Oral Health and Primary Care: Exploring Integration Models and Their Implications for Dental Hygiene Practice

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Abstract

Background. Historically, the oral healthcare system has been separated, administratively and clinically, from the larger healthcare delivery system. Despite this historical separation, providing oral healthcare services lies within the scope of all healthcare professionals' practice. Current efforts to shift the focus of the American healthcare system to a "total patient" care model provide an opportunity to integrate oral healthcare with primary care in order to improve the population's oral health. This article seeks to acquaint dental hygienists, the oral healthcare professionals focused on disease prevention, with the new and emerging models of oral healthcare delivery and interprofessional collaborative practice, in the hope that they soon will participate in and expand the implementation of these practice models.

Methods. This study focuses on five health centers, all of which have been identified as organizational leaders in the development and implementation of models designed to support the integration of oral healthcare with primary care. Quantitative information on each health center was derived from annual reports submitted to the Uniform Data System (UDS), and information on the integration models was obtained through structured key informant interviews.

Results. Each organization has incorporated oral health risk assessment, clinical assessments, education, preventive interventions, and dental care coordination into primary care services. One organization provides oral healthcare as part of its outreach services and programs. The healthcare team members involved in integration varied. Some of the health centers primarily called upon doctors to implement integration of oral healthcare with primary care, while others employed dental hygienists, nurses, medical assistants, and outreach team members in this capacity. Interprofessional collaboration was observed in each organization but took on different forms.

Conclusions. Although their methods of integrating oral healthcare with primary care differed, the five health centers described in this study successfully used integration to improve the delivery of oral healthcare services to their patients. All of these organizations placed a high value on interprofessional collaboration, regardless of the particular collaborative model employed, and identified a "champion" tasked with overseeing the improvement of oral healthcare delivery.

Keywords. Dental hygiene, oral health, primary care, workforce, interprofessional

Background

The United States is implementing policies and initiatives aimed at transforming the American healthcare system from a reactive (sick care) state focused on disease detection and treatment into a proactive (health promotion) state focused on disease prevention and management. Historically, the oral healthcare system has been separated, administratively and clinically, from the larger healthcare delivery system. This separation has fostered a mindset, among both healthcare professionals and patients, that does not value oral health as a part of overall health. Current initiatives to transform the American healthcare system and to shift toward "total patient" care represent a strategic opportunity to enhance the oral healthcare delivery system and to improve the population's oral health.

There is a growing body of evidence suggesting that a patient's overall health and quality of life is influenced by his or her oral health status.[1-6] Therefore, oral healthcare must be a part of overall patient care. Healthcare services focused on the promotion, maintenance, attainment, and restoration of oral health may be divided into two levels: oral healthcare and dental care.[2] Oral healthcare includes common healthcare activities such as risk assessment, evaluation, prevention, education, and care coordination. These activities focus on: (1) assessing patients' oral health status; (2) encouraging and empowering patients to engage in improving their own oral health; and (3) connecting patients to resources, when necessary. Dental care is a subset of oral healthcare that focuses on the delivery of specific health service interventions designed to promote the prevention, restoration, or maintenance of oral health. Providing oral healthcare services lies within the scope of all healthcare professionals' practice, while delivering dental care services only falls upon professionals who possess specific training, licensure, and certification.[7]

In its 2011 report, *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*, the Institute of Medicine (IOM) stated that "multidisciplinary teams working across the health care system" are needed to improve Americans' oral health.[4] Consequently, integrating oral healthcare into primary care is a federal priority for population health improvement and, therefore, is a major health system initiative.[2,8]

"Health centers," as defined in 42 U.S.C. § 254b(a)(1), are entities that serve medically underserved communities, including, but not limited to, those "comprised of migratory and seasonal agricultural workers, the homeless, and residents of public housing." In executing their mission, health centers must provide "required primary health services," including "preventive dental services," to their patients.[9] Health centers aim to provide "total patient care" to underserved populations and subsequently have adopted the Patient-Centered Medical Home (PCMH) healthcare delivery model.[10] Not surprisingly, health centers are organizational leaders in the development and implementation of models designed to support the integration of oral healthcare with primary care.

The development of interprofessional education strategies and collaborative practice models is a major focus of healthcare professionals' classroom training.[11-14] However, translating this training to practice is not standardized. Specifically, no "Best Practices" exist for an interprofessional collaborative practice that integrates oral healthcare with primary care. That being said, interprofessional collaborative practice models that involve dental hygienists and non-dental professionals are being promoted, developed, tested, and implemented in various settings.[15-19]

Dental hygienists are engaged in interprofessional training across the United States.[20-22] In fact, the Commission on Dental Accreditation recently approved the development of

accreditation standards related to interprofessional education for dental hygiene programs. In order to prepare the dental hygiene workforce to respond to the transformation of the healthcare system and to meet the current and future oral healthcare needs of the population, it is important for dental hygienists to be aware of and familiar with new and emerging models of oral healthcare delivery and interprofessional collaborative practice.[23] To inform the dental hygiene community, this article examines five models for the integration of oral healthcare with primary care that have been implemented successfully at health centers.

Methods

Five health centers were included in this study. Each of these organizations was identified because of its development and adoption of a strategy for integrating oral healthcare into primary care delivery and/or as part of its outreach services to the community. Administrative characteristics of health centers are reported annually to the Uniform Data System (UDS) and were obtained from the Health Resources and Services Administration (HRSA). These data provide quantitative information on each health center, including its number of clinical sites, the number of patients that it serves annually, and its cost per patient. Information on the integration models was obtained through structured key informant interviews. Key informants from each organization were selected based on their positions and/or their roles in the integration model. Key informant tools were designed to gather qualitative information on the perceived strengths and challenges of each model and to identify strategic factors that contribute to success.

Descriptive data were generated for each organization to enable cross-comparisons of administrative structure. Model design is presented as it corresponds to the five domains for integration of oral healthcare with primary care defined by the HRSA in the *Integration of Oral*

Health and Primary Care Practice: (1) risk assessment; (2) oral health evaluation; (3) preventive intervention; (4) communication and education; and (5) interprofessional collaborative practice.[16] Qualitative data gathered from key informants were summarized by organization.

Results

Characteristics of the health centers included in this study are summarized in Table 1. The five health centers included in this study were distributed geographically across the United States: one was located in the Northeast, two in the Midwest, one in the West, and one in the Pacific Northwest. All of the health centers were located in metropolitan or micropolitan areas. They varied by administrative characteristics, such as each health center's number of clinical sites, dental service delivery status, average number of annual patients, and average annual cost per patient. All of the health centers provided dental services as part of their operations, with the exception of one. Integration models for each organization are summarized in Table 2.

Workforce Supporting Integration

The healthcare professionals involved and the extent to which oral healthcare was integrated into primary care at the five health centers varied. (See Table 3.) At Bluegrass Community Health Center (Bluegrass), the only health center without a dental program, a physician is involved directly in providing oral healthcare services for primary care patients. Both Salina Family Healthcare Center (Salina) and Salud Family Health Center (Salud) have adopted an interprofessional collaborative practice model in which dental hygienists are incorporated into the primary care clinic to provide oral healthcare and preventive dental services. At Holyoke Health Center (Holyoke), oral healthcare services are provided as a standard part of primary care by medical assistants, and dental care coordination is facilitated through an interoperable electronic health records (EHR) system. Finally, Yakima Valley Farm

Workers Clinic (Yakima Valley) has integrated oral healthcare with its primary care and outreach services, including its Women, Infants and Children (WIC) program and mobile health services, by engaging staff members in each setting and investing in a full-time dental care coordinator.

Achieving the Five Domains of Oral Health Integration

Risk assessment involves the identification of factors that impact oral health and overall health.[16] Each health center reported performing risk assessments at the community and the individual patient levels. At the community level, these organizations reported analyzing aggregated patient information or reviewing secondary data on population health to identify needs and gaps in care and to target their integration models. At the individual patient level, oral health risk assessments were performed as a standard part of primary care appointments or outreach services. Risk assessment strategies included reviewing a patient's medical and social history and conducting a direct inquiry to identify risk factors. A healthcare team member, generally a medical assistant, a nurse, or a dental hygienist, was involved in initial risk assessment within the clinical environment, either a primary care clinic or a mobile health unit. At Yakima Valley, WIC staff also participated in risk assessment for clients as part of the standard intake procedure.

In addition to risk assessment, each health center performed clinical oral assessments in the primary care setting as part of its oral health evaluation strategy.[16] Dental hygienists performed these assessments at Salina and Salud, and physicians and other primary care team members performed these assessments at Bluegrass, Holyoke, and Yakima Valley. The information obtained from clinical assessments then was integrated with risk assessment findings

to form an oral health evaluation, which is required in order to determine a patient's treatment and educational needs.[12]

Each organization had provisions for fluoride varnish to be applied as a preventive intervention during primary care appointments for its target population. Fluoride varnish was applied either by a physician, a dental hygienist, a nurse, or a medical assistant (under standing orders of a physician). In addition, each organization has incorporated oral health into its targeted education for and standard messaging to patients. Patient education generally is provided by the dental hygienists, nurses, and medical assistants at a health center and is reinforced by the physician during patient examinations.

The methods by which and the extent to which these organizations' models include interprofessional collaborative practice varied. Interprofessional collaborative practice is defined as "share[d] responsibility and collaboration among healthcare professionals in the care of patients and populations."[2] Salina's and Salud's integration models are built upon interprofessional practice. By leveraging dental hygienists' expertise in dental disease prevention and oral health promotion, these organizations are able to extend oral healthcare services, including preventive dental services, and to offer dental care coordination to their patients. As a part of both the primary care and the dental teams, dental hygienists easily are able to coordinate appointments and to offer follow-up services for patients with dental treatment needs. Holyoke's interoperable EHR system enables seamless information sharing between the primary care and the dental teams. Yakima Valley has a dental outreach coordinator who serves as the "hub" for integrating oral healthcare across the various clinics and programs. The person in this role serves as a resource for providers and patients and facilitates the sharing of

information and coordination of care. Bluegrass does not offer comprehensive dental services but has partnered with community dentists to meet the dental treatment needs of its patients.

Strengths, Challenges, and Strategic Factors

Interprofessional collaboration was a noted strength of the health centers involved in this study. Salina and Salud in particular benefitted from adopting interprofessional collaborative practice models that place a dental hygienist on the primary care team. By allowing each member of the healthcare team to practice to the full extent of his or her training, these organizations efficiently integrate oral healthcare with primary care and, at the same time, enhance the coordination and continuity of care. Executive commitment to collaboration also was identified as a key factor in ensuring the successful implementation of interprofessional practice. At both Salina and Salud, the leadership (the chief executive officer, the medical director, and/or the dental director) was committed to supporting interprofessional practice models as a way of bringing oral healthcare services to patients. It is important to note that both of these organizations are located in states that have provisions that enable them to bill for preventive dental services provided by a dental hygienist in the primary care setting. Professional practice acts and reimbursement policies impact the extent to which interprofessional collaborative practice models can be employed and implemented.

Holyoke and Yakima Valley benefitted from adopting interprofessional collaborative models that focus on information sharing. By leveraging health information technology, health professionals on the primary care and dental teams are able to share patient information seamlessly. These centers' interoperable health record systems enable primary care professionals to review dental health history and treatment status as part of the primary care

appointment. Similarly, the dental care team can access and review patients' medical histories. Additionally, these systems automatically generate referrals to the dental clinic. This information sharing enhances the quality and continuity of patient care. At Yakima Valley, the dental outreach coordinator serves as the "hub" for information sharing and connection between primary care, outreach services, and dental care providers. The person in this role serves as a readily available point of contact for providers and patients and promotes care coordination. At Yakima Valley, a dental assistant was recruited to serve in the dental outreach coordinator role. Having a dental professional serve in this capacity is strategic because he or she has knowledge of dental clinic operations and is able to gather information through consultation with non-dental professionals and appropriately coordinate dental appointments.

Another interprofessional collaboration priority that was common to many of these health centers was ensuring that all healthcare team members recognize their role in providing oral healthcare. For example, Bluegrass requires that all healthcare team members complete the Smiles for Life (SFL) curriculum as part of the onboarding process and standard employee training.[24] SFL is a national, publically available oral health curriculum used primarily to educate non-dental health professionals. The SFL training prepares Bluegrass healthcare teams to be engaged actively in risk assessment, oral evaluation, preventive interviews, and patient education. This is particularly important because the lack of an onsite dental clinic is a challenge for Bluegrass and its patients. Although Bluegrass provides referrals, many patients continue to have unmet dental treatment needs. By integrating oral healthcare services as a part of primary care services for its patients, Bluegrass is able to promote its patients' oral health while it works to develop enhanced strategies to address dental treatment needs.

Having an organizational "champion" for oral health also was a strategic factor in integrating oral healthcare with primary care services at these health centers. There were many "champions" for oral health, but one person at each center always was identified as the "primary champion," and this person was not always a dental professional. In the case of Holyoke and Salina, oral health was "championed" by the chief executive officer, while at Bluegrass, oral health was "championed" by the medical director. At both Salud and Yakima Valley, the dental directors were identified as the "champions" for oral health. Each of these individuals played a significant role in conceptualizing, promoting, and implementing a model for integration within his or her organization because of a commitment to improving patients' oral health.

Conclusions

Health centers are integrating oral healthcare services with primary care services to provide more "comprehensive" care for their patients and to improve oral healthcare access. The centers included in this study employ various healthcare professionals, both dental and non-dental, in their models. Regardless of the model employed, interprofessional collaboration was valued within each center. The type and extent of interprofessional collaboration varied between the organizations. Two have implemented collaborative practice models that include dental hygienists practicing in non-traditional settings. Two have provisions for information sharing, either through information technology (interoperable electronic health records) or through investment in a care coordinator role. One fosters the concept of shared responsibility in oral healthcare through training programs.

A "champion" is critical to any initiative that seeks to improve oral healthcare delivery. From these health centers, we learn that dental professionals are not the only oral healthcare "champions." Healthcare executives and medical care leaders who recognize oral health as part

of overall health have great influence within their organizations and are important “champions.” Educating individuals in these positions about the importance of oral health and the role that they play in promoting it should be a healthcare priority.

It is time to shift the thinking regarding oral health and oral healthcare. Oral healthcare is part of overall patient care. As the members of the oral healthcare workforce who are focused on oral health promotion and dental disease prevention and management, dental hygienists are positioned to make major contributions to population oral health improvement. As oral healthcare delivery systems change, dental hygienists should seek opportunities for interprofessional collaboration. This includes embracing the concept of shared responsibility in oral healthcare, practicing on interprofessional, multidisciplinary healthcare teams in non-traditional settings, and serving as oral health advocates within the healthcare system. By embracing these changes, dental hygienists have the opportunity to make meaningful contributions to health system transformation and population health improvement.

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Table 1

Core Clincial Domains for the Integration of Oral Health and Primary Care Practice (IOHPCP)

IOHPCP Core Clinical Domain	**Definition**
Risk Assessment	The identification of factors that impact oral health and overall health
Oral health evaluation	Integrating subjective and objective findings based on completion of a focused oral health history, risk assessment and performance of a clinical oral health screening
Preventive intervention	Recognition of options and strategies to address oral health needs identified by risk assessment and evaluation.
Communication and Education	Targets individuals and groups regarding the relationship between oral and systemic health, risk factors for oral health disorders, effect of nutrition on oral health, and preventive measures appropriate to mitigate risk on both individual and population levels.
Interprofessional Collaborative Practice	Shares responsibility and collaboration among health care professionals in the care of patients and populations with, or at risk of, oral disorders to assure optimal health outcomes

Table 2

Descriptive Characteristics of the Five Health Centers

	Bluegrass Community Health Center	**Holyoke Health Center, Inc.**	**Salina Family Healthcare Center**	**Salud Family Health Centers**	**Yakima Valley Farm Worker's Clinic**
Location	Midwest	Northeast	Midwest	West	Pacific Northwest
Number of Sites	2	6	1	10	18
Dental Services	No	Yes	Yes	Yes	Yes
Geography	Urban	Urban	Urban	Urban	Urban
Total Patient Served	6,155	19,038	9,681	69,601	127,950
Proportion of patients at or below 200% poverty	98.7%	36.0%	85.7%	92.7%	93.1%
Annual Cost Per Patient	$695.04	$2,034.94	$943.54	$810.75	$1,026.12

Source: Health center data came from the 2014 Health Center Profiles. These data are publically available at: http://bphc.hrsa.gov/uds/datacenter.aspx?q=d.

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Table 3

Integration Model Implementation: Oral Healthcare and Primary Care

Domain	Bluegrass Community Health Center	Holyoke Health Center, Inc.	Salina Family Health Center	Salud Family Health Center	Yakima Valley Farm Worker's Clinic
Risk Assessment	Performed by: nurse or certified nurse assistant	Performed by: EHR, nurse, or medical assistant	Performed by: dental hygienist through EHR; "Inreach" connects primary care patients to oral health services	Performed by: dental hygienist	Performed by: EHR and WIC Team Members
Oral Health Evaluation	Performed by: nurse or certified nurse assistant	Performed by: nurse or medical assistant	Performed by: dental hygienist	Performed by: dental hygienist	Performed by: dentist or dental assistant at dental clinic
Preventive Intervention	Fluoride varnish; Performed by: nurse or certified nurse assistant	Flouride varnish; Performed by: nurse or physician	Flouride varnish; Performed by: dental hygienist	Flouride varnish; Performed by: dental hygienist	Performed by: dentist or dental assistant at dental clinic
Communication and Education	Performed by: entire primary care staff	Performed by: nurse or medical assistant. They strongly enforce need for follow-up with dental clinic	Performed by: dental hygienist	Performed by: dental hygienist	Performed by: WIC staff
Interprofessional Collaborative Practice	Refer to community dentist and provide dental vouchers	Interoperable EHR allows for seamless communication and care coordination	Dental hygienists serve as liason between medical and dental clinics	Dental clinic right across the hall from medical allows for seamless integration	Limited oral health services performed in medical clinic because a Dental Outreach Coordinator is leveraged to secure same-day appointments where services are provided in dental clinic
Strategic Factors to Success	Entire care team is educated on and values oral health	Interoperable EHR allows for advanced interprofessional collaborative practice and high care coordination between medical and dental	"Inreach" team of dental hygienists integrates oral health directly into primary care to reach more patients with oral health services	Open communication culture among medical and dental	Dental Outreach Coordinator serves as hub between medical/dental

Source: Key informant interviews

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Fig 1

Locations of the included clinics