Oral Health Disparities Among the Elderly: Interdisciplinary Challenges for the Future

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Abstract: The elderly, like other population groups, have experienced varying levels of oral health among their diverse demographic subgroups. For those in poverty, experiencing social isolation, residing in long-term care institutions, and with complex medical illness, oral health care may be unreachable. Various models of training, education, and community, public, and professional collaboration have been proposed, yet few strategies have been implemented. Interdisciplinary approaches that bring interested partners together as equal stakeholders may create faster tracks in improving access to health care for those geriatric patients who lack it. This article explores past and present recommendations for interdisciplinary collaborations, reviews the current and future needs of the geriatric population, discusses educational models and content, and expresses the need for leadership to address oral health disparities in the elderly. Finally, strategies for making improvements in the existing oral health disparities are discussed.

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Submitted for publication 7/23/03; accepted 10/14/03

The first ever Surgeon General’s Report (SGR) on Oral Health in 2000 brought to the forefront the idea of oral health as a part of general health. Despite advances in oral health across the lifespan, the report identified segments of the U.S. population that have not benefited from these advances. The geriatric population is as a group often at risk of disease and often experiencing limited access to oral health care because of place of residence, economic factors, complex medical illness, social isolation, and other individual and social factors (Table 1). The projected aging of the U.S. population heightens the urgency of addressing needs for the increasingly dentate elderly who are at risk for dental disease and oral health decline. The SGR presented strategies to engage communities of interest in creating new educational models for both professional and community settings. It focused dialogue on public and private collaborations to improve oral health and address identified disparities, including oral health for the elderly.

The purpose of this article is to discuss the need for greater interdisciplinary training in geriatrics to help resolve disparities in oral health care for the elderly. We examine historical policy recommendations in education, curriculum implications for dentistry and medicine, and strategies to increase interdisciplinary training. This review reveals a discrepancy between past educational recommendations and the current approach to preparing oral health professionals to care for the future burgeoning elderly population.

Background: Needs of the Elderly

Since 1900, the proportion of the U.S. population over the age of sixty-five has grown from 4 percent to 12.7 percent. Increasingly, cohorts of the elderly are aging with natural dentition. In the 1988-91 Third National Health and Nutrition Examination Survey (NHANES), nearly 72 percent of adults aged sixty-five to seventy-four were dentate, with an average of more than eighteen teeth. Dentate individuals therefore remain at risk for dental disease, especially caries and periodontal disease, as well as soft tissue pathology. A growing population of older patients who have more teeth presents a combination that impacts dental needs. A lifetime of dental disease experience, partial tooth loss, medical conditions, and medications add to the complexity of treating these patients. The elderly, as well as disabled and medically compromised populations, have a disproportionate amount of oral disease.

Today’s older individual is also a more frequent utilizor of dental care services than previous cohorts. Reports from the 1960-70s characterized the elderly as infrequent users of oral health care.
cently, according to the 1987 National Health Interview Study, the mean number of dental visits annually for senior citizens exceeded that of younger age groups. Meskin and Berg examined the impact that older adult patients have on private practices. They found that the “percentage of office visits, services provided, and expenditures attributed to patients 65 years of age or older exceeded the percentage of the population in that age group.” Over a ten-year period, a 30 to 64 percent increase in the number of older adults seen in dental practices demonstrates the growing influence that senior adults will continue to have on oral care service utilization.

While Meskin and Berg investigated patients in private practice, the vast majority of whom live independently, the accessibility of oral care for individuals needing assistance with activities of daily living and those institutionalized is often extremely limited. Approximately 5 percent of the population over sixty-five reside in long-term care settings (LTC). An additional 5 to 10 percent of this population group is homebound. There is little data about homebound patients, but data affirms that oral health of individuals in LTCs is consistently poor.

Linkages of oral health and general health have received increased public attention since the publication of the SGR and research suggesting oral-systemic health relationships. Periodontal disease has been associated with cardiovascular disease, atherosclerotic lesion formation, increased risk of ischemic stroke, and all-cause mortality. There is increasing evidence linking an oral infection-inflammation pathway. Previously established associations between leukemia and gingival enlargement, oral manifestations of systemic diseases, relationships between diabetes and wound healing, diabetes and aspiration pneumonia, and medication and oral side-effects/consequences also underscore why it is important for dentists to understand these relationships in order to provide competent care to the elderly population.

Therefore, based on the numbers and proportion of the aging population, their dentate status, the impact of chronic medical conditions and treatment on oral health, and the suggested relationships of dental disease to general health, students of tomorrow must be prepared to face the unique challenges of an aging patient group in the practice of general dentistry. To increase the degree of understanding of the medical complexity of these patients, interdisciplinary training that considers the whole patient will be required. New models of curricula in dentistry, medicine, and allied health professions must emerge.

### Current Shortfalls in Preparation for Care of the Elderly

A complex set of factors has contributed to the magnitude of oral health disparities in older populations. Factors include health and educational policy and fiscal implications, insufficient evidence-based research, and failure to examine nontraditional educational models in the health professions.

### Educational Policy

A recent overview of oral health in the United States documented concentrations of dental disease and oral health decline among older Americans, particularly those who are disadvantaged by race/ethnicity and socioeconomic status. Objectives for improving access to quality health services and oral health are listed in Healthy People 2010, the comprehensive, nationwide health promotion and disease prevention agenda. Two overarching goals of Healthy People 2010—to increase quality and years of healthy life and to eliminate health disparities—are directly applicable to resolving the inequities of oral health in diverse aging populations. Dental educational agendas should address these important disparities.
A variety of important reports in the last decade indicated that dental schools remain isolated from interaction with other health care institutions. In the early 1990s, the Pew Health Professions Commission noted that dental care delivery has changed little over the last several decades and that “dentists have relatively little direct interaction with other types of health care providers.” The Pew report cited dental education’s inability to respond to demographic trends, changes in care delivery, and technology due to inflexible curricula. Clinical dental education also provides little opportunity for interdisciplinary work in health care teams. It is time for a new model of dental education that is more integrative with a variety of patients, health care providers, and individuals who are involved in health care management and interdisciplinary health care.

Within dental education, progress has been monitored in the growth of didactic and clinical training in geriatrics. The most recent study reported the results of a survey of all U.S. dental schools. Although there has been consistent growth in didactic curricula among dental schools, growth in both intramural and extramural clinical experiences has not increased to the same level. To date, no surveys have investigated the level of interdisciplinary training or successes achieved. This is likely due to the fact that this educational format is challenging and rarely used or reported in predoctoral dental education.

The Institute of Medicine’s (IOM) report Dental Education at the Crossroads underscored the need for changes in dental education, citing the need for preparation of students to care for the increasing numbers of medically complex, dentate elderly. The report suggested that dental education should become more closely integrated with medicine on multiple levels. Nearly a decade later, there has been slow, limited progress in developing and implementing new models of education that address these issues.

**Fiscal Implications**

The lack of inclusion of oral care services in Medicare may have contributed to the preservation of the dental profession’s independence, yet it has also contributed to the access to care problem for many older adults. Only 14.5 percent of patients over the age of sixty-five retain dental insurance, requiring most people to pay for dental care with “out of pocket” dollars. For individuals with Medicaid benefits, the scope of services varies by state, as this program is a federal-state shared responsibility program. Recent state budgetary demands have impacted the continuation of programs in some states and caused the termination of various levels of benefits in some, often the adult programs. The oral health needs of the elderly and the demographic changes in the U.S. population warrant a reassessment of the role of oral care services in federal health programs such as Medicare and revision of policies for Medicaid administration.

Likewise, dentists’ lack of willingness to serve Medicaid patients and patients of LTC facilities, regardless of payment method, has contributed to the access problem as well. Expanding professionalism and ethics curricula to include topics regarding the right vs. privilege of oral health care could serve to develop a greater sense of service to humankind among dental students. Incorporating service learning programs as an integral part of clinical experiences would also help to internalize institutional value systems that honor the professional and ethical obligations of dentistry to society.

**Research Needs**

The role of interdisciplinary collaboration is apparent in reports addressing research needs. In 2000, the American Dental Education Association (ADEA), responding to the American Dental Association’s Report on the Future of Dentistry Project, noted the need for dental education to be sensitive to changing population demographics, disease patterns, and health care delivery and emphasized the need for more research opportunities for students. The need for interdisciplinary collaboration in basic and clinical dental and craniofacial research was emphasized, especially where studies could lead to increased interdisciplinary interaction and practice. There is also a need for greater value to be placed on educational research to identify effective training models that can contribute to contemporary educational practices.

The National Institute of Dental and Craniofacial Research (NIDCR) 2002 report on elimination of dental health disparities discussed that population subgroups, including older Americans, have poor oral and general health but cautioned that good research data is often nonexistent. Dental education can play an important role in fostering research on educational and health promotional strategies appropriate to the social and cultural frameworks that characterize these subgroups. Cooperation among researchers in basic science, clinical science,
demography, and social science will be required to effectively reduce oral health disparities. In the NIDCR Health Disparities Plan outlined in the report, educational initiatives were not overtly described, yet the context in which the research needs are described is amenable to all types of research in educational institutions. The plan acknowledges that there is often a gap between research knowledge and practice, an important emphasis for overcoming oral health disparities.

**Interdisciplinary Educational Implications**

More recently, the IOM convened an interdisciplinary summit in 2002 to develop recommendations for reform of health professions education. The goal of the summit was to facilitate discussion on change in education that would enhance patient care quality and safety. The report of that summit\(^4\) called for approaches related to oversight, training environment, research, public reporting, and leadership. Table 2 outlines the five competency areas identified by the summit as key elements for all health professions education. This report again highlighted the necessity for interdisciplinary training among the health professions to address our country’s changing demographics characterized by aging, ethnic and racial diversity, chronic illness, and a population with a need for access to health care information. Unfortunately, dentistry was not represented at this important summit that considered how health professions education must change.

Despite recurring evidence that leaders in education and health care policy have long seen a vision of interdisciplinary training and collaboration among medicine, dentistry, and other health professions, there has been slow progress in developing demonstration projects and implementing best practices from successful programs. A review of interdisciplinary training involving dentistry and other health professions reveals that most of these collaborative efforts do not involve dentistry. A literature search of “interdisciplinary teams and dental” terms since 1990 netted only ten articles, none of which related to geriatric training and only four dealt with educational models. Another search of “geriatric interdisciplinary teams and dental” found no matches since 1990. Of the articles that did describe collaborative training models, most involved medicine and social work, allied health, nursing, pharmacy, nutrition, chiropractic, occupational therapy, or other health professions.

### Table 2. IOM competencies for all health professions education

“Competencies are the habitual and judicious use of communication, knowledge, technical skills, values, and reflection in daily practice.”

- Provide patient-centered care
- Work in interdisciplinary teams
- Employ evidence-based practice
- Apply quality improvement
- Utilize informatics


**Interdisciplinary Models**

Interdisciplinary or multidisciplinary teaching teams have been utilized to help educate health professions students in geriatrics for years.\(^4\) These programs have used a diverse group of educational models to link various health professions (not including dental students) and community service agencies to academic institutions for training in care of the elderly and to address ethical issues training for the purpose of stimulating educational collaboration. Programs such as these report improvement in student attitudes towards the elderly and in skills in assessing patients’ decisionmaking capacity, negotiating care plans, and appreciating the broad range of elderly patient life experiences.\(^5\) There has been little effort to study and report on programs that include dental professionals in interdisciplinary team learning units. The historical isolation in dental education has not fostered collaborations in joint projects to train more health professions’ students together.

A recent literature review indicated that there are few medical journal articles that point to the need for interdisciplinary training or “cross-education” involving dental professionals. Increasing suggestions of oral-systemic health interactions clearly indicate the need for interdisciplinary training models to enhance the ability of health professionals to treat the ever-growing population of elderly. With more medically complex patients and limited oral health information within medical education,\(^6\) new initiatives to redesign predoctoral medical and dental curricula seem timely.

One of the most visible examples of interdisciplinary training involving postdoctoral dentistry has
been the Faculty Training Projects in Medicine, Dentistry, and Behavioral and Mental Health, which is funded by the Health Resources and Services Administration (HRSA). This federal program is an interdisciplinary postdoctoral geriatrics training program that educates physicians and dentists together. Originally mandated in 1986, geriatric psychiatry was added to this federal program in 1992. The program supports physicians who have completed residencies in family medicine or internal medicine, mental health professionals such as psychiatrists, and dentists who have completed residency programs or specialty training for two-year geriatric fellowships and/or one-year geriatric retraining for faculty with previous interests in this area. The Bureau of Health Professions (BHPr)-supported program is unique, allowing an integrated program that is not limited to single clinical sites and has flexibility in affiliations and curriculum. The programs are organized around interdisciplinary didactic instruction in all aspects of geriatric care and clinical training concentrated in the fellow’s discipline, with cross-participation in clinics to the extent appropriate. Dentistry is always included as a team member. The programs include training in administration, teaching, research, and clinical care. This is the only faculty training program of its kind in the United States that supports training in geriatric dentistry. The number of programs and fellows trained are outlined in Table 3. There are currently nine funded programs.

Early in the 1990s, the fellows completing these programs were tracked to determine how many remained in academic settings, but this tracking mechanism has not continued. While there is no current data on the status of fellows previously trained through this program, it is likely that the dental fellows trained in this venue serve as the current core of academic leaders training current dental students. Yet, with expected needs for physicians specially trained to serve the elderly estimated to be in the thousands, the need for additional training would seem evident for all health professions serving the elderly. It is unlikely that the numbers of the elderly requiring health care will be matched by sufficient numbers of adequately trained physicians, dentists, and other health professionals in the near future, unless expansion of programs or new programs are instituted. Other geriatrics training programs (master’s level) exist in dentistry, but do not share the same emphasis on interdisciplinary training as the BHPr program.

In summary, progress in effecting change in the current mechanisms of training in the care of the elderly has been slow. Recommendations from policy sources to enhance interdisciplinary training have been made without concomitant increases in training programs. There is a lack of sufficient training mechanisms for predoctoral and postdoctoral programs. There is a critical need for educational research on models of training to prepare health professionals to care for the elderly. In many cases, training does not address the critical issues of cultural competence, communication, and understanding patient value systems. Finally, dental education and medical education remain isolated from each other.

## Future Needs in Dental Education

### Need for Leadership

It is critical to identify leaders who have the skill and passion for making greater advances in geriatric interdisciplinary training including curriculum revision. While dental educators have been considering ways to make that happen, the suggestions for this change are more than ten years old. Dealing with slow professional and institutional change can be discouraging. A certain level of grassroots movement and knowledge is required from the different health professions. Medical, dental, and allied health education should collaborate with professional organizations, national testing organizations, accrediting bodies, and licensing organizations to create efficient, high-quality educational programs that will be re-

<table>
<thead>
<tr>
<th>Funding Year</th>
<th>No. of Programs Funded</th>
<th>No. of Fellows Trained</th>
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<tbody>
<tr>
<td>1988</td>
<td>23</td>
<td>115</td>
</tr>
<tr>
<td>1991</td>
<td>16</td>
<td>74</td>
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<td>1994</td>
<td>9</td>
<td>135</td>
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<td>2000</td>
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<td>Data pending</td>
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<td>2001</td>
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<tr>
<td>2002</td>
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<td>Data pending</td>
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sponsive to the changing demographics of the society. Otherwise, educational innovators will be penalized for their leadership, creativity, and efficiency by oversight groups who are unable to change at the same pace when new educational models are instituted. A shared vision for change will be required. The health professions should educate themselves to understand, in concert, the needs of contemporary oral and general health care related to the elderly.

There is an opportunity for dental education and organized dentistry to take the lead to address the access to care issue from the grassroots level. If local level activities are a link to facilitating greater access to dental care for the elderly, then associations with strong lobbies such as the ADA and its constituents (state level), as well as other national agencies advocating for senior citizens, could be important assets for securing new resources for training, research, and care.

**Strategies for Change**

Change is often viewed negatively by individuals unaccustomed to innovation, but careful planning can minimize risk and uncertainty. First, compelling evidence must exist to make the change. As previously discussed here, multiple reports already exist to support new thinking about interdisciplinary collaborative training. Second, specific required elements must be identified early to guarantee that adequate time, knowledge, space, and resources are available to effect change. Finally, there is a need for motivated, visionary leaders who think collaboratively, who are calculated risk-takers, who realize a better game plan must be nurtured, and who are willing to provide the opportunity for new ideas to reach fruition. This suggests the need for interdisciplinary leadership training programs in geriatrics and health professions education to develop the visionary talents of individuals who have the skill, perspective, passion, and desire to lead the way. Coveted demonstration programs should be developed that are interdisciplinary in nature and universally recognized and supported. Opportunities for future leaders to collaborate could assist the development of emergent leaders who will facilitate educational change that is responsive to the societal needs of an aging population.

In times of lean economics, it makes great sense to look for innovative opportunities to capitalize on existing resources. For example, in one midwestern city, the university bought the property of an 800-bed acute care hospital that had closed five years earlier. The dean of a midwestern school of dental medicine proposed the facility be used as an interdisciplinary training facility. A former dean of medicine was appointed to oversee the development of this facility where a model of interdisciplinary outpatient care could occur. One year after the suggestion, the project remains an idea. Likely, many obstacles lie ahead in making this vision a reality, yet this innovation shows genuine dental-medical collaboration and creative leadership.

**Need for a Core Curriculum**

There is clear evidence that medical, dental, and health professions education must change in order to address health disparities among the aging population.\(^1,2,12,34,35,38,40\) The reports reviewed contend that the nature of medical, dental, and other health professions education must change to better prepare future practitioners to deal with health disparities among the elderly. Federal funding could leverage training opportunities in geriatrics. Since comprehensive working examples of interdisciplinary training that include dentistry do not exist for predoctoral dental curricula, there is a compelling need to establish demonstration projects that model medicine and dentistry together. Many dental students do not choose additional formal training beyond their dental school program, so adequate training to interact with other health professionals in order to provide quality care to the elderly must occur during dental school. Medical and dental education must develop a core curriculum that all students could share, with interdisciplinary experiences beginning with the first day of class.

While a number of new models of dental education have been proposed and several have been implemented,\(^45\) a high priority is developing strategies for allowing more institutions to implement change and overcome the obstacles encountered by the experiences of the first wave of curriculum innovators. Greater efficiency and lessons learned could help other institutions attempting to implement new projects in health professions education. Likewise, a fresh look at existing programs, such as advanced training in general dentistry residencies, could create a view of mainstreaming what we currently call “special needs populations” within the realm of general dentistry. If core curricula included geriatric didactic and clinical experiences, then a new cadre of
practitioners could be prepared to serve the needs of the elderly.

Teaching to the Needs of Elderly Patients

Within the discipline of dentistry, educational change must occur in didactic and clinical formats in predoctoral and graduate training. Developing teachers of geriatrics, research initiatives for applications in clinical practice, and developing a cadre of practitioners who have the knowledge, skills, and values and are willing to commit their time in service to the underserved elderly would be important. Approaches that recognize diversity and address cultural competency in our programs have been advocated. Sensitivity to understanding and valuing other belief systems are also important concepts, in addition to diversity issues, in general.

Dental education’s approach to treatment planning education, for example, has traditionally evolved around ideal treatment planning from the provider’s perspective, focusing on relatively healthy, average patients. Yet treatment plans for frail elderly may be complicated by barriers to care, disease, uncertainty about risks and benefits, and inadequate knowledge about patient preferences. There are few references to understanding patient preference and value systems in oral care treatment decisionmaking. However, frail older patients at risk for dental disease often have significant medical, psychosocial, and economic complications that impact their ability to get care. Life situations define how they may make oral care decisions about their preferences. Furthermore, both well and frail elderly patients may exhibit variation in the priorities they attach to different dimensions of oral health and dental treatment. A study of dental students confirmed that students’ perception of the preferences and values of elderly patients about oral health do not always agree with those of elderly patients. Older patients’ oral health goals may be framed by the context of the situation. For example, in painful dental situations, patients may know the strategy that is in the best interest of their oral health, yet external factors may influence their decisionmaking approach, derailing the best-choice decision.

Better understanding of patient value systems, preferences, behaviors, and confounding life circumstances may help prepare students to communicate with the elderly and to appreciate and work within their belief systems. In doing so, greater opportunity to address the needs of the elderly patient may be achieved. A recent student report in Special Care in Dentistry noted that factors such as these are critical for the ability of students to effectively deal with treatment planning complex older patients.

Need to Define Competencies

A set of educational principles and competencies should be developed to help define key broad educational principles that will allow students of the twenty-first century to meet the needs of the aging population. A set of core competencies specific to oral health care and dental education have been proposed through a Delphi study conducted by Dolan and Lauer. Their contemporary detailed statements of knowledge and skills across dental disciplines could serve as the basis for updating previously (1989) published curriculum guidelines in geriatric dentistry.

However, a broader approach to competency development in special care topics should be framed to encompass educational objectives amenable to both dental and medical education. The broad competencies could be framed within special patient care to address the needs of the general patient population. These should be a part of all predoctoral dental programs and are not unlike those proposed in the IOM Summit summary. (See Table 4.) Defining the educational outcomes will require additional study and refinement, as will articulating the evaluation strategies that will measure the level of quality and accomplishment necessary. The competencies are proposed as a beginning discussion of the definition of the knowledge, skills, and values contemporary

<table>
<thead>
<tr>
<th>Table 4. Competencies for geriatric oral care in predoctoral programs</th>
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<tr>
<td>Graduates must be competent to collaborate in interdisciplinary teams to facilitate special patient care.</td>
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</table>

**Educational outcomes**

Students must:

- Function within an interdisciplinary health care team providing special patient care.
- Integrate medical, dental, psychosocial, and economic factors impacting patient care.
- Prescribe treatment plans that are sensitive to patient values and belief systems.
- Demonstrate effective communication with special care patients.
students of dentistry will need to function in the health care system that will be caring for the increasingly older, more complex patient.

**Summary**

Despite compelling recommendations from diverse sources that suggest dental education can and should revise its mode of delivery and philosophy to broaden interdisciplinary training venues, little progress has been made in this area. The rationale for increased interdisciplinary training in geriatrics is evident in the demographics of the aging society we live in. While a model interdisciplinary training program exists, additional and expanded programs that include predoctoral education will be required to develop adequate numbers of health care providers to care for the elderly. Meeting this need will demand new levels of leadership among individuals, the public and private sectors, educational institutions, professional organizations, and oversight groups. New value for educational research will also be important to facilitate the necessary changes.

Table 5 highlights proposed strategies for improving the health professions’ ability to diminish geriatric oral health disparities. Dental education leaders must work to ensure that dentistry is invited to the table when the IOM committee meets, when curriculum committees of universities convene, and when professional organizations join together. Overviews of health disparities that fail to incorporate oral health are incomplete.

The educational rationale for increasing interdisciplinary training has existed for a decade. The next step is to identify visionary leaders who have

<table>
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<tr>
<th>Table 5. Strategies for improving health professions’ ability to diminish geriatric oral health disparities</th>
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<tr>
<td>• Take advantage of working interdisciplinary educational models that currently involve dentistry: craniofacial teams.</td>
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<tr>
<td>• Remove barriers to interdisciplinary care of the elderly.</td>
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<td>— Work to include “special care” patients in mainstream care.</td>
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<td>— Expand curricula and clinical experiences in general dentistry residency programs.</td>
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<td>— Expand predoctoral didactic and clinical experience.</td>
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<td>— Remove financial impediments.</td>
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<td>— Increase advocacy in an era of diminishing public assistance.</td>
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<td>— Revamp Medicaid system to remove dependency on optional state funding.</td>
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<tr>
<td>— Partner with private and public groups, professional lobby groups.</td>
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<tr>
<td>▲ ADA, AARP</td>
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<tr>
<td>▲ Engage constituent and component dental societies.</td>
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<tr>
<td>— Reassess oral health role in Medicare.</td>
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<tr>
<td>— Increase federal funding for interdisciplinary models of education that include geriatrics.</td>
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<td>— Expand HRSA-BHPr geriatric training program.</td>
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<td>— Find new systems to fund oral health care for special care patients.</td>
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<tr>
<td>• Create incentives to develop new integrated curricula in dentistry, medicine, and allied health professions.</td>
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<tr>
<td>— Create efficiencies by pooling resources.</td>
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<tr>
<td>— Develop interdisciplinary RFPs for interdisciplinary curriculum models for predoctoral education.</td>
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<td>• Create interdisciplinary training laboratories as a standard training format.</td>
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<tr>
<td>— Create clinical space and educational opportunity for training health professions students together as a usual format.</td>
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<tr>
<td>• Create and publicize outcomes from demonstration projects and best practices. For example:</td>
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<td>— Senior living communities that include interdisciplinary health care facilities as training sites for tomorrow’s practitioners.</td>
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<td>• Update allied health professions schools competency documents to reflect:</td>
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<td>— the importance of ability to be prepared for care of the elderly.</td>
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<tr>
<td>— the need for interdisciplinary training as a part of necessary skills.</td>
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<tr>
<td>• Assist accrediting and licensing bodies in incorporating new competencies into their values and policies.</td>
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the expertise and passion to make innovative curriculum revision in health professions education happen, so that the educational system improves and oral health disparities for the elderly can be overcome.

Acknowledgment

The authors wish to express their gratitude to L. Dahlstrom for editorial assistance with the manuscript.

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