EDITORIAL

## Methods in Dental Public Health Research and Practice: A New Feature for the *JPHD*

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... there is no such thing as a calculus of discovery or a schedule of rules which by following we are conducted to a truth (1).

The rules for dental public health research and practice reside in textbooks, scientific journals, documents, and increasingly in electronic versions of these media. They provide the cumulative record of how to conduct science or programs, a record that is well developed with a broad science base of theory and methods from which to draw. As implied by the above quote from Peter Medawar, Nobel Prize recipient for his work that made organ transplantation possible, this storybook version of how to do our work does not always lead to truth in the search for answers to research questions. Nor will it always provide for the delivery of the most appropriate, effective, and efficient community health services.

Our discipline is an applied one, and we strive to find valid and useful answers to important questions in the real worlds of science and practice, where we often have less control over events than our colleagues in laboratory research or in clinical practice. Herein lies one of the strengths of our work, for answers are directly applicable to individuals and populations. Herein also lies one of the exciting challenges we face — for, in doing our work, we often confront problems having no textbook answer. Creative solutions must be found to complete the project at hand. If we are to find the truth, the "doing" of the project is as important as the answers to the questions. Without successfully doing research within our scientific and programmatic projects, we are left without answers to our questions - or, perhaps even worse, biased answers.

This creative aspect of research and practice is often undervalued, and in the end defines many of the leaders in research and practice. The DMF index was born more than six decades ago out of the necessity for having a tool to measure dental caries experience in schoolchildren. Klein and Dean successfully used the index to study dental caries and, in doing so, became known as leaders in an emerging discipline. Today, dental caries is less prevalent in the developed world, treatment recommendations are more conservative, and interest in studying the disease has expanded beyond school-aged populations, all making the DMF index virtually unusable for many of today's research questions. From this challenge must arise new methods of measuring the disease.

We also face a significance challenge in the development of oral health surveillance systems. Surveillance has taken on increased importance in public health in the last decade. The 1988 Institute of Medicine report on the future of public health highlighted and expanded the traditional role of surveillance in its definition of core functions; furthermore, changes in the delivery of health care have created the need for monitoring outcomes. The Centers for Disease Control and Prevention and the states have responded by expanding their traditional roles in surveillance of communicable and infectious diseases to include surveillance of environmental hazards and illnesses, injuries, chronic diseases, health behaviors, and maternal and child health (2). Almost \$75 million were spent in 1992 for infectious disease surveillance activities alone in the United States - a figure far short of what is necessary to meet public health needs, but exceeding expenditures for all dental public health activities in this country (3,4).

The importance of surveillance is highlighted by the new competency guidelines for dental public health developed last spring in San Mateo (5). Graduates of two-year specialty programs in dental public health are expected to be able to develop and run oral health surveillance systems. Yet, oral health surveillance systems are underdeveloped and consist mostly of tumor registries, community water fluoridation censuses, and surveys of behavioral risk factors — all more often than not the responsibility of nondental personnel in the states. The need and demand for development and expansion of surveillance of oral health events and determinants has far outpaced the methods available. A consensus in the public health community as to its goals, scope, and methods does not exist.

Dental caries measurement and the development of surveillance systems are but two examples of the many opportunities for leadership in the development and testing of research and practice methods. Research agendas for public health (6,7), the dental literature, and our experiences are replete with further examples of the many methodologic advances needed to further our work in oral health.

The volume of literature devoted to methods should be sufficient to sustain and advance practice. Methods papers find their way into the literature when investigators or program administrators submit unsolicited manuscripts describing the results of their developmental work, or when they are invited to do so, usually as part of a symposium organized to address methodologic issues. More often than not, however, methods papers do not get written. Table 1 provides a summary of papers on research and practice methods published in the JPHD during the last decade. Only 19 papers have been published, and they represent less than 10 percent of the 242 scientific manuscripts published during the decade. Close to one-half of the papers are devoted to the development of measures of oral health, including papers on the clinical measurement of esthetics, fluorosis, and hypoplasia, and the subjective measurement of oral health overall or chewing ability, number of missing teeth, periodontal health, and dental care satisfaction specifically. The remaining papers are divided almost equally among three other categories: the evaluation of data collection methods including the use of hygienists versus dentists in epidemiologic surveys, the effect of financial incentives on response rates in surveys of dentists, the use of ecologic measures of socioeconomic status, and detection methods for periodontal infections; bias resulting from sampling methods or nonresponse; and review papers on cost effectiveness, forecasting restorative treatment needs, and statistical methods.

A simple count of entries in the JPHD underestimates the overall volume of methods literature because it omits papers in which new methods are reported as part of the methods section of scientific papers reporting study results, invited papers published as part of proceedings of symposia, or those papers reported in other journals. Nevertheless, the JPHD has not been a major contributor to the dental methods literature, and its contributions probably are below what is reguired to advance dental public health research and practice at an appropriate pace.

A new section of the *JPHD* has been created to help stimulate contributions in research and practice methods. Five articles in this issue provide good examples of the types of manuscripts that fall into this category. The article by Kuthy et al. (8) identifies information of importance to dental public health assessment, and the one by Beltran et al. (9) evaluates two methods for collecting surveillance data. Both articles can contribute to the dialogue on surveillance and assessment systems for oral health. The remaining articles describe the development and testing of a new instrument for measuring expectations from orthodontic treatment (10) and the evaluation of two existing indices (11,12).

A position for a new associate editor has been created to oversee this section. Dr. James D. Beck, Kenan Professor of Dental Ecology and Epidemiology at the University of North Carolina, has been appointed to fill this position beginning with Volume 58. He will solicit reviews, commentaries, and other invited contributions in research and practice methods. He also will oversee the peer review of unsolicited manuscripts that fall into this category. Unsolicited manuscripts should be sent to my office at the address on the masthead, where they will be processed by the JPHD staff and forwarded to Dr. Beck. He will handle the remainder of the review process.

The masthead of the first issue of 1998 will reflect the reorganization and operation of the JPHD. In addition to Dr. Beck, Dr. Alice M. Horowitz, senior scientist at the National Institute of Dental Research, has assumed the role of associate editor for the Dental Public Health Traditions section after a number of years of excellent service as editor of the Archives. Dr. Joseph M. Doherty, special consultant to the president and historian for the American Association of Public Health Dentistry, will serve as editor of the Archives. I encourage you to submit manuscripts in one or more of the four major categories - the scientific article (13), the Brief Communication (14), the Traditions in Dental Public Health (15), and Methods in Dental Public

TABLE 1 Methods Papers Published in the JPHD, 1988–97\*

Агеа	Number	Percent
Development and testing of measurement methods	9	47.4
Development and testing of data collection methods	4	21.1
Evaluation of sampling or response bias	3	15.8
Review papers	3	15.8
Total	19	100

\*Excludes current issue and papers reported as part of proceedings of symposia.

Health Research and Practice.

Also, continue to provide an account of those professional events that are of significance to dental public health and should be documented in the association's historical record. Material for the Archives should be sent directly to Dr. Doherty in the AAPHD National Office.

## References

- 1. Medawar PB. The limits of science. Oxford: Oxford University Press 1984:16.
- Meriwether RA. Blueprint for a national public health surveillance system for the 21st century. J Public Health Manage Pract 1996;2:16-23.
- Osterholm MT, Birkhead GS, Meriwether RA. Impediments to public health surveillance in the 1990s: the lack of resources and the need for priorities. J Public Health Manage Pract 1996;2:11-15.
- Lockwood SA, Malvitz DM. Trends in state agency oral health and public health expenditures. Am J Public Health 1995; 85:1266-8.
- Dental public health competencies. Weintraub JA, Project Director. In: American Association of Public Health Dentistry [homepage on the Internet]. Richmond (VA): AAPHD Informatics Committee; [revised 1997 Sept 8; cited 1997 Dec 1]. [5 screens]. Available from: http://www. pitt.edu/~aaphd/dph.competency.htm.
- 6. A research agenda for dental public health. J Public Health Dent 1992;52(Spec Iss):1-39.
- Oral health for aging veterans. Making a difference: priorities for quality care—research agenda. Med Care 1995;33:NS6-16.
- Kuthy RA, Siegal MD, Wulf CA. Establishing maternal and child health data collection priorities for state and local oral health programs. J Public Health Dent 1997;57:197-205.
- 9. Beltran ED, Malvitz DM, Eklund SA. Validity of two methods for assessing oral health status of populations. J Public Health Dent 1997;57:206-14.
- Bennett ME, Michaels C, Weyant RJ, Vig KD, O'Brien K. Measuring consumer and provider expectations of orthodontic treatment: a questionnaire approach. J Public Health Dent 1997;57:215-23.
- Kressin NR, Atchison KA, Miller DR. Comparing the impact of oral disease in two populations of older adults: application of the Geriatric Oral Health Assessment Index. J Public Health Dent 1997; 57:224-32.
- Lang WP, Borgnakke WS, Taylor GW, Woolfolk MW, Ronis DL, Nyquist LV. Evaluation and use of an Index of Oral Health Status. J Public Health Dent 1997; 57:233-42.
- JPHD Instructions for contributors. J Public Health Dent 1997;57:63-4.
- Rozier RG. The weight of scientific evidence: introducing the brief communication. J Public Health Dent 1995;55:6.
- Rozier RG. Traditions in public health dentistry: a new feature. J Public Health Dent 1997;57:67.