THE INFLUENCE OF HUMANITIES SUPPORTED DENTAL SERVICE LEARNING ON STUDENTS' PERCEPTIONS OF SOCIAL RESPONSIBILITY AND PROFESSIONALISM REGARDING ORAL HEALTHCARE DELIVERY

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Doctor of Medical Humanities

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ABSTRACT

The Influence of Humanities Supported Dental
Service Learning on Students' Perceptions of
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The Caspersen School of Graduate Studies
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Despite advances in scientific knowledge related to oral health, profound disparities exist in vulnerable U.S. populations. One way in which dental schools have responded to the divide between oral health needs and the capacity to meet those needs is through service learning (SL). Blending SL with the humanities, such as literary studies in a healthcare curriculum, improves learning outcomes. The focus of this dissertation examines the role of Medical Humanities instruction in the clinical training of future dental health professionals. As evidenced by a quantitative study and supported by student-written excerpts, I argue that a Medical Humanities curriculum has value within dental education and its application to SL improves students' perceptions regarding social responsibility and professionalism in oral healthcare delivery.

Seventy-nine dental hygiene students at the New York University College of Dentistry-Dental Hygiene Programs were surveyed about their attitudes toward 1) health professionals' roles and responsibilities in issues affecting access to oral health care, 2) health professionals' ability as leaders and agents of change, 3) health professionals'

ability to communicate with patients and team members during the delivery of care, and 4) the value of interprofessional experience in delivery of care. Surveys were sent to two groups of students: those who participated in SL opportunities having studied Medical Humanities in their curriculum, and those who did not. While the quantitative findings were statistically insufficient to support program effectiveness, the mean response of the Medical Humanities group was consistently higher than that from those without Medical Humanities in perceived understanding of the four study areas. Additionally, findings from sample reflection pieces demonstrate an increased awareness of concepts regarding underserved and vulnerable populations, social determinates of disease, factors impacting quality care, and disease burden. The student surveys and written excerpts will be used to improve the quality of service-learning activities in the NYUCD-DHP curriculum and may have broader influence in the development of best practices for service-learning activities henceforth. This dissertation brings into focus the role of the humanities in developing dental professionals who are committed to the concept of providing quality care (in the patient's best interest) to all citizens.

This work is dedicated to my family:

to my parents,

Dr. Alfred Bill Moglia and Marisa Braga Moglia,

and

my sister

Maresa,

for their love and support,

and

to my husband William,

and children

Andrew and Meg Willis

for their unfailing belief in me

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INTRODUCTION

The oral healthcare needs of the United States have changed dramatically with a shift in population from a European American majority to one that is more diverse. As indicated in The Surgeon General's Report on Oral Health (SGROH), most of the people needing dental care in the future will be made up of diverse groups of under- or un-served people. The groups include "racial and ethnic minorities, rural populations, individuals with disabilities, the homeless, immigrants, migrant workers, the very young, and the frail elderly."[1] Additionally, the report challenged the perception of healthy mouths and adequate dental care among the majority of American children. Tooth decay—while almost entirely preventable—is our nation's most common chronic childhood disease. Dental public health scholars conclude the current model of dental practice is incapable of meeting the oral healthcare needs of a changing U.S. population.[2]

To better deal with this problem, dental schools have developed innovative curricula such as community-based learning or service-learning (SL) models. Inclusion of

[1] U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General*, (Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000): 2-4. http://silk.nih.gov/public/hck1ocv. @www.surgeon.fullrpt.pdf (accessed May 2013).

[2] Raul Garcia and Woosung Sohn, "The Paradigm Shift to Prevention and Its Relationship to Dental Education," *Journal of Dental Education* 76, no. 1 (Jan. 2012): 42; Edward O'Neil and Stephanie Ngai, "An Opportunity for Reform in Oral Health Service," *American Journal of Public Health* 101, no. 10 (Oct. 2011): e1-e3.

SL in the dental curriculum is a way to address calls for reform in dental education to meet the professions' obligations while meeting student academic goals.[3]

SL is defined as "learning that combines public service with related academic work;"[4] however, unless properly integrated within the curriculum, it may not be effective. Indeed, the effectiveness of SL has been described as transient in the promotion of understanding and long-term retention unless properly designed and directed for reflection.[5] Donohoe and Danielson suggest that blending SL with the humanities, such as literary studies in a healthcare curriculum, results in meaningful insight and strengthens positive influences of SL.[6] This interdisciplinary approach of combining narrative analysis with health care better prepares students to address issues in oral health care.[7] The combination of disciplines "both inscribes and challenges attitudes"[8] and takes into account dimensions of patients' lives that science alone often disregards. Dr. Michael I. MacEntee, Professor, Department of Oral Health Sciences and Faculty of Dentistry,

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[3] Elaine L. Davis et al., "Serving the Public Good: Challenges of Dental Education in the Twenty-First Century," *Journal of Dental Education* 71, no. 8 (Aug. 2007): 1014; Alexander W. Astin, and Linda J. Sax, "How Undergraduates Are Affected by Service Participation," *Journal of College Student Development* 39, no. 3 (May/June 1998): 262.

[4] Jeremy Cohen and Dennis F. Kinsey, "'Doing Good' and Scholarship: A Service-Learning Study," *Journalism Educator* 48, no. 4 (Winter 1994): 4.

[5] Mahyar Mofidi et al., "Dental Students' Reflections on their Community-Based Experiences: The Use of Critical Incidents," *Journal of Dental Education* 67, no. 5 (May 2003): 516.

[6] Martin Donohoe and Susan Danielson, "A Community-Based Approach to the Medical Humanities," *Medical Education* 38, no. 2 (Feb. 2004): 210.

[7] Sophia A. Balis and James T. Rule, "Humanities in Dental Education: a Focus on Understanding the Child," *Journal of Dental Education* 63, no 9 (Sept. 1999): 709-15; Ronald P. Strauss et al., "The Impact of Community-Based Dental Education on Students," *Journal of Dental Education* 74, S10 (2010): S 45; Donohoe and Danielson, 204.

[8] Donohoe and Danielson, 206.

University of British Columbia expounds on the necessity for creative adult teaching methods (andragogy) within dental education. MacEntee states, "there is a compelling need in dental education for the principles of enquiry and practice used in the humanities"[9] because the influence of dental education on the development of morality and professionalism in the delivery of care is "disappointing at best."[10]

This dissertation critically discusses the role of Medical Humanities instruction, including subjects that are not natural sciences (literature, philosophy, ethics, history, religion, social science, and the arts),[11] and the teaching of "narrative seeing" in the clinical training of future dental health providers.[12] I will argue that a Medical Humanities curriculum has value within dental education and that its application to SL changes students' perceptions regarding social responsibility and professionalism in oral health care delivery.

Because dentistry is concerned about patient welfare, buttressing its scientific base with the humanities may positively influence students' perceptions relative to social justice issues. Examples of social justice issues important to dentistry are disparities in

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[9] Michael I. MacEntee, "The Educational Challenge of Dental Geriatrics," *Journal of Dental Education* 74, no. 1 (Jan. 2010): 17.

[10] MacEntee, 17.

[11] William E. Stempsey, "Medical humanities: Introduction to the theme," *Medicine, Health Care and Philosophy 10* (2007): 359-361; William E. Stempsey, "Medical Humanities and Philosophy: Is the Universe Expanding or Contracting?" *Medicine, Health Care and Philosophy* 10 (2007) 373-383; Felice Aull, "Mission Statement," Medical Humanities Web Site of New York University School of Medicine (1993-2014), http://medhum.med.nyu.edu (accessed May 30, 2013).

[12] Rita Charon and Sayantani DasGupta, "Editor's Preface: Narrative Medicine, or a Sense of Story," *Literature and Medicine* 29, no. 2 (Fall 2011): vii-xiii.

oral disease burden and access to care, innovative work force changes—such as oral health midlevel providers—, and the shift to a prevention-based practice of dentistry.

Incorporation of SL with humanities expands understanding of the nature and meaning of health and illness, strengthens communication among providers, improves provider-patient relationships, helps students develop skills and attitudes to enter the profession as members of a moral community of oral healthcare providers and, therefore, has value within the dental hygiene curriculum.[13]

I used a survey (with a Likert-type scale)[14] to measure the degree with which humanities-linked educational interventions influence perceptions and practice plans of students who participate in SL experiences. Since all New York University College of Dentistry-Dental Hygiene Program (NYUCD-DHP) students attend SL activities as part of their normal curricular activity, all students were asked to take the survey through the programs' listserv. Two populations were invited to participate in this study: all (sixty-

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[13] R. Garcia and W. Sohn, "The Paradigm Shift to Prevention and Its Relationship to Dental Education," 36-45; Raul Garcia et al., " Envisioning Success: the Future of the Oral Health Care Delivery System in the United States," *Journal of Public Health Dentistry* 70, S1 (June 2010): S58-S65; Harold C. Slavkin, "Evolution of the Scientific Basis for Dentistry and its Impact on Dental Education: Past, Present, Future," *Journal of Dental Education* 76, no. 1 (Jan. 2012): 28-35; David Nash, "Ethics, Empathy, and the Education of Dentists," *Journal of Dental Education* 74, no. 6 (June 2010): 567-578; Christine Blue, "Cultivating Professional Responsibility in a Dental Hygiene Curriculum," *Journal of Dental Education* 77, no. 7 (Aug. 2013): 1042-1051; Janet G. Hood, "Service-Learning in Dental Education: Meeting Needs and Challenges," *Journal of Dental Education* 73, no., 4 (Apr. 2009):455; Joan L. Whipp et al., "Rethinking Knowledge and Pedagogy in Dental Education," *Journal of Dental Education* 64, no.12 (Dec. 2000): 860-866; Balis and Rule, 709-15; MacEntee, "The Educational Challenge of Dental Geriatrics,"13-19; Stephen J. Gould, *The Hedgehog, the Fox, and the Magister's Pox: Mending the Gap Between Science and the Humanities* (New York: Three Rivers Press, 2003) 1-273; Robert. L. Russell, "Teaching Students to Inquire about Art Philosophically: Procedures Derived from Ordinary-Language Philosophy to Teach Principles of Concept Analysis," *Studies in Art Education* 32, no. 2 (Winter 1991): 94-104; Strauss et al., "The Impact," S 45; J. Jacobson et al., "Advancing Community-Based Education: Curriculum Issues," *Journal of Dental Education* 63, no. 12 (Dec. 1999): 896-901.

[14] For student attitude survey, see Appendix A.

five) dental hygiene students in the 2013 graduating class who participated in dental SL unsupported by humanities education, and all (sixty-three) rising senior dental hygiene students in the class of 2014 after having attended humanities supported SL activities, bringing the total to 128 students asked to participate.

This research addresses whether SL activities supported by Medical Humanities instruction have value in a dental hygiene curriculum, and whether the inclusion of this innovative educational intervention changes students' perceptions regarding critical social justice issues, professionalism, and their role as oral healthcare providers.

The overreaching goals of the survey and literature review address the following questions:

1. Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?
2. Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of health care?
3. Will a humanities-supported andragogy improve patient-provider relationships?
4. Will application of the humanities to SL improve interprofessional relationships in SL?

Evaluation of the data from the two source groups provides answers to the research questions regarding program effectiveness in creating a stronger professional identity, breaking down hierarchical relationships, and turning shared interprofessional

experiences into more efficient and fair healthcare models. Survey data were analyzed for evidence of study group differences in subjectivities and behaviors regarding oral health care and delivery, and to determine whether the humanities motivate students to support reform to oral health care. To that end, this research assessed the effectiveness of application of the humanities during implementation of SL experiences to improve awareness of social justice, cultural, ethics, and professionalism issues in dental hygiene practice, which move from a focus on disease and healing to a focus on health and prevention.

Chapter 1 reviews the literature on the need for curricular change in dental education to improve learning and to better address current oral healthcare shortcomings and challenges. Also, this chapter reviews the literature on the role of community service learning in meeting the aforementioned healthcare needs and provides background information on service-learning andragogy and the role of the Medical Humanities in making SL more meaningful.

Chapter 2 provides an overview of population groups experiencing problems in oral healthcare and delivery with emphasis on the physical, psychological, social, and economic consequences of oral disease. It provides historical perspective on the contribution of dental professionals to public health, the dental profession's "loss of vision for taking care of the oral health needs of society,"[15] and addresses their role as

[15] Hood, 455.

stakeholders in "the exploration and implementation of new models of oral health care,"[16] including expanded roles for allied dental professionals and other health professionals. Additionally, Chapter 2 examines trends in dental education, calls for reform, and identifies institutions such as the Pew Health Professions Commission and Robert Wood Johnson[17] that shape trends in health programs in dental education. This chapter provides a history of dental SL, including The Commission on Dental Accreditation's adoption of service-learning program standards in Standard 2-25 with suggested outcome measures for dental education in the field of SL.[18] Considerations are given to the inherent challenges of SL (sustainability and quality) and its endorsement by leading national health organizations and agencies as a valuable educational tool to promote learning, civic engagement, ethics, professionalism, and social responsibility[19] and "to provide care that cut[s] across the traditional segregated organizations of professions, institutions, and specialties."[20] Although the Commission on Dental Accreditation (CODA) does not

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[16] ADEA Policy Statement on Health Care Reform, "Oral Health Care: Essential to Health Care Reform: American Dental Education Association" (As approved by the 2009 ADEA House of Delegates), *Journal of Dental Education* 75, no. 7 (July 2011): 970, http://www.adea.org/policy_advocacy/federal_legislative_regulatory_resources/Pages/ADEAPolicyStatementonHealthCareReform.aspx (accessed 19 March 2014).

[17] Barbara. Jacoby and Elizabeth Hollander, "Securing the Future of Civic Engagement in Higher Education," in *Civic Engagement in Higher Education: Concepts and Practices* ed. Barbara Jacoby (San Francisco: Jossey-Bas, 2009), 227-248; Hood, 457.

[18] Commission on Dental Education, Accreditation Standards for Dental Education Programs (Chicago, IL: American Dental Association, 2010), 30, http://ada.org/~/media/CODA/Filespde_ssg.ashx (accessed August 21, 2014).

[19] Hood, 463; E. O'Neil and S. Ngai, "An Opportunity for Reform in Oral Health Service,"e1-e3; Edward O'Neil and B. D. Barker, "Pew National Dental Education Program: Developing an Agenda for Change," *Journal of Dental Education* 53, no.8 (Aug.1989), 469-474.

[20] O'Neil and Ngai, e2.

currently mandate standards for inclusion of SL in the dental hygiene curriculum, I present a detailed description of the development of New York University College of Dentistry-Dental Hygiene Programs' (NYUCD-DHP) service-learning activities standards, outcomes measures, and assessment tools that evaluate SL competence. Additionally, identification of ways in which the Medical Humanities are being used in dental curricula to enhance the effectiveness of SL is explained. This chapter discusses the growing body of scholarship for effectiveness of humanities supported dental curricula and explication of the humanities' curriculum designed and implemented to support NYUCD-DHP service learning.

In Chapter 3, I describe the research setting and participants. Moreover, there is a description of the methods used in the study, including design, survey questions, data collection procedures, and data analysis approach. Additionally, limitations of the study are reviewed.

Chapter 4 elucidates the dissertation study findings through survey data analysis. Thematic analysis of student SL and seminar reflective documents is included to illustrate and support survey findings. The survey responses and reflective statements indicate student perceptions are altered when Medical Humanities are used to support SL activities.

Chapter 5 discusses and summarizes the research findings in relation to the literature. Conclusions are drawn from this study for application within dental hygiene programs and recommendations are made for future research.

The results of this research are quantitative and will help inform on-going research on the impact of the humanities in dental education. Specifically, the findings will inform efforts to develop curriculum content and strategies within the NYUCD-DHP to maximize the effectiveness of SL to prepare graduates with skills, ethics, and values commensurate with professional responsibility. Ideally, these findings will have a broader influence on efforts to reform SL dental educational curricular competencies and standards for learning.

This research contributes to scholarship in dentistry by drawing attention to the relationship of the academic dental and professional communities to the on-going crisis in oral health care and providing solutions for the future of dental health care. Calls to reform dental education to improve service to the public have been documented in the literature with SL as the most recommended approach to address its inadequacies.[21] Dental educators need to develop curricula that help students find a balance between "pursuing their own enlightened self-interest" while "furthering the interests of others and of society."[22] Hence, students should be involved in activities that apply academic content with clinical practice in meaningful ways for all "stakeholders" such as individuals and groups in need of services and oral health professionals.[23] The literature cites a need for more studies to examine the influence of dental SL on "students'

[21] N. Karl Haden et al., "Improving the Oral Health Status of All Americans: Roles and Responsibilities of Academic Dental Institutions," Report of the ADEA President's Commission, *Journal of Dental Education* 67, no. 5 (May 2003):563-83; E. Davis et al., 1009.

[22] Charles Bertolami, "Why Our Ethics Curricula Don't Work: Critical Issues in Dental Education," *Journal of Dental Education* 68, no. 4 (Aug. 2004): 420.

[23] Institute of Medicine of the National Academies, Report: *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*, (Washington DC: The National Academy Press, July 2011).

perceptions and understanding of social responsibility and professionalism regarding underserved populations"[24] as well as a shortage of research on andragogical methods that examine thoughts and attitudes regarding the underserved.[25] This work broadens the dialogue regarding the value of SL activities by recognizing the transformational potential of SL with the humanities as instructional tools within a dental hygiene curriculum.

Service learning in dental education requires interaction with the humanities to make sense of the complex ways in which scientific, social, economic, and personal forces influence health and chronic diseases. Above all, a more humanistic perspective is likely to balance the use of evidence for best clinical practice within SL settings. It is more likely to "teach for transfer"[26] (of academic information to desired outcome) by enlivening abstract ideas and cultivating appropriate attitudes and practices unspoiled by the current model of oral health care. Additionally, because SL occurs within the context of a market-based system of health care, it cannot function without examination of the system in relation to "patient-centered care,"[27] for that, it requires the humanities.

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[24] Mario A. Brodani, "Teaching Social Responsibility Through Community Service-Learning in Predoctoral Dental Education," *Journal of Dental Education* 76, no. 5 (May 2012): 609.

[25] William D. Hendricson et al., "Educational Strategies Associated with Development of Problem-Solving, Critical Thinking, and Self-Directed Learning," *Journal of Dental Education* 70, no. 9 (Sept. 2006): 925-936.

[26] David N. Perkins and Gavriel Salomon, "Teaching for Transfer," *Educational Leadership* 46, no. 1 (Sept. 1988): 22-32.

[27] Carl R. Rogers, "The Characteristics of a Helping Relationship," *Personnel and Guidance Journal* 37, no. 1 (1958): 6-16.

"Patient-centered care" takes into consideration the moral responsibilities in the provision of care and the obligation to treat patients as persons within the context of their lives.[28]

The humanities are tools that create learning experiences by stimulating insight. They create associations between unrelated subjects, tie scientific knowledge to practice, and promote patient-centered attitudes and behaviors toward health care; therefore, use of Medical Humanities instruction along with SL experiences enhances their effectiveness and keeps SL from becoming just another educational fad. Furthermore, instead of using SL activities merely to acclimate students to alternate practice environments and inculcate a misguided notion of altruism in such practices, SL could be leveraged forward to include the dimensions of social responsibility and the imperative for providing advocacy to and care of the vulnerable and underserved populations. Service learning experiences have the potential to shape how future providers define their career and ethical responsibilities, but require additional preparation regarding the narratives surrounding the lives of poor people, the causes of poverty, the relationship between poverty and compromised health, and attention to the organization of care delivery in relation to provider-patient interactions. Before providing dental services through SL,

[28] Ronald M. Epstein and Richard L. Street, Jr., "The Values and Value of Patient-Centered Care," Annals of Family Medicine 9, no. 2 (March 2011): 100-103; Rogers, 6-16; Ronda G. Hughes, "Overview and Summary: Patient-Centered Care: Challenges and Rewards," *The Online Journal of Issues in Nursing* 16, no. 2 (May 2011), http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-16-2011/No2-May-2011/Overview-and-Summary-Patient-Centered-Care.html?css=print (accessed October 30, 2014).

there must be specific academic and curricular preparation in addition to the traditional emphasis on technical competence.[29]

In order to offer patient-centered care, dental and dental hygiene students need a contextualized understanding of their patients' lives and backgrounds. Integration of humanities training with SL addresses major gaps in dental curricula critical to improvements in current and future oral health and healthcare issues, as we shall see in Chapter 1.

[29] Whipp, 860-866.

CHAPTER 1

BACKGROUND AND LITERATURE REVIEW

The World Health Organization (WHO) describes oral health as:

> essential to general health and quality of life. It is a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing [*sic*].[30]

Moreover, there is emerging evidence to support associations between poor oral health status and poor general health, including failure to thrive (in children) and diabetes, heart disease, and stroke (in adults) giving weight to the importance of oral health to general health and quality of life.[31] Despite rapid growth of scientific knowledge relating to oral health and its connection to general well-being, disparities in oral disease burden exist in vulnerable U.S. populations.[32] Support for the existence of an oral health care crisis is identified by national political leaders and throughout the dental and public

[30] World Health Organization, *Oral Health. Fact sheet No 318* (Geneva, CH: WHO Publications, Apr. 2012), http://www.who.int/meidacentre/factsheets/fs318/en/ (accessed March 18, 2014).

[31] Ann L. Greenwall et al., "Longitudinal Evaluation of Caries Patterns from the Primary to the Mixed Dentition," *Pediatric Dentistry* 12 (Oct. 1990): 278-282; Lillian Bensley, Juliet VenEenwyk, and Eric M. Ossiander, "Associations of Self-Reported Periodontal Disease with Metabolic Syndrome and Number of Self-Reported Chronic Conditions," *Preventing Chronic Disease* 8, no. 3 (May 2011): A50; Michael L. Barnett, "The Oral-Systemic Disease Connection," *Journal of the American Dental Association* 137, S2 (Oct. 2006):S5-S6; Yiping W. Han, et al., "Periodontal Disease, Atherosclerosis, Adverse Pregnancy Outcomes, and Head-and-Neck Cancer," *Advances in Dental Research* 26, no. 1 (May 2014): 47-55.

[32] U.S. Department of Health and Human Services, *Oral Health in America,* 1-13.

health literature.[33] This evidence offers rather poignant contrasts between populations benefiting from oral health and the un-served and under-served populations, and include support for prevailing notions that failure to improve oral health problems leads to pain and suffering, complications to individual well-being, economic and social costs, loss of quality of life, and increased burden on society. Additionally, the aforementioned identify dentists and dental hygienists as stakeholders in oral health care with suggestions for collaborative efforts to eliminate access to care shortcomings. Relevant to this dissertation is previous work in support of the physical, social, psychological, and economic consequences of oral disease and the need for more research in this area.[34] Leaders within the dental education community and the American Dental Educators Association (ADEA), a leading U.S. and Canadian organization for dental education, suggest dental education has adjusted insufficiently to the oral health needs of the

[33] U.S. Department of Health and Human Services, *Oral Health in America,* 2-4; Clemencia Vargas and Cynthia R. Ronzio, "Disparities in Early Childhood Caries," *BioMed Central Oral Health* 6, S1 (June 2006): S3; National Center for Health Statistics, Bruce A. Dye et al., "Trends in Oral Health Status: United States, 1988-1994 and 1999-2004," *Vital Health Statistics Series* 11, no. 248 (Apr. 2007); Institute of Medicine of the National Academies, Advising the Nation: Improving Health, *Advancing Oral Health in America*, (April 2011), http://www.hrsa.gov/publichealth/clinical/oralhealth/advancingoralhealth.pdf (accessed March 18, 2014); U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and the National Institutes of Health, National Institute of Dental and Craniofacial Research, *A National Call to Action to Promote Oral Health*, Rockville, (Rockville, MD: NIH Publication, May 2003) 03-5303; Paul Newacheck et al., "The Unmet Health Needs of America's Children," *Pediatrics* 105, no. S3 (April 1, 2000): 989-997*;* Taís de Souza Barbosa and Maria Beatriz Duarte Gavião, "Oral-Health Related Quality of Life and Children: Part I. How Well Do Children Know Themselves? A Systematic Review,*" International Journal of Dental Hygiene* 6, no. 2 (May 2008): 93-99.

[34] Harold C. Slavkin and Bruce J. Baum, "Relationship of Dental and Oral Pathology to Systemic Illness," *The Journal of the American Medical Association* 284, no. 10 (Sept. 2000): 2015-17; S.O. Griffin et al., "Dental Services Costs and Factors Associated with Hospitalization for Medicaid-Eligible Children, Louisiana 1996-97," *Journal of Public Health Dentistry* 60, no. 1 (Winter 2000): 21-23.

changing population, should address the problem as a moral imperative, and identify major gaps in current dental curricula with recommendations for change.[35]

Calls for Reform to Meet Oral Health Needs

Dental education, with its fast-growing practice and knowledge base, strives for quality and growth in all its educational degree programs, but falls short of graduating healthcare providers with "an appropriate vision of their role as a health professional in the context of community,"[36] dedicated to prevention-based practice, work force change, and consideration for underserved populations unimpeded by personal ambition. Dental institutions need to provide experiences that will better cultivate such interests and counterbalance possible impediments.[37] In May 2000, former Surgeon General David Satcher released a report, *Oral Health in America* (SGROH), which drew attention to the oral health care crisis affecting our nation's children.[38] Dental caries—though largely preventable through oral hygiene, use of fluorides, and sealants—is the most common chronic childhood disease among children between five to seventeen years of age.[39] In

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[35] N. Haden et al., "Improving the Oral Health Status of All Americans: Roles and Responsibilities of Academic Dental Institutions,"563-83; Dominick P. DePaola, *"*The Revitalization of U.S. Dental Education,*"* *Journal of Dental Education* 72 no. 2 (1 February 2008): S28-42; Judith Albino, Marita R. Inglehart, and Lisa A. Tedesco, "Dental Education and Changing Oral Health Care Needs: Disparities and Demands," *Journal of Dental Education* 76, no. 1 (Jan. 2012): 75-88.

[36] Karen M. Yoder, "A Framework for Service-Learning in Dental Education," *Journal of Dental Education* 70, no. 2 (Feb. 2006): 115.

[37] Yoder, 115.

[38] U.S. Department of Health and Human Services, *Oral Health in America*, 1-6.

[39] U.S. Department of Health and Human Services, *Oral Health in America,* 2-4; P. W. Newacheck et al., 989-997; Wendy Mouradian, Elizabeth Wehr, and James Crall, "Disparities in Children's

2003, the former Surgeon General Richard H. Carmona released a follow-up "National Call to Action to Promote Oral Health" that emphasized the lack of access to oral health care for many Americans, especially minorities and the poor or uninsured, and particularly called for change in health professions education to eliminate those problems.[40] The U.S. Department of Health and Human Services' Healthy People 2020 renews attention to the existence of oral health disparities at all ages and levels (individual, community, state, and national) and provides management goals and objectives for improving the health of all Americans, including oral health. Major aims of the document include the need to do the following:

- Increase awareness of the importance of oral health to overall health and well-being.
- Increase acceptance and adoption of effective preventive interventions.
- Reduce disparities in access to effective preventive and dental treatment services.[41]

Unfortunately, these goals are at odds with available data regarding trends in dental services and expenditure. For example, while dental spending is projected to increase at an annual rate of five percent through 2021 (to 177.1 billion dollars),[42] there

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Oral Health and Access to Care," *Journal of the American Medical Association* 284, no. 20 (Nov. 2000): 2625-2631; Bruce A. Dye et al., 1-92.

[40] U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of health, *National Call to Action to Promote Oral Health*: A Public-Private Partnership under the leadership of the Office of the Surgeon General, (Rockville, Maryland, 2003), 1-6.

[41] U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, *Healthy People 2020: Improving the Health of Americans, 2020 Topics and Objectives, Oral Health*, (Washington, D.C., Dec. 2010), http://www.healthypeople.gov/2020/topics-objectives/topic/oral-health (accessed March 18, 2014).

[42] Sean P. Keehan et al., "National Health Spending Projections through 2020: Economic Recovery and Reform Drive Faster Spending Growth," *Health Affairs* 30, no. 8 (July 2011): 1594-1605.

continue to be "profound and consequential oral health disparities within racial and ethnic minorities, rural populations, individuals with disabilities, the homeless, immigrants, migrant workers, the very young and the elderly."[43] A report released in May 2012 on dental spending from the Federal Agency for Healthcare Research and Quality shows a population-wide inadequate use of dental services in the United States for 2011.[44] Although disturbing, it comes as no surprise that groups identified with the greatest disease burden, are underutilizing dental services. Approximately half of minors five to seventeen years of age were reported to have no expenses for dental services during 2011, as well as two-thirds of adults eighteen to forty-four years of age, and more than half of those forty-five years old and older.[45] The report shows people living in rural areas—as compared to metropolitan areas—and those with public health insurance spend less on dental services.[46] According to the report, near poor and poor populations access care less than high-income populations, as well as fewer men than women and Hispanics than white non-Hispanics.[47] Within a similar timeframe, a report from the National Center for Health Statistics shows twenty-nine percent of the disabled population, another

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[43] U.S. Department of Health and Human Services, *National Call to Action to Promote Oral Health*: A Public-Private Partnership under the leadership of the Office of the Surgeon General, 1-6.

[44] For Table 1 Dental Services Expenses, 2011 see Appendix B. U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality (AHRQ), *Dental Services-Mean Median Expenses per Person with Expense and Distribution of Expenses by Source of Payment: United States,* 2011, *All Dental Visits*, Medical Expenditure Panel Survey Household Component Data (May 2012), http://meps.ahrq.gov/mepsweb/data_stats/tables_compendia_hh_interactive.jsp. (accessed March 18, 2014).

[45] U.S. Department of Health and Human Services, AHRQ, (May 2012).

[46] U.S. Department of Health and Human Services, AHRQ, (May 2012).

[47] For Table 2 Dental Services Expenses, 2011 see Appendix B. U.S. Department of Health and Human Services, AHRQ, (May 2012).

underserved group, did not use dental services because of cost.[48] The elderly population is another segment of the underserved dental community affected by the on-going crisis in dental care. For example, even though a 2011 census reflects fourteen percent (one in seven) of Americans are over sixty-five years of age, [49] the 2011 dental expenditure for this group made up only 17.5 percent of all expenditures for dental services—sixty-nine percent of which came "out of pocket." [50]

In a recent article, Wolff, Schenkel, and Allen discuss the impending crisis in oral health care of the U.S. ageing population with suggestions for change in dental curricula that include competencies with the requisite skills for graduate student competence in eldercare.[51] The authors draw attention to current U.S. education guidelines and accreditation standards for care that are "relatively broad and ill-defined references to the ageing population."[52] With respect to training of future oral health providers, Wolff, Schenkel, and Allen argue,

> Significant time spent in experiential learning of clinical skills, ranging from communication with patients and caregivers to restorative skills development, has been demonstrated to improve interprofessional interaction and new graduate

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[48] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Health (under Health, United States, 2011) *With Special Feature on Socioeconomic Status and Health (*Hyattsville, M.D, 2012): 35-36, http://www.cdc.gov/ nchs/data/hus11.pdf (accessed March 19, 2014).

[49] U.S. Bureau of the Census, The Older Population in the United States: 2011, *Current Population Survey, Annual Social and Economic Supplement* (November 28, 2012), http://www.census.gov/population/age/date/2011.html (accessed March 30, 2014).

[50] U.S. Department of Health and Human Services, AHRQ, (May 2012).

[51] Mark S. Wolff, Andrew B. Schenkel, and Kenneth L. Allen, "Delivering the Evidence—Skill Mix and Education for Elder Care," *Gerontology* 31, no. S1 (Jan. 2014): S60-S66.

[52] Wolff, Schenkel, and Allen, S62.

comfort in treatments of dependent and non-dependent elders in any environment.[53]

This finding reflects three prevailing attitudes within the dental literature:

- Student competency needs to improve in regard to the care of special patients (with complex medical needs) within multiple environments;[54]
- More emphasis should be placed on cultivating "social consciousness" in future practitioners;[55]
- A social responsibility approach (a care-model based on social responsibility) has value in dental education and "merits attention."[56]

Additionally, the authors recommend increases in "depth and longevity" of education to improve student attitudes, competency and oral health outcomes. Based on a similar premise, Welie and Rule advocate the creation of "moral competencies" for

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[53] Wolff, Schenkel, and Allen, S62.

[54] Elizabeth Mertz and Edward O'Neil, The Growing Challenge of Providing Oral Health Care Services to All Americans," *Health Affairs* 21, no.5 (Sept. 2002): 74.

[55] Wolff, Schenkel, and Allen, S62; S. Dharamsi et al., "Nurturing Social Responsibility through Community Service-Learning: Lessons Learned from a Pilot Project," *Medical Teacher* 32, no. 11 (2010): 905-11; A. K. Kumagai and L. L. Lypson, "Beyond Cultural Competence: Critical Consciousness, Social Justice, and Multicultural Education," *Academic Medicine* 84, no. 6 (June 2009): 782-7; Blue, 1044; Ronda, DeMattei, Jessica Allen, and Breanna Goss, "A Service-Learning Project to Eliminate Barriers to Oral Care for Children with Special Health Care Needs," *The Journal of School Nursing* 28, no. 2 (June 2012): 171; J. S. Holtzman and H. Seirawan, Impact of Community Oral Health Experiences on Dental Students' Attitudes Toward Caring for the Underserved," *Journal of Dental Education* 73, no. 3 (March 2009): 303-1; Ruth Ann Belnap, "Teaching Social Justice Using a Pedagogy of Engagement," *Nurse Educator* 33, no. 1 (Jan.-Feb. 2008): 9-12; David A. Nash, "A Tension Between Two Cultures…Dentistry as a Professions and Dentistry as Proprietary," *Journal of Dental Education* 58, no. 4 (1994): 301-306.

[56] Wolff, Schenkel, and Allen, 65; Marilyn W. Woolfolk, "The Social Responsibility Model," *Journal of Dental Education* 57, no. 5 (May 1993): 346-352.

virtues intrinsic to positive patient care outcomes.[57] Finally, Wolff, Schenkel and Allen contend that adequate delivery of oral health care to vulnerable populations such as the elderly depends on an increased emphasis on interprofessional practice and expansion of the dental work force by enlarging the scope of practice for the "non-dentist."[58]

Dental educational literature provides historical overviews of past, current, and future ways educational institutions have addressed oral health care issues.[59] The body of literature universally cites the importance of using the best evidence and reasoning skills in clinical dental education, but highlights their inability to address challenges in dental health.[60] The aforementioned authors claim innovations such as integrative and

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[57] Jos V. M. Welie and James T. Rule, "Overcoming Isolationism. Moral Competencies, Virtues and the Importance of Connectedness," In: Jos V. M. Welie (Ed.): *Justice in Oral Health Car: Ethical and Educational Perspectives (*Milwaukee: Marquette University Press, 2006): 97-125.

[58] Wolff, Schenkel, and Allen, 65; Gary A. Colangelo, "Innovations to improve Oral Health Care Access," *Dental Clinics of North America* 53, no. 3 (July 2009): 602-603; Raul Garcia and Woosung Sohn, 42; M. A. Pyle and E. P. Stoller, "Oral Health Disparities among the Elderly: Interdisciplinary Challenges for the Future," *Journal of Dental Education* 67, no. 12 (Dec. 2003): 1327-36; Allison A. Vanderbilt et al., "Health Disparities among Highly Vulnerable Populations in the United States: a Call to Action for Medical and Oral Health Care," *Medical Education Online* (March 26, 2013), http://www.ncbi.nlm.nih.gov.ezproxy.med.nyu.edu/pmc/articles/PMC3609999/ (accessed March 18, 2014); Sue Seale, Alton McWhorter, and Wendy Mouradian, "Dental Education's Role in Improving Children's Oral Health and Access to Care." *Academic Pediatrics* 9, no. 6 (Nov.-Dec. 2009): 440-445; Allan J. Formicola, et al., "Interprofessional Education in U.S. and Canadian Dental Schools: An ADEA Team Study Group Report," *Journal of Dental Education* 76, no. 9 (September 2012): 1250-1268.

[59] N. Karl Haden et al., "Changes in Dental School Curricula, 2003-2009," *Journal of the American College of Dentists* 77, no. 2 (Summer 2010): 27-33; N. Karl Haden et al., "The Dental Education Environment," *Journal of Dental Education* 70, no. 12 (Dec. 2006): 1265-70; American Dental Education Association (ADEA), "Competencies for the New General Dentist: As Approved by the ADEA House of Delegates April 2, 2008," *Journal of Dental Education* 75, no. 7 (July 2011): 932-935; A. M. Iacopino, "The Influence of "New Science" on Dental Education: Current Concepts, Trends, and Models for the Future," *Journal of Dental Education* 72, no. 2 (April 2007): 450-462; Marilyn J. Field, ed., *Dental Education at the Crossroads: Challenges and Change, An Institute of Medicine Report.* (Washington, DC: National Academies Press, 2001).

[60] Harold C. Slavkin, "Evolutions of the Scientific Basis for Dentistry and its Impact on Dental Education: Past, Present, and Future," *Journal of Dental Education* 76, no. 1 (January 2012): 28-35; Shiva Khatami and Michael I. MacEntee, "Evolution of Clinical Reasoning in Dental Education," *Journal of Dental Education* 75, no. 3 (March 2011): 321-28; Garcia and Sohn, 136-45; Nash, 567-578.

multidisciplinary curricula are needed to improve dental education and the quality of and access to oral health care in the United States.[61] They address the need for systematic change in dental education as a matter of justice (including expansion of the oral health work force and implementation of community- and school-based models for oral health care delivery. Additionally, the authors support the need for development of a more meaningful and effective curriculum such as a prevention-oriented curriculum—that emphasizes the role of empathy and ethics—aimed at improving oral health for all.[62] The literature underscores the position that, despite the explosion in dental science and technology, dental health professionals have unsuccessfully implemented evidence-based preventive practices, and there remain roadblocks in transferring scientific information into practice in dental education.

In 1989, the Pew Charitable Trusts assembled the Pew Health Professions Commission to explore ways in which health professions education in the United States could be improved to address future health care and management concerns such as commitment to diversity, universal access for fairness, and political action in advance of public policy affecting the healthcare system.[63] Between 1989 and 1999, the Commission generated a series of reports that influenced national dialogue regarding health professions education reforms and developed the "Twenty-One Competencies for the

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[61] Slavkin, 28-35; Khatami and MacEntee, 321-28; Garcia and Sohn, 136-45; Nash, 567-578.

[62] Slavkin, 28-35; Khatami and MacEntee, 321-28; Garcia and Sohn, 136-45; Nash, 567-578.

[63] Edward H. O'Neil, Daniel Shugars, and James D. Bader, "Health Professions Education for the Future: Schools in Service to the Nation: Report of the Pew Health Professions Commission (San Francisco: Pew Health Professions Commission, 1993).

Twenty-First Century."[64] The competencies reflect the "highest level of practice for health professionals" with knowledge and skills that include: social responsibility; relationship-centered care; community partnerships; cultural sensitivity in care; critical thinking, reflection, and problem-solving; professionalism; understanding of the complex determinants of health; interprofessional teamwork; and advocacy policy.[65] The Pew Commission convened to develop strategies specific to dental health professions education. They confirmed a need for innovation in pre-doctoral dental curricula and identified the dental schools' role as innovational leaders;[66] however, problems exist in helping students turn new skills into effective practice models.[67] This process of connecting academic experience with behavior in professional life requires special curricular improvements. O'Neil and Ngai offer insight into opportunities for reform in oral health service through community-based learning.[68] They contend that using community institutions for service and education increases accessibility of oral health services and provides education with a "greater potential for cultural competence and sensitivity to the local community's needs."[69]

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[64] Edward H. O'Neil and the Pew Health Professions Commission, *Recreating Health Professional Practice for a New Century: The Fourth Report of the Pew Health Professions Commission* (San Francisco, CA: Pew Health Professions Commission, December 1998): 1-142.

[65] O'Neil and PHPC, vii.

[66] O'Neil and Barker, 469-474.

[67] Slavkin, 28-35.

[68] O'Neil and Ngai, e1-e3.

[69] O'Neil and Ngai, e1-e3.

Community-Based Service Learning

In response to major national health initiatives alluded to previously, dental schools have begun incorporating community-based service learning (SL) models within the curriculum. Service learning is defined in a number of ways by agencies, institutions and researchers presenting both challenges and flexibility in research and application. Consequently, researchers, agencies and practitioners have made efforts to standardize the definition. According to the U.S. Department of Education's National Center for Education Statistics (NCES) in its 1999 National Student Service Learning and Community Service Survey, SL is defined as a "curriculum-based community service that integrates classroom instruction with community service activities."[70] By definition, SL must be integrated within the curriculum with structured reflection and critical analysis assignments, have well-articulated behavioral objectives, and address community needs within an agreed upon period.[71] On the other hand, "community-service" is characterized as "community service activities that are non-curriculum based and are recognized by and/or arranged through the school. The community services may be mandatory or voluntary, and do not include specific learning objectives …" or organized reflective or specific analytical activities supported within the curriculum.[72] Most dental institutions have encouraged the latter type of student "community service"

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[70] Rebecca Skinner Westat and Chris Chapman, *Service-Learning and Community Service in K-12 Public Schools*, U.S. Department of Education, Report of the Office of Educational Research and Improvement, National Center for Education Statistics (September 1999), NCES Publication No.1999-043 (Washington, DC): 1-18, http://nces.ed.gov/pubs99/1999043.pdf (accessed March 18, 2014).

[71] Westat and Chapman, 3.

[72] Westat and Chapman, 3.

for research and/or altruistic purposes. However, because community service is a voluntary activity that lacks concrete objectives and methods of assessment, meaningful articulation within the curriculum is difficult. Accordingly, a move to incorporate a more structured type of service learning into clinical experiences (with stated competencies, objectives and assessments for learning) seems logical. These structural changes may promote improvements in tracking performance changes, quality of care, and positive outcomes for all involved.

According to Strauss et al., "Addressing issues of equity and access both inside and outside of higher education is a hallmark of service-learning …."[73] The Commission on Dental Accreditation provides a definition of service learning in the 2010 Standards for Dental Education Programs as: "A structured experience with specific learning objectives that combines community service with academic preparation."[74] SL helps students learn about the roles of dental professionals as it strengthens professional identities, improves helping behaviors and facilitates interprofessional collaboration through delivery of patient care in response to community-based problems.[75] It is a

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[73] Strauss et al., "The Impact," S50.

[74] Commission on Dental Education, 18.

[75] Nancy T. Keselyak et al., "Evaluation of an Academic Service-Learning Course on Special Needs Patients for Dental Hygiene Students: a Qualitative Study. *Journal of Dental Education* 71, no. 3 (March 2007): 378-392; DeMattei, Allen, and Goss, 168-174; Sara C. Brydges and Ann Gwozdek, "Assessment of the University of Michigan's Dental Hygiene Partnership with the Huron Valley Boys & Girls Club: a Study of Students' and Staffs' Perceptions and Service Learning Outcomes," *Journal of Dental Hygiene* 85, no. 4 (Fall 2011): 316–325; Faith Miller, "The Utilization of Dental Hygiene Students in School- Based Dental Sealant Programs," *Journal of Dental Hygiene* 79, no. 4 (October 2011): 11, http://web.b.ebscohost.com.ezproxy.med.nyu.edu/ehost/pdfviewer/pdfviewer? sid=88511e04-4ef3-4f14-87bb-6aa5fb65ef70%40sessionmgr110&vid=2&hid=101 (accessed February 13, 2015); Seale, McWhorter, and Mouradian, 440-445; Robert E. Aston-Brown, et al., "Utilizing Public Health Clinics for Service-

clinical teaching-learning strategy combining educational activities with meaningful service. SL is an experiential way of learning based on a "partnership"[76] between academic institutions and community agencies. This association is a reciprocal one whereby community partners, students and educational institutions collaborate in the identification of community needs and service and learning objectives. The "partnership" is said to be most useful when the benefits are shared.[77] Consequently, student projects are designed and implemented with the intention of simultaneously addressing community needs while achieving learning goals. Accordingly, SL experiences are engineered carefully to create linkages between the service experience and learning outcomes through mutually beneficial SL objectives and activities.[78]

Service learning is becoming one of the most recommended experiential learning activities.[79] In 2009, SL increased in notoriety when President Obama signed the Edward M. Kennedy Serve America Act that provides resources to involve students of all ages in national service programs. Known originally as the National and Community Service Act

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Learning Rotations in Dental Hygiene: A Four-Year Retrospective Study," *Journal of Dental Education* 73, no. 3 ((March 2009): 358-373.

[76] Alma Poweel and Marguerite Kondracke, *Service-Learning and the Five Promises in Growing to Greatness: The State of Service Learning,* A Report from the National Youth Leadership Council (2008), (St. Paul, MN), 1-164, http://nylc.org/ objects/publications/8030548 _Body.pdf (accessed August 21, 2014).

[77] Poweel and Kondracke, 1-164.

[78] S. D. Seiffer, "Service-Learning: Community-Campus Partnerships for Health Professions Education. *Academic Medicine* 73, no. 3 (Mar. 1998): 273-277.

[79] Corporation for National & Community Service, *Edward M. Kennedy Serve America Act: Overview of the Edward M. Kennedy Serve America Act of 2009* (Washington DC, Government Printing Office, April, 2010), http://nationalservice.gov/ about/legislation/edward-m-kennedy-serve-america-act (accessed August 21, 2014).

of 1990, it was amended and enacted in April 2009, by the Serve America Act (S. 277) to "dramatically expand opportunities for Americans to serve, to focus on critical national issues, [and] to be a catalyst for social innovation ….."[80] The funds are controlled by the Corporation for National and Community Service (CNCS). Additionally, CNCS has a website offering information and support for community service ranging from individual federal initiatives to discussion blogs with the intention of solving a number of domestic problems, including health.[81]

Role of Humanities in Making Service Learning Meaningful

Burton L. Edelstein, professor of dentistry and health policy at Columbia University, dental scholar, and Founding President of the Children's Dental Health Project (CDHP) offers compelling testimony in a 2012 report, "Dental Care Crisis in America," to the U.S. Subcommittee on Primary Health and Aging of the U.S. Senate Committee on Health, Education, and Labor & Pensions. Edelstein concludes Congress considers dental care "optional" for the elderly.[82] This report to the U.S. Senate addresses the on-going crisis that millions of Americans lack access to dental care because of cost

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[80] Corporation for National & Community Service. *Edward M. Kennedy Serve America Act: Overview of the Edward M. Kennedy Serve America Act of 2009*; National and Community Service Act of 1990, S. 277, Public Law 101–610, Nov. 16, 1990, 104 Stat. 3127) (42 U.S.C. 12501 et seq.) As Amended Through P.L. 111–13, Enacted April 21, 2009 (Washington DC: Government Printing Office), 1-181, http://www.nationalservice.gov/sites/default/files/documents/1990_serviceact_as%20amended%20through%20pl%20111-13.pdf (accessed August 21, 2014).

[81] Corporation for National & Community Service, *Edward M. Kennedy Serve America Act: Overview of the Edward M. Kennedy Serve America Act of 2009.*

[82] Burton Edelstein, Testimony before the U.S. Senate Subcommittee on Primary Health and Aging, 2/29/12. http://help.senate.gov/imo/media/doc/Edelstein.pdf (accessed March 19, 2014).

and inadequate insurance and government policies. The commentary supports decades of evidence emphasizing disparities in the delivery of dental care and need for dental health services. Additionally, Dr. Edelstein provides more evidence of the need to develop legislative support for oral healthcare services for minority populations and increase availability of oral healthcare providers for underserved populations. Changes to the American population are plainly visible, but the dental profession is unprepared to address those changes.[83]

Even though the dental profession pioneered to implement water fluoridation—one of the most important public health measures of the twentieth century—it has stagnated with respect to other important anticaries measures such as dental sealants. Systematic reviews and expert testimony show dental sealants are effective in caries reduction—at the highest level of evidence[84]—to "reduce the need for subsequent treatment and prolong the time until treatment may be necessary"[85] for future restorations. Despite this evidence, "over two-thirds of American children" do not benefit from sealants.[86] It is well known that patient-centered care relies on use of risk assessment to improve long-term oral health outcomes, yet less emphasis is placed on

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[83] Barry Waldman and Steven P. Perlman, "Community-Based Dental Services for Patients with Special Needs: A Reasonable Goal for New York State," *New York State Dental Journal* 67, no. 2 (Feb 2001): 39-42.

[84] Jean Beauchamp et al., "Evidence-Based Clinical Recommendations for the Use of Pit-and-Fissure-Sealants: A Report of the American Dental Association Council on Scientific Affairs," *Journal of the American Dental Association* 139, no. 3 (March 2008): 257-268.

[85] P. J. Bhuridej et al., "Natural History of Treatment Outcomes of Permanent first Molars: a Study of Sealant Effectiveness," *Journal of the American Dental* Association 136, no. 9 (Sept. 2005): 1272.

[86] Garcia and Sohn, 40.

assessing and managing risk in health care than treating acute diseases. Also, because of specious antifluoridation claims, "almost one-third of all Americans who could benefit from community water fluoridation (CWF) still lack the benefits,"[87] even though high-quality research reflects otherwise. There appear to be impediments to the application of best practices in oral health care.

In response, dental public health scholars identify the need to move to a prevention oriented practice model to adequately address the oral healthcare needs of a changing U.S. population.[88] Students should be better prepared for evidence-based and prevention-based practices as well as promotion and utilization of new work forces to support current dental work force shortages and projected declines in numbers. The U.S. Department of Health and Human Services (HHS) reported that a distressing forty-five million Americans live in "shortage areas"[89] and more than one-third of U.S. dentists are nearing retirement.[90] It is suggested that our "current oral health work force has reserve capacity"[91] and future dentists should be taught to be committed to communities in need and to promote ways to advance existing reserves of allied dental professionals to

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[87] Centers for Disease Control and Prevention (CDC). Population receiving Optimally Fluoridated Public Drinking Water—United States, 1992-2006. MMWR2008; 57 (27): 737-41, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5727a1.htm (accessed May 5, 2014).

[88] Garcia and Sohn, 36.

[89] U.S. Department of Health and Human Services, Health Resources and Services Administration, State Population and Health Professional Shortage Areas Designation Population Statistics, http://www.hrsa.gov/shortage/(accessed January 9, 2013).

[90] American Dental Association Survey Center, Distribution of Dentists in the United States by Region and State, 2009 (Chicago: American Dental Association, 2011): 26.

[91] N. K. Haden et al., "Improving the Oral Health Status of all Americans: Roles and Responsibilities of Academic Dental Institutions: the Report of the ADEA President's Commission, *Journal of Dental Education* 67, no. 5(2003): 563-583.

address those shortages.[92] "RDH's [Registered Dental Hygienist's], with their occupational growth and focus on preventive care, may be the oral health professionals best poised to address issues of access."[93]

For decades, dental hygienists have directly provided under-served and un-served populations in some states with oral health preventive and promotive services.[94] The American Dental Hygienists' Association (ADHA) states direct access to care "allows a dental hygienist the right to initiate treatment based on his or her assessment of a patient's needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and maintain a provider-patient relationship."[95] It seems logical that individual state imposed constraints to and restrictions on dental hygiene scope of practice should be explored to determine whether they support or impede needed reforms in the delivery of oral healthcare services and their possible impact on changes. Another way to expand the work force is to utilize a new type of dental "midlevel" provider that is the dental equivalent of a nurse practitioner. The ADHA has developed a master's degree level educational model for a midlevel provider called the Advanced Dental Hygiene

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[92] Institute of Medicine of the National Academies, "The U.S. Oral Health Workforce in the Coming Decade: Workshop Summary" (Washington, DC: The National Academies Press, August 6, 2009), 1-183, http://www.nap.edu/openbook.php?record_ id=12669&page=R9 (accessed January 9, 2013).

[93] Elizabeth Mertz and Edward O'Neil, "The Growing Challenge of Providing Oral Health Care Services to All Americans," *Health Affairs* 21, no. 5 (2002): 72, http://content.healthaffairs.or/content/21/5/65 (accessed August 25, 2014).

[94] Doreen K. Naughton, "Expanding Oral Care Opportunities: Direct Access Care Provided by Dental Hygienists in the United States," *Journal of Evidence Based Dental Practice*, 14, no. S 1 (June 2014): S172.

[95] American Dental Direct-access Hygienists' Association. http//www.adha org/direct-access (accessed October 19, 2014).

Practitioner (ADHP).[96] Alaska, Maine, and Minnesota have established licensure of midlevel providers (dental therapists and advanced dental therapists) with specific educational, examination, and practice requirements.[97] Midlevel providers have been practicing productively in over fifty countries including Australia, the United Kingdom, New Zealand and Canada offering alternate entry into the healthcare system for many previously underserved populations.[98]

Research shows dental education can influence the attitudes toward and ways in which future providers care for patients from underserved patient groups.[99] Therefore, recognizing patient needs and educating students to meet those needs must be a primary goal of dental educational institutions.[100] However, structural changes alone may be incapable of promoting improvements in oral health or sufficiently impacting roadblocks to access care and healthcare delivery issues. To sufficiently deal with the current crisis in oral healthcare, there needs to be a commitment on the part of dental professionals and the dental educational community to finding a balance between the pursuit of carefully reasoned self–interests while furthering those of the patient and society.[101] "Enlightened" or "self-interest properly understood" is an ethical philosophy that Alexis de Tocqueville

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[96] American Dental Hygienists' Association, *Facts About the Dental Hygiene Workforce in the United States* (Chicago, IL, Nov. 2013), http://www.adha.org/resourcesdocs/75118_Facts_About_the_dental_Hygiene_Workforce.pdf (accessed October 5, 2014).

[97] American Dental Hygienists' Association, 1.

[98] D. A. Nash et al. "Dental Therapists: A Global Perspective." *International Dental Journal* 58, no. 2 (Apr. 2008):61-7.

[99] Albino, Inglehart, and Tedesco, 75.

[100] Albino, Inglehart, and Tedesco, 75.

[101] Bertolami, "Ethics," 418.

examines in his work *Democracy in America* that asks, "whether it is not to the individual advantage of each to work for the good of all."[102] According to Bertolami, this type of self-interest requires introspection of one's feelings, beliefs, and concern for long-term personal needs and dreams. Philosophical essayist, Tom Murphy contends that people are not naturally inclined to work for the public good, but can learn through practice and that education is an important counter to "unenlightened self-interest."[103]

The "crisis in dentistry"[104] parallels the decline in its member's ability to properly understand their interest in the provision of quality oral health care and the relationship between the public's trust and their professional status. Though at one time, dental professionals—like physicians—were perceived to be part of a vocation or calling with economic interests a lesser concern, today that professional identity has its detractors as it devotes itself more to the business side of clinical practice than its sense of duty. According to Dharamsi, Pratt and MacEntee, social responsibility in dentistry is deeply impacted by economic necessities.[105] Additionally, because dentistry is mostly private and requires a fee for service, delivery of care is often dictated by insurance plans and profitability. The bioethicist, Larry Churchill claims new health professionals do not come to training with a sense of the "medical professionalism" and "focus on patient's

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[102] Alexis de Tocqueville, *Democracy in America*. (Originally published 1835). Chicago: University of Chicago Press, 2000.

[103] Tom Murphy. "An Angel and A Brute: Self-interest and Individualism in Tocqueville's America." (Summer 1985) http://www.Brtom.org/sjc/sjc4.html (accessed September 21, 2014).

[104] Edelstein, Testimony, 1.

[105] Shafik Dharamsi, Daniel D. Pratt, and Michael L. MacEntee, "How Dentists Account for Social Responsibility: Economic Imperatives and Professional Obligations," *Journal of Dental Education*, 71, no. 12 (2007): 1586.

welfare" that used to be part of the past professional culture.[106] Students, accustomed to the rhetoric of a market economy, readily accept business mores over an ideal of professional morality.[107] Their failure to recognize problems in the commercialization of health care—such as unaffordable costs, service shortages, including lack of special need providers, and difficult access for vulnerable populations—increases the challenges within the profession and becomes a challenge to, as well as an important andragogical consideration in, their professional dental education.

Haden et al. maintain "the dental profession, including academic dental institutions, as the moral community entrusted by society with knowledge and skill about oral health, has the duty to lead the effort to ensure access for all Americans."[108] However, it has been observed that traditional approaches to dental education create barriers by inculcating values counterintuitive to the social obligations of health care rather than "teaching and exhibiting values that prepare the student to enter the profession as a member of a moral community of oral health."[109] According to Robert Coles—American physician and essayist—medical professionals "ought" to lead an examined life in which priorities are scrutinized daily.[110] The essayist considers whether it is

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[106] Larry Churchill, "Teaching Professional Ethics in an Environment of Medical Commercialism," in: *Practicing the Medical Humanities: Engaging Physicians and Patients*, eds. Ronald Carson, Chester Burns, and Thomas Cole (Hagerstown, MD: University Publishing Group, 2003) 10.

[107] Churchill, 14-17.

[108] Haden et al., 568.

[109] Haden et al., 576.

[110] Robert Coles, "Medical Ethics and Living a Life," in *On Doctoring: Stories, Poems, Essays*, eds. Richard Reynolds and John Stone (Simon & Schuster: New York, 2001), 251-258.

possible to live a thoroughly honest and decent life with contradictory private and working life morals.[111]

A more humanistic perspective may promote the utilization of preventive practice, an important factor in management of current and mitigation of future oral health crises. Also, it may balance utilization of evidence for best clinical practice within community learning settings and cultivate appropriate emotions, attitudes and practices not undermined by a faulty system of patient care. And, because community dentistry learning occurs within the context of a "commodified structure of healthcare"[112] (one in which the practitioner's values can be modified on the basis of power and inequality in healthcare practices within vulnerable populations), it cannot realize its full potential as a teaching tool without a complete understanding of poverty, analysis and critique of market-based health care,[113] a better construct of patient-centered care, and an enlightened orientation to professional life; for that, it requires the humanities. Dental schools—though making efforts otherwise—do not always successfully support "teaching the values that prepare the student to enter a morally responsible profession."[114] Perhaps, this occurs because the long-standing tradition of compartmentalizing curricula (formally or informally) is deeply ingrained in many dental educators. This educational approach minimizes integrative learning, creates barriers to inter-professional student

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[111] Coles, 253.

[112] Michele Rivkin-Fish, "Learning the Moral Economy of Commodified Health Care: Community Education, Failed Consumers, and the Shaping of Ethical Clinician-Citizens," *Culture, Medicine and Psychiatry* (June 2011) 35, no. 2: 183-208.

[113] Rivkin-Fish, 205.

[114] N. Karl Haden et al., "Improving," 567.

interaction, and continues to have effects on educational innovation.[115] Faculty who persist in teaching the way they learned material may keep schools from properly implementing change.[116] Instead, schools need to emphasize strategies that maximize the quality of learning by teaching in a "story format, … provid[ing] an integrated learning experience."[117] Also, an over-filled curriculum of an inordinate amount of material that does not give students enough time to pull together ideas to think critically may be another impediment to reform. New to dental schools is the adoption of a type of oral systemic or "spiral" curriculum in which "information is offered in basic science courses and then reinforced at successively higher levels of training and by clinical experiences.[118] As stated above, pressures to reform dental education have resulted in a recommendation for inclusion of interprofessional experiences, problem-based and case-based learning, reflective practices, storytelling, and service-learning experiences in dental education.[119] However, unless innovations are sufficiently supported and utilized

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[115] Dominick P. DePaola and Harold C. Slavkin, "Reforming Dental Health Professions Education: A White Paper," *Journal of Dental Education* 68, no. 11 (Nov. 2004): 1139-1150.

[116] William D. Hendricson et al., "Does Faculty Development Enhance Teaching Effectiveness?" *Journal of Dental Education* 71, no. 13 (2007): 1513-1533; Stewart P. Mennin and Sharon K. Krackov, "Reflections on Relevance, Resistance, and Reform in Medical Education," *Academic Medicine* 73, no. 9 Supplement (September 1998): S60-64.

[117] William D. Hendricson, "Changes in Educational Methodologies in Predoctoral Dental Education: Finding the Perfect Intersection," *Journal of Dental Education* 76, no. 1 ((January 2012): 131. 118-141.

[118] Alan Formicola et al., "Curriculum and Clinical Training in Oral Health for Physicians and Dentists: Report of Panel 2 of the Macy Study*," Journal of Dental Education* 72, S2 (February 2008): S78.

[119] Whipp et al., 860; Cynthia Gadbury-Amyot et al., "Using a Multifaceted Approach Including Community-Based Service-Learning to Enrich formal Ethics Instruction in a Dental School Setting," *Journal of Dental Education* 70, no. 6 (June 2006): 652-661; Hendricson et al., 925-836; A. J. Formicola, et al. "Interprofessional," 1250-1268.

by administrators, faculty, and students (as well as within the curriculum), the new list of andragogical recommendations may be viewed as fleeting trends or fads, unhelpful to students and lacking meaningful positive outcomes.

Serious efforts are being made nationally to increase interprofessional partnerships within dental schools as a means of "cross cutting domains"[120] (integrating aspects of professional education) to better address the changes in healthcare practice. For example, the NYU College of Nursing is part of the NYU College of Dentistry, and has been working (with the Dental College) on ways to address the 2003 Institute of Medicine's (IOM) five core competencies that call for a restructuring of academic and clinical health professions education to include efficient and equitable care for diverse populations. More specifically, the competencies include working as part of interdisciplinary teams, focusing on improvement, employing evidence-based practice, utilizing informatics, and delivering patient-centered care as core concerns.[121]

A year after the release of the IOM competencies (2004), a major study initiative, the *Macy Study* was funded by a three-year grant from the Josiah Macy, Jr. Foundation to find new models of dental education. The study was undertaken by three panels of experts to explore ways to strengthen dental curricula as well as assess the economic and

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[120] A. Formicola et al., "Curriculum," S83-84.

[121] Institute of Medicine of the National Academies, Advising the Nation: Improving Health, Report, *Health Professions Education: A Bridge to Quality,* (April 18, 2003), http://www.iom//Report/2003/Health-Professions-Education-A -Bridge-to-Quality.aspx (accessed March 21, 2014).

political sustainability of the new models.[122] Panel 2 addressed curriculum and clinical training in oral health for physicians and dentists in a report of the same name published in 2008.[123] The report recognizes commonalities in medical and dental curricula in oral-systemic interactions and the need for "cross-cutting domains." Recommendations include the use of multidisciplinary education along with interprofessional collaboration in dental service-learning programs to broaden student understanding of and increase the effectiveness in the healthcare system.[124] This approach emphasizes the formation of an engaged group of health providers with a focus on the students and the sending institution as well as consideration of the impact of service learning on communities served. The report emphasizes the need for support of the learning program through a spiral curriculum and activities such as case studies, "self-assessment and self-reflection, journaling, and using" activities that increase "relevance for dental and medical students."[125] The act of writing, according to psychoanalyst Hans Loewald, is a way to give "material form" to abstract ideas, enabling the writer to make sense of and communicate information that otherwise is unintelligible.[126]

In addition to the use of writing/journaling in education, stories or narratives are central to reflection. Learning through stories, "[n]ot only memoirs but works of narration

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[122] Alan J. Formicola et al., "The Macy Study: A Framework for Consensus." *Journal of Dental Education* 72, S2 (Feb. 2008): S95-97.

[123] A. Formicola et al., "Curriculum," *S*73-85.

[124] A. Formicola et al., "Curriculum," S73-85.

[125] A. Formicola et al., "Curriculum," S83.

[126] Hans Loewald, *Sublimation: Inquiries into Theoretical Psychoanalysis* (New Haven: Yale University Press, 1988), 47.

of all kind—fiction, poetry, drama, essays, journalism …" provides a vehicle for uncovering real knowledge of self (regarding beliefs, perspective, biases, and privileges), events, and others. Consequently, narratives are essential to clinical practice. Practitioners gain access to information through the unfolding of stories, and effective care of patients begins with the ability to elicit and interpret information and finally to act on our shared stories.[127]

Well-planned and supported SL allows students to better understand challenges faced by vulnerable populations as well as to experience social influences of health first-hand. Most critical to that change is that SL activities are more culturally sensitive and realistically patient-centered. Because of that, they "accommodate [patient's] needs for prevention, maintenance and treatment in settings and through institutions that are more effectively integrated within the context of their daily lives."[128] Additionally, in a review of learning programs, Davis et al. particularly recommend the use of service learning in dental schools early in the educational process.[129] Service-learning activities have the potential to shape future providers by creating a balance between personal and social responsibility less confined by the rational cognitive process associated with evidence-based learning and the business mores of a market-based oral healthcare system. Gadbury-Amyot et al. found that well-structured service-learning programs can develop in students the sense of professional ethics that characterizes socially responsible

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[127] Charon and DasGupta, vii-xiii.

[128] O'Neil and Ngai, e2.

[129] Davis et al., 1015.

practitioners.[130] Accordingly, SL experiences need the humanities as an andragogical tool before, during and after implementation.

Community-based SL in dental education is aimed at providing oral health care to the dentally underserved while promoting social responsibility and moral development in future healthcare providers.[131] However, since health and chronic diseases are affected by synergistic relationships between biology, socio-behavior, economics and risk factors, SL requires integration with the humanities to be effective. According to Edmund D. Pellegrino, literature has a "natural affinity" with medicine because they are both "moral enterprises" linked by language.[132] Clearly, this is the notion that Charon and Hunter echo in an argument for the narrative rather than scientific structure of medicine[133] and "how medicine changes when fortified by narrative competence and humanities-derived skills."[134] Indeed, in a systematic review, Werb and Matear remind readers of the role of literary analysis in effective evidence-based practice (EBP). The authors state, "It is important that teachers of critical literature appraisal and evidence-based medical practice

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[130] Gadbury-Amyot et al., 652-661.

[131] Gadbury-Amyot et al., 652-61; Mario A. Brodani, 609-19; Hood, 454-463.

[132] Edmund D. Pelligrino, "To Look Feelingly: The Affinities of Medicine and Literature," *Literature and Medicine* 1, no. 1 (1982): 19-23, http://muse.jhu.edu/ (accessed Jan. 1, 2013).

[133] Rita Charon, "Narrative Medicine: A Model for Empathy, Reflection, Profession, and Trust," *Journal of the American Medical Association* 286, no.15 (October 2001): 1897-1902; K. M. Hunter, *Doctor Stories: The Narrative Structure of Medical Knowledge*. New Jersey: Princeton University Press, 1991.168-173; Rita Charon, "Calculating the Contributions of Humanities to Medical Practice-Motives, Methods, and Metrics," *Academy of Medicine* 85, no., 6 (2010): 935; Kathryn M. Hunter, Rita Charon, John L. Coulehan, "The Study of literature in Medicine," *Academy of Medicine* 70, no. 9 (Sept. 1995): 787-794.

[134] Charon, "Calculating," 935.

consciously find ways of integrating and incorporating the teaching of critical appraisal into routine clinical practice."[135]

In "A Community-based Approach to the Medical Humanities," Donohue and Danielson make a case for an "interdisciplinary curriculum in literature and healthcare" that integrates community service learning. The authors state, "By reflecting on their experiences in light of the readings, covered in class, and their own personal development, students become conscious of the connections between academic and experiential ways of knowing and become more critical thinkers and empathic healers."[136] Moreover, as posited by Evans and Greaves, the integration of the arts and sciences "humanize health carers," help practitioners show regard for human suffering, and make them more rounded people through an interdisciplinary approach that creates "synergy between disciplines."[137] However, the authors explain the emphasis needs to be on the human aspect rather than on the role of the arts. In "The Practice,"[138] nineteenth-century physician and poet, William Carlos Williams urges colleagues to write about and reflect on ways to make authentic attachments that neither stereotype patients nor depersonalize patient interactions. Williams makes eloquent comparisons between his

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[135] S. B. Werb and D. W. Matear, "Implementing Evidence-Based Practice in Undergraduate Teaching: A Systematic Review and Recommendations," *Journal of Dental Education* 68, no. 9 (Sept. 2004): 995-1003.

[136] Donohoe and Danielson, 207.

[137] David Greaves, "Two Conceptions of Medical Humanities," *Nursing Philosophy* 2 (2001): 270-271; Martyn Evans and David Greaves, "Exploring the Medical Humanities," *British Medical Journal* 319 (Nov. 1999): 1216.

[138] William Carlos Williams, "The Practice," in *On Doctoring: Stories, Poems, and Essays*, eds. Richard Reynolds and John Stone (New York: Simon & Schuster, 2001), 52-57.

patients and the highly individual and storied character of poetry, instructing practitioners to read those lives for greater insight into patient care.[139] Years later, Ronald P. Strauss et al. supported Williams' position in "Reflective Learning in Community-Based Dental Education" by stating,

> Patient encounters and experiences in the community alone may not necessarily lead to learning and growth, professional or personal. Worse yet, a model that simply asks students to experience new worlds outside of the dental school could be potentially damaging as an unexamined experience may serve to confirm stereotypes and faulty assumptions about patients. What must be in place is a mechanism that challenges students to draw meaning from their service experiences and to relate them to personal and professional responsibilities.[140]

Instruction in and support for use of the Medical Humanities as links to science learning (through imagination and reflection) and to provide context in patient care is underscored by Rita Charon and Kathryn Hunter.[141] Hunter's, *Doctors' Stories: The Narrative Structure of Medical Knowledge* has been instrumental in the understanding of the narrative rather than scientific structure of medicine. According to Hunter, integrating the patient's point of view during history taking augments its scope and depth of understanding.[142] This perspective is patient-centered rather than clinician-centered because it demands a level of intimacy and frankness that examines patients' problems within the context of their storied lives as a form of "narrative seeing."[143] According to

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[139] Williams, 52-57.

[140] Ronald P. Strauss et al., "Reflective-learning in Community-Based Dental Education," *Journal of Dental Education* 67, no. 11 (November 2001): 1241.

[141] Charon, "Narrative," 1897-1902; Kathryn M. Hunter, *Doctor Stories: The Narrative Structure of Medical Knowledge* (New Jersey: Princeton University Press, 1991), 168-173.

[142] Hunter, 168-173.

[143] Charon and DasGupta, 8.

Levett-Jones, use of narrative in clinical practice helps students "contextualize knowledge and values," and provides insight into the experience as well as a scaffold for reflection.[144] Using literature, videos, art, and narrative seeing to reflect on experience help students find and "contest meaning" as health professionals.

In a 2013 review spanning three decades of scholarship in teaching literature and medicine, Anne Hudson Jones explains the contributions of pioneers in the movement, their influence in its establishment within medicine, and ways in which they continue to shape the evolution of Medical Humanities as a subspecialty.[145] Jones expounds on the views of its pioneering scholars, Joanne Trautmann as a proponent of literature's "instrumental and practical value for clinicians; [and Robert] Coles, on its essential ethical and existential value."[146] It is clear neither author's work embraces literature's inclusion in medical curricula as the infamous "civilizing veneer," but rather "to teach a student to read, in the fullest sense"[147] and to live an exemplary life in and out of work.[148] "… [A] person's work is part of a person's life, and the two combined as lifework must be seen as constantly responsive to the moral decisions that we never stop making, day in

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[144] Tracy L. Levett-Jones, "Facilitating Reflective Practice and Self-Assessment of Competence Through the use of Narratives," *Nurse Education in Practice* 7, no. 2 (March 2007): 112-9. 112.

[145] Anne Hudson Jones, "Why Teach Literature and Medicine? Answers from Three Decades," *Journal of Medical Humanities* 34, no. 4 (01 September 2013), 415-428.

[146] Jones, 416.

[147] Joanne Trautmann, "The Wonders of Literature in Medical Education," in *the Role of the Humanities in Medical Education*, ed. Donnie J. Self (Norfolk: Teagle and Little, 1978), 36.

[148] Coles, 255.

and day out." [149] Between 1992 and 2001, scholarly opinion regarding teaching literature to medical students began to emphasize the inherent structural similarity between literature and medicine—rather than their differences—by identifying medical knowledge and practice as narrative, rather than scientific.[150] Charon, in what has been commonly referred to as a "manifesto of narrative medicine," describes it as "… medicine practiced with the narrative competence to recognize, interpret, and be moved to action by the predicaments of other."[151] According to Charon, narrative medicine is less a new medical specialty and more an approach to clinical practice.[152] Charon states,

> As a model for medical practice, narrative medicine proposes an ideal of care and provides the conceptual and practical means to strive toward that ideal. … Narrative medicine simultaneously offers physicians the means to improve the effectiveness of their work with patients, themselves, their colleagues, and the public.[153]

The literature invites scrutiny of ways to enhance service-learning activities while mitigating possible negative outcomes. For example, Lantz, Bebeau, and Zarkowski in "Status of Ethics Teaching and Learning in U.S. Dental Schools" [154] argue for more studies to identify factors that support and enhance an ethical climate in dental schools.

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[149] Coles, 255.

[150] Hunter, 1991; Rita Charon et al., "Literature and Medicine: Contributions to Clinical Practice," *Annals of Internal Medicine* 122, no. 8 (Apr. 1995): 599-606; Faith McLellan and Ann Hudson Jones, "Why Literature and Medicine?" *Lancet* 348, no, 9020 (July 1996): 109-111.

[151] Charon, Rita. "Narrative Medicine: Form, Function, and Ethics," *Annals of Internal Medicine* 134, no. 1 (Jan. 2001): 83.

[152] Charon, "Narrative Medicine: Form," 83-87.

[153] Charon, "Narrative Medicine: A Model," 1897-1898.

[154] M. S. Lantz, M. J. Bebeau, and P. Zarkowski, "The Status of Ethics Teaching and Learning in U.S. Dental Schools," *Journal of Dental Education* 10 (Oct 2011): 1295-309.

Also, Shapiro and Rucker in "Can Poetry Make Better Doctors? Teaching the Humanities and Arts to Medical Students and Residents at the University of California, Irvine, College of Medicine"[155] suggest some learners may not benefit from arts enhanced methodology. M. Rivkin Fish indicates research into "what kinds of pedagogical interventions are necessary for community-based experiences to have the desired effects—remain severely unexamined."[156] The author emphasizes the importance of repositioning one of Charon's pivotal medical narrative situations;[157] the patient-student relationship (for just and fair practice outcomes), rather than treating patients like "failed consumers" of health care.[158] "Humanities in Undergraduate Medical Education: A Literature Review"[159] identifies the lack of long-term positive evidence of integrating humanities into undergraduate medical education which poses a threat to a continued usefulness. On the other hand, in "Calculating the Contributions of Humanities to Medical Practice—Motives, Methods, and Metrics,"[160] Rita Charon questions the value

[155] Johanna Shapiro and Lloyd Rucker, "Can Poetry Make Better Doctors? Teaching the Humanities and Arts to Medical Students and Residents at the University of California, Irvine, College of Medicine," *Academic Medicine* 78, no. 10 (Oct 2003): 953-957.

[156] Rivkin-Fish, 185.

[157] Charon, "Narrative Medicine: A Model," 1897-1902.

[158] Rivkin-Fish, 187.

[159] Jakob Ousager and Helle Johannessen, "Humanities in Undergraduate Medical Education: A Literature Review," *Academic Medicine* 85, no. 6 (June 2010): 988-998.

[160] Charon, Rita, "Commentary: Calculating the Contributions of Humanities to Medical Practice—Motives, Methods, and Metrics," *Academic Medicine* 85, no. 6 (June 2010): 935-937.

of applying scientific scrutiny to determine the effectiveness of a method intended as an antidote to minute inquiry. [161]

With careful planning, the humanities may provide meaning for and strengthen positive influences of innovative dental education in the preparation of future dental healthcare providers and maximize their potential for addressing disparities and access to care issues in oral health care. Chapter 2 examines how the Medical Humanities work with SL to provide quality oral health care with "empathy, reflection, professionalism, and trustworthiness."[162] As stated by Henry James, humanities develop people who have "the power to be finely aware and richly responsible."[163]

[161] Charon, "Commentary: Calculating," 936.

[162] Charon, "Narrative Medicine: A Model," 1897.

[163] Adrian Dover, ed., The Ladder: A Henry James Website, Preface to volume 5 of the New York edition (*containing*: The Princess Casamassima, 1908), http://www.henryjames.org.uk/prefaces/text05.htm (accessed July 29, 2012).

CHAPTER 2

HUMANITIES AND ORAL HEALTH CARE

Dentistry, like medicine, must be perceived as a moral endeavor because of its concern for patient welfare, and therefore, its dominant scientific and technical aspects need to be enlivened by the humanities to address challenges in oral health care. Using the humanities in dental education such as stories, literature, poetry, personal essays, and videos, can sensitize students to a better understanding of patient needs[164] and "ways of orienting themselves to act effectively in a world of contingency."[165]

Dental education is considered the structural foundation of the nation's health because of its relationship to the prevention of systemic illness and promotion of general wellness.[166] Consequently, academic leaders need to incorporate educational innovations to address twenty-first century challenges:[167] social justice issues such as disparities in

[164] Balis and Rule, 709; Barry Schwartz and Richard Bohay, "Can Patients Help Teach Professionalism and Empathy to Dental Students? Adding Patient Videos to a Lecture Course," *Journal of Dental Education* 76, no. 2 (Feb. 2012): 174-184; Strauss et al., "Reflective-Learning," 1234-1242.

[165] Gary S. Morson, "Prosaics: An Approach to the Humanities," *American Scholar* (Sept. 1988): 518. Contingency is a word commonly associated with uncertainty in universal existence; therefore, students require tools, such as the humanities, as their moral compass to deal with emerging challenges in dental healthcare delivery.

[166] U.S. Department of Health and Human Services, *Oral Health in America,* 308, http://silk.nih.gov/public/hck1ocv.@www.surgeon.fullrpt.pdf (accessed August 12, 2014); E. Lalla and P.N. Papapanou, " Diabetes Mellitus and Periodontitis: a Tale of two Common Interrelated Diseases," *Nature Reviews Endocrinology* 7, no. 12 (2011): 738-748; M.K. Jeffcoat, "Osteoporosis: a Possible Modifying Factor in Oral Bone Loss, " *Annals of Periodontology* 3 (1998); 312-321; Tiejian J. Wu et al., "Examination of the Relationship Between Periodontal Health Status and Cardiovascular Risk Factors: Serum Total and High Density Lipoprotein, Cholesterol, C-reactive Protein, and Plasma Fibrinogen," *American Journal of Epidemiology* 151 (2000): 273-282.

[167] DePaola and Slavkin, 1139-1150; Marsha Pyle et al., "The Case for Change in Dental Education," *Journal of Dental Education* 70, no. 11 (Sept. 2006): 921–924; Dominick P. DePaola, "The

oral health and access to care;[168] work force changes[169] that include expansion of the dental hygiene scope of practice and the creation of therapists (dental practitioners) to alleviate gaps in patient care and perform some procedures currently provided by dentists only; the shift to a prevention-based practice of dentistry;[170] and the preparation of students to enter the profession as members of a "moral community…bound to each other by a set of commonly held ethical commitments and whose purpose is something other than mere self-interest."[171]

In order to effectively make appropriate change in dental health care delivery, accreditation standards for dental degree programs must change.[172] Students require more "integrative, thought-provoking models of education" involving authentic "hands-on learning experiences" and resources to manage on-going and emerging challenges to dental care.[173] Additionally, social learning theory suggests learning is a "social act"[174]

Evolution of Dental Education as a Profession, 1936-2011, and the Role of the *Journal of Dental Education*," *Journal of Dental Education* 76, no. 1 (Jan. 2012): 14-27.

[168] Albino, Inglehart, and Tedesco, 78.

[169] DePaola, "Revitalization," S40.

[170] Garcia and Sohn, 42.

[171] Edmund D. Pellegrino, "The Medical Profession as a Moral Community," *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 66, no. 3 (May-June 1990): 225.

[172] DePaola, "Revitalization," 39.

[173] DePaola, "Revitalization," 29, 32.

[174] Etienne Wenger, "Communities of Practice and Social Learning Systems: the Career of a Concept," in Communities of practice and Social Learning Systems, Organization Articles 7, no. 2 (2000): 226, http://homepages.abdn.ac.uk/n.coutts/pages/Radio4/Articles/Communities%20of%20Practice%20and%20Social%20Learning%20Systems%20Wenger.pdf (accessed December 12, 2014).

involving "participation through communities of practice"[175] as "authentic activities embedded in the real-world contexts."[176] Brown and Duguid call this type of learning a form of education that turns knowledge into practice so naturally that they refer to it as "stolen knowledge."[177] In an Executive Summary on Models of Dental Education presented to attendees of the Macy Study Convocation, DePaola stated,

> This is a profound objective, which in essence is that dental education reform is all about—that is, to produce a new graduate and practitioner who is unlike any of us but who can function in the complex, exciting environment that the twenty-first century demands.[178]

At minimum, dental curricula provide graduates with essential information and skills germane to competent practice, but clearly more is needed. Shuler wrote that curricula must expose graduates to skills that allow them to become "individual[s] committed to embracing the change that will occur in the dental profession."[179] Therefore, dental curricula need to include student-centered andragogy and assessment that practice thinking (through analysis and reflection). If students gain experience asking questions essential to critical thinking and ethical behavior it prepares them to address

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[175] Wenger, 1.

[176] Pearl Chen, "Field Experiences in Instructional Design and Technology: Legitimate Participation and Stolen Knowledge," *Journal of Educational Technology Development and Exchange* 5, no. 1 (Oct. 2012): 21.

[177] John S. Brown and Paul Duguid, "Stolen Knowledge," *Educational Technology Journal, Special Issue on Situated Learning in Focus* 33, no. 3 (March 1993): 10. http://people.ischool.berkeley.edu/~duguid/SLOFI/Stolen_Knowledge.htm (accessed March 29, 2014).

[178] DePaola, "Revitalization," 37.

[179] Charles F. Shuler, "Dental School: Balancing Education and Training," *Journal of Dental Education* 78, no. 5 (May 2014): 655.

problems with best professional practices.[180] According to Balis and Rule, "[i]n aspects of dentistry, understanding the human qualities of our patients helps us to function effectively as healthcare practitioners."[181]

The Surgeon General's Report on Oral Health (SGROH)[182] provides evidence of a problem in oral health care and with the dental profession's acceptance of and inability to deal with the problem in effective ways. The report emphasizes the need to improve access to care and prevention of oral diseases and disorders as well as identifies dentists and hygienists as stakeholders in oral health care.[183] Also, the report specifies dentists and dental hygienists should collaborate in eliminating oral health care shortcomings.[184]

Populations Experiencing Problems in Oral Health

When the Surgeon General reported that dental caries is the leading childhood disease, [185] the implications to the health of our nation's children became even more impactful to the dental community. Low-income and minority children bear the burden of dental disease and have worse oral health outcomes than their higher-income

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[180] Shuler, 655.

[181] Balis and Rule, 709.

[182] U.S. Department of Health and Human Services, *Oral Health in America,* 2-4.

[183] U.S. Department of Health and Human Services, *Oral Health in America,* 1-6.

[184] U.S. Department of Health and Human Services, *Oral Health in America,* 1-6.

[185] U.S. Department of Health and Human Services, *Oral Health in America,* 1-6.

counterparts.[186] Poor people have less access to preventive care and fewer dental visits.[187] Also, "[f]or each child without medical insurance, there are at least 2.6 children without dental insurance."[188] In 2013, only "twenty-three percent of children" in the United States "received a dental treatment service" even though states are required to provide dental care through Medicaid.[189] "More than four million children aged seventeen and younger had unmet dental needs in 2011 because their families could not afford dental care."[190] Decayed teeth in children from low-income households are more likely to remain untreated, and decayed teeth in Black and Hispanic children go untreated regardless of household income.[191] American Indian and Alaskan Native (AI/AN) children have the highest rates of dental caries in the country.[192] Early childhood caries (ECC)[193] is also

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[186] Clemencia Vargas, J. Crall, and D. Schneider, "Sociodemographic Distribution of Pediatric Dental Caries: NHANES III, 1988-1994," *Journal of the American Dental Association* 129, no. 9 (Sept. 1998): 1234.

[187] Vargas, Crall, and Schneider, 1229-1238.

[188] U.S. Department of Health and Human Services, *Oral Health in America,* 2.

[189] Centers for Medicare and Medicaid Services. Medicaid.gov. Keeping America Healthy, "Use of Dental Services in Medicaid and Chip: An excerpt from the 2014 Secretary's Report on the Quality of Care for Children Enrolled in Medicaid and Chip," (Jan. 2015): 1, http://www.medicaid.gov/Medicaid-Chip-Program-Information/By-Topics/Quality-of-Care/Downloads/2013-Ann-Sec-Rept.pdf (accessed January 20, 2015).

[190] Craig Palmer, "Children's dental Visits, Unmet need: Data from 2013 National Health Interview Survey, *ADA News*, (March 21, 2013), http://www.ada.org/news/ 8420.aspx (accessed July 28, 2014).

[191] Mouradian, Wehr, and Crall, 2625-2631.

[192] Joanna M. Douglas, David M. O'Sullivan, and Norman Tinanoff, "Temporal Changes in Dental Caries Levels and Patterns in a Native American Pre-school Population," *Journal of Public Health Dentistry* 56, no. 4 (Summer 1996): 171-175.

[193] Early Childhood Caries (ECC) is defined by the American Academy of Pediatric Dentistry (AAPD) as "the presence of one or more decayed, missing due to caries, or filled tooth surfaces among children under the age of six." American Academy of Pediatric Dentistry, "Definition of Early Childhood Caries," http://www.aapd.org/ assets/1/7/D_ECC.pdf (accessed Nov. 17, 2014).

more severe in AI/AN children than in other races of U.S. children and often results in a greater number of restorative procedures performed under general anesthesia.[194]

The SGROH points out oral diseases are more common and severe than most Americans would believe; that they are preventable and the consequences are profound. Additionally, "individuals who are medically compromised or who have disabilities are at greater risk for oral diseases."[195] Research indicates service delivery issues impact access to care for special patient groups.[196] For example, currently, professional education and clinical training are inadequate for treatment of patients with intellectual and developmental disabilities (IDD), Down syndrome (DS), autism, cerebral palsy, chronic disability and disease, and there is inadequate Medicaid reimbursement for services.[197] As a result, there are fewer trained oral-health professionals available to meet their treatment needs.

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[194] Douglas, O'Sullivan, and Norman Tinanoff, 171-175; Council on Access, Prevention and Interprofessional Relations, *2012 Symposium on Caries in the Primary Dentition in American Indian and Alaskan Native Children: Summary* (Chicago: ADA American Dental Association), 2, http:///www.ada.org/`/media/ADA/Education% 20and%20Careers/Files/2012_Symposium_On_CIPD.ashx (accessed November 17, 2014); Barbara Sheller et al., "Reasons for Repeat Dental Treatment Under General Anesthesia for the Healthy Child," Pediatric Dentistry 25, no. 6 (Nov-Dec 2003): 546-552; J. V. Legault, M. H. Diner, and R. Auger, "Dental Treatment of Children in a General Anesthesia Clinic : Review of 300 Cases," *Journal of Canadian Dental Association* 38, no. 6 (June 1972) : 223-224; Paul S. Casamassimo et al., "Beyond the DMFT: the Human and Economic Cost of Early Childhood Caries," *Journal of the American Dental Association* 140, no. 6 (June 2009):650-657.

[195] U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General, Preface, vii*.

[196] Kathleen Fisher, "Is There Anything to Smile About? A Review of Oral Care for Individuals with Intellectual and Developmental Disabilities," *Nursing Research and Practice* (Published online February 28, 2012), http://dx.doi.org/10.1155/2012/ 860692.html (accessed Sept.15, 2014).

[197] Fisher, 2012.

Additionally, the SGROH discusses the role of the mouth as an indicator of general well-being and that an oral disease is often related to other health issues.[198] Oral-systemic associations are under investigation linking periodontal disease with increased risk of cardiovascular disease, cancer, diabetes, dementia, systemic lupus erythematosus, and stroke in adult populations.[199] When individuals with special needs, such as people with DS, develop periodontal disease, it is considered a serious oral disease that, if left untreated, increases in severity and increases risk for tooth loss and systemic complications.[200]

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[198] U.S. Department of Health and Human Services, *Oral Health in America,* 308.

[199] European Federation of Periodontology and American Academy of Periodontology, Nov. 11-14, 2012. "Periodontitis and Systemic Diseases: Proceedings of a Workshop jointly held by the European Federation of Periodontology and American Academy of Periodontology," Segovia, Spain. Iain Chapple et al., *Journal of Clinical Periodontology* 40, Supplement 14 (2013): S181-194; M. Tezal et al., "Chronic Periodontitis and the Incidence of Head and Neck Squamous Cell Carcinoma," *Cancer Epidemiology, Biomarkers & Prevention* 18, no. 9 (Sept. 2009): 2406-2412; Scott DeRossi, and Thomas Sollecito, "The Oral-Medical Disease Connection: Pregnancy, Cardiovascular Disease, and Diabete*s," Compendium of Continuing Education in Dentistry* 33, no. 6 (June 2012):406-13; Slavkin and Baum, 1215-1217; E. Cotti et al., "Can a Chronic Dental Infection be Considered a Cause of Cardiovascular Disease?" A Review of Literature *International Journal of Cardiology* 148, no. 1 (Apr. 2011): 4–10; Mariano Sanz et al., "European Workshop in Periodontal Health and Cardiovascular Disease - Scientific Evidence on the Association between Periodontal and Cardiovascular Diseases: a Review of the Literature." *European Heart Journal* 12 Supplement B (2010): S1-10, http://www.eurhearjsupp.oxfordjournal.org (accessed August 14, 2014); R Gualtierotti et al., "Updating on the Pathogenesis of Systemic Lupus Erythematosus," *Autoimmunity Review* 10, no. 1 (2010): 3-7.

[200] Dorothy Boyd, Andrew Quick, and Colleen Murray, "The Down Syndrome Patient in Dental Practice, Part II: Clinical Considerations," *New Zealand Dental Journal* 100, no. 1 (2004): 4-9; D. Kane et al., "Factors Associated with Access to Dental Care for Children with Special Health Care Needs," *Journal of the American Dental Association* 139, no. 3 (2008): 326-333.

Consequences of Oral Disease

Oral diseases have "physical health but also economic, social, and psychological" consequences to individuals and society.[201] There are numerous implications to leaving decayed primary teeth untreated. Effects of ECC include increased risk for new caries lesions in both primary and permanent dentitions.[202] Also, they may result in increased hospital and emergency room visits with higher costs, altered sleeping and eating habits due to pain,[203] and loss of school time with decreased academic ability.[204] Additionally, "dental caries can be a symptom or etiology of failure to thrive."[205] Unchecked dental caries not only has been linked to inadequate growth and development,[206] but as a source

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[201] Aubrey Sheiham and Sydney H, Croog, "The Psychosocial Impact of Dental Diseases on Individuals and Communities," *Journal of Behavioral Medicine* 4, no. 3 (1981): 257.

[202] Paul Petersen, Saskia Estupinan-Day, and Charlotte Ndiaye, "WHO's Action for Continuous Improvement in Oral Health." *Bulletin of the World Health Organization* 83, no. 9 (Sept. 2005): 642; David M. O'Sullivan and Norman Tinanoff, "The Association of Early Childhood Caries Patterns with Caries Incidence in Pre-school Children," *Journal of Public Health Dentistry* 56, no. 2 (March 1996) 81-83; M.S. Skeie et al., "The Relationship Between Caries in the Primary Dentition at 5 years of Age and Permanent Dentition at 10 years of Age—a Longitudinal Study," *International Journal of Pediatric Dentistry* 16, no. 3 (May 2006): 152-160.

[203] Petersen, Estupinan-Day, and Ndiaye, 642; Maria G. Olivia, David J. Kenny, and Savithiri Ratnapalan, "Nontraumatic Dental Complaints in a Pediatric Emergency Department," Pediatric Emergency Care 24, no. 11 (Nov. 2008): 757-760; Sarat Thikkurissy, et al., "Rapid Treatment Reduces Hospitalization for Pediatric Patients with Odontogenic-based Cellulitis," *The American Journal of Emergency Medicine* 28, no. 6 (July 2010): 668-672; Gary D. Slade, "Epidemiology of Dental Pain and Dental Caries among Children and Adolescents," *Community Dental Health* 18, no. 4 (Dec. 2001): 219-227.

[204] Helen Gift, Susan Reisine, and Dina Larach, "The Social Impact of Dental Problems and Visits," *American Journal of Public Health* 83, no. 6 (June 1993): 1663.

[205] Craig E. Elice and Henry W. Fields, "Failure to Thrive: Review of the Literature, Case Reports, and Implications for Dental Treatment," *Pediatric Dentistry* 12, no. 3 (May/June1990): 188.

[206] George Acs et al., "The Effect of Dental Rehabilitation on the Body Weight of Children with Early Childhood Caries," *Pediatric Dentistry* 21, no. 2 (Mar.-Apr.1999): 109-113.

of contagion for systemic spread of infection.[207] Early loss of primary teeth predisposes individuals to occlusal problems in the permanent dentition,[208] resulting in speech problems and loss of self-esteem.[209] Past caries experience is the strongest predictor of future decay with the likelihood to affect one's quality of life, productivity, and income level. [210] A local dento-alveolar abscess can spread to other anatomical areas and cause, though rarely, complications that include "bacterial endocarditis, infection of orthopedic or other prosthesis, pleuropulmonary infection, cavernous sinus infection, septicemia, maxillary sinusitis, mediastinal infection, and brain abscess."[211] ECC has wide-ranging implications affecting an individual's oral health and general well-being.[212]

Most in the dental profession are aware of how in 2007, Deamonte Driver, a twelve year-old boy from the state of Maryland died of complications from a tooth abscess. Deamonte's mother was unable to find a Medicaid dentist to treat his dental abscess. Consequently, she took him to a hospital emergency room (ER) for treatment as

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[207] Itzhak Brook, "Microbiology and Management of Endodontic Infections in Children," *Journal of Clinical Pediatric Dentistry* 28, no. 1 (Fall 2003): 13-18.

[208] M. Bath-Balogh and Margaret J. Fehrenbach, *Illustrated Dental Embryology, Histology, and Anatomy*, 3rd ed. (St. Louis: Saunders, 2011), 257.

[209] George Acs et al., "Effect of Nursing Caries on Body Weight in a Pediatric Population." *Pediatric Dentistry* 14, no. 5 (Sept.-Oct.1992): 302-305; George Acs et al., "The Effect of Dental Rehabilitation on the Body Weight of Children with Early Childhood Caries," *Pediatric Dentistry* 21, no. 2 (Mar.-Apr.1999): 109-113; George Acs et al., "The Effect of Dental Rehabilitation on the Body Weight of Children with Failure to Thrive: Case Reports." *Compendium of Continuing Education in Dentistry* 19, no. 2 (Feb. 1998):164-8. 70-1.

[210] Greenwall et al., 278-282; George Acs et al., "Perceived Outcomes and Parental Satisfaction Following Dental Rehabilitation Under General Anesthesia," Pediatric Dentistry 23, no. 5 (Sept-Oct 2001): 419-423.

[211] Brook, 13.

[212] David Finucane, "Rationale for Restoration of Carious Primary Teeth: A Review," *European Archives of Pediatric Dentistry* 13, no. 6 (Dec. 2012): 281-292.

a measure of last resort. After two operations and "more than $250,000" worth of care at Maryland's Children's Hospital, Deamonte died from what could have been a simple low-cost procedure.[213]

Treatment of oral disease within a hospital setting is remarkably expensive. In one study, "the average cost was 15:1 ($1,508 vs. $104)" as compared to a nonhospital setting and the most common services were related to dental caries.[214] "In 2006, close to 110 million was charged by hospitals" for dental-related emergency care.[215] Prior to the Driver incident, Maryland had one of the poorest reputations in access to dental care.[216] In response to the tragedy, Representative Elijah Cummings (D-MD7) and other stakeholders have become proactive in attempting to make a difference in improving access to care issues by supporting oral health care initiatives toward policy changes.[217] Burton Edelstein reminds the dental community that Deamonte Driver "provided a 'face'

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[213] Mary Otto, "For Want of a Dentist," Washingtonpost.com, Feb. 28, 2007, http://www.groundworkohio.org/files/Ohio/02.28.07%20wpost%20dentist.pdf (accessed July 31, 2014); American Dental Association, ADA Letter to Senate Leaders, http://www.ada.org/~/media/ADA/Advocacy/Files/ltr_11172009_sen_leaders_hcr.ashx (accessed on July 31, 2014).

[214] Griffin et al., 26.

[215] Romesh Nalliah et al., "Hospital Based Emergency Department Visits Attributed to Dental Caries in the United States in 2006," *Journal of Evidence Based Dental Practice* 10, no. 4 (Dec. 2010): 222.

[216] Joan B. Wilentz et al., "The Maryland Oral Health Summit: Pathways to Common Ground and Action," *Journal of Public Health Dentistry* 72, S1 (Jan. 2012): S64.

[217] M. Thuku Njeri et al., "Breaking the Cycle in Maryland: Oral Health Policy Change in the Face of Tragedy," *Journal of Public Health Dentistry* 72 (2012): S12.

for this issue," prompting members of Congress to advocate for the oral health of all children.[218] Edelstein claims,

> But this incident would not have had such potency were it not for 2 additionally critical factors: the Washington Post's continuous and prominent coverage of the child's death (including 40 references to the child's death in articles and editorial pieces that were also reflected in New York Times op-ed pieces) and the decade of intensive oral health policy development that had persistently engaged key policymakers in this issue.[219]

The Driver case was instrumental in the addition of dental provisions to the Children's Health Insurance Program Reauthorization Act (CHIPRA) that President Obama signed into law in 2009, mandating dental benefits for children and adolescents participating in the Children's Health Insurance Program (CHIP).[220] CHIPRA changed the insurance programs from state to federal assignment, ensuring consistent and comprehensive dental benefits to children among states (and taking the S out of S-CHIP).[221]

CHIP and Medicaid are public insurance programs that cover dental care. Before CHIPRA, S-CHIP programs were either Medicaid expansions (EPSDT) for financially and categorically eligible groups such as "all children under age 21 who are eligible for

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[218] Burton Edelstein, "Putting Teeth in CHIP: 1997-2009 Retrospective of Congressional Action on Children's Oral Health," Academic Pediatrics, 9, no. 6 (Nov./Dec. 2009): 470.

[219] Edelstein, "Putting Teeth," 470.

[220] Congressman Elijah Cummings, Fulfilling the Legacy of a 12-year-old boy, *Journal of Public Health Dentistry* 72 (2012): S5.

[221] Children's Health Insurance Program Reauthorization Act of 2009, Pub. L. No. 111–113; 2009, http://www.gpo.gov/fdsys/pkg/PLAW-111publ3/pdf/PLAW-111publ3.pdf (accessed January 23, 2015).

Medicaid"[222] or a non-Medicaid State Children's Health Insurance Program (S-CHIP) for low- and modest-income families.[223] However, because state CHIP programs varied widely regarding oral health benefits, programs were reauthorized under CHIPRA to provide comprehensive benefits that met Medicaid and commercial insurance standards for U.S. children.[224]

Another important consequence of Deamonte's case is pediatric dental care has become a required insurance benefit (beginning in 2014) in the "Patient Protection and Affordable Care Act" (ACA) signed into law in March 2010.[225] The goal of the ACA is to change the U.S. healthcare system, including dentistry, by improving health and access to quality and reliable care, and lowering the cost of care.[226] According to a study released by the American Dental Association (ADA) Health Policy Resources Center (HPRC), ACA expands dental benefits to "8.7 million children under nineteen years of age" by 2018 through expansions in Medicaid, health insurance exchanges (HIX), and

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[222] Centers for Medicare & Medicaid Services, Medigaid.gov, "Keeping America Healthy, Early, Periodic Screening, Diagnostic, and Treatment, Benefits," (Baltimore: MD), http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Early-and-Periodic-Screening-Diagnostic-and-Treatment.html (accessed January 23, 2015).

[223] Jane E. Steffensen, "Population Health," in *Community Oral Health Practice for the Dental Hygienist,* ed. Kathy Voigt Geurink. St. Louis, Missouri: Elsevier Saunders, 2012: 139-146.

[224] Children's Health Insurance, 1; Edelstein, "Putting Teeth," 467-475.

[225] Burton L. Edelstein, "Insurers' Policies on Coverage for Behavior Management Services and the Impact of the Affordable Care Act," *Pediatric Dentistry* 36, no. 2 (March/April 2014): 145.

[226] U.S. Department of Health and Human Services; 2011, Report to Congress: National Strategy for Quality Improvement in Health Care, Washington (DC), http://www.healthcare.gov/news/reports/quality03212011a.html (accessed July 31, 2014).

employer-sponsored insurance (ESI).[227] This expansion potentially "will reduce the number of children without benefits by about fifty-five percent."[228] The "17.7 million adults" to benefit from expansion in dental coverage will almost all be within Medicaid, and this coverage will vary between states.[229] The reality is that probably "only 4.5 million adults" will gain dental benefits through some state Medicaid policies because dental benefits are not included in the ACA essential health benefits (EHB) and are optional for employers, individuals, and state governments.[230] Also, these figures are based on the assumption that the population impacted by coverage expansions will be able to access the services. However, availability of benefits does not always result in improvements in dental care utilization.[231] According to a study in 2008, an important reason for dental access and utilization disparities may be that Medicaid pays dentists less than what it costs to provide care and dentists are unwilling to accept those terms of service.[232] Astonishingly, the 2013 Medicaid reimbursement rates for U.S. pediatric

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[227] Kamyar Nasseh, Marko Vujicic, and Amanda O'Dell, "Affordable Care Act Expands Dental Benefits for Children Access to Dental Care Issues," Health Policy Resources Center Research Brief, American Dental Association, Apr. 2013: http://www.ada.org/sections/professionalResources/pdfs/HPRCBrief_0413_3.pdf (accessed July 31, 2014): 4.

[228] Nasseh, Vujicic, and O'Dell, 4.

[229] Nasseh, Vujicic, and O'Dell, 4-5.

[230] Nasseh, Vujicic, and O'Dell, 6.

[231] Nasseh, Vujicic, and O'Dell, 7.

[232] Alison Borchgrevink, Andrew Snyder, and Shelly Gehshan, "The Effects of Medicaid Reimbursement Rates on Access to Dental Care," National Academy for State Health Policy, March 2008: 5, http://www.nashp.org/sites/default/files/CHCF_dental_ rates.pdf (accessed July 31, 2014).

dental care were "48.8 percent of commercial insurance charges."[233] "In 2014, the average Medicaid fee-for-service reimbursement rate was 40.7 percent of commercial dental insurance charges for adult dental care services."[234] Reforms that include increasing Medicaid reimbursement rates to be closer to market prices are identified by the American Dental Association (ADA) research group as necessary to increase dental care usage and positive outcomes of the ACA goals.[235]

Along that end, Senator Bernard Sanders (I-VT) and Representative Elijah E. Cummings (D-MD7) reintroduced the Comprehensive Dental Reform Act of 2013 (S.1522, HR. 3120).[236] The bill, originally introduced in 2012, has been assigned to a congressional committee (September 18, 2013), but may not pass before publication of this dissertation. I include the Comprehensive Dental Reform Act of 2013 to illustrate its purpose, and the groups and stakeholders either in support of or against its passage. The bill is intended to fill gaps in dental coverage provided by Medicare, Medicaid, the Affordable Care Act, and the Department of Veterans Affairs.[237] The bill covers five areas aimed at alleviating the dental crisis in the United States by "expanding coverage,

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[233] Kamyar Nasseh, Marko Vujicic, and Cassandra Yarbrough, "A Ten-Year, State-by-State, Analysis of Medicaid Fee-for-Service Reimbursement Rates for Dental Care Services," Health Policy Institute Research Brief. American Dental Association, Oct. 2014, http://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/ Files/HPIBrief_1014_3.ashx (accessed Dec. 16, 2014), 1.

[234] Nassah, Vujicic, and Yarbrough, 1.

[235] Nasseh, Vujicic, and O'Dell, 11.

[236] Library of Congress, Congress.gov, "Summary: S.1522 – 113th Congress (2013-2014)," https://www.congress.gov/bill/113th-congress/senate-bill/1522 (accessed July 30, 2014).

[237] Senator Bernie Sanders, "The Comprehensive Dental Reform Act of 2013" Summary, Sanders Dental Bill_Summary2013.pdf, http://www.sanders.senate.gov/ download/sanders-dental-bill-summary (accessed July 30, 2014).

creating new access points, enhancing the work force, improving education, and funding new research."[238] Under the bill, dental services will become "an essential health benefit for adults under the ACA" and will allow states to be eligible for a "fifteen percent increase for dental services under Medicaid." [239]Also, it increases funding for alternative dental settings such as "rural health clinics, mobile and portable dental facilities, school-based services," and authorizes funding to support "alternative dental healthcare providers."[240] Proposed funding for Sander's original bill is to levy a "0.025 percent excise tax on securities: stocks, partnership interest, notes, bonds, debentures, derivatives or any transaction occurring on U.S. trading floor or involving a U.S. citizen."[241] Many dental healthcare professional associations support the Comprehensive Dental Reform Act of 2013, including "the American Association of Public Health Dentistry, the American Dental Hygienists' Association, the Children's Dental Health Project, and The Pew Children's Dental Campaign."[242] In a surprising press release, the ADA indicated their membership supports "much of the bill," but is in opposition to the use of "precious federal dollars on unproven and, we believe, unnecessary programs to expand the use of

[238] Sanders, "Comprehensive Dental," 1.

[239] Sanders, "Comprehensive Dental," 1.

[240] Sanders, "Comprehensive Dental," 1.

[241] Comprehensive Dental Reform Act of 2012. S. 3272 (112th): "Library of Congress Summary," https://www.govtrack.us/congress/bills/112/s3272#summary (accessed July 30, 2014).

[242] Bernie Sanders, United States Senator for Vermont: Press Release, "Sanders, Cummings Introduce Bills to Address Dental Crisis," Sept. 18, 2013, http://www.sanders.senate.gov/ (accessed July 30, 2014).

so-called midlevel dental providers."[243] Unfortunately, this position supports the status quo in delivery of dental care: privatized practice trends that are market driven, unjustifiable, ineffective, and unsustainable considering differences in oral disease distribution and severity in the United States.[244]

Disparities exist in the United States regarding outcomes in oral health because of confounding variables such as ethnic diversity, immigration, gender, age, diet, education, poverty, special needs, use of bottled water, and lack of fluoridated water in some communities.[245] These disparities often lead to barriers in access to health care. For example, immigrants may not be able to read important information regarding local health clinic operations, policies, and procedures. Clinics may be long distances from the population served necessitating transportation that is neither affordable nor readily available. Treatment of children with ECC and patients with special needs requires special considerations and education as well as higher cost. As stated earlier, children are either covered by private dental insurance or public dental insurance (Medicaid and CHIP, the safeguard for children who do not qualify for Medicaid). Before CHIPRA,

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[243] Calnon, William, Dr., The American Dental Association, Statement by ADA President Dr. William Calnon on Sen. Bernie Sanders' Comprehensive Dental Reform Act (June 07 2012), http://www.ada.org/en/press-room/news-releases/2012-archive/June/statement-by-ada-president-dr-william-calnon-se (accessed July 30, 2014).

[244] Haden et al., "Improving," 565-566.

[245] Burton L. Edelstein, "Update on Disparities in Oral Health and Access to Dental Care for America's Children," *Academic Pediatrics* 9, no. 6 (Nov./Dec. 2009): 415-419; Albino, Inglehart, and Tedesco, 75-88.

only "twenty percent of eligible children received preventive oral health services."[246] Between 2007 and 2011, close to half of the states realized a "ten percent increase" in pediatric utilization of a preventive dental service.[247] On the other hand, in 2013 a "median of 22.8% of children received dental treatment services."[248] One reason for the slow improvement rate in dental service utilization by U.S. children is that few providers treat Medicaid patients[249] and, therefore, availability of dental providers—either unwilling or unable to care for young children—is scarce.

According to Seale and Casamassimo, student dentists do not receive adequate instruction and experience in treating children.[250] "U.S. pediatric dentistry pre-doctoral programs have faculty and patient pool limitations that affect competency achievement and adversely affect training and practice."[251] Consequently, the care for these patients has been distributed disproportionately among a small number of pediatric dentists, whose numbers fall far below the demand for care. Notably, the distribution of general as

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[246] U.S. Department of Health and Human Services. Office of the Inspector General: Children's Dental Services under Medicaid. Access and Utilization (1996): 6, http://oig.hhsgov/oei-09-93-00240.pdf (accessed July 18, 2012).

[247] U.S. Department of Health and Human Services. Use of Dental Services in Medicaid and Chip: An excerpt from the Secretary's Report on the Quality of Care for Children Enrolled in Medicaid and CHIP (Sept. 2013): 1.

[248] U.S. Department of Health and Human Services 2014 Annual Report on the Quality of Care for Children in Medicaid and Chip. Health and Human Services Secretary, Sylvia Mathew Burwell (Nov. 2014): A44, http://www.medicaid.gov/ medicaid-chip-program-information/by-topics/quality-of-care/downloads/2014-child-sec-rept.pdf (accessed Jan. 19, 2015).

[249] U.S. Department of Health and Human Services, *Oral Health in America,* 1-6.

[250] N. Sue Seale and Paul S. Casamassimo, "U.S. Predoctoral Education in Pediatric Dentistry: Its Impact on Access to Dental Care," *Journal of Dental Education* 67 no. 1: 23-29.

[251] Seale and Casamassimo, 23.

well as dental specialists varies greatly throughout the United States while the population of special patients continues to grow steadily.[252]

Another issue impacting access to care and creating dental shortages is the overwhelming interest of many dentists to practice in the suburbs. A Health Professional Shortage Area (HPSA) represents "a geographic area[,] population group[,] and facility" with insufficient numbers of healthcare professionals.[253] Federal Guidelines require a ratio of at least "5,000:1," which equates to 5,000 people for every dental professional.[254] As of December 9, 2014, there are "4,988 designated HPSA" for dental related services in the United States.[255] According to HRSA, an estimated "7,300 dentists" will be needed to reduce all of these shortage areas;[256] however, the current trend reflects fewer dentists graduating than retiring.[257]

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[252] Richard W. Valachovic et al., "Trends in Dentistry and Dental Education: 2001," *Journal of Dental Education* 65, no. 6 (June 2001): 539–561; R. Valachovic, "Dental Workforce Trends and Children," *Ambulatory Pediatrics* (now *Academic Pediatrics*) 2, S2 (March-Apr. 2002): 154-161.

[253] U.S. Department of Health and Human Services, Health Resources and Services Administration, Health Workforce, "Dental HPSA Designation Overview," http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/dentalhpsaoverview.html (accessed Aug. 5, 2014).

[254] U.S. Department of Health and Human Services, Health Resources and Services Administration, "Dental HPSA Designation Criteria: Part I-Geographic Areas, A. Criteria," http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/ primarycarehpsacriteria.html (accessed Aug. 5, 2014).

[255] U.S. Department of Health and Human Services, Health Resources and Services Administration, "Shortage Designation: Health Professional Shortage Areas & Medically Underserved Areas/Populations, Dec. 9, 2014," http://ersrs.hrsa.gov/ reportserver/Pages/ReportViewer.aspx?/HGDW_Reports/BCD_HPSA/BCD_HPSA_SCR50_Smry_HTML &rs:Format=HTML4.0 (accessed Dec. 18, 2014).

[256] U.S. Department of Health and Human Services, Health Resources and Services Administration, "Shortage Designation: Health Professional Shortage Areas & Medically Underserved Areas/Populations, December 9, 2014."

[257] Senator Bernie Sanders, A Report from Chairman Bernard Sanders of the Subcommittee on Primary Health and Aging: U.S. Senate Committee on Health, Education, Labor & Pensions. Dental Crisis

"[T]he market place for oral health care in the U.S. is a highly stratified arena in which the vast majority of dentists serve the relatively affluent patients—while a minority serves the indigent and those on the public plan of Medicaid."[258] A more efficient and cost effective way to meet the increased demands for dental care is through increased use of allied dental professionals.[259] According to Vargas and Ronzio, "Clearly the number and type of clinicians—dentists, hygienists, allied medical personnel, primary-care physicians—who can provide care should be increased."[260]

Innovation in Dental Education to Promote Change

The current model of dental practice may not be able to improve the oral health care needs of a changing U.S. population.[261] The dental-professional community needs to address public health education, prevention, and access to care issues by supporting current federal and state legislative changes as well as future initiatives (including work force changes) and putting them into practice. To further advance this assertion, the dental community needs to address issues in an impartial manner, identify the causes, and alter existing healthcare delivery systems to promote change.

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in America: The Need to Expand Services, Feb. 29, 2012, http://www.sanders.senate.gov/imo/media/doc/DENTALCRISIS REPORT.pdf (accessed March 29, 2014).

[258] Michele Rivkin-Fish, 190.

[259] Haden et al., "Dental Education," 1269."

[260] Clemencia Vargas and Cynthia R. Ronzio, "Disparities in Early Childhood Caries," *BioMed Central Oral Health* 6, Supplement 1 (2006): S3, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2147596/ (accessed March 29, 2014).

[261] Garcia and Sohn, 42.

The best place to influence change is during the education of future dental providers. After numerous appeals for the dental education community to take a leadership role in making work force changes, dental education has begun to achieve the kind of positive curricular reform necessary to meet its professional obligation to the healthcare needs of the public. However, transformation requires in-depth scrutiny of what is being done and what is necessary for sustained and effective change. The situation requires the kind of scrutiny that can only occur when educators create situations that engage and educate the moral imagination by "giving students a sense of how people live before they become patients and after they get well."[262] According to Northrup Frye, this type of thinking allows seeing from another person's perspective by creating a "vision or model in your mind of what you want to construct."[263] According to Gary Saul Morson, this type of imaginative ability can be learned and practiced.[264] The process of reading provokes analysis along a continuum of ethical decision-making.[265] Morson claims that reading literature "infects us with moral values that we as readers practice moment to moment while reading."[266] Also, one becomes more capable of types

[262] Ronald A. Carson, "Educating the Moral Imagination," *Practicing the Medical Humanities*, ed. Ronald Carson, Chester Burns, and Thomas Cole, (Hagerstown, MD: University Publishing Group, 2003): 33.

[263] Northrup Frye, *The Educated Imagination* (Toronto, Canada: Harper Collins, 2002), 7.

[264] Morson, 515-528.

[265] Morson, 515-528.

[266] Morson, 527.

of moral thinking (regarding what is fair and just)[267] through reading literature or listening to patients' stories. For example, it prompts one to think about

> where to extend sympathy and where to desire just punishment; when to be carried away and when to remain skeptical; whether or not (to use a phrase that has gone out of fashion) to identify with the character. Whatever the conclusions we explicitly draw, we have practiced reactions to particular kinds of people and situations and practice produces habits that may precede, preclude, or preform conscious moral judgments in daily life.[268]

In order to positively impact students, dental faculty and members of the profession need to use their imaginations to cultivate a culture that supports positive change rather than accepts the status quo or undermines positive innovations. Also, proper recognition needs to be given to informal curricula (faculty as persons outside of the classroom within a social milieu) that influence an ethical climate, students' knowledge, understanding of evidence-based dentistry (EBD), and best professional practices.[269] An ethical process of scrutiny is an important part of a humanistic education that begins with a neutral playing field and involves all stakeholders in the learning process.

For example, a humanistic approach to the education of dental or dental hygiene students on healthcare policy and practice that manages assumptions and bias is to use innovative activities such as solving healthcare problems from a Rawlsian position of

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[267] Schulman's definition of moral behavior is, "acts intended to produce kind and/or fair outcomes." M. Schulman, "How We Become Moral," *Handbook of Positive Psychology* eds. C. R. Snyder and S. J. Lopez (Oxford: University Press, 2002): 500.

[268] Morson, 528.

[269] Anthony Suchman et al., "Toward an Informal Curriculum that Teaches Professionalism: Transforming the Social Environment of a Medical School," *Journal of General Internal Medicine* 19, 5 Pt 2 (2004): 504.

neutrality. John Rawls was a philosopher whose theory of "justice as fairness" envisioned a cooperative socio-economic system in which all citizens would have equal rights.[270] The activity—strategically placed within the NYUCD-DHP curriculum with linkages to ethics within the curriculum—is based on the premise that ethical and just healthcare policy and practice decisions require what philosopher John Rawl calls a "veil of impartiality."[271] For example, the activity asks students to take a neutral position regarding the current dental healthcare crisis and make assessments and choices that expose each citizen to the least risk. According to this view, healthcare justice is what a person would choose given an equal and neutral playing field. It can be explained as the kind of health care that enlightened individuals would choose versus the current system based primarily on market forces, availability of services, and affordability. Any amount of bias to the professional's self-interest (economic, practice setting choices, or treatment versus preventive practices) must be off-set by a commitment to the patients' best interest and ensure fairness in promotion of public benefit. Just and fair members of a professional medical/dental community are bound by a commitment, a type of contract with society, to accept the burden of responsibility for their care. Consequently, if members of a profession fail to fulfill their obligation to society, such as the failed obligation between oral health professionals and the un- and under-served U.S. communities, they face the possibility of losing their professional status. Careful scrutiny of the professions' involvement in public health may clarify the current situation.

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[270] E. Kelly, ed., *Justice as Fairness: A Restatement*, (Cambridge, MA: Harvard University Press), 2007.

[271] John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1999), 1-118.

Contributions of Dental and Allied Dental Professionals to Public Health

Haden et al. cite isolationist tendencies in dentistry as a major contributory factor in oral health disparities. "Reduced access to oral health care is one of the prices of professional isolation that has too often characterized dentistry."[272] Welie and Rule view disparities as a symptom of dentistry's isolationism.[273] They claim that dentistry has a long history of disconnectedness and has practiced separate from other branches of medicine. Isolation of the teeth from the rest of the body has negative consequences for dentistry: the lack of Medicare dental coverage in the U.S. can be attributed to this characterization. The Medicare system provides healthcare support/reimbursement for the elderly, but does not include dental coverage. Haden et al. point out that dentistry's "isolation gives the impression to other health professionals, policymakers, and the public that oral health is not as important as general health."[274] Most physicians, even those in private practice, work closely with other physicians in clinic and hospital settings, and tend to work in cross-disciplinary models of patient care. In contrast, most dentists work in a solo or individual practice (having one D.D.S.) with one or more dental hygienists and assistants. This tendency to work alone may impact the ability to deal with broader issues (such as health insurance and disease disparities) because the solo practice model fosters a sense of detachment: the model separates dental professionals from certain categories of patients (for example, those who cannot afford to pay and special needs

[272] N. Karl Haden et al., "Improving," 575.

[273] Welie and Rule, 97-125.

[274] Haden et al., "Improving," 575-576.

patients), the profession, other health professionals, the community in which they practice, and beyond (to state and national health priorities). Additionally, the economic challenges of running a private practice may conflict with the patient/doctor contract of relieving the needs of patients. J. V. Welie suggests dentistry may very well lose its professional status and revert to that of a business because of its inability to meet its "social contract"[275] with the public requiring dentists to provide care to all people in need.[276] Welie states, "If oral health care services are beyond the financial means of people in need, the social contract is violated."[277] DePaola and Slavkin claim the move away from a solo practice model and "link to the dental school, hospital, and/or academic health center" encourages cross-disciplinary interaction in healthcare delivery, and results in "a sense of social and professional responsibility and awareness that oral health is a critical component of overall health."[278] This sense of connectedness between professional responsibility and public need is an important step in "improving access and quality of care."[279]

Oral health care should be as routinely available as immunizations since its diseases are preventable and correctable. It is time for the dental profession to recognize they cannot address the problem on their own and that work force changes are necessary.

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[275] Welie describes a social contract as an implicit contract of trust between dentistry and the society it serves. Jos V. M. Welie, "Is Dentistry a Profession? Part 3. Future Challenges," *Journal of the Canadian Dental Association* 70, no. 10 (2004): 676.

[276] Welie, 676.

[277] Welie, 678.

[278] DePaola and Slavkin, 1145, 1146.

[279] DePaola and Slavkin, 1145.

The inclusion of dental therapists in the dental team such as dental hygienists with advanced degrees and expanded functions is an innovative approach to a problem that will not be corrected by traditional practices. The aim is to provide the consumer with increased access to care by trained allied dental health practitioners (in collaboration with dentists) within state specified guidelines (regarding scope of practice and eligibility requirements). Additionally, the goal is to provide treatment that is neither demonstrably superior, nor demonstrably inferior to that provided by a dentist. To the point, it aims to be equal to the kind of health care that informed and sensible individuals would choose according to the Rawlsian position of neutrality discussed earlier. Burton Edelstein claims that members of the dental professional community as well as national and state dental associations view dental therapists as "disruptive innovations,"[280] leading to a substantial loss in profits and professional control, and compromising the public's health and safety.[281] In contrast, Clayton Christensen, Professor of Business Administration at the Harvard Business School, suggests disruptive innovations provide affordable and accessible alternatives that improve "failing or failed systems."[282] The healthcare industry and government should work together to support disruption rather than prevent it.[283]

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[280] Burton L. Edelstein, The Dental Profession in Transition: Examining Whether Dental Therapists Constitute a Disruptive Innovation in US Dentistry. *American Journal of Public Health* 101, no. 10 (2011): 1831; Clayton M Christensen, "Disruptive Innovation," in The Encyclopedia of Human-Computer Interaction, 2nd ed., ed. Soegaard, Mads and Dam, (Denmark: The Interaction Design Foundation), https://www.interaction-design.org/encyclopedia/disruptive_innovation.html (accessed January 22, 2015).

[281] Edelstein, "Dental Profession," 1834.

[282] Clayton Christensen, Michael Horn, and Curtis Johnson, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (New York: McGraw Hill, 2008), 288.

[283] Christensen, Bohmer, and Kenagy, 1-11.

Therefore, a necessary disruptive innovation is to employ large numbers of low-cost allied health professionals to perform a mix of sophisticated skills where a need for services exists. These larger populations would perform the tasks of fewer, more expensive specialists and increase access to greater numbers of consumers in shortage areas.[284]

One of the biggest obstacles to the effective utilization of allied health professionals is restrictive state laws and practice regulations that require dental hygienists to work under "direct supervision" for certain services or procedures. Although the language varies, most state dental practice acts define direct supervision similarly. "Direct supervision requires a dentist to authorize services and be present or assess the quality of the work performed, and does not allow direct reimbursement to dental hygienists from third party payers for services."[285] Results from a recent retrospective comparison study of dental hygiene supervision changes between 2001-2011 reflect that "direct supervision limits the conditions and locations in which dental hygienists may provide preventive dental services; direct supervision confines the dental

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[284] Christensen, Bohmer, and Kenagy, 1-11.

[285] Lea Nolan et al., Center for Health Services Research and Policy School of Public Health and Health Services, The George Washington University Medical Center. The Effects of State Dental Practice Laws Allowing Alternative Models of Preventive Oral Health Care Delivery to Low-Income (January 17, 2003): iii. 1-271; New York State Education Department, Office of the Professions, "Direct Personal Supervision," defined, Feb. 18, 2009, http://officeofprofessions.custhelp.com/app/answers/detail/a_id/298/kw/define%20direct%20supervision/session/L3RpbWUvMTQxOTM1NzA1OC9zaWQvZip4eElEYW0%3D (accessed December 20, 2014). New York State uses a designation of "personal supervision" in this sense and defines it as, "Direct personal supervision means supervision of dental procedures based on instructions given in the course of a procedure by a licensed dentist who remains in the dental office where the supportive services are being performed, personally diagnoses the condition to be treated, personally authorizes the procedures, and before dismissal of the patient, who remains the responsibility of the licensed dentist, evaluates the services performed."

hygienist to a facility where the dentist is physically present."[286] Logic dictates that the greater number of dental hygiene graduates to dental graduates should be utilized "to provide scaling and root planings, apply sealants and fluoride treatments, take radiographs, and provide oral hygiene instructions, nutritional counseling, and tobacco cessation counseling to the underserved American population."[287] Requiring direct supervision neither reflects dental hygiene education, competence and experience, nor supports the national oral health agenda.

The dental hygiene profession has a long-standing history of contributing to the health of the nation outside of traditional private practice. Dental hygienists are educated in public health and policy, research, education theories, and basic principles of health promotion, management, consumer advocacy, and political leadership. A review of dental hygienists' involvement in community school-based oral health programs provides an historical perspective of their role in community initiatives on several levels as well as their efforts to "provide preventive oral health care services to the underserved."[288] The American Dental Hygienists' Association (ADHA) publicly "recognizes the unmet needs of groups such as low-income children, pregnant women, elders, and persons who are

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[286] April V. Catlett and Robert Greenlee, "A Retrospective Comparison of Dental Hygiene Supervision Changes from 2001 to 2011," *The Journal of Dental Hygiene* 87, no. 3 (June 2013): 110.

[287] Catlett and Greenlee, 115-116.

[288] Gayle B. McCombs et al., "Dental Hygienists' Contributions to Improving the Nation's Oral Health Through School-Based Initiatives from 1970 Through 1999: A Historical Review." *Journal of Dental Hygiene* 81, no. 2 (Apr. 2007): 52, http://web.b.ebscohost.com.ezproxy.med.nyu.edu/ehost/pdfviewer/pdfviewer?sid=cf8b64d2-ac1b-490e-81fd-90115c9a2fd6%40sessionmgr110&vid=1&hid=106 (accessed Feb. 4, 2013).

developmentally, physically, mentally or medically compromised." ADHA also advocates the following:

- Development of community-based comprehensive oral health programs,
- Community water fluoridation and school-based dental sealant programs,
- Incorporation of oral health in all aspects of coordinated school health programs in schools, including school-based or school-linked dental sealant programs for children most at risk for untreated dental decay,
- Adequate funding for prevention and treatment programs designed to improve oral health among underserved sectors of the population,
- Use of dental hygienists in community health programming, and
- A national health program that guarantees financial support for primary preventive and therapeutic oral health services. [289]

To that end, dental hygienists can contribute to the national oral health agenda. In the past, dental hygienists and dentists have advocated utilitarian type public health measures such as water fluoridation and sealants because of the overall cost-benefits to society.

From the mid-1960s to the 1990s there was a remarkable change in dental disease and caries prevalence in the United States through preventive programs such as public and school fluoridation, sealants and increased oral health and dietary education.[290] Through dental research and technological advances, we learned more about fluorosis, benefits of fluoride, that tooth decay is transmitted between caregiver and child, about biofilm and oral disease risks, and best evidence practice management protocols.[291] Beginning in the 1990s, dental scholars began drawing attention to the oral-systemic

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[289] American Dental Hygienists' Association, "Education and Careers: Careers in Public Health," (2012), http://www.adha.org/public-health (accessed Aug.13, 2014).

[290] Center for Disease Control, "Achievements in Public Health, 1900-1999: Fluoridation of Drinking Water to Prevent Dental Caries," *MMWR Weekly* 48, no. 41 (October 22, 1999): 933-940, http://www.cdc.gov/mmwrhtml/mm4841a1.htm (accessed Feb. 4, 2013).

[291] CDC, "Achievements," 1.

connection-making associations between oral disease and systemic inflammatory responses.[292] However, not all people have been able to share in these health measures and benefits as evidenced by lack of caries reduction in poorer and special needs populations.[293] As stated in Chapter 1, U.S. academic dental institutions have been identified as essential to healthcare reform and improvements. [294]They "educate the future dental work force, conduct dental research, inform communities of the importance and value of good oral health, and provide oral healthcare services and serve as dental homes to thousands of patients."[295]

Trends in Dental Education and Calls for Reform

During the 1800s, dental education in the United States changed from the work-based apprenticeship method of training to dental schools that were mostly private and commercial.[296] It was not until the twentieth century that dental education became

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[292] CDC, "Achievements," 1.

[293] L. J. Brown, "Trends in Total Caries Experience: Permanent and Primary Teeth," *Journal of the American Dental Association* 131, no. 2 (2000): 223-231.

[294] Haden et al., "Improving," 563-83; DePaola, "Revitalization," S28-42; Albino, Inglehart, and Tedesco, 75-88.

[295] American Dental Education Association (ADEA) The Voice of Dental Education 2014, ADEA Policy Statement on Health Care Reform: Oral Health care: Essential to Health Care Reform (As approved by the 2009 ADEA House of Delegates), http://www.adea.org/policy_advocacy/federal_legislative_regulatory_resources/Pages/ADEAPolicyStatementonHealthCareReform.aspx (accessed Aug. 13, 2014).

[296] T. M. Schulein**, "**A Chronology of Dental Education in the United States," *Journal of the History of Dentistry* 52, no. 3 (2004): 97-108, http://www.ncbi.nlm.nih.gov/pubmed/15666495 (accessed Sept. 23, 2014).

connected with major universities.[297] In the 1920s, The Carnegie Foundation for the Advancement of Teaching formed a committee directed by William Gies to review and make recommendations as guidelines for dental education in America. One important recommendation to come out of the report published in 1926 was that dental education should be patterned after medical school and should occur within major universities with opportunities for research.[298] Another important event was the establishment of the National Institute of Dental Research (NIDR) in 1948. As a research and development infrastructure of the National Institutes of Health (NIH), the NIDR became a catalyst in the evolution of science and technology within dental education as well as a major driver in the development of models for oral healthcare practice.[299]

Federal funding under Title VII Training in Primary Care Medicine and Dentistry grant program was instrumental in improving U.S. dental education programs.[300] For example, between 1976 and 1991, Congressional funding under Title VII financed dental educational innovations and encouraged schools "to experiment with interdisciplinary training models, explore the use of new educational technologies … and what is now called evidence-based medicine."[301] In addition, "Title VII-funded fellows and faculty" were able to bring into schools lucrative grants from the Agency for Healthcare,

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[297] Schulein, 97-108.

[298] Slavkin, 29.

[299] Slavkin, 30.

[300] P. Preston Reynolds, "Title VII Innovations in American Medical and Dental Education: Responding to 21st Century Priorities for the Health of the American Public," *Academic Medicine* 83, no. 11 (Nov. 2008): 1015-1020.

[301] Reynolds, "Title VII,"1015-1016.

Research, and Quality (AHRQ), National Institutes of Health (NIH), and the Robert Wood Johnson Foundation (RWJF) to advance educational innovation and professionalism in professional school.[302] Reynolds proposes that "it would seem prudent to use the lever of federal funds for Title VII health professions training to achieve the next level of reform, and to continue promoting the values of professionalism across the health professions."[303]

From 1992 to the present, the emphasis in dental education became developing clinically relevant curricula. The intent was to provide students with attitudes and skills to address national priorities (such as care of diverse and vulnerable populations)[304] through improved assessment tools and teaching methods, including "clinical experience with multicultural patient populations."[305] During this period, dental schools began to explore a more comprehensive vision for health care through collaborations with medical and public health teams in "community and migrant health centers … to expand their outreach to vulnerable populations in their own neighborhood."[306]

In the years between 2000 and 2005, dental schools experimented with educational methodology regarding the care of medically underserved and vulnerable populations including "the homeless, elderly, persons with HIV/AIDS, substance abusers,

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[302] Reynolds, "Title VII,"1018.

[303] Reynolds, "Title VII,"1020.

[304] P. Preston Reynolds, "A Legislative History of Federal Assistance for Health Professions Training in Primary Care Medicine and Dentistry in the United States, 1963-2008." *Academic Medicine* 83, no. 11 (2008): 1011.

[305] Reynolds, "Title VII," 1016, 1017.

[306] Reynolds, "Title VII," 1016.

and victims of domestic violence."[307] Schools included collaborative training programs between public health and medical professionals and pediatric dentists, and in the comprehensive care of disadvantaged children.[308] Students were educated in public health and in ways to "provid[e] outreach and service to underserved and vulnerable populations."[309]

These areas of innovation have been supported by grants through Training in Primary Care Medicine and Dentistry (TPCMD).[310] The grants reflected healthcare concerns identified by the following: Advisory Committee on Training in Primary Care Medicine and Dentistry (ACTPCMD), the missions of the Health Resources and Services Administration (HRSA) and the Institute of Medicine-National Academy of Sciences (IOM), the Office of the U.S. Public Health Service Surgeon General, and in new standards of training developed by national accreditation bodies for dental health professions.[311]

Similar to an IOM Report in 1995, the Macy Study (a three-year grant to improve dental education discussed in Chapter 1) concluded that dental schools faced serious challenges (including budgetary declines) that required financial and structural reforms in

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[307] Reynolds, "Title VII," 1016.

[308] Reynolds, "Title VII," 1017.

[309] Man Wai Ng, Paul Glassman, and James Crall, "The Impact of Title VII on General and Pediatric Dental Education and Training." *Academic Medicine* 83, no. 11 (Nov. 2008): 1046.

[310] Reynolds, "Title VII," 1017.

[311] Reynolds, "Title VII," 1018; Reynolds, "Legislative," 1004-1014.

order to adapt to twenty-first century changes.[312] In August 2004, the Santa Fe Group (SFG) met to discuss and develop a national strategic plan to transform contemporary dental education to better address the nation's oral healthcare crisis.[313] The SFG membership comprised dental scholars and leaders and national stakeholders in improved oral healthcare outcomes. The group identified educational trends needed to support current and future needs in "education, clinical practice, and improved public health."[314] For example, a few of the models identified for inclusion are:

- Community-based education, …
- Competency-based education and accreditation,
- Expanding teaching of evidence-based dental medicine,
- Renewed emphasis on prevention strategies: including risk assessment, behavioral interventions, medical management,
- Patient behavioral and medical management, [and]
- Establishment of interdisciplinary teams-clinical collaborations ….[315]

According to Charles Bertolami, inclusion of new educational models is not enough to address the burden of disease.[316] In 2001, Bertolami pointed out that the current structure of dental education does not support what is being taught.[317] Bertolami alluded to the demise of the lecture method and proposed newer more collaborative ways

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[312] Alan Formicola et al., "Introduction to the Macy Study," Journal of Dental Education 72, no. 2 (Feb. 2008): 5; Kneka P. Smith et al., "The Arizona Model: A New Paradigm for Dental Schools," *Journal of Dental Education* 75, no. 1 (Jan. 2011): 4.

[313] DePaola and Slavkin, 1139-1150.

[314] DePaola and Slavkin, 1143.

[315] DePaola and Slavkin, 1143.

[316] Charles Bertolami, "Rationalizing the Dental Curriculum in Light of Current Disease Prevalence and Patient Demand for Treatment: Form vs Content," *Journal of Dental Education* 65, no. 8 *(*2001**):** 725-735.

[317] Bertolami, "Rationalizing," 725-735.

of learning (with a mix of learning experiences that mimic general practice) needed consideration.[318] In response, the SFG promoted the notion that for paradigm changes to occur, education needs to be integrated into a comprehensive, interdisciplinary system aligned with four core values as competencies. The four primary competencies are "communication skills, ability for self-reflection, critical thinking and problem-solving skills, and ethics, professionalism, and social responsibility."[319]

Just a year before the Santa Fe Group conference, a new TPCMD grant guideline called for proposals to address geriatric training of dental professionals. The guidelines identified a need for science relevant to the aging process, dealing with the complexities of chronic illness, health promotion, and disease prevention models of care. [320] Notably, Title VII health professions training programs provided federal funds that would shape dental curricular advancements and emerging trends in dental primary care services. For example, the W. K. Kellogg Foundation, in collaboration with the Rasmuson Foundation and the Bethel Community Services Foundation, sponsored research into the effectiveness of dental work force expansions for the underserved Alaskan population in 2008.[321]

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[318] Bertolami, "Rationalizing," 732.

[319] DePaola and Slavkin, 1147.

[320] U.S. Department of Health and Human Services, Bureau of Health Professions. Program Guidance FY2003, "Training in Primary Care Medicine and Dentistry, Washington, DC: CFDA No. 93.884: Title VII Innovations in American Medical and Dental Education, http://journals.lww.com/academicmedicine/Fulltext/2008/11000/Title_VII_Innovations_in_American_Medical_and.10.aspx (accessed Sept. 23, 2014).

[321] Scott Wetterhall et al., "Cultural Context in the Effort to Improve Oral Health Among Alaska Native People: The Dental Health Aide Therapist Model," *American Journal of Public Health* 101, 10 (Oct. 2011): 1836-1840.

More recently, increasing drive to improve the oral health of the nation has resulted in emphasis on educational experiential opportunities (such as SL) within dental hygiene and dental programs with competencies that support student personal and career development as well as social responsibility and citizenship skills.[322] To address better the oral disease burden, Arizona School of Dentistry & Oral Health developed a new approach to dental education (Arizona Model) by recruiting minority students and requiring students to engage in off-campus clinical rotational sites for half of their fourth year.[323] Additionally, the model addresses faculty shortage issues and high costs by employing adjunct faculty and teaching the basic sciences in a modular format (grouped thematically).[324] The Arizona Model teaches basic sciences by systems and integrates their instruction with clinical science.[325] Although the Arizona Model has its detractors because of its austere use of faculty, it started a wave of curricular innovation intended to address shortcomings in dental education. As a result, the following educational trends began to emerge:

- Active learning strategies to improve student engagement,
- Teaching methods to develop the ability to think and act critically and ethically,
- Integrated case management activities to produce students able to collaborate on patient care,
- Experiential activities to enhance professional identity and produce students able and willing to provide service to diverse communities and public health,

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[322] Sheranita Hemphill, "Service Learning," in *Community Oral Health Practice for the Dental Hygienist*, ed. Kathy Voigt Geurink (St. Louis, Missouri: Elsevier Saunders, 2012), 283.

[323] Smith et al., 3-12.

[324] Smith et al., 3-12.

[325] Smith et al., 7.

- Literature review with application to patient management to create life-long learners who value research,
- Self-reflection and peer assessment as a means of improving learning, and
- Activities that engage students in the use of technology in education, public services, and in data collection and dissemination.[326]

The Arizona Model influenced positive trends in dental education; however, more notably, the new model generated support for graduating students with experience, skills, and attitudes better suited to dental public health service.

As stated earlier, one response to the oral healthcare crisis has been to include competencies in dental degree programs that inculcate complex attitudinal abilities. These standards are meant to graduate "individuals of character, more sensitive to the needs of the community, more competent in their ability to contribute to society, and more civil in their habits of thought, speech and action."[327] Other significant efforts to resolve the crisis emphasize student participation in community service-learning programs.

Davis et al., suggest that the addition of SL in the dental curriculum provides a way to address the need for major reform in dental education to better meet the profession's obligations.[328] Programs such as the 2001-2007 Pipeline, Profession and Practice: Community-Based Dental Education Program supported financially by the Robert Wood Johnson Foundation (RWJF), the W. K. Kellogg Foundation, and The

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[326] Smith et al., 2-12.

[327] Dominick P. DePaola, "Higher Education and Health Professions Education: Shared Responsibilities in Engaging Societal Issues in Developing the Learned Professional," *Journal of the American College of Dentists* 61, no. 2 (1994): 34-39; Hood, 454-463.

[328] Davis et al., 1009-19.

California Endowment (TCE), provide dental students with educational experiences with the intention of reducing healthcare disparities through an increase in minority recruitment and volunteerism.[329] The Pipeline project was instituted in response to access to healthcare issues of underserved and disadvantaged populations in the United States and included "fifteen [u]niversities with dental schools."[330] The funding provided scholarships for "underrepresented minority and low-income students," a didactic program for all students, and required "sixty days" of treatment by students in underserved community clinics.[331] Aside from striving to make health care more accessible to vulnerable populations, program goals included building a healthcare system that is culturally competent. Its aim included expansion of the dental curriculum—to include new courses or content added to existing courses in community-based education and an increase in number of extramural community rotations.[332] The Pipeline project identified challenges to instituting outreach experiences. Finding additional time for the experiences within an already packed curriculum was identified as the greatest challenge, as was finding appropriate sites, coordinating off-site faculty, supporting experiences with relevant andragogy, and developing insurance agreements.[333] Nonetheless, the extramural rotations within the project were considered to provide more

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[329] H. L. Bailit et al., "The Origins and Design of the Dental Pipeline Program," *Journal of Dental Education* 69, no. 2 (2005): 239-248.

[330] Bailit et al., 237.

[331] Bailit et al., 234.

[332] Ronald M. Andersen et al., "Summary and Implications of the Dental Pipeline Program Evaluation," *Journal of Dental Education* 73, no. 2S (Feb. 1, 2009): S319-S330.

[333] Andersen et al., S319-330.

realistic work experience. It was envisioned that rotational experiences supported academic learning, increased ability to reach diverse populations, and raised student perspectives regarding communities in need and their ability to serve those in need.[334]

> Thus, it is usually during the process of formal education that professionals develop certain moral competencies and develop a particular vision of their future working life that may or may not include a sense of obligation to care for the underserved according to their personal talents and circumstances.[335]

The 2001-2007 Pipeline, Profession and Practice program emphasized volunteerism as a way to address the dental crisis.[336] Philosopher David Hume suggests the extent to which even a moral community is charitable has its limitations concerning strangers/others especially when the benevolence impacts self-interest.[337] For that reason, rather than use SL to inculcate the notions of altruism and charity in students, SL may be leveraged forward to add the dimensions of social responsibility. With adequate support, SL may improve advocacy to and care of the vulnerable and underserved populations, increase use of preventive healthcare models, increase establishment of universal health care, and use of dental hygiene therapists (DHT) to reduce access barriers.[338] The DHT is

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[334] Andersen et al., S319-330.

[335] Welie and Rule, 33.

[336] Alan Formicola, "Dental Pipeline Program: a national program linking dental schools with the issue of access to care." *Journal of the American College of Dentists* 75, no. 4 (Winter 2008): 24-28.

[337] David Hume, *Inquiries concerning Human Understanding and concerning the Principles of Morals,* Reprinted from 1777 edition, 2nd ed., L. A. Selby-Bigge, ed. (Oxford: Clarendon Press, 1966), 192-204.

[338] Hemphill, 283; Charla Lautar and Faith Y. Miller, "Service-learning and Dental Hygiene: A Literature Review," *Journal of Dental Hygiene* 81, no. 3 (2007): 64-74.

a midlevel oral health practitioner who "provides primary oral health care directly to patients"[339] similar in concept to the nurse practitioner.

According to Bebeau and Monson, a self-defining professional is one who accepts the social contract between providers and patients, and puts the welfare of patients before personal interest.[340] In a monograph supported by the Community-Campus Partnerships for Health (CCPH) Fellows Program, Michelle Henshaw states, "service-learning is an educational strategy that takes community-based education to a higher level."[341] It enhances areas of learning that impact "academic performance, civic engagement, as well as social and professional development."[342] Findings from a study by Simmer-Beck et al. support Henshaw's claims regarding the impact of SL on professional development. The authors conclude that "academic service learning enhance[s] students' learning, awareness of community needs and their roles as oral health professionals."[343]

In response to calls for reform, the aforementioned domains and service learning are now represented in the Accreditation Standards for Dental Education Programs from the Commission of Dental Accreditation. For example, graduates of dental schools must

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[339] Robert Callahan, American Dental Hygienists' Association Press Release, ADHA Supports Creation of Dental Hygiene Therapists in Maine, http://www.adha.org/ resources-docs/ADHA_Supports_Creation_of_Dental_Hygiene_Therapists_in_ Maine.pdf (accessed Oct. 17, 2014).

[340] M. J. Bebeau and V. Monson, "Professional Identity Formation and Transformation across the Life Span," in *Learning Trajectories, Innovation and Identity for Professional Development*, eds. Anne McGee and Michel Eraut (London/New York: Springer, 2012), 135.

[341] Michelle Henshaw, "Evaluating Service-Learning Programs in Dental Education," Monograph supported by Community-Campus Partnerships for Health (CCPH): 1.

[342] Henshaw, 1.

[343] M. Simmer-Beck et al., "Measuring the Short-term Effects of Incorporating Academic Service Learning Throughout a Dental Hygiene Curriculum," *International Journal of Dental Hygiene* 11 (2013): 265.

be skilled in "factors and practices" correlated with disparities in health and wellness of different socio-economic groups and in basic cultural nuances and the acquisition of "core professional attributes, such as altruism, empathy, and social accountability, needed to provide adequate care in a multi-dimensionally diverse society."[344] Standard 2-10 expresses a requirement for dental institutions to develop resources that guide graduates in making judgment and taking action on issues that impact public health status.[345] Dental Standard 2-24 requires graduates to be skillful in "assessing the treatment needs of patients with special needs" with the intent of ensuring experiences that consider the complexities of treating chronically ill individuals.[346] Finally, Dental Standard 2-25 requires that programs "make available opportunities and encourage students to engage in service-learning experiences and/or community-based learning experiences."[347]

As determined by the Commission on Dental Accreditation (CODA), dental hygiene program graduates must be competent in areas that will improve access to care issues and alleviate disparities in oral health care.[348] In 2013, key stakeholders in dental hygiene education held a symposium recommending changes to dental hygiene

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[344] Accreditation Standards for Dental Education Programs from the Commission of Dental Accreditation, Standards, Behavioral Sciences, 2-15-2-16, DEP Standards (Chicago, IL: American Dental Association), Aug. 6, 2010, http://www.ada.org/~/ media/CODA/ Files/predoc_2013.ashx (accessed June 8, 2014).

[345] Accreditation Standards for Dental Education, Ethics and Responsibility, Dental Standard 2-20, 27.

[346] Accreditation Standards for Dental Education, Clinical Sciences, Dental Standard 2-24, 30.

[347] Accreditation Standards for Dental Education, Clinical Sciences, Dental Standard 2-25, 30.

[348] Accreditation Standards for Dental Hygiene Education programs, Commission on Dental Accreditation, American Dental Association (Aug. 1, 2014), 14, 23, http://www.ada.org/~/media/CODA/Files/dh.ashx. (accessed on Aug. 18, 2014); Lautar and Miller, 64.

educational curricula. "The goal of the three-day meeting was to discuss how the profession would need to transform its educational process to achieve expanded roles and new opportunities for dental hygienists in the future."[349]

Stakeholders were members of the Santa Fe Group (scholars, corporate leaders, and representatives from the health-related professions), the ADHA, and the ADHA Institute for Oral Health (a foundation supportive of the professional, educational and research needs of dental hygiene professionals).[350] They proposed inclusion of new relevant curricular domains and models such as customized patient-centered care, healthcare systems, and oral communication, including inter-professional and intra-professional communication and collaboration skills.[351] Despite efforts to transform dental hygiene education, currently students are not provided requisite standards for competence in SL experience that may support these domains. Furthermore, dental hygiene accreditation standards do not include a definition of service-learning or community-based experience, whereas the dental standards include both. Dental Hygiene Standard 2-16 addresses student competency development in "assessing, planning, implementing, and evaluating community-based oral health programs," but not

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[349] U.S. Department of Health and Human Services, Health Resources and Services Administration, (2014), Transforming Dental Hygiene Education, Proud Past, Unlimited Future Proceedings of a Symposium September 18-20, 2013 (Chicago, Illinois: May 2014): 4, http://www.hrsa.gov/publichealth/clinical/oralhealth/ transformingdentalhygiene.pdf (accessed June 8, 2014).

[350] U.S. Department of Health and Human Services, Health Resources and Services Administration, (2014), 1-31.

[351] U.S. Department of Health and Human Services, Health Resources and Services Administration, (2014), 4-31.

engagement in service-learning experiences.[352] Alternatively, the Accreditation Standards for Dental Hygiene Education Programs include "off-site enrichment experiences" as a suggested outcomes measurement tool in Standard 2-12.[353] It states, "Graduates must be competent in assessing the treatment needs of patients with special needs."[354] Expansion of the ADA accreditation standards to include SL in dental hygiene education will encourage programmatic implementation of SL because of its potential to influence the profession of dental hygiene and promote emerging practice trends in dental hygiene aimed at better serving the public.[355] According to Sharlee Burch,

> There is a clear need for dental hygiene programs to implement proven educational strategies that allow students to experience greater independence and diversity in patient populations and work environment all the while preparing them as the next generation of dental hygiene leaders.[356]

Challenges to Implementation and Sustenance of SL

There is wisdom in using multiple strategies to support institutional adoption of SL as well as to recruit and sustain SL faculty.[357] However, gaining "substantial faculty

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[352] Accreditation Standards for Dental Hygiene Education Programs, 23.

[353] Accreditation Standards for Dental Hygiene Education Programs, 21.

[354] Accreditation Standards for Dental Hygiene Education Programs, 21.

[355] Lautar and Miller, 64-74.

[356] Sharlee Burch, "Strategies for Service-Learning Assessment in Dental Hygiene Education," *Journal of Dental Hygiene* 87, no. 5 (Oct. 2013): 267.

[357] Elisa Abes, Golden Jackson, and Susan Jones, "Factors that Motivate and Deter Faculty Use of Service-Learning," *Michigan Journal of Community Service-Learning* 9, no. 1 (Fall 2002): 5-17; Garry Hesser, "Faculty Assessment of Student learning: Outcomes Attributed to Service Learning and Evidence of Changes in Faculty Attitudes about Experiential Education," *Michigan Journal of Community Service Learning* 2 (1995): 33-42; Chris Hammond, "Integrating Service and Academic Study: Faculty Motivation and Satisfaction in Michigan Higher Education," *Michigan Journal of Community Service Learning* 1, no. 1 (1994) : 21-28; T. K, Stanton and J. Wagner, " Educating for Democratic Citizenship: Renewing the

participation" in SL activities is perhaps the single most important element in its successful incorporation within the curriculum.[358] Linking the use of SL to positive learning outcomes, improved community partnerships, improvements in character development, and social competency are among factors that most strongly motivate SL use among faculty.[359] Also, strategies could be employed to counter deterrents to the use of SL.[360] One deterrent is a perception on the part of faculty that it takes away from teaching more critical content.[361] Other deterrents are the perception that SL lacks academic weight (rigor) and relevance, and that its logistical demands are laborious and require a lot of time.[362] Another deterrent is the challenge of finding room in an already packed curriculum. Some dental hygiene programs are working around this issue by "shifting select content to asynchronous delivery."[363] "Repurposing time in the curriculum to online, asynchronous delivery represents an effective method for integrating [andragogically] sound innovations into dental and dental hygiene education."[364] In addition, few schools have clear faculty reward systems linking SL

Civic Mission of Graduate and Professional Education at Research Universities," Position paper presented at the Stanford Symposium on Civic Engagement and Graduate Education at Research Universities, Stanford University, CA, April 24, 2006.

[358] Abes, Jackson, and Jones, 1.

[359] Abes, Jackson, and Jones, 9.

[360] Abes, Jackson, and Jones, 9.

[361] Abes, Jackson, and Jones, 9-11.

[362] Hammond, 21-28.

[363] Kimberly Krust Bray et al., "Motivational Interviewing in Dental Hygiene Education: Curriculum Modification and Evaluation," *Journal of Dental Education* 77, no. 12 (Dec. 2013): 1668.

[364] Bray et al, 1668.

teaching to promotion and tenure.[365] In an effort to promote institutionalization and increase use of SL, universities are offering grants and awards for integrating SL into coursework.[366] Educators are more likely to engage in SL activities when they are personally motivated, supported by peers, and compensated for their efforts.[367] Indeed, strategies are needed to support faculty participation in SL especially since many of these faculty "appear to be internally motivated."[368] Use of humanities (in faculty workshops) to support factors that motivate and counter those that deter the use of programmatic and faculty participation in SL merits attention and has value.

Dental Service Learning and Value of Medical Humanities Instruction

In 2006, Yoder identified a framework for SL in the education of dental and dental hygiene students, and the value of its inclusion within the curricula.[369] The ten key areas characterizing true SL activities are

1. Academic Link
2. Sustained Community Partnerships
3. Service-Learning Objectives
4. Broad Preparation
5. Sustained Services
6. Reciprocal Learning
7. Guided Reflection
8. Community Engagement

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[365] Abes, Jackson, and Jones, 9-11.

[366] Abes, Jackson, and Jones, 9-11.

[367] Abes, Jackson, and Jones, 9-11.

[368] Abes, Jackson, and Jones, 15.

[369] Yoder, 115-123.

9. Evaluation and Improvement
10. Community Engaged Scholarship[370]

According to Yoder, integrating SL into the dental curriculum provides a "deeper understanding of the subject matter and the complexity of social issues."[371] Moreover, SL experience has the potential to develop a mindset that includes what Rule and Bebeau describe as a desire to provide compassionate care that comes from viewing suffering from the patient's perspective.[372] These experiences have the potential to influence how students define their professional identity in relation to the public they serve, for example, to identify career and ethical responsibilities.

Above all, SL requires specific academic and curricular preparation that goes beyond the traditional emphasis on technical competence.[373] SL must be accompanied by narratives surrounding the lives of the population served such as HIV patients, pediatric patients, the poor, immigrants, or victims of torture. The creation of a dental hygiene treatment plan linked to a single etiologic disease agent is no longer a feasible or competent patient management strategy. In order to offer true patient-centered care, students need a comprehensive understanding of their patients' stories (including social, cultural, economic and educational background) to assess risk and manage disease. Nevertheless, this type of contextual understanding is not included in traditional education.

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[370] Yoder, 118.

[371] Yoder, 116.

[372] J. T. Rule and M. J. Bebeau, Dentists Who Care: Inspiring Stories of Professional Commitment (Chicago, IL: Quintessence Publishing, 2005), 171-172.

[373] Whipp et al., 860-6.

Imagine training students to use new technologies (that detect disease in a single appointment) without providing proper pre-clinical preparation regarding its effects on patients. As identified earlier in this paper, health problems are influenced by complex pathways; consequently, "biomedical science is in need of some new, more holistic approaches to complexity."[374] Belling contends that humanities do not replace science with "fuzzy holism,"[375] but rather train students to examine material closely through textual analysis (ways of seeing how "other human beings make sense of the world").[376] Belling states that reading literature helps students see "all knowledge—scientific, clinical and cultural" as narrative needing critical analysis "before it can be understood and deployed."[377] Osipov claims the humanities disciplines detect intricacies of disease and create more comprehensive approaches to patient communication and treatment.[378] Also, clinicians need the humanities to develop alternative ways of seeing that are "respectful of other intelligences and sensibilities."[379] This enlargement of perception provides a more effective and empathic approach to care of patients in an environment of high tech products and procedures.

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[374] David K. Stevenson et al., "Transdisciplinary Translational Science and the Case of Preterm Birth," *Journal of Perinatology* 33 (2013): 251, http://www.nature.com/jp/jounal/v33/n4/pdf/jp2012133a.pdf (accessed Oct. 9, 2014).

[375] Catherine Belling, Commentary: "Sharper Instruments: on Defending the Humanities in undergraduate Medical Education," *Academic Medicine* 85, no. 6 (2010): 939.

[376] Alan McKee, *Textual Analysis: A Beginner's Guide* (Thousand Oaks, CA: Sage, 2003), 1.

[377] Catherine Belling, "Begin with a Text: Teaching the Poetics of Medicine," *Journal of Medical Humanities* 34, no. 4 (2013): 485.

[378] Rimma Osipov, "Do Future Bench Researchers Need Humanities Courses in Medical School?" *Virtual Mentor* 16, no. 8 (Aug. 2014): 604-609.

[379] Carson, 26.

Along the same line, Charon claims the humanities "pries open for renegotiation fundamental ways of knowing proposed to be required for clinical competence."[380] Without proper support, students may be unable to counsel patients with compassion and an appreciation for the impact of the illness experience on their patients' lives. Use of new technology in patient assessment and treatment is exciting to students. However, the use of new technology in clinical teaching without narrative structure (regarding its impact on their patients' lives) may contribute to rather than alleviate patient suffering.

Historically, clinical teaching has been the primary focus of dental education, and for decades, has been managed in the same way. Clinical training has been structured around information packed curricula, a very rational approach to patient care with an emphasis placed on a "judicious" use of best evidence throughout the process of patient care, and an isolated "tradition of dental practitioners."[381] However, this approach often fails to achieve its goal of patient-centered care. Traditional (fragmented) multidisciplinary curricula that emphasize lecture-style methodology are becoming obsolete. Clinics operating "as teaching laboratories rather than patient-centered delivery areas"[382] and the solo practice healthcare delivery model have been replaced with new methods, technologies, and learning environments. New approaches to dental clinical

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[380] Charon, 936.

[381] William D. Hendricson and Peter Cohen, "Oral Health Care in the 21st Century: Implications for Dental and Medical Education," *Academic Medicine* 76, no. 12 (Dec. 2001): 1181-1206.

[382] Smith et al., 11.

training incorporate competency-based innovative, integrative, and interdisciplinary curricula using "problem-centered, 'hands-on' collaborative learning"[383]

The state-of-the-art integrated inter-disciplinary curriculum brings together discrete aspects of the curriculum in meaningful ways and allows broader exploration and application of information.[384] Additionally, this curriculum includes interprofessional experiences with opportunities to interact equally as members of a healthcare team. According to Deborah Hunt, "oppression in [allied health professionals] has been fostered by the use of the biomedical model and educators who continue to use traditional approaches to education."[385] Instead, educators should use modes of teaching that increase awareness and bring a sense of empowerment to the education process through reflection, communication, and critical thinking.[386] This new curricular framework binds educational disciplines and healthcare specialties.

Innovative curricula that include interdisciplinary and inter-professional experiences go beyond what the social scientist Jurgen Habermas describes as "technical knowledge"—that which looks for causal explanations through empirical/analytical

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[383] W. Hendricson and P. Cohen, "Future Directions in Dental School Curriculum, Teaching, and Learning," in *Leadership for the Future: The Dental School in the University* (Washington,DC: Center for Educational Policy and Research, American Association of Dental Schools, 1999): 41.

[384] Hani S. Atwa and Enas M. Gouda, "Curriculum Integration in Medical Education: A Theoretical Review," *Intellectual Properties Rights: Open Access* 2, no. 2 (Apr. 1, 2014): 1-7, http://esciencecentral.org/journals/curriculum-integration-in-medical-education-a-theoretical-review-ipr.1000113.pdf (accessed Aug.12, 2014).

[385] Deborah Dolan Hunt, *The New Nurse Educator: Mastering Academe*, (New York, N.Y. : Springer Publishing, 2013), 72.

[386] Hunt, 72.

sciences—to consider "practical and emancipatory knowledge."[387] Habermas explains that technical knowledge is incapable of solving social problems and requires other approaches. He states, "The empirical, analytical sciences produce technical recommendations, but they furnish no answer to practical questions."[388] Problems that are rooted in social ills or power relationships (in the workplace or in patient care) need to be addressed through other interpretive or reflective means.[389] Practical knowledge emphasizes "the interpersonal basis of human experience"[390] through collaboration, group problem solving in comprehensive care, and relates scientific principles to aspects of the patient's life stories and clinical presentation. Emancipatory ways of learning and knowing use self-knowledge and reflection, active inquiry and ethical decision-making to explore the social and political forces that shape personal and professional decision-making.[391]

The Medical Humanities allow healthcare professionals to construct knowledge and interpret experience essential to patient care. They provide tools to develop critical thinking skills, encourage respect for diverse cultures and opinions, cultivate interest and compassion, and enable cross-disciplinary communication. Consequently, the humanities help students see relationships between knowledge, education and the human condition.

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[387] Jurgen Habermas, *Knowledge and Human Interests* (Boston: Beacon Press, 1971), 1-43.

[388] Jurgen Habermas, *Theory and Practice*, trans. John Viertel (Boston: Beacon Press, 1973): 254.

[389] L. Kuokkanen and H. Leino-Kilpi, "Power and Empowerment in Nursing," J*ournal of Advanced Nursing* 31, no. 3 (Jan. 2000): 235-231.

[390] Beverley Taylor, *Reflective Practice For Healthcare Professionals: A Practical Guide*, 3rd ed. (New York: McGraw-Hill Education, 2010), 105.

[391] Habermas, *Knowledge*, 1-43.

Whipp et al. contend that practical and emancipatory forms of knowledge such as SL have been under-utilized in dental education and strategies.[392] The effects of instructional strategies may improve SL especially in regard to requiring special andragogic training to promote awareness of health disparities and commitment to serving vulnerable populations. SL activities need a well-planned humanistic education before, during, and after implementation to overcome impediments to learning and reshape concepts of social justice. Because of the encounter with socio-political situations of "difference," humanities supported SL activities may help students better appreciate the patient's experience as central to the provider's work, identify system-wide problems, better value and utilize their knowledge/skill-base, such as preventive care, and become advocates for change through practices, research and public policy development.

Historically, emphasis in dental education and practice has been on the patient as a passive recipient of care, though there has been improvement. Now, there is less hierarchical and greater dialogue-based collaboration with the patient regarding treatment goals, methods, and outcomes.[393] However, because SL activities take place within a market-based system of care, close attention must be paid to ethical assumptions, provider and patient relationships, and conduct of providers within these systems. For example, instead of perceiving community-based patients as "failed consumers," there needs to be a repositioning of the patient's experience as being central to the provider's work and of the balance of power. According to Rivkin-Fish, the acceptance of

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[392] Whipp et al., 860-866.

[393] T. Yoshida, P. Milgrom and S. Coldwell. "How Do U.S. And Canadian Dental Schools Teach Interpersonal Communication Skills?" *Journal of Dental Education* 66, no.1 (2002): 1281-8.

"volunteer entitlement versus recipient debt" and the ability to excuse inferior care as better than no care are examples of the type of "compromised morality" that is created by the "commodification of care" within volunteerism.[394] Humanities enhanced SL may create a stronger professional identity, eliminate the notion of hierarchical relationships, improve patient-provider relationships, and turn collaborative interaction (between diverse allied health colleagues) into more efficient and equitable healthcare models.[395] By having a comprehensive understanding of the patients' lives through their stories, students and SL rotational (clinical extramural site assignments) faculty may increase moral perspective to provide a quality of care that preserves the ideal to do no harm to patients.

Medical educators have used the arts in education since the late 1960s[396] as a way of exploring the meaning of the illness experience. The arts have helped with deconstructing the meaning of suffering, and death, in particular, examining how relationships are elucidated in the context of disease (especially those between providers and patients).[397] On the other hand, dental education has lagged behind in that respect. The Past President of New York University, John Sawhill, made a strong statement in regard to education devoid of humanistic concern. He said, "we run the risk of creating technicians unable to make creative judgments, unable to place their experiences in the

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[394] Rivkin-Fish, 183-208.

[395] Strauss et al., "The Impact," S44.

[396] Janet Bickel, "Human Values Teaching Programs in the Clinical Education of Medical Students." *Journal of Medical Education* 62, no. 5 (1987): 369-78.

[397] Arno Kumagai, "Perspective: Acts of Interpretation: A Philosophical Approach to Using Creative Arts in Medical Education," *Academic Medicine* 87, No. 8 (2012): 1138.

context of the social, political, and economic world, and unable to recognize their own spiritual place in the universe."[398] In the 1980s, Enid A Neidle began a series of non-credit courses at NYU as part of the "Institute for Humanities in Dentistry."[399] The courses addressed concerns that dental education produces clinicians unable to place professional practice in the context of people's lives.[400]

In that vein, some dental educational institutions are utilizing the humanities to improve the effectiveness of SL and profiting from the variety of methods already used in medical education. For example, Balis and Rule of the Department of Pediatric Dentistry of the University of Maryland Dental School have implemented a series of seminars that use the humanities as adjuncts to clinical education.[401] The seminars intend to cultivate a social and collegial environment with opportunities for guided discussion and reflection. Films and literary works, both fiction and non-fiction, are used to dramatize relevant illness experiences and themes. The program objectives, as indicated in the literature, include:

- To gain insight into the human aspects of patients' lives,
- To enhance provider sensitivity to psychological and emotional needs of the patient,
- To encourage empathic understanding of the patient,
- To integrate an understanding of human values into dental education, and

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[398] John Sawkill, "Report to the Medical Faculty," New York University, Nov.14, 1977.

[399] Enid A. Neidle, "Bringing Humanities into Dental Education: A Modest Experiment," *Moblus: A Journal for Continuing Education Professionals in Health Sciences*, Special Issue: *Medical Humanities* 2, no. 3 (July 1982), 92.

[400] Enid A. Neidle, "Dentistry–Ethics–the Humanities: a Three-Unit Bridge," *Journal of Dental Education* 44 (1980): 693-696; Neidle, "Bringing Humanities," 89-104.

[401] Balis and Rule, 709-715.

- To increase the potential for communication and improvement in patient management skills.[402]

Dental schools are offering small group seminars in the humanities using literary analysis of texts such as *The Elephant Man*[403] and *The Death of Ivan Ilyich*[404] to gain perspective on the individual in the context of illness.[405] At the School of Dentistry, University of California, San Francisco, a mandatory pre-curriculum course offers insight into ways of thinking using the humanities. The purpose is to make formal courses in ethics more understandable and relevant, allowing students the opportunity to decide for themselves what constitutes ethical behavior.[406] SL may be enhanced by self-assessment and reflection. At the University of North Carolina, School of Dentistry, students receive pre-clinical preparation regarding the reflective activities expected of them during their SL rotations.[407] This curriculum integrates basic sciences, community sciences, and cultural competence with clinical skills.[408] The reflective activities include critical incident reports, a critical incident essay, and a photographic scrapbook and post-rotational discussion.[409] Students record encounters that challenged them personally and

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[402] Balis and Rule, 711.

[403] Bernard Pomerance, *The Elephant Man* (Broadway, New York: Grove Press, 1979).

[404] Leo Tolstoy, *The Death of Ivan Ilyich and Other Stories* (London, England: Penguin Books, 1960).

[405] Balis and Rule, 710.

[406] Bertolami, "Ethics," 418.

[407] Strauss et al., "Reflective-Learning," 1234-42; Mofidi et al., "Dental Students' Reflections on Their Community-Based Experiences: the Use of Critical Incidents," *Journal of Dental Education* 67, no. 5 (2003): 515-523.

[408] Strauss et al., "Reflective-Learning," 1234-42; Mofidi et al., 515-523.

professionally while instructors help interpret the meaning of the interactions in the context of patients' lives. [410] Mofidi et al. conclude that community experiences will have fleeting effects unless accompanied by reflection.[411]

In a related article, the authors indicate third party intervention to resolve dilemmas in health care may be unnecessary if providers develop expertise—through guided reflection—to recognize the possible relationship between patients' unresponsive or "difficult" behaviors and feeling morally wronged.[412] At the College of Nursing at Marquette University, a required course lays the foundation for cultural competence in SL by examining social inequities and the healthcare provider's responsibility in perpetuating and confronting them.[413] The course counters students' presumptions formed by market justice perspectives. Market justice in health care is defined by Peter Budetti, MD, JD, as healthcare "that competes for consumers with other items in the marketplace…with little sense of collective obligation or a role for government."[414] The course elucidates how market justice emphasizes personal responsibility in disease and health care and minimizes a sense of shared responsibility. Classroom activities explore

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[409] Strauss et al., "Reflective-Learning," 1234-42; Mofidi et al., 515-523.

[410] Strauss et al., "Reflective-Learning," 1234-42; Mofidi et al., 515-523; J. C. Flanagan, "The Critical Incident Technique," *Psychological Bulletin* 51 (1954): 327.

[411] Mofidi et al., 516.

[412] Arlene Davis, Michele Rivkin-Fish, and Deborah Love, "Addressing "Difficult Patient" Dilemmas: Possible Alternatives to the Mediation Model," *The American Journal of Bioethics* 12, no. 5 (2012): 13-14.

[413] Belknap, 9.

[414] Peter P. Budetti, "Market Justice and U.S. Health Care," *The Journal of the American Medical Association* 299, no. 1 (Jan. 2, 2008): 92.

power relationships through role-playing and literature study, for example, using *A Gardener's Tale*[415] to highlight "theories of oppression, racism, classism, sexism, and issues of healthcare disparities."[416] Through discussion and guidance, "it soon becomes clear that many of [the patient's] apparently unhealthy choices are determined by her [own] lack of resources, culture, and life situation."[417] Therefore, reflection that excludes a social framework (seeing through another's perspective) may provoke a response "limited to feeling instead of acting."[418]

According to the philosopher Kumagai, human sciences provide the structure for "reflecting on the meaning of illness and the nature of doctoring"[419] by moving beyond "the limitations of [their] ordinary life" and "look[ing] at oneself, others and the world anew."[420] Kumagai describes the human sciences as disciplines that "study humans as social, expressive, historical beings (e.g., sociology, history, anthropology, art history, and literature)."[421] The human sciences keep healthcare workers from creating a "reductionist vision" of patients as a set of illnesses rather than people.[422]

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[415] Camara Phyllis Jones, "Levels of Racism: A Theoretic framework and A Gardener's Tale," *American Journal of Public Health* 90, no. 8 (Aug. 2000): 1212-1215.

[416] Belknap, 10.

[417] Belknap, 10.

[418] Kumagai, 1142.

[419] Kumagai, 1138.

[420] Kumagai, 1142.

[421] Kumagai, 1141.

[422] Kumagai, 1140.

In using *The Arts and Humanities to Teach Nursing*, Valiga and Brudele describe the arts as tools for transformation. They create a learning experience, sensitize people to realities, increase social consciousness and a sense of self-efficacy[423] that move students to change perspectives and conduct. The arts make connections between seemingly disparate subjects and scientific knowledge to practice, and promote patient-centered attitudes and behaviors toward health care; therefore, use of the medical humanities in tandem with SL experiences enhances their effectiveness and keeps them from becoming just another trendy educational "add-on."[424]

Curriculum

To address current and future trends and issues in dental education, the ideal curriculum places less emphasis on compartmentalized courses, in-class lectures, and multiple-choice format assessments.[425] "The current educational programs will need to…mov[e] away from an educational environment that rewards memorization and survival game strategies" to provide students with opportunities "to reflect and think about their learning."[426] The ideal curriculum provides students with purposeful learning experiences that continuously contextualizes information, mimics real world situations with authentic patient questions, and cultivates the right perspective and sensibility for

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[423] Theresa Valiga and Elizabeth Bruderle, *Using the Arts and Humanities to Teach Nursing*: *A Creative Approach*, (New York: Springer Publishing, 1997), 11-13.

[424] V. J. Grant, A. Jackson, and T. Suk, "Courses, Content, and a Student Essay in Medical Humanities*," Journal of Medical Ethics: Medical Humanities* 28 *(*2002): 49.

[425] DePaola, "Revitalization," 28-42; Perkins and Salomon, 22-32; Pyle et al., 922, 923).

[426] Pyle et al., 922, 923.

the provision of ethical health care.[427] At NYUCD-DHP, the curriculum is working toward that end. The curriculum is competency-based and sequential, with several track options and blended course delivery to accommodate student needs. A twelve-member curriculum committee that includes student representatives reviews curriculum content in two-year cycles. The committee is charged with making recommendations regarding:

- Individual course syllabi formatting issues,
- Course directors' end of course concerns,
- Review of courses and curriculum from a broad perspective in order to meet the national board exams' expectations,
- Better integration of subjects within the curriculum around themes,
- Increasing opportunities for student research,
- Using new science and technology to improve oral healthcare and evidence-based practices, and
- Promoting the use of innovative assessment tools and andragogy, including a humanistic approach to support SL.

A humanistic approach to dental health education is evident throughout the DHP that may provide valuable support for its SL activities. Humanities seminars are tied to second semester Principles of Dental Hygiene II lecture and seminar courses prior to and during the SL experiences. Also, the curriculum includes a formal ethics course in both A.A.S. and B.S. degree-completion curricula. The humanities seminars are in keeping with Enid Neidle's original concept of an "Institute for Humanities in Dentistry"

[427] Nash, 567-578; Blue, 1042-1051; Hood, 455; Whipp et al., 860-866.

mentioned earlier in this paper.[428] Professional ethical issues as part of professionalism are discussed and examined throughout the curricula. The purpose of the seminars is to support ethical reasoning and decision-making as well as develop a strong professional identity early within the program for assimilation into the process of patient care. All professionalism-learning experiences require unit behavioral objectives, identification of links to programmatic core competencies, and outcomes assessment to show competence in this accreditation standard. In the fall of 2006, the NYUCD-DHP implemented a Cultural Competence curriculum. The full-time faculty completed training and cultural content has been integrated throughout the entire Principles of Dental Hygiene I-IV curriculum[429] as of spring 2014. The emphasis of the DHP educational model is personal engagement (making the learner central to the learning process), personal significance, and concerns for the total person and the human condition.

In as much as this dissertation presents modalities to enhance SL by incorporating Medical Humanities, I will highlight NYUCD-DHP curricular activities directed toward that aim. First, I will clarify SL as part of the student clinical rotational outreach experiences and then I will discuss the humanities curriculum.

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[428] Neidle, "Dentistry," 693-696; Neidle, "Bringing Humanities" 89-104.

[429] The Principles of Dental Hygiene (PRINS I-IV) courses are pre-clinical and clinical lecture and seminar courses designed to provide the fundamental skills needed for patient-centered evidence-based dental hygiene care. PRIN I-IV courses use a conceptual framework of the process of hygiene care that moves from assessment, diagnosis, planning and implementation to evaluation. PRINS I-IV content is the (multidisciplinary) hub of the DHP curriculum because it interrelates themes and disciplines in dental hygiene. Its content contextualizes and integrates all DHP curricular content to create explicit bridges (transfer of knowledge immediately into practice). The NYUCD-DHP model of education is innovative because it incorporates advances in dental hygiene practice, emerging technologies, and research in ways that develop expert, life-long learners capable of dealing with challenges in healthcare delivery.

Rotational Outreach Experiences

NYUCD Dental Hygiene entry-level programs require students to participate in both service-learning and community-service activities as rotational outreach experiences. The service-learning activities are combined with academic coursework and forms of assessment such as clinical competency evaluation, self-assessment, focus group activities, guided reflection, and journaling.

On the other hand, the community-services are limited by their short time frame and level of community involvement.[430] Additionally, they lack curricular ties. Despite their limitations, students are encouraged to participate in college sponsored national and international outreach activities as dental health presentations or screenings. During service-learning activities, students provide supervised care at hospital clinics, a nursing home facility, pediatric department sponsored school screenings, sealant Head Start rotations, and through individually created projects required in the Preventive Dentistry and Public Health course. Regular service-learning rotational experiences are tied to the curriculum through objectives, evaluation measures, and relevant program competencies.[431] The specific service-learning objectives (SLO) are designed according to Yoder's framework, whereby they combine service objectives representing service to the community partners and learning objectives representing student-learning requirements within each objective.[432] In addition, learning outcomes are matched to

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[430] Westat and Chapman, 3.

[431] For the NYUCD-DHP service-learning rotational goals and objectives see Appendix C.

[432] Yoder, 119.

"national health agendas such as *Healthy People 2020*," as "an evaluation norm" and a means "for meeting the oral health objectives of the nation."[433]

As opportunities present themselves, students provide traditional community dental health outreach services as dental health presentations. The community service activities provide research opportunities and organizational and practical experiences limited by their short time frame and level of community involvement.[434] Efforts are made to include students in various outreach opportunities, without curricular ties, such as those sponsored by local and state professional organizations. Also, students are required to perform a required number of community-service outreach efforts as part of their clinic course professionalism grade throughout the curriculum.

Rotational outreach experiences at NYUCD-DHP are designed to prepare students for future leadership roles in a changing healthcare environment. A humanistic approach within our curriculum aims at the promotion of best practices in service learning through emphasis on personal and professional development. Accordingly, "[h]igher education must not only seek to develop a clinically competent practitioner, but also one who is knowledgeable about community health issues and possesses an ethic of service and social responsibility."[435]

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[433] Hemphill, 296, 297.

[434] Hemphill, 284.

[435] Mofidi et al., 215.

Humanities Seminars

Since literature explores universal themes of the human condition, strategically placed humanities seminars use literary models to improve students' sense of social responsibility and professionalism in SL experiences. The humanities seminars occur throughout the NYUCD-DHP curricula, but are concentrated within the Principles of Dental Hygiene II lecture and seminar courses because of their emphasis on the dynamics of care. For example, in the Principles of Dental Hygiene II lecture course, I use the framework of Chekov's *Misery*[436] and William Carlos Williams' *Use of Force*[437] to help students become more aware of the isolating nature of suffering and consider the importance of communication skills and a caring attitude in the deliverance of patient care. Examination of images, metaphors, and symbols helps students reflect on meaning and enlarge their understanding of what characters are experiencing. Students write essays after the seminars, and beginning with the class of 2017, students will include their reflective writing activities in ePortfolios under relevant competency sections.

A series of humanities seminars is embedded within the Principles of Dental Hygiene II seminar course. The course is intended as a bridge between classroom, clinical and experiential learning such as SL. The first seminar is a presentation on the symbology of the human mouth and the importance for health professionals to acknowledge its philosophical, cultural, religious, and psychosocial relevance in the

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[436] Anton Chekov, *The Collected Short Stories of Anton Chekov: Volume 2* (Amazon Digital Services: Halcyon Classics, 2009).

[437] William Carlos Williams, "Use of Force," in *The Doctor Stories*, ed. Robert Coles (New York: New Directions Books, 1984), 56-60.

provision of care. This activity aims to help students find meaning in dental science, explore a topic through multiple disciplinary perspectives, to respect individuality in patient management, and to provide a more humanistic approach to patient care. The humanities seminars endeavor to strengthen bonds between caregiver and patient, deepen perspective, and to create a more humane healer. During the seminars, links are provided to SL, the nature of which may depend upon whether the seminar occurs prior to or during SL experiences. Typically, SL experiences tied to the curriculum occur within the third semester of the NYUCD-DHP curricula; however, students may be involved in community-based outreach experiences (lacking specific objectives or ties to program competencies) at any time.

Another humanities seminar provides opportunities for students to write and reflect on poems about experiences working with patients in community settings. The purpose of the exercise is to help students pay attention to clinical details while reflecting on the richness of the SL situations. The training aims to identify common themes encountered by clinicians and to explore areas of common humanity as well as specific differences between themselves and their patients. Exploration through poetry helps students engage in the acts of interpretation that occur during patient care. Seminar facilitators use excerpts from a poem by Rumi to help students develop what Robert Coles refers to as a "moral imagination" by going through the process of empathic understanding.[438]

[438] Robert Coles, *The Call of Stories: Teaching and the Moral Imagination* (Boston: Houghton Mifflin, 1989).

We are the mirror as well as the face in it.
We are tasting the taste this minute
Of eternity. We are pain
And what cures pain, both. We are
The sweet cold water and the jar that pours.[439]

Another humanities seminar uses film viewing as a teaching strategy for learning about cleft lip and cleft palate patients and the impact on multiple areas of quality of life. Students watch *Smile Pinki,*[440] the documentary by Megan Mylan about an unimaginably poor (by most U.S. university students' experience) rural Indian child with cleft palate whose life is completely transformed by its surgical repair. The film chronicles the cultural, psychosocial, and economic experience of cleft lip and palate on the child and her family as well as the impact of treatment. *Smile Pinki* presents a very personal narrative about how the disability experience encompasses entire lives. Students begin to realize there is more to treatment of patients than scientific knowledge acquired through a lecture. The film—as patient narrative—explores the experience of disability from the patient's perspective and improves understanding of the disorder and its management. First-person narratives about living with an illness or disability inspire compassion and self-reflection. Hearing a storied expression of scientific facts is more apt to improve what Rita Charon calls "narrative seeing" in clinical practice. It is the ability to look beyond facts of the oral-systemic problems and structure care around the patients' lives. It is the ability "to make contact and to affiliate with patients, colleagues, students, and

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[439] Jalal al-Din Rumi, "Music Master," in *The Essential Rumi*, trans. Coleman Barks (New York: Harper Collins, 1996), 105, lines 23-27.

[440] *Smile Pinki*, Directed and produced by Megan Mylan, a Principle Production, Bhojpuri: Smile Train, 2008.

the people."[441] "Narrative seeing" can influence students' concerns, address assumptions, provide relevance for learning by contextualizing knowledge, and result in a more other-centered care model.[442] It is remarkable to see the effect of including the human dimension in clinical training. As students write about the experience in the NYUCD-DHP Principles of Dental Hygiene II course, they move through the process of interpretation, reiteration, and action that is the hallmark of patient-centered care. Students engage in ethical reasoning and examination of their contradictory opinions regarding a more just healthcare system. Reflective essays help students make connections between the film, outside reading, and in-class discussions to personalize and deepen understanding of all facets of the disability experience.

During NYUCD-DHP humanities seminars, guided discussion provides insight into characteristics of a healing relationship between caregivers and patients, behaviors that enhance the relationship and those that contribute to its erosion. In-class activities such as storytelling animate content and relate it to real life framework. Exploration of narratives provides a way of *seeing* during clinical training that contextualizes knowledge and values and builds on student experiences. Also, students are encouraged to listen to patients' stories and share spontaneous stories of their own to support concepts relating to SL and to make sense of the experiences. All written reflection will be included in the students' ePortfolios to document growth and assess learning in related competency

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[441] Charon and DasGupta, viii.

[442] Arno Kumagai, Elizabeth Murphy, and Paula Ross, "Diabetes Stories: Use of Patient Narratives to Teach Patient-Centered Care," *Advances in Health Sciences Education: Theory and Practice* 14, no. 3 (August 2009):315-326; Levett-Jones, 112-119.

areas. Faculty use rubrics to maintain reliability during the assessment process and to communicate performance expectations to students.

Another one of the NYUCD-DHP humanities seminars occurs in the Preventive Dentistry and Public Health course. The course occurs during the third semester concurrent with SL rotational experiences. Students are given a presentation on SL from a social justice perspective. The presentation meets program competencies on professionalism, communication, and diversity as seen in NYUCD-Dental Hygiene Programs Competencies and Educational Outcomes, "Core Competencies," C5, C6, C8; HP1; CM1; PGD1.[443] The framework for the seminar, including objectives, assignments, and resources, is based on student evaluated methodology for teaching social justice issues by Ruth Belknap.[444] The seminar includes concepts such as the current burden of oral disease, the role of poverty and social structure in health and disease (classism, racism, sexism), and examines just ways to distribute benefits and deal with challenges of burdens of disease risk factors. Through in-class discussion and shared stories, students are challenged to articulate ways society creates inequality and how these constructs affect their values and relationships. Students learn about disparities in disease burden within the United States, issues with access to care, and ways SL addresses those issues. Additionally, the three-hour seminar addresses the historical context of the role of the healthcare professional, and examination of the term "professionalism." Moreover, it aims to engage students regarding the elements of professional behavior identified in a

[443] For a complete list of the NYUCD-DHP Core Competencies see Appendix C.

[444] Belknap, 9-12.

systematic review such as "adherence to ethical practice, effective interactions with patients and service users, effective interactions with staff; and reliability, and commitment to improvement, … reflectiveness/self-assessment, dealing with uncertainty, advocacy, balancing availability to others with care for oneself (duty, altruism, service), advancing knowledge and life-long learning."[445] As stated by Charon and Das Gupta,

> from the seeds of literature and medicine have grown the *thick green leaves* of other concerns—reconceptualizing empathy in clinical care, policy formation in disability studies and aging, global social justice in health, patient advocacy, the everyday practice of narrative ethics, and cognitive approaches to diagnostic thinking.[446]

Narrative Clinical Rounds

The vision for the NYUCD-DHP Narrative Clinical Rounds series derives its inspiration from Columbia University's "Narrative Medical Rounds" program. The NYU program sponsors presentations from scholars, writers, and clinicians whose work intersects narrative and dental and dental hygiene practice. The goal of the Clinical Narrative Rounds is to improve clinical effectiveness through exposure to forms of narrative. To date, the dental hygiene faculty has provided opportunities for the A.A.S. students and faculty from within NYUCD regarding treatment of special patients, utilization of innovative treatment modalities such as Motivational Interviewing (MI), and public health service experience. I envision being able to involve the NYUCD Office of Professional Development in my efforts to include NYU faculty from other disciplines

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[445] Tim J. Wilkinson, Winnie B. Wade, and L. Doug Knock, "A Blueprint to Assess Professionalism: Results of a Systematic Review," *Academic Medicine* 84, no. 5 (May 2009): 553.

[446] Charon and DasGupta, x.

to provide students with multidisciplinary experience and stories of professional commitment from nurses, sociologists, poets and writers. The NYUCD Office of Professional Development has already assisted in finding two NYUCD clinical psychologists to speak about MI, a behavior change method predicated on the need for a trusting relationship between patient and provider.[447] The method uses "acceptance [and] compassion" as well as "open-ended questions, … reflective listening, summarizing, and informing" when helping patients explore their ambivalence to lifestyle change.[448]

Joan Phelan, Chair of the Department of Oral and Maxillofacial Pathology, Radiology, and Medicine NYUCD, participated in the Narrative Dental Rounds on recommendation from the New York State Department of Health-AIDS Institute. Dr. Phelan shared very personal stories with students regarding *The Ethical Care of HIV or AIDS Patients* dating back to 1980. Dental hygiene students treat patients with HIV and AIDS in the NYUCD clinic regularly as well as work within a team to address the integrated approach to patient care and wellness. Although the students have didactic and some clinical experience regarding HIV and AIDS patient care, this extra narrative support enhances classroom learning, explores and addresses discriminatory attitudes, and alleviates apprehension over this issue. Clearly, students benefit from additional support (from the human sciences) in regard to this issue: that ethical treatment of patients requires thoughtful examination of attitudes, values, and a sense of duty.

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[447] Bray et al., 1662-1669; J. J. Freudenthal, "Motivational Interviewing," *Dimension of Dental Hygiene* 11, no. 3 (March 2013): 19-22.

[448] Bray et al., 1662.

Journals

Since the concept of professionalism is nuanced (and often defined broadly) and commitment to self-regulation and growth is an essential part of professional behavior,[449] NYUCD-DHP has been using journals in dental hygiene clinical practice as a way to support and measure attainment of skills in this competency area. The first two semesters of dental hygiene education are devoted to intensive delivery of core principles through course work and performance-based clinical experience. Journaling integrates information throughout the curriculum to keep it from becoming fractionalized and disconnected. Weekly journaling associated with clinical learning, as well as humanities seminars have been an important means by which NYUCD-DHP students apply critical thinking and socialization skills. Journaling is performed during clinical intramural rotations through assigned dental college groups, faculty, orthodontic or periodontic practices, and victims of torture honors clinic or during the extra-mural SL experiences on the pedodontics van or at Gouverneur Hospital and Woodhull Hospital. "Journaling is a personal recording of experiences and observations[,]"[450]and has been viewed as improving reflection and active involvement by making meaningful linkages between the

[449] Alice Frohna and David Stern, "The nature of qualitative comments in evaluating professionalism," *Medical Education* 39, no.8 (August 2005):763–768; Royal College of Physicians, "Doctors in Society: Medical Professionalism in a Changing World," Report of a Working Party (London, UK: Royal College of Physicians, 2005), 763-768, https://www.rcplondon.ac.uk/sites/default/files/documents/doctors_in_society_ reportweb.pdf (accessed September 1, 2014); Kalinka Van De Camp et al., "How to Conceptualize Professionalism: A Qualitative Study," *Medical Teacher* 26, no. 8 (2004):696-702.

[450] Ann Gwozdek, Christine Klausner, and Wendy Kerschbaum, "Online Directed Journaling in Dental Hygiene Clinical Education." *Journal of Dental Hygiene* 83, no. 1 (Winter 2009): 15.

students' experiences and their own thoughts, beliefs, and feelings.[451] Reflection topics at NYUCD are directed. For example, students are expected to respond to questions (included below) based on directed reflection by Ann Gwozdek, Christine Klausner, and Wendy Kerschbaum, 2009.[452]

Clinical Experience:

1. During provision of clinical patient care this week, which situation/event did you find challenging or difficult? Describe why. Identify one aspect of clinical patient care you found particularly enjoyable and describe why.
2. Describe how the patient was impacted by your dental hygiene treatment. Did you alter their attitudes, opinions or actions relative to oral health behaviors?
3. Did you treat someone whose cultural background was different from yours? Did you learn a significant fact relative to oral health beliefs and practices? Did you need to make treatment alterations to accommodate those differences?

Patient Motivation:

1. Read and reflect on how the following article will assist you with patient education: Jacqueline J. Freudenthal, "Motivational Interviewing," *Dimensions of Dental Hygiene* 11, no. 3 (March 2013): 19-22.

Oral Lesions:

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[451] Paula Hancock, "Reflective Practice Using a Learning Journal." *Nursing Standard* 13, no. 17 (Jan. 1999): 37-40.

[452] Gwozdek, Klausner, and Kerschbaum, 4.

1. Identify an oral lesion or oral condition you have observed in the clinic. Provide a detailed description of the clinical appearance and location. Include a differential diagnosis.

Oral Rehabilitation:

1. Show how the rehabilitation of your patient relates to information/topics covered in course reading, lectures or lab. Please include evidence.

Journaling performed during seminars and case-reviews follows a different reflective framework. In this case, students document the context in which the event takes place, what is known in the literature about the event or incident, and reflect on their roles and responsibilities in its regard.[453] Notably, journaling helps students document the evolution of a professional identity and reflect on their professional role in patient care. Additionally, valuable insight into teaching effectiveness in "soft skill"[454] areas is gained through reflective writing analysis.[455]

Integrated Case-Based Presentations (ICP)

During the Principles of Dental Hygiene II lecture course, students explore the function of oral health and disease in general systemic health as well as management

[453] Inspiration for the framework for seminar and ICP reflective writing was taken from two separate sources: Dee E. Burrows, "The Nurse Teacher's Role in the Promotion of Reflective Practice," *Nurse Education Today* 15, no. 5 (1995): 346-350; Stephen D. Brookfield, *Developing Critical Thinkers: Challenging Adults to Explore Alternative Ways of Thinking and Acting* (San Francisco: Jossey-Bass, 1987).

[454] "Soft skills" are defined by Ramesh Subramanian as "the cluster of personality traits, social graces, language skills, friendliness, and optimism that mark each of us in varying degrees." Ramesh Subramania**,** "Soft-skills Training and Cultural Sensitization of Indian BPO Workers: A Qualitative Study," *Communications of the IIMA* 5, no. 2 (2005): 12.

[455] Aston-Brown et al., 358-373.

considerations for special patients. The course has been restructured to include more active and interdisciplinary learning activities. Activities relate to the process of care, assessment and diagnosis that include building on and inspiring humanistic skills as well as "enduring understanding."[456] Enduring understanding represents a reformation of Blooms taxonomy achieved through six facets of knowledge that are tied to performance tasks. Each task involves explanation, interpretation, application, perception, empathy, and self-knowledge.[457] Students achieve enduring understanding through collaborative interdisciplinary activities during their study of special patients; e.g., patients with AIDS, Parkinson's, cystic fibrosis, Spina Bifida, cardiovascular disease, spinal cord injuries, and chronic respiratory illnesses. The integrated case presentations (ICP) integrate the basic sciences and clinical sciences, and promote critical thinking in patient care. Students are broken into teams and assigned a special patient with confounding illnesses, polypharmacy, and multiple levels of hygiene. The purpose and goals of the ICP activity are "to provide a forum for sharing the learning experiences of the clinic, and to discuss the problems/issues encountered in patient care while integrating basic science knowledge into best patient care practices."[458]

Furthermore, the activity exposes students to a patient pool (patients with confounding medical, financial, or hygiene issues) that is more complex than the patients

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[456] Grant Wiggins and Jay McTighe, *Understanding by Design*, 2nd ed. (Alexandria: Association for Supervision and Curriculum Development, 2005), 13-34, 19, 128-129, 135-136.

[457] Wiggins and McTighe, 119, 128-129, 135-136.

[458] New York University College of Dentistry (NYUCD) Guidelines for: Integrated Case Presentations, https://files.nyu.edu/gsb5/public/GuidelinesforCase Presentations.pdf (accessed Sept. 27, 2014).

assigned to them in their regular intra-mural group practice clinic**.** Group practices at NYUCD are a static combination of staff, dental and dental hygiene faculty, pre-doctoral and dental hygiene students providing comprehensive patient-centered patient care throughout the on-site clinical curricular experience.

The ICP project leader creates a fictive patient around a faculty assigned disorder/disease with the intent of establishing the idea of personhood in patient management. Patient background/history, exam, discussion of radiographic exam, and dental hygiene diagnosis statement are included. The dental hygiene diagnostic statement includes disease etiologies and medical and medicinal risk assessment. Other team members each provide information regarding the basic science (of anatomy of the structure(s) impacted), the histopathology, evidence-based decision-making to evaluate a clinical question using the PICO format and one literature review, and the dental hygiene management of the simulated patient. Students are provided with a grading rubric with the syllabus and schedule before the course begins, and performance on the ICP is evaluated through peer and faculty assessment. After the second semester Principles of Dental Hygiene II lecture course, dental hygiene students engage in ICP experiences with NYUCD dental students in their group practices.

Professionalism and Ethical Dilemmas Seminars and Case Studies as Curricular Thread

There is much disagreement on the best method to teach professionalism and professional ethics in dentistry and dental hygiene.[459] Coulehan and Williams disparage professionalism in education as being "too little, too soon, too late, too distant, and too countercultural."[460] Ethics and professionalism classes generally occur as a separate course almost anywhere within a professional curriculum and are often at odds with "the culture of clinical training."[461] At NYUCD-DHP, we recognize the need for a cognitive base to professionalism and provide opportunities for reinforcement and reflection throughout the curriculum. During the Principles of Dental Hygiene II seminar series, activities involving ethical dilemmas emphasize the complexities of patient care through examination of actual cases. Participants (three faculty members per seminar) discuss and review difficult cases/situations. The review process helps students and faculty identify and resolve difficult and potentially disruptive situations and unprincipled behavior in the workplace. The environment is intimate and informal. Conflicts can be used as a springboard to positive change, process improvements, and quality care. Additionally, the interaction that occurs at these sessions can open lines of communication among professionals and between clinicians and patients. Students are presented with a myriad

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[459] Donald Patthoff, "The Need for Dental Ethicists and the Promise of Universal Patient Acceptance: Response to Richard Masella's, *Renewing Professionalism in Dental Education*" *Journal of Dental Education* 71, no. 2 (Feb. 2007): 222-226, http://www.jdentaled.org/content/71/2/222.full (accessed Sept. 27, 2014).

[460] J. Coulehan and P. C. Williams, "Conflicting Professional Values in Medical Education." *Cambridge Quarterly of Healthcare Ethics* 12 (2003): 14.

[461] Coulehan and Williams, 14.

of cases in which providers must balance compassion, cultural differences, personal interest, and conflicts between ethical principles such as autonomy and beneficence. One classical dilemma involves a conflict between two ethical principles, autonomy and beneficence. In autonomy in dental care, the respect for the patient's right to refuse or choose a treatment is given priority.[462] In principles of beneficence, the clinician's opinion is given priority, is in the "best interest of the patient," and is asserted without consulting the patient or by overriding the patient's wishes.[463] Many health professionals are uncomfortable with the application of the beneficence principle in practice, consider it outdated, and to be "paternalistic."[464]

Facilitators use several approaches for working through ethical dilemmas. Storytelling, role playing, and group discussions are used to teach professionalism and ethical behavior. Students are encouraged to reflect on their opinions and examine their perspective. Additionally, students may be instructed to approach an examination of problems through a six-step decision-making model:

1. Identify the ethical dilemma or problem
2. Collect information
3. State the options
4. Apply the ethical principle to the options
5. Make the decision
6. Implement the decision [465]

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[462] Phyllis Beemsterboer, *Ethics and Law in Dental Hygiene*, 2nd ed. (St. Louis, MO: Saunders Elsevier, 2010), 44.

[463] Beemsterboer, 43.

[464] Beemsterboer, 47.

[465] Beemsterboer, 40.

Another approach to teaching professional dental ethics is to present a series of case studies or vignettes as triggers to foster professional behavior based on teaching resources presented in *Teaching Medical Professionalism*.[466] Students are asked to identify elements, characteristics, or attributes of professionalism raised by each case and to provide possible solutions. For example:

Case 1:

The dental hygienist has a new patient with a cleft lip and cleft palate scheduled for the next day. He remembers hearing in class something about the importance of age-sensitive referrals to assess and support facial growth in these patients. He is too tired to read up on the case and will deal with it at the next recall appointment.

Although deliberate practice with professionalism and identification of its theoretical basis are important considerations in building professionalism curricula, research indicates emphasis must be placed on institutionalized role modeling of its values.[467] Additionally, faculty guided student reflection or "mindfulness"[468] should be included throughout the dental hygiene curriculum during acquisition of basic science

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[466] Richard. Cruess, Sylvia Cruess, and Yvonne Steinert, eds. *Teaching Medical Professionalism* (New York: Cambridge University Press, 2008), 287.

[467] Kirsty Foster, "Learning About Medical Professionalism–Don't Forget Emotion!" *The Clinical Teacher*, 6 (2009): 9-12; S.M. Wright and J.A. Carrese, "Excellence in Role Modeling: Insight and Perspectives from the Pros," *Canadian Medical Association Journal* 167 (2002): 638-643; Dina Al-Sudani et al., "Professional Attitudes and Behaviors Acquired During Undergraduate Education in the College of Dentistry, King Saud University," *Saudi Dental Journal* 25, no. 2 (Apr. 2013): 69-74; R. S. Masella, "Renewing Professionalism in Dental Education: Overcoming the Market Environment," *Journal of Dental Education* 71, no. 2 (2007): 205-216.

[468] Richard Cruess, "Teaching Professionalism: Theory, Principles, and Practices*." Clinical Orthopedics and Related Research* 449 (2006): 182.

knowledge as well as clinical skills. To integrate Cruess' concept of mindfulness throughout the NYUCD-DHP curriculum, all Principles of Dental Hygiene I-IV courses use the same text, Wilkins, *Clinical Practice of the Dental Hygienist.* The text includes an "Everyday Ethics" chapter exercise, questions for consideration, and identification of dental hygiene code values.[469] Additionally, identification of behaviors related to ethics and professionalism is included and assessed early in the dental hygiene curriculum (during the first semester) through pre-clinical and oral anatomy competencies.

NYUCD-DHP has developed a curriculum intended to act as a bridge between classroom and clinical and/or experiential learning (such as student rotations and community service learning). The curriculum consists of a variety of learning strategies embedded throughout the educational continuum. The strategies emphasize the human component of patient care and awareness of the complexities of dental care. The aforementioned curriculum provides an educational intersection between Medical Humanities and the process of dental hygiene care that includes narrative medicine, ethical dilemmas, socio-political concerns that impede the delivery of care, and attitudes and perceptions about vulnerable populations. The NYUCD-DHP curriculum intends to increase student empathy and communication skills. Additionally, it aims to heighten consideration of professional identity, self-confidence, and awareness in delivery of

[469] Esther M. Wilkins. *Clinical Practice of the Dental Hygienist*, 11th ed. Philadelphia: Lippincott Williams and Wilkins, 2013.

patient care. Finally, the activities endeavor to strengthen the potential of SL to promote civic engagement and social responsibility.[470]

According to Cole and Carson, the Medical Humanities "are among … interdisciplinary fields of study…called into being by social needs and problems that cannot be adequately addressed within the boundaries set by traditional disciplines and/or methods."[471] Medical Humanities provide health professionals a framework of care within the context of what Cassell refers to as "personhood."[472] The concept of personhood in patient care considers the transcendent role in the provision of health care: the role is respectful and compassionate, and redirects the focus of patient care to the "whole patient."[473] Innovative curricula require special links to bring depth and relevance to learning experiences. The arts provide humanistic bridges to active learning by creating/recreating what Branch et al. refer to as "seminal events" that provoke solutions to problems in the context of what is meaningful to the patient.[474] However, there is a shortage of positive long-term evidence regarding the impacts of integrating the humanities into undergraduate medical and dental education, and this lack of research may keep humanities from gaining acceptance and permanence within these

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[470] Hood, 454-63.

[471] Thomas R. Cole and Ronald A. Carson, Medical Humanities: an Introduction, (New York, N.Y.: Cambridge University Press, 2015), 3-4.

[472] Eric J. Cassell, "The Nature of Suffering and the Goals of Medicine," *The New England Journal of Medicine* 306, no.11 (March 1982): 644.

[473] Cassell, 644.

[474] William T. Branch et al., "Teaching the Human Dimensions of Care in Clinical Settings," *Journal of the American Medical Association* 286, no. 9 (2001): 1067-1074.

institutions.[475] In response to calls for more research in this area, Rita Charon questions the value of applying the same types of reductive measures to a learning method intended as its remedy.[476] Clearly, more research is required regarding this point.

The current U.S. care system in dentistry is one in which health care is allocated by ability to pay and personal choice. However, the notion of justice necessitates change to this model; whereby, special efforts to help the underserved in society are initiated and public policy and social and economic institutions are organized to that end. The dental community, including the ADA, should support much-needed dental healthcare policy and system changes that reflect principles of conduct as opposed to infrequent acts of charity. Dental professionals should support public health education, prevention, and access initiatives such as allowing public health dental hygienists to work for public health programs without direct supervision or prior examination by a dentist. Finally, oral health should be fully integrated with overall health care. Calls to reform dental education to better serve the public have been documented in public health, medical and dental professional and educational literature with community-based service learning (SL) as the most recommended approach to address existing shortcomings. SL brings providers to patients and creates trans-disciplinary partnerships in a more holistic care model[477] that potentially improves access to care. The education of dental professionals and practice

[475] Ousager and Johannessen, 988; Cortino Sukotjo, Judy Chia-Chun Yuan, and Georges Bordage, "A Content Analysis of Dental Education Research as Reported in Two Journals," *Journal of Dental Education*, 74, no. 10 (Oct. 2010): 1106-1112.

[476] Charon, "Calculating," 936.

[477] Melanie Simmer-Beck et al., "Extending Oral Health Care Services to Underserved Children Through a School-Based Collaboration: Part 1-A Descriptive Overview," *The Journal of Dental Hygiene* 85, no. 3 (2011): 184.

patterns should shift from a therapeutic to a prevention-oriented health model needed to restore effects of oral disease. Support needs to be given to work force model changes instead of volunteerism and altruism as solutions to access care issues. Community service-learning activities are touted as a means to better prepare future providers for twenty-first century challenges in oral health care but require more than clinical competence. This dissertation contends that SL requires special humanities linkages to bring depth and relevance, and an appropriate level of integrity to the activity and, therefore, merits attention and research.

Without the application of the human sciences to the learning process in oral medicine, training may be transitory and less impactful. In Chapter 3, I describe my research study and the methods used to measure changes in dental hygiene students' perceptions regarding social responsibility and professionalism when humanities are integrated with SL activities.

> As students are enculturated into the profession of medicine, the statement "we are people just like our patients" is both a simplistic aphorism and a fundamental challenge for professional development. Undeniably, medical education does make students different, but [the healing arts] enable a student to hold fast to the empathic principle that "my medical education makes me no different from the people I care for [.]"[478]

[478] Michael W. Rabow, Judith Wrubel, and Rachel Naomi Remen, "Authentic Community as an Educational Strategy for Advancing Professionalism: A National Evaluation of the Healer's Art Course," *Journal of General Internal Medicine* 22, no. 10 (Oct. 2007): 1427.

CHAPTER 3

METHODOLOGY

My research is designed to evaluate the impact of humanities supported SL within the Dental Hygiene Programs at New York University College of Dentistry. In particular, it evaluates whether SL experiences that are reinforced by a Medical Humanities curriculum influence students' attitudes and perceptions about social justice and professionalism in their role as oral healthcare providers.

During this study, data were collected from two source groups: dental hygiene students from the graduating class of 2013 (Group 1) who engaged in unassisted service-learning experiences; dental hygiene students from the class of 2014 (Group 2) who participated in SL activities supported by a Medical Humanities curriculum as defined in Chapter 2.[479] I collected data from a twenty-four-question survey to answer the following overarching questions:

1. Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?
2. Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of health care?

[479] For a description of the NYUCD-DHP Medical Humanities Curriculum, please see Chapter 2, "Curriculum," "Humanities Seminars," "Narrative Clinical Rounds," "Journals," "ICP," and "Professionalism and Ethical Dilemmas Seminars and Case Studies as Curricular Thread."

3. Will a humanities-supported andragogy improve patient-provider relationships?
4. Will application of the humanities to SL improve interprofessional relationships in SL?

Research Design

The approach to my research uses a quantitative survey research method. According to Aliaga and Gunderson, quantitative research methodology "[explains] phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics)."[480] However, since attitudes and beliefs do not exist in quantitative form, I used a survey as my research instrument that asked students to rate questions, relevant to my research questions, on a scale so differences in perspective and behaviors could be captured and objectively rated.

I was the sole researcher in this study, although the NYUCD-DHP program director and faculty have an interest in determining the effectiveness of the humanities curriculum.

Students who graduated in 2013 and 2014 were asked to complete my *Dental Service Learning Student Attitude Survey.* The majority of the survey questions were from Henshaw's adaption of an evaluation instrument developed by Shinnamon et al.[481]

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[480] Martha Aliaga and Brenda Gunderson, *Interactive Statistics*, (Upper Saddle River, NJ: Prentice Hall, 2002), 13-14; Daniel Muijs, *Doing Quantitative Research in Education with SPSS* (London: Sage Publications, 2011), 1.

[481] Michele M. Henshaw, *Evaluating Service-Learning Programs in Dental Education*, Community-Campus Partnerships for Health (Seattle: Washington, 2004), 92-95,

Survey questions adapted from Henshaw's evaluation instrument are 1, 2, 7, 8, 10, 12, 15, 17, 18, 21, 22, and 23.

Also, the survey includes four questions from the *Readiness for Interprofessional Learning Scale* (RIPLS).[482] The RIPLS is a validated nineteen-statement scale "that may be used to explore differences in students' perception and attitudes towards multi-professional learning."[483] The RPLS questions used to assess key IPE areas in my research are 3, 4, 5, 6, 9, and 11.

Survey questions 13, 16, and 19 were adapted from the *Attitudes Toward Health Care* instrument regarding social expectations and personal efficacy in providing oral health care.[484]

I developed the remaining two questions, 14 and 20. These questions were designed to assess change in beliefs and attitudes toward the underserved,[485] including attainment of skills concerned with other-centered care. However, the survey questions researched and developed by the investigator were not validated. These questions are:

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https://depts.washington.edu/ccph/pdf_files/ccphevalmonographfinal2.pdf (accessed January 5, 2015); Anu Shinnamon, Sherril Gelmon, and Barbara Holland, *Methods and Strategies for Assessing Service-Learning in the Health Professions,* (San Francisco CA: Community-Campus Partnerships for Health, 2001): 4-8.

[482] Glennys Parsell and John Bligh, "The Development of a Questionnaire to Assess the Readiness of Health Care Students for Interprofessional Learning (RIPLS)," *Medical Education* 33 (1999): 95.

[483] Parsell and Bligh, 96.

[484] Holtzman and Seirawan, 303-310.

[485] Gadbury-Amyot et al., 652-661; M. Henshaw, 92-95; Marshall Welch, Lawrence H. Liese, and Amy Bergerson, "A Qualitative Assessment Project Comparing and Contrasting Faculty and Administrators' Perspectives on Service-Learning," *Journal of Higher Education Outreach and Engagement* 9, no. 2 (2004): 23-42; Mofidi, et al., 515-523.

Question 14. Service learning changed my beliefs and attitudes toward the underserved.

Question 20. Certain populations in the United States have more untreated dental disease than others.

My survey Question 24 asked participants for a perceived level of financial debt upon graduation. Question 25 filtered students into cohort groups as members of Group 1, Class 2013 or Group 2, Class of 2014.

Research Setting

This dissertation study was set in the New York University College of Dentistry within the Dental Hygiene Programs in New York City. The DHP is accredited by the Commission on Dental Accreditation (CODA) and offers entry-level and degree-completion options that award an Associate in Applied Science (AAS) or a Bachelor of Science (BS) in Dental Hygiene. There are ten full-time faculty, including the program director.

The dental hygiene entry-level curriculum consists of lecture, seminar, lab, and supervised clinical instruction and rotational experiences in a community or public health setting. Courses contain instruction in general education, basic sciences, and dental sciences, including pre-clinical and clinical theory and practice components, oral health education/preventive counseling, patient management, community dental health, medical and dental emergencies, and pain management lab and instruction. The degree-completion curriculum contains courses in advanced dental theory with diverse aspects of

health care beyond the clinical scope of practice that prepares students for alternative career pathways in administration, education, public health, and research. The NYUCD-DHP curricula are semester-based with summer study options.

Research Participants

The students entering the classes of 2013 and 2014 were comprised of 128 undergraduate, dental hygiene students. Out of sixty-five students entering the class of 2013, fifty-two students graduated on their original date. Among sixty-three students entering the class of 2014, all graduated according to schedule. For both classes, the figures indicate a 10.2 percent attrition rate.

Since all NYUCD-DHP students attend service-learning activities as part of their normal curricular activity, all 128 members of the classes of 2013 and 2014 were invited to take the dissertation survey. In total, eighty-nine students started the survey, but only seventy-nine students completed the survey. Only the responses from the completed surveys were included in the survey analysis. As to the breakdown of participants from each class: thirty-three out of fifty-two students graduating from the class of 2013 completed the survey or 63.5 percent; forty-six out of sixty-three members of the graduating class of 2014 answered the survey or 73.0 percent.

Research participants from the Class of 2013 (Group 1) were my control group and engaged in SL activities without faculty facilitated humanities instruction. The

manipulated group was comprised of members of the Class of 2014 (Group 2). This group performed SL activities supported by humanities.[486]

The age range of students within the class of 2013 (Group 1) was twenty-three to fifty-nine years of age. The students from this class were 96.2 percent females, and 73.1 percent were U.S. citizens at the time of graduation. NYUCD-DHP is noted for diversity within its student population, and 26.9 percent of the 2013 class graduates were not U.S. citizens. The race and ethnicity within this cohort were approximately 54 percent Caucasian, 13 percent African-American, 15 percent Hispanic, 9 percent Asian/Pacific Islander, 2 percent Native Hawaiian, and 7 percent undeclared.

The students within the class of 2014 (Group 2) were similar to cohort 1 in demographics. The age range of cohort 2 was between twenty-two and forty-seven years old. Likewise, members of this class were 90.5 percent female and 80.9 percent were citizens at the time of graduation. Additionally, there were similarities in race and ethnicity between the two groups. Cohort 2 was 52 percent Caucasian, 10 percent African-American, 19 percent Hispanic, 14 percent Asian/Pacific Islander, 2 percent Native Hawaiian, and 3 percent undeclared.

Data Collection Procedures

All students who graduated in 2013 and were eligible to graduate in 2014 received an e-mail through the NYUCD-DHP listserv inviting them to participate in an

[486] See Chapter 2, "Curriculum."

IRB approved electronic survey using Qualtrics software.[487] No demographic information, other than class year, was included in the surveys. All responses remained anonymous to the investigator. Respondents were instructed that the researcher took all reasonable measures to protect their identity and responses, and that the investigator had access to the online anonymous results not matched to any identifiers. Also, participants were instructed to clear their computer's history after completing the survey to protect their privacy.

Since this research study involved a web survey, it posed minimal to no risk to participants. Also, it was made clear to students the results were not related to any course or graded response. The results were not identifiable to individual students. The web survey was voluntary and designed to provide anonymity. Students could choose to not complete the survey and were able to withdraw from the study at any time without penalty.

Research Instrument

A Dental Service Learning Student Attitude Survey was the research instrument.[488] It was an anonymous twenty-four question on-line survey using a five-point Likert scale. All participants provide a score from 1 (strongly disagree) to 5 (strongly agree) for each item. The survey tool was designed for this study through a review of the literature for

[487] For a copy of the IRB approval letters, "e-mail script," "Consent to Participate in a Research Study," and "Dental Service Learning Student Attitude Survey," see Appendix A.

[488] For a complete copy of the Dental Service-Learning Student Attitude Survey please see Appendix A.

specific questions relating to development of professionalism and social responsibility in service-learning activities. Students responded to questions regarding their perceptions of SL on a scale.

Data Analysis Approach

The data from the *Dental Service-Learning Student Attitude Survey* was tabulated, the number of respondents to each question was determined, and a mean response and standard deviation were identified for each survey item. The demographic information provided in Question 25 was used to apply a filter to the two subgroups, Group 1 (class of 2013) and Group 2 (class of 2014). T-tests were performed to compare mean performances between the subgroups relative to perceived value regarding factors in SL experience. Since I was concerned about score distribution within the data, I decided to include a non-parametric procedure, the Mann-Whitney U test, to test for significance.[489]

The outcome measurement was determined by comparing the mean scores of the questions in the survey instrument for each cohort and the mean scores of specific groups of questions (representing the four themes) relatable to my research questions. The themes relatable to my survey and research questions are personal and professional growth and commitment to service; increased self-efficacy as agents of change in the delivery of care; improved communication; and teamwork and collaboration.

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[489] M. D. Gall, Joyce Gall, and Wayne Borg, *Educational Research: An Introduction*, 7th ed. (New York: Pearson, 2007): 315.

In order to test and analyze data in an organized manner, it became necessary to group survey questions according to major assessment themes in SL education that would align with my four research questions. A paucity of dental literature exists in this area. However, I took into consideration themes and their meaning identified as positive learning outcomes and benefits of dental community-based experiences in the literature.[490] For example, using reflective essays, Mofidi et al., identified three major themes and categories as "personal and professional growth, enhanced awareness, and commitment to service."[491] Also, Shiarella, McCarthy and Tucker[492] adapted Schwartz's model of altruistic helping behaviors developed through community service to include themes of "awareness, actions, ability, connectedness, moral obligation, empathy, benefits, and intention."[493] Next, I included categorical consideration for students' growth in their ability to work as members of an interdisciplinary team of professionals and to collaborate with agencies in maintaining the health and well-being of a community.

After major themes were identified in the literature, I aligned the research questions and survey factors as follows:

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[490] Mofidi et al., 515.

[491] Mofidi et al., 517.

[492] Ann Shiarella, Anne McCarthy, and Mary Tucker, "Development and Construct Validity of Scores on the Community Service Attitudes Scale," *Educational and Psychological Measurement* 60, (2000): 291-293.

[493] Shiarella, McCarthy, and Tucker, 291-293.

Research Question 1

Research Question 1 asks whether the outcomes of the humanities supported SL program results in students with an improved sense of their role and responsibility in and commitment to the provision of quality care to diverse populations. Since this area addresses broader content, a greater number of survey questions were included to capture change in this area. Survey questions that relate to research question 1 are 1, 7, 8, 12, 13, 14, 15, 16, 17, 18, 20, 22, and 23.[494]

Research Question 2

Research Question 2 asks whether the program cultivates students who see themselves as leaders and agents in advancing improvements in the delivery of health care. Survey questions that align with these are 19 and 21.

Research Question 3

Research Question 3 inquires as to whether humanities-supported SL improves upon relationships between patients and professionals in the delivery of care. The factors relatable to this question are 9 and 10.

[494] For a complete copy of the Dental Service-Learning Student Attitude Survey with numbered questions please see Appendix A.

Research Question 4

Research Question 4 explores the possibility of improved effectiveness in interprofessional interaction and teamwork among healthcare professionals from diverse disciplines. The questions that align within this area are 2, 3, 4, 5, 6, and 11.

Once the four research questions were aligned with survey factors, I was able to analyze data in this area. This was done by comparing the mean of survey scores between cohort responses to key factors relating to themes in SL.

Use of Student Reflective Writing to Support the Analytical Process

Although not included in my original research design, analysis of the student excerpts provides additional support for improvements in the constructs of this study.

NYUCD-DHP students who participated in a humanities curriculum as preparation for their rotational service-learning activities were asked to reflect on what they learned as part of the methodology. Reflective learning is used in community-based experience because it "opens the possibility for personal growth and professional development…by pushing students to think, interpret, and construct meaning about a particular experience."[495]

Typically, students wrote after they were shown videos, read literary pieces (stories, poems, newspaper accounts), and participated in case presentations as part of the

[495] Strauss et al., "Reflective-Learning," 1234.

humanities curriculum. The students were asked to use the following guidelines in addition to those used during clinical rotational experiences:[496]

1. Document the context (describe the patient care experience)
2. Document the triggering event (critical incident)[497]
3. Document what is known about the event (what the literature says)
4. Document reflections in regard to roles and responsibilities in caring for diverse populations within a public health setting

Seminar facilitators take an analytical approach to reflective writing that guides the process (similar to that employed in literary analysis) and keeps it from devolving into "routinization of the practice with little movement toward more higher order thinking."[498]Also, to allow students to express themselves freely and authentically, they were told that the reflective pieces were required, but would not be graded beyond the receipt of a pass/fail for submission. One hundred twenty-five papers from a variety of contexts within the humanities curriculum were examined for use of themes within my research. Major themes were evident in all of the student responses. Twenty-seven excerpts (out of 125 papers) were aligned categorically and addressed according to my four research sub-questions. I determined whether papers contained negative or positive responses within each category and their relationship to my research question.

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[496] For an example of a clinical reflective writing framework used during clinical rotations, see Chapter 2, Curriculum: Journals. Inspiration for the framework for seminar and ICP reflective writing was taken from two separate sources: Dee E. Burrows, 346-350; Brookfield, 71-89.

[497] Mofidi et al., 521.

[498] Thomas W. Bean and Lisa P. Stevens, "Scaffolding Reflection for Pre-service and In-service Teachers," *Reflective Practice* 3, no. 2 (2002): 207.

Numerically, the greatest percent of responses occurred within the roles and responsibilities category (37%), followed by leadership and self-efficacy with (29%), communication (26%), and teamwork (8%). Out of twenty-seven excerpts, only a small percent (8%) was negatively expressed within the communication and empathy theme, providing positive outcomes for program effectiveness.

Study Limitations

The limitations of this research must be considered in the interpretation of its results in Chapter 5. The study participants were limited to members of two graduating classes within one dental hygiene program. This may restrict inferences drawn from the data to dental hygiene programs only, and therefore, not be generalizable to all dental education programs. The relatively small size of the population studied (N=79) places limitations on consideration of the data; however, data from this study can be used to design larger more confirmatory studies.

This study used data from an eleven-month period that assessed a one-year humanities curriculum and its effectiveness in training students to improve perceptions of social responsibility and professionalism in the delivery of oral health care. The DHP humanities curriculum included special seminars with reflection assignments, case studies, and journaling activities in support of rotational service-learning experiences. Consideration should have been given to students' existing perceptions regarding roles and responsibilities, leadership and self-efficacy, communication, and teamwork in the

delivery of care to the underserved before initiating the program. Baseline information could help identify improvements that occurred as a result of the curriculum.

Other variables could have influenced changes in students' professional values and perceptions of social responsibility (either positively or negatively) throughout the education experience. For example, similar content (having to do with values development and ethical behavior) occurs in other areas of dental hygiene training. Additionally, although most NYUCD faculty members are committed to and model right behavior in patient care, some do not. Exposure to positive or negative role models in school may motivate change and dilute study outcomes.[499] Finally, utilizing a mixed methods research approach with qualitative measures (by including student reflective writings and open-ended survey items in the design) may have provided greater insight into program effectiveness. The mixed method approach, though more subjective, captures intangibles such as humane beliefs and values changes and augments quantitative measures.

In summary, Chapter 3 presented the research design approach, including data collection procedures, research instrument, a description of the participants and setting for this study, as well as use of student reflective writing to enhance and augment the analytical process. Additionally, this chapter identified the study limitations. Chapter 4 answers the question of program effectiveness based on students' responses to survey

[499] Penelope Lockwood, Christian H. Jordan, and Ziva Kunda. "Motivation by Positive or Negative Role Models: Regulatory Focus Determines Who Will Best Inspire Us." *Journal of Personality and Social Psychology* 83, no. 4 (Oct. 2002): 854-864.

questions and through shared reflection papers and concludes with a discussion of the study findings.

CHAPTER 4

FINDINGS

Quantitative data were collected from a web survey using a Likert scale. The survey was administered between April 2014 and December 2014 to two source groups from a population of entry-level program dental hygiene students after participation in clinical outreach activities with or without a Medical Humanities curriculum.

Quantitative Results Related to Research

Question 1: Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?

A composite score for this question was calculated by averaging responses to survey questions related to improvements in roles and responsibilities (1, 7, 8, 12, 13, 14, 15, 16, 17, 18, 20, 22, and 23). The items in this category sample the extent to which respondents are aware of an unfair distribution of disease burden and their role and responsibility in providing quality care to affected populations. The survey questions are as follows:

1. I understand the role of dental hygiene within a service-learning environment.
7. Service learning helped me to understand my professional strengths and limitations.
8. Participation in service learning has changed my scholarly interests and/or career goals.

12. Service learning helped me gain new knowledge about diverse populations.
13. Society is responsible for providing dental care for the underserved.
14. Service learning changed my beliefs and attitudes toward the underserved.
15. I am aware of my own biases and prejudices.
16. Access to health care is a right.
17. Addressing risk factors will make a difference in dental healthcare issues.
18. Functional rather than ideal dental treatment is acceptable.
20. Certain populations in the U.S. have more untreated dental disease than others.
22. Mostly, I plan to work in underserved areas with vulnerable and at-risk patients.
23. Mostly, I plan to work in private practice.

Table 3[500] shows the means of the two groups for this composite score. While the 2014 mean was higher (3.5847) than 2013 (3.4944), as predicted, there was no significant difference between the two groups (.379; .379) given P= ≤ .05.

Since the results of the independent *t*-test were not significant, I failed to reject the null hypothesis for this question.

Both Table 4 and Figure 1[501] show group means for each responsibility item. Although the mean response of the Medical Humanities group was higher than that of those without Medical Humanities in perceived understanding of their professional roles in service learning, their strengths and limitations in assisting diverse populations, perception of responsibility for the underserved, and concepts of disease burden among

[500] See Appendix D, Table 3.

[501] See Appendix D, Table 4 and Figure 1.

this population, there was no statistically significant difference between groups on any of the items. As indicated in Table 3, data are not sufficient to support rejection of the null hypothesis of no group difference.

Question 2: Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of health care?

The items relatable to Question 2 sample self-perceived levels for leadership ability and effectiveness in the creation of healthier communities. Survey questions that assess attitudes in this area are questions 19 and 21. The items are as follows:

19. Healthcare decisions are dictated by public policy and external forces beyond the control of the healthcare provider or patient.
21. I can make a difference in access to health care.

Table 5[502] represents findings for the independent *t*-test for grouped significance while Table 6[503] provides the group statistics for each item relating to leadership and personal efficacy in access to care issues.

Question 19 is written in a negative direction and was reverse scored (recoded to invert the scale). Students with a Medical Humanities supported curriculum had a lower score in this item, indicating improved perception of efficacy in this area (M 3.11; SD 1.100) as compared to students without humanities support (M 3.12; SD 1.219). Cohort mean scores for question 21 were higher among the control group 1 (M 4.24; SD 1.001)

[502] See Appendix D, Table 5.

[503] See Appendix D, Table 6.

as compared to the manipulated group (M 4.20; SD .919). However, significance was not revealed in this area, and I failed to reject the null hypothesis for Question 2. Figure 2[504] provides a line graph illustration of the grouped responses to questions 19 and 21.

Question 3: Will a humanities-supported andragogy improve patient-provider relationships?

Question 9 and 10 align with Research Question 3 because they assess perceptions regarding the ability of service learning to improve provider understanding of patient problems and communication during patient interaction. Survey items in this area are as follows:

9. Service learning will help to clarify the nature of patient problems.
10. Service learning will help me communicate better with patients and members of the healthcare team.

Survey question 9 stands out as having one of the highest agreement levels among the treatment group (M 4.00; SD .989) as compared to the control (M 3.70; SD .847).

Table 7[505] shows the means of the two groups to the index of communication while descriptive statistics for the control and treatment groups for the survey items 9 and 10 are found in Table 8 and Figure 3.[506]

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[504] See Appendix D, Figure 2.

[505] See Appendix D, Table 7.

[506] See Appendix D, Table 8 and Figure 3.

Even though the service-learning group with a humanities curriculum scores higher (in all items in this area) than the service-learning group without a humanities curriculum, the findings for the independent *t*-test are insufficient to support rejection of the null hypothesis for research question three ($p = .232$; $p = .238$) given ($p \leq .05$).

Question 4: Will application of the humanities to SL improve interprofessional relationships in SL?

Scores were calculated for this area by grouping survey questions 2, 3, 4, 5, 6, and 11 that measure perceptions regarding interdisciplinary teamwork in patient care delivery. The items used to answer sub-question 4 are as follows:

2. I understand the role of dentists within a service-learning environment.
3. There is little overlap between my role and that of other students belonging to other healthcare disciplines.
4. Some healthcare roles should be inferior to others
5. Clinical problem solving should only be learned with students within my discipline.
6. I have to acquire more knowledge and skills than other students in other healthcare disciplines.
11. Patients would ultimately benefit if healthcare students worked together to solve patient problems.

Table 9[507] provides information relative to grouped significance in hypothesis testing. Items 3, 4, and 5 are negatively written questions that were inverted for independent testing of grouped significance. Table 10 and Figure 4[508] present the treatment and control group means for each teamwork item.

In regards to Research Question 4, even though the mean response to the composite index of teamwork was higher in the humanities group (3.7775) than in the control (3.7429) there was no significant difference between the two groups tested. Since the results of the independent *t*-test were not significant ($p= .922$; $p= .922$) given ($p\leq .05$), I failed to reject the null hypothesis for this question.

While quantitative measures failed to show significance regarding my four research sub-questions, attitude change in all four categories is evident in the manipulated group's mean survey responses and through student reflective writing pieces. Accordingly, examples of student journal reflections are included in my study findings to provide contextual understanding of the impact of the Medical Humanities curriculum on students' experiences, perceptions, and learning outcomes, and for consideration along with the quantitative data. `

[507] See Appendix D, Table 9.

[508] See Appendix D, Table 10 and Figure 4.

Reflective Writing Analysis in Support of Research Findings

Research Question 1: Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?

This question is addressed by the assessment theme in service-learning education identified earlier as improvements in roles and responsibilities (IRR). Students' reflective writing responses in this category demonstrate evidence of awareness of the complexity of patients' lives, oral health disparities, and commitment to service. Student responses that demonstrate IRR are as follows:[509]

> It made me realize how many people are born with critical conditions and how costly they can be to repair. Without health insurance or any other connections, many people suffer unnecessarily and can only wish they could change their appearance and their lives around.
>
> Many Americans have a hard decision to make; put food on the table or go to the dentist.
>
> Seeing the people in this video who don't have access to the resources we do, made me realize why I chose dental hygiene as a career.
>
> The question is, who is truly providing the best care for the patients and who is in it solely for a profit?
>
> It isn't easy to find a balance between good quality care and being profitable. I just hope the intentions of the dental chains are to help the people and not take advantage of them…. It is hard with the economy being on a downward spiral.
>
> In the first minutes of the video, it was devastating to see all of those people who have to wait in line for dental care. A 31 year-old woman traveled 8 hours just to

[509] In this section, I include students' written verbatim comments from the humanities curriculum reflection paper assignments and clinical service-learning rotations. Neither student names nor identifying information are included.

> receive care…I now understand the importance of outreaches; this is something I would love to do…. I also think that there should be a midlevel provider between a dental hygienist and a dentist.
>
> To be very honest, I was one of those individuals who said I would only work at an office that does not accept Medicaid because…it was a madhouse. We were seeing an average of 200 patients per day between 4 dentists. After watching this video, I realized how wrong I was to even consider that. It also made me realize that…there are numerous benefits to everyone if every dental firm starts accepting Medicaid…it will distribute patients equally and patients will be able to get quality dental care.
>
> Everyone deserves to be treated fairly and with respect, and after attending this seminar, I strongly feel transgender education for all healthcare providers should be mandatory….
>
> Overall, the documentary was very inspirational and heartwarming to know that there are providers…who care about the people who do not have the money to afford medical care…. Hopefully in the future, there will be more people willing to give up their time to help others in need, especially the people who are unable to get proper medical and dental care.
>
> Prior to watching this video, I was already aware of the problems with access to care but not to the level of severity depicted in the video. I truly sympathized with those burdened with disease and [who] lack access to care.

Examination of responses in this category shows students gained insight and experience in issues relative to IRR (such as awareness of the complexity of patient's lives and how it impacts dental care, the needs of the underserved, health disparities, and access to care issues) and therefore offer positive support to Research Question 1.

Research Question 2: Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of healthcare?

This question is addressed by responses that align thematically with improvements in leadership and self-efficacy (ILS). Responses in this category reflect

experience in finding solutions to and mobilizing groups around oral healthcare issues and advocating change. Additionally, this category reflects acquisition of leadership skills and self-confidence that address and support Research Question 2. For example, responses that express improvements in ILS are as follows:[510]

> I believe that having a greater focus on the preventive aspect in dentistry; i.e., sealants and prophylaxis will not only be beneficial for patient's finances, but more importantly will improve their overall health…. Also, allowing dental therapists to provide certain dental procedures will be extremely beneficial to those who can't afford dental care.
>
> After viewing this documentary,… it opened my eyes to the fine line between doing something good for those in need and taking advantage of them.
>
> I was disappointed, not because of the group presentation, but because I want to find ways to decrease the gap between "our" care and the care dictated to us by the insurance companies.
>
> I must admit that I was unaware of the extent of the [oral health] problem and how it is affecting more than half of all Americans. Learning about this huge issue in dental care and having a better understanding of service learning, truly opened my mind to seek solutions and participate in programs to aid in the dental care crisis.
>
> If the patient cannot afford to pay for certain dental procedures, then the dental professional should provide the alternative treatment.
>
> Additionally, I believe that allowing dental therapists to provide certain dental procedures will also be extremely beneficial to those who can't afford [the] cost…. To conclude, affordable dental care is a community problem that seems to be escalating. All patients should have and should be entitled to proper dental care regardless of finances. Increasing the community's awareness, provi[di]ng preventive measures to the public, and allowing dental therapists to practice can be an alternative to those who are in need.

[510] In this section, I include students' written verbatim comments from the humanities curriculum reflection paper assignments and clinical service-learning rotations. Neither student names nor identifying information are included.

The rotation helped me feel more confident about treating underserved patients.

Research Question 3: Will a humanities-supported andragogy improve patient-provider relationships?

Student excerpts in this category relate to situations involving improvements in patient-provider communication and communication during patient treatment (IPC) that include listening, gaining trust, and building rapport. Additionally, these responses reflect experience in the providing of compassionate care (such as warmth and empathy) and patient-centered attitudes. The majority of these responses express support for insight gained in this domain and Research Question 3. However, two of the responses are negative. Student samples expressing opinions in IPC themes are as follows:[511]

> This week I experienced an ethical dilemma involving a dental student…. My next step was to approach the dental student in a professional way. I explained the patient's requests…and [the] dental student thanked me for dealing with the situation.
>
> Watching the video and listening to the presentation in class really opened up a different perspective about dental health care for me—the patient's perspective.
>
> This documentary allowed me to reflect on the situation as a young woman, daughter, sister, and future clinician.
>
> The main problem with this particular presentation was the students were focused on the patient's lack of compliance rather than on real solutions. For example, they could have asked for an interpreter who was not related to the patient to fix the communication problem.
>
> The child's parent should be charged with negligence.

[511] In this section, I include students' written verbatim comments from the humanities curriculum reflection paper assignments and clinical service-learning rotations. Neither student names nor identifying information are included.

> Before attending the seminar, I had no knowledge about the transgender population, so I was absolutely clueless regarding treatment…. The first point emphasized was as healthcare professionals it is important that we have background knowledge about our patients, are sensitive to their needs, and capable of making interpersonal and office related adjustments for their emotional and physical comfort.
>
> It is difficult to treat homeless people because they don't maintain proper home care and they miss appointments.

Research Question 4: Will application of the humanities to service learning improve interprofessional relationships in SL?

The fourth research question is addressed by including student excerpts that reflect positive growth in improvements in teamwork (IT). Comments in this thematic area expressed appreciation for ways in which patients with special healthcare needs benefit from interprofessional collaboration. Comments that support improvements in this area and positive outcomes for Research Question 4 are as follows:[512]

> During the integrated case seminar, I realized how important it is for the hygienist to work with other professionals during treatment [of the diabetic patient], including [the] dentist and the diabetic patient's doctor….
>
> I enjoyed the [integrated case] presentation because I was able to see the results of dental students working with dental hygiene students in caring for a special needs patient with HIV. I was really impressed with the way [dental hygiene student's name] managed the case and her presentation.

To summarize Chapter 4, quantitative results related to the research indicate the data presented are insufficient to support rejection of four out of the four null hypotheses generated from my research questions. While the quantitative findings were insufficient

[512] In this section, I include students' written verbatim comments from the humanities curriculum reflection paper assignments and clinical service-learning rotations journal entries. Neither student names nor identifying information are included.

to support program effectiveness, support for improvements in students' perceptions within all research sub-question domains is evident in statements provided by students during the humanities seminars and through journal excerpts. Chapter 5 presents a review and discussion of study findings in relation to existing literature and answers the dissertation questions of program effectiveness.

CHAPTER 5

CONCLUSIONS

This chapter addresses the implications of the study findings, particularly the connection between Medical Humanities and service learning in influencing students' perceptions regarding social justice issues and professionalism and its application within a dental hygiene program. Finally, recommendations are made for future research.

Statement of the Problem

A problem exists within the U.S. oral healthcare delivery system that requires reforms to make high quality care more accessible by graduating professionals committed to "applying their abilities with moral integrity [and] providing appropriate and quality care in their patient's best interest."[513] Dental schools play an important role in this process by providing students with opportunities of learning to care about the needs of others. Service-learning experience helps students develop competence in a mix of skills to address a rapidly changing population as well as places them "into the public health arena more decisively and affects the publics' oral health positively."[514]

Application of analytic principles utilized in humanities study have been identified as a means of improving the effectiveness of service-learning activities in the development of professional values and moral competence in care of the underserved;

[513] Nash, 567.

[514] Hemphill, 284.

however, a shortage of research exists in this area. Furthermore, as indicated in Chapter 2, there is a shortage of long-term studies for use of the humanities in clinical teaching. In fact, attention was drawn to the absence of the humanities as a research topic in a content analysis of dental research as reported by two important dental journals, (JDE) and the (EJDE).[515] Consequently, I conducted this study to add to the discussion and contribute to the body of literature in this area.[516]

Summary of Findings

The purpose of this study was to determine the effectiveness of humanities supported service-learning experience on students' perceptions regarding social responsibility and professionalism in oral healthcare delivery and whether it has value in the curriculum.

Out of 128 NYUCD dental hygiene students invited to participate in the web-based survey study, the final sample consisted of 79 entry-level dental hygiene students (33 students whose SL experience was without a Medical Humanities curriculum and 46 students whose SL experience was supported by a Medical Humanities curriculum).

[515] Sukotjo, Yuan, and Bordage, 1106-1112.

[516] William D. Hendricson et al., "Educational," 925-936.

Null Hypotheses

The four research questions examined by four null hypotheses addressed the development of student attitudes and beliefs relative to roles and responsibilities, patient-provider communication, self-efficacy, and teamwork among health professionals.

Improvements were seen in the cohort with Medical Humanities support; however, the differences were not statistically significant. A summary of the findings in each of the four areas follows:

Research Question 1 (Roles and Responsibilities): Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?

The composite score for this question was higher in the students with a Medical Humanities curriculum (M 3.5847; SD .43725) than in the students without a Medical Humanities curriculum (M 3.4944; SD .46112); however, the results were not significant ($p = .383$; $p = .379$), and I rejected null hypothesis one.

Research Question 2 (Leadership and Self-efficacy): Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of health care?

Cohort mean scores in the leadership and self-efficacy sub-group reflected improvements in students with a Medical Humanities curriculum in the negatively written item 19. However, since this contained a question written in a negative direction

(requiring reverse scoring for analysis) the lower scores for the humanities group (M 3.11; SD 1.100) as compared to the control group (M 3.12; SD 1.219) indicate improvements. Cohort mean scores for the composite index of leadership and self-efficacy lacked significance ($p = .913$; $p = .913$) and failed to reject the null hypothesis for Research Question 2.

Research Question 3 (Communication between Patients and Providers): Will a humanities-supported andragogy improve patient-provider relationships?

This is the area in which the students with a Medical Humanities curriculum scored consistently higher in all items, especially in survey question 10, "Service-learning will help me communicate better with patients and members of the healthcare team." In regard to individual items, the manipulated group scored higher in items 9 and 10 (M4.00; SD .989 and M 4.17; SD .902) as compared to the control group (M 3.70; SD .847 and M 4.00; SD .901). Although this may be true, the findings for the *t*-test are insufficient to reject the null hypothesis for question 3 ($p = .238$; $p = .232$) given ($p =\leq .05$).

Research Question 4 (Teamwork): Will application of the humanities to SL improve interprofessional relationships in SL?

Students with a Medical Humanities curriculum scored higher in four out of six individual items relative to the teamwork research question. However, the mean composite score for Research Question 4 does not show a significant difference between

the two groups tested (p = .922; p = .922) and fails to reject the null hypothesis for this question.

Discussion of the Findings

Although lacking in statistical significance, the majority of the students' mean responses in the manipulated group indicate that the NYUCD-DHP Medical Humanities curriculum was effective in developing positive beliefs and attitudes about students' professional roles and obligations particularly in service to vulnerable populations. This aligns with the results of a study done between 2008-2009 at the University of Minnesota whereby changes were made to include a "professional responsibility thread in the curriculum."[517] Similar to the curriculum at NYU, "courses were revised and or created with embedded educational experiences designed to facilitate the acquisition of an ethically-based professional identity consistent with professional service."[518] The University of Minnesota study found that dental hygiene students' attitudes improved "toward serving the underserved" [519]and concluded that "intentional educational strategies and interventions are needed in dental hygiene curricula in order to positively influence and affirm the prevalence of such attitudes."[520]

[517] Blue, 1043.

[518] Blue, 1043.

[519] Blue, 1050.

[520] Blue, 1050.

In another study at the University of Missouri-Kansas City School of Dentistry, researchers found "exercises and experiences involving reflection on oral healthcare issues need to continue across the curriculum."[521] The study found that additional support of service-learning activities that included reflective writing, "an ethical decision-making schema," case-based and role-playing learning activities, helped to prepare "future oral healthcare providers to meaningfully consider ethical issues and potential solutions within the oral healthcare delivery system."[522]

The higher mean scores on item 14 of Research Question 1 suggest that students involved in service-learning activities with a humanities curriculum are more empathic toward the underserved (M3.86; SD .988) versus those without (M 3.48; SD 1.202). This finding is supported by research conducted at the Schulich School of Medicine and Dentistry, University of Western Ontario. The study found that "integrating patients' voices [through videos] into the training in dental school is associated with the concept of a humanistic approach to education" and "promotes the learning of patient-centered care."[523] Within the Schulich post-intervention sample group, "eighty-four percent" said the patient's voices enhanced their commitment to professionalism," approximately "ninety-three percent (93.2%)" identified improvements in level of compassion for their patient, and "seventy-two percent felt this exercise significantly raised their level of

[521] Gadbury-Amyot et al., 660.

[522] Gadbury-Amyot et al., 653, 659.

[523] Schwartz and Bohay, 175.

empathy.[524] The authors concluded that the use of videos in training dental students "enhanced their commitment to professionalism and showed a significant elevation in compassion for patients."[525]

Two important areas in determining the effectiveness of the Medical Humanities curriculum at NYUCD-DHP were student responses to items 19 and 21 (aligned with Research Question 2). These items relate to perceptions of growth in leadership and a sense of self-efficacy in mobilizing groups around advocacy issues and making a difference in the delivery of care. According to responses to (negatively written) item 19, students with the humanities curriculum were more likely to feel a sense of self-efficacy in their ability to influence reform in oral healthcare services (M 3.11; SD 1.100) than the control students (M 3.12; SD 1.219). A study at the University of Southern California School of Dentistry yielded similar results.[526] Dental students were surveyed after in-class support of community-based learning activities on perceived improvements in "personal efficacy in providing care to diverse populations."[527] It was found that "there were no statistically significant differences between students who had participated in the program and those who had not" even though mean responses of USC dental students surveyed showed "a strong positive attitude related to providing dental care for the underserved."[528] Similarly, Balis and Rule conducted a survey study on the effects of a

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[524] Schwartz and Bohay, 179.

[525] Schwartz and Bohay, 183.

[526] Holtzman and Seirawan, 303-310.

[527] Holtzman and Seirawan, 303.

[528] Holtzman and Seirawan, 306, 310.

series of humanities seminars in dental education.[529] The authors found that participants' mean scores showed overall improvements in perceptions of effectiveness in "acting on behalf of children's social issues;" however, the improvements lacked statistical significance (x=3.9).[530] It is interesting to note that informal comments from seminar participants "expressed great enthusiasm for the seminars and remember it as one of the high points of their experience at [the] institution."[531] The authors had this comment in regard to the seminars, "In dentistry, these traditions of care and sensitivity seem less developed. The program described here illustrates how humanities can be used as an approach to better understanding the human qualities of our patients—in this case, children."[532]

Survey Question items that relate to Research Question 3, improvements in communication between patients and providers, were among the most supportive of my research hypothesis: improvements were noted in both items within this category. Additionally, students within the treatment group felt they were able to communicate better with patients regarding their problems (M 4.00; SD .989) as compared to the control group (M 3.70; SD .847). Support for this result is in a qualitative study performed at the University of North Carolina (UNC) School of Dentistry.[533] UNC students involved in community-based dental education (CBDE) participated in guided

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[529] Balis and Rule, 709-715.

[530] Balis and Rule, 712

[531] Balis and Rule, 712.

[532] Balis and Rule, 714.

[533] Mofidi et al., 515-523; Strauss et al., "Reflective-Learning," 1234-1242.

written narrative reflection, photographic documentation, and critical incident reports (experiences that are meaningful for the observer).[534] Student essays were analyzed for common themes and evaluated for positive learning outcomes. Research findings reported "increased empathy, communications skills, and self-confidence."[535]

Another study that supports my study findings (regarding leadership and communication) is out of the University of Missouri-Kansas City (UMKC) where service-learning activities are integrated throughout the dental hygiene curriculum similar to those at NYUCD.[536] A quantitative study examined changes in student attitudes following involvement in the service-learning curriculum and "showed a statistically significant increase in [students' perceived] leadership and communication skills… (P = 0.001)."[537] Overall improvements in normative helping behaviors in this study, as well as in my research, are in line with service-learning outcomes in the literature.[538]

Student responses to the negatively written item 5 under Question 4 reflected positive attitudes regarding interprofessional roles and teamwork in health care (M 2.24 SD 1.158) as compared to the control group (M 2.26; SD 1.094). Support for improvements in IPE learning within U.S. and Canadian dental schools was provided by the American Dental Education Association (ADEA) Team Study Group on

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[534] Flanagan, 327.

[535] Mofidi et al., 521.

[536] Simmer-Beck et al., "Measuring," 262.

[537] Simmer-Beck et al., "Measuring," 262.

[538] DeMattei, Allen, and Goss, 168-174; Brydges and Gwozdek, 316-325; Miller, 11.

Interprofessional Education (IPE).[539] Responses from all schools surveyed in the ADA study rated IPE positively: IPE was identified as a way of helping students learn respect for members of other professions, of addressing the healthcare needs of patients, and learning to work as a member of a team.[540] Support for expanding and strengthening "interprofessional collaborations between dentistry, medicine, and other health professions," is provided by authors Seale, McWhorten, and Mouradian "to advance children's oral health within academic dental institutions."[541] Additionally, in a service-learning project during which nurses and dental hygiene students collaborated to provide oral care to children with special needs,[542] "a common theme that emerged was the increased confidence the students gained through the experiences."[543] Dental hygiene students involved in the collaborative project "provided feedback in reflective essays [that] confirmed the value of the educational experiences."[544]

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[539] Formicola et al., "Interprofessional,"1250-1268.

[540] Formicola et al., "Interprofessional,"1259.

[541] Seale, McWhorter, and Mouradian, 444, 440.

[542] DeMattei, Allen, and Goss, 168-174.

[543] DeMattei, Allen, and Goss, 172.

[544] DeMattei, Allen, and Goss, 172.

Thematic Analysis of Student Reflective Writing

A defining characteristic of service-learning programs is the use of guided reflective writing to support and assess learning.[545] There is support in the literature for using reflective writing as a didactic method and for measuring program impact in community-based dental education.[546] Additionally, several studies utilize a process of thematic analysis of reflective writing samples and responses to open-ended questions to evaluate the impact of dental service experiences with curricular support on student learning: all studies examined yielded positive results regarding program effectiveness.[547] Consequently, I used samples of post-humanities seminar structured writing assignments to gain greater insight into my program's effectiveness. Exploration of verbatim excerpts from 127 reflection papers yielded positive support for the Medical Humanities curriculum in changing students' perception of social responsibility and professionalism in oral healthcare delivery. Thematic grouping of student reflection writing suggests student perceptions were increased in four research sub-questions by participation in the curriculum.

Examining the student reflection papers relative to Research Question 1, all excerpts in this category demonstrate increased awareness of concepts regarding underserved and vulnerable populations, social determinates of disease, barriers to quality care, and disease burden. The writing shows students are aware of the complexities of

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[545] Yoder, 119-120.

[546] Yoder, 115-123; Mofidi et al., 515-523; Strauss et al., "Reflective-Learning," 1234-1242.

[547] Aston-Brown et al., 358-373; Mofidi et al., 515-523; Brodani, 609-619; Gadbury-Amyot et al., 652-661; Swartz and Bohay, 174-184; Blue, 1048.

patient and community needs and value the role of communication and empathy in patient care in answer to Research Question 1, "Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?"

In answer to Research Question 2, improvements in leadership and self-efficacy, student responses demonstrate empowerment and growth in this area. For example, a student observes that, "Learning about this huge issue in dental care and having a better understanding of service learning, truly opened my mind to seek solutions and participate in programs to aid in the dental care crisis." Class responses were in agreement that the experience helped them gain confidence in their ability to work with vulnerable populations. For example, a student writes, "The rotation helped me feel more confident about treating underserved patients." Another student shows growth in the ability to find solutions to patient and community care problems by writing,

> I believe that having a greater focus on the preventive aspect in dentistry; i.e., sealants and prophylaxis will not only be beneficial for patient's finances, but more importantly will improve their overall health, … allowing dental therapists to provide certain dental procedures that will also be extremely beneficial to those who can't afford dental care.

Regarding Research Question 3, student reflective writing shows agreement in answer to the question, "Will a humanities supported andragogy improve patient-provider relationship?" Examination of excerpts in this domain shows a positive regard for the patient's point of view in the illness experience as well as concern for compassion in the treatment. Additionally, writing samples voice a deep appreciation for the role of clear communication in the development of trust and respect in patient relationships and in

treatment outcomes. For example, a student voiced, “Watching the video and listening to the presentation in class really opened up a different perspective about dental health care for me—the patient’s perspective.”

Finally, student responses giving voice to the importance of working effectively in teams of multidisciplinary health professionals to promote oral and general health in the treatment of patients and communities with special needs were examined. All responses in this area were positive indicating support for program effectiveness in answer to Research Question 4. For example, a student wrote the following:

> I enjoyed the [integrated case] presentation because I was able to see the results of dental students working with dental hygiene students in caring for a special needs patient with HIV. I was really impressed with the way [dental hygiene student’s name] managed the case and her presentation.

Atypical Student Written Responses

Not all student reflective writing pieces included positive attitudes, feelings, and learning outcomes. Although atypical, a small number of responses were negative and judgmental about patients and patient care issues, and needed to be included in my findings. For example, after hearing a case involving a single mother and a three-year-old patient with early childhood caries, a student wrote, “The child’s parent should be charged with negligence.” Another student indicated prejudicial attitudes toward the homeless population by stating, “It is difficult to treat homeless people because they don’t maintain proper home care and they miss appointments.”

Notwithstanding, the majority of student responses was positive (92%) and lent a voice to improved perceptions in all four thematic areas within this research study.

Theoretical and Practical Implications

This study examined the effectiveness of a Medical Humanities curriculum on students' beliefs and attitudes associated with dental service-learning activities. Since this area is new and little is known in its regard, it has theoretical implications. The findings, although lacking in significance, expand on previous research adding support to utilization of a quantitative approach to determine the impact of service-learning activities on student attitudes and lending credence to curriculum supported service learning.[548] According to Strauss et al. in "The Impact of Community-Based Dental Education on Students," "Evaluation has illuminated the ways in which students may benefit from and maximize the impact of their community exposures."[549]

This study has practical implications as well. The findings suggest that certain educational practices (service learning with a Medical Humanities curriculum) within a dental hygiene program have positive influences on students' attitudes toward professionalism and social responsibility, and can be used to support reform in course content delivery and curriculum development.

Recommendations for Future Research

Since this research design did not use a baseline survey to analyze the students' entry-level perceptions before implementation of the humanities curriculum, more research should be done to determine its value. Also, as indicated in other studies, more

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[548] Strauss et al., "The Impact," S42-S55.

[549] Strauss et al., "The Impact," S53.

research needs to be done to develop and validate survey tools for determining the effectiveness of teaching methodologies using the humanities and service learning as well as to calibrate evaluators for reliability in their application.

As indicated in the literature review, there is a shortage of long-term quantitative studies to support the effectiveness of humanities supported service learning as an instructional strategy in dental education. However, there is concern over the irony of applying scientific scrutiny to determine the effectiveness of a process "which is meant as an antidote to the reductiveness of the [medical] curriculum itself."[550] Catherine Belling defends "the need for more complex approaches to knowledge than complete dependence on empirical evidence."[551] Belling states:

> This is precisely why the humanities are so valuable to medicine, for we offer a counterpart to the necessary reductions of the natural sciences. The unit of medicine is the particular patient, always irreducible. We know that medicine runs into trouble when individual persons are examined only with instruments that reduce specific meanings to simplistic data. The humanities must complement necessary generalizations, focusing attention on all the confounding variables that every effective clinician, bravely tolerant of uncertainty, has to hold in balance with the reassuring generalities that science provides. [552]

Conclusion

In this dissertation study, I argued that a Medical Humanities curriculum has value within dental education and that its application to service learning changes students' perceptions regarding social responsibility and professionalism in oral

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[550] Charon, "Commentary: Calculating," 936.

[551] Belling, "Commentary: Sharper," 938.

[552] Belling, "Commentary: Sharper," 940.

healthcare delivery. I reviewed the literature and gathered data from student surveys to answer four sub-questions to my main research question. The four questions were:

1. Will inclusion of the humanities within the curriculum cultivate a sense of professional responsibility among dental hygiene students regarding care of diverse populations?
2. Will a humanities-supported curriculum improve students' perceptions of self-efficacy as agents of change in the delivery of health care?
3. Will a humanities-supported andragogy improve patient-provider relationships?
4. Will application of the humanities to service learning improve interprofessional relationships in SL?

Analysis of the findings from the study showed that the mean scores of the 2014 cohort (with a Medical Humanities curriculum) were consistently higher than those of the 2013 control group, as predicted. However, the findings showed that there was no significant difference in composite scores for each sub-question between the two groups, and I was unable to reject the null hypothesis for each question. Samples of student journal reflection writing were included to support program effectiveness in each research question area. Although the results from the quantitative study were insignificant, it sets the foundation for future research.

Data from the student surveys and information from student reflective writing will be used to improve the quality of service-learning activities in the NYUCD-DHP curriculum and may have broader influence in the development of best practices for

service-learning activities. Additionally, the results draw attention to the variety of ways medical education has benefited from humanities supported curriculum. This dissertation brings into focus the role of the humanities in developing dental professionals who are better equipped to influence health disparities and the quality of life of patients and communities.

APPENDIX A

DREW UNIVERSITY

ALLAN C. DAWSON
ASSISTANT PROFESSOR
CHAIR, INSTITUTIONAL REVIEW BOARD
DEPARTMENT OF ANTHROPOLOGY
CHAIR, INSTITUTIONAL REVIEW BOARD
PH: 973/408.3292
FAX: 973/679.2821

Monday, March 24, 2014

Attn: Stefania Moglia Willis
Cc: Dr. Phyllis DeJesse; Dr. Cheryl Westphal Theile

Dear Stefania,

The Institutional Review Board has conducted an expedited review and approved your research entitled "Influence of humanities supported dental service-learning on students' perceptions of social responsibility and professionalism" with the following conditions:

NO CONDITIONS

The approval for your research protocol and the human participants' component of your work is valid through 24-Mar-2015. If you plan to continue this research past this date, you will need to reapply for IRB approval. If you make any modifications to your research, you will need to obtain IRB approval for those changes as well.

Sincerely,

Allan C. Dawson
adawson@drew.edu

NEW YORK UNIVERSITY
A private university in the public service

University Committee on Activities Involving Human Subjects
665 Broadway, Suite 804
New York, NY 10012
Telephone: 212-998-4808
Fax: 212-995-4304
Internet: www.nyu.edu/ucaihs

NOTICE OF REVIEW
Initial Review - Exempt

PI Name: *Stefania Willis*
IRB #*: *13-9484*
Study Title: *"Influence of Humanities Supported Dental Service-Learning on Students' Perceptions of Social Responsibility and Professionalism."*
Review Date: *May 21, 2013*

Your protocol has been determined to be exempt from federal oversight at ***45 CFR 46 101(b)[2]***. No further review is necessary unless modifications to the protocol related to human research subjects are proposed. Your study will remain active for a three-year period after which time it will be placed in the UCAIHS Offices' deactivated files.

This determination was made with the understanding that the proposed research only involves the following activities:

- Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

If you have any questions, please feel free to contact the UCAIHS office at 212-998-4808 or at ask.humansubjects@nyu.edu.

We wish you success with your research.

Sincerely,

Julie Washington, CIP
Senior IRB Administrator

*Please reference **the IRB number listed above** on any documents or correspondence with the IRB concerning this research.

New York University College of Dentistry
Dental Hygiene Program
E-mail script for Participant Recruitment

You are receiving this e-mail through the New York University listserv created for the graduating Dental Hygiene classes of 2013 and 2014. You are being asked to participate in a survey for dental service-learning improvement. The attached consent form will provide information about your participation, anonymous nature of responses, and measures taken to minimize risk. Please read the attached project summary statement. If you agree to participate, please follow the link to the survey and complete the survey. If you do not wish to participate you do not need to take the survey. Thank you for your responses and participation.

Consent to Participate in a Research Study
New York University College of Dentistry

You have been invited to be a participant in a research study to learn about the *influence of humanities supported dental service learning on students' perceptions of social responsibility and professionalism*. The study is being conducted by Stefania Willis, Clinical Assistant Professor in the NYU College of Dentistry Dental Hygiene program and Doctoral Candidate at Drew University. You were selected as a possible participant because you have completed a dental service-learning requirement within the dental hygiene curriculum.

The reason for this study is to gather information about the research question: "Will the application of the humanities to service learning change students' perceptions regarding critical social justice issues, professionalism, and their role as oral healthcare providers?"

If you agree to be in this study, you will be asked to take a 24-question survey using a five-point scale from 1 (strongly disagree) to 5 (strongly agree). It should take approximately 15 minutes of your time. Your participation will be anonymous and you will not be contacted again in the future. You will not be paid for being in this study. This survey involves minimal risk to you.

You do not have to be in this study if you do not want to be. Nonparticipation in this study will not affect your grades or academic standing. You do not have to answer any question that you do not want to answer for any reason. Survey questions can be skipped. The researcher has taken all reasonable measures to protect your identity and responses. For example, the data is SSL encrypted, it is stored on a password protected database, and IP addresses are not collected. However, e-mail and the Internet are not 100% secure, so it is also suggested that you clear the computer's cache and browser history to protect your privacy after completing the survey.

If you have further questions about this project, you may contact me, Stefania Willis, New York University College of Dentistry, 345 E. 24th Street, Room 319W, New York, NY 10010. Phone: XXX-XXX-XXXX. E-mail at researcher@nyu.edu. If you have questions or concerns regarding this study and would like to speak with someone other than the researcher, you may contact Dr. William Rogers, Associate Dean of the Caspersen School of Graduate Studies, Drew University. Phone: XXX-XXX-XXXX. E-mail at dean@drew.edu.

For questions about your rights as a research participant, you may contact the University Committee on Activities involving Human Subjects, New York University, 665 Broadway, Suite 804, New York, NY 10012 at XXX-XXX-XXXX or ask.humansubjects@nyu.edu.

You may keep a copy of this document as your informed consent. By completion of the survey, you will have offered your consent to participate in the study.

Thank you for your assistance and participations.

Stefania Willis, RDH, MA

Dental Service Learning Student Attitude Survey

For purposes of this survey, service learning will be defined as "a form of experiential education that combines intentional learning goals for students with service to the community."[553]

1. I understand the role of dental hygiene within a service-learning environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. I understand the role of dentists within a service-learning environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. There is little overlap between my role and that of other students belonging to other healthcare disciplines.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4. Some healthcare roles should be inferior to others.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5. Clinical problem-solving should only be learned with students within my discipline.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

[553] Hood, 454-463.

6. I have to acquire more knowledge and skills than other students in other healthcare disciplines.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7. Service learning helped me to understand my professional strengths and limitations.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. Participating in service learning has changed my scholarly interests and/or career goals.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. Service learning will help to clarify the nature of patient problems.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. Service-learning will help me communicate better with patients and members of the healthcare team.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11. Patients would ultimately benefit if healthcare students worked together to solve patient problems.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. Service-learning helped me gain new knowledge about diverse populations.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

13. Society is responsible for providing dental care for the underserved.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

14. Service-learning changed my beliefs and attitudes towards the underserved.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

15. I am aware of my own biases and prejudices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

16. Access to healthcare is a right.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

17. Addressing risk factors will make a difference in dental healthcare issues.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

18. Functional rather than ideal dental treatment is acceptable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

19. Healthcare decisions are dictated by public policy and external forces beyond the control of the healthcare provider or patient.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

20. Disparity in proportion of untreated dental disease exists in the U.S.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

21. I can make a difference in access to health care.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

22. Mostly, I plan to work in underserved areas with vulnerable and at-risk patients.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

23. Mostly, I plan to work in private practice.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

24. I will graduate with a great deal of debt.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

APPENDIX B

Table 1. U.S. Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ), Dental Services-Mean Median Expenses per Person with Expense and Distribution of Expenses by Source of Payment, According to Population Characteristic: Age.

			Per person with an expense			Percent distribution of total expenses by source of payment				
Population Characteristic	Population (in thousands)	Percent with expense	Median	Mean	Total Expenses (in millions)	Out of pocket	Private insurance	Medicare	Medicaid	Other
Total	273,551	39.9	236	661	72,135	41.9	49.3	0.2	6.2	2.3
Age in years										
Under 65	267,559	39.6	233	662	70,212	41.2	49.9	0.1	6.4	2.3
Under 5	20,155	19.6	122	199	784	9.4	41.0	0.0	44.6	5.0
5-17	53,929	53.7	209	707	20,470	40.0	44.2	0.0	13.1	2.7
18-44	111,055	33.9	235	583	21,906	37.2	56.1	0.0	4.4	2.2
45-64	82,420	43.1	278	762	27,052	46.4	49.5	0.3	1.8	2.0
65-66	5,991	53.8	284	596	1,923	66.3	28.0	3.4	0.0	2.4

Table 2. U.S. Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ), Dental Services-Mean Median Expenses per Person with Expense and Distribution of Expenses by Source of Payment According to Population Characteristic: Income, Gender and Race/Ethnicity.

			Per person with an expense			Percent distribution of total expenses by source of payment				
Population Characteristic	Population (in thousands)	Percent with expense	Median	Mean	Total Expenses (in millions)	Out of pocket	Private insurance	Medicare	Medicaid	Other
Total	273,551	39.9	236	661	72,135	41.9	49.3	0.2	6.2	2.3
Poverty status										
Negative or Poor	43,044	25.8	161	458	5,088	33.8	18.6	0.2	41.6	5.8
Near-poor	12,492	27.0	180	399	1,347	35.8	22.7	0.3	37.2	4.0
Low income	37,801	28.5	211	606	6,537	40.5	35.5	1.1	14.2	8.7
Middle income	82,790	38.7	235	665	21,301	45.7	47.9	0.1	4.1	2.2
High income	97,424	53.2	260	730	37,862	41.3	57.6	0.1	0.2	0.8
Sex										
Male	135,664	36.6	224	638	31,688	41.1	50.8	0.4	5.7	2.1
Female	137,887	43.2	245	679	40,447	42.5	48.2	0.0	6.7	2.5
Race/ethnicity										
Hispanic	49,837	29.4	200	642	9,402	40.7	39.2	0.4	15.4	4.4

Population Characteristic	Population (in thousands)	Percent with expense	Per person with an expense		Total Expenses (in millions)	Percent distribution of total expenses by source of payment				
			Median	Mean		Out of pocket	Private insurance	Medicare	Medicaid	Other
White, Non-Hispanic	168,485	45.6	250	671	51,535	43.0	51.6	0.2	3.5	1.7
Black, Non-Hispanic	34,155	29.6	183	560	5,672	35.1	44.1	0.2	16.9	3.8
Amer. Indian/AK Native/Multi. Races, non-Hispanic	5,727	40.5	271	774	1,796	46.3	41.7	0.0	8.9	3.1
Asian/Hawaiian/ Pacific Islander, non-Hispanic	15,346	34.3	263	708	3,731	37.7	55.5	0.0	3.1	3.7

APPENDIX C

NYUCD-DHP Dental Hygiene Programs' Core Competencies (C)

C1. Apply ethical practice of dental hygiene and adhere to legal and regulatory codes of the profession.
   a. Apply a professional code of ethics and state practice act and regulations to the provision of care in the clinical and community settings.
   b. Maintain appropriate and confidential medical records.
   c. Provide care using an individualized approach that is humane, empathetic, caring, without discrimination.

C2. Use critical thinking skills and comprehensive problem-solving to create evidence-based systemic and oral healthcare strategies that promote patient health and wellness.
   a. Apply critical thinking and problem solving principles to the dental hygiene diagnosis, planning and care.
   b. Evaluate evidence-based literature and apply findings to promote patient health and wellness.

C3. Continuously perform self-assessment for life-long learning and professional growth.
   a. Assess his/her knowledge base and skill, determine the needs of the patient, and refer to appropriate healthcare provider for diagnosis and/or treatment.
   b. Self-evaluation of performance according to the standard of care to determine competency.

C4. Promote the values of the dental hygiene profession through service-based activities, positive community affiliations, and active involvement in local organizations.
   a. Promote the values of the profession.
   b. Participate in college and community outreach activities which promote oral health.

C5. Initiate collaborative approach and communicate effectively with all patients when developing individualized care plans that are specialized, comprehensive, culturally sensitive, and acceptable to all parties involved without discrimination.
   a. Demonstrate an understanding of the knowledge, value and belief systems of diverse patient populations and how these factors influence patients' healthcare decision-making.
   b. Respect the goals, values, beliefs, and preferences of all patients.
   c. Consider health beliefs of the patient to the desired outcome of treatment or educational plan.

d. Communicate with community, patients and healthcare team in a professional fashion.
e. Interact with members of the healthcare community to support best health outcomes for patients.

C6. Use evidence-based decision-making to evaluate emerging technology and treatment modalities to integrate into patient dental hygiene care plans to achieve high-quality, cost-effective care.
a. Apply current tools and methods to provide evidence-based comprehensive dental hygiene care.
b. Provides patient with alternative dental hygiene treatment options and uses problem-solving skills to help patient achieve high-quality, cost-effective care.

C7. Assume responsibility for professional actions and integrates educational, preventive and therapeutic oral health services based on accepted scientific theories, research, and the accepted standard of care.
a. Apply accepted scientific theories and research into educational, preventive, and therapeutic oral health services.

C8. Apply quality assurance mechanisms to ensure continuous commitment to accepted standards of care, including health and safety of patient and provider and accurate, consistent and complete documentation of general and oral health services.
a. Evaluates clinical quality assurance.
b. Utilize risk management principles for documentation in patient's record.
c. Communicate in a manner to elicit accurate information from the patient.

C9. Initiate consultations and collaborations with all relevant healthcare providers for the delivery of inter-professional, patient-centered care.
a. Identifies conditions that require consultations with other healthcare providers, including physiological, psychological, or social problems for comprehensive evaluation.
b. Uses emerging technology to coordinate with other healthcare providers.
c. Effectively communicate with other healthcare providers to establish relationships in creating health homes for shared patients.
d. Identifies oral and systemic risk factors and refers to appropriate healthcare provider as necessary.

C10. Manage medical emergencies by using professional judgment, providing life support, and utilizing required CPR and any specialized training or knowledge.
a. Maintain current CPR certification.
b. Describe the training, armamentarium, agents, and appropriate interventions required for managing common medical emergencies.
c. Identify the emergency procedures of the College of Dentistry.

d. Evaluate the patient record for risk of a medical emergency.

Health Promotion and Disease Prevention (HP)

HP1. Effectively communicate with individuals and populations the values to encourage and maintain health promotion and disease prevention for oral and general health and wellness.

a. Act as advocate for preventive health behaviors by participating in health promotion and disease prevention activities.
b. Recognize signs of abuse or neglect of the patient and report and refer as necessary.
c. Identify individual and population risk factors and develop strategies that promote health.
d. Apply motivational interviewing and evidence-based health theories to partner with patients to better comply with self-care regiments.
e. Include and accept patient as partner in treatment plan goals to encourage patient to assume responsibility for health.

Community Involvement (CM)

CM1. Assess, provide, and evaluate community-based oral health programs for all individuals and identify reimbursement mechanisms and its impact on the patient's access to oral and general health care.

a. Assess community-based programs to determine appropriate oral health education activities.
b. Identify community-based health programs at local and state level.
c. Relate services available at the college and community to the needs of the individual or patient.
d. Provide oral health education and preventive counseling for diverse populations.
e. Analyze various models of healthcare reimbursement in respect to the individual needs to the patient.
f. Compare and contrast various third party providers.
g. Anticipate barriers to treatment based upon the reimbursement mechanisms.
h. Complete evaluation and plan for future programs.

i. Advocate for effective oral and general health care for underserved populations.

Patient Care (PC)

Assessment

PC1. Systematically collect, analyze, and record diagnostic data on the general, oral, and psychosocial health status of a variety of patients using methods consistent with medicolegal principles with respect to predisposing and etiologic risk factors that require intervention to prevent disease and the relationships among systemic disease, medications, and oral health.

a. Select, obtain, and interpret diagnostic information recognizing its advantages and limitations.
b. Recognize predisposing and etiologic risk factors that require intervention to prevent disease.
c. Obtain, review, and update a complete medical, family, social, and dental history.
d. Recognize health conditions and medications that impact overall patient care.
e. Identify patients at risk for a medical emergency and manage the patient care in a manner that prevents an emergency.
f. Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient's needs.

Diagnosis

PC2. Use patient assessment data, diagnostic technologies, and critical decision-making skills to determine a dental hygiene diagnosis, a component of the dental diagnosis, to reach conclusions about the patient's dental hygiene care needs.

a. Use patient assessment data to determine links between patient systemic and oral health.
b. Interpret data to the relevance of dental hygiene services appropriate for the patient.
c. Employ state-of-the-art technology to address patient wellness.

Planning

PC3. Use reflective judgment in making referrals to other healthcare professionals and developing a comprehensive dental hygiene care plan that is congruent with treatment plans by the dentist.

a. Develop a comprehensive problem list with possible optimal and alternate solutions.
b. Collaborate with the patient, family, guardian, and other health professionals as indicated to formulate a comprehensive dental hygiene care plan that is patient centered and based on the best scientific evidence and professional judgment.

c. Effectively communicate the dental hygiene care plan, goals and expected outcomes to other interdisciplinary health team members.
d. Integrate the dental hygiene care with other interdisciplinary health team members' treatment plans.
e. Effectively communicate the dental hygiene care plan, alternate solutions, goals and expected outcomes with the patient.

Implementation

PC4. Provide specialized treatment by partnering with the patient in obtaining oral health goals that include educational, preventive, and therapeutic services designed to achieve and maintain oral and systemic wellness.
a. Perform dental hygiene interventions to eliminate and/or control local etiologic factors to prevent and control caries, periodontal disease and other oral conditions.
b. Control pain and anxiety during treatment through the use of accepted clinical and behavioral techniques.
c. Utilize accepted infection control procedures.
d. Provide health preventive education, and nutritional counseling.

Evaluation

PC5. Determine the outcomes and effectiveness of dental hygiene interventions and modify care plans as needed.
a. Compare baseline findings, results of interventions and goals of treatments to plan future strategies.
b. Assess ongoing care for possible re-evaluation and revision of current treatment plan.
c. Modify strategies or seek referral for non-compliant cases or cases where goals cannot be met.
d. Assess patient satisfaction surveys for areas of improvement in care process.

Professional Growth and Development (PGD)

PGD1. Recognize that knowledge is dynamic and that learning continues throughout ones professional life.
a. Compare and contrast various career options for the dental hygienist in various settings.
b. Compare various healthcare management models as part of an inter-professional healthcare team.
c. Interact with members of the healthcare community to support professional goals.

NYUCD-DHP Service-Learning
Goals and Objectives

The service-learning program goals are

- To enhance students' subject matter learning in applying classroom knowledge to practical experience
- To provide a service to a community
- To advance clinical and interpersonal skills working with diverse populations
- To demonstrate effective oral and written communication tailored to the individual needs of the audience and type of setting
- To prepare students to meet the increasingly complex oral health need of the public
- To engender a life-long appreciation for community service, social justice, and community involvement
- To increase students' proficiency in problem-solving and overall critical thinking aptitude
- To provide experience making rational, ethical decisions regarding complex personal, societal, and professional situations
- To clarify students' career/specialization choices by increased self-awareness as well as improved leadership and communication skills
- To provide opportunities for students to work as a member of an interdisciplinary team of professionals and to collaborate with agencies in maintaining the health and well-being of a community.

Rotational Sites Educational Objectives

Dental Hygiene Service Learning Rotation
At: New York City Health and Hospital Corporation
Location: Gouverneur Hospital and Woodhull Hospital

Students will be assigned to the following areas: The Dentistry Department Clinic/Nursing Facility

Educational Objectives:

- The student will learn about the health and non-health barriers to dental hygiene services by assisting diverse populations and nurses with follow-up and dental referrals.

- The student will assess the oral health needs of individuals and groups and the quality and availability of resources and services in the provision of services as part of a healthcare team.

- The student will gain an understanding of patient-centered care by working with patients and community partners in the identification of program and treatment goals and needs.

- The student will use evidence-based decision-making to identify individual and population risk factors and provide relevant health instruction and treatment that promote health-related quality of life.

- The student will gain insight into the complex nature of oral disease and how social, economic, and cultural factors influence patients' healthcare decision-making and treatment outcomes.

- The student will demonstrate skills in communicating effectively while providing health education information to individuals and groups.

- The student will prepare and present age-appropriate and culturally sensitive dental health education to individuals and families.

- The student will develop competence in the provision of preventive and maintenance dental hygiene care for patients with special needs (who are medically compromised)

- The student will demonstrate empathy and rapport with patients and groups while delivering healthcare education and service.

- The student will develop a sense of self-efficacy by increasing dental services for underserved and diverse populations.

- The student will strengthen professional identity relative to alternative career options within health care by increasing dental services for underserved and culturally diverse and special needs populations.

- The student will apply ethical principles, decision-making, and reasoning while caring for diverse patients and populations with special needs.

- The student will understand how providing services within a community setting reduces individuals experiencing difficulties or delays in obtaining necessary dental care.

- The student will apply critical thinking skills in identifying appropriate measurement tools for analyzing treatment and program outcomes.

Objectives are linked to the following program competencies:

C1. Apply ethical practice of dental hygiene and adhere to legal and regulatory codes of the profession.

C2. Use critical thinking skills and comprehensive problem-solving to create evidence-based systemic and oral healthcare strategies that promote patient health and wellness.

C3. Continuously perform self-assessment for life-long learning and professional growth.

C4. Promote the values of the dental hygiene profession through service-based activities, positive community affiliations, and active involvement in local organizations.

C5. Initiate collaborative approach and communicate effectively with all patients when developing individualized care plans that are specialized, comprehensive, culturally sensitive, and acceptable to all parties involved without discrimination.

C6. Use evidence-based decision-making to evaluate emerging technology and treatment modalities to integrate into patient dental hygiene care plans to achieve high-quality, cost-effective care.

C7. Integrates accepted scientific theories and research into educational, preventive, and therapeutic oral health services.

C9. Initiate consultations and collaborations with all relevant healthcare providers to create health homes for patients beyond optimal treatments.

HP1. Effectively communicate with individuals and populations the values to encourage and maintain health promotion and disease prevention for oral and general health and wellness.

CM1. Assess, provide, and evaluate community-based oral health programs for all individuals and identify reimbursement mechanisms and its impact on the patient's access to oral and general health care

PGD1. Recognize that knowledge is dynamic and that learning continues throughout ones professional life.

PC1. Systematically collect, analyze, and record diagnostic data on the general, oral, and psychosocial health status of a variety of patients using methods consistent with medico-legal principles with respect to predisposing and etiologic risk factors that require intervention to prevent disease and the relationships among systemic disease, medications, and oral health.

PC4. Provide specialized treatment by partnering with the patient in obtaining oral health goals that include educational, preventive, and therapeutic services designed to achieve and maintain oral and systemic wellness.

Service Learning Objectives linked to the following Healthy People 2020 Goals:

OH HP2020-1. Early detection of oral and pharyngeal cancers

C HP2020-6. Reduce oral pharyngeal cancer deaths

TU HP2020-19. Increase tobacco screening in health care settings

TU HP2020-17. Increase tobacco cessation counseling

D HP2020-9. Increase annual dental examination for persons with diabetes

OH HP2020-3. Increase use of oral healthcare system

OH HP2020-6. Reduce dental caries experience

OH HP2020-7. Reduce untreated dental decay

OH HP2020-8. Reduce permanent tooth loss and complete tooth loss

OH HP2020-9. Reduce periodontal disease: destructive periodontal disease

AHS HP2020-7. Reduce individuals experiencing difficulties or delays in obtaining necessary medical care, dental care, or prescription medicines.

Dental Hygiene Service Learning Rotation in Pediatric Dentistry
New York University College of Dentistry Pediatric Dentistry Clinic,
NYUCD Dental Van

Educational Objectives:

- The student will assess the dental health needs of the pediatric patient in order to provide appropriate dental hygiene care including preventive therapy and procedures with an emphasis on early intervention

- The student will use evidence-based decision-making to identify individual risk factors and provide relevant health instruction and treatment that promote health-related quality of life.

- The student will work as a member of a healthcare team in the provision of oral health services to children and adolescents

- The student will prepare and present age-appropriate and culturally sensitive dental health education to children and caregivers

- The student will demonstrate skills in communicating effectively information regarding consequences of poor oral hygiene and a diet high in sugar (fermentable carbohydrates) to pediatric caregivers and/or adolescents

- The student will demonstrate an understanding of basic principles of pediatric and adolescent learning, including behavior management in the delivery of patient care

- The dental student will demonstrate knowledge and skills in collecting and analyzing results of oral health screening and providing confirmation of findings to caregivers

- The student will demonstrate empathy and rapport with patients and groups while delivering healthcare education and service.

- The student will develop a sense of self-efficacy by increasing dental services for underserved and diverse populations.

- The student will strengthen professional identity relative to alternative career options within health care by increasing dental services for underserved and culturally diverse and special needs populations.

- The student will apply ethical principles, decision-making, and reasoning while caring for patients and populations

- The student will understand how providing services within a community setting increases dental services for low-income children and reduces individuals experiencing difficulties or delays in obtaining necessary dental care

- The student will apply critical thinking skills in identifying appropriate measurement tools for analyzing treatment and program outcomes

Head Start in Clinical Dentistry/Sealant Program

Educational Objectives:

- The student will assess the dental health needs of the pediatric patient in order to provide appropriate dental hygiene care including preventive therapy and procedures with an emphasis on early intervention

- The student will work as a member of a healthcare team in the provision of oral health services to children and adolescents

- The student will prepare and present age-appropriate and culturally sensitive dental health education to children and caregivers

- The student will demonstrate skills in communicating effectively with pediatric caregivers and/or adolescents regarding consequences of poor oral hygiene and a diet high in sugar (fermentable carbohydrates)

- The student will demonstrate skills in communicating effectively with pediatric caregivers and/or adolescents regarding benefits of good oral hygiene behaviors and preventive agents/therapies including fluoride and sealants

- The student will demonstrate an understanding of basic principles of pediatric and adolescent learning, including behavior management in the delivery of patient care

- The dental student will demonstrate knowledge and skills in collecting and analyzing results of oral health screening and providing confirmation of findings to caregivers

- The student will demonstrate empathy and rapport with patients and groups while delivering healthcare education and service.

- The student will develop a sense of self-efficacy by increasing dental services for underserved and diverse populations.

- The student will strengthen professional identity relative to alternative career options within health care by increasing dental services for underserved and diverse populations.

- The student will apply ethical principles, decision-making, and reasoning while caring for patients and populations

- The student will understand how providing services within a community setting increases dental services for low-income children and reduces individuals experiencing difficulties or delays in obtaining necessary dental care

- The student will apply critical thinking skills in identifying appropriate measurement tools for analyzing treatment and program outcomes

Competencies:

C1. Apply ethical practice of dental hygiene and adhere to legal and regulatory codes of the profession.

C2. Use critical thinking skills and comprehensive problem-solving to create evidence-based systemic and oral healthcare strategies that promote patient health and wellness.

C3. Continuously perform self-assessment for life-long learning and professional growth.

C4. Promote the values of the dental hygiene profession through service-based activities, positive community affiliations, and active involvement in local organizations.

C5. Initiate collaborative approach and communicate effectively with all patients when developing individualized care plans that are specialized, comprehensive, culturally sensitive, and acceptable to all parties involved without discrimination.

C6. Use evidence-based decision-making to evaluate emerging technology and treatment modalities to integrate into patient dental hygiene care plans to achieve high-quality, cost-effective care.

C7. Integrates accepted scientific theories and research into educational, preventive, and therapeutic oral health services.

C9. Initiate consultations and collaborations with all relevant health care providers to create health homes for patients beyond optimal treatments.

HP1. Effectively communicate with individuals and populations the values to encourage and maintain health promotion and disease prevention for oral and general health and wellness.

CM1.Assess, provide, and evaluate community-based oral health programs for all individuals and identify reimbursement mechanisms and its impact on the patient's access to oral and general health care

PGD1. Recognize that knowledge is dynamic and that learning continues throughout ones professional life.

PC1. Systematically collect, analyze, and record diagnostic data on the general, oral, and psychosocial health status of a variety of patients using methods consistent with medico-legal principles with respect to predisposing and etiologic risk factors that require intervention to prevent disease and the relationships among systemic disease, medications, and oral health.

PC4. Provide specialized treatment by partnering with the patient in obtaining oral health goals that include educational, preventive, and therapeutic services designed to achieve and maintain oral and systemic wellness.

Service Learning Objectives linked to the following Healthy People 2020 Goals:

HP2020-6. Reduce dental caries experience

HP2020-7. Reduce untreated dental decay

HP2020-8. Reduce permanent tooth loss and complete tooth loss

HP2020-9. Reduce periodontal disease: destructive periodontal disease

HP2020-10. Increase dental sealants

HP2020-3. Increase use of oral healthcare system

HP2020-4. Increase dental services for low-income children

HP2020-7. Reduce individuals experiencing difficulties or delays in obtaining necessary medical care, dental care, or prescription medicines.

APPENDIX D

TABLES 3-10 AND FIGURES 1-4

Question 1 Tables and Figures

Table 3. Comparison of Mean Response in Each Group to the Composite index of Roles and Responsibilities

Research Question 1						95% CL	
Group	N	Mean	SD	T	*P*	LL	UC
2013	33	3.4944	.46112	-885	.379	-.29354	.11284
2014	46	3.5847	.43725	-878	.383	-.29587	.11515

P= ≤ .05.

Table 4. Items Relatable to Research Question 1: Improvements in Roles and Responsibilities, Group Statistics

SL without MH Curriculum 2013				SL with MH Curriculum 2014		
Item	N	Mean	SD	N	Mean	SD
IRR 1	33	4.24	1.032	46	4.46	.912
IRR 7	33	2.24	1.119	45	2.38	1.230
IRR 8	33	3.55	.905	46	3.54	1.149
IRR 12	33	4.12	1.053	46	4.26	.880
IRR 13	32	3.47	1.077	46	3.67	1.076
IRR 14	33	3.48	1.202	46	3.85	.988
IRR 15	32	3.97	.897	46	3.98	.882
IRR 16	33	4.15	1.004	46	4.15	.988
IRR 17	33	4.48	.906	46	4.37	.799
IRR 18	32	3.03	1.257	44	2.89	1.224
IRR 20	33	4.27	1.126	46	4.28	.981
IRR 22	33	2.97	1.159	44	3.09	.960
IRR 23	33	2.30	.883	46	2.20	1.067

Note. IRR = Improvements in Roles and Responsibilities, items 1, 7, 8, 12, 13, 14, 15, 16, 17, 18, 20, and 22. SL = Service Learning; MH = Medical Humanities

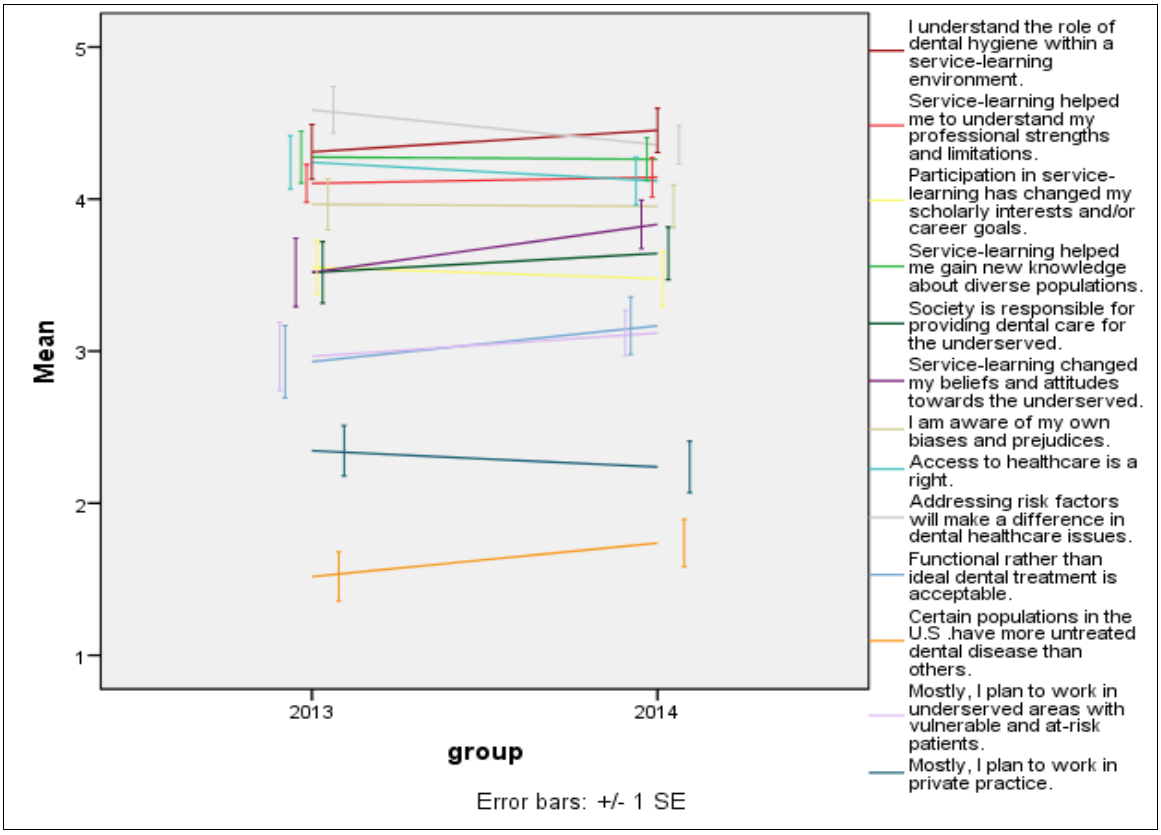

Figure 1. Mean Responses to Roles and Responsibilities Items in the Treatment (2014) and Control (2013) Groups

Question 2 Tables and Figures:

Table 5. Comparison of Mean Response in Each Treatment Group to the Composite Index of Leadership and Self- Efficacy

Research Question 2						95% CL
Group	N	Mean	SD	T	*P*	LL	UC
2013	33	3.5606	.67033	.109	.913	-.29473	.32899
2014	46	3.6522	.82912	.077	.939	-.29309	.32735

P= ≤ .05.

Table 6. Items Relatable to Research Question 2: Improvements in Leadership and Self-efficacy, Group Statistics

SL without MH Curriculum 2013				SL with MH Curriculum 2014		
Item	N	Mean	SD	N	Mean	SD
ILS 19	33	3.12	1.219	46	3.11	1.100
ILS 21	33	4.24	1.001	45	4.20	.919

Note. ILS = Improvements in Leadership and Self-Efficacy, items 19 and 21.
SL = Service Learning; MH = Medical Humanities

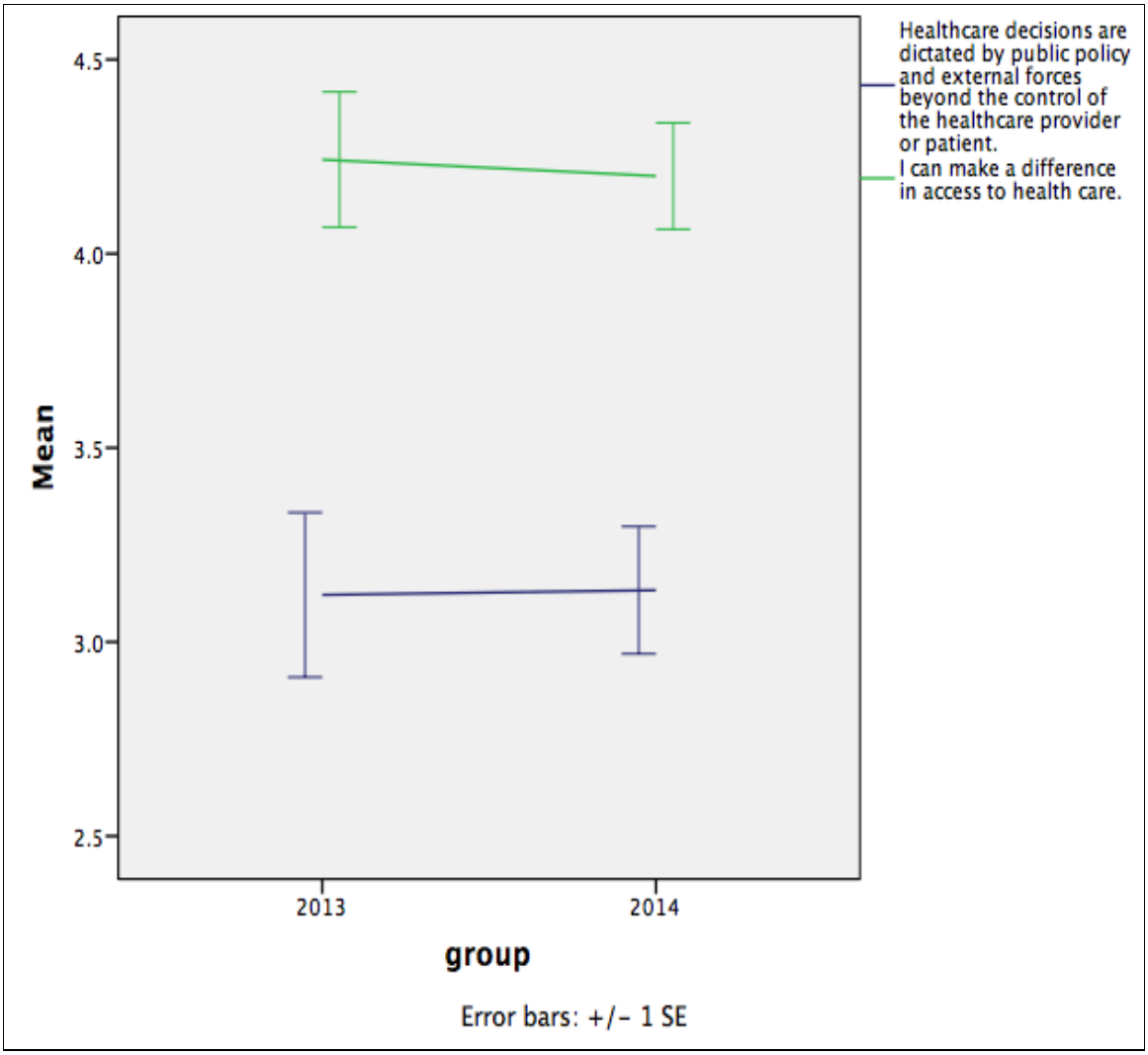

Figure 2. Mean Responses to Leadership and Self-efficacy Items in the Treatment (2014) and Control (2013) groups

Question 3 Tables and Figures:

Table 7. Comparison of Mean Response in Each Treatment Group to the Composite Index of Communication between Patients and Providers

Research Question 3					95% CL	
Group	N	Mean	SD	T	*P*	LL	UC
2013	33	3.8485	.84303	-1.206	.232	-.63236	.15542
2014	46	4.0870	.88383	-1.215	.238	-.62981	.15286

P= ≤ .05.

Table 8. Items Relatable to Research Question 3: Improvements in Communication Between Patients and Providers, Group Statistics

SL without MH Curriculum 2013				SL with MH Curriculum 2014		
Item	N	Mean	SD	N	Mean	SD
IC 9	33	3.70	.847	46	4.00	.989
IC 10	33	4.00	.901	46	4.17	.902

Note. IC = Improvements in Communication between Patients and Providers, items 9 and 10. SL = Service Learning; MH = Medical Humanities

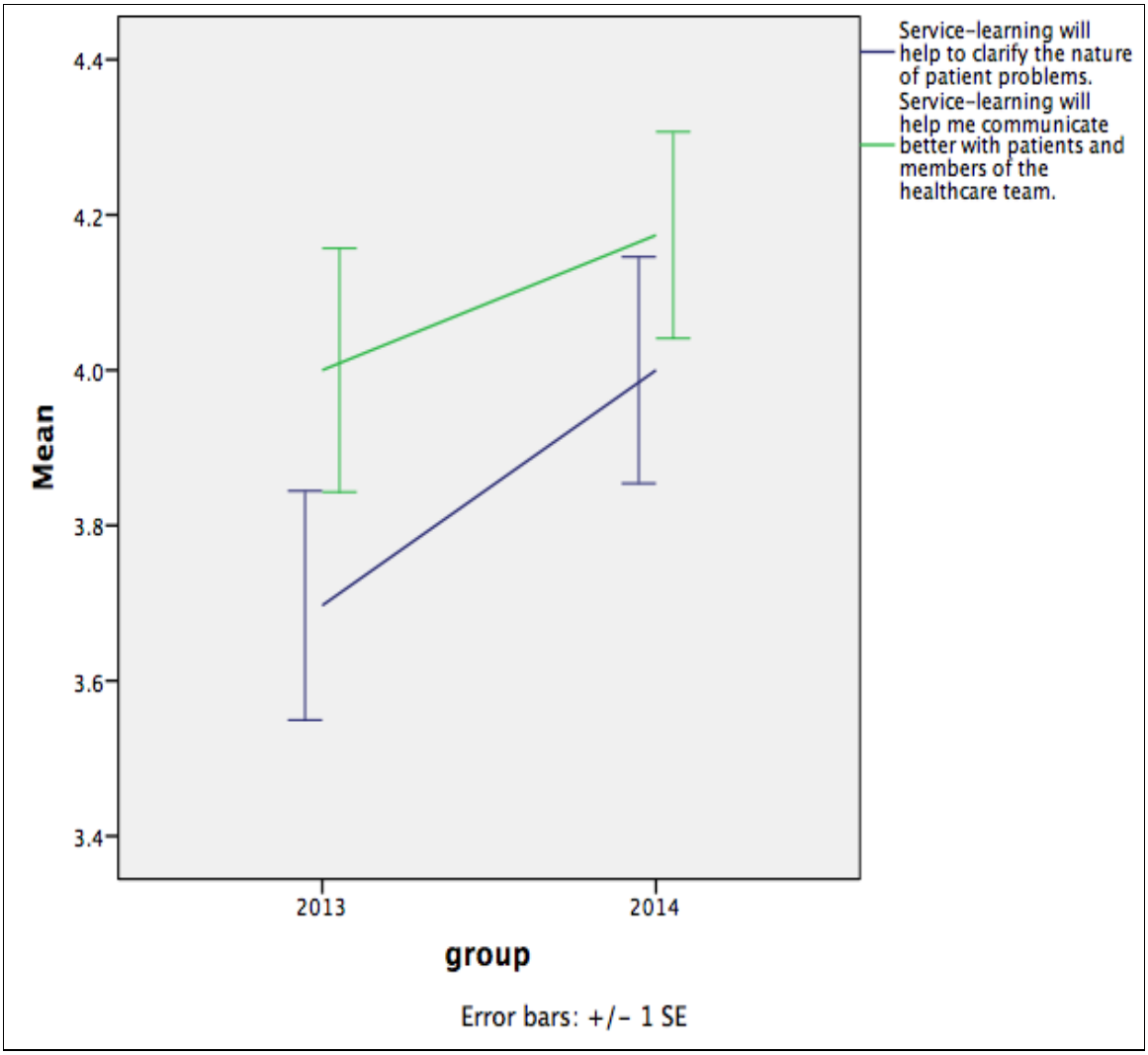

Figure 3. Mean Responses to Communication between Patients and Providers Items in the Treatment (2014) and Control (2013) Groups

Question 4 Tables and Figures:

Table 9. Comparison of Mean Response in Each Treatment Group to the Composite Index of Teamwork

Research Question 4						95% CL
Group	N	Mean	SD	T	*P*	LL	UC
2013	33	3.7429	.54383	-.282	.779	-.27906	.20985
2014	46	3.7775	.53405	-.281	.780	-.28030	.21108

P= ≤ .05.

Table 10. Items Relatable to Research Question 4: Improvements in Teamwork, Group Statistics

SL without MH Curriculum 2013				SL with MH Curriculum 2014		
Item	N	Mean	SD	N	Mean	SD
IT 2	33	4.15	1.034	46	4.37	.928
IT 3	33	2.76	1.091	46	3.09	1.297
IT 4	33	2.24	1.119	45	2.38	1.230
IT 5	31	2.26	1.094	46	2.24	1.158
IT 6	32	2.69	.998	45	3.04	1.127
IT 11	33	4.48	.870	46	4.43	.860

Note. IT = Improvements in Teamwork, items 2, 3, 4, 5, 6, and 11. SL = Service Learning; MH = Medical Humanities

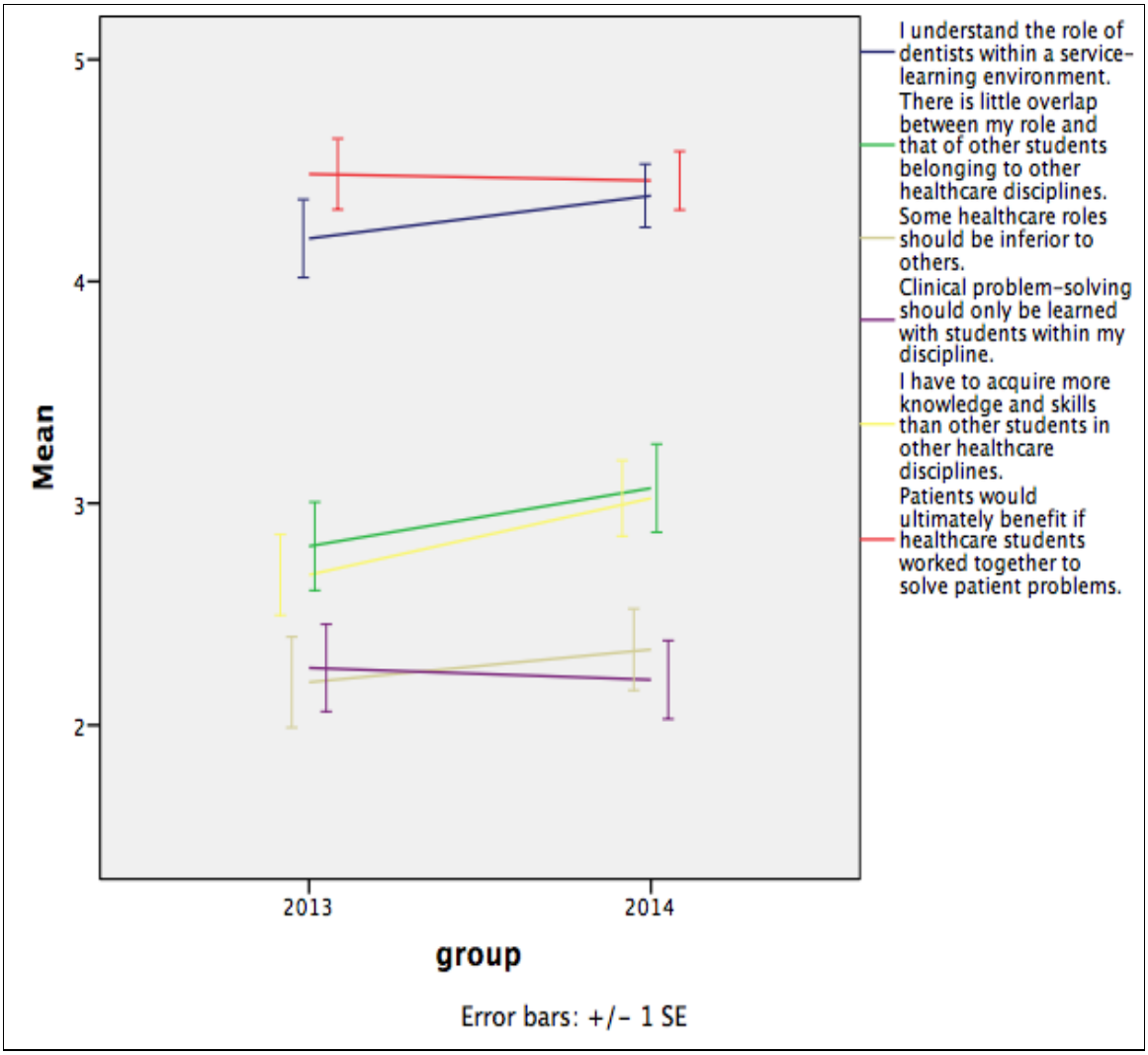

Figure 4. Mean Responses to Teamwork Items in the Treatment (2014) and Control (2013) Groups

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