

DENTAL HYGIENE AND RESEARCH: IRREVOCABLY CONNECTED

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SORT SCORE			
A	B	C	NA

SORT, Strength of Recommendation Taxonomy.

LEVEL OF EVIDENCE		
1	2	3

See page A8 for complete details regarding SORT and LEVEL OF EVIDENCE grading system

ABSTRACT

Although remarkable growth has occurred in the dental hygiene research arena, an increased emphasis on research development will facilitate the designation of dental hygiene as a true discipline.

Background

Dental hygienists have participated in research for nearly 100 years. Support for research development has increased due to contributions of the American Dental Hygienists' Association and other grant monies that have funded seminal educational endeavors to elevate the research skills of dental hygienists. Dental hygiene initiated research endeavors, the advent of doctoral degree programs in dental hygiene, expansion of the dental hygiene body of knowledge, and efforts toward interprofessional collaboration continue to elevate the profession of dental hygiene while addressing the oral health needs of the public.

Methods

The research focus in dental hygiene is reviewed. Landmark events that have supported research endeavors are described and examples of historically important global contributions made by dental hygienists are chronicled.

Conclusions

Further development of a body of dental hygiene research will help position the profession alongside other academically recognized health care disciplines. A small, dedicated group of dental hygienists have worked toward advancing the profession in this way, but additional growth is essential if dental hygiene is to be considered a true discipline. One such initiative on the near horizon is the doctoral degree in dental hygiene.

Key words: Evidence-based, systematic review, research agenda, discipline, dental hygiene research

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INTRODUCTION

The impetus for establishing the dental hygiene profession was observational research. Over a century ago, dentistry primarily focused on the surgical repair of carious lesions and other dental diseases. However, the value of the dental prophylaxis was being studied by a Philadelphia dentist, D.D. Smith, who from 1894 to 1898 observed an outcome of improved oral health after a patient's teeth were cleaned. When Dr. Smith presented these clinical outcomes, Dr. Alfred Fones, a Connecticut dentist, felt that cleaning teeth in this manner would require a significant time commitment. He commissioned the Bridgeport, Connecticut board of education to allow him to demonstrate whether education and a preventive approach to oral health in the school system could benefit children. Dr. Fones documented that education and a prophylaxis for children could prevent disease.¹ Based upon this *research* about the benefits of debridement and prevention, the first educational program to train dental hygienists began.

Many years later, in 1971, Dr. Ralph Lobene also influenced the development of the dental hygiene profession through research.² His study evaluated the impact of providing advanced training in cavity preparation and restoration to dental hygienists; this project became known as the Forsyth Experiment. The skill level of dental hygienists was compared to that of dental graduates. The dental hygienists had 7 months of practice experience after graduating from either the Forsyth School for Dental Hygienists, Bristol Community College, or Fones School for Dental Hygienists when they entered the Forsyth program for advanced skills. Pre- and post-test scores were compared in both a pre-clinical and clinical phase by calibrated examiners. Outcomes demonstrated that the procedures performed by the advanced trained dental hygienists were equivalent to those performed by dentists.

The study by Dr. Lobene moved the focus from a specific oral health care provider to the training needed to develop competency in specific skills. It also provided a benchmark for the scope of practice expansion that is now part of some state practice acts.

Science and research is the thread that connects all aspects of dental hygiene practice regardless of setting. The American Dental Hygienists' Association (ADHA) values the importance of research in defining dental hygiene practice. ADHA characterizes the dental hygiene profession as... 'the science and practice of the recognition, treatment and prevention of oral diseases' and describes activities of a dental hygienist as... 'provides educational, clinical, research, administrative, and therapeutic services supporting total health through the promotion of optimal oral health.'³ Furthering the science of dental hygiene is best accomplished with well designed and implemented qualitative and quantitative studies ideally conducted by dental hygienists and disseminated in peer reviewed journals.

Today's focus is on evidence-based practice which has been described as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individuals."⁴ Evidence based practice also includes clinically-based observations, to accompany the evidence, and considers practitioner preferences (see Mitchell, Forest, Overman, *Critical Thinking Skills for Patient Centered Care*, in this publication). 'Best practices' are built on a foundation of scientific evidence which can bridge the gap between research and practice. 'Best practices' refers to the application of the most recent, clinically relevant research-based interventions. Translating research into practice helps ensure that new treatments, products, and interventions reach the patients or populations they are intended to help, and are clinically realistic.⁵ In order for dental hygienists to provide the most effective interventions and 'best practices,' they must be adept at evaluating strengths and weaknesses of published research.

HISTORICAL PERSPECTIVE: EARLY DENTAL HYGIENE RESEARCHERS

In the early 1900s, dental hygienists were studied by Lobene, Smith, and others, to evaluate the impact of preventive measures on oral health, primarily for children. It was not until 1960, with the expansion of dental hygiene education to the graduate level that dental hygienists became active participants as principal investigators in research projects. Manuscripts published in the *Journal of Dental Hygiene* (titled *Journal of the American Dental Hygienists' Association* between 1927 and 1960) were primarily opinion papers related to the profession, education, and clinical practice. There were few published papers by dental hygienist researchers; most research came from other disciplines. The advent of master's programs in dental hygiene introduced course work in research design, implementation and evaluation, and the importance of disseminating the results.⁶

Today master's degree programs in dental hygiene prepare graduates for roles in public health administration, education and research (see Battrell, *Advancing Education in Dental Hygiene*, in this publication). Planning is underway for a doctoral program in dental hygiene; the first is planned for 2015 at the University of Idaho. Advances in technology will allow PhD students to matriculate regardless of location. Without the option of earning a doctoral degree in dental hygiene, many dental hygienists have earned PhD degrees in related fields, with the advantages of cross-discipline exposure to the rigors of research.

In 1994, dental hygienist researchers who were also members of the American section of the International Association of Dental Research (IADR) saw the importance of a group specific to dental hygiene research. Initiated by Ruth Nowjack-Raymer, RDH, MPH, PhD, and supported by Margaret (Peg) Walsh, RDH, MS, MA, EdD, Kathleen Newell, RDH, PhD, and Jane Forest, RDH, EdD, a new section named the Oral Dental Hygiene Research Group (OHRG), was approved by the IADR board. The OHRG now has over 200 members, many of whom conduct trials regarding the practice of dental hygiene and global oral health issues. A generous donation by the Colgate-Palmolive company annually recognizes an individual whose body of research has impacted the profession. This award has recognized numerous dental hygienists since its inception in 1996 (see [Table 1](#)).

One of the OHRG founders, Jane Forrest, RDH, EdD, established the National Center for Dental Hygiene Research. The Center has championed dental hygienists in research and supported two Delphi studies to validate the ADHA research agenda.

Today, the *Journal of Dental Hygiene* receives over 80 manuscripts annually from dental hygiene researchers and dedicates 75% of the content to original research articles. Dental

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