

THE PROMISE OF TRANSDISCIPLINARY NURSE-DENTAL HYGIENIST COLLABORATION IN ACHIEVING HEALTH-RELATED QUALITY OF LIFE FOR ELDERLY NURSING HOME RESIDENTS

Patricia Coleman, PhD, RN,
APRN, BC, ANP, GCNS†,
Casey Hein, BSDH, MBA‡,
JoAnn R. Gurenlian, RDH, PhD§

Abstract

The size of the older population will likely double over the next 30 years, while the number of elderly individuals living in nursing homes (NHs) may triple. Many of these individuals are part of the “baby boomer” generation and are dentate, having benefited from water and dentifrice fluoridation. However, evidence suggests that many individuals in NHs will have periodontal disease that is undiagnosed or untreated, placing them at greater risk for systemic sequelae related to inflammation from oral disease. A “silent epidemic” characterized by inadequate health care for the elderly population suggests the need for a new model of care focusing on comprehensive chronic disease management to advance the quality of life for this group. This article reviews chronic disease trends in the aging population with emphasis on oral health. Barriers to promoting oral health in NH settings and the impact on quality of life are discussed. A model of care utilizing transdisciplinary collaboration between nursing and dental hygiene healthcare professionals is proposed to achieve a best practice approach to meeting oral health needs of nursing home residents.

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Introduction

The multi-dimensional concept of Health-Related Quality of Life (HRQL)¹ has been widely used to describe certain domains of physical and psychosocial functioning, as well as perceptions of health and opportunity. These domains have been used to quantify an elderly person’s experiences, beliefs, expectations and perception of quality of life. Similarly, Oral Health-Related Quality of Life (OHRQL) is a concept that was introduced in 1998 by a group of dental hygiene faculty members who sought to define a model of care that emphasized the multidimensional nature of oral problems.² The concept of OHRQL was designed to help dental hygienists better plan and assess dental hygiene care with respect to an individual’s perceptions of and reactions to their own oral health status, as modified by impairments, functional states, perceptions, and social opportunities.² There currently exists sufficient evidence of oral-systemic relationships such that meaningful distinctions between HRQL and OHRQL cannot be rendered. In fact, considering these concepts in isolation contributes to the historical schism between medicine and dentistry. In short, oral health-related issues can no longer be viewed as separate from those relating to somatic health because oral diseases and conditions seriously compromise the quality of life of older people. A new model of care focusing on comprehensive chronic disease management for the elderly must be developed in order to advance quality of life for this population.

† Associate Professor, University of Rochester School of Nursing, Rochester, NY

‡ President, PointPerio, LLC, Arnold, MD; Chief Editor, *Grand Rounds in Oral-Systemic Medicine*™

§ Visiting Faculty, Capella University; President, Gurenlian & Associates, Haddonfield, NJ

As tragic statistics on NH care are reported, we cannot pretend that the care many elderly persons receive in NHs meets minimal standards. Coupled with mounting evidence to support oral-systemic relationships and the fact that oral health is an essential component of an elderly person's physical and social well-being, we must begin a dialogue on the significance of oral health as a determinant of HRQL in NH residents. Furthermore, rather than resigning ourselves to the belief that suffering from multifactorial chronic disease states is a natural progression of age and nonmodifiable, we must advocate for a model of successful aging for geriatric dentistry in the 21st century.³ Research suggests that prevention or treatment of periodontal disease diminishes the overall inflammatory burden systemically and therefore should be part of a best practice approach to disease management for older adults.

Indeed, the time is now to look for sustainable models of NH care that can fulfill the following criteria:

- 1) *Improve NH residents' access to progressive management of interrelated chronic disease states, such as periodontal disease, diabetes, atherosclerosis-induced conditions, pulmonary diseases, insulin resistance, rheumatoid arthritis, osteoporosis, and even neurodegenerative diseases like Alzheimer's and Parkinson's.*
- 2) *Promote sustainable clinical outcomes leading to oral and systemic health.*
- 3) *Provide intervention strategies that are economically viable.*
- 4) *Provide satisfying professional experiences for persons providing care in NHs.*

In this article we propose a model of care that fulfills the above criteria by relying on transdisciplinary collaboration between professional nurses and dental hygienists to achieve oral health and HRQL for NH residents. In support of this new model, we present background information providing a rationale for proposed changes. Although this discussion focuses more on periodontal disease as it relates to increasing the risk for systemic sequelae in the elderly, it must be noted that other oral conditions such as caries, xerostomia, impaired mastication from dysfunctional occlusion, burning mouth syndrome, and candidiasis infection, among others, also impact the overall health of the elderly.

The Aging Population and Chronic Disease Trends

The size of the older population will likely double over the next 30 years. By 2030, almost 1 in 5 Americans — 72 million — will be 65 years or older.⁴ The age group 85 and older (the “oldest old”) is now the fastest growing segment of the US population. This group is projected to double from 4.7 million in 2003 to 9.6 million in 2030,

and double again to 20.9 million by 2050.⁴ As a group, this population has experienced greater longevity, but they have an increased likelihood of experiencing lasting damage resulting from chronic inflammatory diseases or conditions. The most common chronic conditions among elderly NH residents are cerebrovascular disease and cardiovascular disease (CVD) (e.g., hypertension, stroke), cognitive and musculoskeletal disorders (e.g., arthritis), and endocrine disorders (e.g., diabetes).⁵ The added burden of periodontal disease likely increases risk of systemic inflammation and exacerbates already existing chronic diseases in the elderly. As an example, approximately 1 in 5 skilled nursing facility residents over 55 have diabetes in addition to other multiple, chronic co-morbidities.⁶ This condition is accompanied by increased risk of periodontal disease and associated infection and increased risk for diabetic complications. If healthcare providers in NHs can begin to view periodontal disease as a risk factor for chronic inflammatory systemic conditions and initiate appropriate treatment, this outcome may have a positive impact on co-existing chronic diseases in at-risk residents.

The Profile of a Typical NH Resident

In 1997, 1.6 million elderly lived in NHs,⁷ and this number is expected to triple over the next 30 years. Most NH residents need assistance with at least 3 activities of daily living: bathing and showering, including oral care; dressing; and eating. Most also suffer significant sensory, visual and orthopedic impairments, and rely on Medicaid as their primary source of payment.⁸ At least 50-80% of NH residents have some form of dementia.⁹ Because of water and dentifrice fluoridation, the large “baby boomer” population will comprise the first cohort group composed of elderly individuals who are dentate.^{3,10} Epidemiologic trends in chronic inflammatory periodontal disease indicate that 44% to 81% of adults 55 years and older have some level of periodontal disease,¹¹ most of which is undiagnosed. Consequently, it is reasonable to predict that most individuals entering NHs will have undiagnosed and untreated periodontal disease. These new residents may be at greater risk for systemic sequelae related to inflammation of oral origin, including increasing risk for atherosclerosis-induced diseases, aspiration pneumonia, and complications of diabetes and rheumatoid arthritis.

The burden of oral disease in elderly individuals is well documented.¹² In a comprehensive review of oral health studies of institutionalized elderly published between 1970 and 1989, Berkey and colleagues¹³ describe the compromised oral health status of NH elderly. Most had unmet oral needs, including high rates of edentulism, dental caries, poor oral hygiene, periodontal disease, and soft tissue lesions. Similarly, poor oral hygiene was reported for

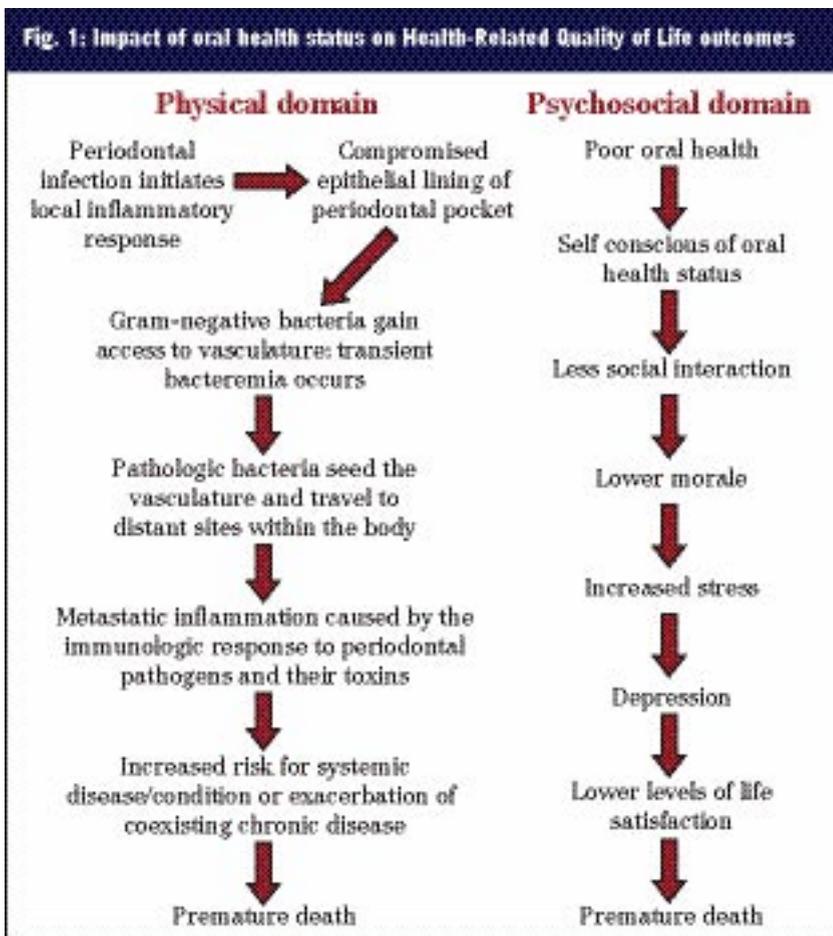
most NH residents with natural teeth in a study of 1,063 residents residing in 31 different NHs.¹⁴ In a recent observational study of oral care in US NHs, 81% of the resident sample had poor oral hygiene.¹⁵ Furthermore, using data from the 1995 US National Nursing Home Survey, Gift and colleagues¹⁶ reported that only 15% of the residents could be described as having excellent or very good oral health. With declining rates of edentulism and the cumulative effects of chronic, disabling illnesses, the likelihood of risk for dental and periodontal disease is extended into a time characterized by increasing self-care deficits.¹⁷ Thus daily oral hygiene, early diagnosis of oral diseases and conditions, definitive treatment, and professionally rendered maintenance procedures are required for elderly NH residents to enjoy normal oral function and to achieve optimal oral health.

The Relationship between Oral Health, Whole Body Health, Quality of Life and Mortality

Much has been written about the importance of oral health for older adults. The US Surgeon General’s Report, Oral Health in America,¹⁸ emphasized that oral health is integral to general health. The report documented oral health disparities in the very old population, and described a “silent epidemic” characterizing the gap between an epidemic of oral disease and silence from those who need oral health care. In its Futures Initiative, the Centers for Disease Control issued a health impact goal aimed at increasing the average lifespan of older adults (50 and over) by 2 years of healthy life.¹⁹ The present system of healthcare delivery in NHs seems to undermine the national health goals stated for older adults.¹⁸ Achieving the goals set forth by these agencies requires comprehension of the relationship between oral health, whole body health, quality of life, and mortality.

HRQL represents the functional impact of an illness, disability or condition and its treatment on an individual, as perceived by the individual.²⁰ The major domains of HRQL include the physical and the psychosocial. An individual’s oral health status (e.g., periodontal disease) can affect both the physical and psychosocial health domains, and thus it is important for clinicians to monitor the impact of oral health on health outcomes. Using periodontal infection as an example, Figure 1 illustrates how oral health status can specifically alter an individual’s physical and

psychosocial functioning. Healthcare providers involved in geriatric medicine have been slow to recognize the impact of specific oral pathological processes on overall health and in doing so have missed opportunities to eliminate or modify risk factors for both physiological and psychosocial health.



Oral-Systemic Health Considerations of the Elderly

Common systemic diseases in the elderly population have important oral sequelae and can detract from successful aging.²¹ For example, diabetes increases susceptibility to periodontal disease, which progresses more rapidly in diabetic individuals than in nondiabetic subjects and worsens the diabetic state. Controlling periodontal infection increases glycemic control and enables better management of diabetes.²²⁻²⁷ In addition to increased susceptibility to periodontal disease, other oral complications of diabetes include angular cheilitis, candidiasis, glossitis, tooth mobility and caries. The potential for these complications in NH residents has important consequences for disease management by health professionals.⁶ Neurological diseases (e.g., Alzheimer’s disease or stroke) impair motor, sensory and cognitive function in a way that can increase the risk of developing gingivitis, periodontitis and dental caries.

Conversely, recent literature indicates that periodontal disease may actually be linked to development of Alzheimer's disease (see Stein, Scheff & Dawson on pages 14-24).

Partial or complete loss of teeth likely complicates medical conditions by affecting diet selection and the ability to chew, swallow, and enjoy food, with resulting adverse impact on nutritional status.^{28,29} Most elderly NH residents receive an average of 7 routine prescription medications per day and 2.7 additional medications on an "as needed" basis to control chronic conditions.^{30,31} Many of these drugs have side effects (e.g., xerostomia, gingival hyperplasia, lichenoid reactions) that adversely affect oral tissue.³²

Older people are also susceptible to infections caused by periodontal pathogens, which have been known to translocate to tissues distant from the oral cavity. Empirical evidence consistently indicates that conditions of poor oral hygiene, dental plaque accumulation, and impaired host defenses provide conditions favorable for proliferation and aspiration of oral pathogens that cause nursing home-acquired pneumonia.³³⁻³⁶ At its 2003 consensus development conference, the American Academy of Periodontology concluded that "patients and healthcare providers should be informed that periodontal intervention may prevent the onset or progression of atherosclerosis-induced diseases".³⁷

Similarly, several studies show that individuals with poor oral hygiene and periodontal disease are more likely to develop CVD than individuals without periodontal infection,³⁸ and one study suggests that the risk of fatal heart disease doubles for persons with severe periodontal disease.³⁹ There is compelling evidence that tooth loss is a marker of past periodontal disease, and that periodontal disease may actually accelerate the development of atherosclerosis-induced diseases, such as heart disease and stroke.^{40,41} These findings suggest that oral infections, specifically periodontal pathogens, contribute to the incidence of CVD. Thus, many older adults may be at increased risk for myocardial infarctions or strokes because of undiagnosed and asymptomatic atherosclerosis potentially accelerated by chronic periodontal infections. By treating periodontal disease, the development of vascular diseases may be prevented or controlled, thereby decreasing risk for myocardial infarction and stroke. Similarly, preventive interventions, particularly improvements in oral hygiene, could lower the risk of aspiration pneumonia in older adults.⁴²⁻⁴⁴

Oral Health and Quality of Life

Oral and pharyngeal problems accompanied by oral-facial pain, infections, edentulousness, and tooth loss negatively impact an older adult's quality of life.²⁹ Clearly,

partial or complete edentulism has negative esthetic and functional (speech, chewing/eating, swallowing, and nutritional) consequences, and the emotional impact of total tooth loss can be profound.⁴⁵ The literature shows that for individuals with dementia, the pain of dental etiology is under-detected and under-treated by health professionals.⁴⁶ Furthermore, tooth and mouth problems can affect facial appearance and the ability to eat, communicate, and interact socially. While important at all ages, these activities have an especially vital connection for older NH residents who are at risk for malnutrition, are experiencing a shrinking social world and are increasingly susceptible to infection.^{29,47} Thus, good oral health for older adults means eliminating pain and discomfort and maintaining function so that quality of life can be optimized.

Barriers to Preserving Oral Health in Nursing Homes

Despite its importance, a low priority is placed on oral health in a NH setting. Several factors contribute to this situation and to oral health disparities experienced by the vulnerable elderly population, who rely on caregivers for at least part of their oral hygiene care.

Self-Care Deficits and Lack of Capacity

Oral health care is complicated by functional and behavioral factors associated with increased frailty. Self-care deficits related to sensation (e.g., vision), cognition (e.g., dementia), mobility (e.g., manual dexterity and range of motion), and endurance and motivation are endemic among the NH elderly. Both positioning and gaining adequate access to the mouth and encountering complex dentitions, such as fixed or removable prostheses or missing, chipped or rotated teeth, present enormous challenges for certified nursing assistants (CNAs) responsible for daily oral care. These professionals often have insufficient knowledge, skill, time or appreciation of the importance of oral health.^{48,49} In addition, competing tasks and priorities influence the degree and quality of oral care provided.⁵⁰

Cognitive and behavioral problems are common among NH residents, and care-resistant or disruptive behaviors during personal care are reported by nursing staff to be the most difficult aspect of providing care.⁵¹ CNAs report that attempts to assist with oral care are often met with hostile and uncooperative behaviors, such as residents refusing to open their mouth, biting on toothbrushes, and hitting.⁴⁸⁻⁵⁰ Oral care can be an unpleasant experience for both the CNA and resident, and administering procedures that invoke fear or meet resistance may discourage CNAs from providing adequate care. The quality of care and care interactions during mouth care provided by CNAs has been recently described.¹⁵ Findings indicate that most residents who need assistance do not receive

oral care. Residents are commonly resistive when oral care is provided, but behaviors seem to be related to how care is provided. Common approaches by CNAs administering oral hygiene care included wearing unclean gloves, inserting implements into the mouth without telling residents first, positioning residents supine or in other non-functional positions, and resorting to physical restraints. Time spent brushing teeth by CNAs assisting residents was observed to be an average of 16.2 seconds (range 10-22 seconds), which is inconsistent with clinical practice standards. For most residents, basic supplies (toothbrush, toothpaste, mouthwash or toothette) were lacking. Thus, direct-care providers need practical strategies and on-going organizational support to provide oral care in a humane and efficacious manner.

Knowledge and Perceptions of Nursing Home Staff

CNAs have limited formal knowledge^{52,53} or training in oral health care.⁴⁹ Similarly, only one-half hour of professional nursing curricula is devoted to geriatric oral health.⁵⁴ As a result, recognizing oral problems such as lesions or oral sequelae of chronic systemic conditions, appreciating the effects of medications on oral tissue,⁵⁵ and planning appropriate care is often overlooked.⁵⁵ Few registered nurses are confident in their ability to recognize signs of periodontal disease or lesions that might require referral for treatment.^{53,56} Mouth care practices in nursing have remained relatively unchanged over the past 120 years.⁵⁷ Negative perceptions held by CNAs (who are responsible for most daily oral care) regarding mouth care are numerous, including expressions of fear and disgust, and descriptors including burdensome, unrewarding, problematic, unpleasant, repulsive and trivial.^{48,58-62} Furthermore, few physicians caring for NH residents view oral health as important,⁶³ and the accuracy of physicians' oral assessments has been reported to be unacceptably low, with a high incidence of inappropriate treatment and referral decisions.⁶⁴

Lack of staff, supervision and limited accountability also influence how well the oral care needs of residents in NHs will be met. Oral care is a care activity identified by CNAs as easily eliminated when staffing problems occur,⁶⁵ and NHs are rarely sanctioned for failing to provide such care.

Limitations of Current Regulatory Policy

There is evidence that oral health assessment and treatment needs of elderly residents are only partially met by currently mandated regulatory formulas in NHs. Federal regulations require that all long-term care facilities with Medicare and Medicaid reimbursement complete a comprehensive health assessment for each resident (known as the Minimum Data Set [MDS 2.0]), which includes oral health. Registered nurses are required to complete sections K and L of the MDS, which are comprised of only

two queries pertaining directly to oral health. The goal is to indicate oral health problems and "triggers" requiring intervention and plan for care. Recent studies, however, suggest that use of the MDS to detect oral health concerns is limited, since nurses identify few oral health or hygiene problems via the MDS.⁶⁶⁻⁶⁸ Moreover, when the problems are identified, rarely does dental treatment occur. Consequently, the MDS, as currently structured for the oral health component, does not provide regulatory support for good clinical practice. The American Dental Association and Special Care Dentistry have asserted that the oral/dental content of the MDS reflects an incomplete appraisal of the oral health of individuals when used by NH staff, and recently recommended a revised version.⁶⁹ Although this recent recommendation is a step in the right direction relative to providing a more complete oral assessment, these authors recommend an additional revision which focuses on comprehensive periodontal evaluation.

Limitations in Financial Policy

Few NH residents can pay for dental care. On average, 67% of NH residents have their overall health care paid for through the Medicaid program, while 9% are covered by the federally funded health insurance program for older adults, Medicare, and 24% are covered by other payers or pay for care themselves.⁷⁰ Most elderly lack private dental insurance, and Medicare does not provide any dental benefits. Dental care under Medicaid is an optional benefit that varies state-by-state, and many states' Medicaid programs do not provide dental coverage for adults. In states with adult dental benefits, dental services vital for NH elderly are frequently not covered, and 27 states have failed to meet even the most minimal standards of care.⁷¹ Thus, older adults must pay for dental care as an out-of-pocket expense,⁷² at a time when their oral health needs are perhaps the greatest.

State Medicaid programs reimburse dentists for basic services at rates significantly below customary fees, resulting in low levels of dental provider participation in the program. In addition to low reimbursement levels, dentists often refuse to care for NH residents because of lack of geriatric training, interest, or adequate treatment facilities.⁷³ Recent research demonstrates that treatment of periodontal disease may decrease healthcare costs related to diabetes and CVD.⁷⁴ Accordingly, there is some marginal movement within the private insurance industry to cover costs associated with nonsurgical periodontal treatment in recognition of the fact that providing coverage for this type of care may lower future costs of providing care for chronic conditions such as diabetes and CVD.⁷⁵

If private insurers can demonstrate that treating periodontal disease equates to cost savings from future com-

plications of chronic disease, perhaps the federal government may follow suit to cover the cost of treatment of periodontal disease in the NH setting.

Rationale for Moving to Transdisciplinary Collaboration

The current “unidisciplinary” approach to oral health care in NHs, wherein each individual performs his/her job within a formal scope of practice, is unsuccessful. Interventions improving delivery of oral care in NHs have met limited success. Prior approaches relied predominantly on oral health education programs (OHEPs) for CNAs.⁷⁶⁻⁸⁰ Historically, OHEP programs have been narrowly focused, usually containing content on the importance of oral health, oral diseases common among older adults, oral assessment and preventative oral care. Length of training varies from single, one hour sessions to sessions conducted over several weeks. The programs have produced some short-term gains in CNA knowledge and attitudes^{78,81} but show inconsistent evidence of health gain for the resident,^{77,80} and sustainability is problematic. A change in practice responsive to the needs of an aging population is now needed. Given the growth of the aging population, their dentate status, the impact of chronic medical conditions and treatments on oral health, and the suggested relationship of oral disease and general health, the “myth of the omnipotence of the independent practitioner” must be challenged, as evidence accumulates that collaboration works when health professionals function well as a team.^{82,83} However, before real collaboration can occur, healthcare providers must fully appreciate oral-systemic relationships. Specifically, members of the medical community must move beyond thinking of oral infection as pathology confined to the mouth without systemic consequence.

Interdisciplinary Collaboration Works: Impact on Patients and Clinicians

There are impressive outcomes from collaborative models of interdisciplinary care.⁸⁴⁻⁸⁶ Most of the focus on interdisciplinary collaborative care has been between a narrow range of health professionals, primarily nurses and physicians in hospital settings. Evidence indicates that the presence or absence of interdisciplinary collaborative care affects the work environment and quality of patient care. In an early study focusing on the impact of nurse-physician interaction on patient outcomes, Knaus and colleagues⁸⁷ found that poor communication between physicians and nurses was associated with higher than expected death rates. Shortell and colleagues⁸⁸ found that effective inter-professional caregiver interaction was associated with a shorter length of stay in the intensive care unit (ICU), lower nurse turnover, better quality of care, and greater ability to meet family member needs. Schmitt and colleagues⁸⁹ reviewed 11 studies conducted on the effectiveness of geriatric interprofessional teams and found that team care

was more effective for the outcomes examined, including mortality, functional status, hospital use (e.g., length of stay and readmission), referrals and cost. In a recent study conducted in three proprietary NHs, Krichbaum and colleagues⁹⁰ showed that forming collaborative problem-solving teams between CNAs and advance practice nurses (APNs) improved the quality of care and resulted in significant improvement in resident outcomes, including decreased incidence of depression and incontinence.

Collaboration also results in greater personal and professional satisfaction and a healthier work environment.⁸⁵ Studies demonstrate significant associations between physician-nurse collaboration and nurse satisfaction, self-esteem, and staff perceptions of uncoordinated, unsafe care.⁸⁴ In short, there is ample evidence that collaborative practice is essential for good health care. Collaboration is a valuable “best practice” approach to improve the quality of oral health care in the NH setting.

Beyond Interdisciplinary Care: Moving to Transdisciplinary Collaboration

Nursing and dental hygiene do not share a tradition of collaborative practice. Their respective practices have not been integrated to any great degree, and both professions have worked in “splendid isolation”. But a potential for synergy between the two exists in the NH. First, in this setting, there is opportunity for interdisciplinary work in healthcare teams that have informal clinical and administrative structure. Second, as noted, there is an unmet need to promote oral health and prevent disease in a growing elderly population with multiple chronic diseases. Nurses must become advocates for good oral health and hygienists need to become more aware of disease management affecting oral health. Third, members of both professions share common goals in terms of scope of practice, conceptual approach to practice, and professional competencies. Nursing’s scope of practice focuses on the patient and family and consists of providing direct care, coordinating care, and collaborating with other health professionals; both prevention and treatment of disease are encompassed in this practice.⁹⁰ The practices of both nurses and dental hygienists are guided by standards by their respective professional organizations, and those standards delineate a well-accepted systematic approach to care, which includes assessment, diagnosis and planning, implementation and evaluation, with scope of practice for dental hygiene focusing on oral health promotion and disease prevention, facilitating self-care, treatment, and collaboration.⁹¹⁻⁹³ A recent analysis revealed major areas of overlap between dental core competencies and nurse practitioner competencies.⁹⁴

The authors contend that movement to a transdisciplinary perspective is vital to implement oral-systemic medicine

because incorporation of this science into medical and nursing practice has been slow to evolve and limited to the “tooth level”. Moreover, we must apply this model because of the historic failure to value oral health⁹⁵ at both institutional and regulatory levels, a failure reflected by failure to nurture good clinical practice and establish regulatory oversight. A transdisciplinary model utilizes the disciplinary perspectives and the expertise of nurses, dental hygienists, and other members of the healthcare team. In such a practice model, members collaborate, build consensus, and institute regular and open communication across discipline boundaries in order to provide integrated services.⁹⁶ One distinction between an interdisciplinary and transdisciplinary approach is that in the latter, members of different disciplines are responsible for educating one another on the significance of a clinical problem or treatment. Thus, practice becomes a synthesis of knowledge and practice. Each contributor maintains the integrity of self, but the learning and plan of care is “owned” by all. There is no turf, because the goal of quality care transcends it.⁸⁵ This framework will provide a foundation for a best practice approach to the delivery of excellent geriatric oral health care.

The single instance in the literature of transdisciplinary collaboration between nursing and dental hygienists was reported by Pelligrini and colleagues⁹⁷ and related to joint care of patients admitted to an ICU. Traditionally, the ICU has not been an arena for maintenance of oral health or a place where dental hygienists work with nurses. In fact, the clinical relevance of the observations and the hygienists’ unique perspective to patient management were incidental to the planned study, although the nature of the collaboration was critical to staff and patient outcomes. Pelligrini and colleagues described a joint project in which nurses working with dental hygienists learned to conduct oral health assessments for mechanically ventilated ICU patients. Nurses were trained by hygienists to assess the oral status of ICU patients (including components such as dental plaque, inflammation, salivary flow, bleeding, caries, and candidiasis), and the dental hygienist was able to envision a unique role, bringing clinical expertise to research and clinical practice. This study showed that trans-collaborative interactions with dental hygienists improve nurses’ knowledge and abilities related to oral care.

Unleashing the Potential of Nurse-Dental Hygienist Transdisciplinary Care within Nursing Home Facilities

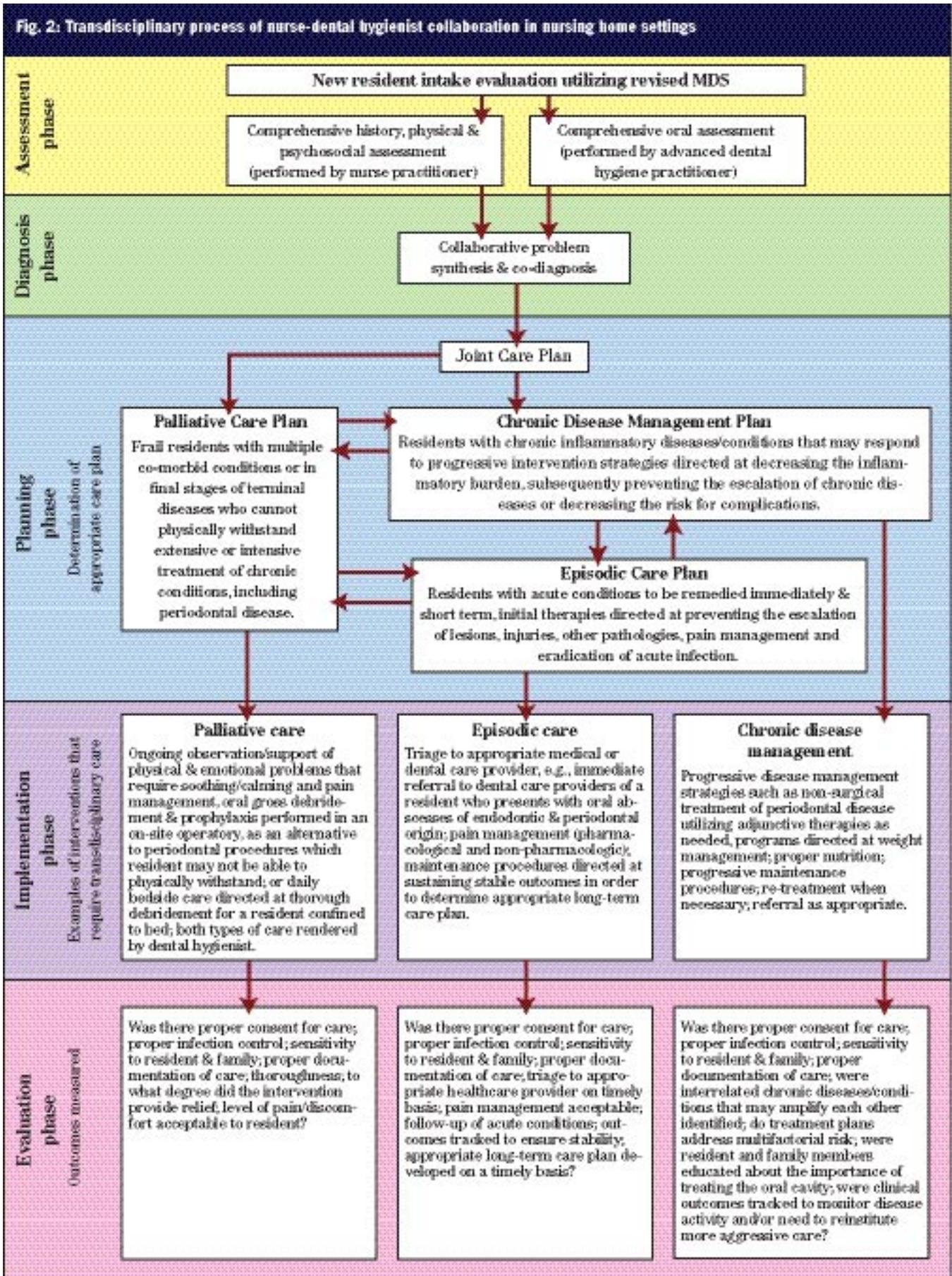
A transdisciplinary collaborative care management model is shown in Figure 2. This model provides a collaborative practice arrangement between Nurse Practitioners (NPs) and Advanced Dental Hygiene Practitioners (ADHPs), a professional role that is currently being developed by the American Dental Hygienists’ Association. The ADHP has

garnered federal support with legislation signed by the President that includes language encouraging the Health Resources and Services Administration (HRSA) to explore creation of the ADHP to improve access to oral health care services.⁹⁸

The model is grounded conceptually in commonalities between both professions in the scope of and approach to practice (i.e., assessment, diagnosis, planning, implementation and evaluation). The model sees NPs and ADHPs with geriatric expertise as collaborators in revising the MDS to 1) provide a more comprehensive evaluation, 2) conduct joint screening and diagnostic procedures, and 3) develop care plans addressing short- and long-term care needs, taking into consideration pharmacologic, nutritional, neurologic and physiologic co-factors with oral health needs.

The salient features of the model include integrated evaluation and transdisciplinary interventions. Residents admitted to a NH would be assessed by both NPs and ADHPs. Based on history and physical examination findings, diagnoses would be generated consistent with each professional’s scope of practice. The goal of collaboration at this juncture would be to evaluate the necessity and risk of therapeutic intervention, including the nature and severity of co-morbidities, the cognitive/emotional state of the resident, advance directives, and invasiveness of proposed treatment.⁹⁹ Individualized prevention and treatment care plans would be co-developed utilizing each profession’s expertise. Three broad-based joint treatment plans are envisioned: a chronic disease management plan, an episodic care plan and a palliative care plan. A chronic disease management plan is consistent with the level of chronic disease burden of NH residents, and would be suited for most residents. Some frail individuals may not be appropriate for this level of intervention and would be more suited to a palliative plan of care. Consistent with real-world practice, residents could “cycle” from one care plan to the next, so the model must remain dynamic and not be rigidly applied. Similarly, residents may develop acute conditions requiring appropriate triage to a medical or dental provider for definitive treatment, returning to their baseline treatment trajectory. Interventions requiring transdisciplinary care would include education and support of staff responsible for daily oral care, consultation regarding behavioral problems that interfere with routine care, performance of periodic screenings to measure residents’ oral health needs, coordination of dental services with area dentists, development of policy to comply with regulatory requirements, and monitoring of clinical outcomes.

In addition, the NP and ADHP could collaborate on grantmanship opportunities to secure funding to restructure the NH setting so that on-site oral health care is viable. For ex-



ample, an oral health center providing a dental operatory within the NH could be established enabling visiting dentists to provide therapeutic care to clients. Educational experiences could be coordinated among local dental, dental hygiene, dental assisting and nursing schools so that students are provided greater experiences in geriatric centers. Further, registered dental hygienists (RDHs) could be hired as staff members of NH facilities to provide routine oral health care to the residents and administer preventive and therapeutic dental hygiene care as established in the care plans. RDHs would be ideal for this role as they have the skills and knowledge both to provide these services and oversee CNAs in providing daily oral health care to residents. It is conceivable that one RDH could be assigned to 50 beds, ensuring that clients receive oral health care twice daily. RDHs would be supervised by ADHPs.

In addition, this model provides opportunities for research to evaluate its merits. Research questions to be addressed might include: To what extent has access to collaborative care management been improved using the transdisciplinary model for NH residents? Has the transdisciplinary model improved the quality of life for NH residents and, if so, how? Has the oral health of NH residents changed using the transdisciplinary model of practice? Has the nutrition status and diet of NH residents changed since the transdisciplinary model of practice has been implemented? To what extent has insurance coverage for oral health care changed since the transdisciplinary model has been implemented in NH settings? How has the transdisciplinary model affected the professional status and prestige of nurses and dental hygienists?

Conclusion

Can HRQL, promoted through comprehensive chronic disease management addressing oral health as a key component, become a real world standard? Some would argue that given the size of the aging population and the competition for shrinking resources for the delivery of geriatric care, this model of care is a "pie in the sky" notion best reserved for ivory tower discussions. However, with the flood of baby boomers entering nursing homes, public opinion may begin to favor implementation of comprehensive chronic disease management strategies for the elderly. Nowhere could this model of care provide greater relief than in the 18,000 nursing homes across the US. Because of their profound dependency, elderly residents in a NH setting constitute a special population requiring the attention and consideration of society and governmental policymakers.

References

- Locker D, Clarke M, Payne B. Self-perceived oral health status, psychological well-being, and life satisfaction in an older population. *J Dent Res*. 2000;79:970-975.
- Williams K, Gadbury-Amyot CC, Bray KK, et al. Oral health-related quality of life: a model for dental hygiene. *J Dent Hyg*. 1998;72:19-26.
- Kiyak HA. Successful aging: implications for oral health. *J Public Health Dent*. 2000;60:276-281.
- He W, Sengupta M, Velkoff V, et al. U.S. Census Bureau. Current Population Reports. 65+ in the U.S.:2005. Washington, DC: U.S. Government Printing Office; 2005. p.23-209.
- Sahyoun N, Pratt L, Lentzner H, Dey A, & Robinson K. The changing profile of nursing home residents: 1985-1997. *Aging Trends*. 4th Edition Hyattsville, Maryland: National Center for Health Statistics;2001. Accessed at: http://hmi.missouri.edu/course_materials/Residential_HSM/semesters/W2004/424/Readings/30Sahyoun.pdf.
- Johnson T, Tickerhoof T. Diabetes management in long-term care. *Ann Long-Term Care*. 2006;14:13-16.
- Gabrel CS. An overview of nursing home facilities: data from the 1997 National Nursing Home Survey. Hyattsville, MD: National Center for Health Statistics; 2000. Accessed at: <http://www.cdc.gov/nchs/data/ad/ad311.pdf>.
- Gabrel CS. Characteristics of elderly nursing home current residents and discharges: data from the 1997 National Nursing Home Survey. Hyattsville, MD: National Center for Health Statistics; 2000. Accessed at: <http://www.cdc.gov/nchs/data/ad/ad312.pdf>.
- Magaziner J, Zimmerman S, Fox K, et al. Dementia in the United States nursing homes: descriptive epidemiology and implications for long-term residential care. *Aging Ment Health*. 1998;2:28-35.
- Lamster I. Oral health care services for older adults: a looming crisis. *Am J Public Health*. 2004;94:699-702.
- Cobb C. Diagnosis and treatment of periodontal disease: a crisis of direction. *Triage*. 2005;1:15-20.
- Coleman P. Improving oral health care for frail elders: a review of widespread problems and best practices. *Geriatr Nurs*. 2002;11:35-42.
- Berkey D, Berg R, Ettinger R. Research review of oral health status and service use among institutionalized older adults in the United States and Canada. *Spec Care Dentist*. 1991;11:131-136.
- Kiyak H, Grayston M, Crinean C. Oral health problems and needs of nursing home residents. *Community Dent Oral Epidemiol*. 1993;21:49-52.
- Coleman P, Watson N. Oral care provided by certified nursing assistants in nursing home. *J Am Geriatr Soc*. 2006;54:138-143.
- Gift H, Cherry-Peppers G, Oldakowski R. Oral health status and related behaviours of U.S. nursing home residents 1995. *Gerodontology*. 1997;14:89-99.
- Shay K. Infectious complications of dental and periodontal diseases in the elderly population. *Clin Infect Dis*. 2002;34:1215-1223.
- Oral Health in America: A Report of the Surgeon General. U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health.

- Health. Rockville, MD; 2000. Accessed at: <http://www.nidcr.nih.gov/sgr/oralhealth.htm>.
19. Centers for Disease Control's Health Protection Goals, March 8, 2005. Future Initiatives Update: Goals and Management. Available at: <http://www.cdc.gov/futures/update.htm>. Accessed Apr 12, 2005.
 20. Patrick D, Bergner M. Measurement of health status in the 1990s. *Annu Rev Public Health*. 1990;11:165-183.
 21. Ghezzi EM, Shay JA. Systemic disease and their treatments in the elderly: impact on oral health. *J Public Health Dent*. 2000;60:289-296.
 22. Little J. Recent advances in diabetes mellitus of interest to dentistry. *Spec Care Dentist*. 2000;20:46-52.
 23. Taylor G, Loesche W, Terpenning M. Impact of oral diseases on systemic health in the elderly: diabetes mellitus and aspiration pneumonia. *J Public Health Dent*. 2000;60:313-320.
 24. Salvi GE, Beck JD, Offenbacher S. PGE₂, IL-1 β , and TNF- α responses in diabetics as modifiers of periodontal disease. *Ann Periodontol*. 1998;3:40-50.
 25. Grossi S. Treatment of periodontal disease and control of diabetes: an assessment of the evidence and need for future research. *Ann Periodontol*. 2001;6:138-145.
 26. Lamster IB, Lalla E. Periodontal disease and diabetes mellitus: discussion, conclusions, and recommendations. *Ann Periodontol*. 2001;6:146-149.
 27. American Academy of Periodontology. Position paper on diabetes and periodontal diseases. *J Periodontol*. 2000;71:664-678.
 28. Sheiham A, Steele JG, Marcenes W, et al. BMI and oral health in the elderly. *Br Dent J*. 2002;192:703-706.
 29. Shay K, Ship J. The importance of oral health in the older patient. *J Am Geriatr Soc*. 1995;43:1414-1422.
 30. Tobias D, Sey M. General and psychotherapeutic medication use in 328 nursing facilities: a year 2000 national survey. *Consult Pharm*. 2001;16:52-60.
 31. Avorn J, Gurwitz J. Drug use in nursing homes. *Ann Intern Med*. 1995;123:195-204.
 32. Ship J, Chavez E. Management of systemic diseases and chronic impairments in older adults: oral health considerations. *Gen Dent*. 2000;48:557-558.
 33. Scannapieco F. Role of oral bacteria in respiratory infection. *J Periodontol*. 1999; 70:793-802.
 34. Scannapieco F, Stewart E, Mylotte J. Colonization of dental plaque by respiratory pathogens in medical intensive care patients. *Crit Care Med*. 1992;20:740-744.
 35. Langmore S, Terpenning M, Schork A, et al. Predictors of aspiration pneumonia: how important is dysphagia? *Dysphagia*. 1998;13:69-81.
 36. Russell S, Boylan R, Kaslick R, et al. Respiratory pathogen colonization of the dental plaque of institutionalized elders. *Spec Care Dent*. 1999;19:128-134.
 37. Scannapieco FA, Bush RB, Paju S. Associations between periodontal disease and risk for atherosclerosis, cardiovascular disease and stroke. *Ann Periodontol*. 2003;8:38-53.
 38. Teng Y, Taylor G, Scannapieco F, et al. Periodontal health and systemic disorders. *J Can Dent Assoc*. 2002;68:188-192.
 39. Jansson L, Lavstedt S, Frithiof L, et al. Relationship between oral health and mortality in cardiovascular disease. *J Clin Periodontol*. 2001;28:762-768.
 40. Desvarieux M, Demmer RT, Rundek T. Relationship between periodontal disease, tooth loss, and carotid artery plaque. *Stroke*. 2003;34:2120-2125.
 41. Desvarieux M, Demmer RT, Rundek T. Periodontal microbiota and carotid intima-media thickness; the oral infections and vascular disease epidemiology study. *Circulation*. 2005;111:576-582.
 42. Löeb M, Becker M, Eady A, et al. Interventions to prevent aspiration pneumonia in older adults: a systematic review. *J Am Geriatr Soc*. 2003;51:1018-1022.
 43. Yamaya M, Yanai M, Ohru T, et al. Interventions to prevent pneumonia among older adults. *J Am Geriatr Soc*. 2001;49:85-90.
 44. Terpenning M, Shay K. Oral health is cost-effective to maintain but costly to ignore. *J Am Geriatr Soc*. 2002;50:584-585.
 45. Fiske J, Davis D, Frances C, et al. The emotional effects of tooth loss in edentulous people. *Br Dent J*. 1998;184:90-93.
 46. Cohen-Mansfield J, Lipson S. The underdetection of pain of dental etiology in persons with dementia. *Am J Alzheimers Dis Other Dement*. 2002;17:249-253.
 47. Locker, D. Dental status, xerostomia and oral-health related quality of life of an elderly institutionalized population. *Spec Care Dent*. 2003;23:86-93.
 48. Wardh I, Hallberg L, Berggren U, et al. Oral health care — a low priority in nursing. *Scand J Caring Sci*. 2000;22:250-256.
 49. Chalmers J, Levy S, Buckwalter K, et al. Factors influencing nurses aides' provision of oral care for nursing facility residents. *Spec Care Dent*. 1996;16:71-79.
 50. MacEntee M, Thorne S, Kazanjian A. Conflicting priorities: oral health in long-term care. *Spec Care Dent*. 1999;19:164-172.
 51. Volicer L, Hurley A. Management of behavioral symptoms in progressive dementias. *J Gerontol*. 2003;58A:837-845.
 52. Coleman P. Opportunities for nursing-dental collaboration: addressing oral health needs among the elderly. *Nurs Outlook*. 2005;53:33-39.
 53. Logan H, Ettinger R, McLearn H, et al. Common misconceptions about oral health in the older adult: nursing practices. *Spec Care Dentist*. 1991;11:243-247.
 54. Jones J, Fulmer T, Wetle T. Oral health content in nursing school curricula. *Gerontol Geriatr Educ*. 1988;8:95-101.
 55. Adams R. Qualified nurses lack adequate knowledge related to oral health, resulting in inadequate oral care of patients on medical wards. *J Adv Nurs*. 1996;24:552-560.
 56. Miller R, Rubinstein L. Oral health care for hospitalized patients: the nurse's role. *J Nurs Educ*. 1987;26:362-366.

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