiome in neuropsychiatric disorders: overview and future directions. Mol Psychiatry. 2023;28:3625–37. [DOI] [PubMed] [PMC]
6. Sarafidou K, Alexakou E, Talioti E, Bakopoulou A, Anastassiadou V. The oral microbiome in older adults –a state-of-the-art review. Archives of Gerontology and Geriatrics Plus. 2024;1;100061. [DOI]
7. Eke PI, Wei L, Borgnakke WS, Thornton-Evans G, Zhang X, Lu H, et al. Periodontitis prevalence in adults ≥ 65 years of age, in the USA. Periodontol 2000. 2016;72:76–95. [DOI] [PubMed] [PMC]
8. Sanz M, Del Castillo AM, Jepsen S, Gonzalez-Juanatey JR, D'Aiuto F, Bouchard P, et al. Periodontitis and Cardiovascular Diseases. Consensus Report. Glob Heart. 2020;15:1. [DOI] [PubMed] [PMC]
9. Preshaw PM, Alba AL, Herrera D, Jepsen S, Konstantinidis A, Makrilakis K, et al. Periodontitis and diabetes: a two-way relationship. Diabetologia. 2012;55:21–31. [DOI] [PubMed] [PMC]
10. Bingham CO 3rd, Moni M. Periodontal disease and rheumatoid arthritis: the evidence accumulates for complex pathobiologic interactions. Curr Opin Rheumatol. 2013;25:345–53. [DOI] [PubMed] [PMC]
11. Matsushita K, Yamada-Furukawa M, Kurosawa M, Shikama Y. Periodontal Disease and Periodontal Disease-Related Bacteria Involved in the Pathogenesis of Alzheimer's Disease. J Inflamm Res. 2020;13:275–83. [DOI] [PubMed] [PMC]
12. Poole S, Singhrao SK, Kesavalu L, Curtis MA, Crean S. Determining the presence of Periodontopathic Virulence Factors in Short-Term Postmortem Alzheimer's Disease Brain Tissue. J Alzheimers Dis. 2013;36:665–77. [DOI] [PubMed]
13. Kanagasingam S, Chukkapalli SS, Welbury R, Singhrao SK. *Porphyromonas gingivalis* is a Strong Risk Factor for Alzheimer's Disease. J Alzheimers Dis Rep. 2020;4:501–11. [DOI] [PubMed] [PMC]